PRODUCT

2020 ◆ 2021

CATALOGUE

2

AIR CYLINDER
SLIDE TABLE CYLINDER
AUXILIARY EQUIPMENT

Mindman

MINDMAN. SMART AUTOMATION

QUALITY POLICY
Quality advancement & Exceeding customers' demands

No.1
Quantity supplied of pneumatic components in Taiwan.

SALES NETWORK
97 Countries

Core Business : Manufacture and sale for varieties of high quality automation components.

1979
FOUNDED

MANUFACTURE BASE IN
TAINAN
CITY, TAIWAN

HEADQUARTERS IN
TAIPEI
CITY, TAIWAN

PRESIDENT
CHING-CHENG HUANG

CAPITAL
USD 12,558,000

EMPLOYEES
750 People

PLANT SIZE
90,000 m^2

Mindman Industrial Co., Ltd. was established in 1979 with a destination to provide high quality automation components for a wide variety of industries.

During the past 40 years, Mindman has devoted to the expansion of our product range. Thanks to our R&D department, we are proud to possess the diversified product lineup includes solenoid valves, air treatment units, pneumatic cylinders, electric actuators and all different types of fluid power accessories.

We always believe that fast delivery of automation components is the key of success in the market. Through the complete vertical integration of all manufacturing processes and automated warehouse, we are confident to achieve on time delivery.

To keep quality high during the whole production process, we implement the strict quality control standard. We thoroughly control the process via standard operation procedure (SOP), statistical process control system (SPC) and total productive management (TPM). Most important of all, Mindman commits to providing the products with 100% inspection after assembly.

Currently, Mindman products are exported to more than 90 countries around the world. We devoted ourselves to building the relationship with customers worldwide and provide them with the strong support, such as online 3D drawing, inventory check and promotional program… etc. In the vast automation market, Mindman will spare no effort in establishing a brand – a world-class premium automation components supplier.

RoHS COMPLIANT CE MIT Made in Taiwan

DEVELOPMENT OF MINDMAN

Vol.2

1979 — Mindman was founded.

1987 — Techniacal cooperation with NISCON Japan.

1989 — Syuejia plant established (10,000m^2).

1992 — Joint venture with PISCO Japan in Taiwan.

1999 — ISO-9001 approval.

2000 — Jiali plant 1 established. (6,600m^2).

2005 — Jiali plant 2 established. (8,250m^2).

2007 — Jiali plant 3 established (10,890m^2).

2008 — Introduction of full R&D facility (360m^2).

2009 — Automated warehouse and Jiali plant 4 established. (6,600 m^2).

2013 — Joint venture with ATAM Italy for coil automated production in Taiwan.

2016 — Joint venture with MEDAN GmbH for linear actuators manufacture in Germany.

2018 — ISO-14001 approval.

2019 — Pei-men plant established (32,498 m^2).

RELATED ENTERPRISE

Vol.2

TA PHONE trading co., ltd.

- Authorized distributor of NITTO, VESSEL and AIRMAN.
- Founded in 1968
- Capital: USD 1,000,000
- Employees: 8 people

www.taphone.com.tw

WAY FU industrial co., ltd.

- The first time recorder manufacturer in Taiwan.
- Founded in 1980
- Capital: USD 780,000
- Employees: 40 people

www.wayfu.com.tw

ATAM Taiwan

- An Italian world-class manufacturer in the field of electrical coil
- Founded in 2013
- Capital: USD 1,660,000
- Employees:12 people

www.atam.tw

PISCO Taiwan

- A Japanese world leader of high quality pneumatic components manufacturer.
- Founded in 1992
- Capital: USD 3,000,000
- Employees: 41 people

www.pisco.co.jp

UNIMECH hydro-pneumatic co., ltd.

- A hydraulic - pneumatic actuators manufacturer based in Taiwan Kaohsiung.
- Founded in 1993
- Capital: USD 1,300,000
- Employees: 30 people

www.unimec.com.tw

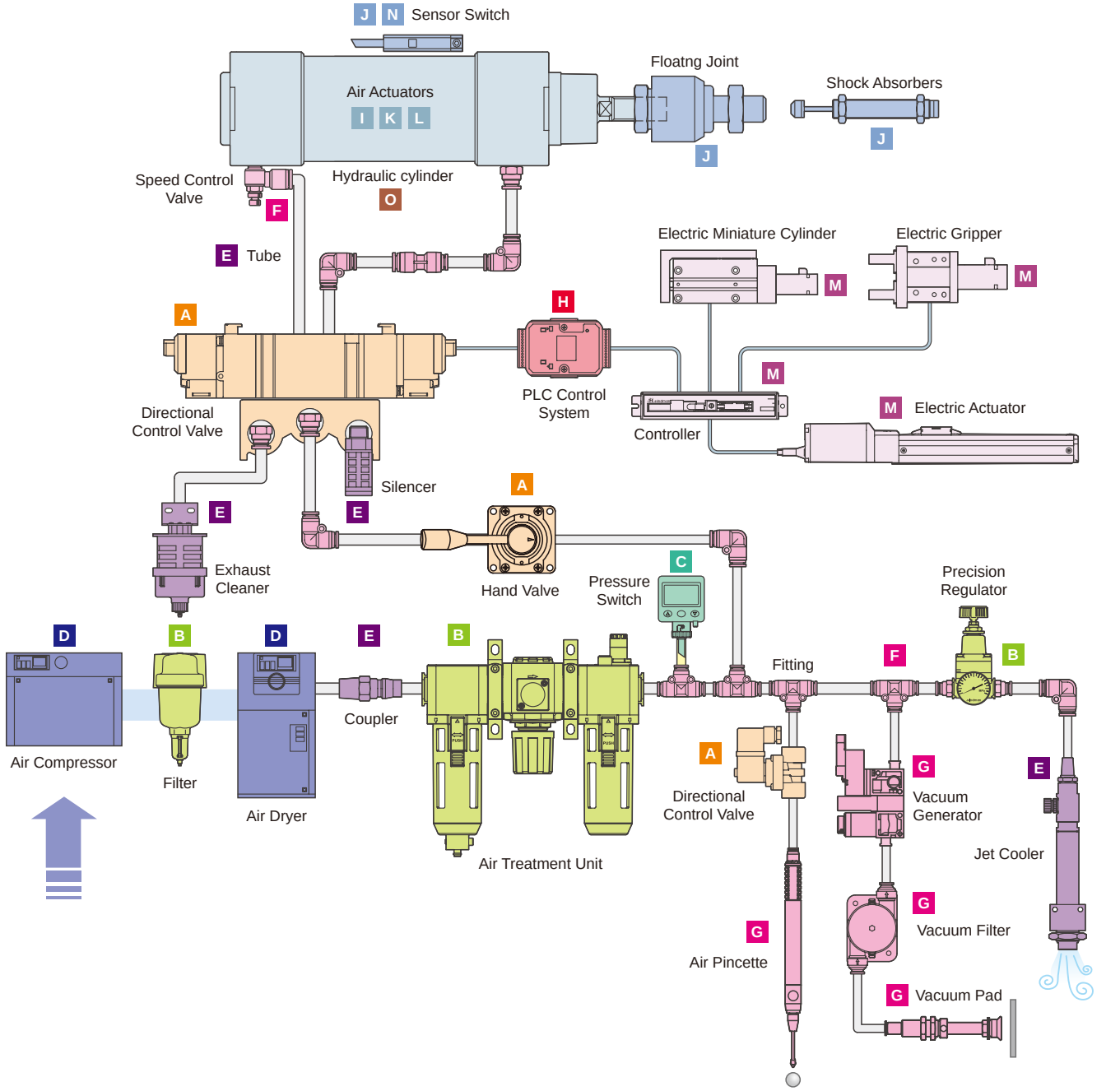
MEDAN GmbH

- A German professional manufacturer in the field of pneumatic and electric linear technology.
- Founded in 1990
- Capital: EUR 26,000
- Employees: 12 people

www.medan-gmbh.com

PNEUMATIC CIRCUIT DIAGRAM

Vol.2



Vol. 1

- A Valve ..... (Page 1-**, 2-**, 3-**)
- B Air unit ..... (Page 4-**)
- C Pressure switch ..... (Page 5-**)
- D Compressed air dryer ..... (Mindman website)
- E Other auxiliary equipment .. (Page 6-**)
- F PISCO fitting ..... (Page 7-**)
- G PISCO products ..... (Mindman website)
- H PLC ..... (Mindman website)

Vol. 2

- I Cylinder ..... (Page 1~7-**)
- J Other auxiliary equipment ..... (Page 8-**)

Vol. 3

- K Cylinder ..... (Page 1-**, 2-**)
- L Gripper ..... (Page 3-**)
- M Electric actuator ..... (Page 4-**)
- N Other auxiliary equipment .. (Page 5-**)
- O Hydraulic cylinder ..... (Page 6-**)

CONTENTS

Vol.2

CONTENTS

Vol.2

INNOVATION

Department of R&D

Mindman R&D team develops the product through the concept of mechatronics and IoT with the higher level of precision improvement. We apply PLM system to facilitate the sorting and analysis of complicated 3D drawings and product data. Furthermore, we implement multiple testing to insure the product lifespan, load capacity, flow rate, and response time consist with our product catalog.

Advanced Process

Mindman built an independent team to conquer the process obstacle and design the optimized process. Our department of advanced process provides a continuous improvement of manufacturing via the analysis of daily data collection which helps to minimize the waste of time and maximize the productivity of machines.

Automation

Mindman founded the department to design and provide the solution of automation. Besides, the team designs our own automated machine which enhances our productivity and increases liability of quality.

INDEX

Vol.2

1 STANDARD CYLINDER

2 COMPACT CYLINDER

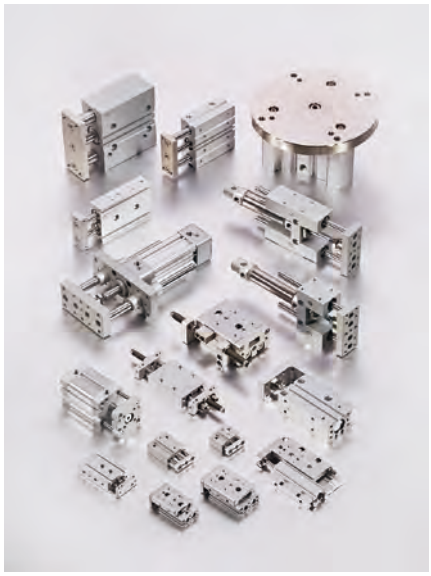
3 MINIATURE CYLINDER

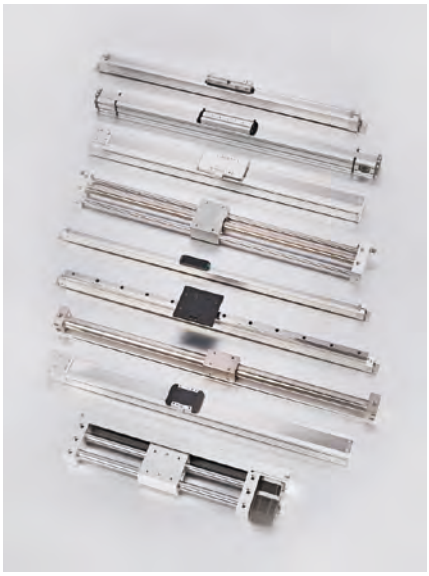
F ***Fast delivery*** (11 & 12 type)

Our goal is to achieve 3-day lead time, if there is stock of component set.
For more information, please go to our MINDMAN website (www.mindman.com.tw)
and click on the “Component Set Inventory” button.

INDEX

Vol.2





4 GUIDE CYLINDER

5 TABLE

F *Fast delivery*

6 RODLESS CYLINDER

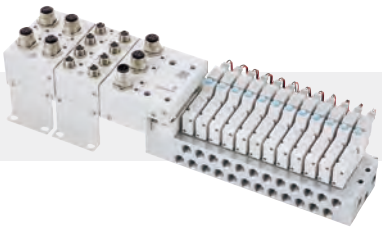
7 STOPPER CYLINDER

8 OTHER AUXILIARY EXUIPMENT

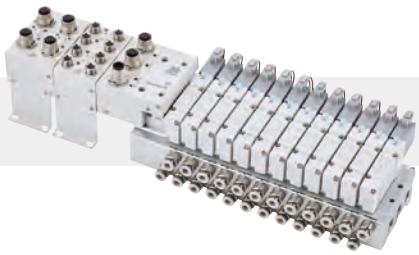
Solenoid Valve

MVDA-80 series
Direct acting type
P. 1-84

MVDA-120 series
Direct acting type
P. 1-86



MVE-100 series
Fieldbus system
P. 1-103



MVE-156 series
Fieldbus system
P. 1-109

Auxiliary Equipment

◂ Connector
▾ Cable with Connector

M83C-M
series
P. 6-17

M124C-MA
series
P. 6-18

M124C-MD
series
P. 6-18

M83R-F
series
P. 6-13

M125R-WB
series
P. 6-14

M124R-FA
series
P. 6-15

M124R-RJD
series
P. 6-16

M124R-MD
series
P. 6-16

Air Treatment Unit

MAHR200 series
High pressrue regulator
P. 4-78

MAER series
Electro pneumatic regulator
P. 4-80

MAIR300 series
Precision regulator
P. 4-94

MAM*-25 series
Precision filter / Water separator
P. 4-112

Flow & Pressure Sensor

MF01 series
P. 5-42

MFP01 series
P. 5-45

MSBE series
P. 7-4

◂ Stopper Cylinder
▾ Standard Cylinder

MCQV3 series
P. 1-48

MCQI3 series
P. 1-69

Compact Cylinder

MCJU series
Add: 21,22 double rod
P. 2-62

Miniature Cylinder

MCMIS series
Stainless steel
P. 3-52

High Speed Cylinder

MCCH series
P. 3-99

◂ Clamp Cylinder

MCKD series
Powerful clamp
P. 2-17

Rotary ▸ Actuator

MCRC series
Vane type
P. 1-11

Sensor Switch ▾

RDP8 series
Proximity sensor
P. 5-13

RNKD series
for MCKD series
P. 5-14

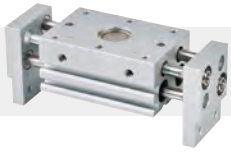
LN65 series
for MRT* series
P. 5-19

Parallel Gripper

MCHB series
Add: Single acting N.O.
P. 3-3

MCHC series
Add: ø6, long stroke & flat type
P. 3-8

MCHD series
Add: medium & long stroke
P. 3-22



MCHX series
Add: ø40
P. 3-47

Electric Actuator

▸ Slider Electric Cylinder (Without motor)

METFB-25 series

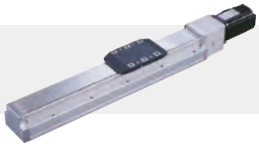
P. 4-5

METFB-32 series

P. 4-11

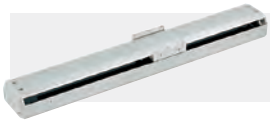
METFB-40 series

P. 4-17



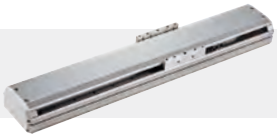
METG-8 series

P. 4-50



METS2-10 series

P. 4-54



METS2-14 series

P. 4-58

METS2-17 series

P. 4-63

▸ Rod Type Electric Actuator (Without motor)

MEQG-5 series

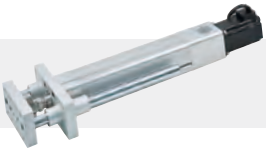
P. 4-78

MEQG-8 series

P. 4-82

MEQI-50 series

P. 4-86



MEQI-63 series

P. 4-86

▸ Mini. Electric Cylinder (With motor)

MESS2-16 series

P. 4-96

MESS2-25 series

P. 4-96

MESH2-16 series

P. 4-99

MESH2-20 series

P. 4-99

▸ Electric Gripper (With motor)

MEHC2-16 series

P. 4-102

MEHC2-25 series

P. 4-102

▾ Controller

MECQ1 series

P. 4-106

▾ Driver

MECP series

P. 4-108

NEW WEBSITE with Responsive Web Design (RWD) Vol.2

Mindman Website

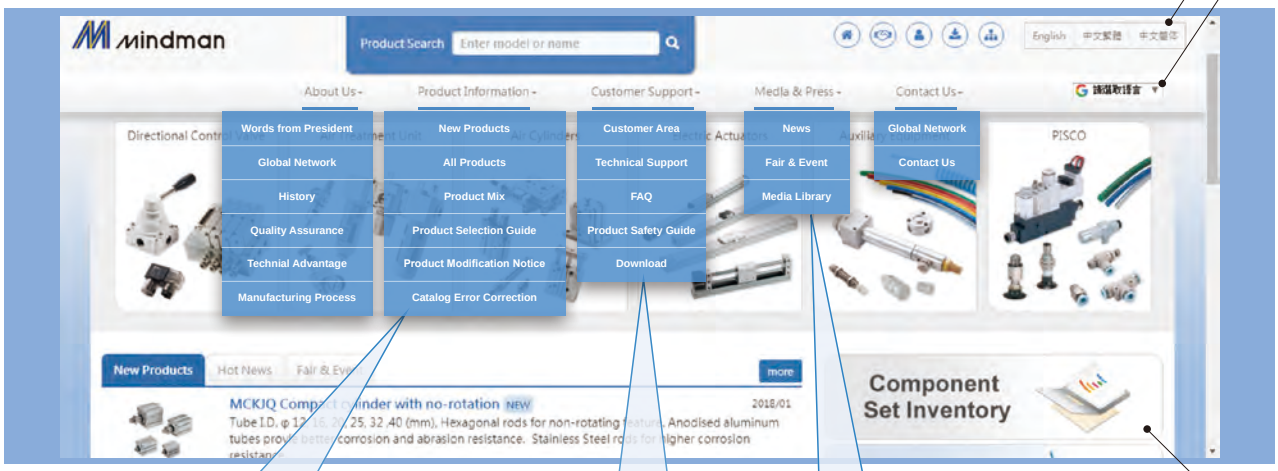
www.mindman.com.tw

Mobile Phone / Tablet or iPad / Computer

New Features

Google Translate Plug-in provides a simple way to translate

Language option English / Chinese (Traditional) / Chinese (Simplified)



Component Set Inventory

Fast delivery items with up to date stock status.

Product Information

Product Mix

An automation circuit chart that could easily lead to your interested product.

Product Selection Guide

A simple software selector to guide you to find the suitable product.

Product Modification Notice

Offering the update specification changes.

Customer Support

Technical Support

CV, Flow coefficient, Effective orifice, Cylinder theoretic force, Compressed air consumption, etc...

Download

- 2D / 3D download - Anonymous login - No registration required to download the drawings with your own specifications, like preferred stroke, thread, brackets, sensors, etc...
- Catalog download - E-book.

Media & Press

Fair & Event

Media Library

Exclusive feature for distributors

If you wish to access these exclusive features, please create a new account and contact your sales representatives to activate your account.

Customer Area

About Us

Technical Advantage

Manufacturing Process

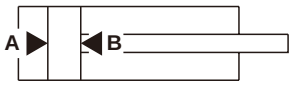
Customer Support

Customer Area

- Stock check
- Training
- Promotion Activity

New Feature

Cylinders' theoretic force



Unit: N

Bore (mm)			12	16	20	25	32	40	50	63	80	100	125	150	200
Rod (mm)			6	6	8	10	12	16	20	20	25	25	35	40	50
Area (mm^2)		A	113	201	314	491	804	1257	1963	3117	5027	7854	12272	17671	31416
		B	85	173	264	412	691	1056	1649	2803	4536	7363	11310	16414	29453
Operating pressure (MPa)	0.1	A	11	20	31	49	80	126	196	312	503	785	1227	1767	3142
		B	9	17	26	41	69	106	165	280	454	736	1131	1641	2945
	0.2	A	23	40	63	98	161	251	393	623	1005	1571	2454	3534	6283
		B	17	35	53	82	138	211	330	561	907	1473	2262	3283	5891
	0.3	A	34	60	94	147	241	377	589	935	1508	2356	3682	5301	9425
		B	26	52	79	124	207	317	495	841	1361	2209	3393	4924	8836
	0.4	A	45	80	126	196	322	503	785	1247	2011	3142	4909	7068	12566
		B	34	69	106	165	276	422	660	1121	1814	2945	4524	6566	11781
	0.5	A	57	101	157	246	402	629	982	1559	2514	3927	6136	8836	15708
		B	43	87	132	206	346	528	825	1402	2268	3682	5655	8207	14727
	0.6	A	68	121	188	295	482	754	1178	1870	3016	4712	7363	10603	18850
		B	51	104	158	247	415	634	989	1682	2722	4418	6786	9848	17672
	0.7	A	79	141	220	344	563	880	1374	2182	3519	5498	8590	12370	21991
		B	59	121	185	288	484	739	1154	1962	3175	5154	7917	11490	20617
	0.8	A	90	161	251	393	643	1006	1570	2494	4022	6283	9818	14137	25133
		B	68	138	211	330	553	845	1319	2242	3629	5890	9048	13131	23562
	0.9	A	102	181	283	442	724	1131	1767	2805	4524	7069	11045	15904	28274
		B	77	156	238	371	622	950	1484	2523	4082	6627	10179	14773	26508
	1.0	A	113	201	314	491	804	1257	1963	3117	5027	7854	12272	17671	31416
		B	85	173	264	412	691	1056	1649	2803	4536	7363	11310	16414	29453

The method of calculation (Cylinders' force)

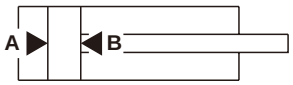
$$F = P \times A - f$$

F:	Cylinder's force	(N)
P:	Air pressure	(MPa)
A:	Piston area	(mm^2)
f:	Friction drag	(N)

Pressure conversion chart

Pa	kPa	MPa	bar	mbar	kgf/cm^2	cmH^2O	mmH^2O	mmHg	p.s.i.
1	0.001	0.000001	0.00001	0.01	0.0000102	0.0102	0.10197	0.0075	0.000145
1000	1	0.001	0.01	10	0.0102	10.2	101.97	7.5	0.145
1000000	1000	1	10	10000	10.2	10200	101970	7500	145
100000	100	0.1	1	1000	1.02	1020	10200	750.06	14.5
100	0.1	0.0001	0.001	1	0.00102	1.02	10.2	0.75	0.0145
98066.5	98.07	0.09807	0.98	980.67	1	1000	10000	735.56	14.22
98.0665	0.9807	0.0009807	0.00098	0.98	0.001	1	10	0.74	0.01422
9.80665	0.09807	0.00009807	0.00009807	0.09807	0.0001	0.1	1	0.07356	0.00142
133.32	0.13332	0.00013332	0.00133	1.33	0.00136	1.36	13.6	1	0.01934
6895	6.895	0.006895	0.06895	68.95	0.07031	70.31	703.07	51.71	1

Compressed air consumption



Unit: ℓ/min

Bore (mm)		12	16	20	25	32	40	50	63	80	100	125	150	200
Rod (mm)		6	6	8	10	12	16	20	20	25	25	35	40	50
Area (mm^2)	A	113	201	314	491	804	1257	1963	3117	5027	7854	12272	17671	31416
	B	85	173	264	412	691	1056	1649	2803	4536	7363	11310	16414	29453
Operating pressure (MPa)	0.1	0.039	0.074	0.115	0.180	0.298	0.460	0.719	1.178	1.903	3.028	4.693	6.783	12.114
	0.2	0.059	0.111	0.172	0.269	0.446	0.689	1.076	1.764	2.850	4.535	7.028	10.158	18.140
	0.3	0.079	0.148	0.229	0.359	0.594	0.918	1.434	2.350	3.797	6.042	9.363	13.533	24.167
	0.4	0.098	0.186	0.287	0.448	0.742	1.147	1.792	2.937	4.744	7.548	11.698	16.908	30.193
	0.5	0.118	0.223	0.344	0.537	0.890	1.376	2.149	3.523	5.690	9.055	14.032	20.282	36.220
	0.6	0.137	0.260	0.401	0.627	1.038	1.605	2.507	4.109	6.637	10.562	16.367	23.657	42.247
	0.7	0.157	0.297	0.458	0.716	1.186	1.834	2.865	4.695	7.584	12.068	18.702	27.032	48.273
	0.8	0.177	0.334	0.516	0.806	1.334	2.063	3.222	5.281	8.531	13.575	21.037	30.407	54.300
	0.9	0.196	0.371	0.573	0.895	1.482	2.292	3.580	5.867	9.478	15.081	23.372	33.781	60.327
	1.0	0.216	0.408	0.630	0.984	1.630	2.521	3.937	6.453	10.425	16.588	25.707	37.156	66.353

● The table is for a complete cycle 100mm stroke in one minute.

The method of calculation (Compressed air consumption)

$$Qn = (Aa + Ab) \times L \times \frac{P + 0.101}{0.101} \times n \times 10^{-6}$$

Qn:	Compressed air consumption	(ℓ/min)
Aa:	Piston area of A	(mm^2)
Ab:	Piston area of B	(mm^2)
L:	Stroke of cylinder	(mm)
P:	Air pressure	(MPa)
n:	Cycle of operation	(cycle/min)

Flow rate conversion chart

m^3/s	l/s	cm^3/s	m^3/h	m^3/min	l/h	l/min	ft^3/min (scfm)	gallon min UK	gallon min USA
1	1000	1000000	3600000	60	3600000	60000	2120	13200	15850
0.001	1	1000	3.6	0.06	3600	60	2.12	13.2	15.85
0.000001	0.001	1	0.0036	0.00006	3.6	0.06	0.0212	0.0132	0.01585
0.00028	0.28	280	1	0.01667	1000	16.67	0.59	3.67	4.4
0.01667	16.67	16670	60	1	60000	1000	35.31	219.97	264.17
0.00000028	0.00028	0.28	0.001	0.00001667	1	0.01667	0.00059	0.00367	0.0044
0.00001667	0.01667	16.67	0.06	0.001	60	1	0.03531	0.21997	0.264
0.00047	0.47	470	1.699	0.02832	1699	28.32	1	6.23	7.48
0.00007579	0.07577	75.77	0.273	0.00455	273	4.55	0.16	1	1.2
0.00006309	0.06309	63.09	0.227	0.00379	227	3.79	0.13	0.83	1

Order example

Order example of cylinder

MCQA – 11 – 40 – 50 M – A – K – G

Model

MCQA	Standard
MCQV	Standard
MCQV2	Standard
MCQV3	Standard
MCQV2L	Standard
MCQI2	Standard
MCQI3	Standard
MCKQI2	Standard
MCQN	Standard*
MCB*	Standard
MCJA	Compact
MCJQ	Compact
MCKJQ	Compact
MCJQ2	Compact
MCJI	Compact
MCJU	Compact
MCFA	Compact
MCFB	Compact
MCMA	Mini
MCMB	Mini
MCKMB	Mini
MCMBL	Mini
MCMBR	Mini
MCMI	Mini
MCMIS	Mini
MCKMI	Mini
MCMJ	Pen
MCMJ1	Pen
MCMJP	Pen
MCMJP*	Pen
MCCG	Round
MCCN	Round*
MCCH	High speed

* Inch size.

* Code 1) **M**: Mindman
Code 2) **C**: Cylinder
Code 3) **Q**: Standard
Code 3) **B**: Rod locking
Code 3) **J**: Compact
Code 3) **M**: Mini
Code 3) **C**: Round
Code 4) **A**: Series

Acting / Thread type

Code		Symbol	Description
1	0		Single acting / Normally returned without thread
1	1		Double acting / Male thread
1	2		Double acting / Female thread
1	3		Single acting / Normally extended male thread
1	4		Single acting / Normally extended female thread
1	5		Single acting / Normally returned male thread
1	6		Single acting / Normally returned female thread
1	8		Double acting / Threadless
2	1		Double rod / Male thread
2	2		Double rod / Female thread
2	3		Single acting / Double rod / Male thread
2	4		Single acting / Double rod / Female thread
2	7		Double rod / Adjustable male thread
2	8		Double rod / Adjustable female thread
3	1		Double acting / Male thread
3	2		Double acting / Female thread
3	5		Single acting / Normally returned male thread
3	6		Single acting / Normally returned female thread
4	1		Double acting / Male thread
4	2		Double acting / Female thread
4	3		Single acting / Normally extended male thread
4	4		Single acting / Normally extended female thread
4	5		Single acting / Normally returned male thread
4	6		Single acting / Normally returned female thread

* First code1: Single rod, 2: Double rod, 3: Multiple position, 4: Back to back.

Tube I.D.

4~200

1 1/2"~4"

* Only for MCQN.

Stroke

5~

First stroke × Total stroke

04~ (inch)

Magnet

M	Magnet

Cushion pad

–	Cushion pad (Unadjustable)
A	Cushion air (Adjustable)
S	Cushion air (Automatic)

End cover

–	Standard
N	Non-pivot type (end plain)
E	With pivot type
F	Rear flange — for MCJQ, MCKJQ (Compact)
K	Non-rotating rod — for MCFA
B	End cover type — for MCMJ
D	End cover type — for MCMJ
R	End cover type — for MCMJ
AH	Air / oil converter type — for MCQA

* Only for mini cylinder

End lock type

R	Rod cover
N	Head cover

* Only for MCQVL, MCMBL.

Port thread

–	Rc/M thread
G	G thread
NPT	NPT thread

Mounting accessories

LB – MCQA – 40

Mounting type

LB		RF	
CA		SDB	
CB		T	
CB2		TA	
CDB		TB	
FA		TC	
FB		Y	
FAC		I	
FBC		YS	

Model

MCQA
MCQV
MCKQI2
MCQN
MCJQ
MCJI
MCJU
MCMA
MCMB
MCMI
MCMIS
MCMJ
MCMJP
MCCG
MCCN
MCCH

Tube I.D.

6~200

* Please refer to the product page for complete model number.

Order example

Order example of guide cylinder

MCGA – 03 – 40 – 100 M – RP – D – G

Model
MCGA
MCGS
MCGI
MCGJ
MGT*
MCGD
MCG3
MCDA
MCDJ

Purpose / type of bearing	
03	Stop / Slide bearing
07	Stop / Slide bearing / Adjustable stroke
12	Lift / Slide bearing
13	Lift / Linear bush bearing
23	Push / Linear bush bearing
27	Push / Linear bush bearing / Adjustable stroke
53	Lift / Slide bearing
63	Push / Slide bearing

Tube I.D.
6~80

Stroke
5~

Magnet	
M	Magnet

Rear flange coupling	
RP	With rear flange coupling

* Only for MCT*.

Application/ Type of bearing	
D	Circle table lift / Slide bearing
B	Circle table lift / Linear bush bearing
D90	Turntable / Angle 90° / Slide bearing
B90	Turntable / Angle 90° / Linear bush bearing
D180	Turntable / Angle 180° / Slide bearing
B180	Turntable / Angle 180° / Linear bush bearing
QD	Quad table lift / Slide bearing
QB	Quad table lift / Linear bush bearing

* Only for MCG3.

Port thread	
–	Rc thread
G	G thread
NPT	NPT thread

* Code 1) **M**: Mindman
  Code 2) **C**: Cylinder
  Code 3) **G**: Guide
  Code 3) **D**: Dual-rod
  Code 4) **A**: Series
* Please refer to the product page for complete model number.

Mounting accessories (for MCGI model)

FBC – MCJI – 20

Mounting type	
FBC	

Model
MCJI

Tube I.D.
20~100

Order example

Order example of slide cylinder

MCSS – 20 L – 50 – AS – X12 – G

Model	Tube I.D.	Type	Stroke	Stroke adjuster	Adjustable range	Port thread
MCSS	6~25	– Standard type	5~	– Without adjuster	– 5 mm	– Rc/M thread
MCSQ		L Symmetric type		AS Adjuster at extension end	X11 15 mm	G G thread
MCSF				AT Adjuster at retraction end	X12 25 mm	NPT NPT thread
MCSH				A Adjuster at both ends		
				BS Absorber at extension end		
				BT Absorber at retraction end		
				B Absorber at both ends		
				AB Adjuster at extension end + Absorber at retraction end		
				BA Absorber at extension end + Absorber at retraction end		

* Only for stroke adjuster.

* Code 1) **M**: Mindman
Code 2) **C**: Cylinder
Code 3) **S**: Slide
Code 4) **F**: Series
* Please refer to the product page for complete model number.

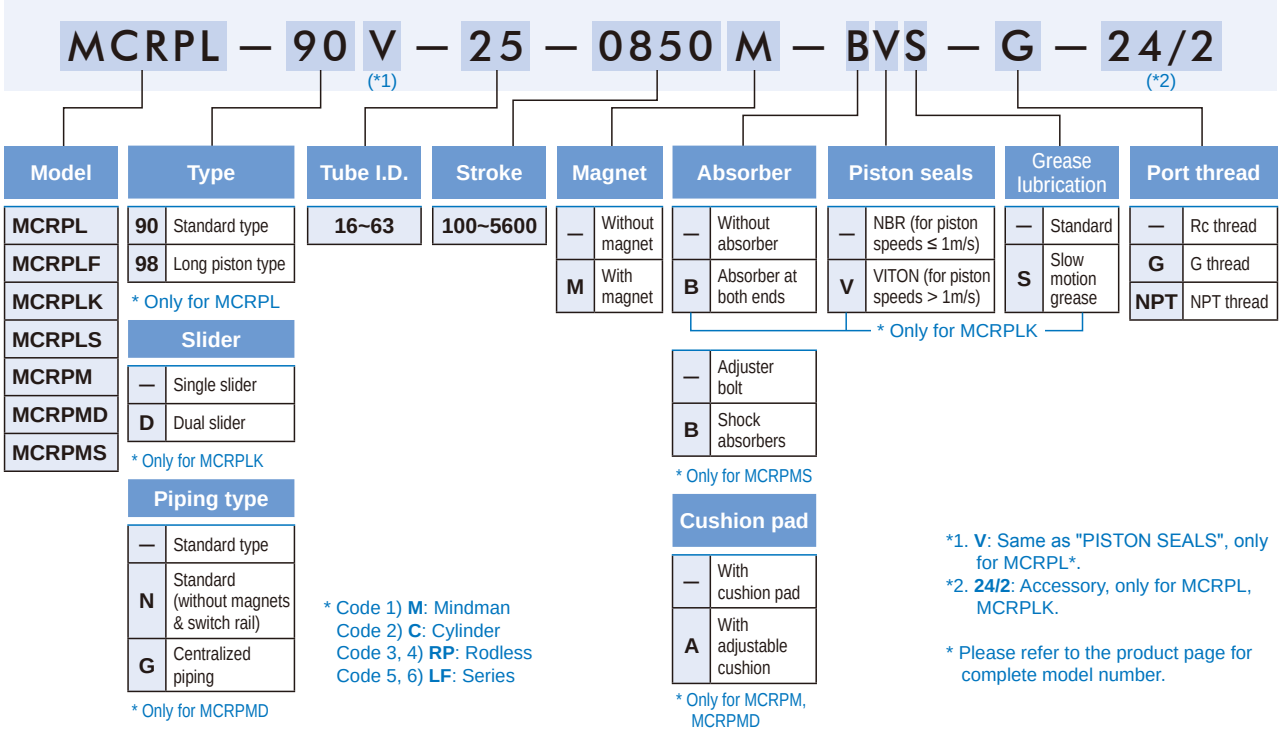
Stroke adjuster

MCSS – 20 L – AS – X12

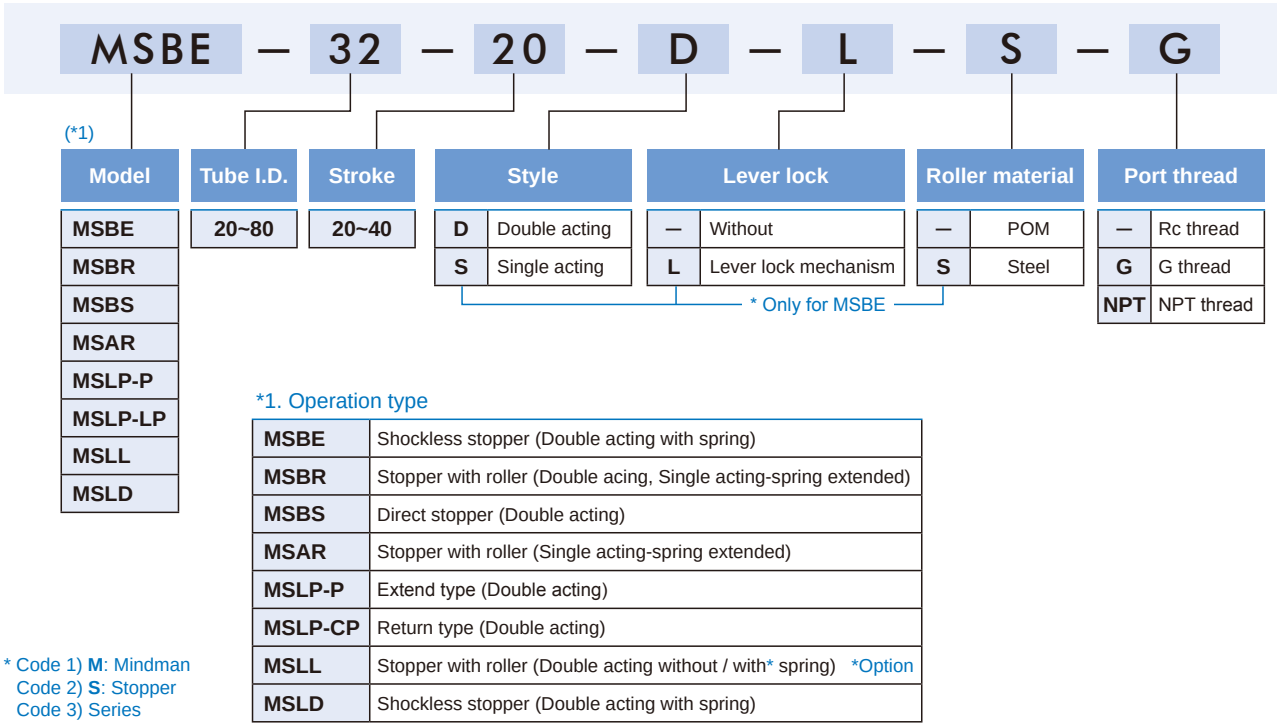
Model	Tube I.D.	Type	Stroke adjuster	Adjustable range
MCSS	6~25	– Standard type	– Without adjuster	– 5 mm
		L Symmetric type	AS Adjuster at extension end	X11 15 mm
			AT Adjuster at retraction end	X12 25 mm
			A Adjuster at both ends	
			A2 Adjusting bolt	
			BS Absorber at extension end	
			BT Absorber at retraction end	
			B Absorber at both ends	

* Only for stroke adjuster.

Order example of rodless cylinder



Order example of stopper cylinder



*1. Operation type

MSBE	Shockless stopper (Double acting with spring)
MSBR	Stopper with roller (Double acing, Single acting-spring extended)
MSBS	Direct stopper (Double acting)
MSAR	Stopper with roller (Single acting-spring extended)
MSLP-P	Extend type (Double acting)
MSLP-CP	Return type (Double acting)
MSLL	Stopper with roller (Double acting without / with* spring) *Option
MSLD	Shockless stopper (Double acting with spring)

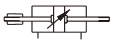
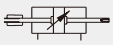
Double rod / Adjustable stroke cylinders

MCQA — 27 — 40 — 100M — 10 — G

- MCQA: MODEL
- 27: STYLE
- 40: TUBE I.D.
- 100: STROKE
- M: Magnet
- 10: ADJUSTABLE STROKE
- G: PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

STYLE

Code	Symbol	Description
27		Double rod / Adjustable male thread
28		Double rod / Adjustable female thread

Applicable series

Series	Model
Standard cylinder	MCQA, MCQV2, MCQV3, MCQI2, MCQI3, MCKQI2
Compact cylinder	MCJA, MCJQ, MCKJQ, MCJI, MCJU
Miniature cylinder	MCMA, MCMB, MCKMB, MCMI, MCKMI, MCMJ
Round cylinder	MCCG
Guide cylinder	MCGI, MGTB, MGTK, MGTU, MGTX

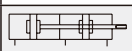
Tandem cylinders

MCQA — 51 — 40 — 50 M — G

- MCQA: MODEL
- 51: STYLE
- 40: TUBE I.D.
- 50: STROKE
- M: Magnet
- G: PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

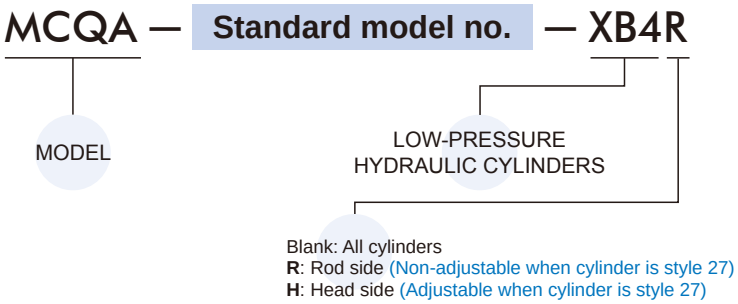
STYLE

Code	Symbol	Description
51		Tandem / Male thread
52		Tandem / Female thread

Applicable series

Series	Model
Standard cylinder	MCQA, MCQV2, MCQV3, MCQN
Compact cylinder	MCJA, MCJQ, MCKJQ, MCJI
Miniature cylinder	MCMA, MCMB, MCKMI, MCMJ
Round cylinder	MCCG, MCCN

Low-pressure hydraulic cylinders

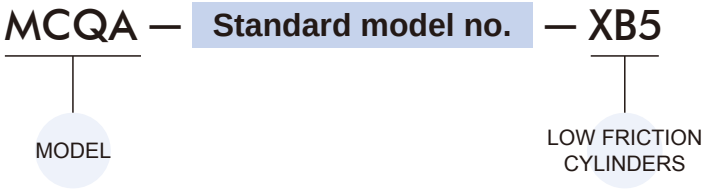


Applicable series

Series	Model
Standard cylinder	MCQA, MCQV2, MCQV3, MCQI2, MCQI3, MCKQI2 (for tube I.D. ø32~ø100)
Miniature cylinder	MCMA, MCMB, MCMI (for tube I.D. ø16~ø40)
Guide cylinder	MGTB, MGTK, MGTU, MGTX

Note 1. Piston packing: Double U-type.
2. Miniature cylinders / Guide cylinder (MGTB / MGTU-ø20, 25) to make sure the dimensions after ordered.

Low friction cylinders

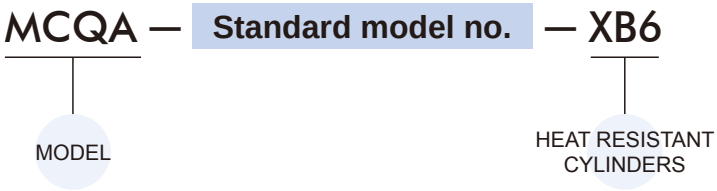


Applicable series

Series	Model
Standard cylinder	MCQA, MCQV2, MCQV3, MCQI2, MCQI3, MCKQI2, MCQN
Compact cylinder	MCJA, MCJQ, MCJI
Miniature cylinder	MCMA, MCMB, MCMI
Round cylinder	MCCG, MCCN
Guide cylinder	MGTB, MGTK, MGTU, MGTX

Note. It's not suitable for the pore which is under ø12 or ø125 (Inclusion) over.

Heat resistant cylinders



Applicable series

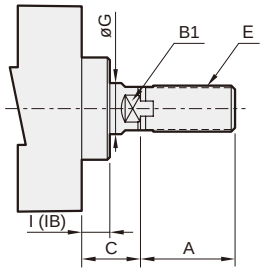
Series	Model
Standard cylinder	MCQA, MCQV, MCQI2, MCQI3
Compact cylinder	MCJA, MCJQ, MCJI
Miniature cylinder	MCMA, MCMB, MCMI
Round cylinder	MCCG
Guide cylinder	MGTX

Note 1. Seals materials: Fluoro rubber.
2. Ambient temperature: -10~+150°C (No freezing)
3. Auto switch: Can't mount.

Change of rod end shape

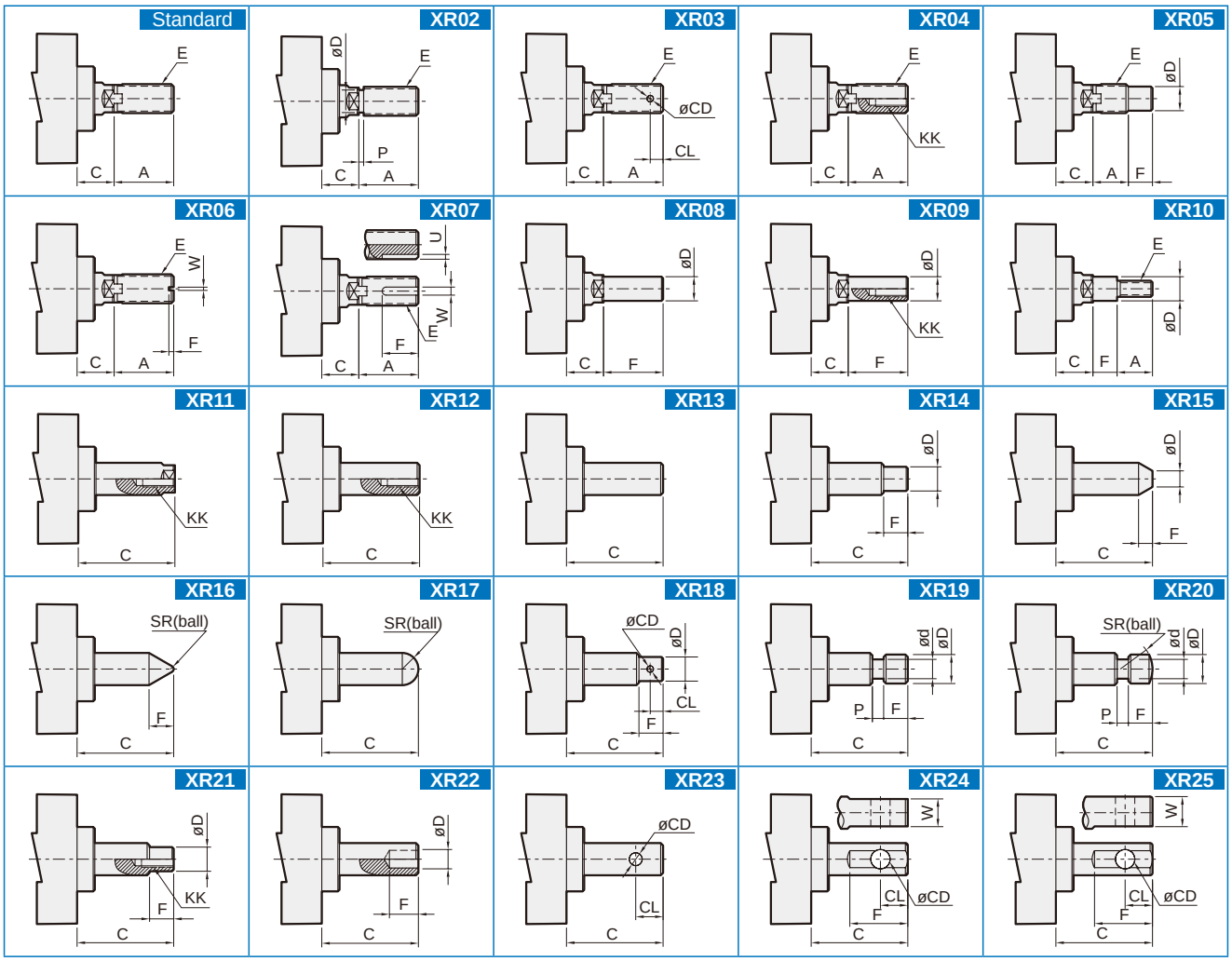
MCQA — **Standard model no.** — XR02

- MODEL: **MCQA**, **MCQV2**, **MCQV**, **MCQI2**
- CHANGE OF ROD END SHAPE



EX: MCQA-11-40-100M-XR02 (A=50, C=35, E=M12×1.25)

Model	Tube I.D. (mm)	A	B1	C	E	G	I (IB)
MCQA	40	30	14	21	M14×1.5	16	11
	50	35	17	23	M18×1.5	20	11
	63	35	17	23	M18×1.5	20	11
	80	40	22	31	M22×1.5	25	15
	100	40	27	32	M26×1.5	30	15
	125	45	30	47	M30×1.5	35	32
	150	50	36	47	M30×1.5	40	32
	200	63	46	67	M45×1.5	50	35
MCQV2 MCQI2	32	22	10	26	M10×1.25	12	20
	40	24	13	30	M12×1.25	16	20.5
	50	32	16	37	M16×1.5	20	28
	63	32	16	37	M16×1.5	20	26
	80	40	21	46	M20×1.5	25	32.5
	100	40	21	51	M20×1.5	25	37.5
MCQV	125	54	27	65	M27×2.0	32	40
	160	72	36	80	M36×2.0	40	55
	200	72	36	95	M36×2.0	40	55



Note. The dimensions didn't mark, please consult us.

Change of rod end shape

MCJA — **Standard model no.** — XR02

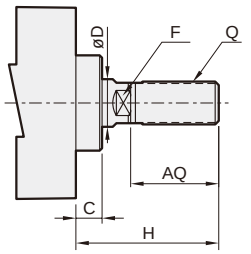
MODEL

EX: MCJA-11-40-100M-XR02
(H=50, AQ=35, Q=M12×1.25)

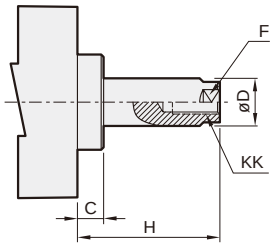
CHANGE OF ROD END SHAPE

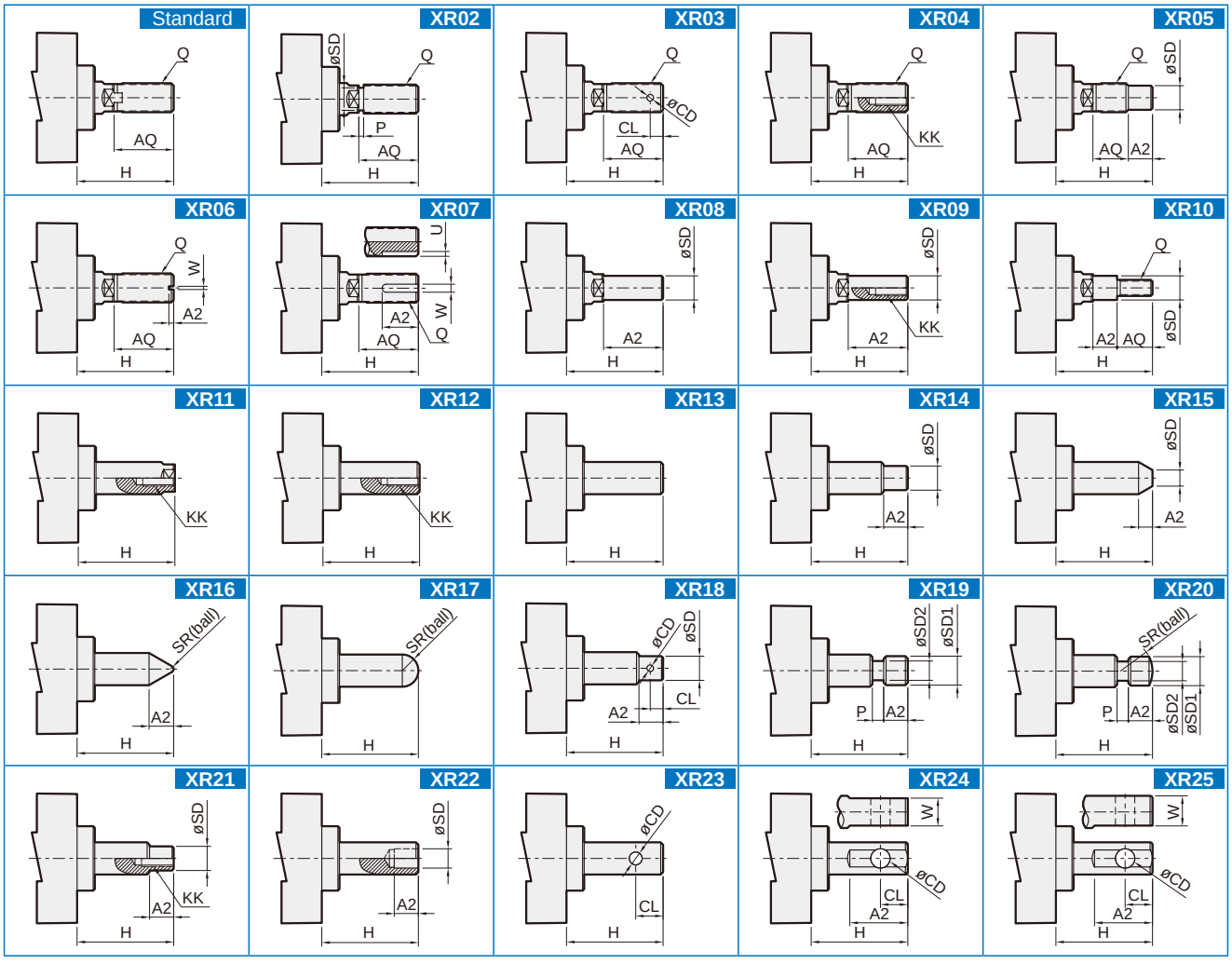
Model	Tube I.D. (mm)	AQ	C	D	F	H		KK	Q
						11: Male thread	**12**: Female thread		
MCJA	**12**	12	1	6	5	17	5	M3×0.5×6 depth	M5×0.8
	16	12	1.5	6	5	17.5	5.5	M3×0.5×6 depth	M5×0.8
	20	15	1.5	8	6	20.5	5.5	M4×0.7×8 depth	M6×1.0
	25	17	2	10	8	23	6	M5×0.8×10 depth	M8×1.25
	32	18	3	12	10	25	7	M6×1.0×12 depth	M10×1.25
	40	28	3	16	14	35	7	M8×1.25×12 depth	M14×1.5
	50	28	4	20	17	37	9	M10×1.5×15 depth	M18×1.5
	63	28	4	20	17	37	9	M10×1.5×15 depth	M18×1.5
	80	33	5	25	22	44	11	M14×1.5×20 depth	M22×1.5
	100	38	5	30	27	50	12	M18×1.5×20 depth	M26×1.5

11: Male thread



12: Female thread





Note. The dimensions didn't mark, please consult us.

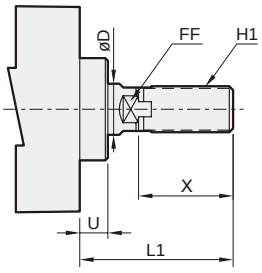
Change of rod end shape

MCJQ2 — **Standard model no.** — XR02

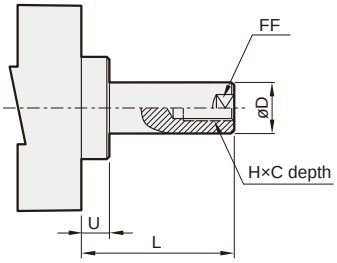
- MCJQ2 — MODEL: **MCJQ** **MCJQ2**
- XR02 — CHANGE OF ROD END SHAPE

EX: MCJQ-11-40-100M-XR02 (L1=50, X=35, H1=M12×1.25)

11: Male thread

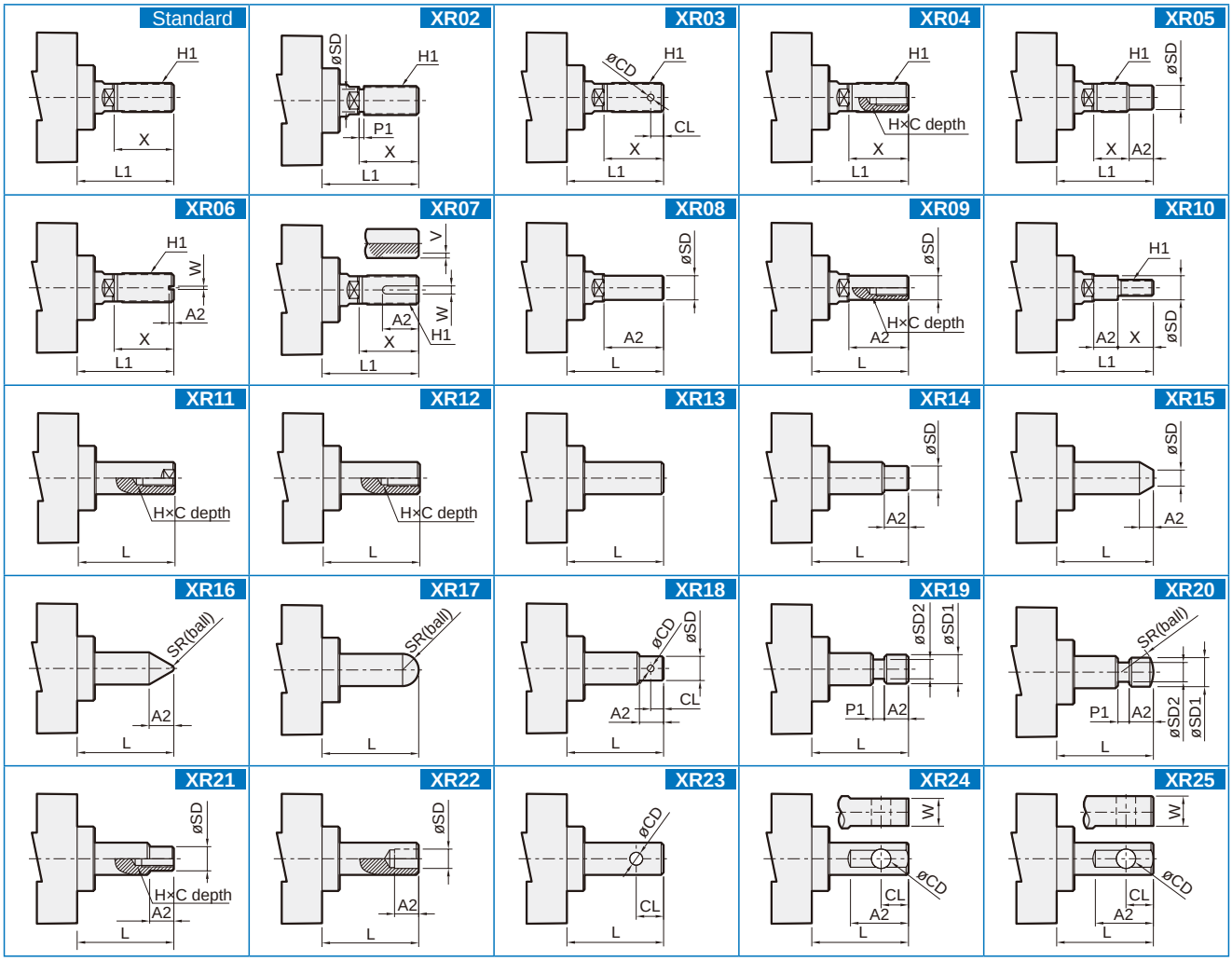


12: Female thread



Model	Tube I.D. (mm)	C	D	FF	H	H1	X	Standard stroke				Long stroke			
								Stroke range	L	L1	U	Stroke range	L	L1	U
MCJQ	**12**	6	6	5	M3×0.5	M5×0.8	10.5	5~30	3.5	14	–	35~100	13.5	24	–
	16	8	8	6	M4×0.7	M6×1.0	12	5~30	3.5	15.5	–	35~100	13.5	25.5	–
	20	7	10	8	M5×0.8	M8×1.25	14	5~50	4.5	18.5	–	75~200	14.5	28.5	–
	25	12	12	10	M6×1.0	M10×1.25	17.5	5~50	5	22.5	–	75~300	15	32.5	–
	32	13	16	14	M8×1.25	M14×1.5	23.5	5~100	7	28.5	–	125~300	17	38.5	5
	40	13	16	14	M8×1.25	M14×1.5	23.5	5~100	7	28.5	–	125~300	17	38.5	5
	50	15	20	17	M10×1.5	M18×1.5	28.5	5~100	8	33.5	–	125~300	18	43.5	5
	63	15	20	17	M10×1.5	M18×1.5	28.5	5~100	8	33.5	–	125~300	18	43.5	5
	80	21	25	22	M16×2.0	M22×1.5	35.5	5~100	10	43.5	–	125~300	20	53.5	5
	100	27	30	27	M20×2.5	M26×1.5	35.5	5~100	12	43.5	–	125~300	–	–	–
MCJQ2	**12**	6	6	5	M3×0.5	M5×0.8	10.5	5~30	3.5	14	–	–			
	16	8	8	6	M4×0.7	M6×1.0	12	5~30	3.5	15.5	–				
	20	10	10	8	M5×0.8	M8×1.25	14	5~50	4.5	18.5	–				
	25	12	12	10	M6×1.0	M10×1.25	17.5	5~50	5	22.5	–				

Change of rod end shape

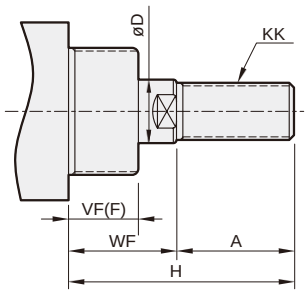


Note. The dimensions didn't mark, please consult us.

Change of rod end shape

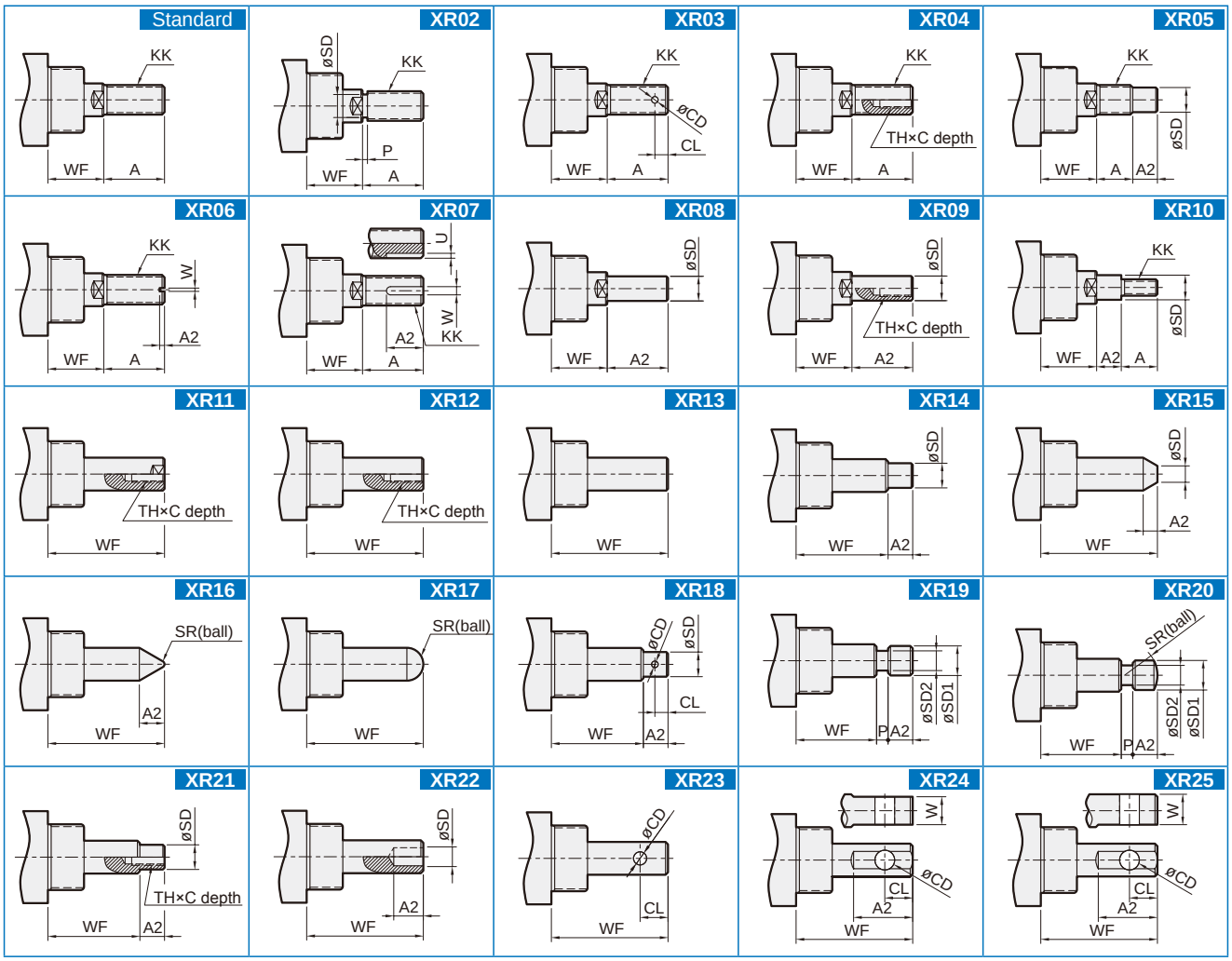
MCMA — **Standard model no.** — XR02

- MCMA — MODEL
  - **MCMA**
  - **MCMB**
  - **MCMI**
  - **MCMJ**
- XR02 — CHANGE OF ROD END SHAPE



EX: MCMA-11-32-100M-XR02 (A=50, WF=35, KK=M12×1.25)

Model	Tube I.D. (mm)	A	D	WF	KK	VF(F)	H
MCMA	16	16	6	22	M6×1.0	12	—
	20	20	8	18	M8×1.25	12	—
	25	22	10	27	M10×1.25	15	—
	32	22	12	30	M10×1.25	18	—
	40	30	14	27	M12×1.25	17	—
MCMB	20	18	8	—	M8×1.25	13	41
	25	22	10	—	M10×1.25	13	45
	32	22	12	—	M10×1.25	13	45
	40	24	14	—	M14×1.5	16	50
MCMI	8	12	4	16	M4×0.7	12	—
	10	12	4	16	M4×0.7	12	—
	12	16	6	22	M6×1.0	17	—
	16	16	6	22	M6×1.0	18	—
	20	20	8	24	M8×1.25	20	—
	25	22	10	28	M10×1.25	22	—
MCMJ	6	15	3	—	M3×0.5	8	28
	10	15	4	—	M4×0.7	8	28
	16	15	5	—	M5×0.8	8	28

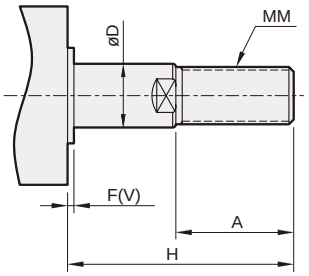


Note. The dimensions didn't mark, please consult us.

Change of rod end shape

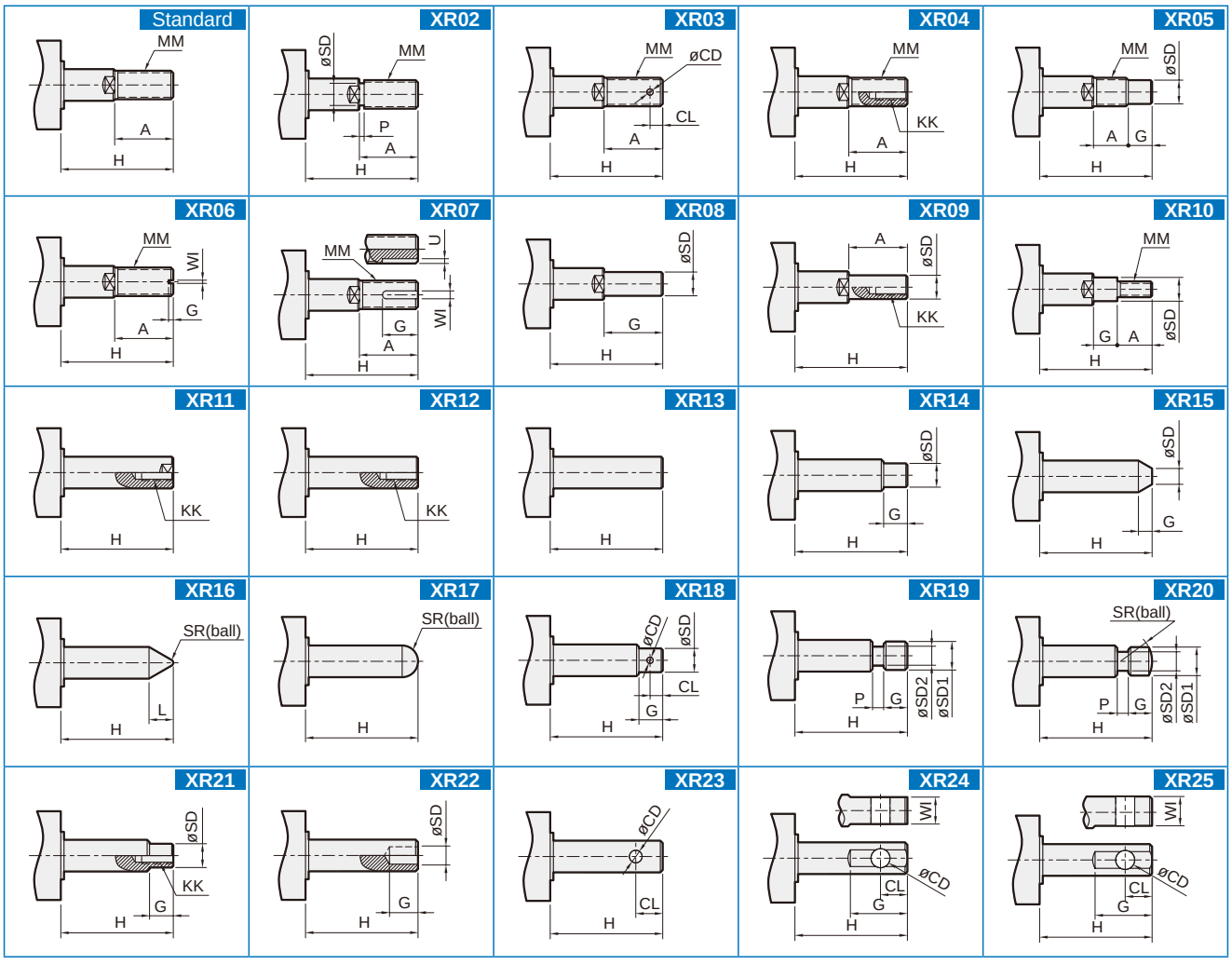
MCCG — **Standard model no.** — XR02

- MCCG — MODEL
  - **MCCG**
  - **MCCN**
- XR02 — CHANGE OF ROD END SHAPE



Model	Tube I.D. (mm)	A	D	MM	F(V)	H
MCCG (mm)	20	18	8	M8×1.25	2	35
	25	22	10	M10×1.25	2	40
	32	22	12	M10×1.25	2	40
	40	30	16	M14×1.5	2	50
	50	35	20	M18×1.5	2	58
	63	35	20	M18×1.5	2	58
MCCN (inch)	20	0.50	0.315	1/4-28 UNF	0.08	—
	25	0.50	0.394	5/16-24 UNF	0.08	—
	32	0.75	0.472	7/16-20 UNF	0.08	—
	40	0.75	0.630	7/16-20 UNF	0.08	—
	50	0.88	0.787	1/2-20 UNF	0.08	—
	63	0.88	0.787	1/2-20 UNF	0.08	—

EX: MCCG-11-40-100M-XR02 (A=50, H=40, MM=M12×1.25)



Note. The dimensions didn't mark, please consult us.

Cylinders mounting accessories

Model	Type	MCQA	MCQN	MCQV	MCQV2 MCQV2L MCQV3 MCQI2 MCQI3 MCKQI2	MCJQ MCKJQ	MCJI	MCJU	MCMA	MCMB MCKMB	MCMBL	MCMI MCKMI	MCMIS	MCMJ	MCMJP	MCCG	MCCN	MCCH	MCGI
	LB	●	●	●	●	○	○	○	●	●	●	●	●	○	○	●	●	●	
	CA	●	●	●	●		○			●	●						●		
	CB	●	●	●	●	○	○			●	●					●	●		
	CB2		●																
	CDB				●														
	FA	●							●	●	●	●	●	○	○				
	FB	●							●	●	●	●	●						
	FAC	●	●	●	●	○	○	○								●	●		
	FBC	●	●	●	●	○	○	○								●	●		◉
	MP						○												
	RF					○													
	SDB								●	●		●	●		○	●	●		
	T													○					
	TA	●		●	●					●	●					●	●		
	TB	●		●	●					●	●					●	●		
	TC	●	●	●	●														
	Y	●	●	●	●				●	●	●	●		○		●			
	I	●	●	●	●				●	●	●	●		○		●			
	YS (Y+Pin)				●				●			●							
	YP (Y+Pin)												●						

*1. MCQV2L, MCQV3, MCQI2, MCQI3 and MCKQI2 use the same accessories with MCQV2.

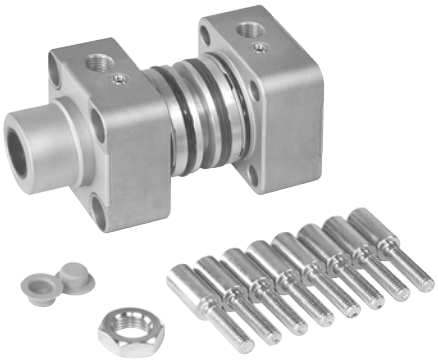
*2. MCKJQ use the same accessories with MCJQ, only for tube I.D. 40 and without RF.

*3. MCKMB use the same accessories with MCMB.

*4. MCKMI use the same accessories with MCMI.

Cylinders kits

- We can supply your company with full cylinder assembly kits which meet NFPA, ISO-VDMA and JIS internationally recognizable standards.
- Assembly kits include all necessary components to enable rapid assembly and despatch in order that you can meet your customers delivery schedules.
- Piston rod, tie rod and tubes are also available.



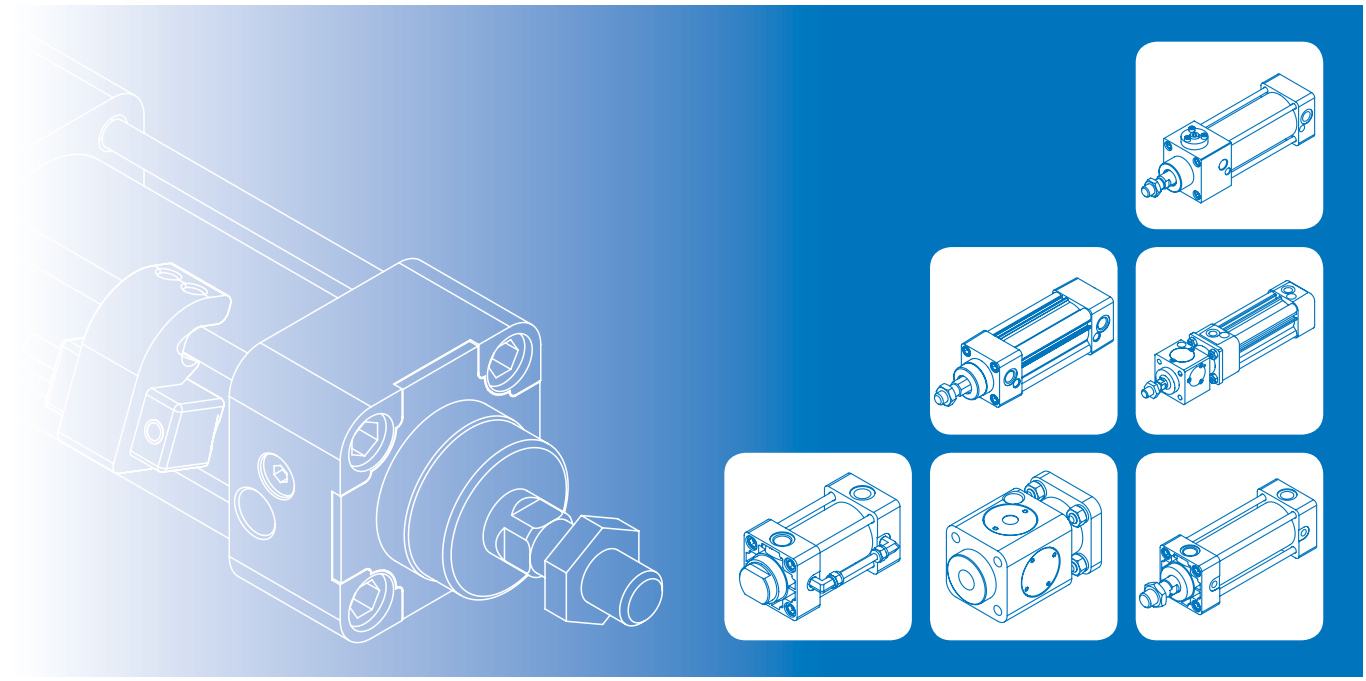
Model	Tube I.D. (mm)	Type	Description
CP - MCQA - ☐	ø6~ø200	Component parts	Air cylinder
PS - MCQA - ☐		Repair kits	
MDO SK ☐	ø20~ø150	Repair kits	Rotary actuator / Hydraulic cylinder

Model	Component parts	Repair kits
Standard cylinder		
MCQA	●	●
MCQN	●	●
ISO-VDMA Standard profile cylinder		
MCQV	●	●
MCQV2	●	●
MCQV3	●	●
MCQI2	●	●
MCQI3	●	●
MCKQI2	●	●
Compact cylinder		
MCJA	●	●
MCJQ	●	●
MCJQ2	●	●
MCKJQ	●	●
MCJI	●	●
MCJU		●
MCJI	●	●
MCFB	●	●
Miniature cylinder		
MCMA	●	●
MCMB	●	●
MCKMB	●	
MCMBRA	●	●
MCMBRB	●	●
ISO-6432 / Non-pivot type mini. cylinder		
MCMI	●	●
MCMIS	●	
MCKMI	●	
Pen cylinder		
MCMJ	●	
MCMJP		●

Model	Component parts	Repair kits
Round cylinder		
MCCG	●	●
MCCN	●	●
High speed cylinder		
MCCH	●	●
Guide cylinder		
MCGA		●
MCGS		●
MCGI	●	●
MCGJ		●
MGTB / K / U / X	●	●
MCGD		●
MCG3		●
MCDA		●
MCDJ		●
(Vol.3) Rotary actuator		
MCRA		●
MCRQ		●
MRTF / H		●
(Vol.3) Clamp cylinder		
MCKB		●
(Vol.3) Gripper		
MCHB		●
MCHC		●
MCHD		●
MCHH		●
MCHU		●
MCHS		●
MCHX		●
MCHG2		●
MCHJ		●
MCHA		●

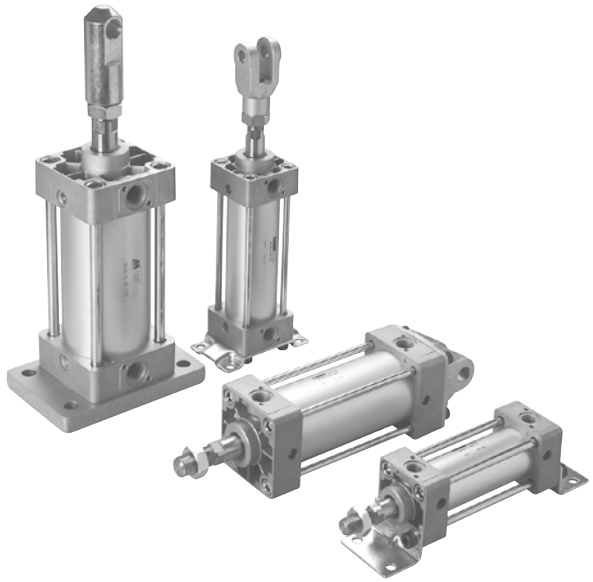
Model	Component parts	Repair kits
(Vol.3) Gripper		
MCHY		●
(Vol.3) Hydraulic cylinder		
MDHB / D / N		●
MDMB / D / N		●
MHCB / Q		●
MHCB-M		●
MDOA / C / D / N		●
MRPH		●

STANDARD CYLINDER



F Fast delivery (11 style)

Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our MINDMAN website (www.mindman.com.tw) and click on the “Component Set Inventory” button.



Features

■ Non lubrication
Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life
Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Non standard type
Custom cylinders are available as are non standard strokes, rod extensions and special rod threads.

■ Cylinder mountings
Available with comprehensive internationally recognised range of fixed and flexible mountings.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø40	50,75,100,125,150,175,200,250,300,350,400,450,500
ø50,63	↑ 600
ø80,100	↑ 600,700
ø125,150	↑ 600,700,800,900,1000
ø200	↑ 600,700,800,900,1000,1500

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Specification

Model	MCQA				
Tube I.D. (mm)	40,50,63	80,100	125	150	200
Medium	Air				
Operating perssure range	0.05~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Available speed range	50~500 mm/sec				
Sensor switch (*)	RCA				
Sensor switch holder	HV2	HV4	PM14	PM16	HA5

* RCA specification, please refer to page 8-7.

Order example

MCQA — 11 — 40 — 100M — □

- MODEL
- STYLE
  - **1**: Single rod
  - **2**: Double rod
- TUBE I.D.
- STROKE
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- **M**: Magnet

Code		Symbol	Description
1	1		Double acting / Male thread
2	1		Double rod / Male thread
2	7		Double rod / Adjustable male thread (Please mark "adjustable distance(mm)" at order list)

* Order example for special specification, refer to page 0-7.

Mounting accessories

LB — MCQA — 40

- MODEL
- TUBE I.D.
- MOUNTING TYPE

	LB
	CA
	CB
	FA
	FB
	FAC
	FBC
	TA
	TB
	TC
	Y
	I

Only for ø40~ø63

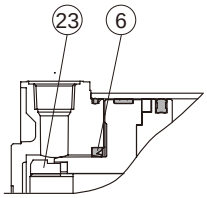
MCQA-11 Inside structure & Part list

STANDARD CYLINDER

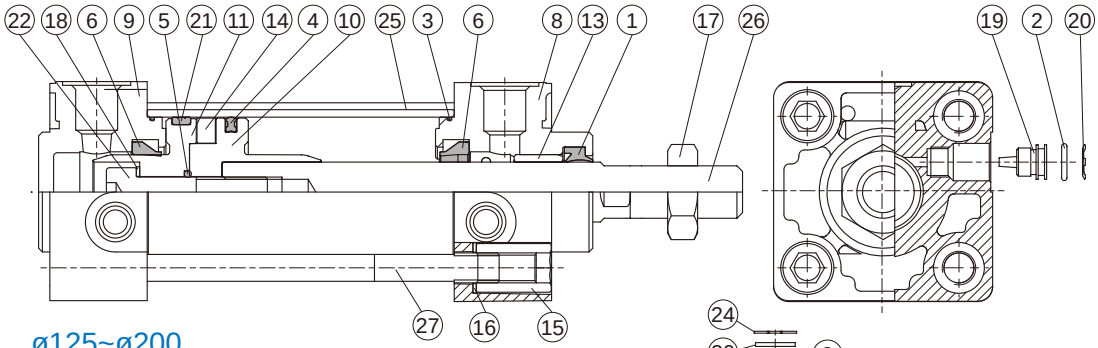
mindman

Single rod 11 type

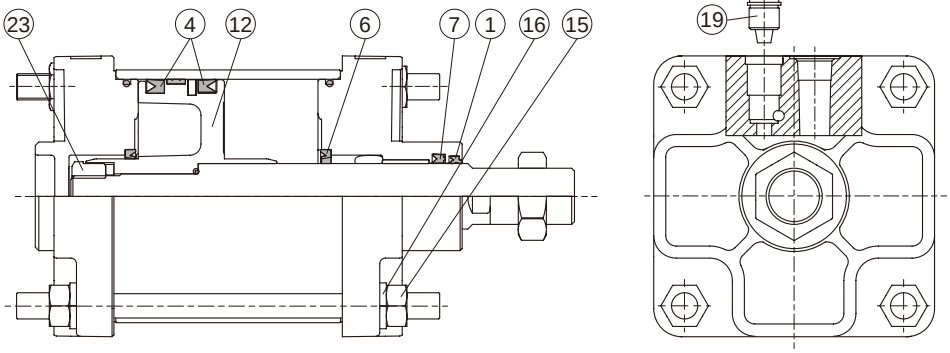
ø80, ø100



ø40~ø63



ø125~ø200

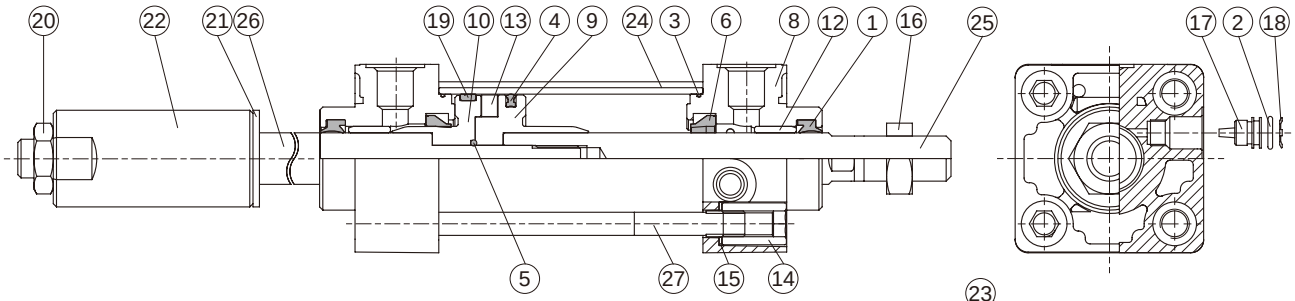


No.	Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)	Note
				ø40~ø100	ø125~ø200		
1	Rod packing	NBR	1	●	●	●	
2	O-ring	NBR	2	●	●	●	
3	O-ring	NBR	2	●	●	●	
4	Piston packing	NBR	1 or 2	●	●	●	ø125~ø200 (Q'y=2)
5	O-ring	NBR	1	●	●	●	
6	Cushion packing	NBR	2	●	●	●	Repair kits ø40~ø80 (inclusion)
7	Rod packing	NBR	1		●	●	
8	Rod cover	Aluminum alloy	1	●	●		
9	Head cover	Aluminum alloy	1	●	●		
10	Piston-R	Aluminum alloy	1	●			
11	Piston-H	Aluminum alloy	1	●			
12	Piston	Aluminum alloy	1		●		
13	Bush	Bearing alloy	1	●	●		
14	Magnet ring	Magnet material	1	◎	◎		◎ Option
15	Tie rod nut	Carbon steel	8	●	●		
16	Tie rod washer	Carbon steel	8	●	●		
17	Hex nut	Carbon steel	1	●	●		
18	Washer	Carbon steel	1	●	●		
19	Needle valve	Copper alloy	2	●	●		
20	Needle valve washer	*	2	●	●		
21	Wear ring	Teflon	1	●	●		
22	Bolt	Carbon steel	1	●			for ø40~ø63
23	Piston nut	Carbon steel	1		●		for ø80~ø200
24	Snap ring	Carbon steel	2		●		
25	Cylinder tube	Aluminum alloy	1				
26	Piston rod	Carbon steel	1				
27	Tie rod	Carbon steel	4				

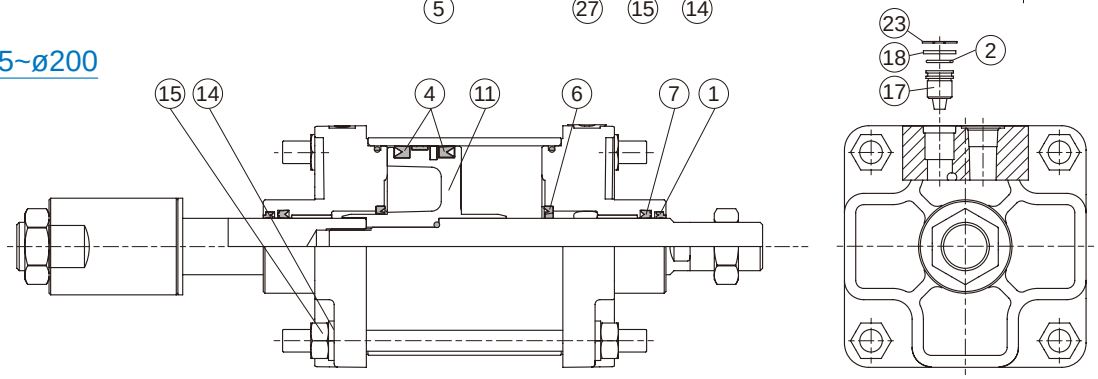
* Spring steel (ø40~ø100), Carbon steel (ø125~ø200).

Double rod 21 / 27 type

A: ø40~ø100



B: ø125~ø200



No.	21 type		27 type		Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
	A	B	A	B				ø40~ø100	ø125~ø200	ø40~ø100	ø125~ø200	
1	●	●	●	●	Rod packing	NBR	2	●	●	●	●	
2	●	●	●	●	O-ring	NBR	2	●	●	●	●	
3	●	●	●	●	O-ring	NBR	2	●	●	●	●	
4	●	●	●	●	Piston packing	NBR	1 or 2	●	●	●	●	ø125~ø200 (Q'y=2)
5	●	●	●	●	O-ring	NBR	1	●	●	●	●	
6	●	●	●	●	Cushion packing	NBR	2	●	●	●		Repair kits ø40~ø80 (inclusion)
7		●		●	Rod packing	NBR	2		●		●	
8	●	●	●	●	Rod cover	Aluminum alloy	2	●	●			
9	●		●		Piston-R	Aluminum alloy	1	●				
10	●		●		Piston-H	Aluminum alloy	1	●				
11		●		●	Piston	Aluminum alloy	1		●			
12	●	●	●	●	Bush	Bearing alloy	2	●	●			
13	◎	◎	◎	◎	Magnet ring	Magnet material	1					◎ Option
14	●	●	●	●	Tie rod nut	Carbon steel	8	●	●			
15	●	●	●	●	Tie rod washer	Carbon steel	8	●	●			
16	●	●	●	●	Screw	Carbon steel	1	●	●			
17	●	●	●	●	Needle valve	Copper alloy	2	●	●			
18	●	●	●	●	Needle valve washer	*	2	●	●			
19	●	●	●	●	Wear ring	Teflon	1	●	●			
20	●	●	●	●	Hex nut	Carbon steel	1	●	●			
21			●	●	Gasket	PU	1					
22			●	●	Adjustable nut	Carbon steel	1					
23		●		●	Snap ring	Carbon steel	2		●			
24	●	●	●	●	Cylinder tube	Aluminum alloy	1					
25	●	●	●	●	Piston rod #1	Carbon steel	1					
26	●	●	●	●	Piston rod #2	Carbon steel	1					
27	●	●	●	●	Tie rod	Carbon steel	4					

A: ø40~ø100, **B**: ø125~ø200 * Spring steel (ø40~ø100), Carbon steel (ø125~ø200).

Order example of component parts

CP — MCQA — 2 — 40 M — □

- MCQA: MODEL
- 2: Blank: Single rod; **2**: Double rod
- 40: TUBE I.D. — **40, 50, 63, 80, 100, 125 150, 200**
- M: **M**: Magnet
- □: PORT THREAD — Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

Order example of repair kits

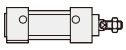
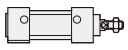
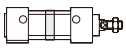
PS — MCQA — 2 — 40 — XB6

- MCQA: MODEL
- 2: Blank: Single rod; **2**: Double rod
- 40: TUBE I.D. — **40, 50, 63, 80, 100, 125 150, 200**
- XB6: Blank: NBR; **XB6**: Heat resistant material

Cylinder & accessories weight

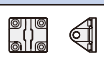
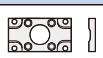
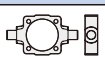
Cylinder weight

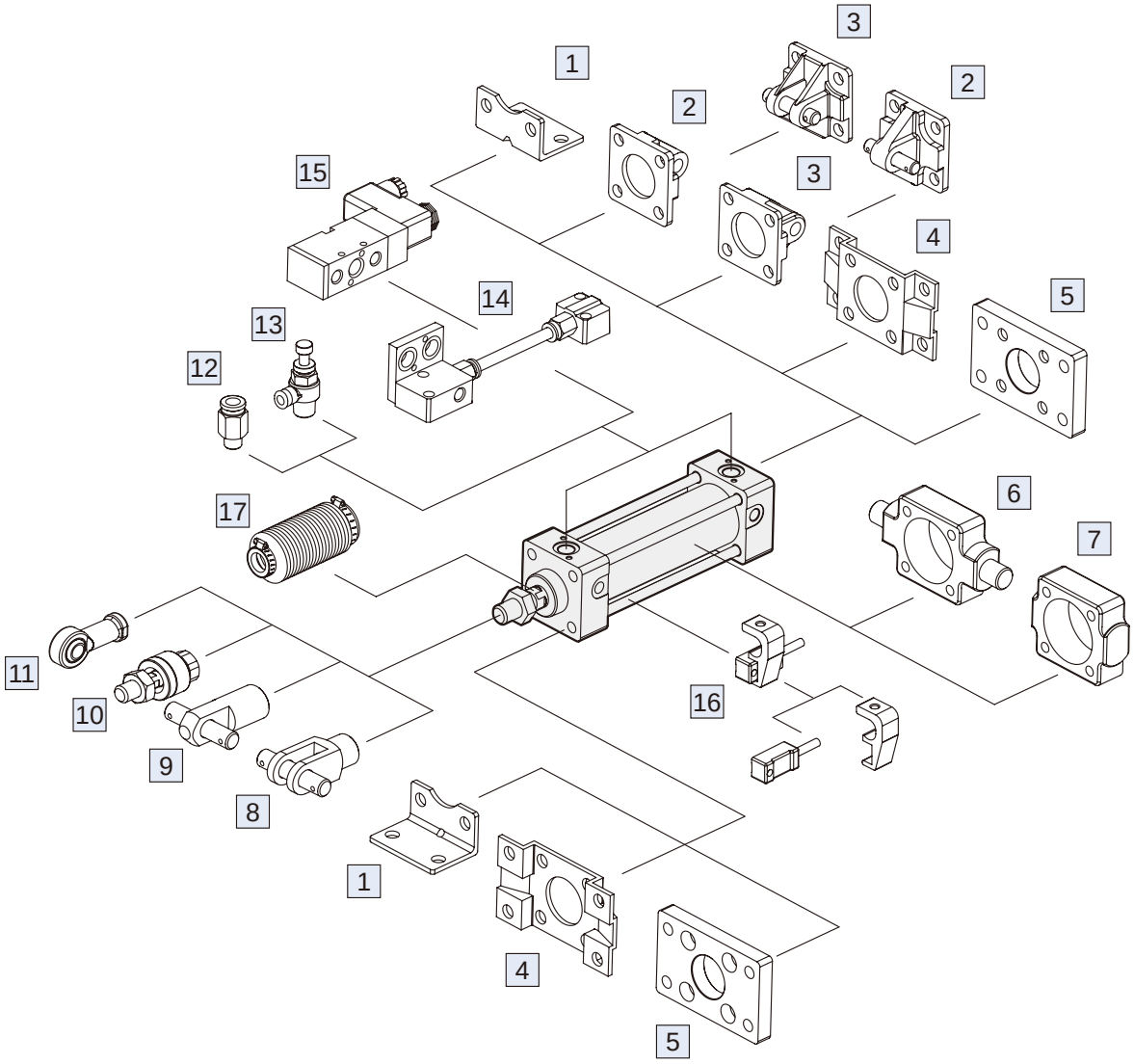
Unit: kg

Model	Basic weight **MCQA-11**	Basic weight (magnet) **MCQA-11**	Stroke 25 mm **MCQA-11**
Tube I.D.			
ø40	0.76	0.772	0.09
ø50	1.07	1.087	0.12
ø63	1.46	1.480	0.13
ø80	2.71	2.737	0.22
ø100	3.97	4.005	0.28
ø125	6.99	7.033	0.46
ø150	10.33	10.410	0.55
ø200	19.00	19.144	0.65

Accessories weight

Unit: kg

Model	LB	CA	CB	FA/FB	FAC/FBC	TA/TB/TC	SDS	Y	I	Pin		Rod nut
										CA/CB	Y / I	
Tube I.D.												
ø40	0.213	0.297	0.295	0.162	0.482	0.420	0.262	0.200	0.158	0.025	0.043	0.020
ø50	0.237	0.411	0.407	0.184	0.584	0.455	0.305	0.285	0.222	0.043	0.043	0.030
ø63	0.446	0.630	0.650	0.346	1.012	0.815	0.572	0.285	0.222	0.097	0.043	0.030
ø80	0.951	1.192	1.178	–	1.922	1.600	1.112	0.518	0.485	0.183	0.134	0.050
ø100	1.212	1.820	1.822	–	2.490	2.380	1.787	0.746	0.670	0.308	0.183	0.060
ø125	1.321	3.412	4.059	–	4.224	3.940	3.312	1.680	1.070	0.372	0.211	0.082
ø150	2.638	5.623	5.939	–	6.437	5.300	4.392	1.630	1.730	0.571	0.372	0.082
ø200	5.083	11.456	11.863	–	13.447	14.720	10.866	3.340	3.010	0.988	0.988	0.501

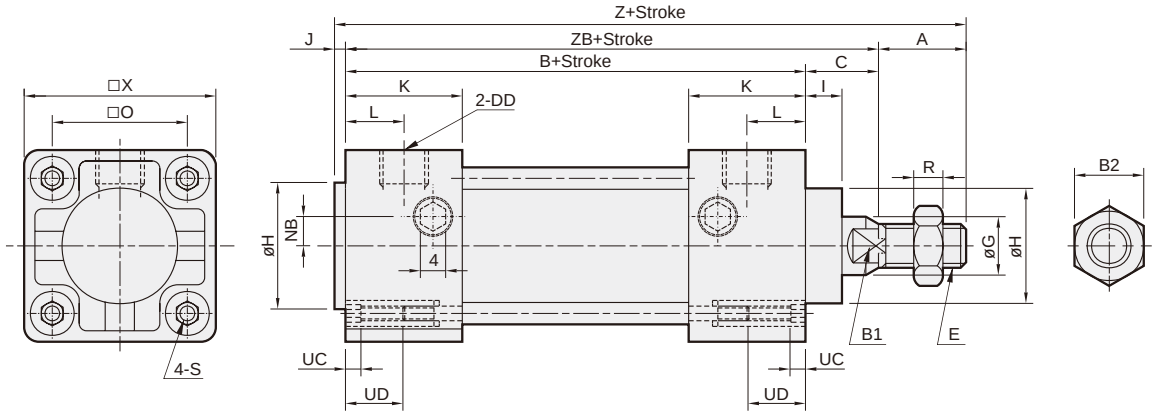


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	1-8,15
2	Mounting accessories CA+PIN	Cast iron / *	1-11,16,19
3	Mounting accessories CB+PIN	Cast iron / *	1-11,16,19
4	Mounting accessories FA/FB	Carbon steel	1-9
5	Mounting accessories FAC/FBC	Carbon steel	1-10,15
6	Mounting accessories TA/TB/TC	Cast iron	1-12,13,17,18
7	Mounting accessories SDS	Cast iron	1-13,18
8	Accessories Y+PIN	Cast iron / *	1-19
9	Accessories I+PIN	Carbon steel	1-19

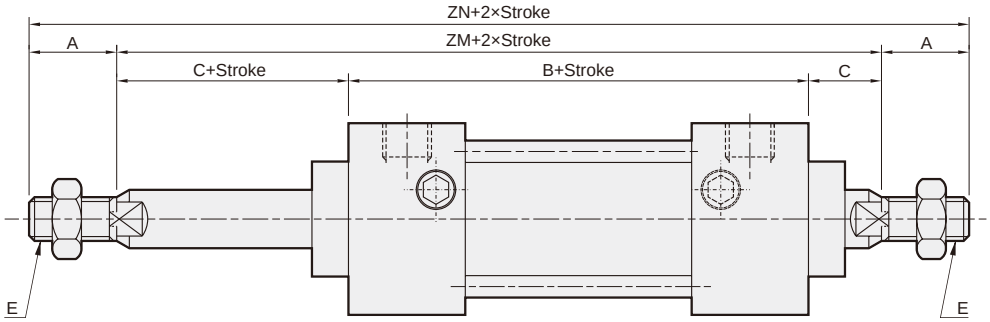
No.	Accessories	Material	Page
10	Floating joint MFC	Carbon steel	8-2
11	Female rod ends PHS	Carbon steel	8-6
12	Fitting PC (PISCO)	–	7-3 (Vol.1)
13	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
14	Solenoid valve link seats VR/VH	Aluminum alloy	1-20
15	Solenoid valve MVSC-260/300	–	1-10,1-13 (Vol.1)
16	Sensor switch RCA+HV*	–	8-7
17	Protective bellows kit	NBR	–

* PIN material is carbon steel.

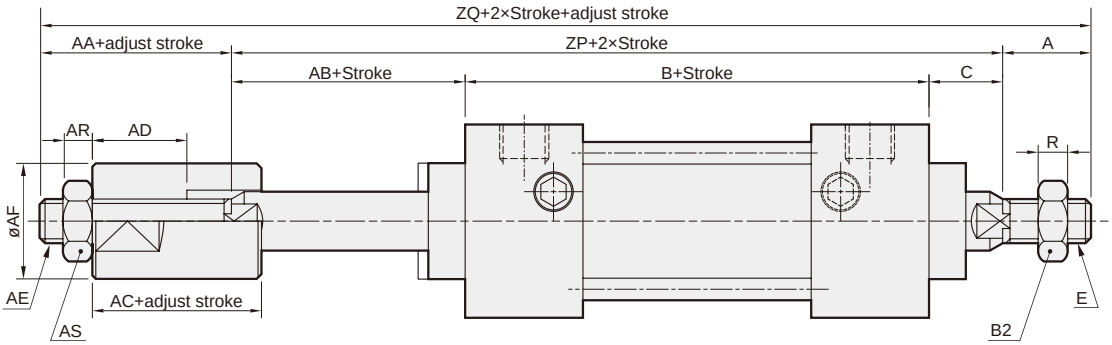
11



21

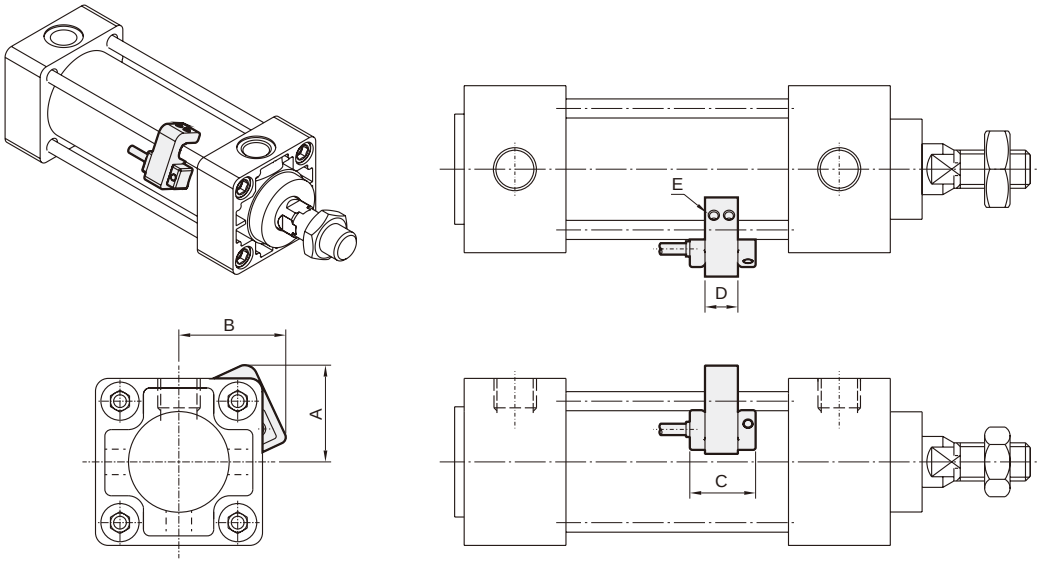


27



Code / Tube I.D.	A	AA	AB	AC	AD	AE	AF	AR	AS	B	B1	B2	C	DD	E	G	H	I	J	K	L	NB	O	R
40	30	21	18	12	7	M12×1.25	30	7	19	84	14	22	21	Rc1/4	M14×1.5	16	32	11	3	26	13	8	40.5	8
50	35	23	18	15	10	M16×1.5	40	8	24	90	17	26	23	Rc3/8	M18×1.5	20	40	11	3	28	14	0	48	11
63	35	23	18	15	10	M16×1.5	40	8	24	98	17	26	23	Rc3/8	M18×1.5	20	40	11	3	30	15	0	59	11
80	40	33	24	20	14	M22×1.5	50	13	32	116	22	32	31	Rc1/2	M22×1.5	25	45	15	4	34	17	0	74	13
100	40	33	24	20	14	M22×1.5	50	13	32	126	27	36	32	Rc1/2	M26×1.5	30	52	15	5	37	18.5	0	90	14

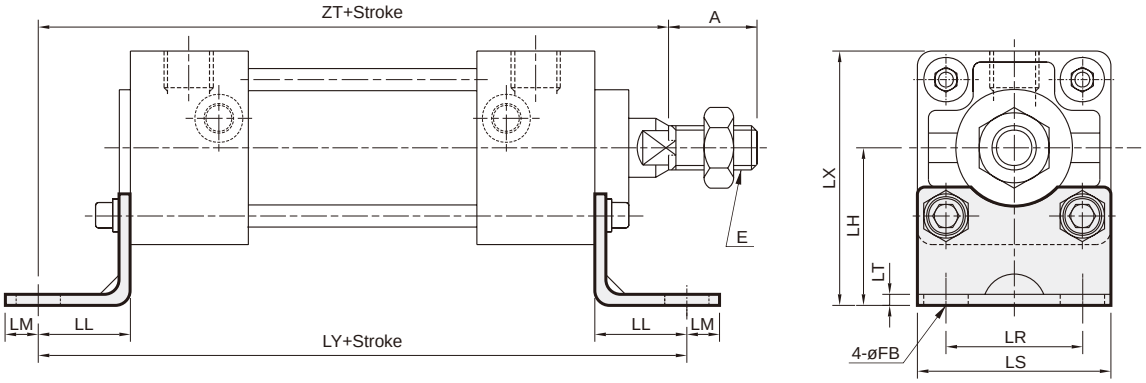
Code / Tube I.D.	S	UC	UD	X	Z	ZB	ZM	ZN	ZP	ZQ
40	M8×1.25	4	12	58	138	105	126	186	123	174
50	M8×1.25	4	12	66	151	113	136	206	131	189
63	M8×1.25	4	12	80	159	121	144	214	139	197
80	M12×1.75	4	15	100	191	147	178	258	171	244
100	M12×1.75	4	15	118	203	158	190	270	182	255



Code / Tube I.D.	Sensor switch	Hold	A	B	C	D	E
40	RCA	HV2	36	41	26	13	M4×10L
50	RCA	HV2	38	43	26	13	M4×10L
63	RCA	HV2	46	49	26	13	M4×10L
80	RCA	HV4	52	55	26	13	M4×10L
100	RCA	HV4	59	62	26	13	M4×10L
125	RCA	PM14	–	–	26	12	M4×10L
150	RCA	PM16	–	–	26	12	M4×10L
200	RCA	HA5	–	–	26	15	M4×10L

Mounting accessories

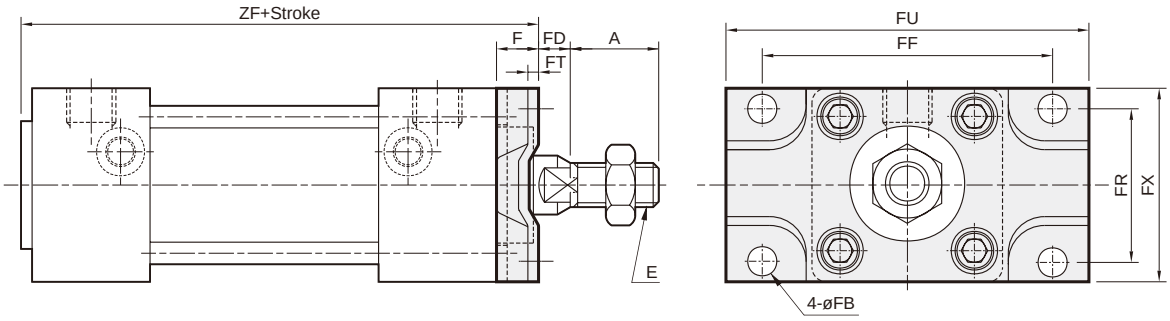
LB



Code / Tube I.D.	A	E	FB	LH	LL	LM	LR	LS	LT	LX	LY	ZT
40	30	M14×1.5	9	40	27	13	42	58	3.2	69	138	132
50	35	M18×1.5	9	45	27	13	50	66	3.2	78	144	140
63	35	M18×1.5	11.5	50	34	16	59	80	4.5	90	166	155
80	40	M22×1.5	14	65	44	16	76	100	6	115	204	191
100	40	M26×1.5	14	75	43	17	92	118	6	134	212	201

FA

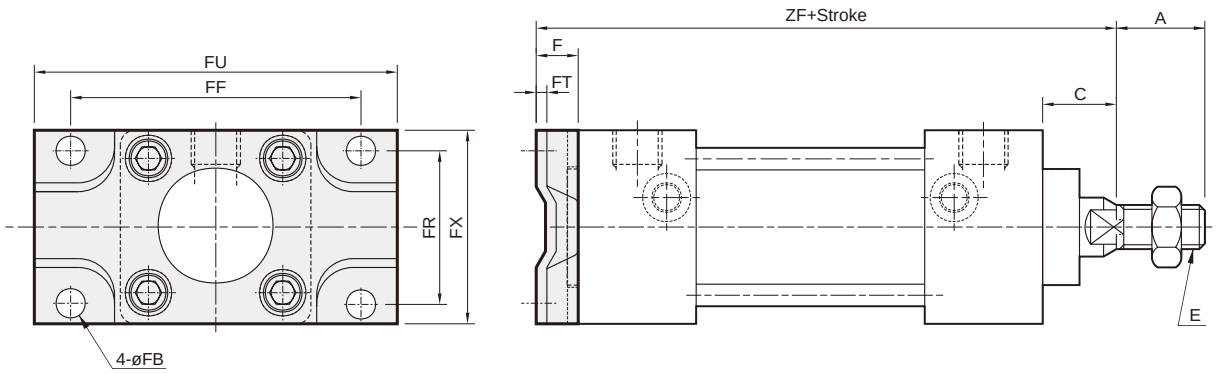
Note. This type is applied to the cylinder which the stroke is within 500mm.
If the stroke is over 500mm, we advise to choose the **FAC** type.



Code / Tube I.D.	A	E	F	FB	FD	FF	FR	FT	FU	FX	ZF
40	30	M14×1.5	12	9	9	80	42	3.2	100	58	99
50	35	M18×1.5	12	9	11	90	50	3.2	110	66	105
63	35	M18×1.5	15	11.5	8	105	59	4.5	130	80	116

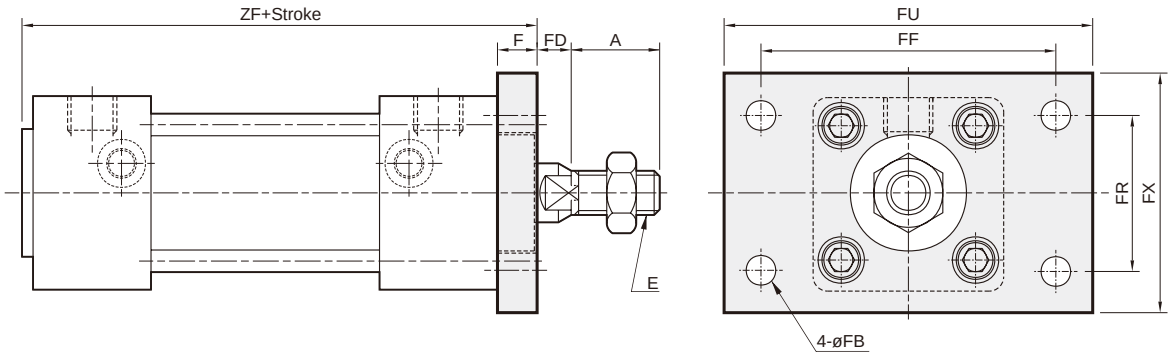
FB

Note. This type is applied to the cylinder which the stroke is within 500mm.
If the stroke is over 500mm, we advise to choose the **FBC** type.



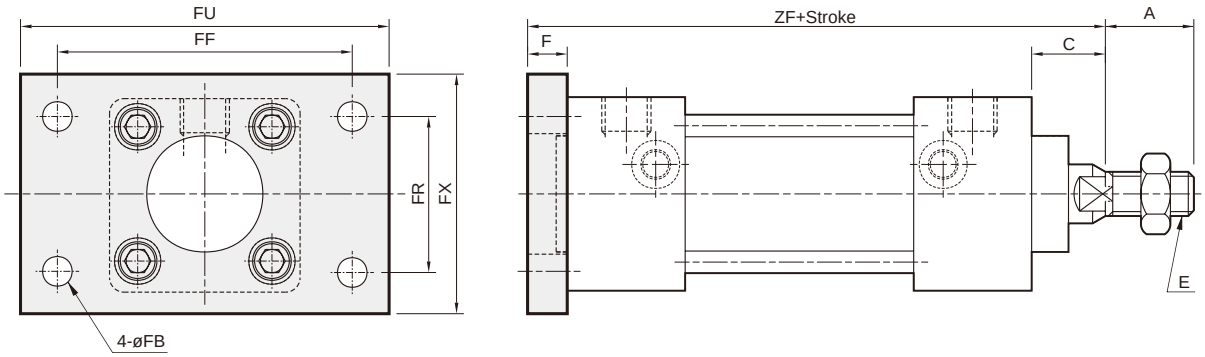
Code / Tube I.D.	A	E	C	F	FB	FF	FR	FT	FU	FX	ZF
40	30	M14×1.5	21	12	9	80	42	3.2	100	58	117
50	35	M18×1.5	23	12	9	90	50	3.2	110	66	125
63	35	M18×1.5	23	15	11.5	105	59	4.5	130	80	136

FAC



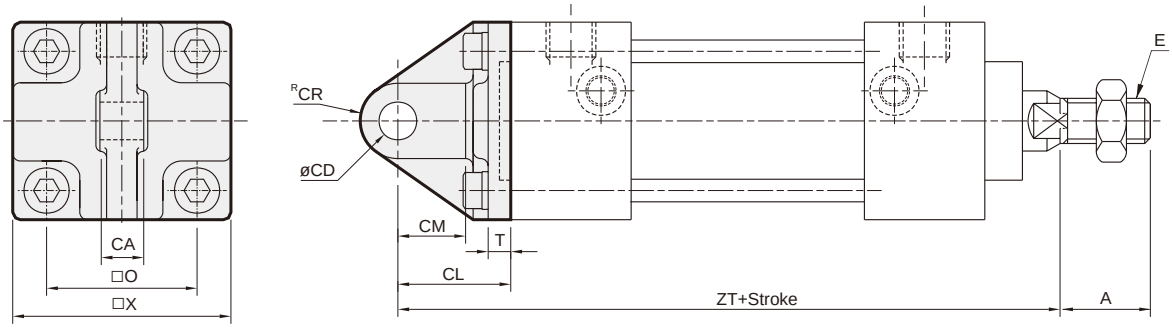
Code / Tube I.D.	A	E	F	FB	FD	FF	FR	FU	FX	ZF
40	30	M14×1.5	12	9	9	80	42	100	65	99
50	35	M18×1.5	12	9	11	90	50	110	73	105
63	35	M18×1.5	15	11.5	8	105	59	130	84	116
80	40	M22×1.5	18	14	13	130	76	160	108	138
100	40	M26×1.5	18	14	14	150	92	180	124	149

FBC



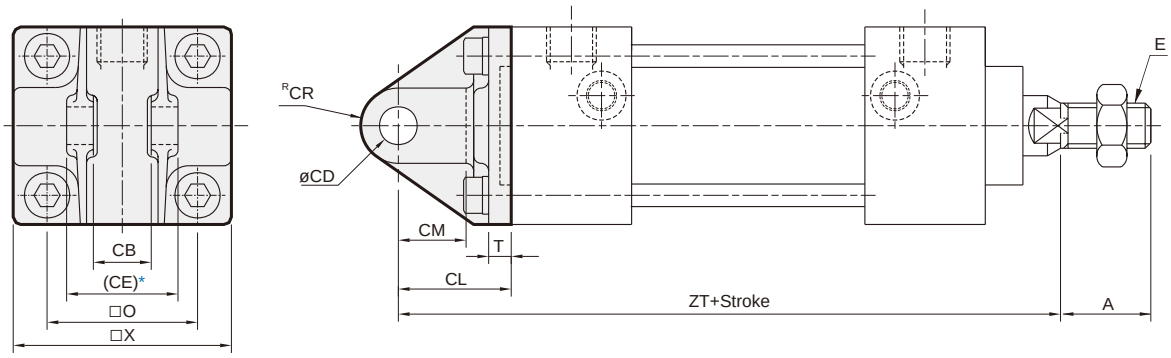
Code / Tube I.D.	A	C	E	F	FB	FF	FR	FU	FX	ZF
40	30	21	M14×1.5	12	9	80	42	100	65	117
50	35	23	M18×1.5	12	9	90	50	110	73	125
63	35	23	M18×1.5	15	11.5	105	59	130	84	136
80	40	31	M22×1.5	18	14	130	76	160	108	165
100	40	32	M26×1.5	18	14	150	92	180	124	176

CA



Code / Tube I.D.	A	CA	CD	CL	CM	CR	E	O	T	X	ZT
40	30	15 $^{-0.1}_{-0.3}$	10^{H10}	30	18	10	M14×1.5	40.5	5	58	135
50	35	18 $^{-0.1}_{-0.3}$	12^{H10}	35	22	12	M18×1.5	48	5	66	148
63	35	25 $^{-0.1}_{-0.3}$	16^{H10}	40	27	16	M18×1.5	59	5	80	161
80	40	31.5 $^{-0.1}_{-0.3}$	20^{H10}	48	30	20	M22×1.5	74	7.5	100	195
100	40	35.5 $^{-0.1}_{-0.3}$	25^{H10}	58	38	25	M26×1.5	90	7.5	118	216

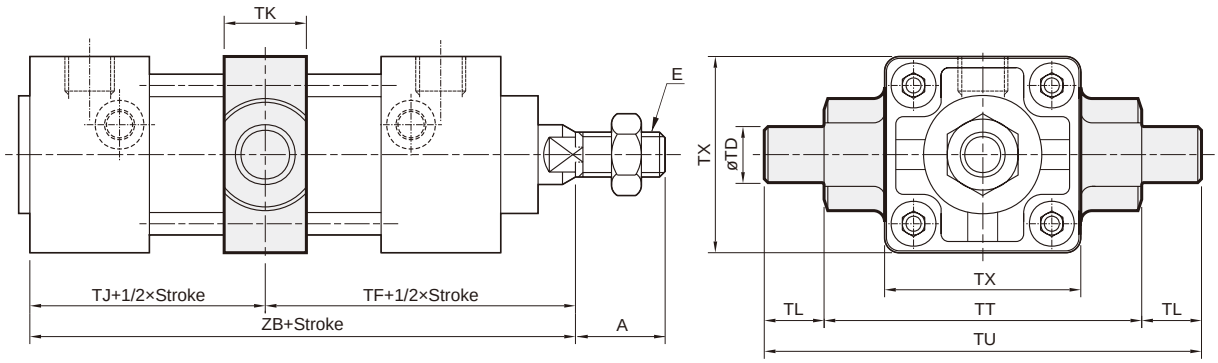
CB



* Please do not take the sand casting plate as the mounting plate, because we do not machine it. If you have this special demand, please contact our sales representative.

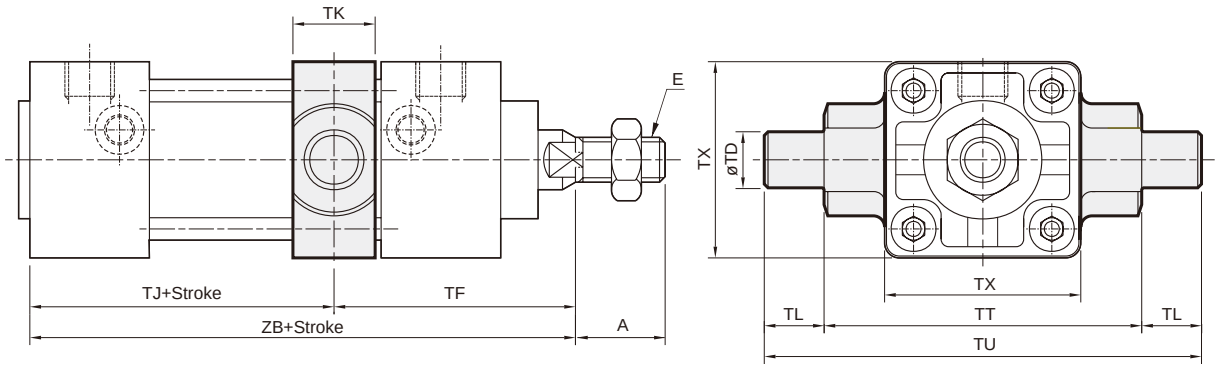
Code / Tube I.D.	A	CB	CD	CE	CL	CM	CR	E	O	T	X	ZT
40	30	15 $^{+0.3}_{+0.1}$	10^{H10}	29.5	30	18	10	M14×1.5	40.5	5	58	135
50	35	18 $^{+0.3}_{+0.1}$	12^{H10}	38	35	22	12	M18×1.5	48	5	66	148
63	35	25 $^{+0.3}_{+0.1}$	16^{H10}	49	40	27	16	M18×1.5	59	5	80	161
80	40	31.5 $^{+0.3}_{+0.1}$	20^{H10}	59	48	30	20	M22×1.5	74	7.5	100	195
100	40	35.5 $^{+0.3}_{+0.1}$	25^{H10}	64	58	38	25	M26×1.5	90	7.5	118	216

TC



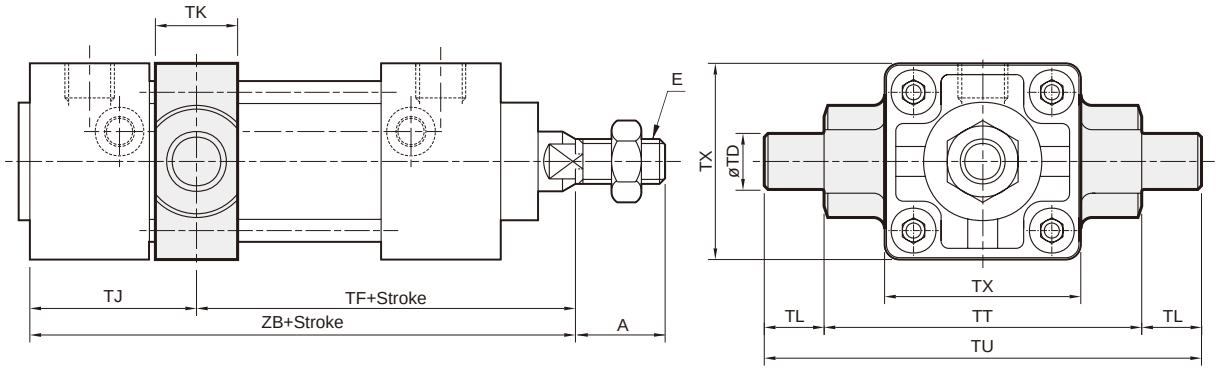
Code / Tube I.D.	A	E	TD	TF	TJ	TK	TL	TT	TU	TX	ZB
40	30	M14×1.5	15^{e8}	63	42	22	16	85	117	58	105
50	35	M18×1.5	15^{e8}	68	45	22	16	95	127	67	113
63	35	M18×1.5	18^{e8}	72	49	28	19	110	148	82	121
80	40	M22×1.5	25^{e8}	89	58	34	26	140	192	102	147
100	40	M26×1.5	25^{e8}	95	63	40	26	162	214	122	158

TA



Code / Tube I.D.	A	E	TD	TF	Without magnet		Magnet		TK	TL	TT	TU	TX
					TJ	ZB	TJ	ZB					
40	30	M14×1.5	15^{e8}	60	45	105	75	135	22	16	85	117	58
50	35	M18×1.5	15^{e8}	64	49	113	79	143	22	16	95	127	67
63	35	M18×1.5	18^{e8}	69	52	121	82	151	28	19	110	148	82
80	40	M22×1.5	25^{e8}	85	62	147	102	187	34	26	140	192	102
100	40	M26×1.5	25^{e8}	92	66	158	106	198	40	26	162	214	122

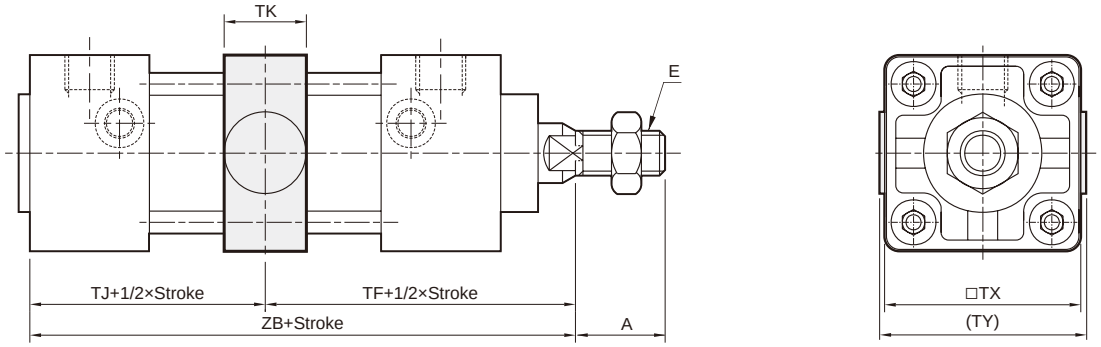
TB



Code / Tube I.D.	A	E	TD	Without magnet		Magnet		TJ	TK	TL	TT	TU	TX
				TF	ZB	TF	ZB						
40	30	M14×1.5	15^{e8}	66	105	96	135	39	22	16	85	117	58
50	35	M18×1.5	15^{e8}	72	113	102	143	41	22	16	95	127	67
63	35	M18×1.5	18^{e8}	75	121	105	151	46	28	19	110	148	82
80	40	M22×1.5	25^{e8}	93	147	133	187	54	34	26	140	192	102
100	40	M26×1.5	25^{e8}	98	158	138	198	60	40	26	162	214	122

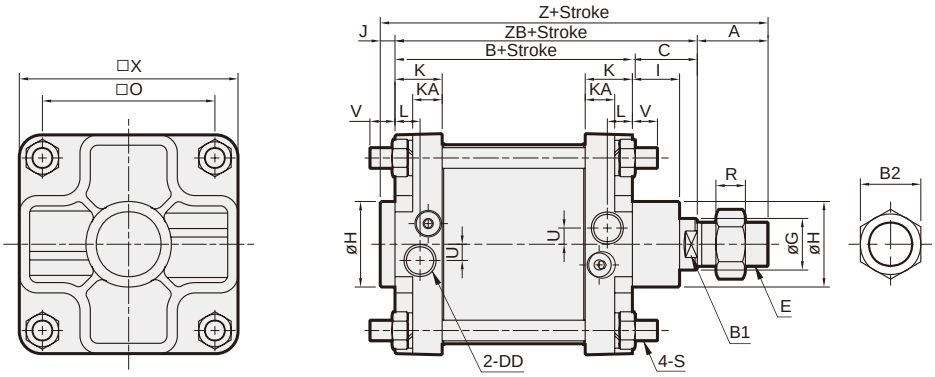
SDS

Stroke over 1000mm



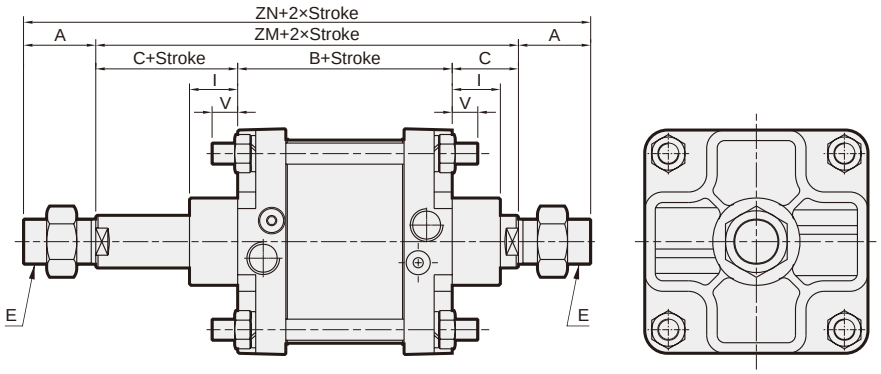
Code / Tube I.D.	A	E	TF	TJ	TK	TX	TY	ZB
40	30	M14×1.5	63	42	22	58	60	105
50	35	M18×1.5	68	45	22	67	69	113
63	35	M18×1.5	72	49	28	82	84	121
80	40	M22×1.5	89	58	34	102	110	147
100	40	M26×1.5	95	63	40	122	132	158

11



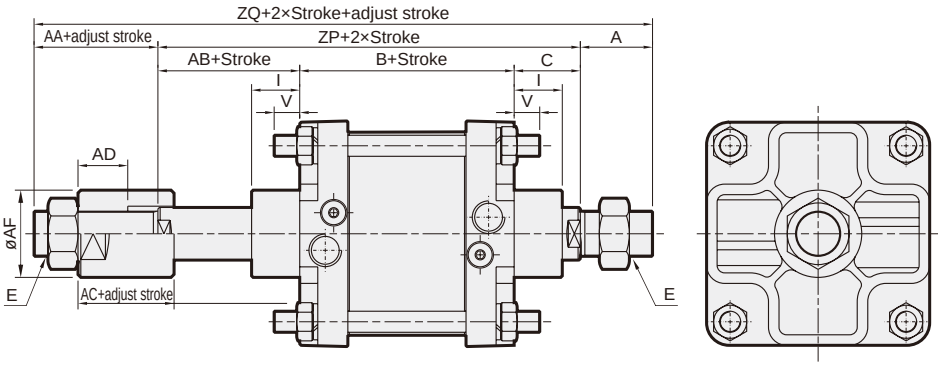
Code / Tube I.D.	A	B	B1	B2	C	DD	E	G	H	I	J	K	KA	L	O	R	S	U	V	X	Z	ZB
125	45	136	30	41	47	Rc1/2	M30×1.5	35	58	32	10	32	20	17	117	15	M14×1.5	11	20	150	238	183
150	50	153	36	41	47	Rc1/2	M30×1.5	40	60	32	8	40.5	25	24.5	134	15	M16×1.5	12	26	175	258	200
200	63	154	46	70	67	Rc3/4	M45×1.5	50	74	35	8	42	25	24	182	27	M20×1.5	12	18	226	292	221

21



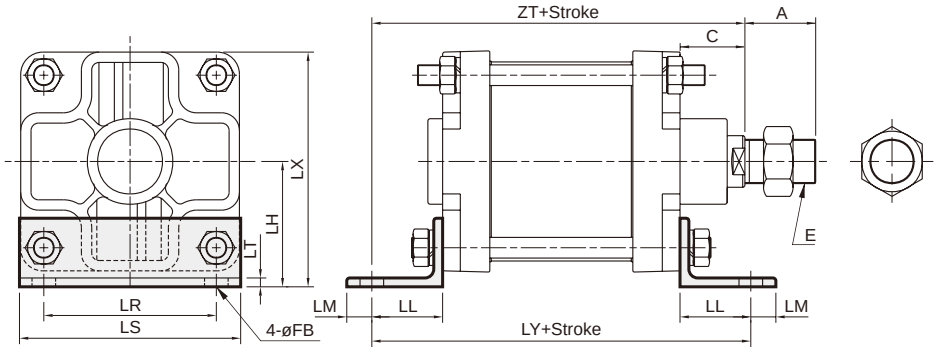
Code / Tube I.D.	A	B	C	E	I	V	ZM	ZN
125	45	136	47	M30×1.5	32	20	230	320
150	50	153	47	M30×1.5	32	26	247	347
200	63	154	67	M45×1.5	35	18	288	414

27



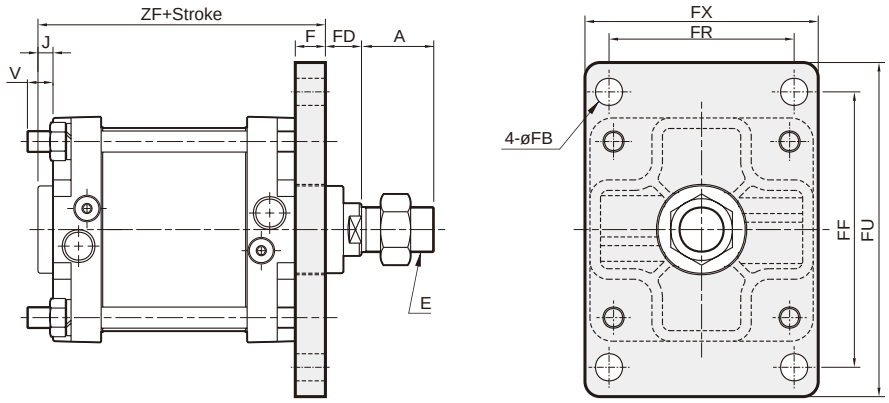
Code / Tube I.D.	A	AA	AB	AC	AD	AF	B	C	E	I	V	ZM	ZN	ZP	ZQ
125	45	38	47	30	18	60	136	47	M30×1.5	32	20	230	320	230	313
150	50	38	47	30	18	60	153	47	M30×1.5	32	26	247	347	247	335
200	63	38	50	30	18	70	154	67	M45×1.5	35	18	288	414	271	372

LB



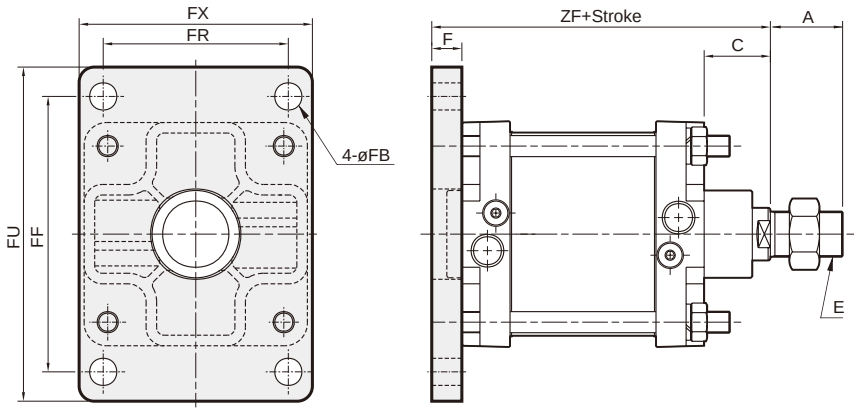
Code / Tube I.D.	A	E	FB	LH	LL	LM	LR	LS	LT	LX	LY	ZT
125	45	M30×1.5	16	85	48	17	117	150	6	162	232	231
150	50	M30×1.5	18	96.5	55	20	134	175	9	184	263	255
200	63	M45×1.5	24	132	60	30	150	226	10	245	274	281

FAC



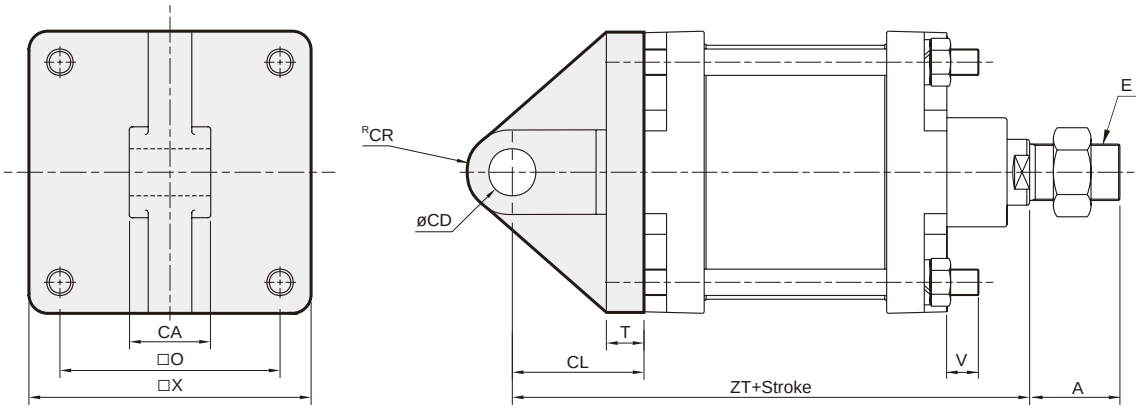
Code / Tube I.D.	A	E	F	FB	FD	FF	FR	FU	FX	J	V	ZF
125	45	M30×1.5	20	18	27	183	123	222	155	10	20	166
150	50	M30×1.5	20	18	27	230	134	275	185	8	26	181
200	63	M45×1.5	25	24	42	280	150	335	225	8	11	187

FBC



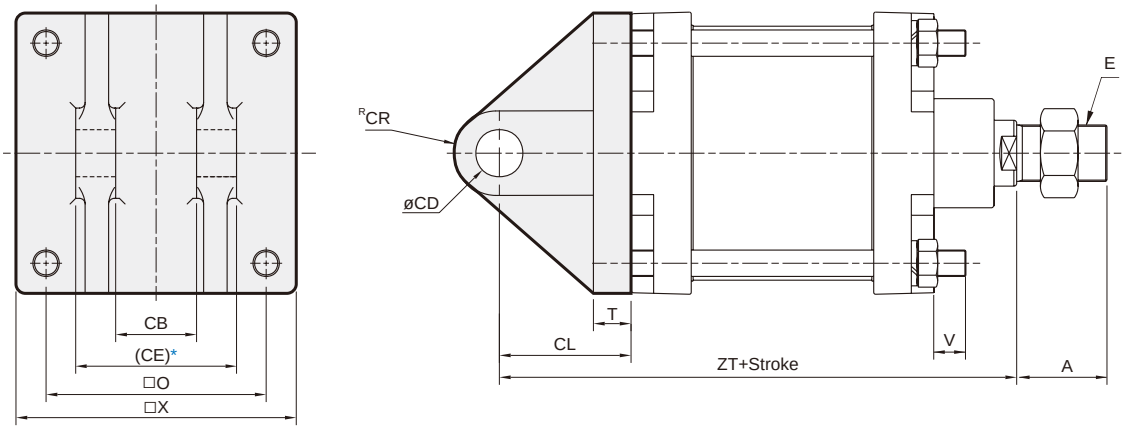
Code / Tube I.D.	A	C	E	F	FB	FF	FR	FU	FX	ZF
125	45	47	M30×1.5	20	18	183	123	222	155	203
150	50	47	M30×1.5	20	18	230	134	275	185	220
200	63	67	M45×1.5	25	24	280	150	335	225	246

CA



Code / Tube I.D.	A	CA	CD	CL	CR	E	O	T	X	ZT	V
125	45	43 $^{-0.1}_{-0.3}$	25^{H10}	65	24	M30×1.5	117	15	150	248	20
150	50	40 $^{-0.1}_{-0.3}$	30^{H10}	78	27.5	M30×1.5	134	20	175	278	26
200	63	50 $^{-0.1}_{-0.3}$	40^{H10}	85	40	M45×1.5	182	25	226	306	12

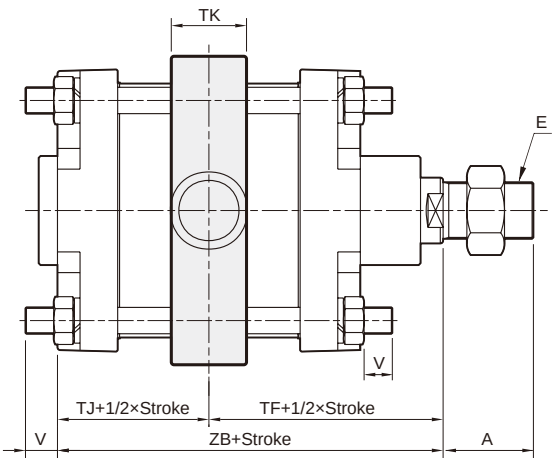
CB

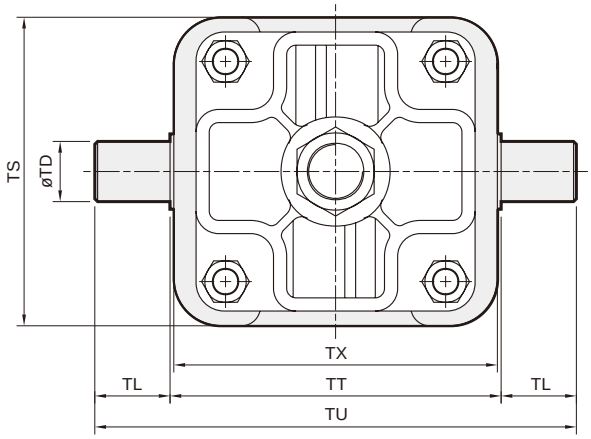


* Please do not take the sand casting plate as the mounting plate, because we do not machine it. If you have this special demand, please contact our sales representative.

Code / Tube I.D.	A	CB	CD	CE	CL	CR	E	O	T	X	ZT	V
125	45	43 $^{+0.3}_{+0.1}$	25^{H10}	83	70	24	M30×1.5	117	20	150	253	20
150	50	40 $^{+0.3}_{+0.1}$	30^{H10}	90	78	27.5	M30×1.5	134	20	175	278	26
200	63	50 $^{+0.3}_{+0.1}$	40^{H10}	100	85	40	M45×1.5	182	25	226	306	12

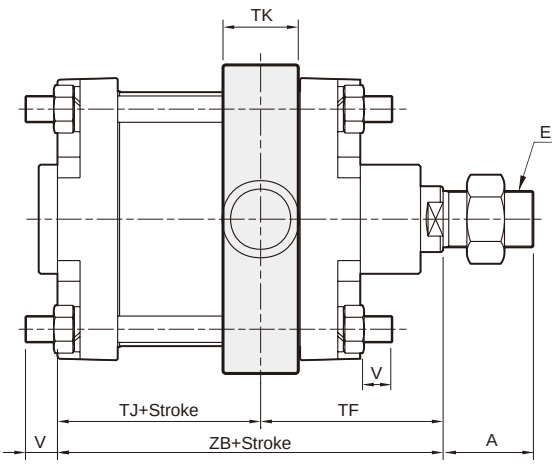
TC

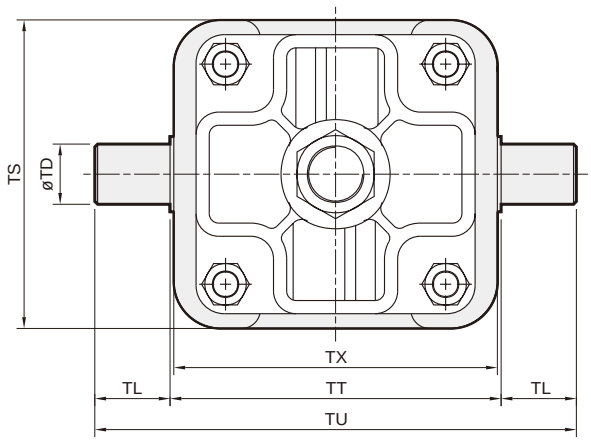




Code / Tube I.D.	A	E	TD	TF	TJ	TK	TL	TS	TT	TU	TX	V	ZB
125	45	M30×1.5	32^{e8}	115	68	40	40	164	176	256	172	17	183
150	50	M30×1.5	35^{e8}	123.5	76.5	41	40	194	200	280	198	16	200
200	63	M45×1.5	45^{e8}	144	77	59	45	255	265	355	255	8.5	221

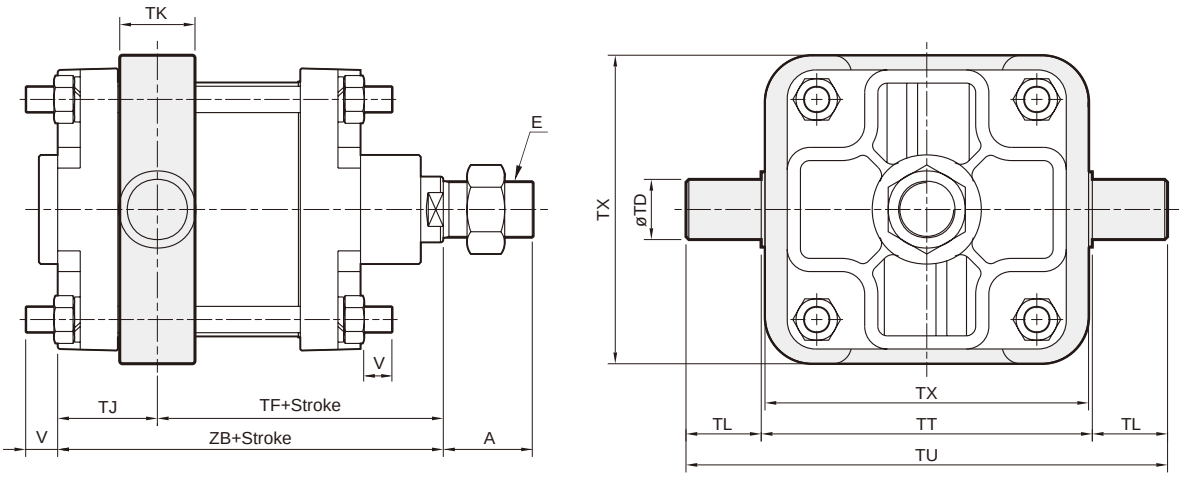
TA





Code / Tube I.D.	A	E	TD	TF	Without magnet		Magnet		TK	TL	TS	TT	TU	TX	V
					TJ	ZB	TJ	ZB							
125	45	M30×1.5	32^{e8}	100	83	183	129	229	40	40	164	176	256	172	17
150	50	M30×1.5	35^{e8}	109	91	200	137	246	41	40	194	200	280	198	16
200	63	M45×1.5	45^{e8}	139.5	81.5	221	125.5	265	59	45	255	265	355	255	8.5

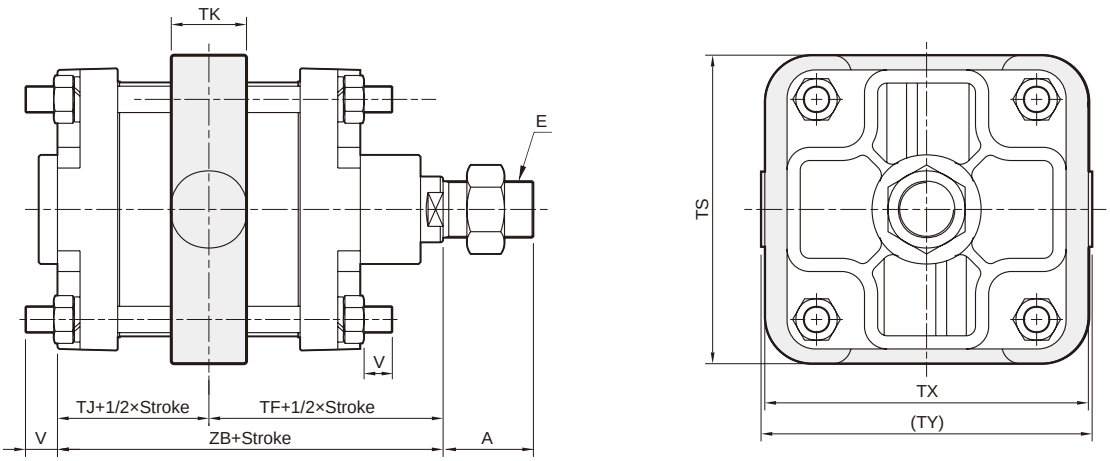
TB



Code / Tube I.D.	A	E	TD	Without magnet		Magnet		TJ	TK	TL	TS	TT	TU	TX	V
				TF	ZB	TF	ZB								
125	45	M30×1.5	32^{e8}	130	183	176	229	53	40	40	164	176	256	172	17
150	50	M30×1.5	35^{e8}	138	200	184	246	62	41	40	194	200	280	198	16
200	63	M45×1.5	45^{e8}	148.5	221	192.5	265	72.5	59	45	255	265	355	255	8.5

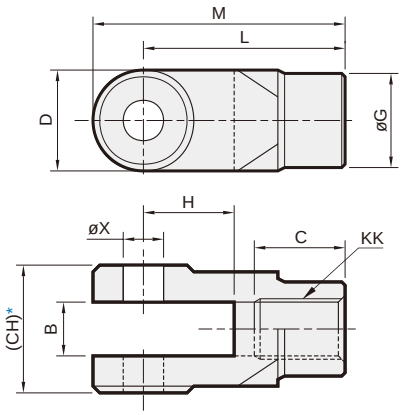
SDS

Stroke over 1000mm

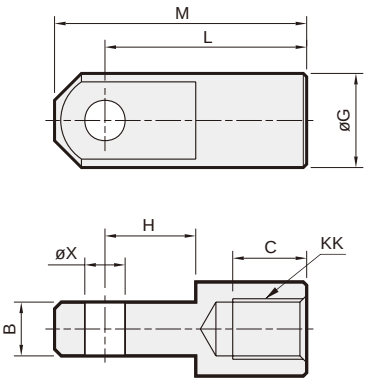


Code / Tube I.D.	A	E	TF	TJ	TK	TS	TX	TY	V	ZB
125	45	M30×1.5	115	68	40	164	172	174	17	183
150	50	M30×1.5	123.5	76.5	41	194	198	200	16	200
200	63	M45×1.5	144	77	59	255	255	263	8.5	221

Y connector



I connector

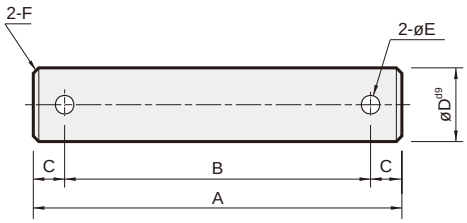


* Please do not take the sand casting plate as the mounting plate, because we do not machine it. If you have this special demand, please contact our sales representative.

Code / Tube I.D.	B		C		CH		D		G		H		KK		L		M		X^{H10}
	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	
40	16 $^{+0.3}_{+0.1}$	16 $^{-0.1}_{-0.3}$	25	20	38	–	26	–	ø24	ø24	25	25	M14×1.5		55	55	68	68	ø12 $^{+0.07}_{0}$
50	16 $^{+0.3}_{+0.1}$	16 $^{-0.1}_{-0.3}$	27	22	38	–	30	–	ø28	ø28	27	27	M18×1.5		60	60	75	75	ø12 $^{+0.07}_{0}$
63																			
80	28 $^{+0.3}_{+0.1}$	28 $^{-0.1}_{-0.3}$	32	27	55	–	38	–	ø36	ø36	32	32	M22×1.5		71	71	90	90	ø18 $^{+0.07}_{0}$
100	30 $^{+0.3}_{+0.1}$	30 $^{-0.1}_{-0.3}$	35	30	59	–	42	–	ø40	ø40	38	38	M26×1.5		83	83	104	104	ø20 $^{+0.08}_{0}$
125	32 $^{+0.3}_{+0.1}$	32 $^{-0.1}_{-0.3}$	35	40	76	–	58	–	ø45	ø50	38	32	M30×1.5		80	80	109	109	ø20 $^{+0.08}_{0}$
150	40 $^{+0.3}_{+0.1}$	40 $^{-0.1}_{-0.3}$	35	40	84	–	54	–	ø45	ø60	39	32	M30×1.5		80	80	107	107	ø25 $^{+0.08}_{0}$
200	50 $^{+0.3}_{+0.1}$	50 $^{-0.1}_{-0.3}$	67	67	100	–	85	–	ø70	ø70	54	44	M45×1.5		125	125	167.5	167.5	ø40 $^{+0.1}_{0}$

PIN

P



Order example

PIN – MCQA – 40 – Y – P

- PIN
- TUBE I.D.
- TYPE
  - **Y**: for Y & I connector
  - **CB**: for CA & CB accessory
- **P**: With split pin

for Y & I connector

Code / Tube I.D.	A	B	C	D^{d9}	E	F	Split pin
40	57	46	5.5	ø12 $^{-0.05}_{-0.09}$	3.5	1.0	3.2×20L
50	57	46	5.5	ø12 $^{-0.05}_{-0.09}$	3.5	1.0	3.2×20L
63	57	46	5.5	ø12 $^{-0.05}_{-0.09}$	3.5	1.0	3.2×20L
80	78	64	7	ø18 $^{-0.05}_{-0.09}$	4	1.2	4×25L
100	87	70	8.5	ø20 $^{-0.06}_{-0.12}$	5	1.5	5×35L
125	100	83	8.5	ø20 $^{-0.06}_{-0.12}$	5	1.5	5×35L
150	112	95	8.5	ø25 $^{-0.06}_{-0.12}$	5	2.0	5×35L
200	115	105	5	ø40 $^{-0.08}_{-0.14}$	5	2.0	5×55L

for CA & CB

Code / Tube I.D.	A	B	C	D^{d9}	E	F	Split pin
40	48	37	5.5	ø10 $^{-0.05}_{-0.09}$	3.5	1.0	3.2×20L
50	57	46	5.5	ø12 $^{-0.05}_{-0.09}$	3.5	1.0	3.2×20L
63	72	58	7	ø16 $^{-0.05}_{-0.09}$	4	1.2	4×25L
80	87	70	8.5	ø20 $^{-0.06}_{-0.12}$	5	1.5	5×35L
100	93	76	8.5	ø25 $^{-0.06}_{-0.12}$	5	1.5	5×35L
125	112	95	8.5	ø25 $^{-0.06}_{-0.12}$	5	1.5	5×35L
150	119	102	8.5	ø30 $^{-0.06}_{-0.12}$	5	2.0	5×40L
200	115	105	5	ø40 $^{-0.08}_{-0.14}$	5	2.0	5×55L

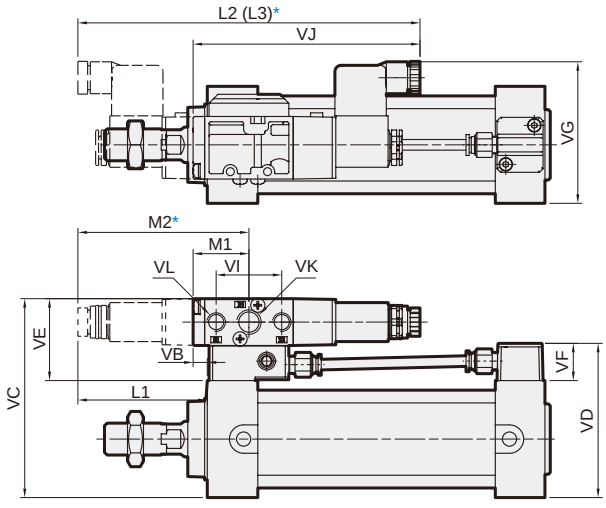
Order example

MCQA – As standard order example – VR–4E2C–AC110

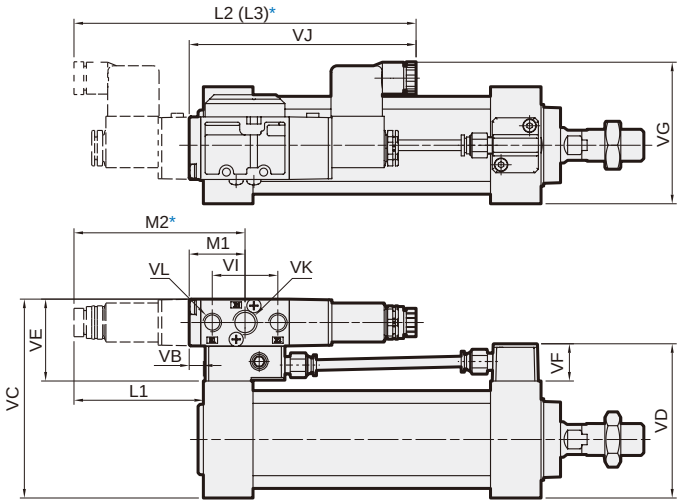
- MODEL
- SOLENOID VALVE LINK SEATS: **VR**, **VH**
- **4** way (5 port)
- **E1**: Single solenoid, **E2**: Double solenoid
- **C**: Closed center, **P**: Pressure center, **R**: Exhaust center (Only for 4E2)
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V

*1. MCQA-ø40~ø63 (for MVSC-260 valve)
*2. MCQA-ø80, ø100 (for MVSC-300 valve)

VR



VH



Code / Tube I.D.	L1	L2	L3	M1	M2	VB	VC	VD	VE	VF	VG	VI	VJ	VK	VL	Valve type
40	77.5	199	220	31.5	99.5	9.5	104.2	79	46.2	21	76	37	131	Rc1/4	Rc1/8	MVSC-260
50	78.5	199	220	31.5	99.5	8.5	112.2	87	46.2	21	80	37	131	Rc1/4	Rc1/8	MVSC-260
63	79.5	199	220	31.5	99.5	7.5	126.2	101	46.2	21	87	37	131	Rc1/4	Rc1/8	MVSC-260
80	80.5	222	275	45	111	14.5	159	128	59	28	90	52	156	Rc3/8	Rc3/8	MVSC-300
100	78.5	222	275	45	111	12.5	179	146	59	28	104	52	156	Rc3/8	Rc3/8	MVSC-300

* L2 for 4E2 size, L3 for 4E2C.P.R size, M2 for 4E2 and 4E2C.P.R size.

MCQA-AH series

AIR / OIL CONVERTER

Features

- Cylinder thrust should be 70% (50% of Maximum Speed) of theoretical force.
- Displacement should be approximately 50% of total volume.
- Maximum acceleration is approximately 200mm/sec.
- ISO-VG32 or an equivalent oil is recommended.
- Oil feed should not exceed 80% of total volume.
- Unit should be installed vertically above the cylinder / actuator.

Specification

Model	MCQA-AH
Tube I.D. (mm)	40,50,63,80,100,125,150
Medium	ISO VG32 Equivalent
Operating perssure range	0.05~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)
Available speed range	50~500 mm/sec

Order example

MCQA — 50 × 100 — AH

MODEL | TUBE I.D. | LENGTH | TYPE

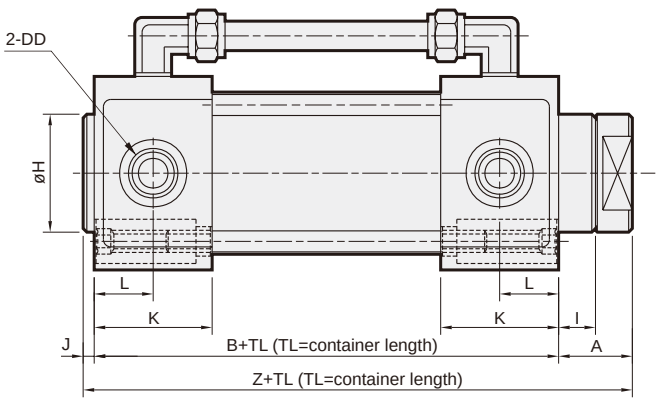
Mounting accessories

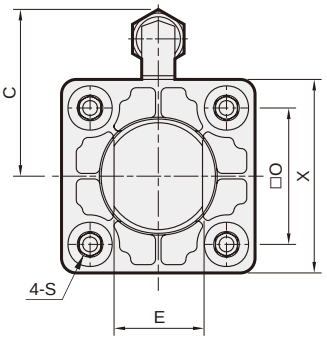
LB — MCQA — 40

MODEL | TUBE I.D.

MOUNTING TYPE

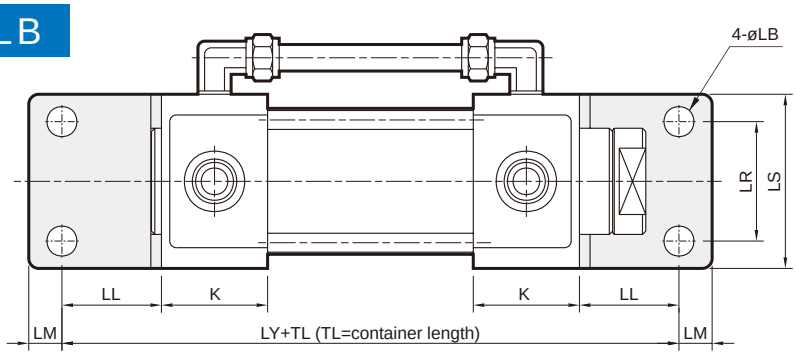
	LB
	FBC

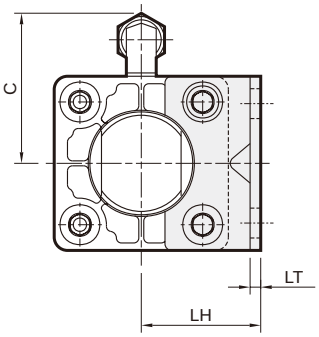




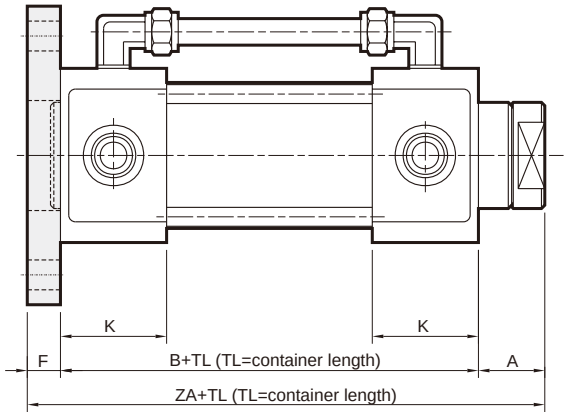
Mounting accessories

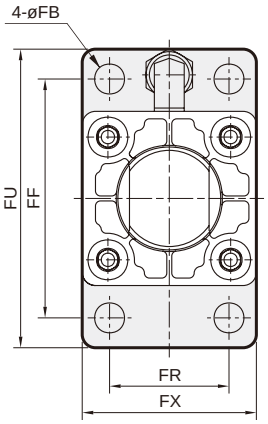
LB





FBC

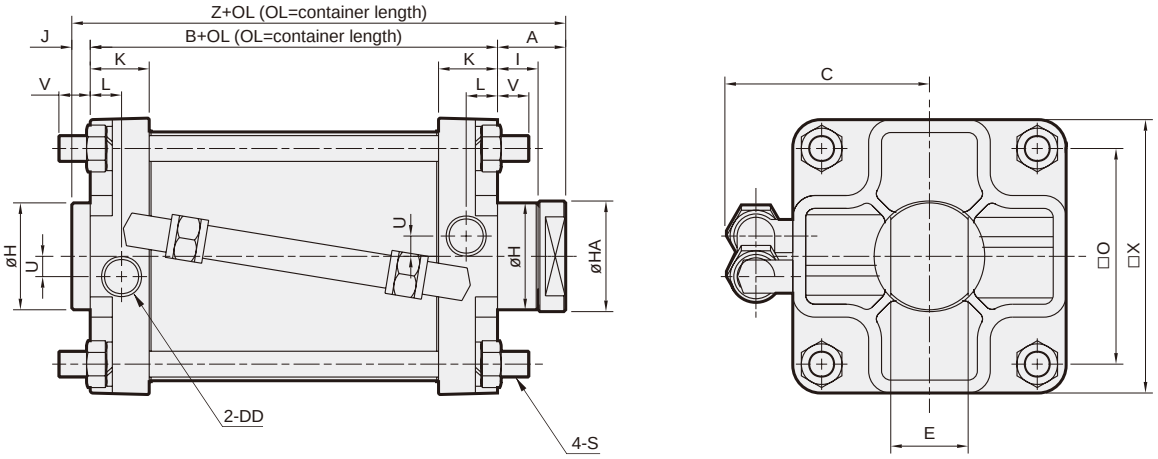




Code / Tube I.D	A	B	C	DD	E	F	FB	FF	FR	FU	FX	H	I	J	K	L	LB	LH	LL	LM	LR	LS	LT	LY	O	S	X	Z	ZA
40	21	62	49	Rc1/4	24	12	9	80	42	100	65	32	11	3	26	13	9	40	27	13	42	58	3.2	116	40.5	M8×1.25	58	86	95
50	21	66	53	Rc3/8	28	12	9	90	50	110	73	40	11	3	28	14	9	45	27	13	50	66	3.2	120	48	M8×1.25	66	90	99
63	21	72	66	Rc3/8	28	15	11.5	105	59	130	84	40	11	3	30	15	11.5	50	34	16	59	80	4.5	140	59	M8×1.25	80	96	108
80	27	82	70	Rc1/2	36	18	14	130	76	160	108	45	15	4	34	17	14	65	44	16	76	100	6.0	170	74	M12×1.75	100	113	127
100	27	90	79	Rc1/2	40	18	14	150	92	180	124	52	15	5	37	18.5	14	75	43	17	92	118	6.0	176	90	M12×1.75	118	122	135

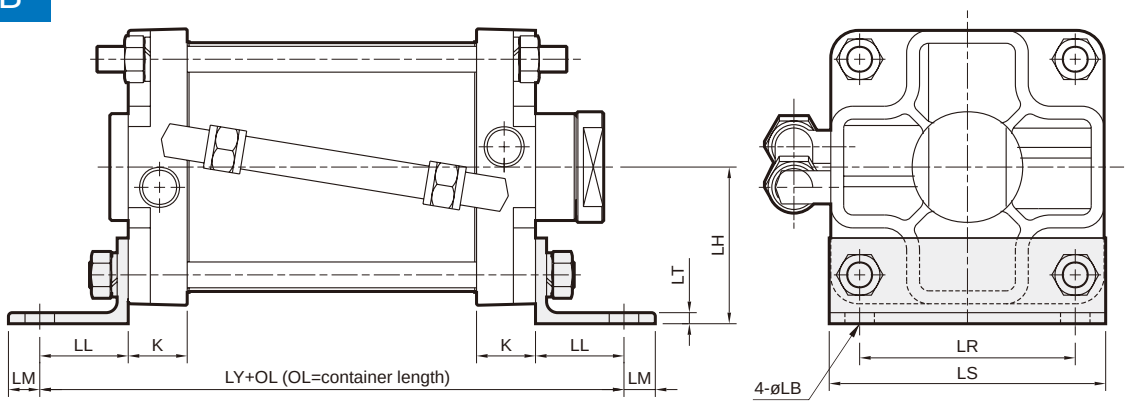
MCQA-AH Dimensions ø125, ø150

AIR / OIL CONVERTER — INSTALLED UPRIGHTLY

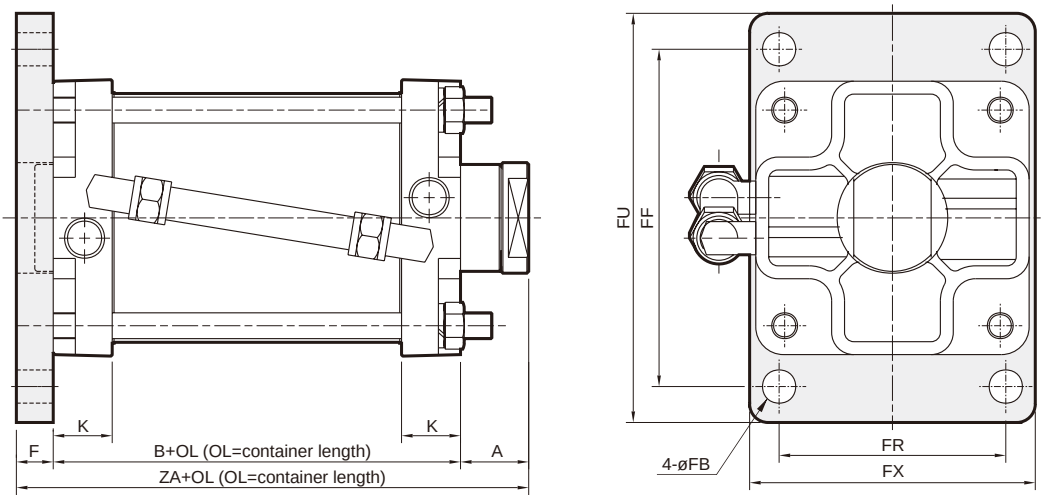


Mounting accessories

LB



FBC



Code / Tube I.D.	A	B	C	DD	E	F	FB	FF	FR	FU	FX	H	HA	I	J	K	L	LB	LH	LL	LM	LR	LS	LT	LY	O	S	U	V	X	Z	ZA
125	47	90	95	Rc1/2	42	20	18	183	123	222	155	58	60	32	10	32	17	16	85	48	17	115	151	6	186	117	M14×1.5	11	20	150	147	157
150	47	107	108	Rc1/2	42	20	18	230	134	275	185	60	60	32	8	40.5	24.5	18	96.5	55	20	134	175	9	217	134	M16×1.5	12	26	175	162	174

Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Full range of NFPA interchangable mounting configurations

Mounting dimensions are in accordance with ANSI (NFPA) T3.6.7 R2-1996, fluid power systems and products-square head industrial cylinders-mounting dimensions.

Specification

Model	MCQN				
Tube I.D. (inch)	1 1/2"	2"	2 1/2"	3 1/4"	4"
Tube I.D. (mm)	40	50	63	80	100
Port size	NPT3/8			NPT1/2	
Medium	Air				
Operating perssure range	0.05~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Available speed range	50~500 mm/sec				
Sensor switch (*)	RCA				
Sensor switch holder	HV1	HV2	HV2	HV3	HV3

* RCA specification, please refer to page 8-7.

Table for standard stroke

Tube I.D	Stroke (inch)
ø1 1/2"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20
ø2", 2 1/2"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24
ø3 1/4", 4"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24

Order example

MCQN — 11 — 1 1/2 — 0425M

- MCQN — MODEL
- 11 — **1**: Single rod; STYLE
- 1 1/2 — TUBE I.D.
- 04 — STANDARD STROKE (inches) **04**=4" storke
- 25 — STROKE (Hundred of an inch) **25**=0.25(1/4) inch storke
- M — **M**: Magnet

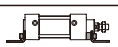
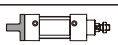
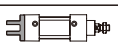
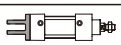
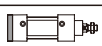
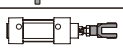
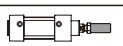
Code		Symbol	Description
1	1		Double acting / Male thread

* Order example for special specification, refer to page 0-7.

Mounting accessories

FAC — MCQN — 1 1/2

- FAC — MOUNTING TYPE
- MCQN — MODEL
- 1 1/2 — TUBE I.D.

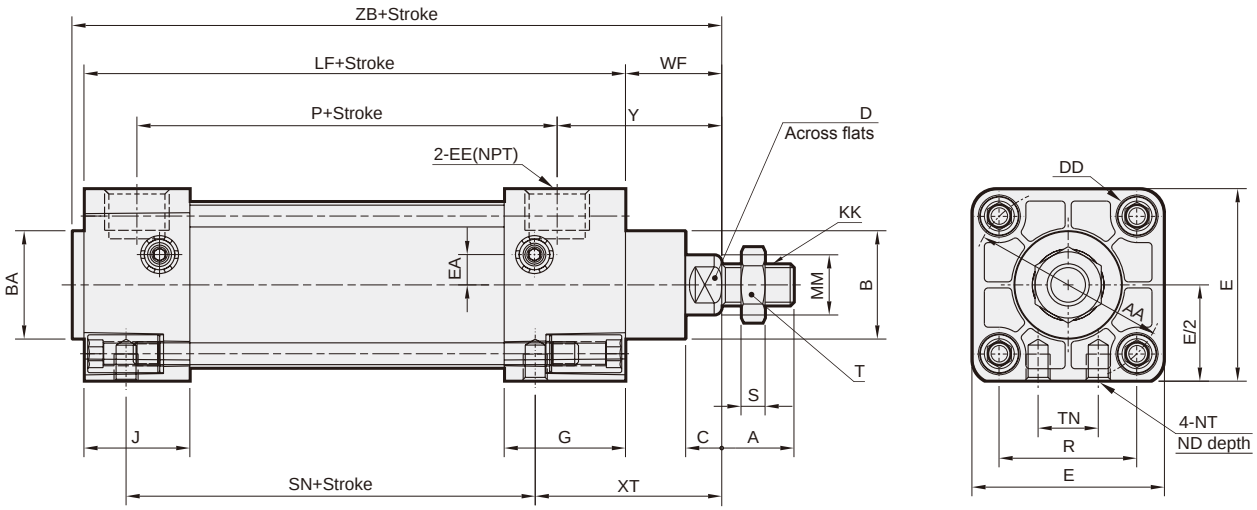
	LB
	CA
	CB
	CB2
	FAC
	FBC
	TC
	Y
	I

MCQN Dimensions ø1 1/2"~ø4"

STANDARD CYLINDER

mindman

11

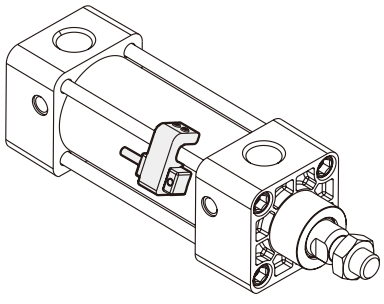


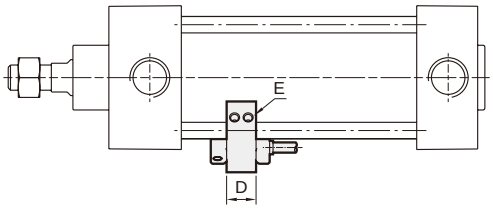
Code / Tube I.D.	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	KK	LF	MM	ND	NT	P	R	S	SN
1 1/2"	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.32	3/8	1.26	1.10	7/16-20	3 5/8	5/8	9/32	1/4-20	2.36	1.43	0.26	2 1/4
2"	3/4	2.60	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.43	3/8	1.26	1.06	7/16-20	3 5/8	5/8	7/16	5/16-18	2.40	1.84	0.26	2 1/4
2 1/2"	3/4	3.10	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0.47	3/8	1.30	1.06	7/16-20	3 3/4	5/8	19/32	3/8-16	2.48	2.19	0.26	2 3/8
3 1/4"	1 1/8	3.90	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	—	1/2	1.57	1.18	3/4-16	4 1/4	1	5/8	1/2-13	2.72	2.76	0.42	2 5/8
4"	1 1/8	4.70	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	—	1/2	1.57	1.18	3/4-16	4 1/4	1	5/8	1/2-13	2.72	3.32	0.42	2 5/8

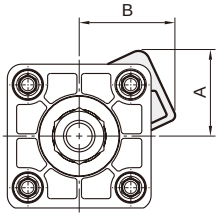
Code / Tube I.D.	T	TN	WF	XT	Y	ZB
1 1/2"	0.69	0.63	1	1 15/16	1.71	4 3/4
2"	0.69	0.88	1	1 15/16	1.71	4 3/4
2 1/2"	0.69	1.25	1	1 15/16	1.75	4 7/8
3 1/4"	1.12	1.50	1 3/8	2 7/16	2.34	5 53/64
4"	1.12	2.06	1 3/8	2 7/16	2.34	5 53/64

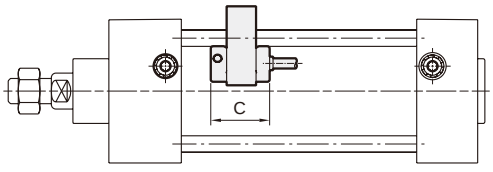
Installation of sensor switch

Code / Tube I.D.	Sensor switch	Hold	A	B	C	D	E
1 1/2"	RCA	HV1	1.10	1.47	1.02	0.51	M4×10L
2"	RCA	HV2	1.49	1.68	1.02	0.51	M4×10L
2 1/2"	RCA	HV2	1.66	1.86	1.02	0.51	M4×10L
3 1/4"	RCA	HV3	1.87	2.13	1.02	0.51	M4×10L
4"	RCA	HV3	2.15	2.42	1.02	0.51	M4×10L



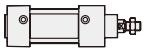
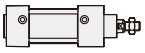
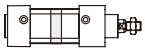






Cylinder weight

Unit: kg

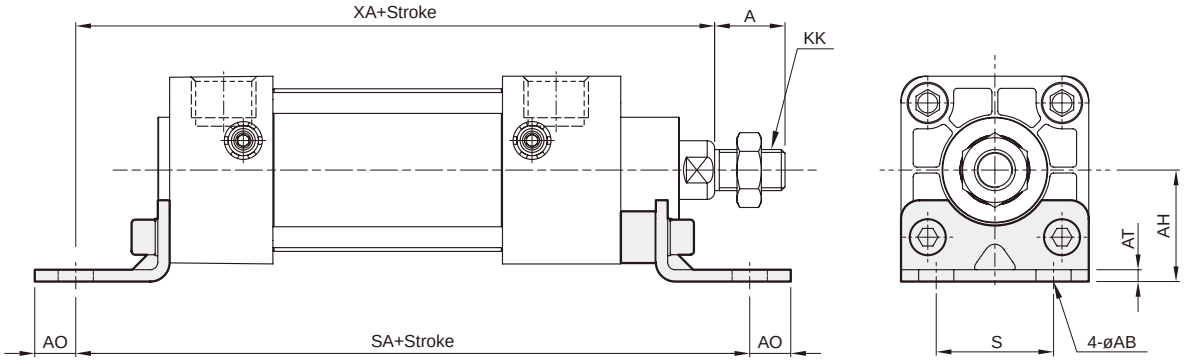
Model	Basic weight **MCQN-11**	Basic weight (magnet) **MCQN-11**	Stroke 1 inch **MCQN-11**
Tube I.D.			
ø1 1/2"	0.664	0.676	0.078
ø2"	0.965	0.981	0.096
ø2 1/2"	1.314	1.334	0.108
ø3 1/4"	2.482	2.510	0.200
ø4"	3.266	3.300	0.220

Accessories weight

Unit: kg

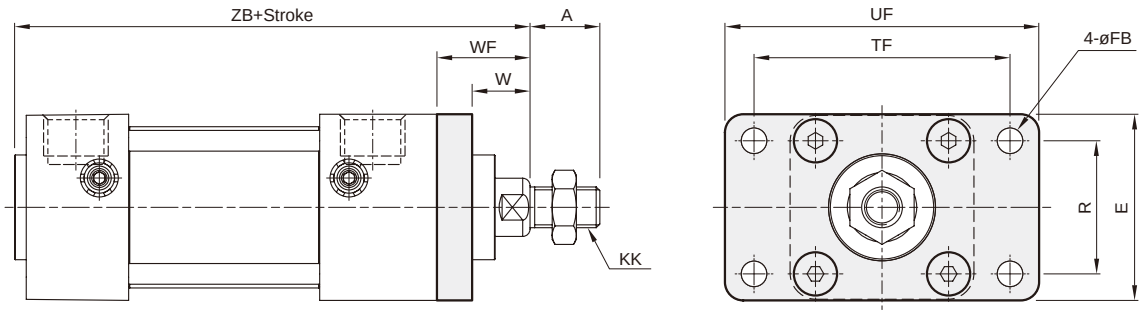
Model	LB	CA	CB	CB2	FAC/FBC	TC	Y	I	PIN
Tube I.D.									
ø1 1/2"	0.160	0.285	0.229	0.287	0.246	0.554	0.205	0.150	0.065
ø2"	0.240	0.394	0.377	0.424	0.403	0.644	0.205	0.150	0.065
ø2 1/2"	0.300	0.531	0.521	0.563	0.576	0.840	0.205	0.150	0.065
ø3 1/4"	0.633	1.511	1.302	1.482	1.408	1.098	0.662	0.522	0.175
ø4"	0.955	2.047	1.821	2.033	2.015	1.450	0.662	0.522	0.175

LB



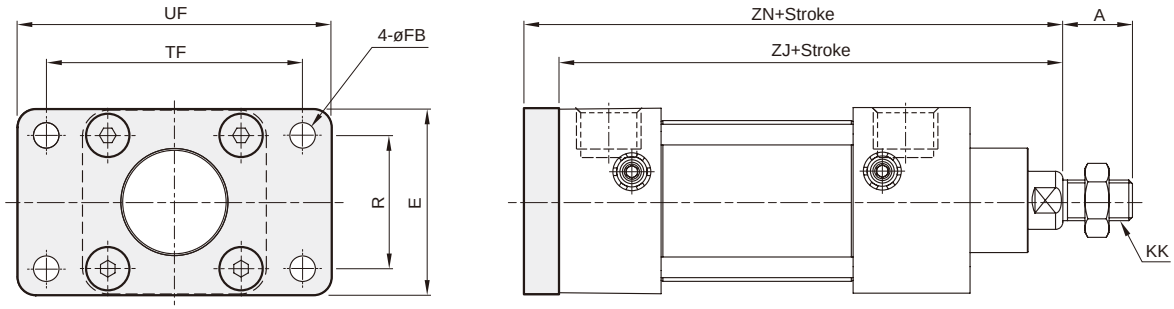
Code / Tube I.D.	A	AB	AH	AT	AO	KK	S	SA	XA
1 1/2"	3/4	3/8	1 3/16	1/8	7/16	7/16-20	1 1/4	6	5 5/8
2"	3/4	3/8	1 7/16	1/8	9/16	7/16-20	1 3/4	6	5 5/8
2 1/2"	3/4	3/8	1 5/8	1/8	9/16	7/16-20	2 1/4	6 1/8	5 3/4
3 1/4"	1 1/8	1/2	1 15/16	11/64	3/4	3/4-16	2 3/4	7 3/8	6 7/8
4"	1 1/8	1/2	2 1/4	15/64	3/4	3/4-16	3 1/2	7 3/8	6 7/8

FAC



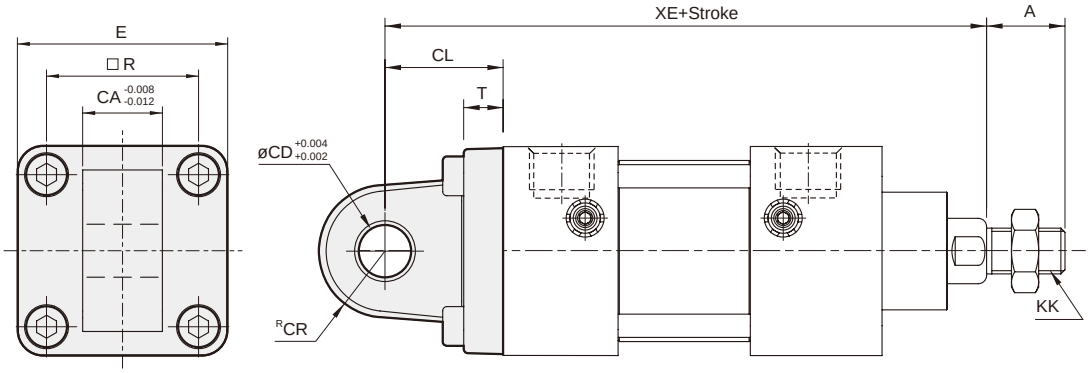
Code / Tube I.D.	A	E	FB	KK	R	TF	UF	W	WF	ZB
1 1/2"	3/4	2	0.25	7/16-20	1.43	2.75	3.38	0.63	1	4 3/4
2"	3/4	2 1/2	0.31	7/16-20	1.84	3.38	4.13	0.63	1	4 3/4
2 1/2"	3/4	3	0.31	7/16-20	2.19	3.88	4.63	0.63	1	4 7/8
3 1/4"	1 1/8	3 3/4	0.38	3/4-16	2.76	4.68	5.50	0.75	1 3/8	5 53/64
4"	1 1/8	4 1/2	0.38	3/4-16	3.32	5.44	6.25	0.75	1 3/8	5 53/64

FBC



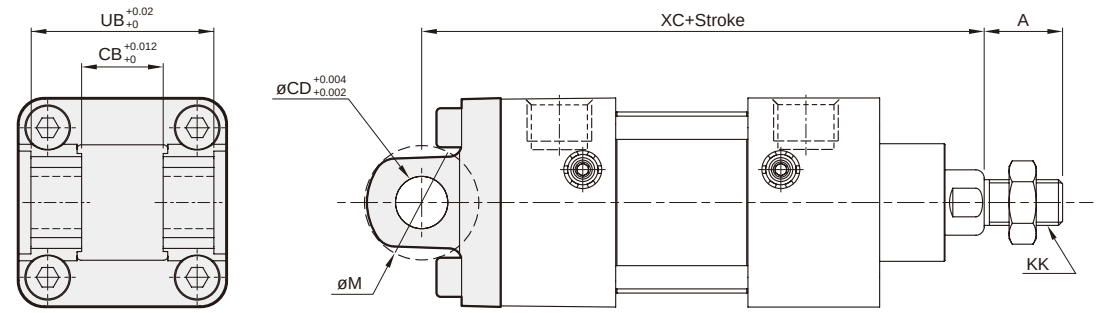
Code / Tube I.D.	A	E	FB	KK	R	TF	UF	ZJ	ZN
1 1/2"	3/4	2	0.25	7/16-20	1.43	2.75	3.38	4.63	5.00
2"	3/4	2 1/2	0.31	7/16-20	1.84	3.38	4.13	4.63	5.00
2 1/2"	3/4	3	0.31	7/16-20	2.19	3.88	4.63	4.75	5.13
3 1/4"	1 1/8	3 3/4	0.38	3/4-16	2.76	4.68	5.50	5.63	6.25
4"	1 1/8	4 1/2	0.38	3/4-16	3.32	5.44	6.25	5.63	6.25

CA



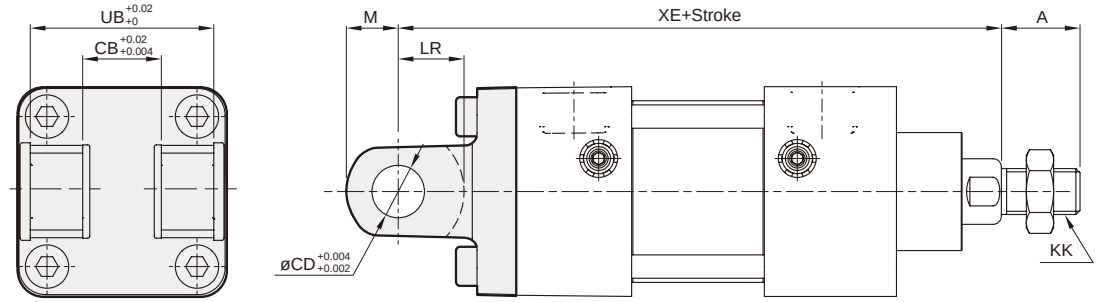
Code / Tube I.D.	A	CA	CD	CL	CR	E	KK	R	T	XE
1 1/2"	3/4	0.75	0.50	1.125	0.63	2	7/16-20	1.43	0.375	5 3/4
2"	3/4	0.75	0.50	1.125	0.63	2 1/2	7/16-20	1.84	0.375	5 3/4
2 1/2"	3/4	0.75	0.50	1.125	0.63	3	7/16-20	2.19	0.375	5 7/8
3 1/4"	1 1/8	1.25	0.75	1.875	0.87	3 3/4	3/4-16	2.76	0.625	7 1/2
4"	1 1/8	1.25	0.75	1.875	0.87	4 1/2	3/4-16	3.32	0.625	7 1/2

CB



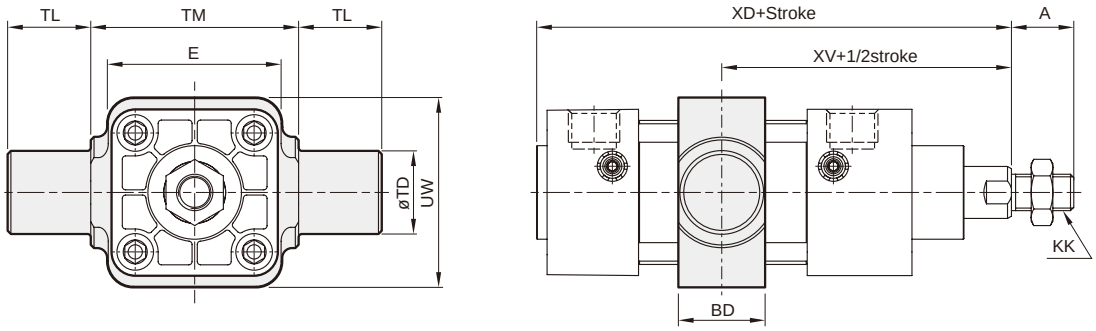
Code / Tube I.D.	A	CB	CD	KK	M	UB	XC
1 1/2"	3/4	0.78	0.50	7/16-20	1.24	1.75	5.38
2"	3/4	0.78	0.50	7/16-20	1.24	1.75	5.38
2 1/2"	3/4	0.78	0.50	7/16-20	1.24	1.75	5.50
3 1/4"	1 1/8	1.28	0.75	3/4-16	1.88	2.50	6.88
4"	1 1/8	1.28	0.75	3/4-16	1.88	2.50	6.88

CB2



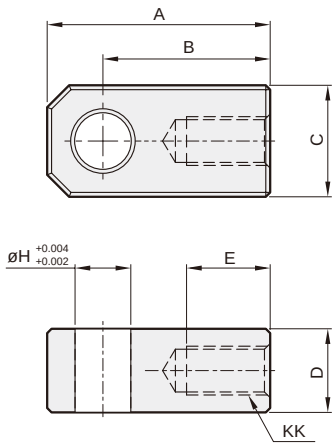
Code / Tube I.D.	A	CB	CD	KK	LR	M	UB	XE
1 1/2"	3/4	0.75	0.50	7/16-20	5/8	0.5	1.75	5 3/4
2"	3/4	0.75	0.50	7/16-20	5/8	0.5	1.75	5 3/4
2 1/2"	3/4	0.75	0.50	7/16-20	5/8	0.5	1.75	5 7/8
3 1/4"	1 1/8	1.25	0.75	3/4-16	1	0.75	2.50	7 1/2
4"	1 1/8	1.25	0.75	3/4-16	1	0.75	2.50	7 1/2

TC



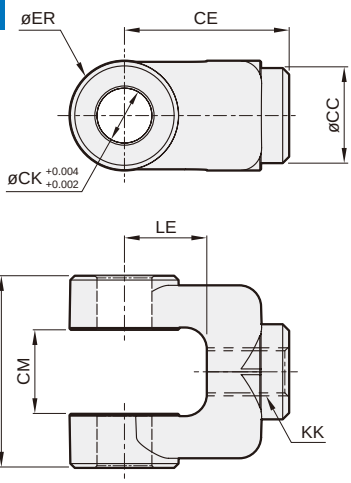
Code / Tube I.D.	A	BD	E	KK	TD	TM	TL	UW	XD	XV
1 1/2"	3/4	1.04	2.11	7/16-20	1	2.50	1	2.28	4.94	3.20
2"	3/4	1.04	2.60	7/16-20	1	3.00	1	2.60	5.03	3.32
2 1/2"	3/4	1.10	3.09	7/16-20	1	3.50	1	3.23	5.07	3.33
3 1/4"	1 1/8	1.18	3.70	3/4-16	1	4.50	1	4.17	6.16	4.19
4"	1 1/8	1.22	4.49	3/4-16	1	5.25	1	4.96	6.18	4.19

I connector



Code / Tube I.D.	A	B	C	D	E	H	KK
1 1/2"~2 1/2"	2.00	1.50	1.0	0.75	0.75	0.50	7/16-20
3 1/4"~4"	2.81	2.06	1.5	1.25	1.13	0.75	3/4-16

Y connector



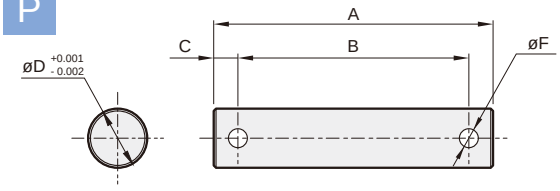
* Please do not take the sand casting plate as the mounting plate, because we do not machine it. If you have this special demand, please contact our sales representative.

Code / Tube I.D.	CC	CE	CL	CM	CK	ER	KK	LE
1 1/2"~2 1/2"	0.87	1.50	1.75	0.765	0.50	1	7/16-20	0.75
3 1/4"~4"	1.34	2.38	2.50	1.265	0.75	1.5	3/4-16	1.25

PIN

for CB & CB2 accessory and Y & I connector.

P



Code / Tube I.D.	A	B	C	D	F
1 1/2"~2 1/2"	2.36	1.95	0.20	0.50	0.16
3 1/4"~4"	3.13	2.74	0.19	0.75	0.20

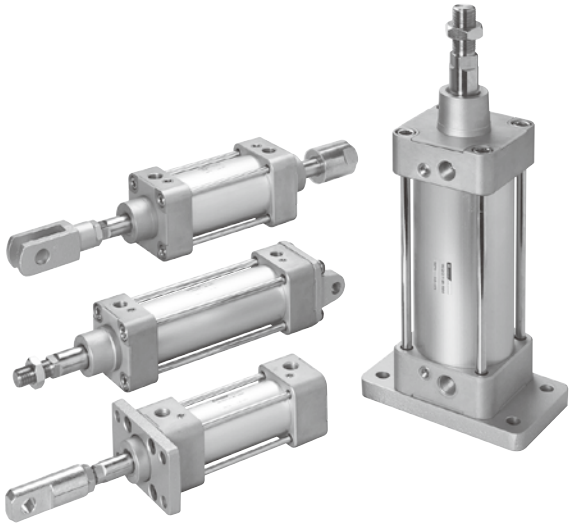
Order example

PIN — MCQN — 1 1/2 — P

- MCQN → MODEL
- 1 1/2 → TUBE I.D.
- P → **P**: With split pin

MCQV / MCQV2 series

ISO-VDMA **STANDARD CYLINDER**



Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ ISO-VDMA standard specification

Conforms to ISO-6431 and VDMA 24562 specification enabling worldwide interchangeability.

■ Cylinder mountings

Available with comprehensive internationally recognised range of fixed and flexible mountings.

Specification

Model	MCQV2			MCQV		
Tube I.D. (mm)	32,40	50,63	80,100	125	160	200
Medium	Air					
Operating perssure range	0.05~1 MPa					
Proof pressure	1.5 MPa					
Ambient temperature	-5~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Sensor switch (*)	RCA					
Sensor switch holder	HV1	HV2	HV3	HV4	PM16	HA5V

* RCA specification, please refer to page 8-7.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø32,40	50,75,100,125,150,175,200,250,300,350,400,450,500
ø50,63	↑ 600
ø80,100,125,160	↑ 600,700
ø200	↑ 600,700,800,900,1000,1500

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Order example

MCQV2 — 11 — 40 — 100M

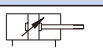
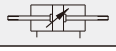
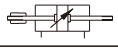
- MCQV2 — MODEL
- 11 — STYLE
- 40 — TUBE I.D.
- 100 — STROKE
- M — **M**: Magnet

1: Single rod
2: Double rod

MODEL

MODEL	Tube I.D.
MCQV2	ø32~ø100
MCQV	ø125~ø200

STYLE

Code		Symbol	Description
1	**1**		Double acting / Male thread
2	**1**		Double rod / Male thread
2	**7**		Double rod / Adjustable male thread (*)

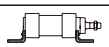
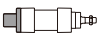
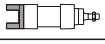
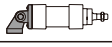
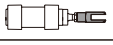
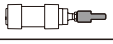
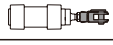
* Please mark "adjustable distance(mm)" at order list.
* Order example for special specification, refer to page 0-7.
* Order example for **Rc** or **NPT** thread please consult us.

Mounting accessories

FAC — MCQV — 40

- FAC — MOUNTING TYPE
- MCQV — MODEL
- 40 — TUBE I.D.

MOUNTING TYPE

	**LB**
	**CA**
	**CB**
	**CDB** (+CB+PIN)
	**FAC**
	**FBC**
	**TA**
	**TB**
	**TC**
	**Y**
	**I**
	**YS** (Y+Floating+PIN)

* for ø32~ø100 CB+PIN have to extra purchase.

* for ø32~ø100

* Mounting accessories please refer to page 1-34.

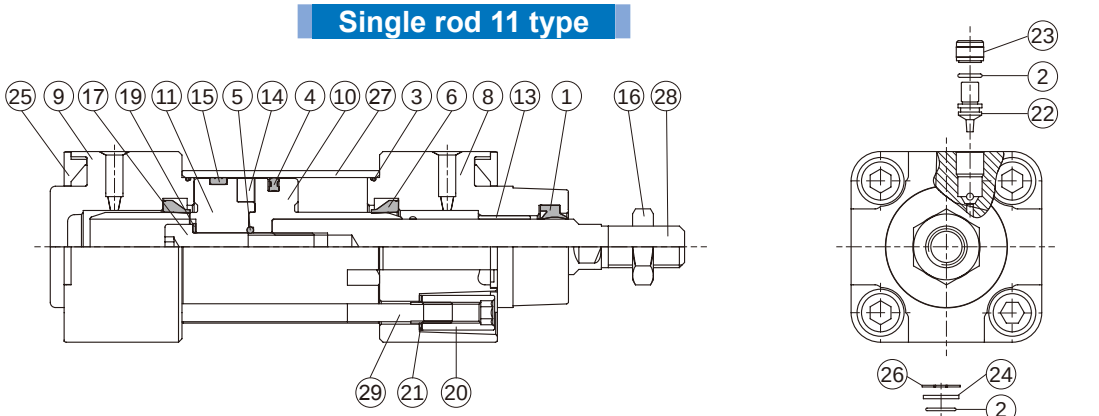
MCQV*-11 Inside structure & Parts list

ISO-VDMA **STANDARD CYLINDER**

mindman

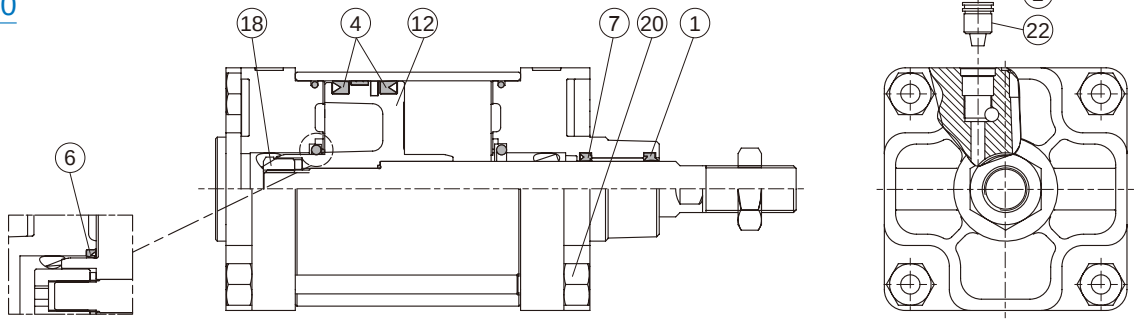
Single rod 11 type

ø32~ø100



ø125~ø200

ø200

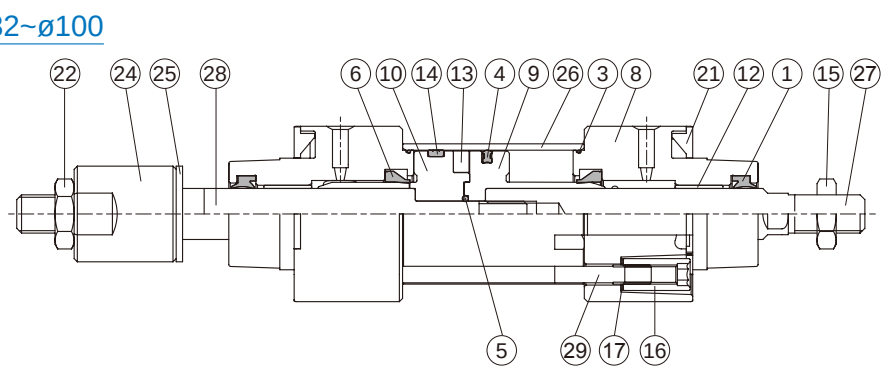


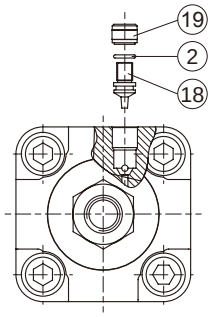
No.	Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
				ø32~ø100	ø125~ø200	ø32~ø100	ø125~ø200	
1	Rod packing	NBR	1	●	●	●	●	
2	O-ring	NBR	2	●	●		●	
3	O-ring	NBR	2	●	●	●	●	
4	Piston packing	NBR	1 or 2	●	●	●	●	ø125~ø200 (Q'y 2)
5	O-ring	NBR	1	●	●	●	●	
6	Cushion packing	NBR	2	●	●	●	● *	
7	Rod packing	NBR	1		●		●	
8	Rod cover	Aluminum alloy	1	●	●			
9	Head cover	Aluminum alloy	1	●	●			
10	Piston-R	Aluminum alloy	1	●				
11	Piston-H	Aluminum alloy	1	●				
12	Piston	Aluminum alloy	1		●			
13	Bush	Bearing alloy	1	●	●			
14	Magnet ring	Magnet material	1	◎	◎			◎ Option
15	Wear ring	Teflon	1	●	●			
16	Hex nut	Carbon steel	1	●	●			
17	Bolt	Carbon steel	1	●				
18	Piston nut	Carbon steel	1		●			
19	Washer	Carbon steel	1	●	●			ø32 does not contain item #19
20	Tie rod nut	Carbon steel	8	●	●			
21	Tie rod washer	Carbon steel	8	●				
22	Needle valve	Copper alloy	2	●	●			
23	Insert nut	Copper alloy	2	●				
24	Needle valve washer	Carbon steel	2		●			
25	Cover plate	Plastic	2	●				
26	Snap ring	Carbon steel	2		●			
27	Cylinder tube	Aluminum alloy	1					
28	Piston rod	Carbon steel	1					
29	Tie rod	Carbon steel	4					

* Cushion packing is not included in ø200 repair kits.

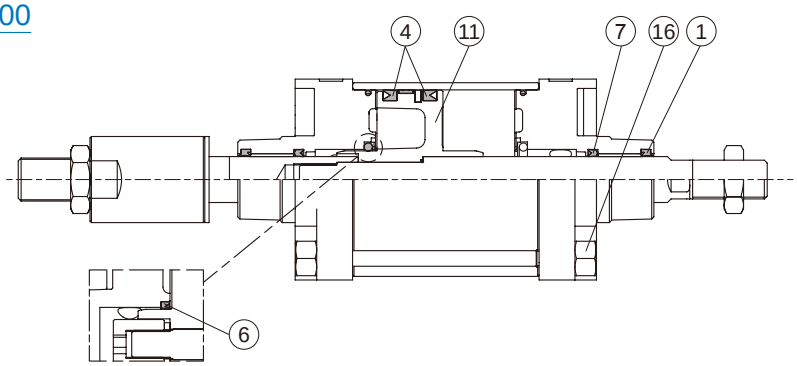
Double rod 21 / 27 type

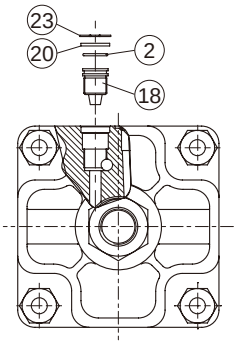
ø32~ø100





ø125~ø200





ø200

No.	21 type		27 type		Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
	A	B	A	B				ø40~ø100	ø125~ø200	ø40~ø100	ø125~ø200	
1	●	●	●	●	Rod packing	NBR	2	●	●	●	●	
2	●	●	●	●	O-ring	NBR	2	●	●		●	
3	●	●	●	●	O-ring	NBR	2	●	●	●	●	
4	●	●	●	●	Piston packing	NBR	1 or 2	●	●	●	●	ø125~ø200 (Q'y 2)
5	●	●	●	●	O-ring	NBR	1	●	●	●	●	
6	●	●	●	●	Cushion packing	NBR	2	●	●	●	●*	
7		●		●	Rod packing	NBR	2		●		●	
8	●	●	●	●	Rod cover	Aluminum alloy	2	●	●			
9	●		●		Piston-R	Aluminum alloy	1	●				
10	●		●		Piston-H	Aluminum alloy	1	●				
11		●		●	Piston	Aluminum alloy	1		●			
12	●	●	●	●	Bush	Bearing alloy	2	●	●			
13	◎	◎	◎	◎	Magnet ring	Magnet material	1	◎	◎			◎ Option
14	●	●	●	●	Wear ring	Teflon	1	●	●			
15	●	●	●	●	Screw	Carbon steel	1	●	●			
16	●	●	●	●	Tie rod nut	Carbon steel	8	●	●			
17	●		●		Tie rod washer	Carbon steel	8	●				
18	●	●	●	●	Needle valve	Copper alloy	2	●	●			
19	●		●		Insert nut	Copper alloy	2	●				
20		●		●	Needle valve washer	Carbon steel	2		●			
21	●		●		Cover plate	Plastic	2	●				
22	●	●	●	●	Hex nut	Carbon steel	1	●	●			
23		●		●	Snap ring	Carbon steel	2		●			
24			●	●	Adjustable nut	Carbon steel	1					
25			●	●	Gasket	PU	1					
26	●	●	●	●	Cylinder tube	Aluminum alloy	1					
27	●	●	●	●	Piston rod #1	Carbon steel	1					
28	●	●	●	●	Piston rod #2	Carbon steel	1					
29	●	●	●	●	Tie rod	Carbon steel	4					

A: ø40~ø100, **B**: ø125~ø200 * Cushion packing is not included in ø200 repair kits.

Order example of component parts

CP — MCQV2 — 2 — 40 M

MODEL

MODEL	Tube I.D.
MCQV2	ø32~ø100
MCQV	ø125~ø200

Blank: Single rod
2: Double rod

TUBE I.D.
32, 40, 50, 63, 80, 100 125, 160, 200

M: Magnet

* Order example for **Rc** or **NPT** thread please consult us.

Order example of repair kits

PS — MCQV2 — 2 — 40 — XB6

MODEL

MODEL	Tube I.D.
MCQV2	ø32~ø100
MCQV	ø125~ø200

Blank: Single rod
2: Double rod

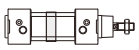
TUBE I.D.
32, 40, 50, 63, 80, 100 125, 160, 200

Blank: NBR
XB6: Heat resistant material

Cylinder & accessories weight

Cylinder weight

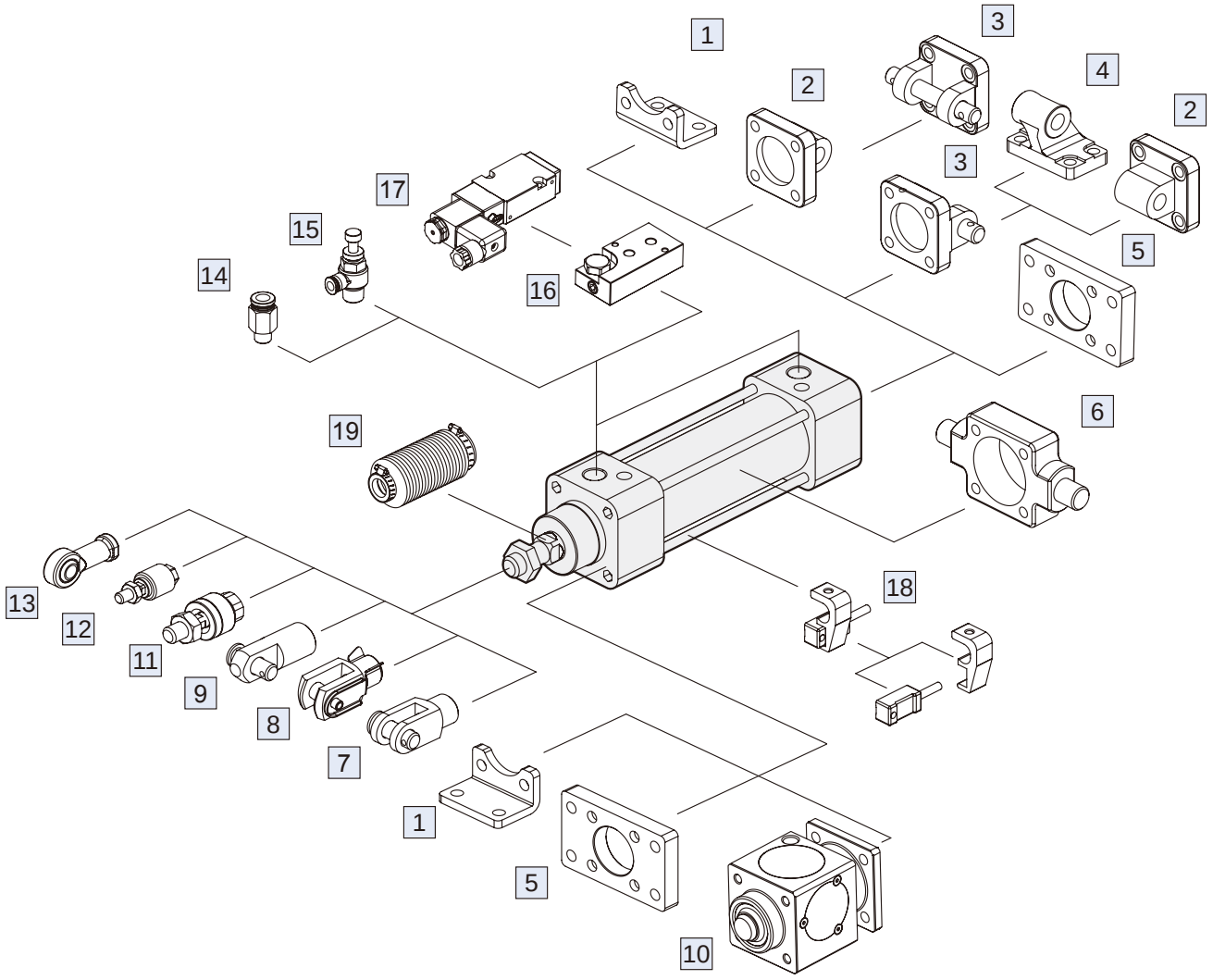
Unit: kg

Model	Basic weight **MCQV-11**	Basic weight (magnet) **MCQV-11**	Stroke 25 mm **MCQV-11**
Tube I.D.			
ø32	0.520	0.526	0.053
ø40	0.770	0.782	0.075
ø50	1.200	1.217	0.115
ø63	1.700	1.720	0.130
ø80	2.770	2.797	0.210
ø100	3.960	3.995	0.220
ø125	7.345	7.388	0.372
ø160	14.020	14.070	0.047
ø200	19.450	19.560	0.570

Accessories weight

Unit: kg

Model	LB	CA	CB	CDB	FAC/FBC	TA/TB/TC	Y	I	Pin		YS
									Y / I	CA / CB	
Tube I.D.											
ø32	0.163	0.213	0.185	0.170	0.235	0.208	0.067	0.082	0.016	0.036	0.018
ø40	0.211	0.253	0.211	0.230	0.265	0.282	0.115	0.141	0.029	0.057	0.031
ø50	0.315	0.390	0.352	0.410	0.460	0.377	0.272	0.334	0.067	0.063	0.070
ø63	0.395	0.670	0.544	0.550	0.684	0.675	0.272	0.334	0.067	0.128	0.070
ø80	0.816	1.076	0.982	0.870	1.508	1.025	0.551	0.553	0.142	0.158	0.150
ø100	1.014	1.587	1.493	1.400	1.975	1.680	0.551	0.553	0.142	0.292	0.150
ø125	2.500	3.780	3.560	–	4.020	2.750	1.160	1.400	0.382	0.525	–
ø160	4.600	7.400	7.140	–	7.170	5.130	2.482	1.727	0.567	0.906	–
ø200	7.342	9.440	9.208	–	10.852	6.981	2.482	1.727	0.567	0.906	–

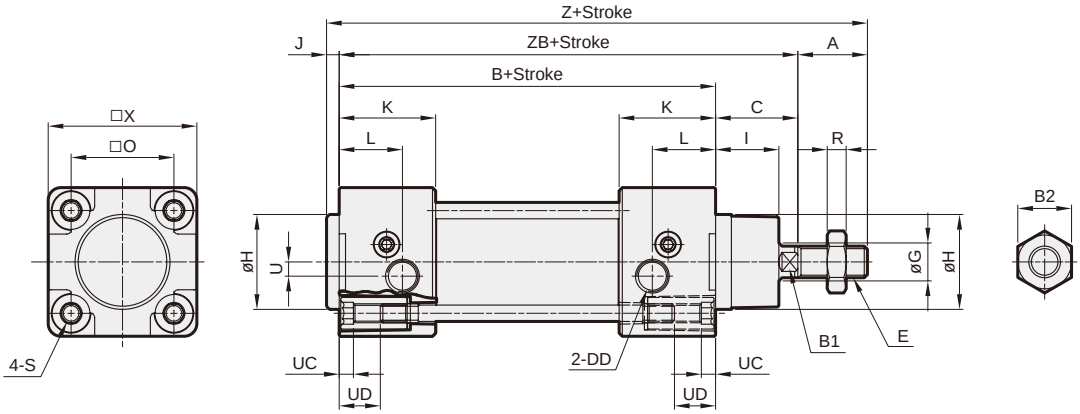


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	1-36, 42
2	Mounting accessories CA	Cast iron	1-38, 43
3	Mounting accessories CB+PIN	Cast iron / *1	1-38, 43, 46, 47
4	Mounting accessories CDB	Cast iron	1-39
5	Mounting accessories FAC/FBC	Carbon steel	1-37, 42
6	Mounting accessories TA/TB/TC	Cast iron	1-39, 40, 44, 45
7	Accessories Y+PIN	Cast iron / *1	1-46, 47
8	Accessories YS (Y+Floating pin)	Carbon steel	1-46
9	Accessories I+PIN	Carbon steel	1-46, 47
10	Locking unit MCBQV*	Aluminum alloy+*2	1-77

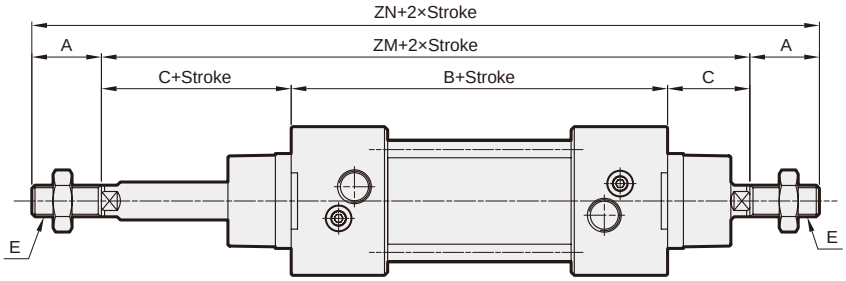
No.	Accessories	Material	Page
11	Floating joint MFC	Carbon steel	8-2
12	Floating joint MFCS	Carbon steel	8-5
13	Female rod ends PHS	Carbon steel	8-6
14	Fitting PC (PISCO)	–	7-3 (Vol.1)
15	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
16	Cylinder link seats MVSN-300-C	Aluminum alloy	1-59 (Vol.1)
17	Solenoid valve MVSN-220 / 300	–	1-55, 57 (Vol.1)
18	Sensor switch RCA+HV*	–	8-7
19	Protective bellows kit	NBR	–

*1. PIN material is carbon steel.
*2. Bronze alloy.

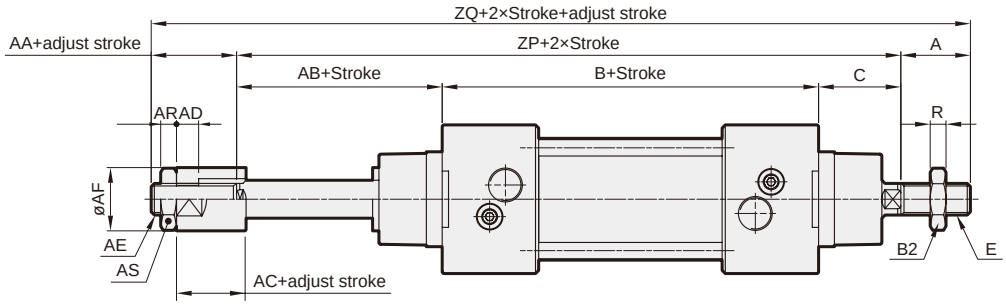
11



21

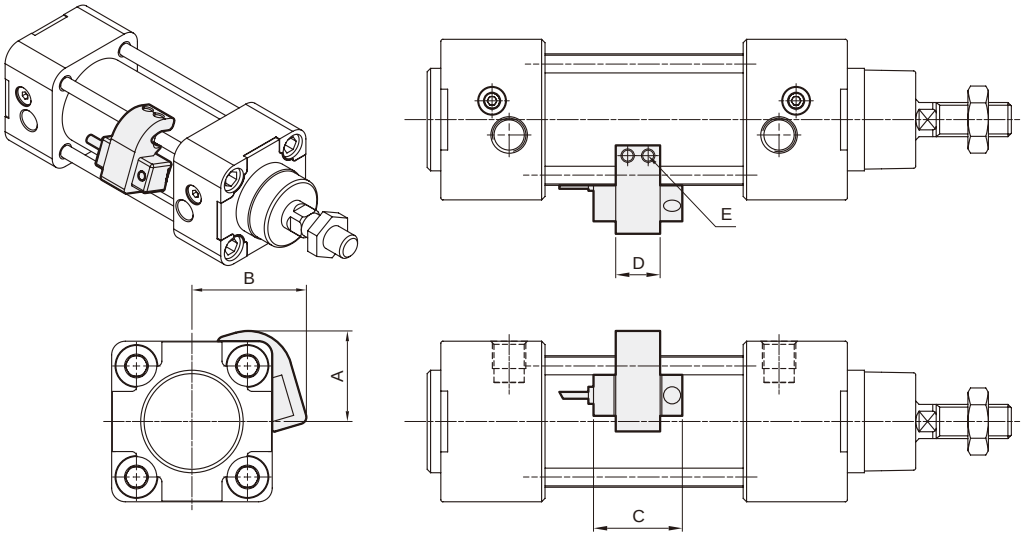


27



Code / Tube I.D.	A	AA	AB	AC	AD	AE	AF	AR	AS	B	B1	B2	C	DD	E	G	H	I	J	K	L	O	R
32	22	16	26	12	7	M10×1.25	20	5	17	94	10	17	26	G1/8	M10×1.25	12	30	20	4	30.5	20	32.5	5
40	24	20	27	12	7	M12×1.25	30	6	19	105	13	19	30	G1/4	M12×1.25	16	35	20.5	4	34	14.5	38	6
50	32	18	34	15	10	M16×1.5	40	8	24	106	16	24	37	G1/4	M16×1.5	20	40	28	4	31	16	46.5	8
63	32	20	32	15	10	M16×1.5	40	8	24	121	16	24	37	G3/8	M16×1.5	20	45	26	4	33	16	56.5	8
80	40	32	41	20	14	M22×1.5	50	13	32	128	21	30	46	G3/8	M20×1.5	25	45	32.5	4	35.5	20.5	72	10
100	40	30	46	20	14	M22×1.5	50	13	32	138	21	30	51	G1/2	M20×1.5	25	55	37.5	4	37	19	89	10

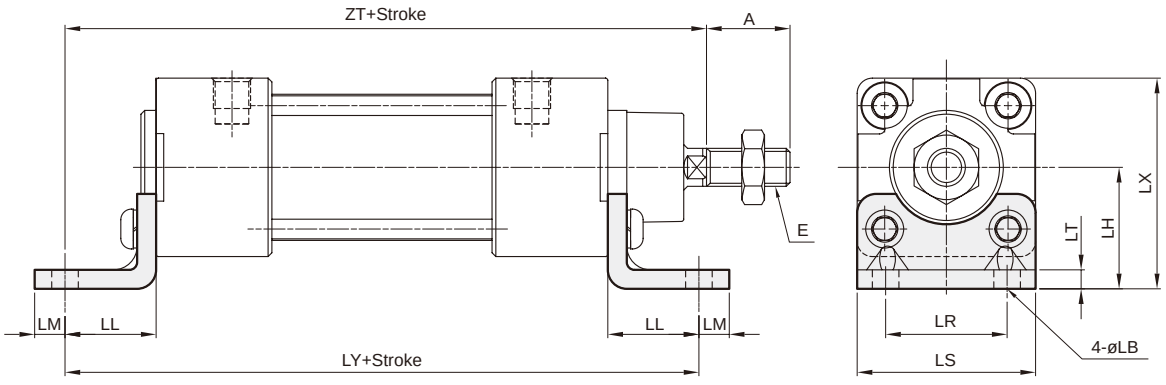
Code / Tube I.D.	S	U	UC	UD	X	Z	ZB	ZM	ZN	ZP	ZQ
32	M6×1.0	4.5	4.5	12	47	146	120	146	190	146	184
40	M6×1.0	5.3	4.5	12	55	163	135	165	213	162	206
50	M8×1.25	8.5	4.5	16	65	179	143	180	244	177	227
63	M8×1.25	8	4.5	16	78	194	158	195	259	190	242
80	M10×1.5	9	4.5	18	95	218	174	220	300	215	287
100	M10×1.5	13	4.5	18	115	233	189	240	320	235	305



Code / Tube I.D.	Sensor switch	Hold	A	B	C	D	E
MCQV2-32	RCA	HV1	26.5	33.5	26	13	M4×10L
MCQV2-40	RCA	HV1	29.5	36.5	26	13	M4×10L
MCQV2-50	RCA	HV2	37.5	41.5	26	13	M4×10L
MCQV2-63	RCA	HV2	42.5	46.5	26	13	M4×10L
MCQV2-80	RCA	HV3	49.5	54.5	26	13	M5×16L
MCQV2-100	RCA	HV3	57.5	62.5	26	13	M5×16L
MCQV-125	RCA	HV4	–	–	26	13	M4×10L
MCQV-160	RCA	PM16	–	–	26	12	M4×10L
MCQV-200	RCA	HA5V	–	–	26	15	M4×16L

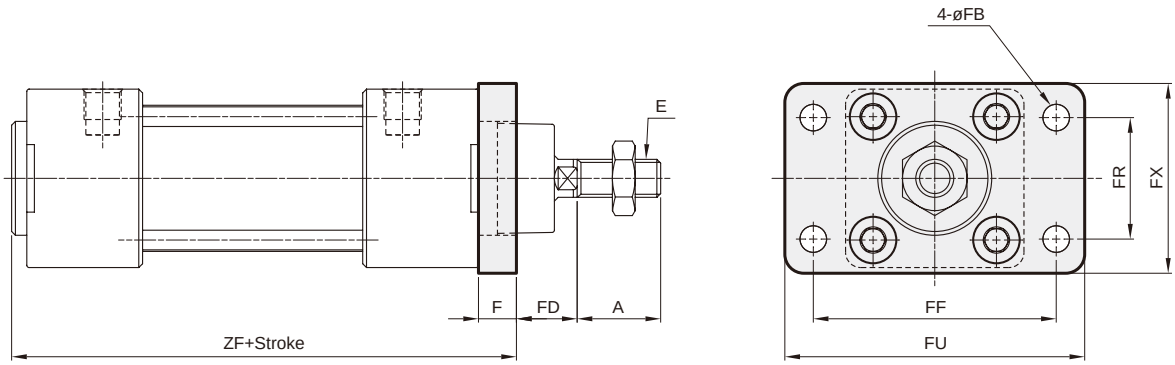
Mounting accessories

LB



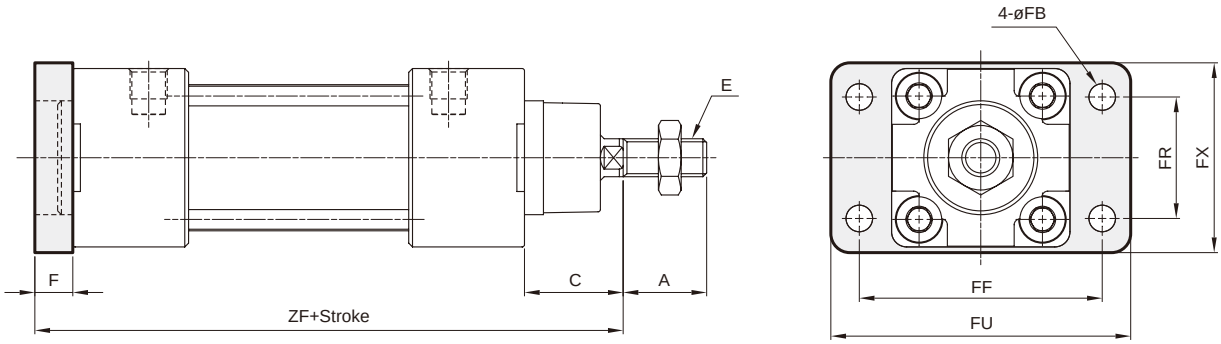
Code / Tube I.D.	A	E	LB	LH	LL	LM	LR	LS	LT	LX	LY	ZT
32	22	M10×1.25	7	32	24	8	32	47	5	55.5	142	144
40	24	M12×1.25	9	36	28	10	36	53	5	63.2	161	163
50	32	M16×1.5	9	45	32	10	45	65	5	77.5	170	175
63	32	M16×1.5	9	50	32	10	50	75	5	89.0	185	190
80	40	M20×1.5	12	63	41	13	63	95	6	110.5	210	215
100	40	M20×1.5	14	71	41	13	75	115	6	128.5	220	230

FAC



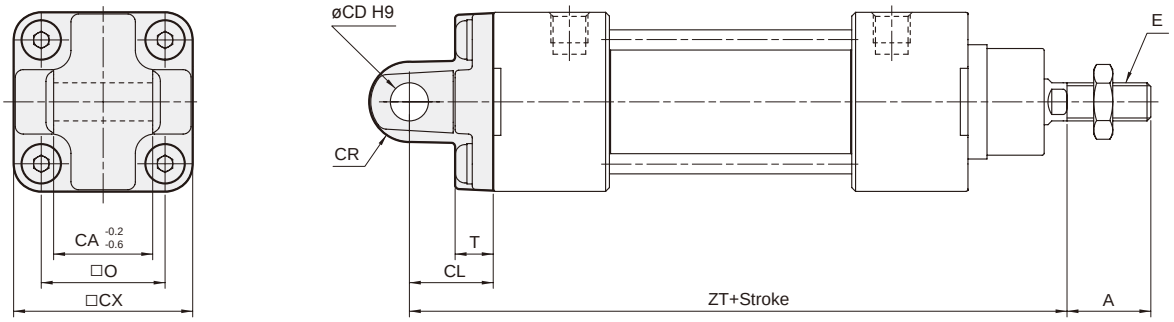
Code / Tube I.D.	A	E	F	FB	FD	FF	FR	FU	FX	ZF
32	22	M10×1.25	10	7	16	64	32	79	50	108
40	24	M12×1.25	10	9	20	72	36	90	52	119
50	32	M16×1.5	12	9	25	90	45	110	65	122
63	32	M16×1.5	12	9	25	100	50	125	76	137
80	40	M20×1.5	16	12	30	126	63	154	94	148
100	40	M20×1.5	16	14	35	150	75	180	112	158

FBC



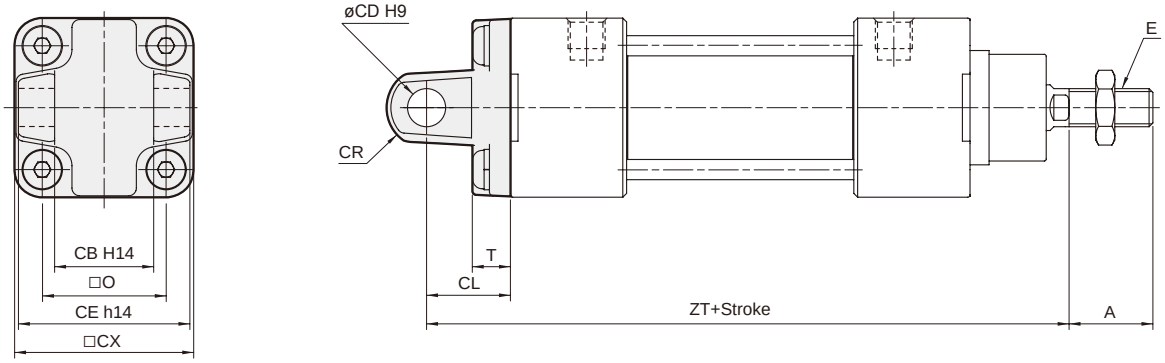
Code / Tube I.D.	A	C	E	F	FB	FF	FR	FU	FX	ZF
32	22	26	M10×1.25	10	7	64	32	79	50	130
40	24	30	M12×1.25	10	9	72	36	90	52	145
50	32	37	M16×1.5	12	9	90	45	110	65	155
63	32	37	M16×1.5	12	9	100	50	125	76	170
80	40	46	M20×1.5	16	12	126	63	154	94	190
100	40	51	M20×1.5	16	14	150	75	180	112	205

CA



Code / Tube I.D.	A	CA	CD	CL	CR	CX	E	O	T	ZT
32	22	26	10	22	R10.5	46.5	M10×1.25	32.5	10	142
40	24	28	12	25	R12	54	M12×1.25	38	9	160
50	32	32	12	27	R13	64	M16×1.5	46.5	9	170
63	32	40	16	32	R17	75	M16×1.5	56.5	9	190
80	40	50	16	36	R17	93	M20×1.5	72	12	210
100	40	60	20	41	R21	114	M20×1.5	89	11	230

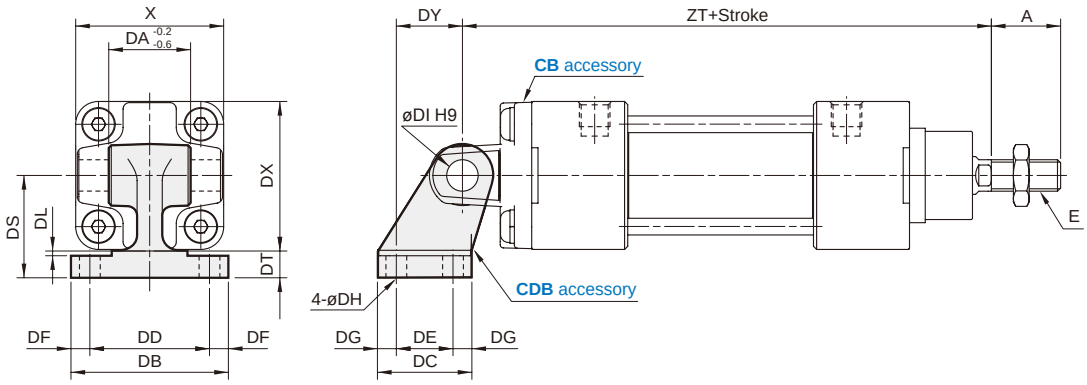
CB



Code / Tube I.D.	A	CB	CD	CE	CL	CR	CX	E	O	T	ZT
32	22	26	10	45	22	R10.5	46.5	M10×1.25	32.5	10	142
40	24	28	12	52	25	R12	54	M12×1.25	38	9	160
50	32	32	12	60	27	R14	64	M16×1.5	46.5	9	170
63	32	40	16	70	32	R17	75	M16×1.5	56.5	9	190
80	40	50	16	90	36	R17	93	M20×1.5	72	12	210
100	40	60	20	110	41	R21	114	M20×1.5	89	11	230

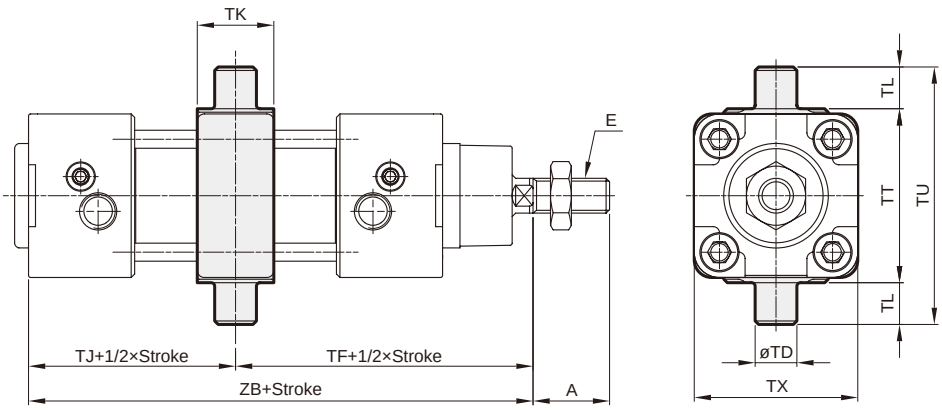
CDB

CB+Pin (Extra purchase)



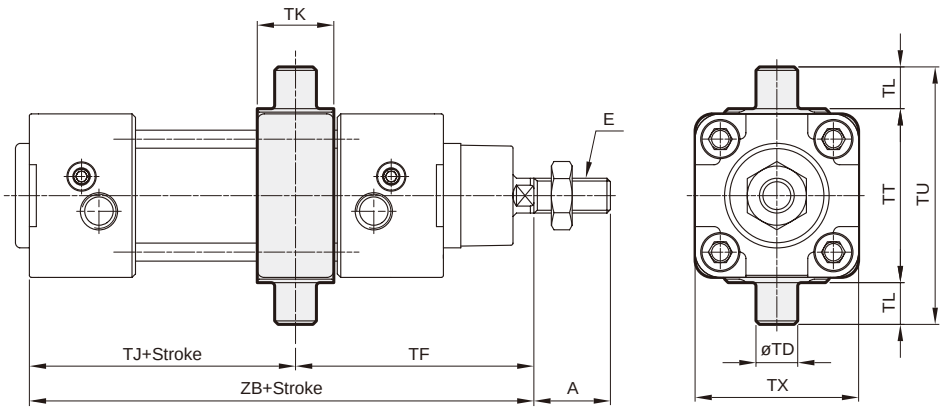
Code / Tube I.D.	A	DA	DB	DC	DD	DE	DF	DG	DH	DI	DL	DS	DT	DX	DY	E	X	ZT
32	22	26	50	30	38	18	6	6	6.6	10	1.5	32	8	47.5	21	M10×1.25	47	142
40	24	28	53	34	41	22	6	6	6.6	12	1.5	36	10	53.5	24	M12×1.25	55	160
50	32	32	65	45	50	30	7.5	7.5	9	12	1.5	45	12	65.5	33	M16×1.5	65	170
63	32	40	67	50	52	35	7.5	7.5	9	16	1.5	50	12	77	37	M16×1.5	78	190
80	40	50	86	60	66	40	10	10	11	16	2.5	63	14	96.5	47	M20×1.5	95	210
100	40	60	96	70	76	50	10	10	11	20	2.5	71	15	113.5	55	M20×1.5	115	230

TC



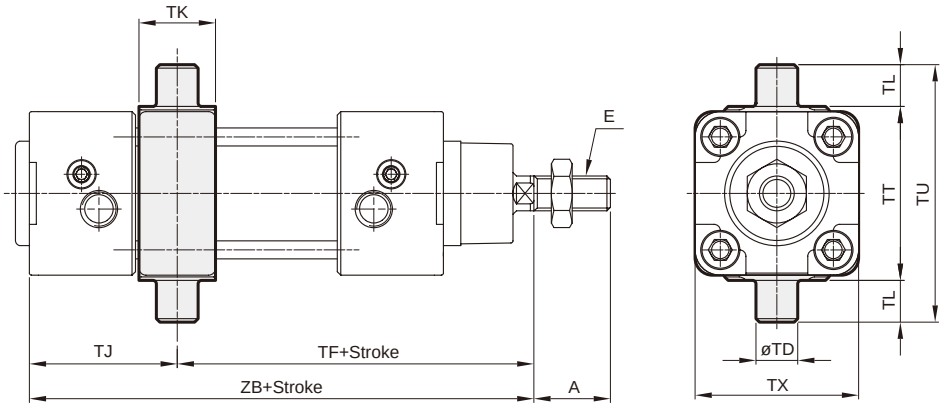
Code / Tube I.D.	A	E	TD	TF	TJ	TK	TL	TT	TU	TX	ZB
32	22	M10×1.25	12e8	73	47	22	12	50	74	47	120
40	24	M12×1.25	16e8	82.5	52.5	22	16	63	95	53	135
50	32	M16×1.5	16e8	90	53	22	16	75	107	66	143
63	32	M16×1.5	20e8	97.5	60.5	28	20	90	130	80	158
80	40	M20×1.5	20e8	110	64	34	20	110	150	106	174
100	40	M20×1.5	25e8	120	69	40	25	132	182	126	189

TA



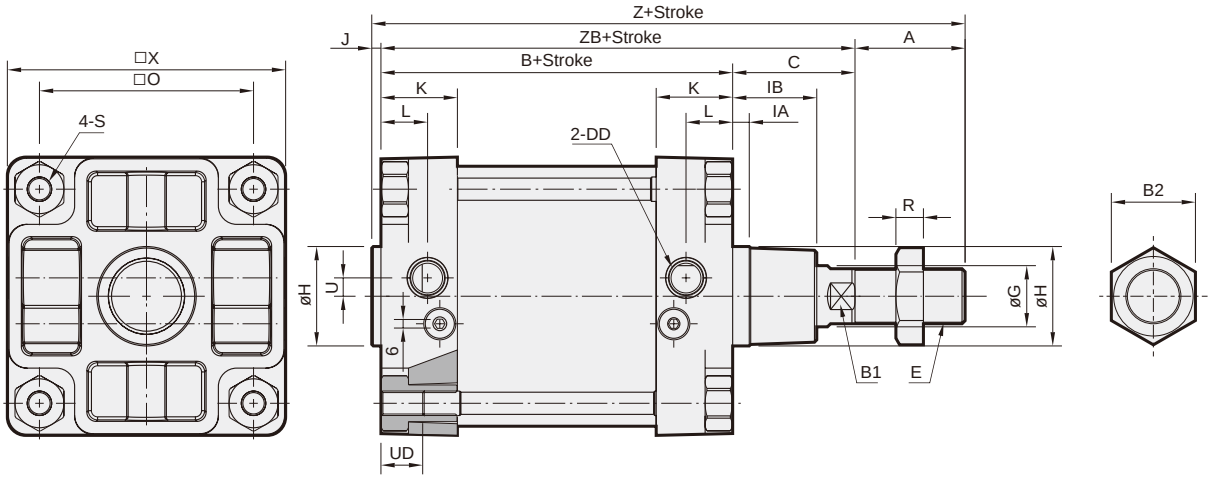
Code / Tube I.D.	A	E	TD	TF	Without magnet		Magnet		TK	TL	TT	TU	TX
					TJ	ZB	TJ	ZB					
32	22	M10×1.25	12e8	68.5	51.5	120	81.5	150	22	12	50	74	47
40	24	M12×1.25	16e8	76	59	135	89	165	22	16	63	95	53
50	32	M16×1.5	16e8	80	63	143	93	173	22	16	75	107	66
63	32	M16×1.5	20e8	85	73	158	103	188	28	20	90	130	80
80	40	M20×1.5	20e8	99.5	74.5	174	114.5	214	34	20	110	150	106
100	40	M20×1.5	25e8	109	80	189	120	229	40	25	132	182	126

TB

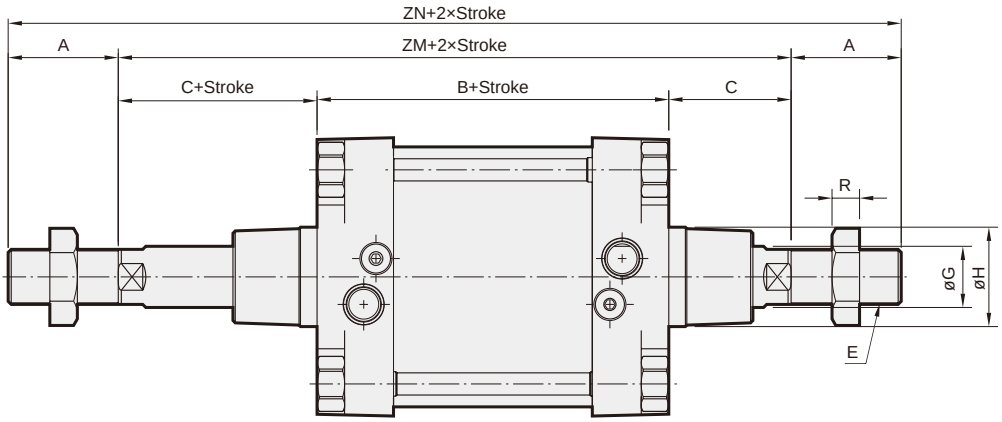


Code / Tube I.D.	A	E	TD	Without magnet		Magnet		TJ	TK	TL	TT	TU	TX
				TF	ZB	TF	ZB						
32	22	M10×1.25	12e8	77.5	120	107.5	150	42.5	22	12	50	74	47
40	24	M12×1.25	16e8	89	135	119	165	46	22	16	63	95	53
50	32	M16×1.5	16e8	100	143	130	173	43	22	16	75	107	66
63	32	M16×1.5	20e8	110	158	140	188	48	28	20	90	130	80
80	40	M20×1.5	20e8	120.5	174	160.5	214	53.5	34	20	110	150	106
100	40	M20×1.5	25e8	131	189	171	229	58	40	25	132	182	126

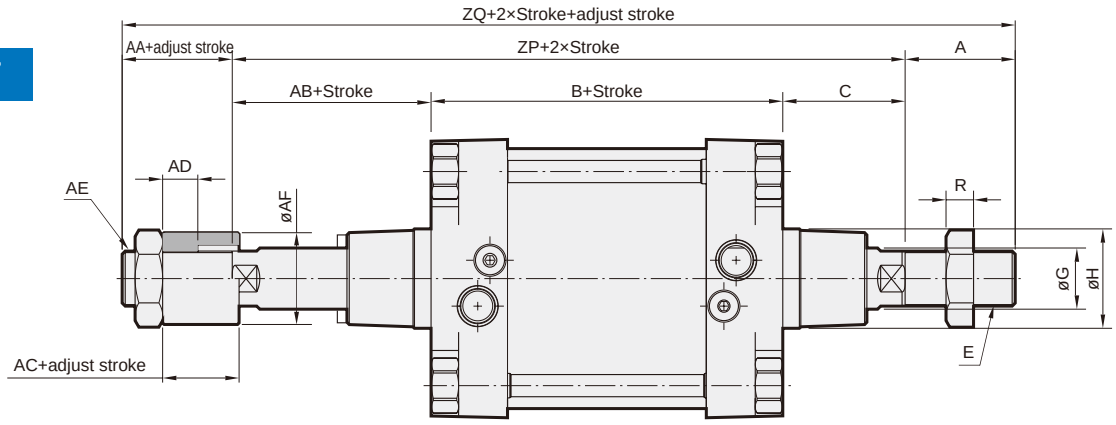
11



21



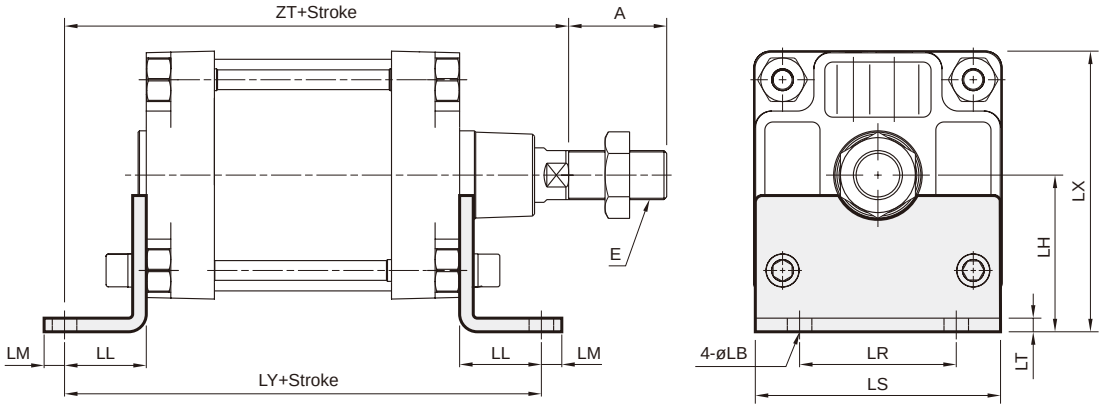
27



Code / Tube I.D.	A	AA	AB	AC	AD	AE	AF	B	B1	B2	C	DD	E	G	H	IA	IB	J	K	L	O	R	S
125	54	38	55	30	18	M30×1.5	60	160	27	41	65	G1/2	M27×2	32	60e11	10	40	6	40	25	110	13.5	M12×1.75
160	72	38	71	30	18	M30×1.5	60	180	36	55	80	G3/4	M36×2	40	65e11	10	55	6	50	30.5	140	18	M16×2.0
200	72	40.5	94.5	42.5	20	M36×2.0	60	180	36	55	95	G3/4	M36×2	40	75e11	15	55	6	56	36.5	175	18	M16×2.0

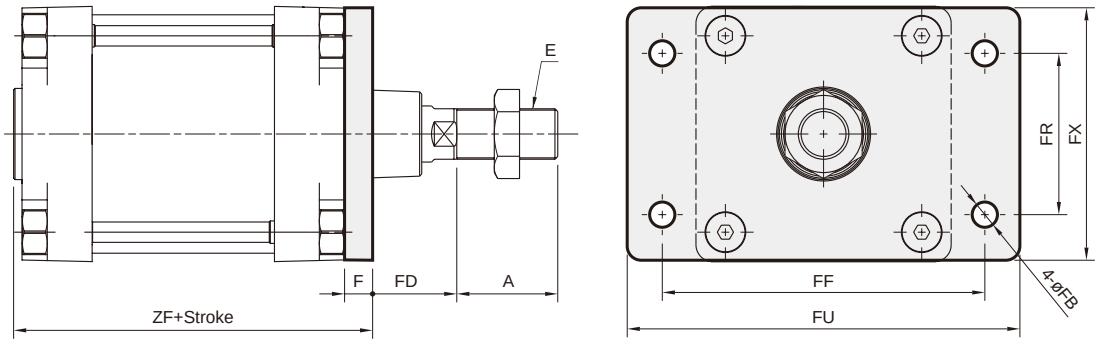
Code / Tube I.D.	U	UD	X	Z	ZB	ZM	ZN	ZP	ZQ
125	11	22	140	285	225	290	398	280	372
160	12	27	182	338	260	340	484	331	441
200	12	28	220	353	275	370	514	369.5	482

LB



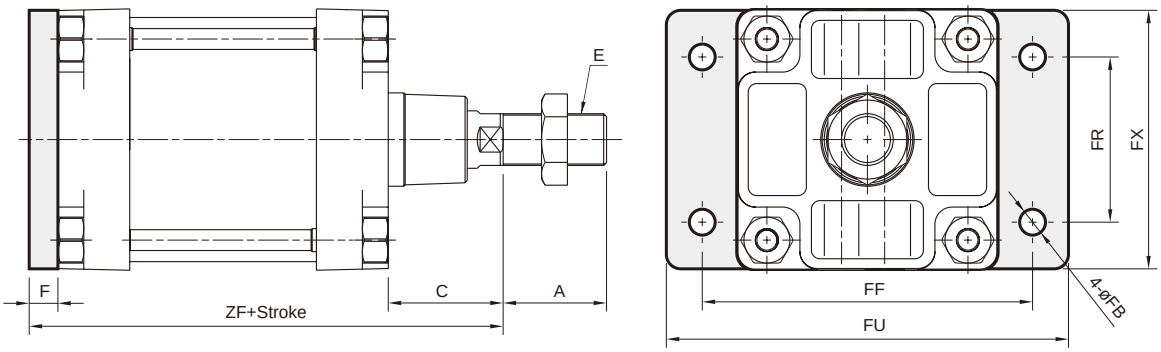
Code / Tube I.D.	A	E	LB	LH	LL	LM	LR	LS	LT	LX	LY	ZT
125	54	M27×2.0	16	90	45	25	90	140	9	160	250	270
160	72	M36×2.0	18	115	60	15	115	180	10	206	300	320
200	72	M36×2.0	24	135	70	35	135	220	12	245	320	345

FAC



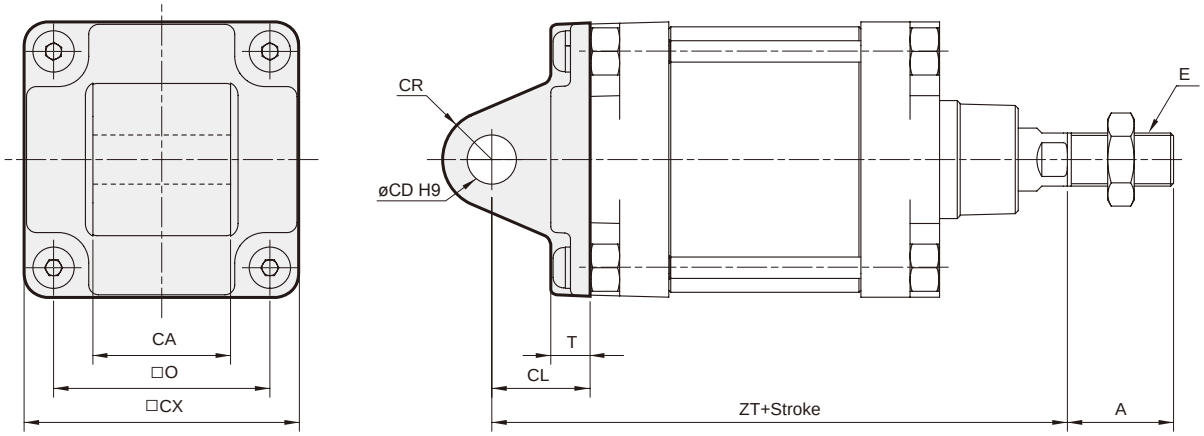
Code / Tube I.D.	A	E	F	FB	FD	FF	FR	FU	FX	ZF
125	54	M27×2.0	20	16	45	180	90	210	140	186
160	72	M36×2.0	20	18	60	230	115	280	180	206
200	72	M36×2.0	25	22	70	270	135	320	220	211

FBC



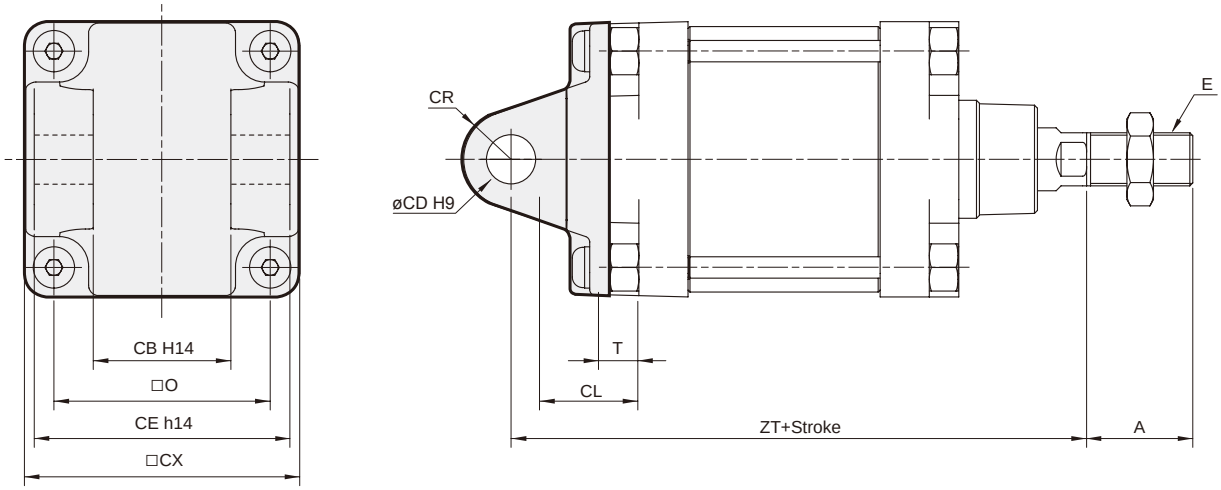
Code / Tube I.D.	A	C	E	F	FB	FF	FR	FU	FX	ZF
125	54	65	M27×2.0	20	16	180	90	210	140	245
160	72	80	M36×2.0	20	18	230	115	280	180	280
200	72	95	M36×2.0	25	22	270	135	320	220	300

CA



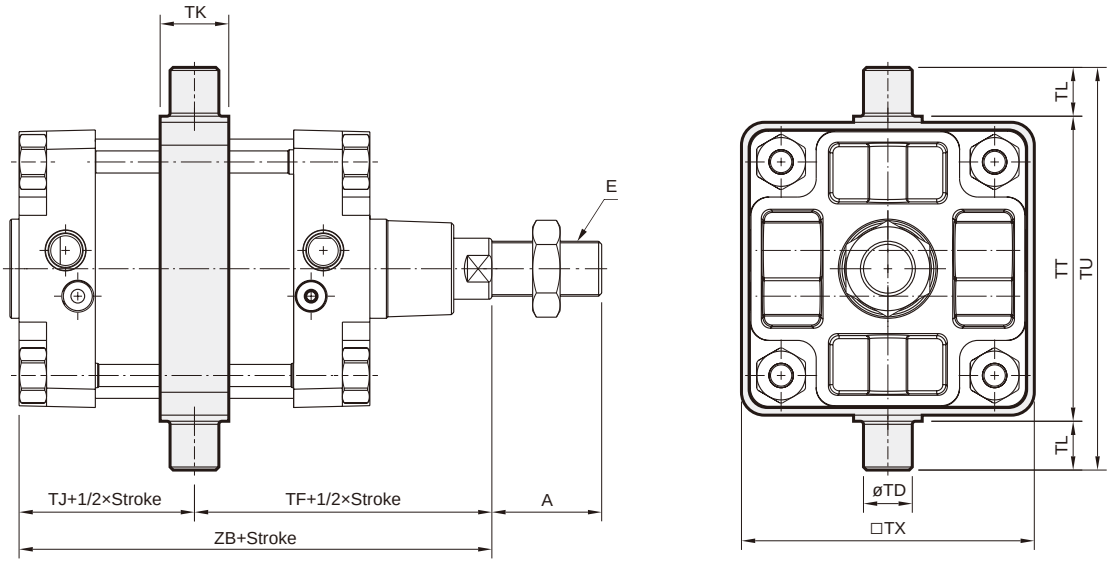
Code / Tube I.D.	A	CA	CD	CL	CR	CX	E	O	T	ZT
125	54	69.5 $^{0}_{-0.7}$	25	50	R25	139	M27×2.0	110	20	275
160	72	89.5 $^{0}_{-0.7}$	30	55	R30	178	M36×2.0	140	20	315
200	72	90 $^{-0.5}_{-1.2}$	30	60	R30	218	M36×2.0	175	21	335

CB



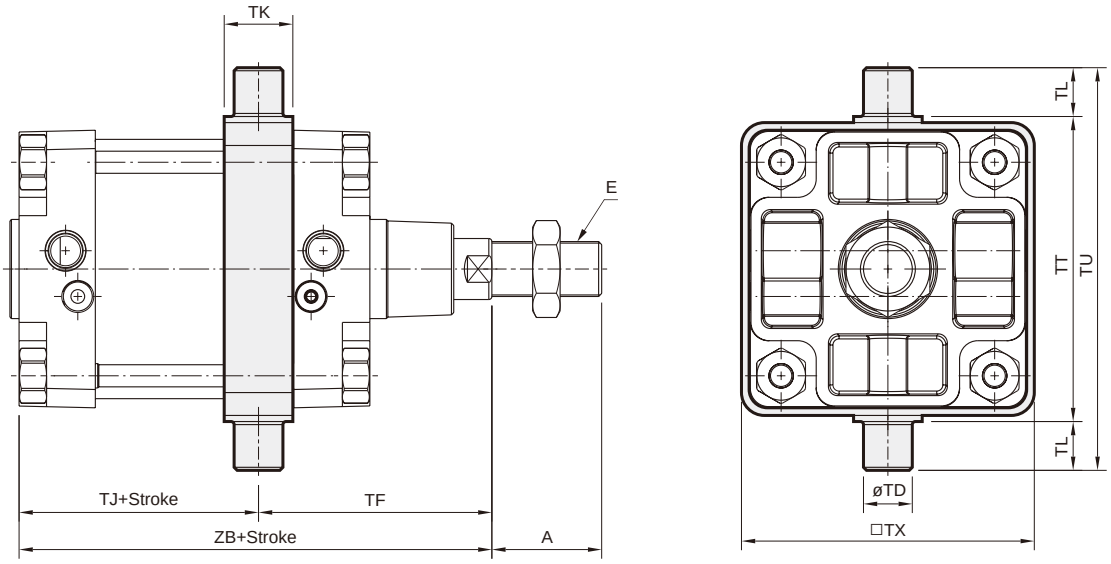
Code / Tube I.D.	A	CB	CD	CE	CL	CR	CX	E	O	T	ZT
125	54	70	25	130	50	R25	139	M27×2.0	110	20	275
160	72	90	30	170	55	R30	178	M36×2.0	140	20	315
200	72	90	30	170	60	R30	218	M36×2.0	175	21	335

TC



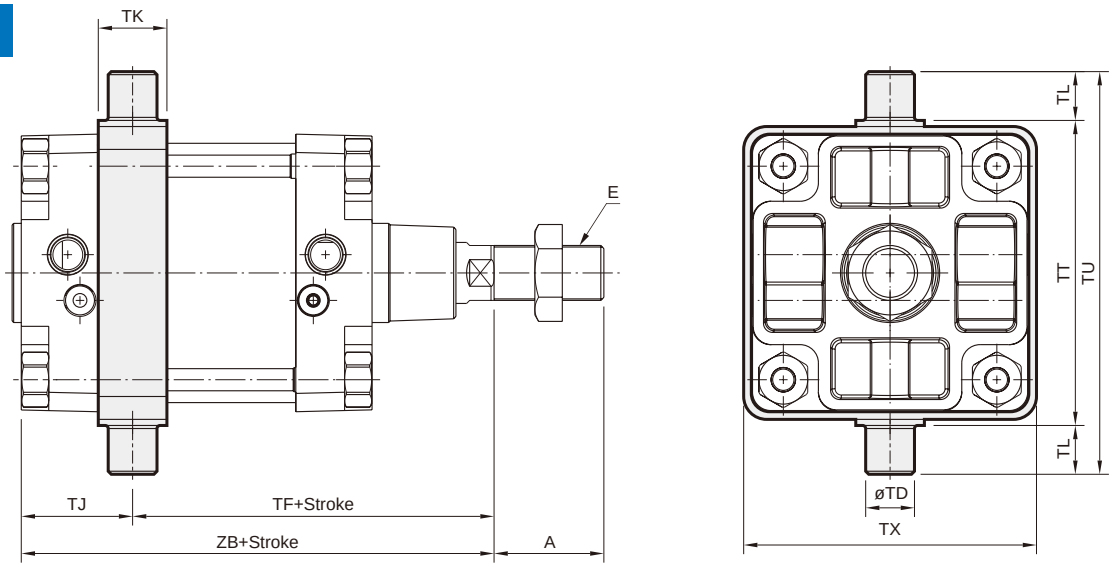
Code / Tube I.D.	A	E	TD	TF	TJ	TK	TL	TT	TU	TX	ZB
125	54	M27×2.0	25e9	145	80	40	25	160	210	155	225
160	72	M36×2.0	32e9	170	90	45	32	200	264	192	260
200	72	M36×2.0	32e9	185	90	45	32	250	314	240	275

TA



Code / Tube I.D.	A	E	TD	TF	Without magnet		Magnet		TK	TL	TT	TX	TU
					TJ	ZB	TJ	ZB					
125	54	M27×2.0	25e9	125	100	225	146	271	40	25	160	155	210
160	72	M36×2.0	32e9	152.5	107.5	260	157.5	310	45	32	200	192	264
200	72	M36×2.0	32e9	173.5	101.5	275	145.5	319	45	32	250	240	275

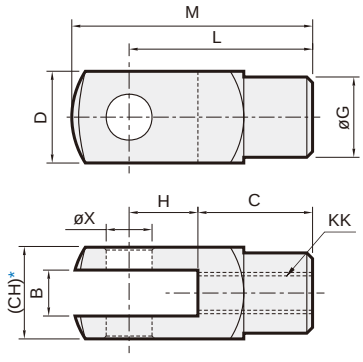
TB



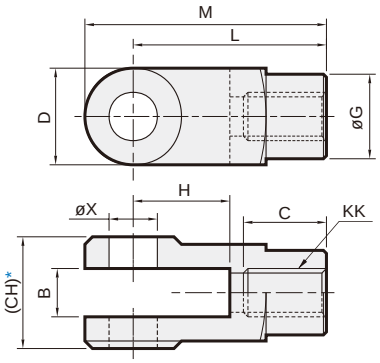
Code / Tube I.D.	A	E	TD	TJ	Without magnet		Magnet		TK	TL	TT	TX	TU
					TF	ZB	TF	ZB					
125	54	M27×2.0	25e9	60	165	225	211	271	40	25	160	155	210
160	72	M36×2.0	32e9	72.5	187.5	260	237.5	310	45	32	200	192	264
200	72	M36×2.0	32e9	78.5	196.5	275	240.5	319	45	32	250	240	275

Y connector

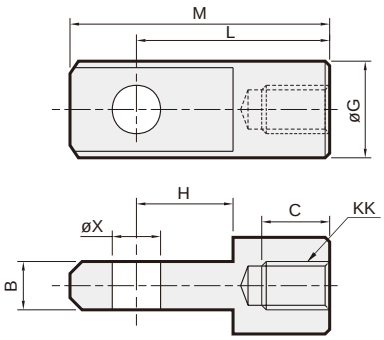
ø32~ø40



ø50~ø100



I connector



* Please do not take the sand casting plate as the mounting plate, because we do not machine it.
If you have this special demand, please contact our sales representative.

Code / Tube I.D.	B		C		CH		D		G		H		KK		L		M		X^{H9}
	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	
32	10 $^{+0.5}_{+0.15}$	10 $^{-0.1}_{-0.2}$	20	17	19	–	19	–	ø18	ø20	20	15	M10×1.25		40	40	52	52	ø10 $^{+0.04}_{0}$
40	12 $^{+0.5}_{+0.15}$	12 $^{-0.1}_{-0.2}$	24	21	22	–	22	–	ø20	ø24	24	18	M12×1.25		48	48	62	62	ø12 $^{+0.04}_{0}$
50	16 $^{+0.3}_{+0.1}$	16 $^{-0.1}_{-0.3}$	28	23	32	–	32	–	ø28	ø32	32	32	M16×1.5		64	64	89	86	ø16 $^{+0.04}_{0}$
63	16 $^{+0.3}_{+0.1}$	16 $^{-0.1}_{-0.3}$	28	23	32	–	32	–	ø28	ø32	32	32	M16×1.5		64	64	89	86	ø16 $^{+0.04}_{0}$
80	20 $^{+0.3}_{+0.1}$	20 $^{-0.1}_{-0.3}$	33	30	45	–	40	–	ø36	ø36	40	40	M20×1.5		80	80	100	108	ø20 $^{+0.05}_{0}$
100	20 $^{+0.3}_{+0.1}$	20 $^{-0.1}_{-0.3}$	33	30	45	–	40	–	ø36	ø36	40	40	M20×1.5		80	80	100	108	ø20 $^{+0.05}_{0}$

PIN

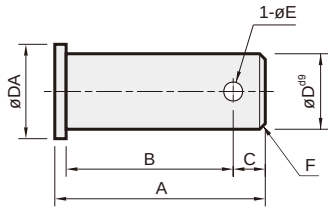
Order example

* MCQV / MCQI are common accessories.

PIN – MCQV – 40 – Y – P

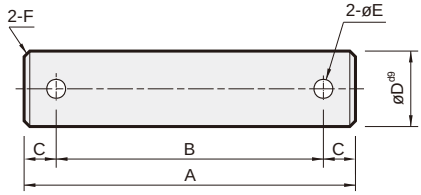
- PIN
- TUBE I.D.: **32~100**
- TYPE: **Y**: for Y & I connector; **CB**: for CA & CB accessory
- **P**: With split pin; **S**: Floating pin (Only for Y connector)

P



for Y & I connector

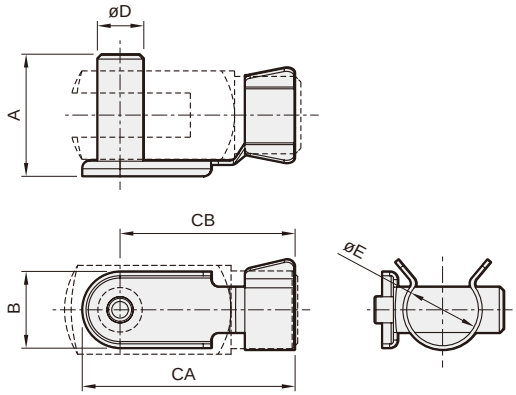
Code / Tube I.D.	A	B	C	D^{d9}	DA	E	F	Split pin
32	30	25	3.5	ø10 $^{-0.06}_{-0.09}$	14	3.2	1	3.2×20L
40	37	30	5	ø12 $^{-0.06}_{-0.09}$	16	3.2	1	3.2×20L
50,63	47	37	7	ø16 $^{-0.05}_{-0.09}$	22	4	1	4×25L
80,100	62	50	8	ø20 $^{-0.06}_{-0.11}$	30	5	1.5	5×35L



for CA & CB

Code / Tube I.D.	A	B	C	D^{d9}	E	F	Split pin
32	69	55	7	ø10 $^{-0.05}_{-0.09}$	4	1.0	4×20L
40	76	62	7	ø12 $^{-0.05}_{-0.09}$	4	1.0	4×20L
50	84	70	7	ø12 $^{-0.05}_{-0.09}$	4	1.0	4×20L
63	94	80	7	ø16 $^{-0.05}_{-0.09}$	4	1.0	4×30L
80	117	100	8.5	ø16 $^{-0.05}_{-0.09}$	5	1.5	5×30L
100	137	120	8.5	ø20 $^{-0.05}_{-0.09}$	5	1.5	5×35L

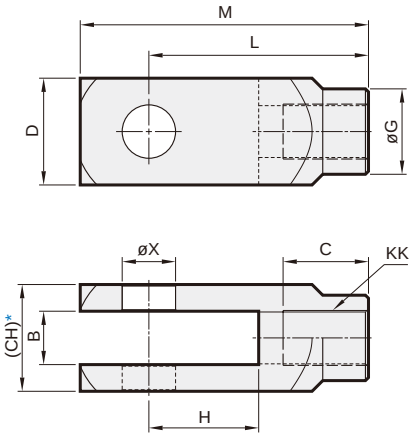
S



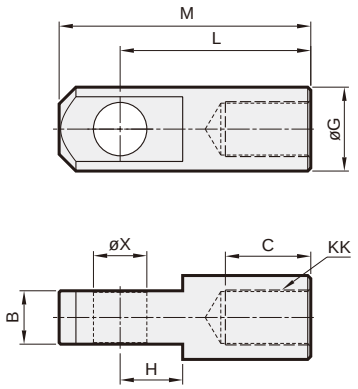
for floating pin

Code / Tube I.D.	A	B	CA	CB	D^{d9}	E
32	26	14	45	38	ø10 $^{-0.04}_{-0.07}$	17
40	31	16	54	46	ø12 $^{-0.05}_{-0.09}$	19
50,63	42	20	70	60	ø16 $^{-0.05}_{-0.09}$	27
80,100	56	30	91	76	ø20 $^{-0.06}_{-0.11}$	35

Y connector



I connector



* Please do not take the sand casting plate as the mounting plate, because we do not machine it.
If you have this special demand, please contact our sales representative.

Code / Tube I.D.	B		C		CH		D		G		H		KK		L		M		X^{F7}	
	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I
125	30 $^{+0.52}_{0}$	30 $^{-0.2}_{-0.3}$	56	51	55	–	55	–	48	55	54	40	M27×2.0		110	110	148	145	30 $^{+0.52}_{+0}$	30 $^{+0.04}_{+0.02}$
160	35 $^{+0.62}_{0}$	35 $^{-0.2}_{-0.3}$	56	56	70	–	70	–	56	55	72	41	M36×2.0		144	125	189	165	35 $^{+0.05}_{+0.02}$	35 $^{+0.05}_{+0.02}$
200	35 $^{+0.62}_{0}$	35 $^{-0.2}_{-0.3}$	56	56	70	–	70	–	56	55	72	41	M36×2.0		144	125	189	165	35 $^{+0.05}_{+0.02}$	35 $^{+0.05}_{+0.02}$

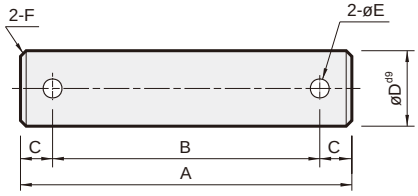
PIN

Order example

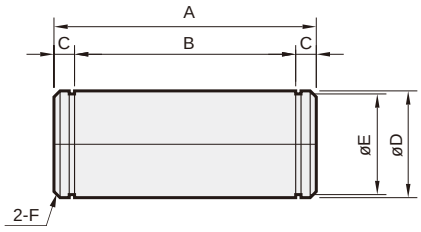
PIN – MCQV – 125 – Y – P

- PIN
- TUBE I.D.: **125**, **160**, **200**
- TYPE: **Y**: for Y & I connector; **CB**: for CA & CB accessory
- **P**: With split pin

P



P

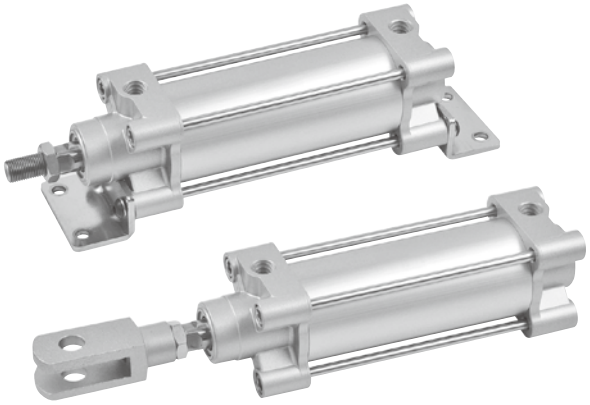


for ø125

Code / Type	A	B	C	D^{d9}	E	F	Split pin
CB	157	140	8.5	ø25 $^{-0.07}_{-0.12}$	5	1.5	5×36L
Y	81	64	8.5	ø30 $^{-0.07}_{-0.12}$	6.3	1.5	6.3×40L

for ø160, ø200

Code / Type	A	B	C	D	E	F	Split pin
CB	186	172	7	30^{e8} $^{-0.05}_{-0.09}$	28.6 $^{0}_{-0.21}$	2	STW-30
Y	86	72	7	35^{h7} $^{-0}_{-0.03}$	33 $^{0}_{-0.25}$	2	STW-35



Features

■ Non lubrication
Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life
Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Automatic air cushioning
Pneumatic cushioning at both ends without adjusting.

■ ISO-VDMA standard specification
Conforms to ISO-6431 and VDMA 24562 specification enabling worldwide interchangeability.

■ Cylinder mountings
Available with comprehensive internationally recognised range of fixed and flexible mountings.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø63	50,75,100,125,150,175,200,250, 300,350,400,450,500,600,700,800

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

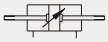
Specification

Model	MCQV3
Tube I.D. (mm)	63
Medium	Air
Operating perssure range	0.05~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)
Available speed range	50~500 mm/sec
Sensor switch	RCA (Please refer to page 8-7)
Sensor switch holder	HV2

Order example

MCQV3 — 11 — 63 — 100 M — A

- MCQV3 — MODEL
- 11 — STYLE (**1**: Single rod, **2**: Double rod)
- 63 — TUBE I.D.
- 100 — STROKE
- M — **M**: Magnet
- A — **A**: Cushion air (Adjustable), **S**: Cushion air (Automatic)

Code		Symbol	Description
1	1		Double acting / Male thread
2	1		Double rod / Male thread

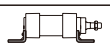
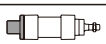
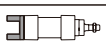
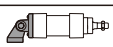
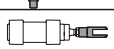
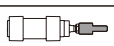
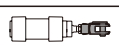
* Order example for special specification, refer to page 0-7.
* Order example for **Rc** or **NPT** thread please consult us.

Mounting accessories

* Use the same accessories with MCQV2.

FAC — MCQV — 63

- FAC — MOUNTING TYPE
- MCQV — MODEL
- 63 — TUBE I.D.

	**LB**
	**CA**
	**CB**
	**CDB** (+CB+PIN)
	**FAC**
	**FBC**
	**TA**
	**TB**
	**TC**
	**Y**
	**I**
	**YS** (Y+Floating+PIN)

* CB+PIN have to extra purchase.

* Mounting accessories please refer to page 1-52.

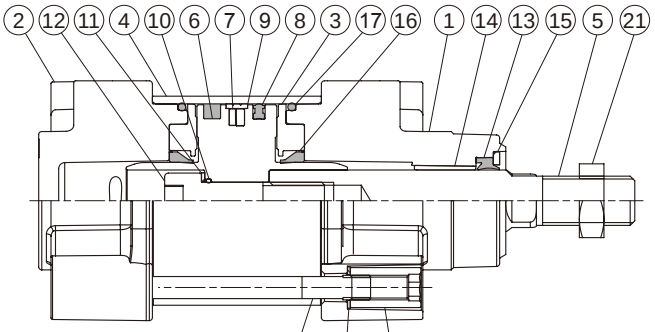
MCQV3-11 Inside structure & Parts list

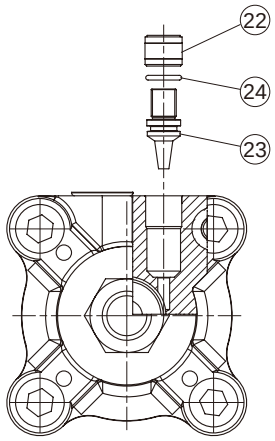
ISO-VDMA STANDARD CYLINDER

mindman

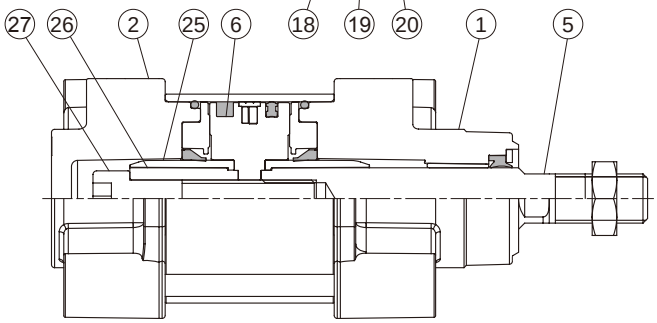
Single rod 11 type

A
Cushion air
(Adjustable)





S
Cushion air
(Automatic)

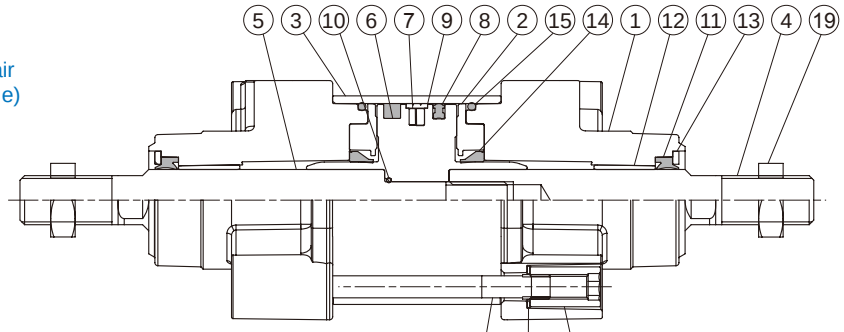


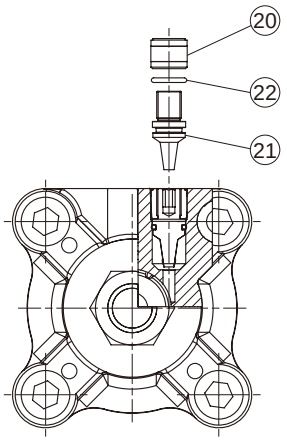
No.	Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
				Adjustable	Automatic	Adjustable	Automatic	
1	Rod cover	Aluminum alloy	1	●	●			
2	Head cover	Aluminum alloy	1	●	●			
3	Cushion seal holder	Aluminum alloy	2	●	●			
4	Cylinder tube	Aluminum alloy	1					
5	Piston rod	Carbon steel	1					
6	Piston	Aluminum alloy	1	●	●			
7	Magnet ring	Magnet material	1	◎	◎			◎ Option
8	Piston packing	NBR	1	●	●	●	●	
9	Wear ring	Teflon	1	●	●			
10	O-ring	NBR	1	●		●		
11	Washer	Carbon steel	1	●				
12	Hex bolt	Carbon steel	1	●	●			
13	Rod packing	NBR	1	●	●	●	●	
14	Bush	Bearing alloy	1	●	●			
15	Washer	Carbon steel	1	●	●			
16	Cushion packing	NBR	2	●	●	●	●	
17	O-ring	NBR	2	●	●	●	●	
18	Tie rod	Carbon steel	4					
19	Washer	Carbon steel	8	●	●			
20	Tie rod nut	Carbon steel	8	●	●			
21	Piston rod nut	Carbon steel	1	●	●			
22	Insert nut	Copper alloy	2	●				
23	Needle valve	Copper alloy	2	●				
24	O-ring	NBR	2	●				
25	Shock absorber axis	ABS	2		●			
26	Piston nut	Carbon steel	1		●			
27	Hex bolt	Carbon steel	1		●			

Double rod 21 type

A

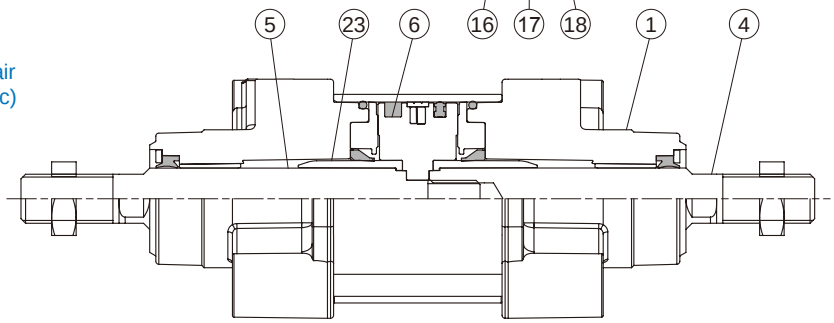
Cushion air
(Adjustable)





S

Cushion air
(Automatic)



No.	Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
				Adjustable	Automatic	Adjustable	Automatic	
1	Rod cover	Aluminum alloy	2	●	●			
2	Cushion seal holder	Aluminum alloy	2	●	●			
3	Cylinder tube	Aluminum alloy	1					
4	Piston rod #1	Carbon steel	1					
5	Piston rod #2	Carbon steel	1					
6	Piston	Aluminum alloy	1	●	●			
7	Magnet ring	Magnet material	1	◎	◎			◎ Option
8	Piston packing	NBR	1	●	●	●	●	
9	Wear ring	Teflon	1	●	●			
10	O-ring	NBR	1	●		●		
11	Rod packing	NBR	2	●	●	●	●	
12	Bush	Bearing alloy	2	●	●			
13	Washer	Carbon steel	2	●	●			
14	Cushion packing	NBR	2	●	●	●	●	
15	O-ring	NBR	2	●	●	●	●	
16	Tie rod	Carbon steel	4					
17	Washer	Carbon steel	8	●	●			
18	Tie rod nut	Carbon steel	8	●	●			
19	Piston rod nut	Carbon steel	2	●	●			
20	Insert nut	Copper alloy	2	●				
21	Needle valve	Copper alloy	2	●				
22	O-ring	NBR	2	●				
23	Shock absorber axis	ABS	2		●			

Order example of component parts

CP — MCQV3 — 2 — 63 M A

- Blank: Single rod / **2**: Double rod
- TUBE I.D.
- **M**: Magnet
- **A**: Cushion air (Adjustable) / **S**: Cushion air (Automatic)

* Order example for **Rc** or **NPT** thread please consult us.

Order example of repair kits

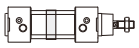
PS — MCQV3 — 2 — 63 A — XB6

- Blank: Single rod / **2**: Double rod
- TUBE I.D.
- **A**: Cushion air (Adjustable) / **S**: Cushion air (Automatic)
- Blank: NBR / **XB6**: Heat resistant material

Cylinder & accessories weight

Cylinder weight

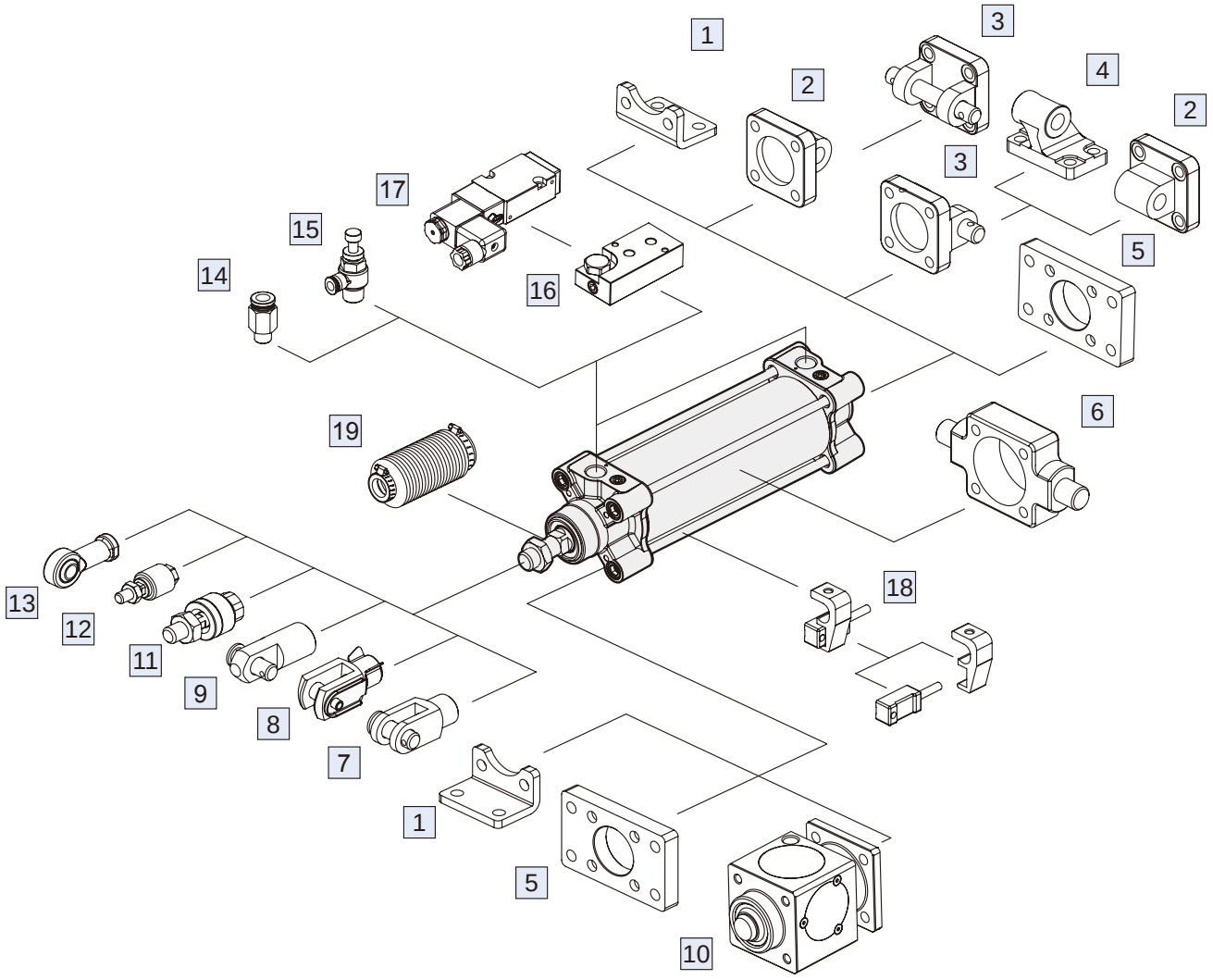
Unit: kg

Model	Basic weight **MCQV3-11**	Basic weight (magnet) **MCQV3-11**	Stroke 25 mm **MCQV3-11**
Tube I.D.			
ø63	1.635	1.655	0.130

Accessories weight

Unit: kg

Model	LB	CA	CB	CDB	FAC/FBC	TA/TB/TC	Y	I	Pin		YS
									Y&I	CA&CB	
Tube I.D.											
ø63	0.395	0.670	0.544	0.550	0.684	0.675	0.272	0.334	0.067	0.128	0.070

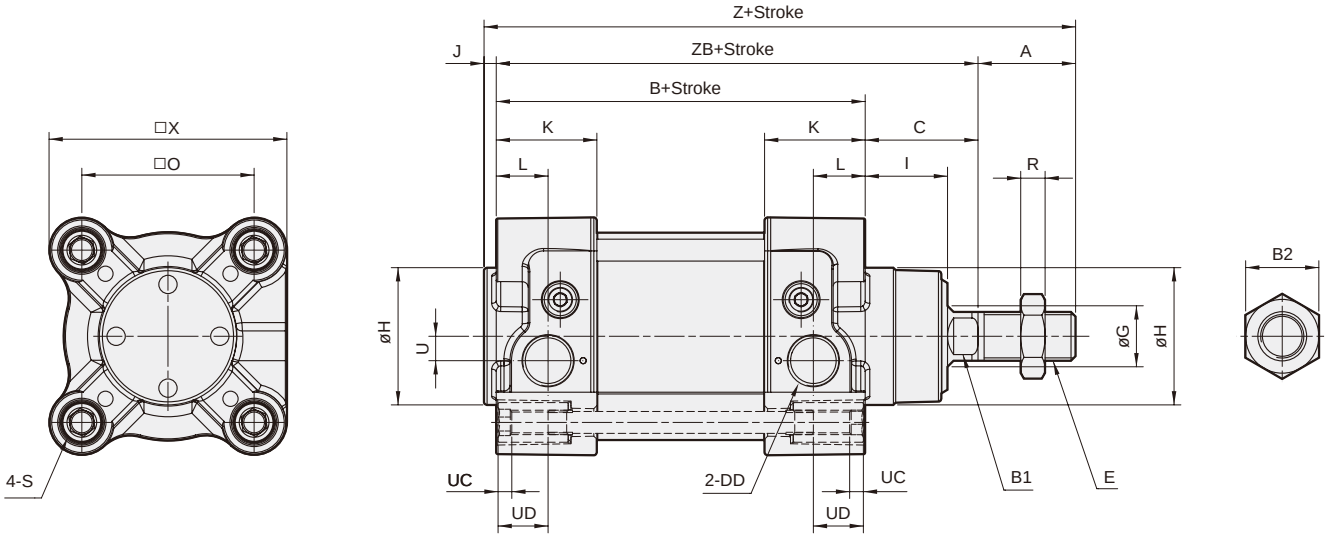


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	1-36, 42
2	Mounting accessories CA	Cast iron	1-38, 43
3	Mounting accessories CB+PIN	Cast iron / *1	1-38, 43, 46, 47
4	Mounting accessories CDB	Cast iron	1-39
5	Mounting accessories FAC/FBC	Carbon steel	1-37, 42
6	Mounting accessories TA/TB/TC	Cast iron	1-39, 40, 44, 45
7	Accessories Y+PIN	Cast iron / *1	1-46, 47
8	Accessories YS (Y+Floating pin)	Carbon steel	1-46
9	Accessories I+PIN	Carbon steel	1-46, 47
10	Locking unit MCBQV3	Aluminum alloy+*2	1-77

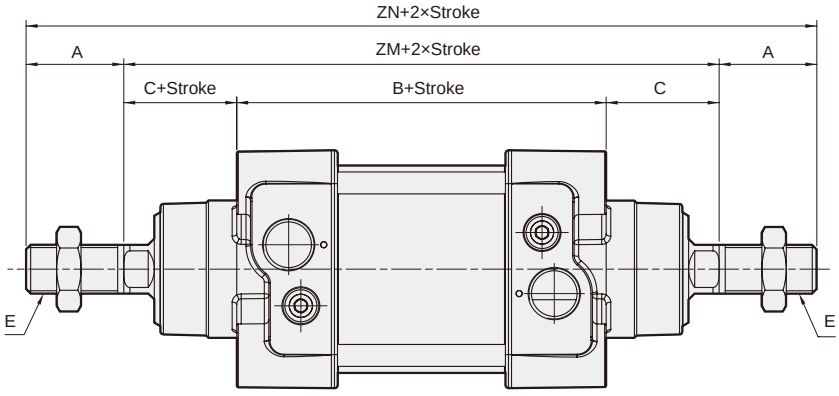
No.	Accessories	Material	Page
11	Floating joint MFC	Carbon steel	8-2
12	Floating joint MFCS	Carbon steel	8-5
13	Female rod ends PHS	Carbon steel	8-6
14	Fitting PC (PISCO)	–	7-3 (Vol.1)
15	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
16	Cylinder link seats MVSN-300-C	Aluminum alloy	1-59 (Vol.1)
17	Solenoid valve MVSN-220 / 300	–	1-55, 57 (Vol.1)
18	Sensor switch RCA+HV*	–	8-7
19	Protective bellows kit	NBR	–

*1. PIN material is carbon steel.
*2. Bronze alloy.

11

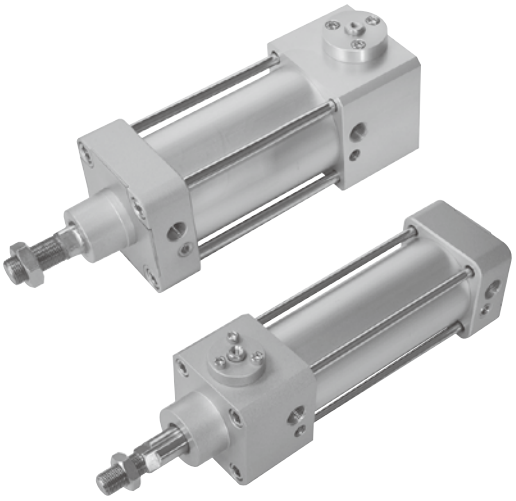


21



Code / Tube I.D.	A	B	B1	B2	C	DD	E	G	H	I	J	K	L	O	R	S	U	UC	UD	X
63	32	121	16	24	37	G3/8	M16×1.5	20	45	26	4	33	17	56.5	8	M8×1.25	8	4.5	17	78

Code / Tube I.D.	Z	ZB	ZM	ZN
63	194	158	195	259



Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ ISO-VDMA standard specification

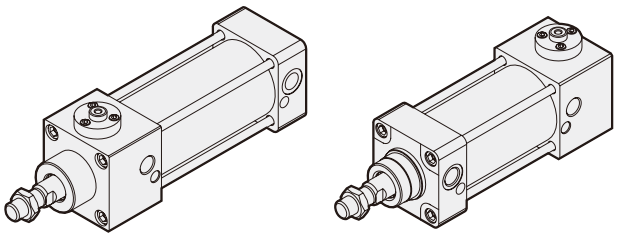
Conforms to ISO-6431 and VDMA 24562 specification enabling worldwide interchangeability.

Specification

Model	MCQV2L	
Tube I.D. (mm)	63	80
Medium	Air	
Operating perssure range	0.15~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Available speed range	50~500 mm/sec	
Sensor switch (*)	RCA	
Sensor switch holder	HV2	HV3

* RCA specification, please refer to page 8-7.

End lock type



R: Rod cover　　**H**: Head cover

Table for standard stroke

Tube I.D.	Stroke (mm)
ø63,80	50,75,100,125,150,175,200,250,300,350,400,450,500,600

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

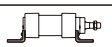
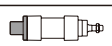
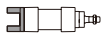
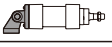
Mounting accessories

* Use the same accessories with MCQV.

FAC — MCQV — 63

MODEL　TUBE I.D.

MOUNTING TYPE

	LB
	CA
	CB
	CDB (+CB+PIN)
	FAC
	FBC
	TA
	TB
	TC
	Y
	I
	YS (Y+Floating+Pin)

* CB+PIN have to extra purchase.

* Dimension please refer to MCQV2.

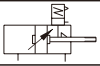
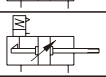
Order example

MCQV2L — 11 — 63 — 100M — R

MODEL　**1**: Single rod　TUBE I.D.　**M**: Magnet　STROKE　END LOCK TYPE

R: Rod cover
H: Head cover

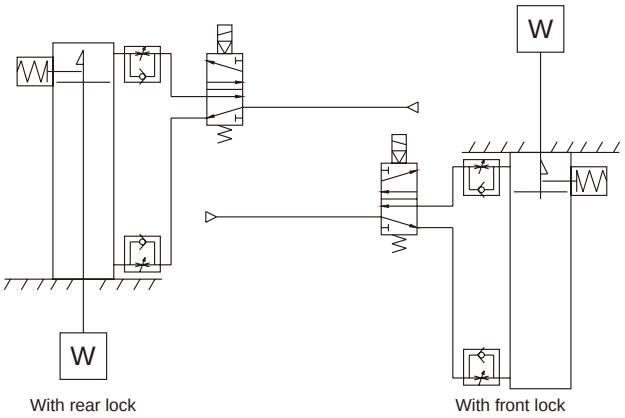
STYLE

Code		Symbol	Description	
1	1		Double acting / Male thread	Rod cover
				Head cover

* Order example for **Rc** or **NPT** thread please consult us.

Use recommended air pressure circuit

❶ The circuit layout must be settled properly. The recommended circuit design is shown below.



Precautions

❶ Do not use 3-way solenoid valves. The cylinder cannot be locked when compressed air is trapped in the lock side port. And the lock may be released due to the air leakage of solenoid valve, even it was locked successfully.

❷ Do not adjust or mount the cylinder when the lock is on.

❸ The operation load do not exceed 50% of the cylinder maximum output.

❹ Do not operate a workpiece with multiple end-lock cylinders simultaneously.

❺ Use an one-way speed control valve with meter-out circuit layout design. The lock cannot be released when the circuit layout is meter-in design.

❻ Operate the lock only when the cylinder is at the either end-position of stroke.

❼ The air supply must be higher than 0.15 MPa to operate the lock.

❽ The lock will be on when automatically when the pressure of the lock is lower than 0.1 MPa or less.

❾ There are many conditions that will cause the exhaust speed to reduce. The examples are shown below.

ⓐ When the exhausting route length is too long.

ⓑ When the one-way speed control valve is too far from cylinder port.

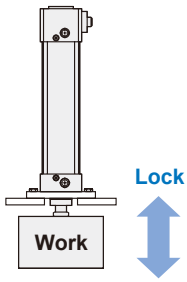
ⓒ When the silencer of the solenoid valve is blocked or clogged.

❿ When the cushion needle is fully closed, the piston rod may not be able to reach the end of its stroke. When the cushion needle is fully closed and the cylinder is locked, the lock may not be able to be released.

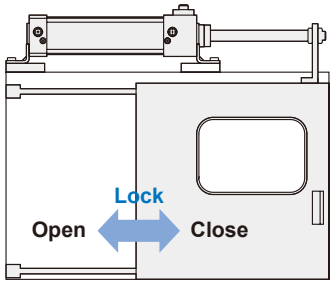
Maintains the cylinder's original position even if the air supply is interrupted.

Prevention of dropping at the rising end

With rear lock



Locking of door With front lock



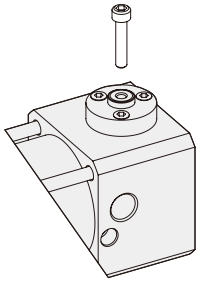
Manual Lock Releasing

❶ Install a bolt into the locking rod and pull it up by hands. When your hands release, the locking rod will move back by spring force and continue locking.

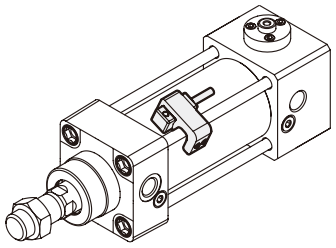
The bolt size, inner spring pulling force and the stroke of locking rod are listed below.

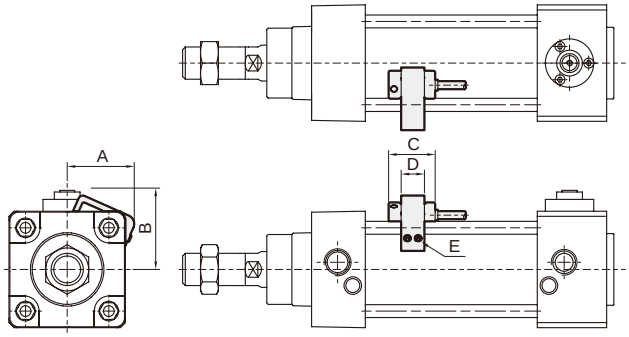
MODEL	Thread size	Pulling force	Stroke (mm)
MCQV2L-63	M6×1.0×20ℓ	24.5 N	4
MCQV2L-80	M6×1.0×20ℓ	24.5 N	5

❷ The bolt must be uninstalled after manual lock releasing, or the weight of bolt may cause some performance problems of the lock.



Installation of sensor switch



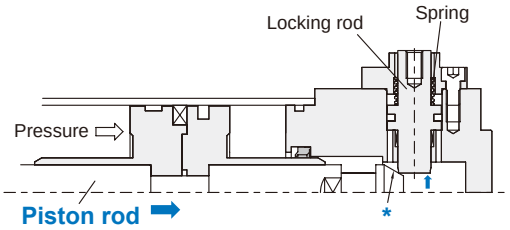


Code / Tube I.D.	Sensor switch	Hold	A	B	C	D	E
63	RCA	HV2	42.5	50	26	13	M4×10L
80	RCA	HV3	49.5	60	26	13	M4×10L

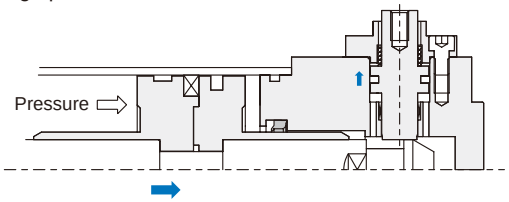
Working Principle

● Both front locking type and rear locking type have the same mechanism. The pictures below shows that how a rear locking type cylinder works.

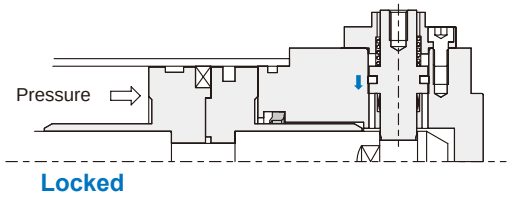
❶ When the air pressure is input from front cap, the piston will move backward. After the piston nears the end of the stroke, the slope of chamfered rod (the position of *mark) will touch the locking rod.



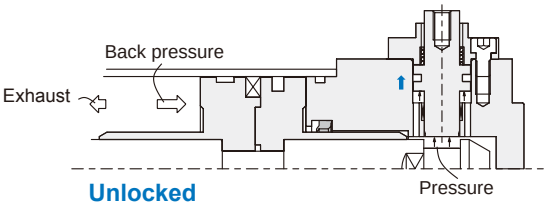
❷ The locking rod will be guided with the slope and keeps moving upward.



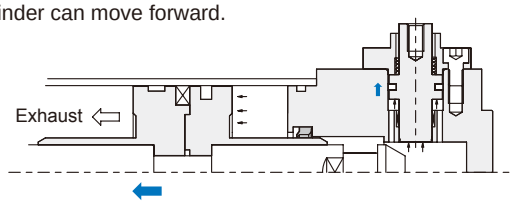
❸ The locking rod will be pushed into the locking slot of the piston rod by the spring force. At this time, the cylinder is locked.



❹ When the air pressure is input from rear cap, the piston will start moving forward. At the same time, the locking rod will be pushed up by the compressed air and make the piston rod unlocked.



❺ As the locking rod is no longer locking the piston rod, the cylinder can move forward.

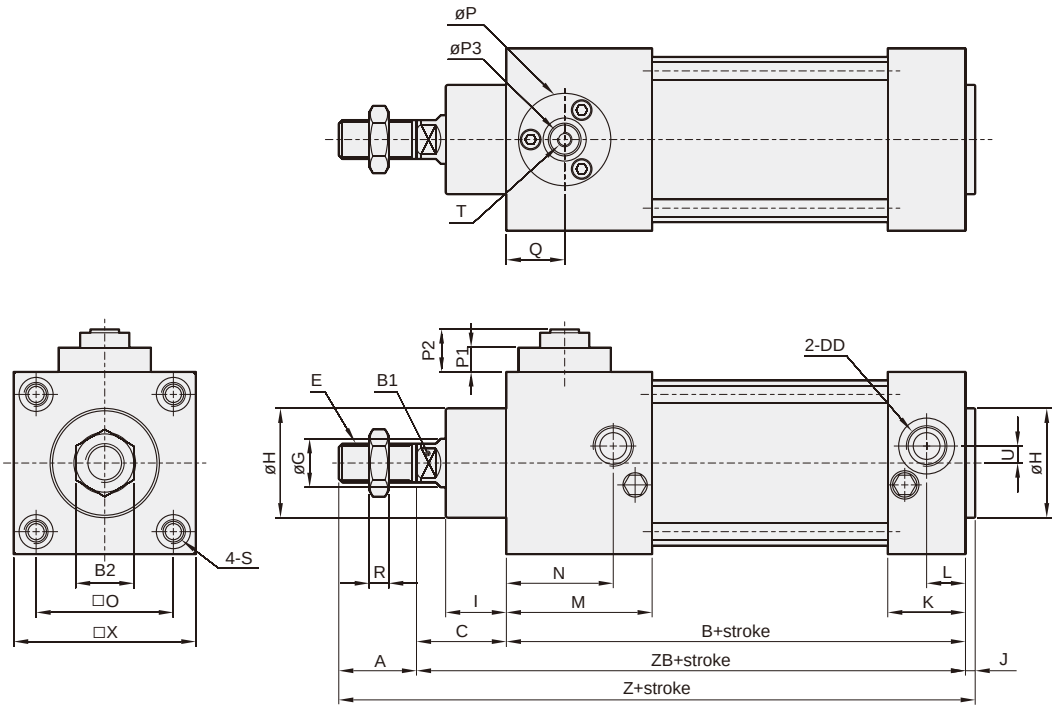


MCQV2L Dimensions ø63, ø80

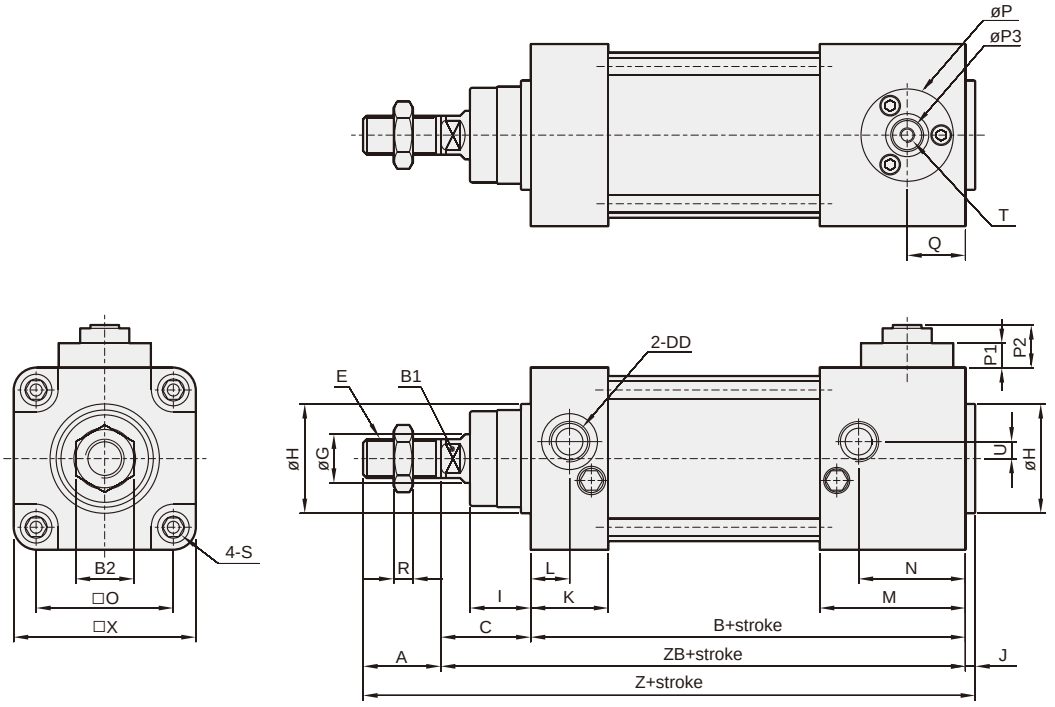
END LOCK CYLINDER

mindman

R



H

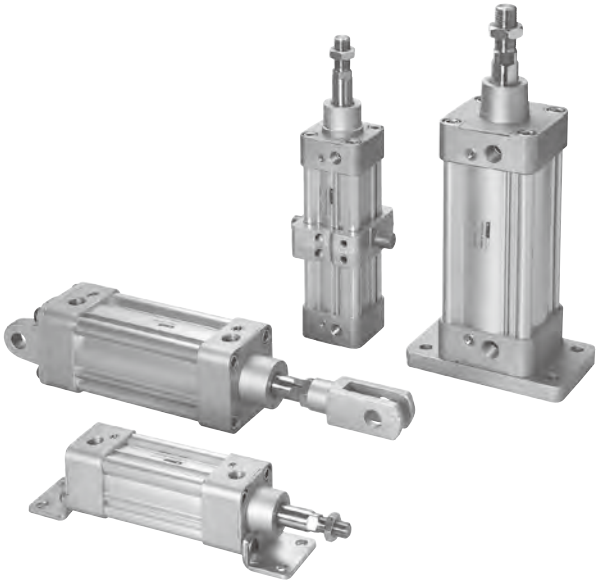


Code / Tube I.D.	A	B	B1	B2	C	DD	E	G	H	I	J	K	L	M	N	O	P	P1	P2	P3	Q	R
63	32	149	16	24	37	G3/8	M16×1.5	20	45	26	4	33	16	61	44	56.5	40	14	24	12	24	8
80	40	168	21	30	46	G3/8	M20×1.5	25	45	32.5	4	35.5	20.5	75.5	60.5	72	50	12	16	14	26	10

Code / Tube I.D.	S	T	U	X	Z	ZB
63	M8×1.25	M6×1.0	8	78	222	186
80	M10×1.5	M6×1.0	9	95	258	214

MCQI2 series

ISO-VDMA **STANDARD** PROFILE **CYLINDER**



Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ ISO-VDMA standard specification

Conforms to ISO-6431 and VDMA 24562 specification enabling worldwide interchangeability.

■ Easy to insert reed switch

With four grooves on the tube, proximity and reed sensors can be easily inserted into any position.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø32,40	50,75,100,125,150,175,200,250,300,350,400,450,500
ø50,63	↑ 600
ø80,100	↑ 600,700

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Specification

Model	MCQI2
Tube I.D. (mm)	32,40,50,63,80,100
Medium	Air
Operating perssure range	0.05~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)
Available speed range	50~500 mm/sec
Sensor switch (*)	RCI

* RCI specification, please refer to page 8-13.

Order example

MCQI2 — 11 — 50 — 100M

- MCQI2 — MODEL
- 11 — STYLE
  - **1**: Single rod
  - **2**: Double rod
- 50 — TUBE I.D.
- 100 — STROKE
- **M**: Magnet

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
2	1		Double rod / Double acting / Male thread
2	7		Double rod / Adjustable male thread (Please mark "adjustable distance(mm)" at order list)

* Order example for special specification, refer to page 0-7.
* Order example for **Rc** or **NPT** thread please consult us.

Mounting accessories

* Use the same accessories with MCQV2 and MCQI2.

FAC — MCQV — 50

- FAC — MOUNTING TYPE
- MCQV — MODEL
- 50 — TUBE I.D.

	LB	MCQV
	CA	
	CB	
	CDB (+CB+PIN)*	
	FAC	
	FBC	
	TA	MCQI2
	TB	
	TC	
	Y	MCQV
	I	
	YS (Y+Floating+PIN)	

* CB+PIN have to extra purchase.

* Mounting accessories please refer to page 1-61.

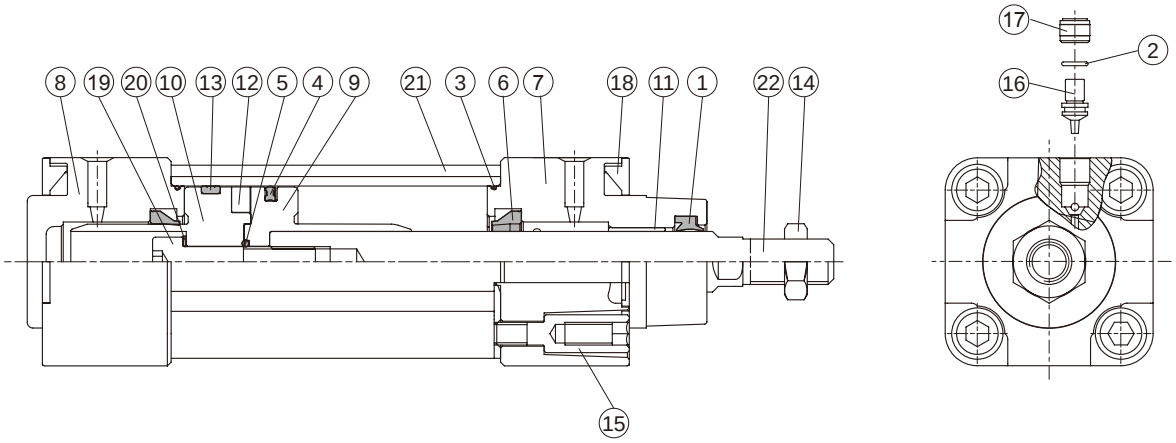
MCQI2-11 Inside structure & Parts list

ISO-VDMA **STANDARD** PROFILE **CYLINDER**

mindman

Single rod 11 type

ø32~ø100



Material

No.	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod packing	NBR	1	●	●
2	O-ring	NBR	2	●	
3	O-ring	NBR	2	●	●
4	Piston packing	NBR	1	●	●
5	O-ring	NBR	1	●	●
6	Cushion packing	NBR	2	●	●
7	Rod cover	Aluminum alloy	1	●	
8	Head cover	Aluminum alloy	1	●	
9	Piston-R	Aluminum alloy	1	●	
10	Piston-H	Aluminum alloy	1	●	
11	Bush	Bearing alloy	1	●	
12	Magnet ring	Magnet material	1	◎	
13	Wear ring	Teflon	1	●	
14	Nut	Carbon steel	1	●	
15	Screw	Carbon steel	8	●	
16	Needle valve	Copper alloy	2	●	
17	Insert nut	Copper alloy	2	●	
18	Cover plate	Plastic	2	●	
19	Bolt	Carbon steel	1	●	
20	Washer	Carbon steel	1	●	
21	Cylinder tube	Aluminum alloy	1		
22	Piston rod	Carbon steel	1		

* ◎ Option

■ Order example of component parts

CP — MCQI2 — 2 — 40 M

- MODEL
- Blank: Single rod
  2: Double rod
- TUBE I.D.
  32
  40
  50
  63
  80
  100
- **M**: Magnet

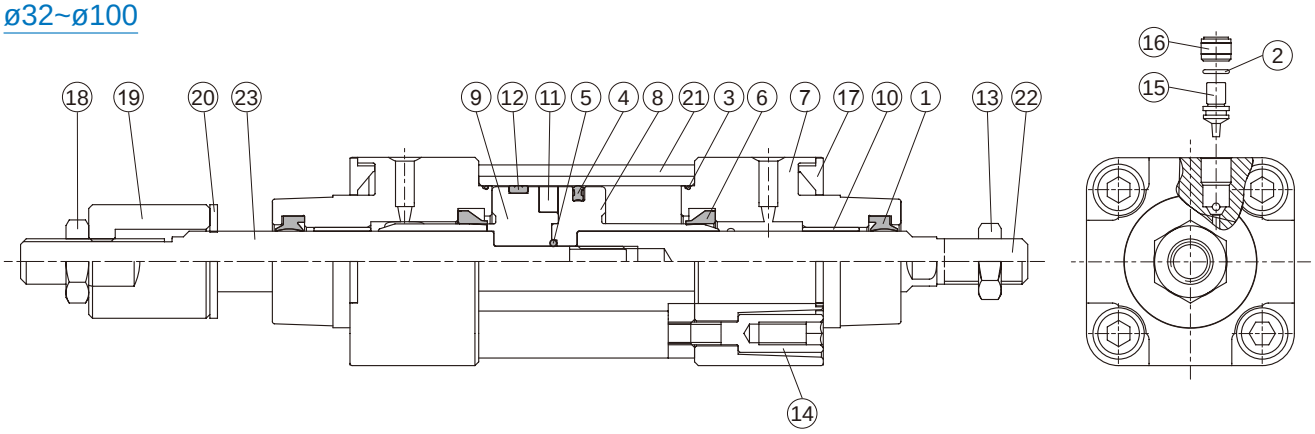
■ Order example of repair kits

PS — MCQI2 — 2 — 40 — XB6

- MODEL
- Blank: Single rod
  2: Double rod
- TUBE I.D.
  32
  40
  50
  63
  80
  100
- Blank: NBR
  XB6: Heat resistant material

Double rod 21 / 27 type

ø32~ø100



Material

No.	21 type	27 type	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	●	●	Rod packing	NBR	2	●	●
2	●	●	O-ring	NBR	2	●	
3	●	●	O-ring	NBR	2	●	●
4	●	●	Piston packing	NBR	1	●	●
5	●	●	O-ring	NBR	1	●	●
6	●	●	Cushion packing	NBR	2	●	●
7	●	●	Rod cover	Aluminum alloy	2	●	
8	●	●	Piston-R	Aluminum alloy	1	●	
9	●	●	Piston-h	Aluminum alloy	1	●	
10	●	●	Bush	Bearing alloy	2	●	
11	●	●	Magnet ring	Magnet material	1	◎	
12	●	●	Wear ring	Teflon	1	●	
13	●	●	Nut	Carbon steel	1	●	
14	●	●	Screw	Carbon steel	8	●	
15	●	●	Needle valve	Copper alloy	2	●	
16	●	●	Insert nut	Copper alloy	2	●	
17	●	●	Cover plate	Plastic	2	●	
18		●	Nut	Carbon steel	1		
19		●	Adjustable nut	Carbon steel	1		
20		●	Gasket	PU	1		
21	●	●	Cylinder tube	Aluminum alloy	1		
22	●	●	Piston rod #1	Carbon steel	1		
23	●	●	Piston rod #2	Carbon steel	1		

* ◎ Option

■ Order example of component parts

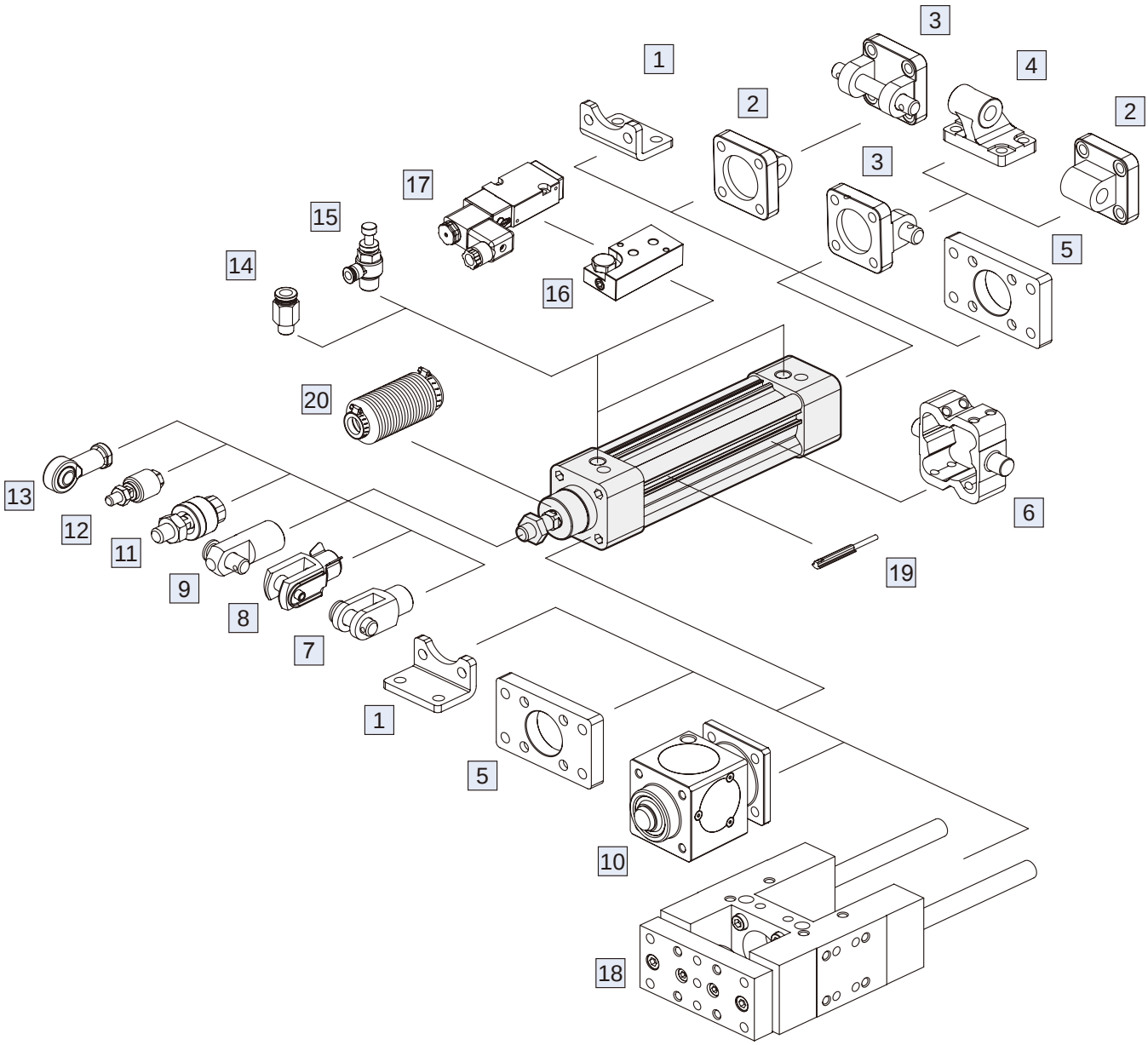
CP — MCQI2 — 2 — 40 M

- MODEL
- Blank: Single rod
  2: Double rod
- TUBE I.D.
  32
  40
  50
  63
  80
  100
- **M**: Magnet

■ Order example of repair kits

PS — MCQI2 — 2 — 40 — XB6

- MODEL
- Blank: Single rod
  2: Double rod
- TUBE I.D.
  32
  40
  50
  63
  80
  100
- Blank: NBR
  XB6: Heat resistant material

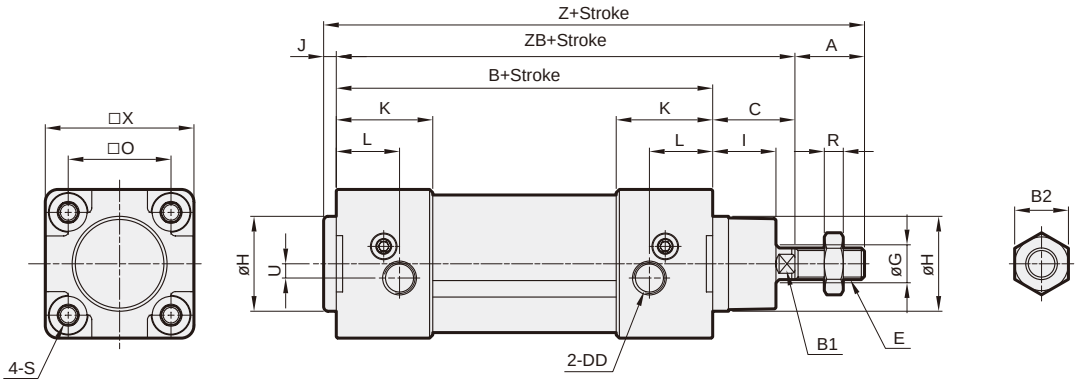


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	1-63
2	Mounting accessories CA	Cast iron	1-65
3	Mounting accessories CB+PIN	Cast iron / *1	1-65, 46
4	Mounting accessories CDB	Cast iron	1-66
5	Mounting accessories FAC/FBC	Carbon steel	1-64
6	Mounting accessories TA/TB/TC	Cast iron	1-66, 67
7	Accessories Y+PIN	Cast iron / *1	1-46
8	Accessories YS (Y+Floating pin)	Carbon steel	1-46
9	Accessories I+PIN	Carbon steel	1-46
10	Locking unit MCBQI2	Aluminum alloy+*2	1-77

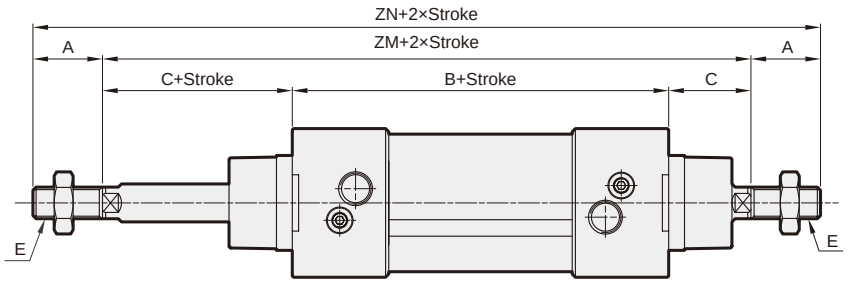
No.	Accessories	Material	Page
11	Floating joint MFC	Carbon steel	8-2
12	Floating joint MFCS	Carbon steel	8-5
13	Female rod ends PHS	Carbon steel	8-6
14	Fitting PC (PISCO)	–	7-3 (Vol.1)
15	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
16	Cylinder link seats MVSN-300-C	Aluminum alloy	1-59 (Vol.1)
17	Solenoid valve MVSN-220 / 300	–	1-55, 57 (Vol.1)
18	Sensor switch RCA+HV*	–	8-7
19	Twin-guide cylinders MGTB/TU/TX	–	4-33
20	Protective bellows kit	NBR	–

*1. PIN material is carbon steel.
*2. Bronze alloy.

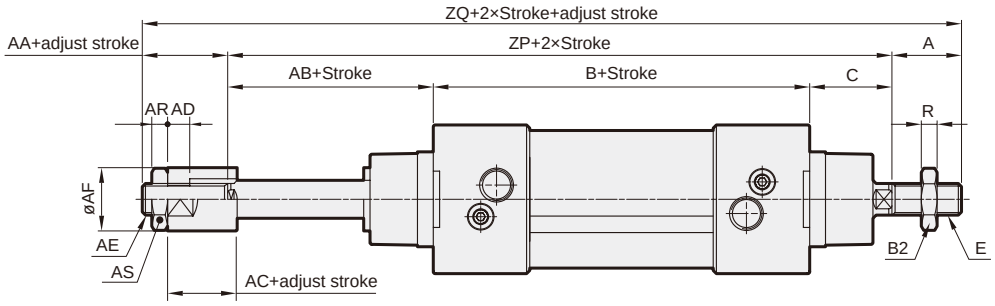
11



21

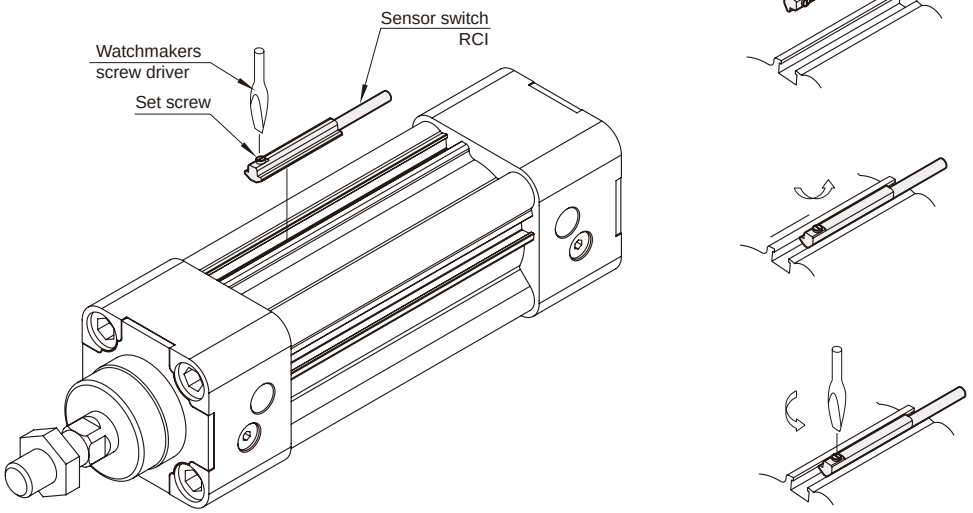


27



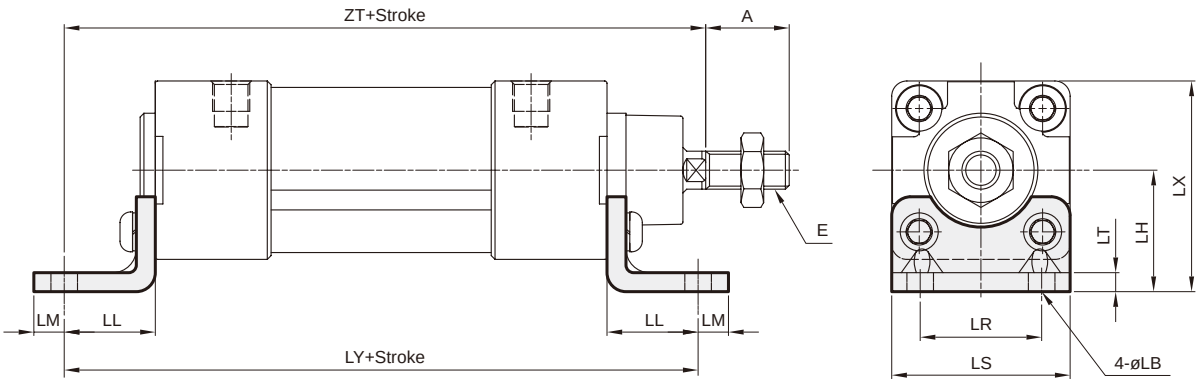
Code / Tube I.D.	A	AA	AB	AC	AD	AE	AF	AR	AS	B	B1	B2	C	DD	E	G	H	I	J	K	L	O
32	22	16	26	12	7	M10×1.25	20	5	17	94	10	17	26	G1/8	M10×1.25	12	30	20	4	30.5	20	32.5
40	24	20	27	12	7	M12×1.25	30	6	19	105	13	19	30	G1/4	M12×1.25	16	35	20.5	4	34	14.5	38
50	32	18	34	15	10	M16×1.5	40	8	24	106	16	24	37	G1/4	M16×1.5	20	40	28	4	31	16	46.5
63	32	20	32	15	10	M16×1.5	40	8	24	121	16	24	37	G3/8	M16×1.5	20	45	26	4	33	16	56.5
80	40	32	41	20	14	M22×1.5	50	13	32	128	21	30	46	G3/8	M20×1.5	25	45	32.5	4	35.5	20.5	72
100	40	30	46	20	14	M22×1.5	50	13	32	138	21	30	51	G1/2	M20×1.5	25	55	37.5	4	37	19	89

Code / Tube I.D.	R	S	U	X	Z	ZB	ZM	ZN	ZP	ZQ
32	5	M6×1.0	4.5	47	146	120	146	190	146	184
40	6	M6×1.0	5.3	55	163	135	165	213	162	206
50	8	M8×1.25	8.5	65	179	143	180	244	177	227
63	8	M8×1.25	8	78	194	158	195	259	190	242
80	10	M10×1.5	9	95	218	174	220	300	215	287
100	10	M10×1.5	13	115	233	189	240	320	235	305



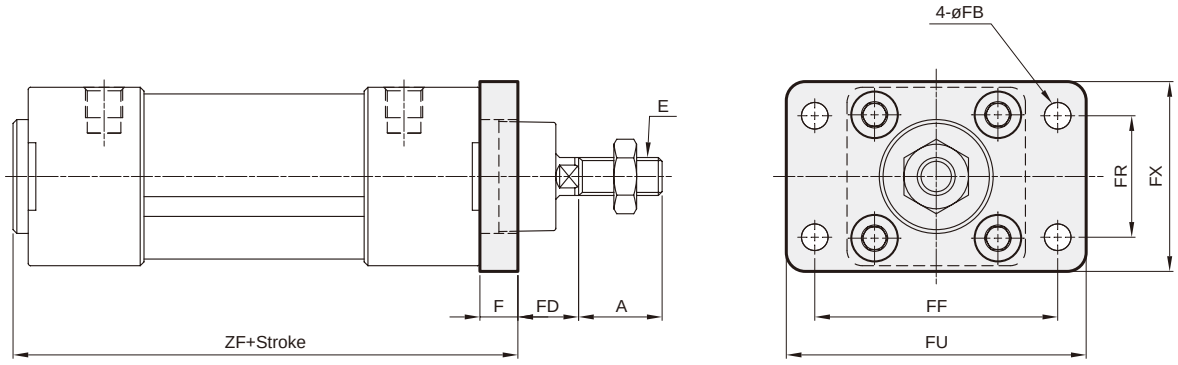
Mounting accessories

LB



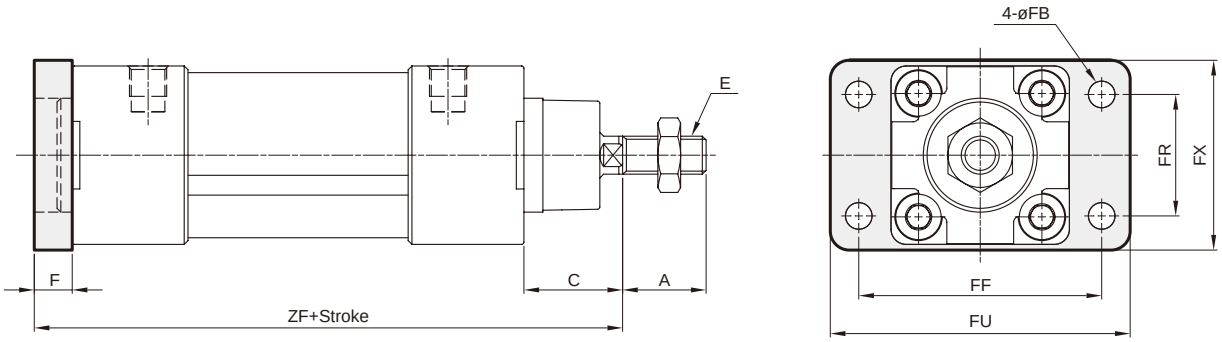
Code / Tube I.D.	A	E	LB	LH	LL	LM	LR	LS	LT	LX	LY	ZT
32	22	M10×1.25	7	32	24	8	32	47	5	55.5	142	144
40	24	M12×1.25	9	36	28	10	36	53	5	63.5	161	163
50	32	M16×1.5	9	45	32	10	45	65	5	77.5	170	175
63	32	M16×1.5	9	50	32	10	50	75	5	89	185	190
80	40	M20×1.5	12	63	41	13	63	95	6	110.5	210	215
100	40	M20×1.5	14	71	41	13	75	115	6	128.5	220	230

FAC



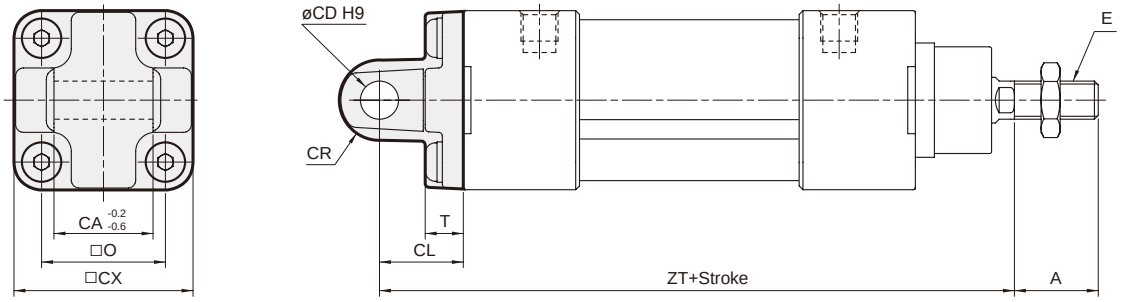
Code / Tube I.D.	A	E	F	FB	FD	FF	FR	FU	FX	ZF
32	22	M10×1.25	10	7	16	64	32	79	50	108
40	24	M12×1.25	10	9	20	72	36	90	52	120
50	32	M16×1.5	12	9	25	90	45	110	65	123
63	32	M16×1.5	12	9	25	100	50	125	76	137
80	40	M20×1.5	16	12	30	126	63	154	94	148
100	40	M20×1.5	16	14	35	150	75	180	112	158

FBC



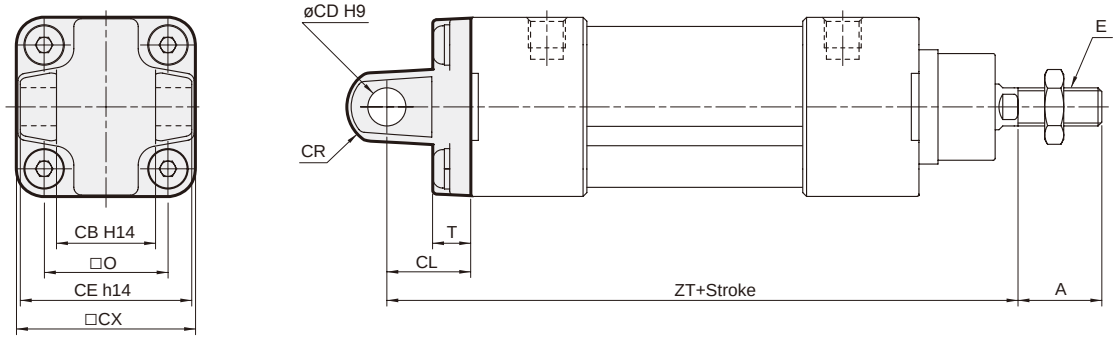
Code / Tube I.D.	A	C	E	F	FB	FF	FR	FU	FX	ZF
32	22	26	M10×1.25	10	7	64	32	79	50	130
40	24	30	M12×1.25	10	9	72	36	90	52	145
50	32	37	M16×1.5	12	9	90	45	110	65	155
63	32	37	M16×1.5	12	9	100	50	125	76	170
80	40	46	M20×1.5	16	12	126	63	154	94	190
100	40	51	M20×1.5	16	14	150	75	180	112	205

CA



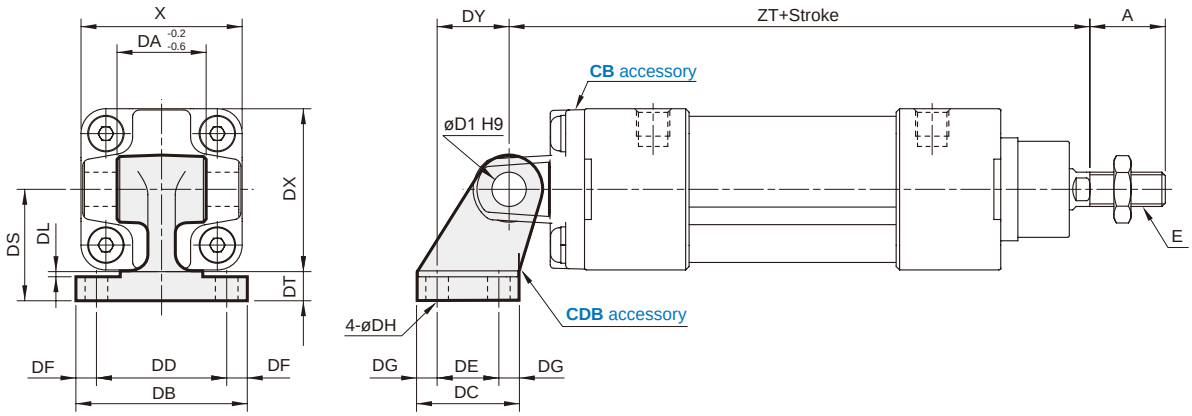
Code / Tube I.D.	A	CA	CD	CL	CR	CX	E	O	T	ZT
32	22	26	10	22	R10.5	46.5	M10×1.25	32.5	10	142
40	24	28	12	25	R12	54	M12×1.25	38	9	160
50	32	32	12	27	R13	64	M16×1.5	46.5	9	170
63	32	40	16	32	R17	75	M16×1.5	56.5	9	190
80	40	50	16	36	R17	93	M20×1.5	72	12	210
100	40	60	20	41	R21	114	M20×1.5	89	11	230

CB



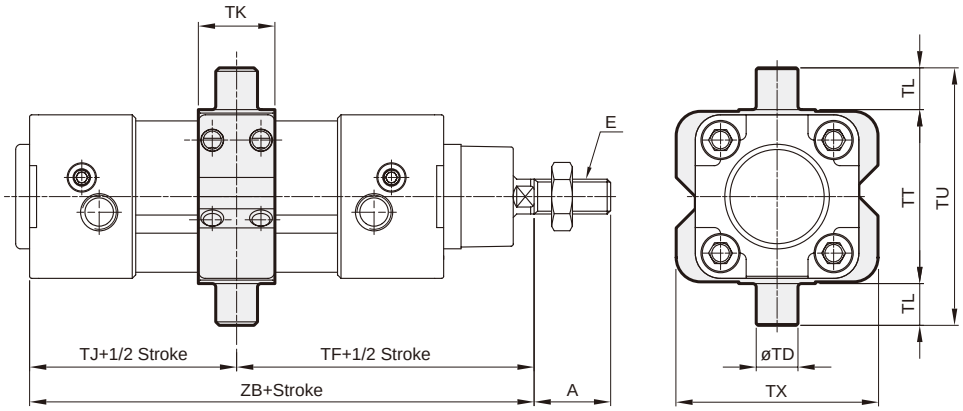
Code / Tube I.D.	A	CB	CD	CE	CL	CR	CX	E	O	T	ZT
32	22	26	10	45	22	R10.5	46.5	M10×1.25	32.5	10	142
40	24	28	12	52	25	R12	54	M12×1.25	38	9	160
50	32	32	12	60	27	R14	64	M16×1.5	46.5	9	170
63	32	40	16	70	32	R17	75	M16×1.5	56.5	9	190
80	40	50	16	90	36	R17	93	M20×1.5	72	12	210
100	40	60	20	110	41	R21	114	M20×1.5	89	11	230

CDB CB+Pin (Extra purchase)



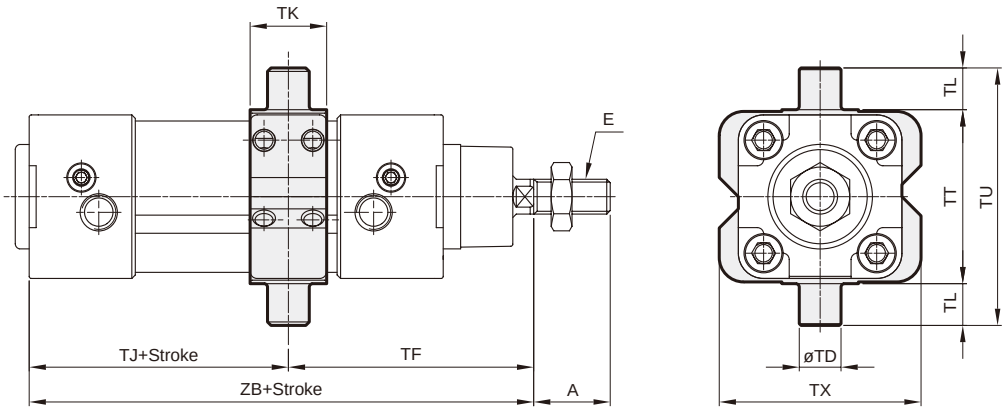
Code / Tube I.D.	A	DA	DB	DC	DD	DE	DF	DG	DH	DI	DL	DS	DT	DX	DY	E	X	ZT
32	22	26	50	30	38	18	6	6	6.6	10	1.5	32	8	47.5	21	M10×1.25	47	142
40	24	28	53	34	41	22	6	6	6.6	12	1.5	36	10	52.5	24	M12×1.25	55	160
50	32	32	65	45	50	30	7.5	7.5	9	12	1.5	45	12	65.5	33	M16×1.5	65	170
63	32	40	67	50	52	35	7.5	7.5	9	16	1.5	50	12	75.5	37	M16×1.5	78	190
80	40	50	86	60	66	40	10	10	11	16	2.5	63	14	96.5	47	M20×1.5	95	210
100	40	60	96	70	76	50	10	10	11	20	2.5	71	15	113.5	55	M20×1.5	115	230

TC



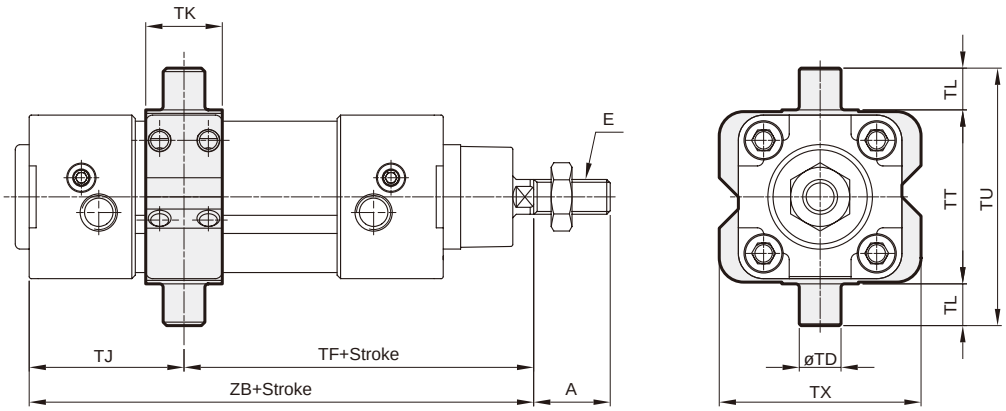
Code / Tube I.D.	A	E	TD	TF	TJ	TK	TL	TT	TU	TX	ZB
32	22	M10×1.25	12^{e8}	73	47	22	12	50	74	58	120
40	24	M12×1.25	16^{e8}	82.5	52.5	28	16	63	95	70	135
50	32	M16×1.5	16^{e8}	90	53	32	16	75	107	85	143
63	32	M16×1.5	20^{e8}	97.5	60.5	35	20	90	130	100	158
80	40	M20×1.5	20^{e8}	110	64	40	20	110	150	120	174
100	40	M20×1.5	25^{e8}	120	69	45	25	132	182	145	189

TA



Code / Tube I.D.	A	E	TD	TF	Without magnet		Magnet		TK	TL	TT	TU	TX
					TJ	ZB	TJ	ZB					
32	22	M10×1.25	12^{e8}	70.5	49.5	120	79.5	150	22	12	50	74	58
40	24	M12×1.25	16^{e8}	81	54	135	84	165	28	16	63	95	70
50	32	M16×1.5	16^{e8}	87	56	143	86	173	32	16	75	107	85
63	32	M16×1.5	20^{e8}	90.5	67.5	158	97.5	188	35	20	90	130	100
80	40	M20×1.5	20^{e8}	104.5	69.5	174	109.5	214	40	20	110	150	120
100	40	M20×1.5	25^{e8}	113.5	75.5	189	115.5	229	45	25	132	182	145

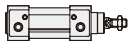
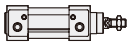
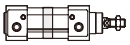
TB



Code / Tube I.D.	A	E	TD	TJ	Without magnet		Magnet		TK	TL	TT	TU	TX
					TF	ZB	TF	ZB					
32	22	M10×1.25	12^{e8}	44.5	75.5	120	105.5	150	22	12	50	74	58
40	24	M12×1.25	16^{e8}	51	84	135	114	165	28	16	63	95	70
50	32	M16×1.5	16^{e8}	50	93	143	123	173	32	16	75	107	85
63	32	M16×1.5	20^{e8}	53.5	104.5	158	134.5	188	35	20	90	130	100
80	40	M20×1.5	20^{e8}	58.5	115.5	174	155.5	214	40	20	110	150	120
100	40	M20×1.5	25^{e8}	62.5	126.5	189	166.5	229	45	25	132	182	145

Cylinder weight

Unit: kg

Model	Basic weight **MCQI2-11**	Basic weight (magnet) **MCQI2-11**	Stroke 25 mm **MCQI2-11**
Tube I.D.			
ø32	0.544	0.550	0.064
ø40	0.822	0.834	0.091
ø50	1.260	1.277	0.128
ø63	1.838	1.858	0.116
ø80	2.754	2.781	0.209
ø100	4.086	4.121	0.234

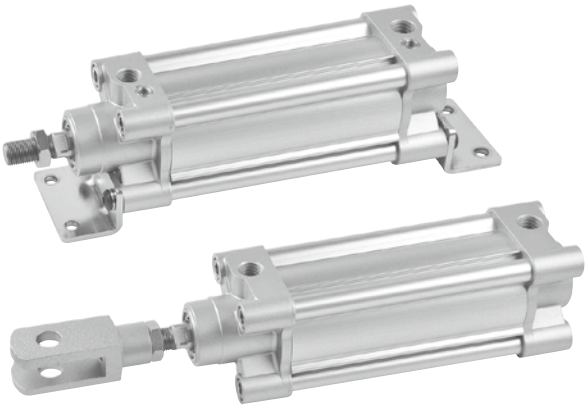
Accessories weight

Unit: kg

Model	LB	CA	CB	CDB	FAC/FBC	TA/TB/TC	Y	I	Pin		YS
									Y / I	CA / CB	
Tube I.D.											
ø32	0.163	0.213	0.185	0.170	0.235	0.208	0.070	0.080	0.02	0.040	0.018
ø40	0.211	0.253	0.211	0.230	0.265	0.282	0.115	0.141	0.03	0.065	0.031
ø50	0.315	0.390	0.352	0.410	0.460	0.377	0.272	0.334	0.08	0.072	0.070
ø63	0.395	0.670	0.544	0.550	0.684	0.675	0.272	0.334	0.08	0.145	0.070
ø80	0.816	1.076	0.982	0.870	1.508	1.025	0.551	0.553	0.16	0.179	0.150
ø100	1.014	1.587	1.493	1.400	1.975	1.680	0.551	0.553	0.16	0.330	0.150

MCQI3 series

ISO-VDMA **STANDARD** PROFILE **CYLINDER**



Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Automatic air cushioning

Pneumatic cushioning at both ends without adjusting.

■ ISO-VDMA standard specification

Conforms to ISO-6431 and VDMA 24562 specification enabling worldwide interchangeability.

■ Easy to insert reed switch

With four grooves on the tube, proximity and reed sensors can be easily inserted into any position.

Specification

Model	MCQI3
Tube I.D. (mm)	63
Medium	Air
Operating perssure range	0.05~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)
Available speed range	50~500 mm/sec
Sensor switch (*)	RCI

* RCI specification, please refer to page 8-13.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø63	50,75,100,125,150,175,200,250, 300,350,400,450,500,600,700,800

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Order example

MCQI3 — 11 — 63 — 100 M — A

MODEL

STYLE

1: Single rod
2: Double rod

TUBE I.D.

STROKE

M: Magnet

A: Cushion air (Adjustable)
S: Cushion air (Automatic)

Code		Symbol	Description
1	1		Double acting / Male thread
2	1		Double rod / Double acting / Male thread

* Order example for special specification, refer to page 0-7.
* Order example for **Rc** or **NPT** thread please consult us.

Mounting accessories

* Use the same accessories with MCQV2 and MCQI2.

FAC — MCQV — 63

MOUNTING TYPE

MODEL

TUBE I.D.

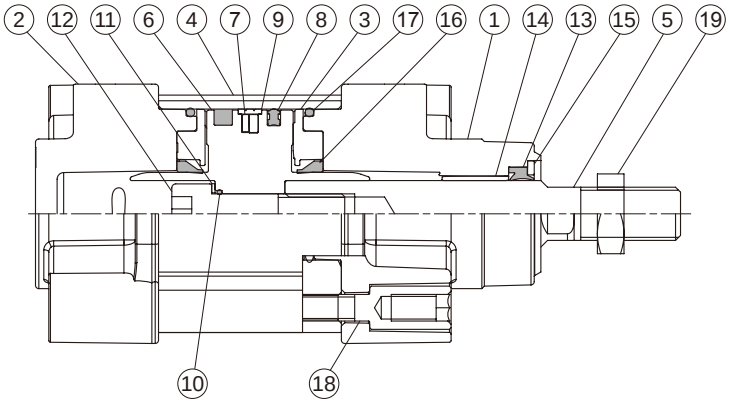
	LB	MCQV
	CA	
	CB	
	CDB (+CB+PIN)*	
	FAC	
	FBC	
	TA	MCQV2
	TB	
	TC	
	Y	MCQV
	I	
	YS (Y+Floating+PIN)	

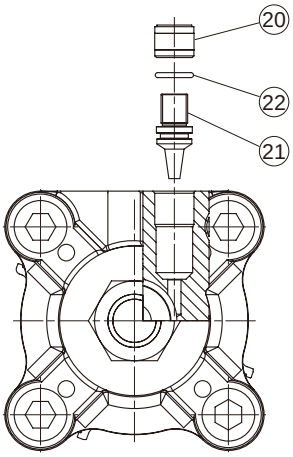
* CB+PIN have to extra purchase.

* Mounting accessories please refer to page 1-73.

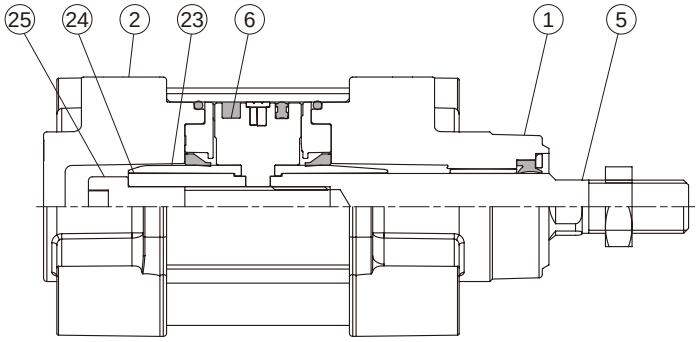
Single rod 11 type

A
Cushion air
(Adjustable)





S
Cushion air
(Automatic)



Material

No.	Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
				Adjustable	Automatic	Adjustable	Automatic	
1	Rod cover	Aluminum alloy	1	●	●			
2	Head cover	Aluminum alloy	1	●	●			
3	Cushion seal holder	Aluminum alloy	2	●	●			
4	Cylinder tube	Aluminum alloy	1					
5	Piston rod	Carbon steel	1					
6	Piston	Aluminum alloy	1	●	●			
7	Magnet ring	Magnet material	1	◎	◎			◎ Option
8	Piston packing	NBR	1	●	●	●	●	
9	Wear ring	Teflon	1	●	●			
10	O-ring	NBR	1	●		●		
11	Washer	Carbon steel	1	●				
12	Hex bolt	Carbon steel	1	●	●			
13	Rod packing	NBR	1	●	●	●	●	
14	Bush	Bearing alloy	1	●	●			
15	Washer	Carbon steel	1	●	●			
16	Cushion packing	NBR	2	●	●	●	●	
17	O-ring	NBR	2	●	●	●	●	
18	Screw	Carbon steel	8					
19	Piston rod nut	Carbon steel	1	●	●			
20	Insert nut	Copper alloy	2	●				
21	Needle valve	Copper alloy	2	●				
22	O-ring	NBR	2	●				
23	Shock absorber axis	ABS	2		●			
24	Piston nut	Carbon steel	1		●			
25	Hex bolt	Carbon steel	1		●			

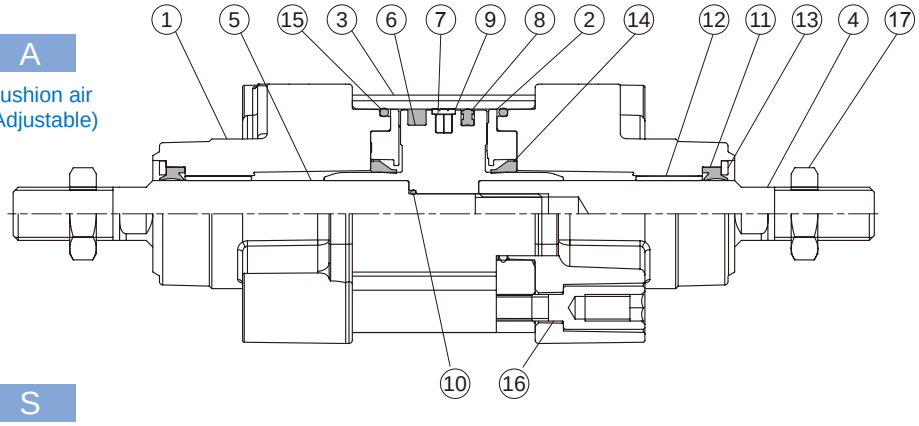
MCQI3-21 Inside structure & Parts list

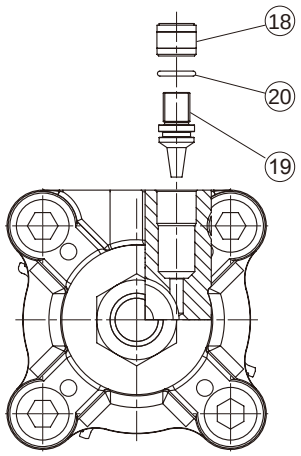
ISO-VDMA **STANDARD** PROFILE **CYLINDER**

mindman

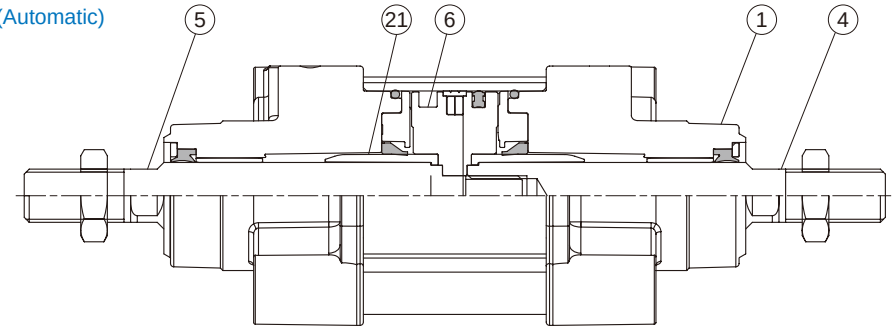
Double rod 21 type

A
Cushion air
(Adjustable)





S
Cushion air
(Automatic)



Material

No.	Part name	Material	Q'y	Component parts (inclusion)		Repair kits (inclusion)		Note
				Adjustable	Automatic	Adjustable	Automatic	
1	Rod cover	Aluminum alloy	2	●	●			
2	Cushion seal holder	Aluminum alloy	2	●	●			
3	Cylinder tube	Aluminum alloy	1					
4	Piston rod #1	Carbon steel	1					
5	Piston rod #2	Carbon steel	1					
6	Piston	Aluminum alloy	1	●	●			
7	Magnet ring	Magnet material	1	◎	◎			◎ Option
8	Piston packing	NBR	1	●	●	●	●	
9	Wear ring	Teflon	1	●	●			
10	O-ring	NBR	1	●		●		
11	Rod packing	NBR	2	●		●	●	
12	Bush	Bearing alloy	2	●	●			
13	Washer	Carbon steel	2	●	●			
14	Cushion packing	NBR	2	●	●	●	●	
15	O-ring	NBR	2	●	●	●	●	
16	Screw	Carbon steel	8					
17	Piston rod nut	Carbon steel	2	●	●			
18	Insert nut	Copper alloy	2	●	●			
19	Needle valve	Copper alloy	2	●	●			
20	O-ring	NBR	2	●				
21	Shock absorber axis	ABS	2	●				

Order example of component parts

CP — MCQI3 — 2 — 63 M A

- Blank: Single rod / **2**: Double rod
- TUBE I.D.
- **M**: Magnet
- **A**: Cushion air (Adjustable) / **S**: Cushion air (Automatic)

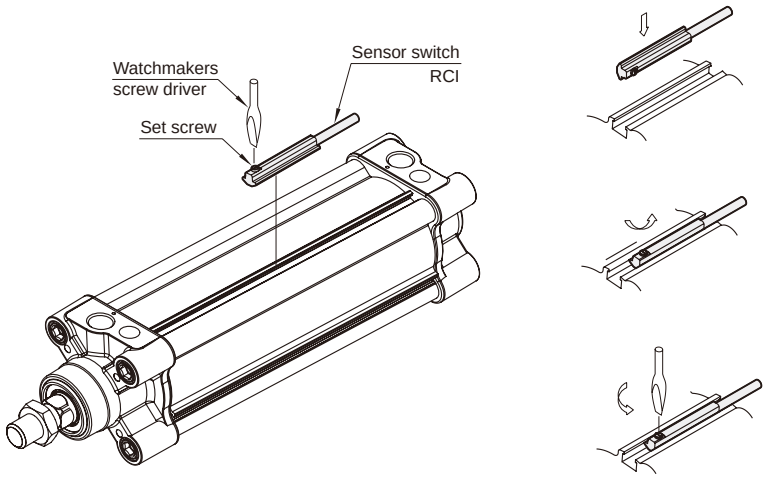
* Order example for **Rc** or **NPT** thread please consult us.

Order example of repair kits

PS — MCQI3 — 2 — 63 A — XB6

- Blank: Single rod / **2**: Double rod
- TUBE I.D.
- **A**: Cushion air (Adjustable) / **S**: Cushion air (Automatic)
- Blank: NBR / **XB6**: Heat resistant material

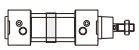
Installation of sensor switch



Cylinder & accessories weight

Cylinder weight

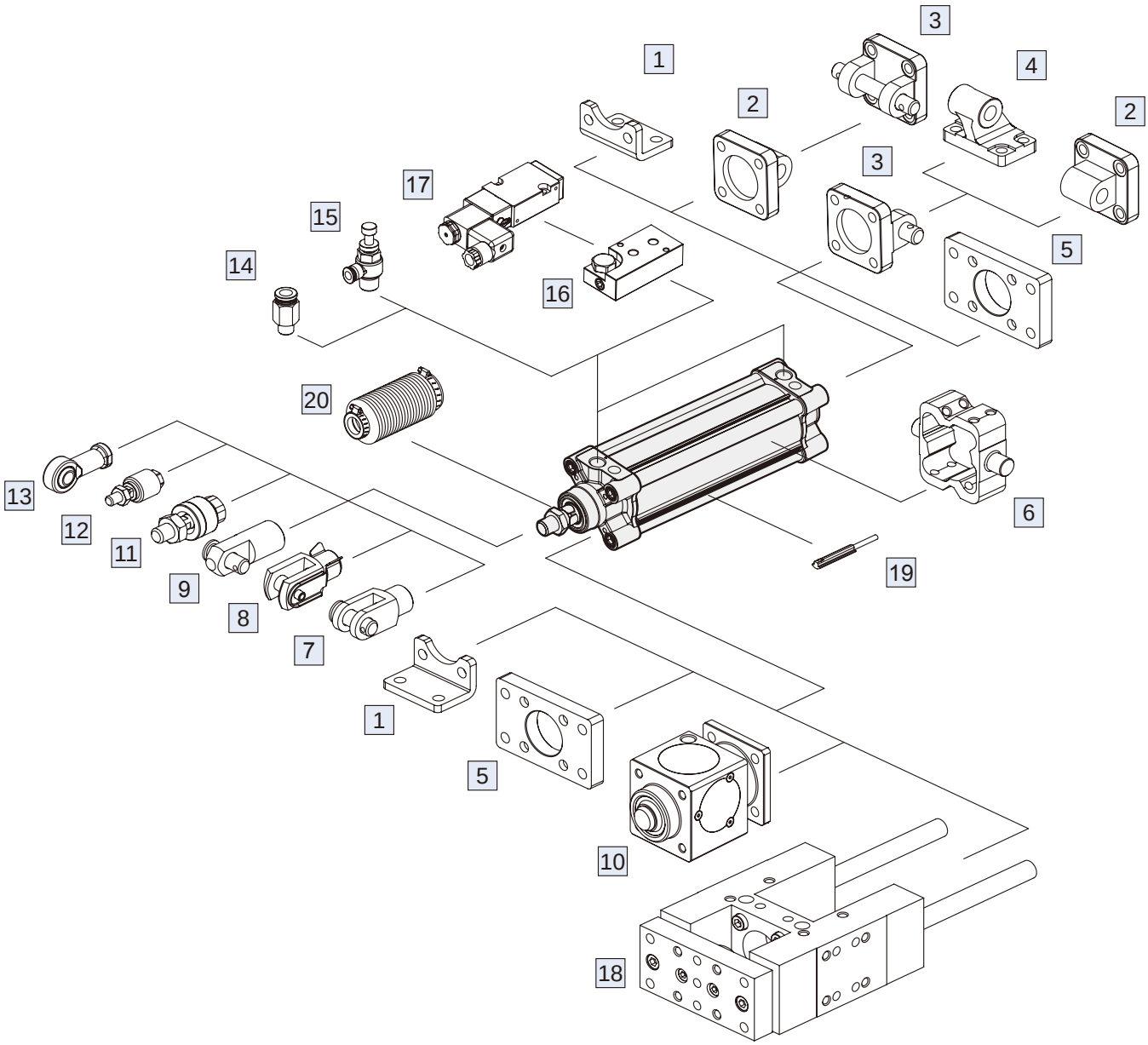
Unit: kg

Model	Basic weight **MCQI3-11**	Basic weight (magnet) **MCQI3-11**	Stroke 25 mm **MCQI3-11**
Tube I.D.			
ø63	1.669	1.689	0.128

Accessories weight

Unit: kg

Model	LB	CA	CB	CDB	FAC/FBC	TA/TB/TC	Y	I	Pin		YS
									Y / I	CA / CB	
Tube I.D.											
ø63	0.395	0.670	0.544	0.550	0.684	0.675	0.272	0.334	0.067	0.128	0.070

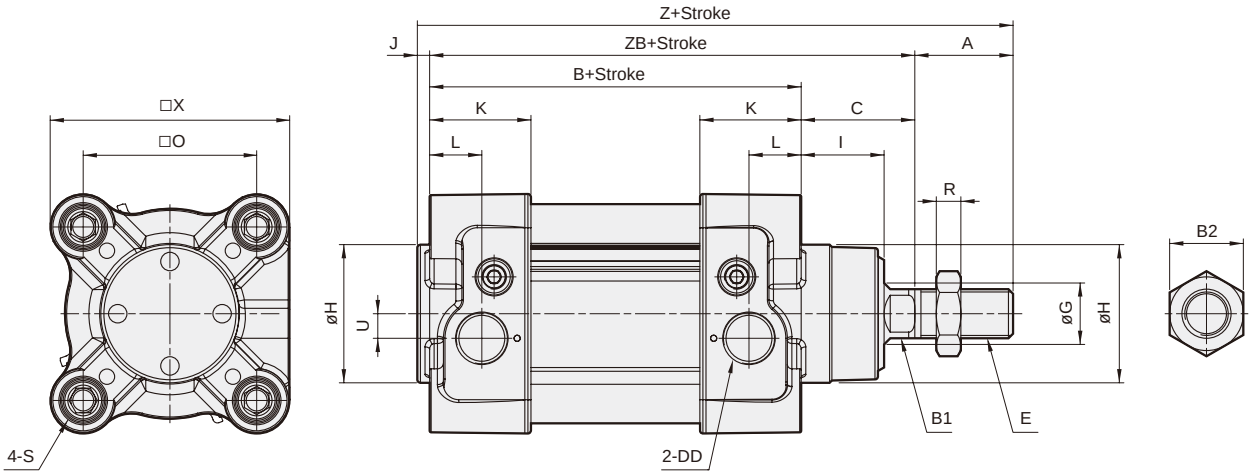


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	1-63
2	Mounting accessories CA	Cast iron	1-65
3	Mounting accessories CB+PIN	Cast iron / *1	1-65, 46
4	Mounting accessories CDB	Cast iron	1-66
5	Mounting accessories FAC/FBC	Carbon steel	1-64
6	Mounting accessories TA/TB/TC	Cast iron	1-66, 67
7	Accessories Y+PIN	Cast iron / *1	1-46
8	Accessories YS (Y+Floating pin)	Carbon steel	1-46
9	Accessories I+PIN	Carbon steel	1-46
10	Locking unit MCBQI3	Aluminum alloy+*2	1-77

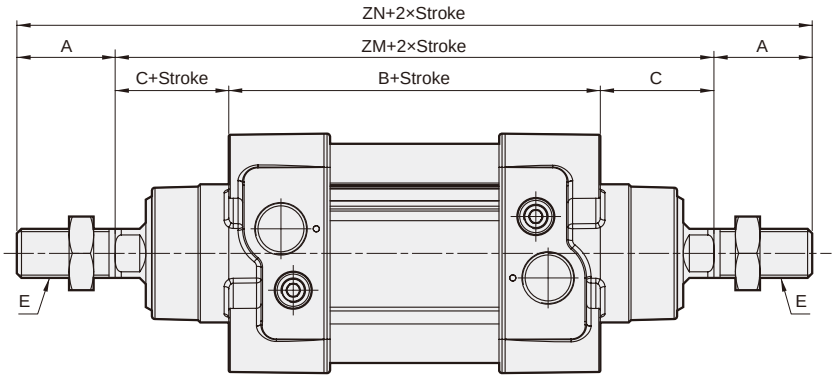
No.	Accessories	Material	Page
11	Floating joint MFC	Carbon steel	8-2
12	Floating joint MFCS	Carbon steel	8-5
13	Female rod ends PHS	Carbon steel	8-6
14	Fitting PC (PISCO)	–	7-3 (Vol.1)
15	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
16	Cylinder link seats MVSN-300-C	Aluminum alloy	1-59 (Vol.1)
17	Solenoid valve MVSN-220 / 300	–	1-55, 57 (Vol.1)
18	Sensor switch RCA+HV*	–	8-7
19	Twin-guide cylinders MGTB/TU/TX	–	4-33
20	Protective bellows kit	NBR	–

*1. PIN material is carbon steel.
*2. Bronze alloy.

11



21



Code / Tube I.D.	A	B	B1	B2	C	DD	E	G	H	I	J	K	L	O	R	S	U	X	Z	ZB	ZM	ZN
63	32	121	16	24	37	G3/8	M16×1.5	20	45	26	4	33	17	56.5	8	M8×1.25	8	78	194	158	195	259

MCKQI2 series

ISO-VDMA **STANDARD** WITH NO-ROTATION PROFILE **CYLINDER**

Features

■ Hexagonal rod design & Non lubrication

Cylinder with hexagonal rod design enables non-rotation of rod. Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ ISO-VDMA standard specification

Conforms to ISO-6431 and VDMA 24562 specification enabling worldwide interchangeability.

■ Easy to insert reed switch

With four grooves on the tube, proximity and reed sensors can be easily inserted into any position.

Specification

Model	MCKQI2	
Tube I.D. (mm)	32	40
Medium	Air	
Operating perssure range	0.05~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Available speed range	50~500 mm/sec	
Rod non-rotating accuracy	±0.5°	
Allowable rotational torque	2.5 kgf-cm	4.5 kgf-cm
Sensor switch (*)	RCI	

* RCI specification, please refer to page 8-13.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø32,40	50,75,100,125,150,175,200,250,300

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Order example

MCKQI2 — 11 — 32 — 100M

MODEL | STYLE | TUBE I.D. | STROKE | **M**: Magnet

Code		Symbol	Description
1	1		Double acting / Male thread

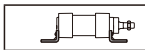
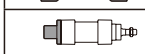
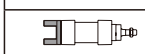
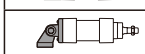
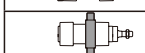
* Order example for special specification, refer to page 0-7.
* Order example for **Rc** or **NPT** thread please consult us.

Mounting accessories

* Use the same accessories with MCQV.

FAC — MCQV — 32

MOUNTING TYPE | MODEL | TUBE I.D.

	**LB**
	**CA**
	**CB**
	**CDB** (+CB+PIN)*
	**FAC**
	**FBC**
	**TA**
	**TB**
	**TC**
	**Y**
	**I**
	**YS** (Y+Floating+PIN)

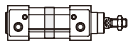
* CB+PIN have to extra purchase.

Model is MCQI2

Refer to MCQV2 dimension

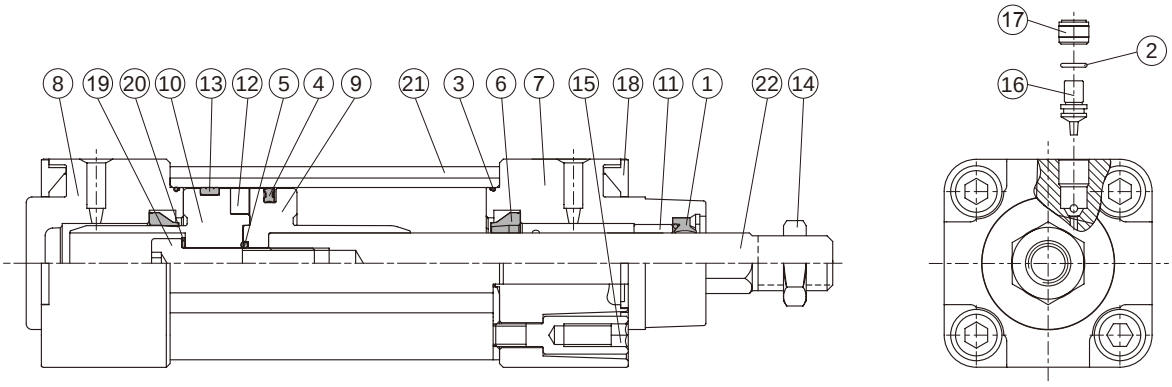
Cylinder weight

Unit: kg

Model	Basic weight	Basic weight (magnet)	Stroke 25 mm
Tube I.D.			
ø32	0.550	0.556	0.067
ø40	0.823	0.829	0.086

MCKQI2 Inside structure & Parts list / Dimensions

ISO-VDMA **STANDARD** WITH NO-ROTATION PROFILE **CYLINDER**



Material

No.	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod packing	NBR	1	●	●
2	O-ring	NBR	2	●	
3	O-ring	NBR	2	●	●
4	Piston packing	NBR	1	●	●
5	O-ring	NBR	1	●	●
6	Cushion packing	NBR	2	●	●
7	Rod cover	Aluminum alloy	1	●	
8	Head cover	Aluminum alloy	1	●	
9	Piston-R	Aluminum alloy	1	●	
10	Piston-H	Aluminum alloy	1	●	
11	Bush	Bearing alloy	1	●	
12	Magnet ring	Magnet material	1	●	
13	Wear ring	Teflon	1	●	
14	Nut	Carbon steel	1	●	
15	Screw	Carbon steel	8	●	
16	Needle valve	Copper alloy	2	●	
17	Insert nut	Copper alloy	2	●	
18	Cover plate	Plastic	2	●	
19	Bolt	Carbon steel	1	●	
20	Washer	Carbon steel	1	●	
21	Cylinder tube	Aluminum alloy	1		
22	Piston rod	Stainless steel	1		
23	Snap ring	Spring steel	1	●	
24	Washer	Carbon steel	1	●	

■ Order example of component parts

CP — MCKQI2 — □ — 40 M

- MODEL
- Blank: Single rod
- TUBE I.D. **32, 40**
- **M**: Magnet

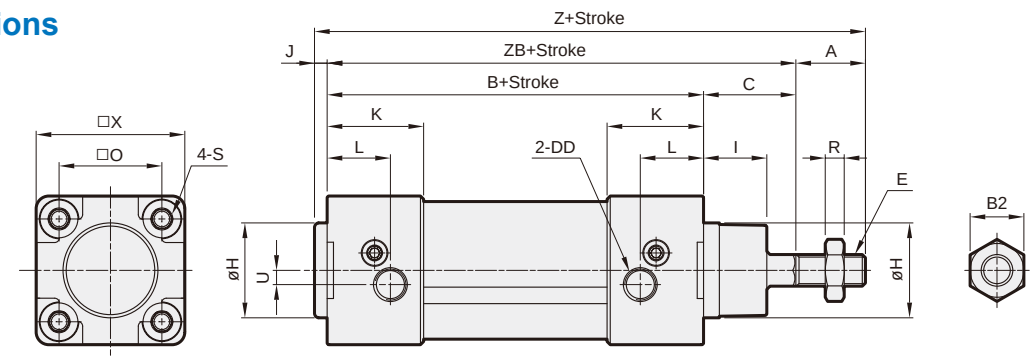
* Order example for **Rc** or **NPT** thread please consult us.

■ Order example of repair kits

PS — MCKQI2 — □ — 40

- MODEL
- Blank: Single rod
- TUBE I.D. **32, 40**

Dimensions



Code / Tube I.D.	A	B	B2	C	DD	E	H	I	J	K	L	O	R	S	U	X	Z	ZB
32	22	94	17	26	G1/8	M10×1.25	30	20	4	30.5	20	32.5	5	M6×1.0	4.5	47	146	120
40	24	105	19	30	G1/4	M12×1.25	35	20.5	4	34	14.5	38	6	M6×1.0	5.3	55	163	135

MCB* series

ROD LOCKING CYLINDER

mindman

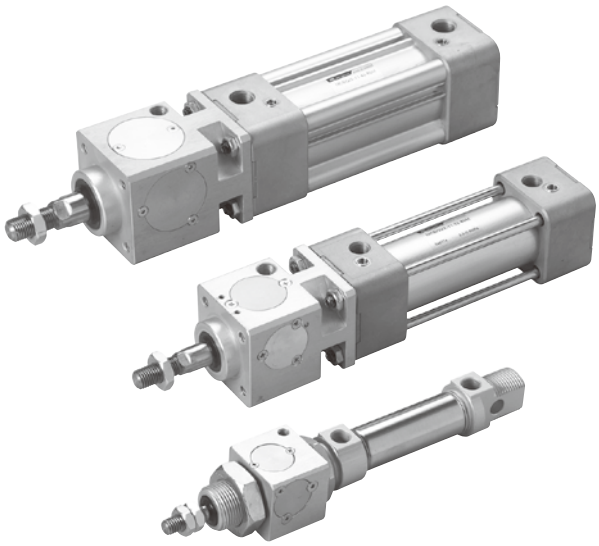


Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25	15,25,50,75,100,125,150,175,200,250,300, 350,400,450,500
ø32,40	50,75,100,125,150,175,200,250,300,350,400, 450,500
ø50,63	↑ 600
ø80,100,125	↑ 600,700

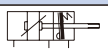
- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Order example

MCBQV2 — 11 — 40 — 100M — A

1: Single rod | TUBE I.D. | STROKE | M: Magnet

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread

MODEL

MODEL	Tube I.D.
MCBMI	ø20, ø25
MCBQV2	ø32~ø100
MCBQV3	ø63
MCBQI2	ø32~ø100
MCBQI3	ø63
MCBQV	ø125

CUSHION TYPE

Blank: Cushion pad	**A**: Cushion air (Adjustable)	**S**: Cushion air (Automatic)
●	●	
	●*	
	●	●
	●*	
	●	●
	●*	

* Without code when ordering.

* Order example for **Rc** or **NPT** thread please consult us.

Features

■ Multi-specification

There are nine specifications: tube I.D.ø20~125. Application to hold state in the stroke range.

■ Brake function

The brake function is bi-directional.

■ Non lubrication

Designs of oil-filled alloy. Special housing and bushing provide the needed self-lubrication of piston rod.

■ High quality long service life

Hard anodized aluminum cylinder tubes and stainless steel tubes resist corrosion and abrasion.

■ ISO-VDMA standard specification

Conformance to ISO-6431 & VDMA-24562 specification.
Unified design, most parts of each type are interchangeable among each other.

■ Cylinder mountings

Available with a comprehensive selection of mountings for fixed or flexible installation.

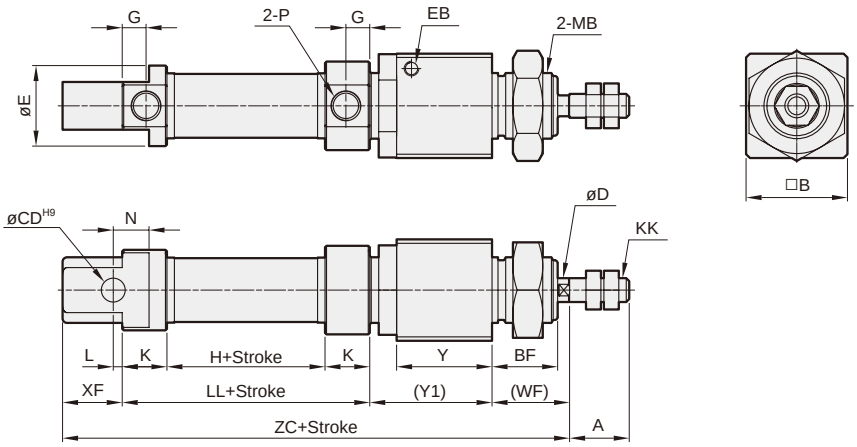
Specification

Model	MCBMI	MCBQI2, MCBQI3 *2					
Tube I.D. (mm)	20	25	32	40	50	63	80	100
Medium	Air							
Operating perssure range	0.3~0.6 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	-5~+60°C (No freezing)							
Min. working pressure	0.3 MPa							
Available speed range	50~500 mm/sec							
Locking mode	Secure locking of piston rod in any position							
Lock retention forces (N)	490	490	790	1240	1930	3060	5400	7700
Sensor switch (*)	RCM		RCI					
Sensor switch (band)	BM20	BM25	–					

Model	MCBQV2, MCBQV3 *2						MCBQV
Tube I.D. (mm)	32	40	50	63	80	100	125
Medium	Air						
Operating perssure range	0.3~0.6 MPa						
Proof pressure	1.5 MPa						
Ambient temperature	-5~+60°C (No freezing)						
Min. working pressure	0.3 MPa						
Available speed range	50~500 mm/sec						
Locking mode	Secure locking of piston rod in any position						
Lock retention forces (N)	790	1240	1930	3060	5400	7700	12040
Sensor switch (*1)	RCA						
Sensor switch (holder)	HV1		HV2		HV3		HV4

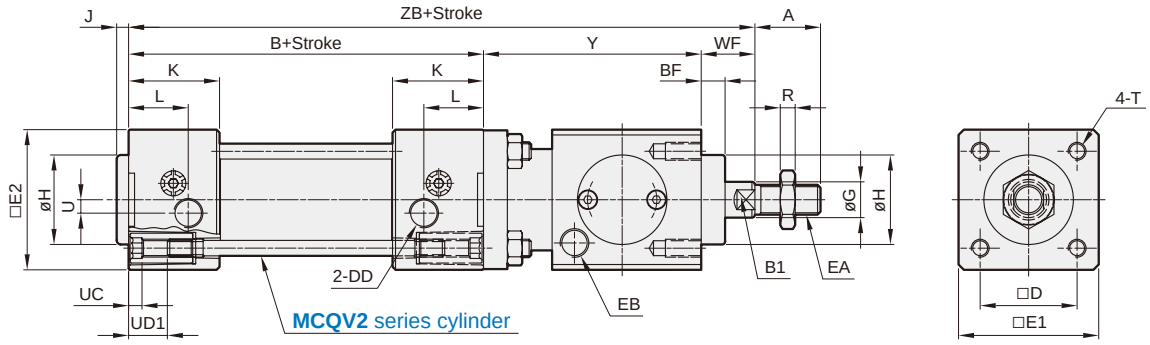
*1. RCA, RCI, RCM specification, please refer to page 8-7, 13, 15.
*2. MCBQV3 and MCBQI3 only have tube I.D. 63.

MCBMI

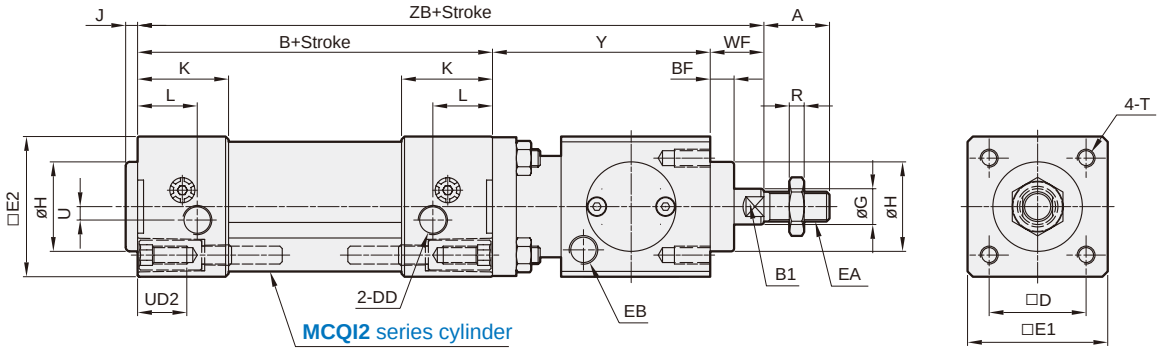


Code / Tube I.D.	A	B	BF	CD	D	E	EB	G	H	K	KK	L	LL	MB	N	P	WF	XF	Y	Y1	ZC
20	20	34	22	8	8	27	M5	8	38	15	M8×1.25	3	68	M22×1.5	12	G1/8	26	20	32	43	157
25	22	34	22	8	10	27	M5	7.5	37	15	M10×1.25	9	67	M22×1.5	12	G1/8	28	22	32	45	162

MCBQV2

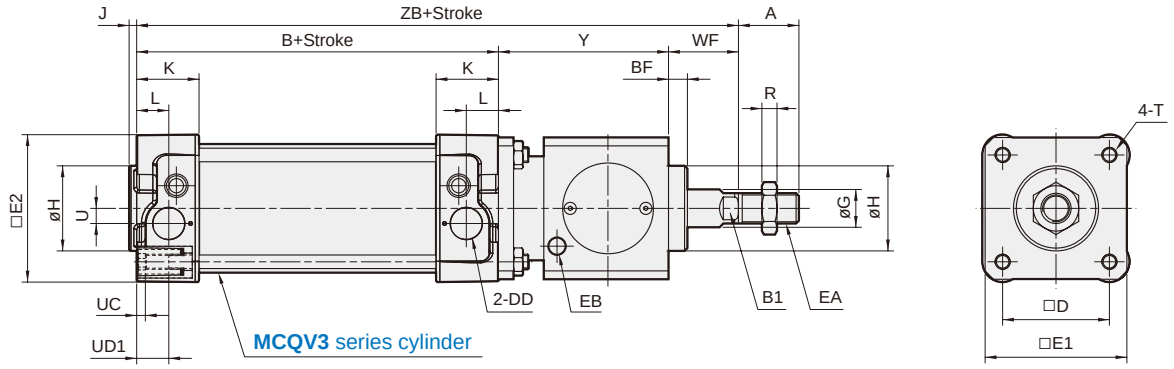


MCBQI2

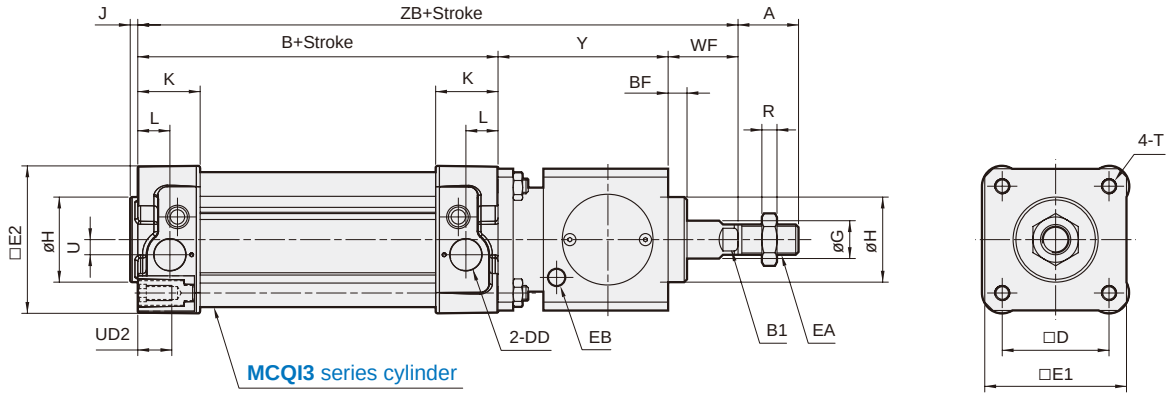


Code / Tube I.D.	A	B	BF	B1	D	DD	E1	E2	EA	EB	G	H	J	K	L	R	T	U	UC	UD1	UD2	WF	Y	ZB
32	22	94	7.5	10	32.5	G1/8	47	47	M10×1.25	G1/8	12	30	4	30.5	20	5	M6×12L	4.5	4.5	12	M6×1.0×15L	26	60	180
40	24	105	10	13	38	G1/4	54	53	M12×1.25	G1/8	16	35	4	34	14.5	6	M6×12L	5.3	4.5	12	M6×1.0×15L	30	70	205
50	32	106	10	16	46.5	G1/4	65	65	M16×1.5	G1/8	20	40	4	31	16	8	M8×14L	8.5	4.5	16	M8×1.25×18L	37	90	233
63	32	121	10	16	56.5	G3/8	75	78	M16×1.5	G1/8	20	45	4	33	16	8	M8×14L	8	4.5	16	M8×1.25×18L	37	90	248
80	40	128	10	21	72	G3/8	95	95	M20×1.5	G1/4	25	45	4	35.5	20.5	10	M10×16L	9	4.5	18	M10×1.5×19L	46	110	284
100	40	138	10	21	89	G1/2	114	115	M20×1.5	G1/4	25	55	4	37	19	10	M10×16L	13	4.5	18	M10×1.5×19L	51	110	299

MCBQV3

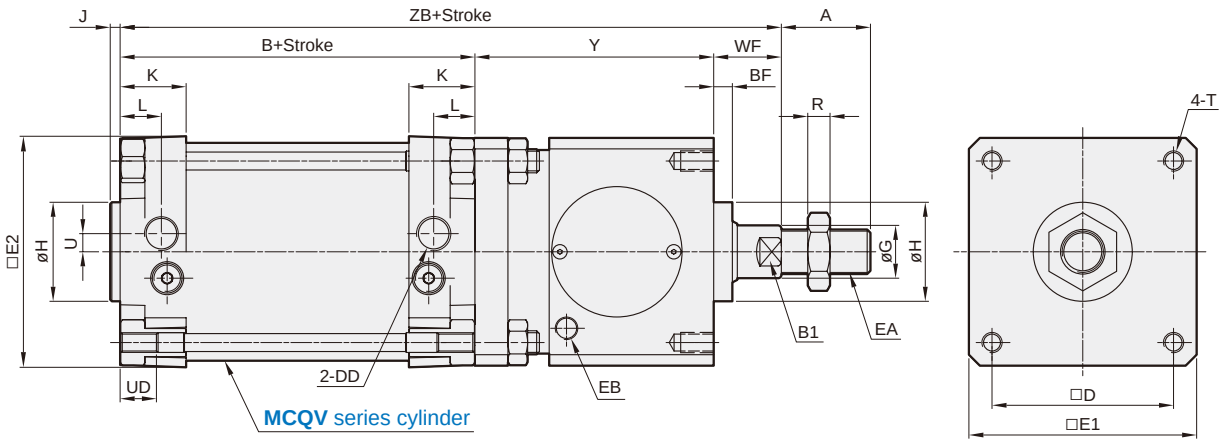


MCBQI3



Code / Tube I.D.	A	B	BF	B1	D	DD	E1	E2	EA	EB	G	H	J	K	L	R	T	U	UC	UD1	UD2	WF	Y	ZB
63	32	121	10	16	56.5	G3/8	75	78	M16×1.5	G1/8	20	45	4	33	17	8	M8×14L	8	4.6	17	M8×1.25×18L	37	90	248

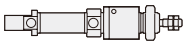
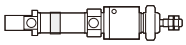
MCBQV

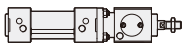
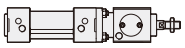
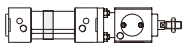


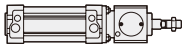
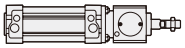
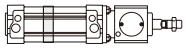
Code / Tube I.D.	A	B	BF	B1	D	DD	E1	E2	EA	EB	G	H	J	K	L	R	T	U	UC	UD	WF	Y	ZB
125	54	160	16	27	110	G1/2	138	140	M27×2.0	G1/4	32	60	6	40	25	13.5	M12×20L	11	22	18	65	140	365

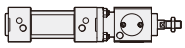
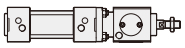
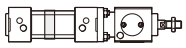
Cylinder weight

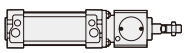
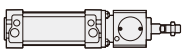
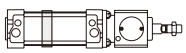
Unit: kg

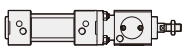
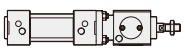
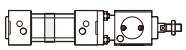
Model	Basic weight (magnet) **MCBMI-11**	Stroke 25 mm **MCBMI-11**
Tube I.D.		
ø20	0.422	0.028
ø25	0.758	0.050

Model	Basic weight **MCBQI2-11**	Basic weight (magnet) **MCBQI2-11**	Stroke 25 mm **MCBQI2-11**
Tube I.D.			
ø32	0.944	0.950	0.064
ø40	1.422	1.434	0.091
ø50	2.360	2.377	0.128
ø63	3.338	3.358	0.116
ø80	5.354	5.381	0.209
ø100	7.586	7.621	0.234

Model	Basic weight **MCBQI3-11**	Basic weight (magnet) **MCBQI3-11**	Stroke 25 mm **MCBQI3-11**
Tube I.D.			
ø63	3.169	3.189	0.128

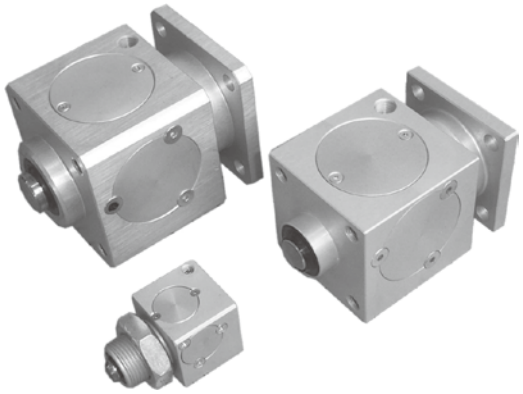
Model	Basic weight **MCBQV2-11**	Basic weight (magnet) **MCBQV2-11**	Stroke 25 mm **MCBQV2-11**
Tube I.D.			
ø32	0.920	0.926	0.053
ø40	1.370	1.382	0.075
ø50	2.300	2.317	0.115
ø63	3.200	3.220	0.130
ø80	5.370	5.397	0.210
ø100	7.460	7.495	0.220

Model	Basic weight **MCBQV3-11**	Basic weight (magnet) **MCBQV3-11**	Stroke 25 mm **MCBQV3-11**
Tube I.D.			
ø63	3.135	3.155	0.130

Model	Basic weight **MCBQV-11**	Basic weight (magnet) **MCBQV-11**	Stroke 25 mm **MCBQV-11**
Tube I.D.			
ø125	13.845	13.888	0.372

MCB series

LOCKING UNIT



Features

- Locking unit is a mechanical device to apply to cylinders ISO 15552 and 6432 VDMA whose scope is to block cylinder's rod in any position. This solution allows to block the race of the cylinder anytime takes place an unexpected fall of pressure.
- The blocking force is always and however greater of the one developed from the respective cylinder at 1 MPa.

Specification

Model	MCB								
Tube I.D. (mm)	20	25	32	40	50	63	80	100	125
Rod diameter (mm)	8	10	12	16	20	20	25	25	32
Medium	Air								
Operating perssure range	0.3~0.6 MPa								
Proof pressure	1.5 MPa								
Ambient temperature	-5~+80°C (No freezing)								
Min. working pressure	0.3 MPa								
Locking mode	Secure locking of piston rod in any position								
Lock retention forces (N) Max. static loading- Horizontal mounting	490	490	790	1240	1930	3060	5400	7700	12040
Weight (kg)	0.19	0.19	0.40	0.60	1.10	1.50	2.60	3.50	6.50

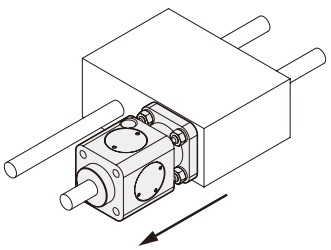
Order example

MCB — 40

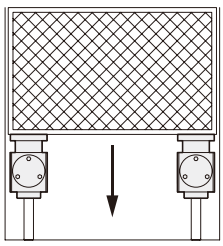
MODEL TUBE I.D.

Other examples of locking unit applications

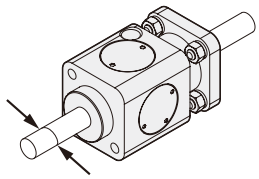
For slides



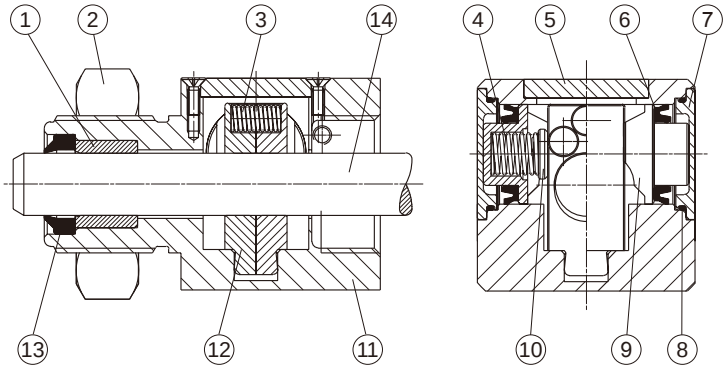
For piling



Chromium-plated shaft



Tolerance	f7
Rod diameter	8,10,12,16,20,25,32



Attention

- Locking unit functioning is static type (cylinder's rod stopped).
- Before using the brake, take care to stop cylinder's rod.

Assemble attention

- Unlocking the locking unit by supplying air to the ⑪ body of locking unit. Please don't take out the ⑭ support pin after unlocking the locking unit.
- Using piston rod to push the ⑭ support pin off until the piston rod replaces the position of the ⑭ support pin. Finally you can lock the piston rod by removing the air supply.

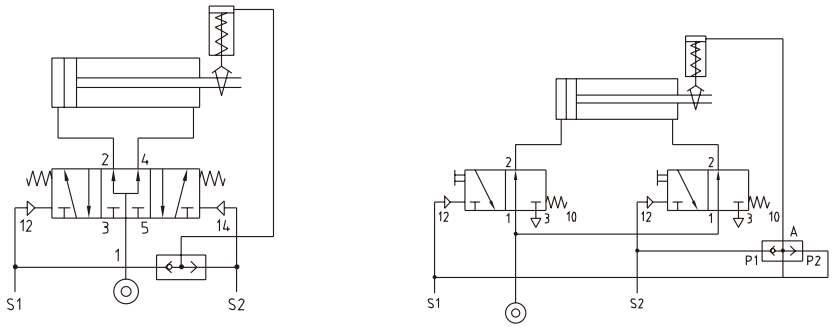
* When the ⑪ body of locking unit is removed the air supply, if there is no ⑭ support pin or piston rod to support inside structure, it will cause the ⑫ jaws deviation. The piston rod can't be mounted anymore.

Material

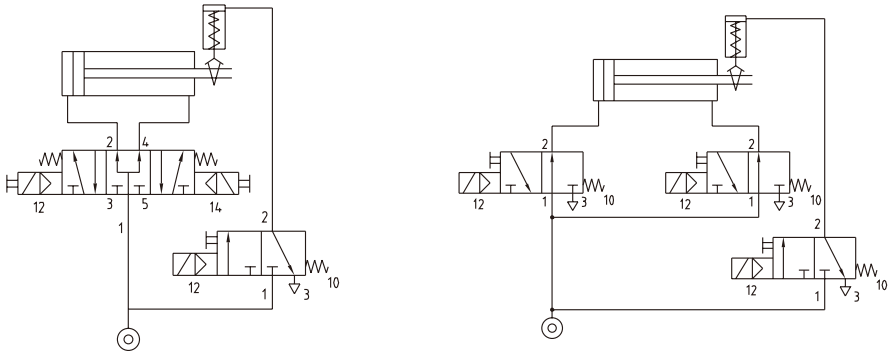
No.	Part name	Material
1	Guida bush	Iglidur
2	Nut	Steel
3	Spring	Steel
4	Spring	Steel
5	Superior cover	Aluminum alloy
6	Seal piston	NBR
7	Lateral cover	Aluminum alloy
8	O-ring	NBR
9	Piston	Delrin
10	Spring cover	Delrin
11	Body	Aluminum alloy
12	Jaws	Bronze
13	Rod seal	NBR
14	Support pin	Carbon steel

Connection scheme

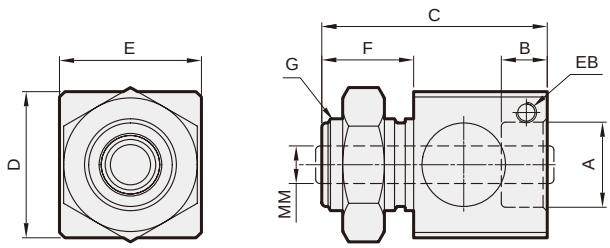
Pneumatic control



Electropneumatic control

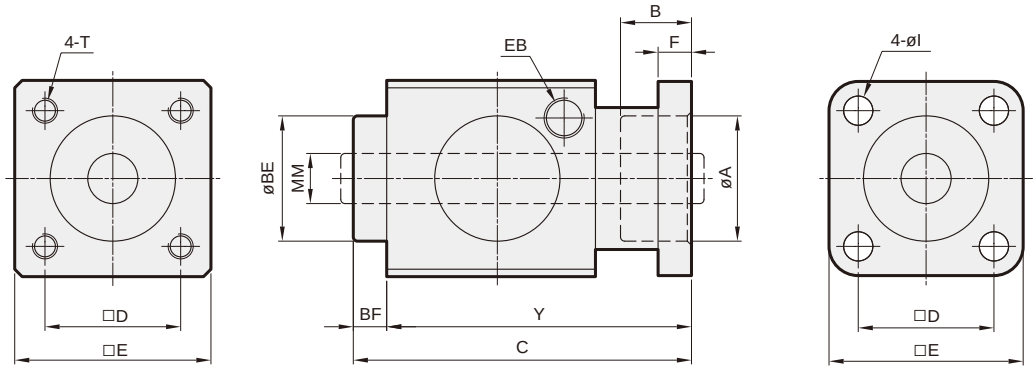


ø20, ø25



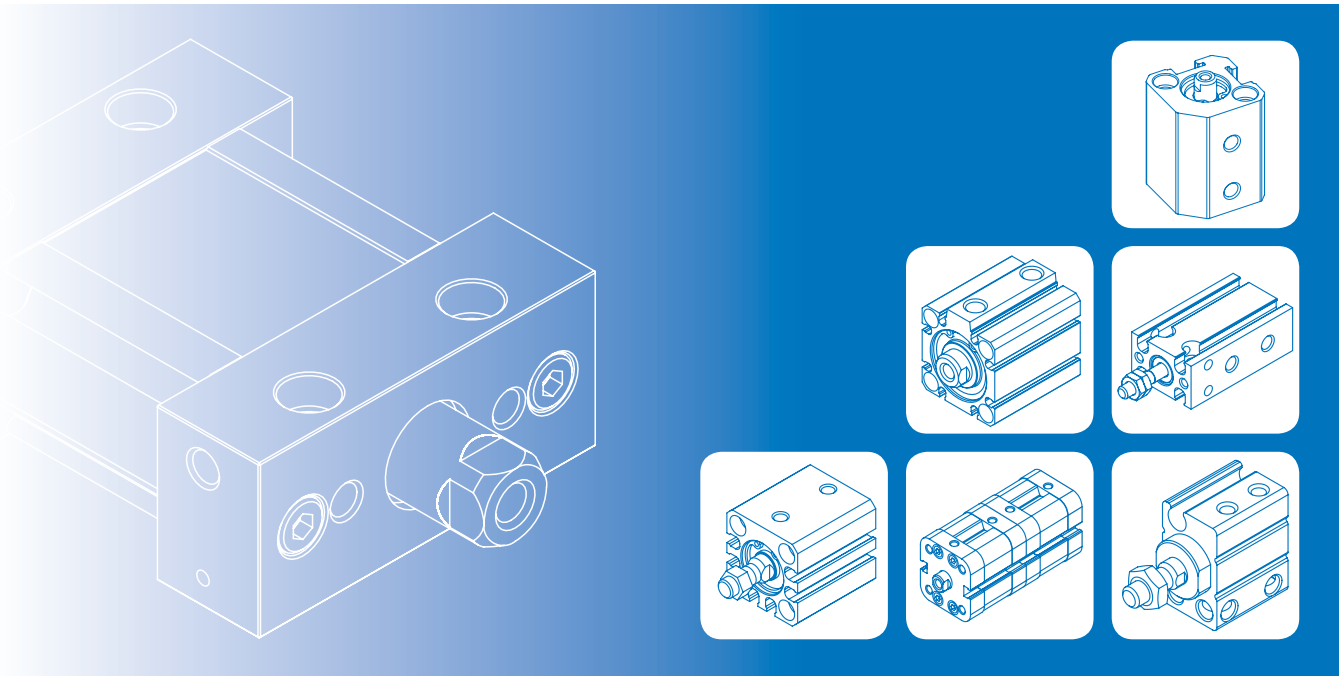
Code / Tube I.D.	A	B	C	D	E	EB	F	G	MM
20	M22×1.5	11	54	35	34	M5	22	M22×1.5	ø8^{f7}
25	M22×1.5	11	54	35	34	M5	22	M22×1.5	ø10^{f7}

ø32~ø125



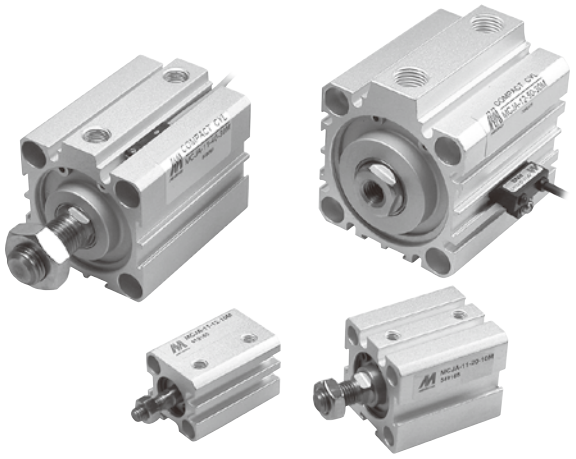
Code / Tube I.D.	A	B	BE	BF	C	D	E	F	EB	I	MM	T	Y
32	30.5	19.5	30	7.5	67.5	32.5	47	6	G1/8	6.5	ø12^{f7}	M6×8L	60
40	35.5	22.5	34.9	10	80	38	54	6	G1/8	6.5	ø16^{f7}	M6×8L	70
50	40.5	29	40	10	100	46.5	65	8	G1/8	9	ø20^{f7}	M8×12L	90
63	45.5	29	45	10	100	56.5	75	8	G1/8	9	ø20^{f7}	M8×12L	90
80	45.5	37	45	10	120	72	95	12	G1/4	11	ø25^{f7}	M10×16L	110
100	55.5	39	55	10	120	89	114	12	G1/4	11	ø25^{f7}	M10×16L	110
125	60.5	51.5	60	16	156	110	138	20	G1/4	13	ø32^{f7}	M12×20L	140

COMPACT CYLINDER



F Fast delivery (**11** & **12** style)

Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our MINDMAN website (www.mindman.com.tw) and click on the "Component Set Inventory" button.



Features

- Ultra Compact, light weight and space saving cylinder.
- Wide range of bore sizes and strokes (12mm~100mm).
- Single and double acting available.
- Ideal for use in machinery where space is limited and incorporating sensor groove which enables flush fitting of sensors.

Specification

Model	MCJA									
Acting type	Double acting / Single acting							Double acting		
Tube I.D. (mm)	12	16	20	25	32	40	50	63	80	100
Port size	M5×0.8				Rc1/8		Rc1/4		Rc3/8	
Medium	Air									
Operating perssure range (MPa) Double acting	0.05~1		0.03~1		0.02~1					
Operating perssure range (MPa) Single acting	0.2~1		0.15~1		0.1~1			–		
Proof pressure	1.5 MPa									
Ambient temperature	-5°C~+60°C (No freezing)									
Available speed range	50~500 mm/sec									
Sensor switch (*)	RCB, RCE, RCE1, RDEP									

* RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17.

Order example

MCJA — 12 — 40 — 25 M — □

- MODEL
- STYLE
- **1**: Single rod
  2: Double rod
- TUBE I.D.
- STROKE
- **M**: Magnet
- PORT THREAD
  Blank: M5×0.8 (for ø12~ø25)
  Blank: Rc thread
  G: G thread
  NPT: NPT thread (for ø32~ø100)

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread
1	3		Single acting / Normally extended male thread
1	4		Single acting / Normally extended female thread
1	5		Single acting / Normally returned male thread
1	6		Single acting / Normally returned female thread
2	1		Double rod / Male thread
2	2		Double rod / Female thread
2	7		Double rod / Adjustable male thread
2	8		Double rod / Adjustable female thread

* Order example for special specification, refer to page 0-7.

Double acting – Table for standard stroke

Tube I.D.		Stroke (mm)	Max. stroke
Single rod	ø12,16	5,10,15,20,25,30	300
	ø20,25,32 ø40,50,63	5,10,15,20,25,30,35,40,45,50	300
	ø80,100	5,10,15,20,25,30,35,40,45,50	125
Double rod	ø12,16	5,10,15,20,25,30	300
	ø20,25,32 ø40,50,63,80	5,10,15,20,25,30,35,40,45,50	300
	ø100	5,10,15,20,25,30,35,40,45,50	125

- Stroke out of specification is also available
- Please consult us if stroke out of specification.

Single acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

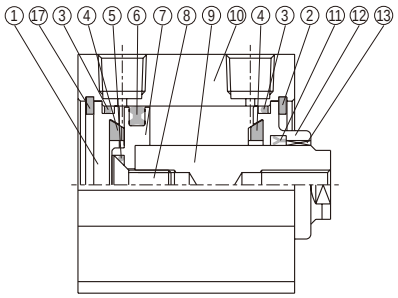
- Stroke out of specification is also available
- Please consult us if stroke out of specification.

MCJA Inside structure & Parts list

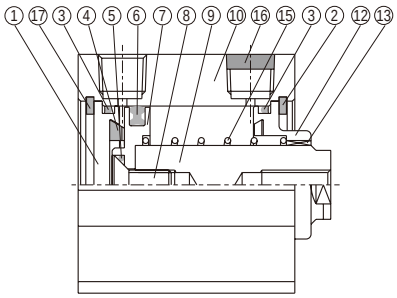
COMPACT CYLINDER

mindman

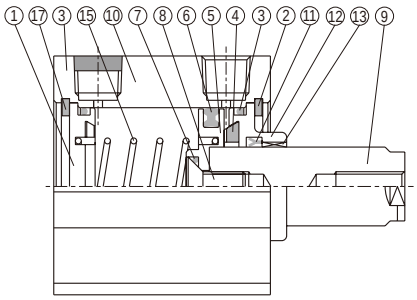
Double acting



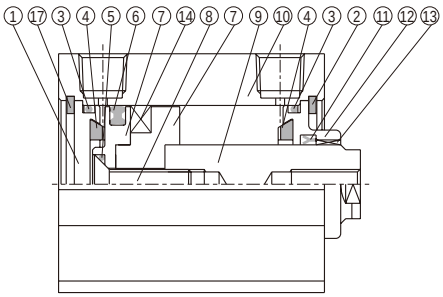
Single acting
Normally returned



Single acting
Normally extended



Double acting
(with magnet)



Seal kit

	Rod packing		Piston packing		Cover ring	Piston gasket
Acting type	Double action normally extended	Normally returned	Double acting	Single acting	Double acting single acting	Double acting single acting
Q'y	1	0	1	1	2	1
ø12	KSYR-6	–	OPA-12	OPA-12	S-12	d4×w1
ø16	KSYR-6	–	OPA-16	OPA-16	S-14	d4×w1
ø20	KSYR-8	–	OPA-20	OPA-20	S-18	d6×w1
ø25	KSYR-10	–	OPA-25	OPA-25	S-22	d8×w1
ø32	KSYR-12	–	OPA-32	OPA-32	d28×w2	S-9
ø40	KSYR-16	–	OPA-40	OPA-40	S-36	S-9
ø50	KSYR-20	–	OPA-50	OPA-50	AS-31	S-16
ø63	KSYR-20	–	OPA-63	–	AS-35	S-16
ø80	ORA-25	–	OPA-80	–	AS-41	d20×w1
ø100	SDR-30	–	OPA-100	–	S-95	S-26

Material

No.	Part name \ Tube I.D.		12	16	20	25	32	40	50	63	80	100	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Head cover		Aluminum alloy										1	●	
2	Snap ring (Front end)		SUS	spring steel		SUS		Spring steel					1	●	
3	Cover ring		NBR										2	●	●
4	Cushion packing		–	NBR									2	●	●
5	Piston gasket		NBR										1	●	●
6	Piston packing		NBR										1	●	●
7	Piston		Aluminum alloy										1	●	
8	Screw	With magnet	Stainless steel				SCM						1	●	
		Without magnet	SCM	SUS			SCM						1	●	
9	Piston rod	With magnet	Stainless steel				Carbon steel						1		
		Without magnet	SUS	Carbon steel									1		
10	Body		Aluminum alloy										1		
11	Rod packing		NBR										1(*)	●	●
12	Rod cover		Aluminum alloy										1	●	
13	Bush		–					Bearing alloy					1	●	
14	Magnet ring		Magnet material										1	●	
15	Spring		SWP						–				1	●	
16	Silencer		Brass						–				1	●	
17	Snap ring (Rear end)		Stainless steel					Spring steel					1	●	

* Single acting / Normally returned, Q'y=0.

Order example

Component parts

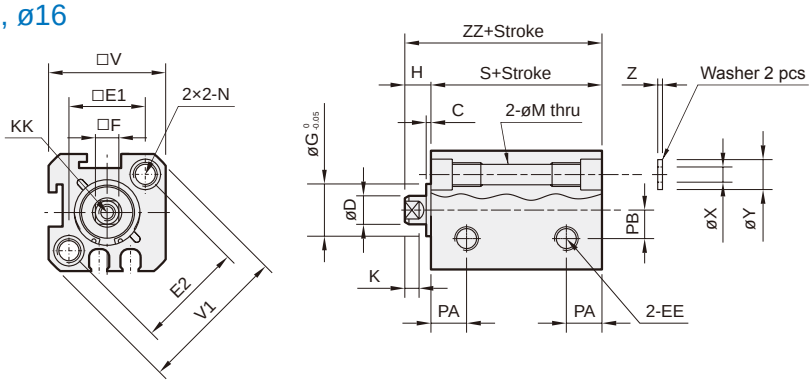
Tube I.D.	Component parts
ø12	**CP-MCJA-12(M)**
ø16	**CP-MCJA-16(M)**
ø20	**CP-MCJA-20(M)**
ø25	**CP-MCJA-25(M)**
ø32	**CP-MCJA-32(M)**
ø40	**CP-MCJA-40(M)**
ø50	**CP-MCJA-50(M)**
ø63	**CP-MCJA-63(M)**
ø80	**CP-MCJA-80(M)**
ø100	**CP-MCJA-100(M)**

M: With magnet

Repair kits

Tube I.D.	Repair kits
ø12	**PS-MCJA-12**
ø16	**PS-MCJA-16**
ø20	**PS-MCJA-20**
ø25	**PS-MCJA-25**
ø32	**PS-MCJA-32**
ø40	**PS-MCJA-40**
ø50	**PS-MCJA-50**
ø63	**PS-MCJA-63**
ø80	**PS-MCJA-80**
ø100	**PS-MCJA-100**

ø12, ø16



Long stroke

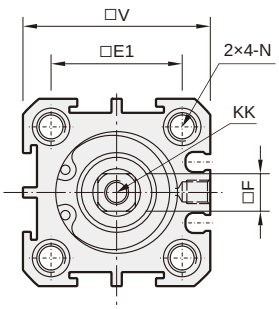
Without counter bore

With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

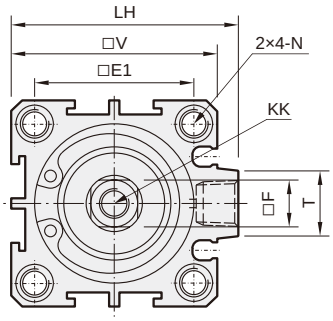
ø12, ø16

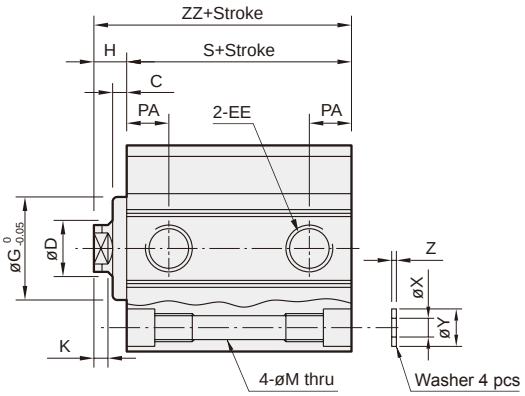
ø20~ø100

ø20, ø25



ø32~ø100



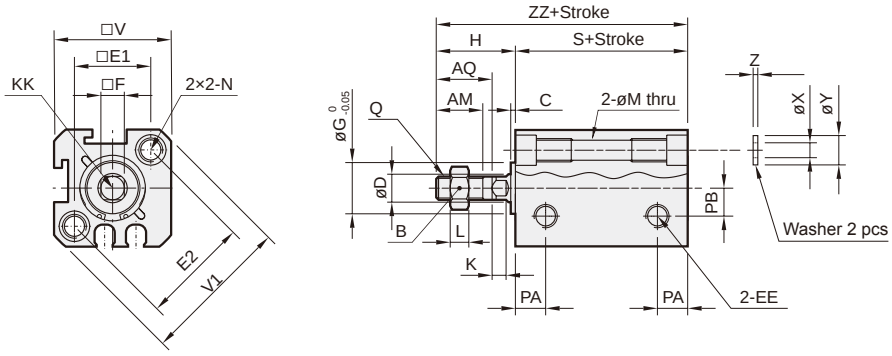


Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8 (*1)	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8 (*1)	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*2)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–
63	4	20	Rc1/4 (*2)	60	–	17	40	9	3	M10×1.5×15depth	83	6.9	ø11×8.5depth, M8×1.25×16.5depth	12	–
80	5	25	Rc3/8 (*3)	74	–	22	45	11	4	M14×1.5×20depth	102	10.5	ø14×10.5depth, M12×1.75×12depth	13	–
100	5	30	Rc3/8 (*3)	90	–	27	55	12	4	M18×1.5×20depth	122	12.3	ø18.5×13depth, M14×2×17depth	17	–

*1. Without magnet with stroke=5mm, EE=M5×0.8
*2. Without magnet with stroke=5mm, EE=Rc1/8
*3. Without magnet with stroke=5mm, EE=Rc1/4

Code / Tube I.D.	T	V	V1	X	Y	Z	Without magnet		Magnet	
							S	ZZ	S	ZZ
12	–	25	32	3.2	6.3	1	17	22	27	32
16	–	29	38	3.2	6.3	1	18.5	24	28.5	34
20	–	34	–	3.2	6.3	1	19.5	25	29.5	35
25	–	40	–	4.2	7.8	1	21	27	31	37
32	14	44	–	4.2	7.8	1	24.5	31.5	34.5	41.5
40	14	52	–	6.2	10.3	1.6	26	33	36	43
50	19	62	–	6.2	10.8	1.6	28	37	38	47
63	20	75	–	6.2	10.8	1.6	32	41	42	51
80	27	94	–	8.2	13.8	1.6	41	52	51	62
100	26	114	–	10.2	17.3	2	51	63	61	73

ø12, ø16



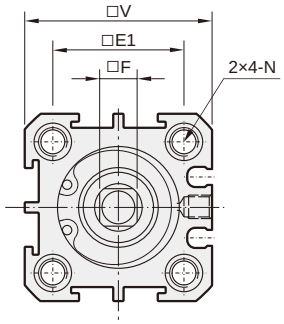
Long stroke
Without counter bore

With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

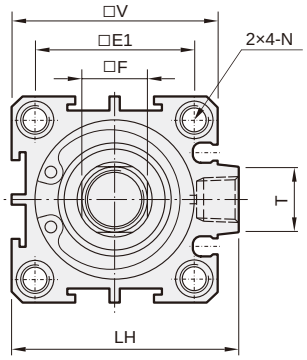
ø12, ø16

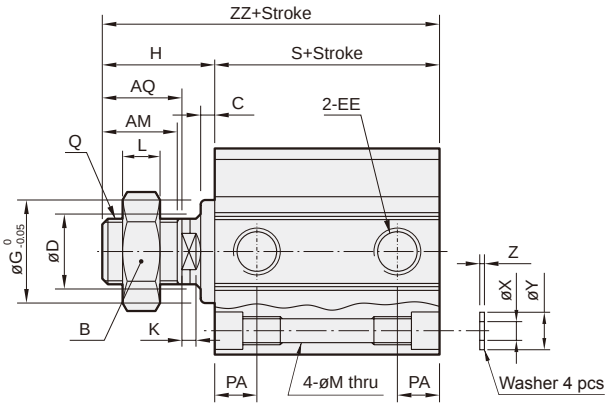
ø20~ø100

ø20, ø25



ø32~ø100



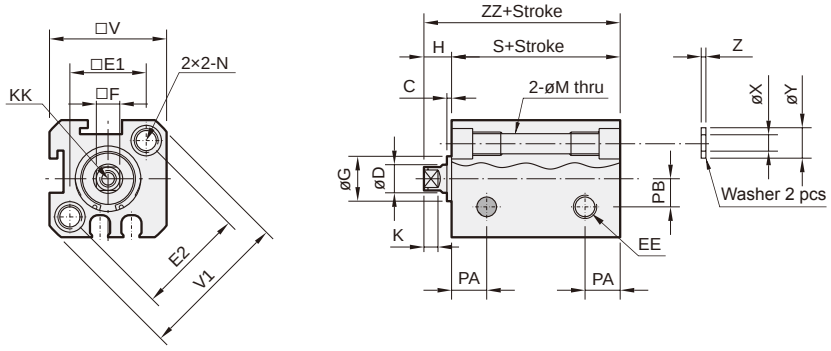


Code / Tube I.D.	AM	AQ	B	C	D	EE	E1	E2	F	G	H	K	L	LH	M	N	PA	PB
12	10	12	8	1	6	M5×0.8	16.3	23	5	11	17	3	4	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	10	12	8	1.5	6	M5×0.8	19.8	28	5	11	17.5	3	4	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	13	15	10	1.5	8	M5×0.8	24	–	6	15	20.5	3	5	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	15	17	13	2	10	M5×0.8	28	–	8	17	23	3	5	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	15	18	17	3	12	Rc1/8 (*1)	34	–	10	22	25	3	6	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	25	28	22	3	16	Rc1/8 (*1)	40	–	14	28	35	3	8	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	25	28	26	4	20	Rc1/4 (*2)	48	–	17	38	37	3	11	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–
63	25	28	26	4	20	Rc1/4 (*2)	60	–	17	40	37	3	11	83	6.9	ø11×8.5depth, M8×1.25×16.5depth	12	–
80	30	33	32	5	25	Rc3/8 (*3)	74	–	22	45	44	4	13	102	10.5	ø14×10.5depth, M12×1.75×12depth	13	–
100	35	38	35	5	30	Rc3/8 (*3)	90	–	27	55	50	4	14	122	12.3	ø18.5×13depth, M14×2×17depth	17	–

*1. Without magnet with stroke=5mm, EE=M5×0.8
*2. Without magnet with stroke=5mm, EE=Rc1/8
*3. Without magnet with stroke=5mm, EE=Rc1/4

Code / Tube I.D.	Q	T	V	V1	X	Y	Z	Without magnet		Magnet	
								S	ZZ	S	ZZ
12	M5×0.8	–	25	32	3.2	6.3	1	17	34	27	44
16	M5×0.8	–	29	38	3.2	6.3	1	18.5	36	28.5	46
20	M6×1.0	–	34	–	3.2	6.3	1	19.5	40	29.5	50
25	M8×1.25	–	40	–	4.2	7.8	1	21	44	31	54
32	M10×1.25	14	44	–	4.2	7.8	1	24.5	49.5	34.5	59.5
40	M14×1.5	14	52	–	6.2	10.3	1.6	26	61	36	71
50	M18×1.5	19	62	–	6.2	10.8	1.6	28	65	38	75
63	M18×1.5	20	75	–	6.2	10.8	1.6	32	69	42	79
80	M22×1.5	27	94	–	8.2	13.8	1.6	41	85	51	95
100	M26×1.5	26	114	–	10.2	17.3	2	51	101	61	111

ø12, ø16

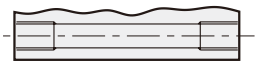


Long stroke
Without counter bore

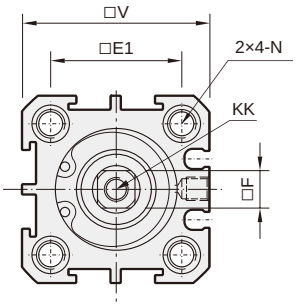
With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12, ø16

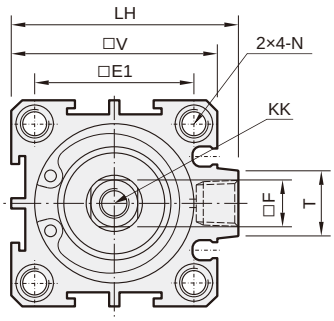
ø20~ø50

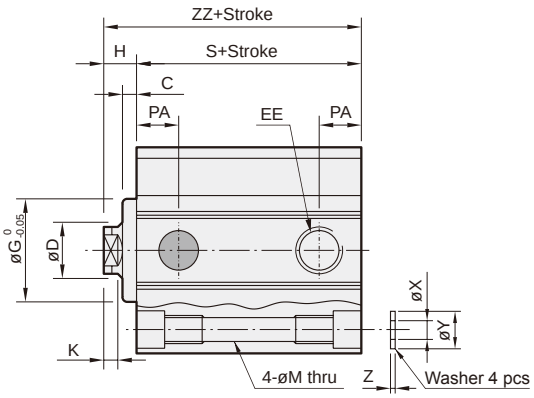


ø20, ø25



ø32~ø50





Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–

* Without magnet with stroke=5mm, EE=Rc1/8

Code / Tube I.D.	T	V	V1	X	Y	Z
12	–	25	32	3.2	6.3	1
16	–	29	38	3.2	6.3	1
20	–	34	–	3.2	6.3	1
25	–	40	–	4.2	7.8	1
32	14	44	–	4.2	7.8	1
40	14	52	–	6.2	10.3	1.6
50	19	62	–	6.2	10.8	1.6

Code / Tube I.D.	Without magnet				Magnet			
	Stroke 5,10		Stroke 15~30		Stroke 5,10		Stroke 15~30	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ
12	27	32	37	42	37	42	47	52
16	28.5	34	38.5	44	38.5	44	48.5	54
20	29.5	35	39.5	45	39.5	45	49.5	55
25	31	37	41	47	41	47	51	57
32	34.5	41.5	44.5	51.5	44.5	51.5	54.5	61.5
40	36	43	46	53	46	53	56	63

Code / Tube I.D.	Without magnet		Magnet	
	Stroke 5~20			
	S	ZZ	S	ZZ
50	28	37	38	47

Single acting – Table for standard stroke

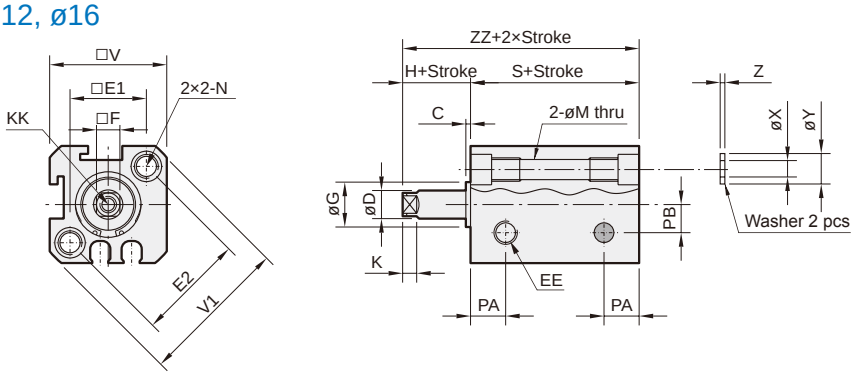
Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

- Please reconfirm dimension with our sales department when the stroke over our standard.

MCJA Dimensions – Normally extened ø12~ø50

COMPACT CYLINDER

ø12, ø16



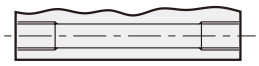
Long stroke

Without counter bore

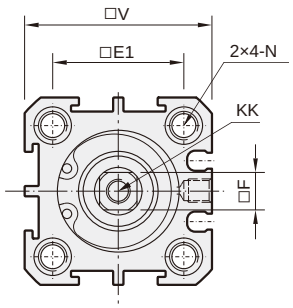
With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12, ø16

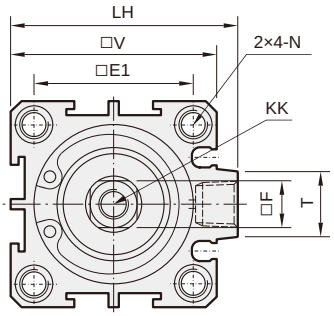
ø20~ø50

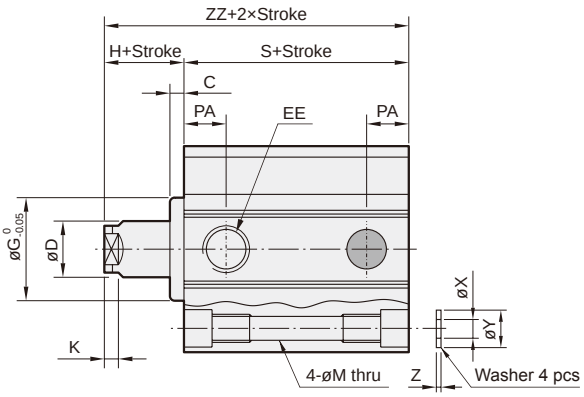


ø20, ø25



ø32~ø50





Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–

* Without magnet with stroke=5mm, EE=Rc1/8

Code / Tube I.D.	T	V	V1	X	Y	Z
12	–	25	32	3.2	6.3	1
16	–	29	38	3.2	6.3	1
20	–	34	–	3.2	6.3	1
25	–	40	–	4.2	7.8	1
32	14	44	–	4.2	7.8	1
40	14	52	–	6.2	10.3	1.6
50	19	62	–	6.2	10.8	1.6

Code / Tube I.D.	Without magnet				Magnet			
	Stroke 5,10		Stroke 15~30		Stroke 5,10		Stroke 15~30	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ
12	27	32	37	42	37	42	47	52
16	28.5	34	38.5	44	38.5	44	48.5	54
20	29.5	35	39.5	45	39.5	45	49.5	55
25	31	37	41	47	41	47	51	57
32	34.5	41.5	44.5	51.5	44.5	51.5	54.5	61.5
40	36	43	46	53	46	53	56	63

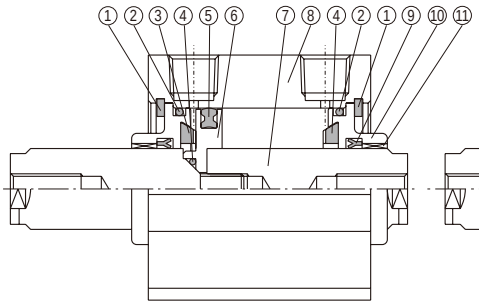
Code / Tube I.D.	Without magnet		Magnet	
	Stroke 5~20			
	S	ZZ	S	ZZ
50	28	37	38	47

Single acting – Table for standard stroke

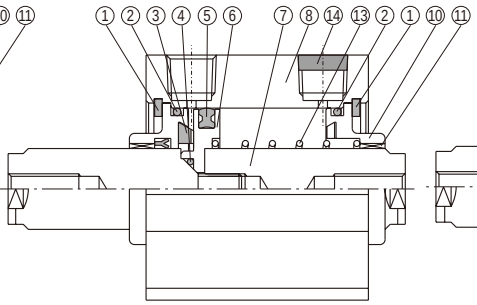
Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

* Please reconfirm dimension with our sales department when the stroke over our standard.

Double acting

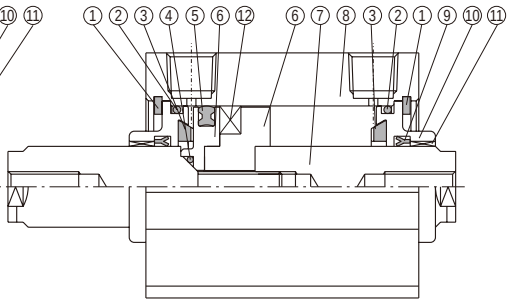


Single acting



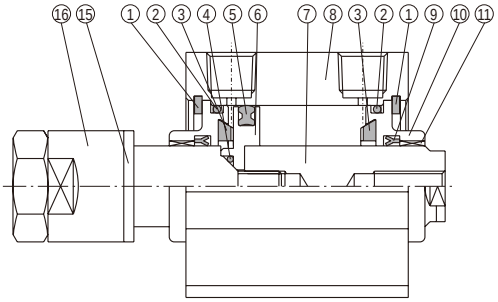
Double acting

(with magnet)



Double acting

Adjustable stroke



Seal kit

	Rod packing		Piston packing		Cover ring	Piston gasket
Acting type	Double acting	Single acting	Double acting	Single acting	Double acting / single acting	Double acting / single acting
Q'y	2	1	1	1	2	1
ø12	KSYR-6	KSYR-6	OPA-12	OPA-12	d11×w1	d4×w1
ø16	KSYR-6	KSYR-6	OPA-16	OPA-16	S-14	d4×w1
ø20	KSYR-8	KSYR-8	OPA-20	OPA-20	S-18	d6×w1
ø25	KSYR-10	KSYR-10	OPA-25	OPA-25	S-22	d6×w1
ø32	KSYR-12	KSYR-12	OPA-32	OPA-32	d28×w2	d8×w1
ø40	KSYR-16	KSYR-16	OPA-40	OPA-40	S-36	d11×w1
ø50	KSYR-20	KSYR-20	OPA-50	OPA-50	AS-31	S-14
ø63	KSYR-20	–	OPA-63	–	AS-35	S-14
ø80	ORA-25	–	OPA-80	–	AS-41	S-18
ø100	SDR-30	–	OPA-100	–	S-95	S-26

Material

No.	Tube I.D. / Part name		12	16	20	25	32	40	50	63	80	100	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Snap ring (Front end)		SUS	Spring steel		SUS		Spring steel					2	●	
2	Cover ring		NBR										2	●	●
3	Cushion packing		–	NBR									2	●	●
4	Piston gasket		NBR										1	●	●
5	Piston packing		NBR										1	●	●
6	Piston		Aluminum alloy										1	●	
7	Piston rod	With magnet	SUS			Carbon steel							2		
		Without magnet	SUS	Carbon steel									2		
8	Body		Aluminum alloy										1		
9	Rod packing		NBR										2(*)	●	●
10	Rod cover		Aluminum alloy										2	●	
11	Bush		–					Bearing alloy					2	●	
12	Magnet ring		Magnet material										1	●	
13	Spring		SWP							–			1	●	
14	Silencer		Brass							–			1	●	
15	Cushion packing		PU										1	●	
16	Adjustable nut		Carbon steel										1	●	

* Single acting type, Q'y=1

Order example

Component parts

Tube I.D.	Component parts
ø12	**CP-MCJA-2-12(M)**
ø16	**CP-MCJA-2-16(M)**
ø20	**CP-MCJA-2-20(M)**
ø25	**CP-MCJA-2-25(M)**
ø32	**CP-MCJA-2-32(M)**
ø40	**CP-MCJA-2-40(M)**
ø50	**CP-MCJA-2-50(M)**
ø63	**CP-MCJA-2-63(M)**
ø80	**CP-MCJA-2-80(M)**
ø100	**CP-MCJA-2-100(M)**

M: With magnet

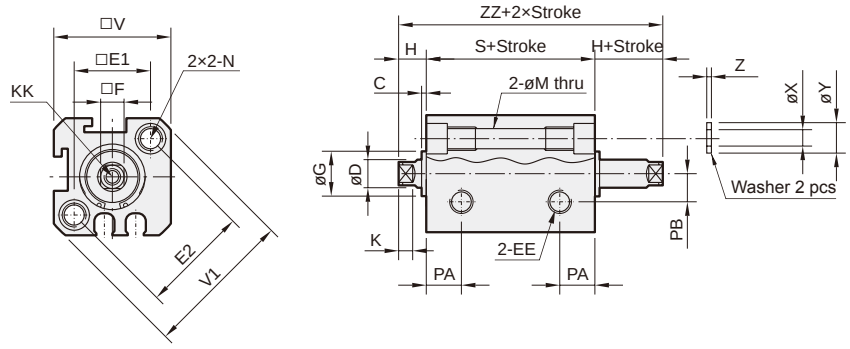
Repair kits

Tube I.D.	Repair kits
ø12	**PS-MCJA-2-12**
ø16	**PS-MCJA-2-16**
ø20	**PS-MCJA-2-20**
ø25	**PS-MCJA-2-25**
ø32	**PS-MCJA-2-32**
ø40	**PS-MCJA-2-40**
ø50	**PS-MCJA-2-50**
ø63	**PS-MCJA-2-63**
ø80	**PS-MCJA-2-80**
ø100	**PS-MCJA-2-100**

MCJA Dimensions – Double rod / Female thread ø12~ø100

COMPACT CYLINDER

ø12, ø16



Long stroke

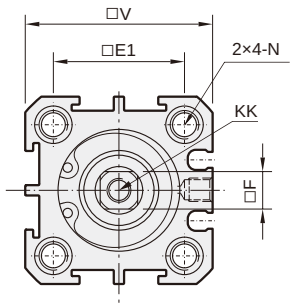
Without counter bore

With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

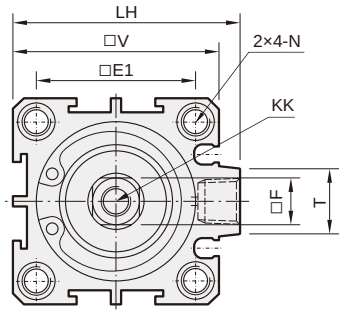
ø12, ø16

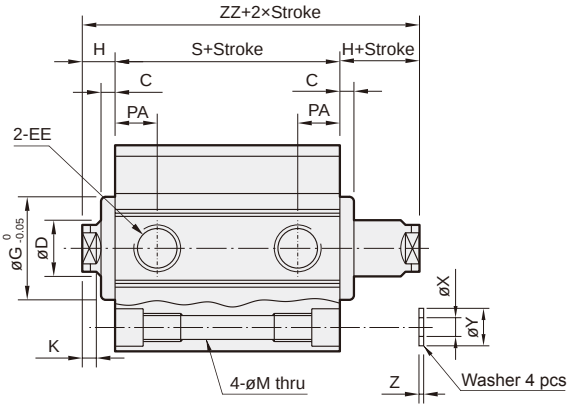
ø20~ø100

ø20, ø25



ø32~ø100



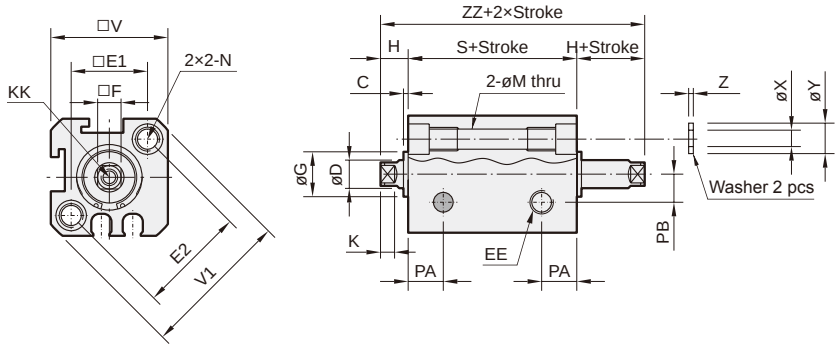


Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8 (*1)	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8 (*1)	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*2)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–
63	4	20	Rc1/4 (*2)	60	–	17	40	9	3	M10×1.5×15depth	83	6.9	ø11×8.5depth, M8×1.25×16.5depth	12	–
80	5	25	Rc3/8 (*3)	74	–	22	45	11	4	M14×1.5×20depth	102	10.5	ø14×10.5depth, M12×1.75×12depth	13	–
100	5	30	Rc3/8 (*3)	90	–	27	55	12	4	M18×1.5×20depth	122	12.3	ø18.5×13depth, M14×2×17depth	17	–

*1. Without magnet with stroke=5mm, EE=M5×0.8
*2. Without magnet with stroke=5mm, EE=Rc1/8
*3. Without magnet with stroke=5mm, EE=Rc1/4

Code / Tube I.D.	T	V	V1	X	Y	Z	Without magnet		Magnet	
							S	ZZ	S	ZZ
12	–	25	32	3.2	6.3	1	17	27	27	37
16	–	29	38	3.2	6.3	1	18.5	29.5	28.5	39.5
20	–	34	–	3.2	6.3	1	19.5	30.5	29.5	40.5
25	–	40	–	4.2	7.8	1	21	33	31	43
32	14	44	–	4.2	7.8	1	24.5	38.5	34.5	48.5
40	14	52	–	6.2	10.3	1.6	26	40	36	50
50	19	62	–	6.2	10.8	1.6	28	46	38	56
63	20	75	–	6.2	10.8	1.6	32	50	42	60
80	27	94	–	8.2	13.8	1.6	41	63	51	73
100	26	114	–	10.2	17.3	2	51	75	61	85

ø12, ø16



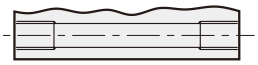
Long stroke

Without counter bore

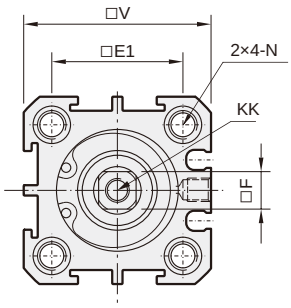
With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12, ø16

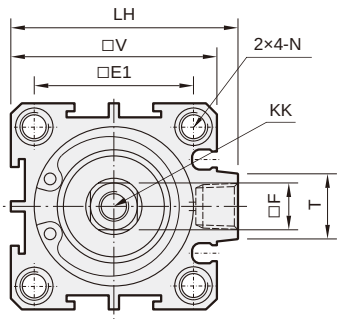
ø20~ø50

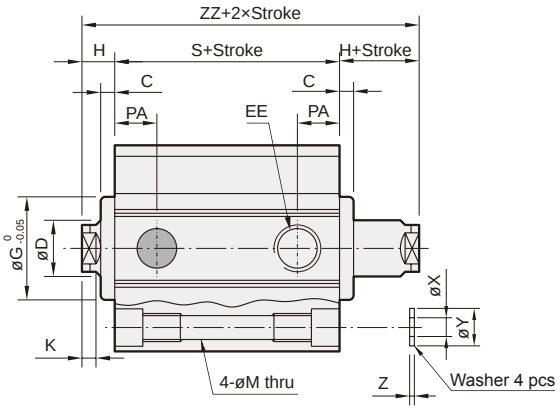


ø20, ø25



ø32~ø50





Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–

* Without magnet with stroke=5mm, EE=Rc1/8

Code / Tube I.D.	T	V	V1	X	Y	Z
12	–	25	32	3.2	6.3	1
16	–	29	38	3.2	6.3	1
20	–	34	–	3.2	6.3	1
25	–	40	–	4.2	7.8	1
32	14	44	–	4.2	7.8	1
40	14	52	–	6.2	10.3	1.6
50	19	62	–	6.2	10.8	1.6

Code / Tube I.D.	Without magnet				Magnet			
	Stroke 5,10		Stroke 15~30		Stroke 5,10		Stroke 15~30	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ
12	27	37	37	47	37	47	47	57
16	28.5	39.5	38.5	49.5	38.5	49.5	48.5	59.5
20	29.5	40.5	39.5	50.5	39.5	50.5	49.5	60.5
25	31	43	41	53	41	53	51	63
32	34.5	48.5	44.5	58.5	44.5	58.5	54.5	68.5
40	36	50	46	60	46	60	56	70

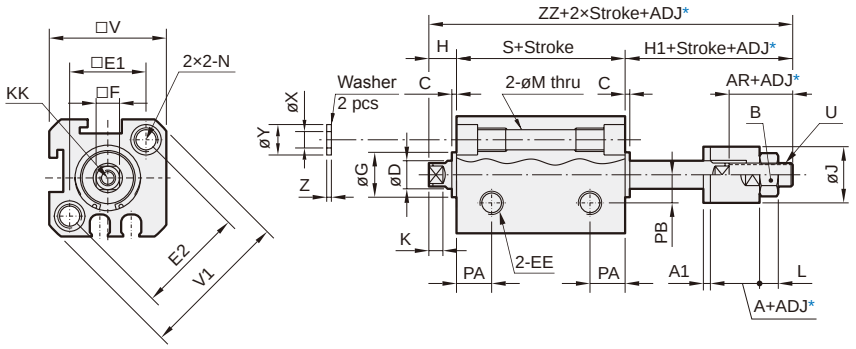
Code / Tube I.D.	Without magnet		Magnet	
	Stroke 5~20			
	S	ZZ	S	ZZ
50	28	46	38	56

Single acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

* Please reconfirm dimension with our sales department when the stroke over our standard.

ø12, ø16



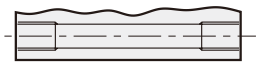
*ADJ: Adjustable stroke

Long stroke
Without counter bore

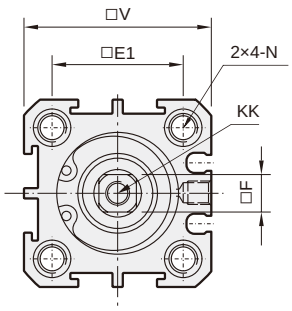
With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12, ø16

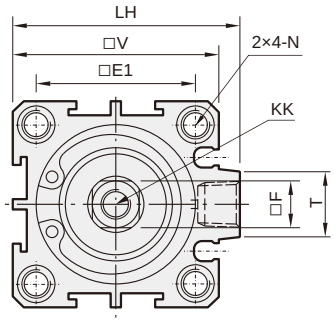
ø20, ø100

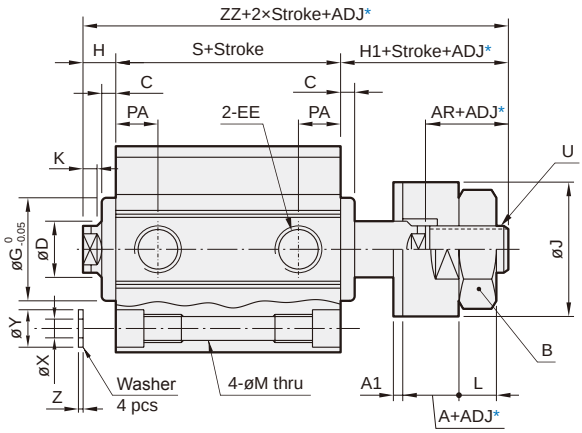


ø20, ø25



ø32~ø100



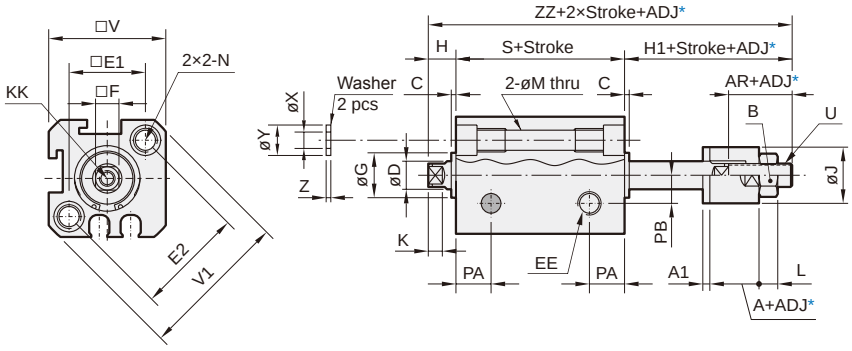


Code / Tube I.D.	A	A1	AR	B	C	D	EE	E1	E2	F	G	H	H1	J	K	KK	L	LH	M
12	13	2	16	8	1	6	M5×0.8	16.3	23	5	11	5	22.5	12	3	M3×0.5×6depth	4	–	4.3
16	13	2	16.5	8	1.5	6	M5×0.8	19.8	28	5	11	5.5	23.5	12	3	M3×0.5×6depth	4	–	4.3
20	15	2	19	13	1.5	8	M5×0.8	24	–	6	15	5.5	26	16	3	M4×0.7×8depth	5	–	4.3
25	15	2	19.5	13	2	10	M5×0.8	28	–	8	17	6	27.2	16	3	M5×0.8×10depth	5	–	5.1
32	12	2	18	17	3	12	Rc1/8 (*1)	34	–	10	22	7	26	20	3	M6×1.0×12depth	6	48.5	5.1
40	12	2	20	19	3	16	Rc1/8 (*1)	40	–	14	28	7	28	30	3	M8×1.25×12depth	7	56.5	6.9
50	15	2	22	24	4	20	Rc1/4 (*2)	48	–	17	38	9	31	40	3	M10×1.5×15depth	8	70	6.9
63	15	2	22	24	4	20	Rc1/4 (*2)	60	–	17	40	9	31	40	3	M10×1.5×15depth	8	83	6.9
80	20	3	33	32	5	25	Rc3/8 (*3)	74	–	22	45	11	44	50	4	M14×1.5×20depth	13	102	10.5
100	20	3	33	32	5	30	Rc3/8 (*3)	90	–	27	55	12	44	50	4	M18×1.5×20depth	13	122	12.3

*1. Without magnet with stroke=5mm, EE=M5×0.8
*2. Without magnet with stroke=5mm, EE=Rc1/8
*3. Without magnet with stroke=5mm, EE=Rc1/4

Code / Tube I.D.	N	PA	PB	T	U	V	V1	X	Y	Z	Without magnet		Magnet	
											S	ZZ	S	ZZ
12	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6	–	M5×0.8	25	32	3.2	6.3	1	17	44.5	27	54.5
16	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5	–	M5×0.8	29	38	3.2	6.3	1	18.5	47.5	28.5	57.5
20	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–	–	M8×1.25	34	–	3.2	6.3	1	19.5	51	29.5	61
25	ø9×7depth, M6×1.0×10depth	8	–	–	M8×1.25	40	–	4.2	7.8	1	21	54.2	31	64.2
32	ø9×7depth, M6×1.0×10depth	9	–	14	M10×1.25	44	–	4.2	7.8	1	24.5	57.5	34.5	67.5
40	ø10.5×8depth, M8×1.25×12depth	10	–	14	M12×1.25	52	–	6.2	10.3	1.6	26	61	36	71
50	ø11×8.5depth, M8×1.25×16.5depth	10	–	19	M16×1.5	62	–	6.2	10.8	1.6	28	68	38	78
63	ø11×8.5depth, M8×1.25×16.5depth	12	–	20	M16×1.5	75	–	6.2	10.8	1.6	32	72	42	82
80	ø14×10.5depth, M12×1.75×12depth	13	–	27	M22×1.5	94	–	8.2	13.8	1.6	41	96	51	106
100	ø18.5×13depth, M14×2×17depth	17	–	26	M22×1.5	114	–	10.2	17.3	2	51	107	61	117

ø12, ø16



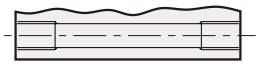
*ADJ: Adjustable stroke

Long stroke
Without counter bore

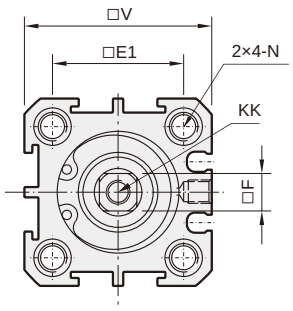
With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12, ø16

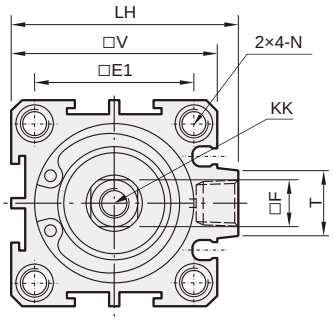
ø20~ø50

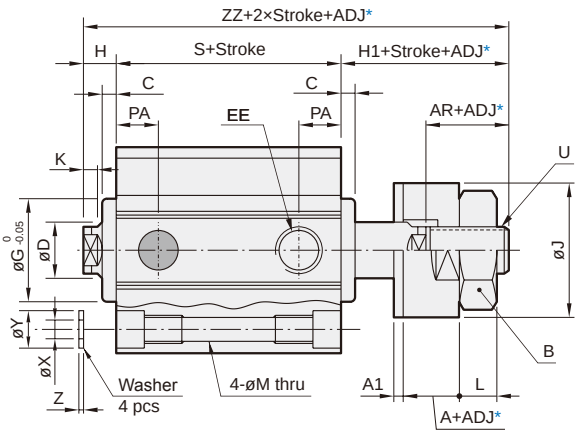


ø20, ø25



ø32~ø50





Code / Tube I.D.	A	A1	AR	B	C	D	EE	E1	E2	F	G	H	H1	J	K	KK	L	LH	M	N
12	13	2	16	8	1	6	M5×0.8	16.3	23	5	11	5	22.5	12	3	M3×0.5×6depth	4	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth
16	13	2	16.5	8	1.5	6	M5×0.8	19.8	28	5	11	5.5	23.5	12	3	M3×0.5×6depth	4	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth
20	15	2	19	13	1.5	8	M5×0.8	24	–	6	15	5.5	26	16	3	M4×0.7×8depth	5	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth
25	15	2	19.5	13	2	10	M5×0.8	28	–	8	17	6	27.2	16	3	M5×0.8×10depth	5	–	5.1	ø9×7depth, M6×1.0×10depth
32	12	2	18	17	3	12	Rc1/8	34	–	10	22	7	26	20	3	M6×1.0×12depth	6	48.5	5.1	ø9×7depth, M6×1.0×10depth
40	12	2	20	19	3	16	Rc1/8	40	–	14	28	7	28	30	3	M8×1.25×12depth	7	56.5	6.9	ø10.5×8depth, M8×1.25×12depth
50	15	2	22	24	4	20	Rc1/4 (*)	48	–	17	38	9	31	40	3	M10×1.5×15depth	8	70	6.9	ø11×8.5depth, M8×1.25×16.5depth

* Without magnet with stroke=5mm, EE=Rc1/8

Code / Tube I.D.	PA	PB	T	U	V	V1	X	Y	Z
12	6.5	6	–	M5×0.8	25	32	3.2	6.3	1
16	7	6.5	–	M5×0.8	29	38	3.2	6.3	1
20	7.5	–	–	M8×1.25	34	–	3.2	6.3	1
25	8	–	–	M8×1.25	40	–	4.2	7.8	1
32	9	–	14	M10×1.25	44	–	4.2	7.8	1
40	10	–	14	M12×1.25	52	–	6.2	10.3	1.6
50	10	–	19	M16×1.5	62	–	6.2	10.8	1.6

Code / Tube I.D.	Without magnet				Magnet			
	Stroke 5,10		Stroke 15~30		Stroke 5,10		Stroke 15~30	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ
12	27	54.5	37	64.5	37	64.5	47	74.5
16	28.5	57.5	38.5	67.5	38.5	67.5	48.5	77.5
20	29.5	61	39.5	71	39.5	71	49.5	81
25	31	64.2	41	74.2	41	74.2	51	84.2
32	34.5	67.5	44.5	77.5	44.5	77.5	54.5	87.5
40	36	71	46	81	46	81	56	91

Code / Tube I.D.	Without magnet		Magnet	
	Stroke 5~20			
	S	ZZ	S	ZZ
50	28	68	38	78

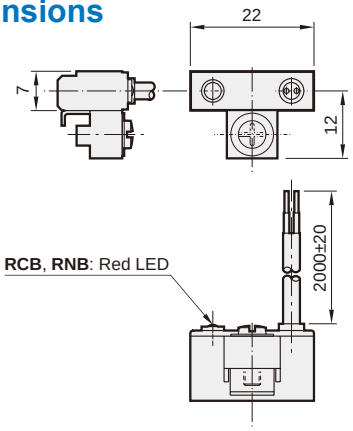
Single acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

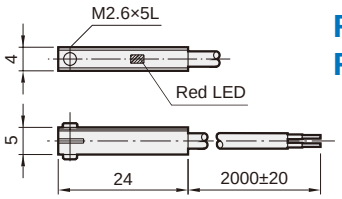
* Please reconfirm dimension with our sales department when the stroke over our standard.

Dimensions

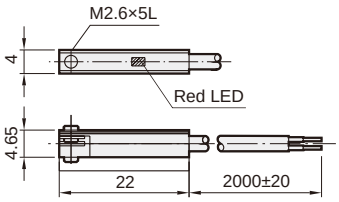
RCB
RNB



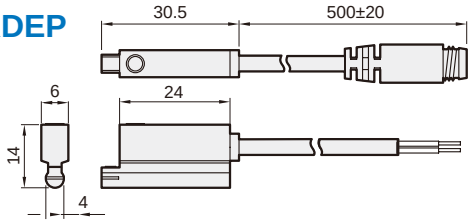
RCE



RCE1
RNE

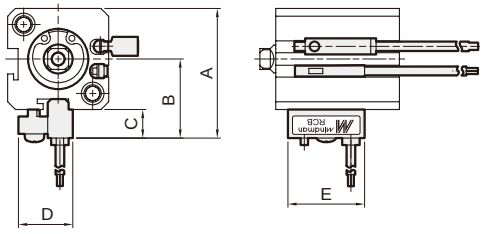


RDEP

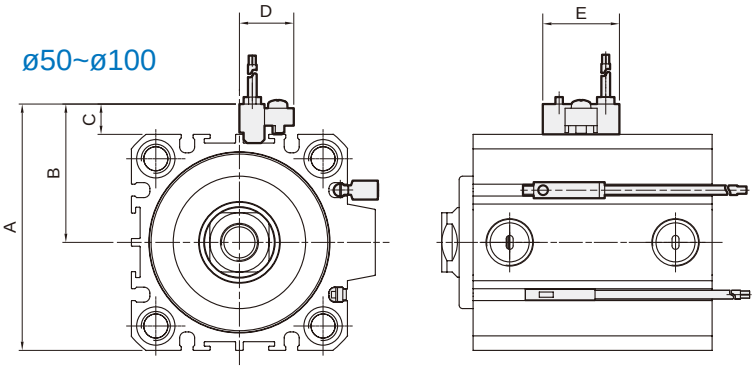


Installation of sensor switch

ø12~ø40



ø50~ø100



Order example

RCE1 – □

MODEL
RCB / RCE / RCE1 (**C**: Reed switch)
RNB / RNE (**N**: Solid state switch)
RDEP (Solid state switch)

WIRE LENGTH
Blank: L=2000m
1M: L=1000m
QD: M8 3Pin connector
EQD: M8 3Pin connector

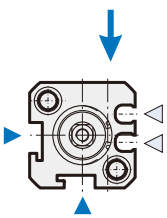
Code / Tube I.D.	A	B	C	D	E
12	33.5	21.5	8.5	16	22
16	37.5	23	8.5	16	22
20	42.5	25.5	8.5	16	22
25	49	29	9	16	22
32	53	31	9	16	22

Code / Tube I.D.	A	B	C	D	E
40	61	35	9	16	22
50	71	40	9	16	22
63	84	46.5	9	16	22
80	103	56	9	16	22
100	123	66	9	16	22

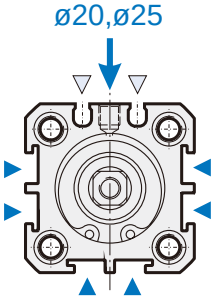
Description

▼ **RCB** switch ▽ **RCE, RCE1, RDEP** switch ↓ **Port**

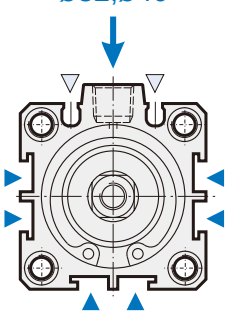
ø12,ø16



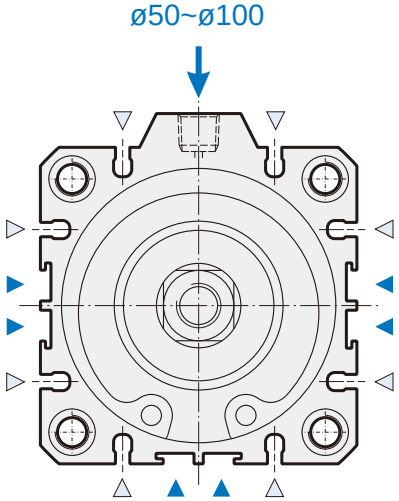
ø20,ø25



ø32,ø40



ø50~ø100



Specification

Model	MCJA-3*									
Acting type	Double acting / Single acting							Double acting		
Tube I.D. (mm)	12	16	20	25	32	40	50	63	80	100
Port size	M5×0.8				Rc1/8		Rc1/4		Rc3/8	
Medium	Air									
Operating perssure range (MPa) Double acting	0.05~1		0.03~1		0.02~1					
Operating perssure range (MPa) Single acting	0.2~1		0.15~1		0.1~1			–		
Proof pressure	1.5 MPa									
Ambient temperature	-5~+60°C (No freezing)									
Available speed range	50~500 mm/sec									
Sensor switch (*)	RCB, RCE, RCE1, RDEP									

* RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17.

Order example

MCJA — 32 — 40 — 10×25 M — □

- MODEL
- STYLE
- 3: Multiple position
- TUBE I.D.
- STROKE1×STROKE2
  - Stroke 1: First stroke
  - Stroke 2: Total stroke
- M: Magnet
- PORT THREAD
  - Blank: M5×0.8 (for ø12~ø25)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (for ø32~ø100)

Code		Symbol	Description
3	1		Double acting / Male thread
3	2		Double acting / Female thread
3	5		Single acting / Normally returned male thread
3	6		Single acting / Normally returned female thread

* Order example for special specification, refer to page 0-7.

Double acting – Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke (Without magnet)
ø12,16	5,10,15,20,25,30	300
ø20,25,32 ø40,50,63,80	5,10,15,20,25,30,35,40,45,50	300
ø100	5,10,15,20,25,30,35,40,45,50	125

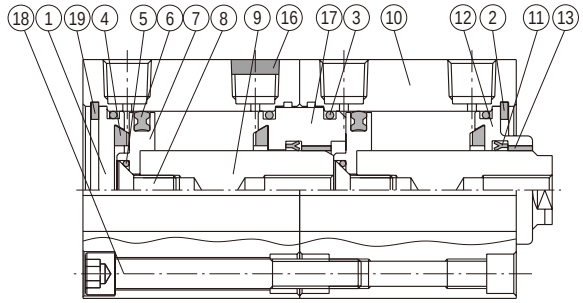
- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Single acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

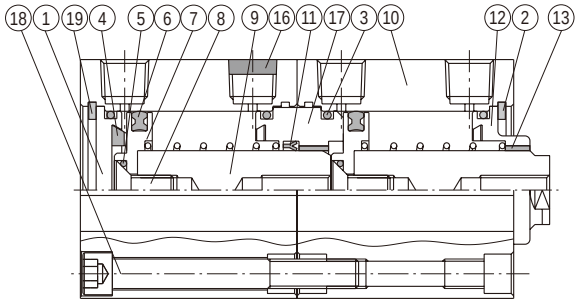
- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Double acting



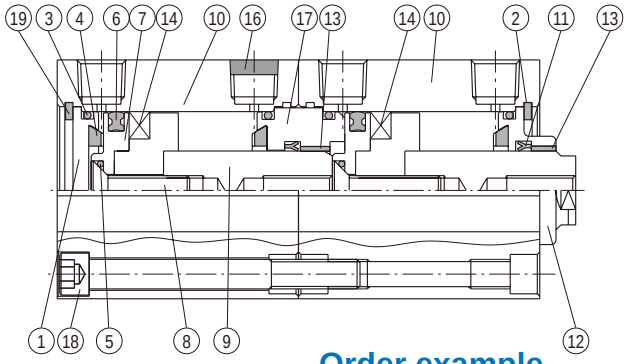
Single acting

Normally returned



Double acting

(with magnet)



Seal kit

	Rod packing		Piston packing		Cover ring	Piston gasket
Acting type	Double acting	Normally returned	Double acting	Single acting	Double acting single acting	Double acting single acting
Q'y	2	1	2	2	4	2
ø12	KSYR-6	KSYR-6	OPA-12	OPA-12	S-12	d4×w1
ø16	KSYR-6	KSYR-6	OPA-16	OPA-16	S-14	d4×w1
ø20	KSYR-8	KSYR-8	OPA-20	OPA-20	S-18	d6×w1
ø25	KSYR-10	KSYR-10	OPA-25	OPA-25	S-22	d8×w1
ø32	KSYR-12	KSYR-12	OPA-32	OPA-32	d28×w2	S-9
ø40	KSYR-16	KSYR-16	OPA-40	OPA-40	S-36	S-9
ø50	KSYR-20	KSYR-20	OPA-50	OPA-50	AS-31	S-16
ø63	KSYR-20	–	OPA-63	–	AS-35	S-16
ø80	ORA-25	–	OPA-80	–	AS-41	d20×w1
ø100	SDR-30	–	OPA-100	–	S-95	S-26

Material

No.	Tube I.D. / Part name		12	16	20	25	32	40	50	63	80	100	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Head cover		Aluminum alloy										1	●	
2	Snap ring (Front end)		SUS	Spring steel		SUS		Spring steel					1	●	
3	Cover ring		NBR										4	●	●
4	Cushion packing		–		NBR								4	●	●
5	Piston gasket		NBR										2	●	●
6	Piston packing		NBR										2	●	●
7	Piston		Aluminum alloy										2	●	
8	Screw	With magnet	SUS				SCM						2	●	
		Without magnet	SCM		SUS		SCM						2	●	
9	Piston rod	With magnet	SUS				Carbon steel						2		
		Without magnet	SUS		Carbon steel								2		
10	Body		Aluminum alloy										2		
11	Rod packing		NBR										2*	●	●
12	Rod cover		Aluminum alloy										1	●	
13	Bush		–				Bearing alloy						2	●	
14	Magnet ring		Magnet material										2	●	
15	Spring		SWP							–			2	●	
16	Silencer		Brass							–			1	●	
17	Center cover		Aluminum alloy										1	●	
18	Screw		SCM										2	●	
19	Snap ring (Rear end)		SUS				Spring steel						1	●	

* Single acting / Normally returned, Q'y=1

Order example

Component parts

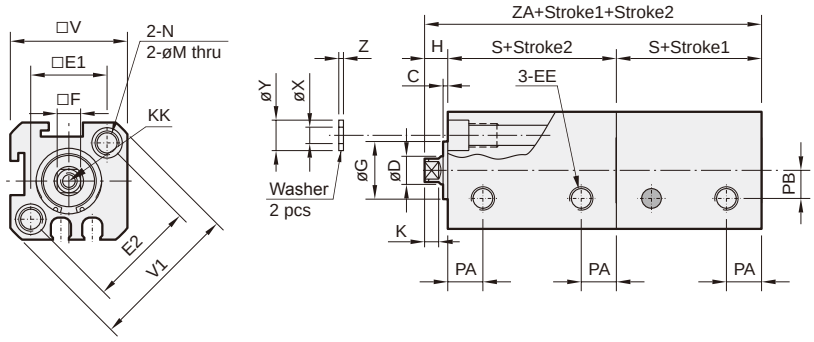
Tube I.D.	Component parts
ø12	**CP-MCJA-3-12(M)**
ø16	**CP-MCJA-3-16(M)**
ø20	**CP-MCJA-3-20(M)**
ø25	**CP-MCJA-3-25(M)**
ø32	**CP-MCJA-3-32(M)**
ø40	**CP-MCJA-3-40(M)**
ø50	**CP-MCJA-3-50(M)**
ø63	**CP-MCJA-3-63(M)**
ø80	**CP-MCJA-3-80(M)**
ø100	**CP-MCJA-3-100(M)**

M: With magnet

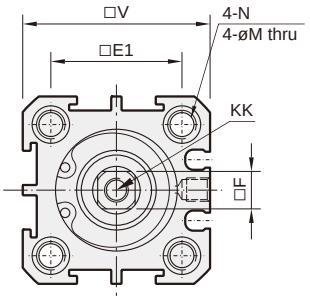
Repair kits

Tube I.D.	Repair kits
ø12	**PS-MCJA-3-12**
ø16	**PS-MCJA-3-16**
ø20	**PS-MCJA-3-20**
ø25	**PS-MCJA-3-25**
ø32	**PS-MCJA-3-32**
ø40	**PS-MCJA-3-40**
ø50	**PS-MCJA-3-50**
ø63	**PS-MCJA-3-63**
ø80	**PS-MCJA-3-80**
ø100	**PS-MCJA-3-100**

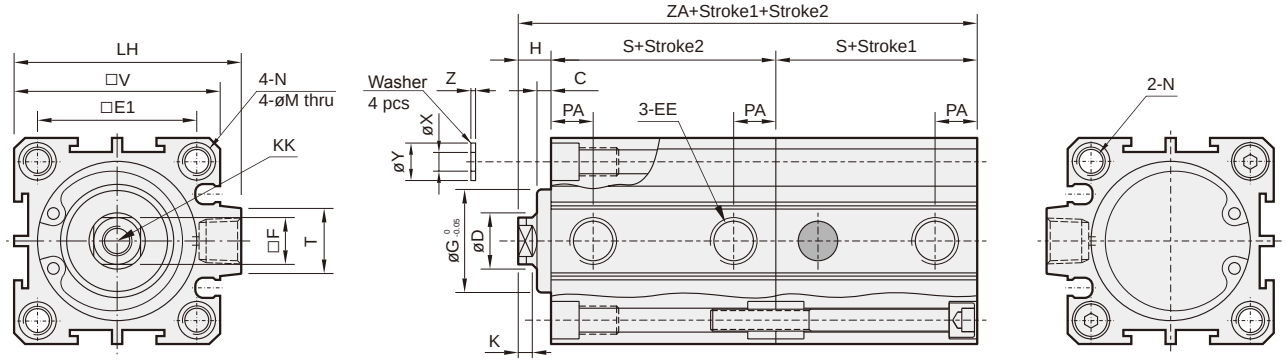
ø12, ø16



ø20, ø25



ø32~ø100



*Stroke 1: First stroke Stroke 2: Total stroke

Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8 (*1)	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8 (*1)	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*2)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–
63	4	20	Rc1/4 (*2)	60	–	17	40	9	3	M10×1.5×15depth	83	6.9	ø11×8.5depth, M8×1.25×16.5depth	12	–
80	5	25	Rc3/8 (*3)	74	–	22	45	11	4	M14×1.5×20depth	102	10.5	ø14×10.5depth, M12×1.75×12depth	13	–
100	5	30	Rc3/8 (*3)	90	–	27	55	12	4	M18×1.5×20depth	122	12.3	ø18.5×13depth, M14×2×17depth	17	–

*1. Without magnet with stroke=5mm, EE=M5×0.8
*2. Without magnet with stroke=5mm, EE=Rc1/8
*3. Without magnet with stroke=5mm, EE=Rc1/4

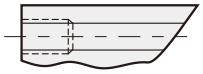
Code / Tube I.D.	T	V	V1	X	Y	Z	Without magnet		Magnet	
							S	ZA	S	ZA
12	–	25	32	3.2	6.3	1	17	39	27	59
16	–	29	38	3.2	6.3	1	18.5	42.5	28.5	62.5
20	–	34	–	3.2	6.3	1	19.5	44.5	29.5	64.5
25	–	40	–	4.2	7.8	1	21	48	31	68
32	14	44	–	4.2	7.8	1	24.5	56	34.5	76
40	14	52	–	6.2	10.3	1.6	26	59	36	79
50	19	62	–	6.2	10.8	1.6	28	65	38	85
63	20	75	–	6.2	10.8	1.6	32	73	42	93
80	27	94	–	8.2	13.8	1.6	41	93	51	113
100	26	114	–	10.2	17.3	2	51	114	61	134

Long stroke

Without counter bore

With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12~ø100



Specification

Model	MCJA-4*									
Acting type	Double acting / Single acting							Double acting		
Tube I.D. (mm)	12	16	20	25	32	40	50	63	80	100
Port size	M5×0.8				Rc1/8		Rc1/4		Rc3/8	
Medium	Air									
Operating perssure range (MPa) Double acting	0.05~1		0.03~1		0.02~1					
Operating perssure range (MPa) Single acting	0.2~1		0.15~1		0.1~1			–		
Proof pressure	1.5 MPa									
Ambient temperature	-5~+60°C (No freezing)									
Available speed range	50~500 mm/sec									
Sensor switch (*)	RCB, RCE, RCE1, RDEP									

* RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17.

Order example

MCJA — 42 — 40 — 25×25 M — □

- MODEL
- STYLE
  - **4**: Back to back type
- TUBE I.D.
- STROKE1×STROKE2
  - Stroke 1: First stroke
  - Stroke 2: Second stroke
- **M**: Magnet
- PORT THREAD
  - Blank: M5×0.8 (for ø12~ø25)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (for ø32~ø100)

Code		Symbol	Description
4	1		Double acting / Male thread
4	2		Double acting / Female thread
4	3		Single acting / Normally extended male thread
4	4		Single acting / Normally extended female thread
4	5		Single acting / Normally returned male thread
4	6		Single acting / Normally returned female thread

* Order example for special specification, refer to page 0-7.

Double acting – Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke (Without magnet)
ø12,16	5,10,15,20,25,30	300
ø20,25,32 ø40,50,63,80	5,10,15,20,25,30,35,40,45,50	300
ø100	5,10,15,20,25,30,35,40,45,50	125

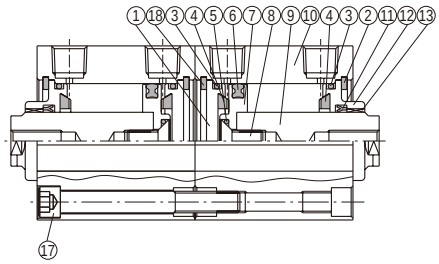
- Stroke out of specification is also available.Please consult us if stroke out of specification.

Single acting – Table for standard stroke

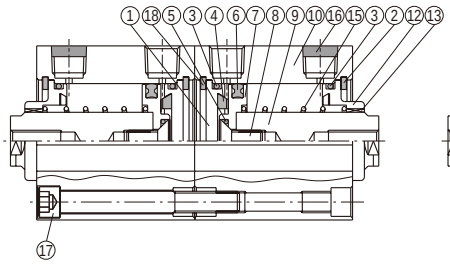
Tube I.D.	Stroke (mm)
ø12,16,20,25,32,40	5,10,15,20,25,30
ø50	5,10,15,20

- Stroke out of specification is also available.Please consult us if stroke out of specification.

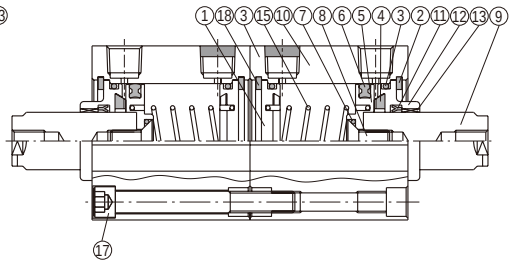
Double acting



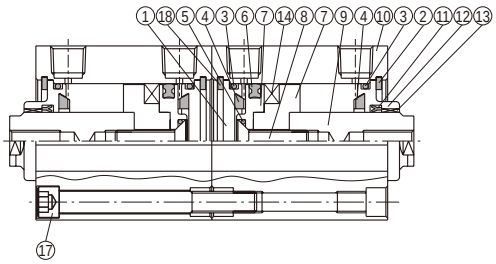
Single acting
Normally returned



Single acting
Normally extended



Double acting
(with magnet)



Seal kit

	Rod packing			Piston packion		Cover ring	Piston gasket
Acting type	Double acting	Normally returned	Normally extended	Double acting	Single acting	Double acting single acting	Double acting single acting
Qty.	2	0	2	2	2	4	2
ø12	KSYR-6	–	KSYR-6	OPA-12	OPA-12	S-12	d4×w1
ø16	KSYR-6	–	KSYR-6	OPA-16	OPA-16	S-14	d4×w1
ø20	KSYR-8	–	KSYR-8	OPA-20	OPA-20	S-18	d6×w1
ø25	KSYR-10	–	KSYR-10	OPA-25	OPA-25	S-22	d8×w1
ø32	KSYR-12	–	KSYR-12	OPA-32	OPA-32	d28×w2	S-9
ø40	KSYR-16	–	KSYR-16	OPA-40	OPA-40	S-36	S-9
ø50	KSYR-20	–	KSYR-20	OPA-50	OPA-50	AS-31	S-16
ø63	KSYR-20	–	–	OPA-63	–	AS-35	S-16
ø80	ORA-25	–	–	OPA-80	–	AS-41	d20×w1
ø100	SDR-30	–	–	OPA-100	–	S-95	S-26

Material

No.	Part name \ Tube I.D.		12	16	20	25	32	40	50	63	80	100	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Head cover		Aluminum alloy										2	●	
2	Snap ring (Front end)		SUS	Spring steel		SUS			Spring steel				2	●	
3	Cover ring		NBR										4	●	●
4	Cushion packing		–			NBR							4	●	●
5	Piston gasket		NBR										2	●	●
6	Piston packing		NBR										2	●	●
7	Piston		Aluminum alloy										2	●	
8	Screw	With magnet	SUS				SCM						2	●	
		Without magnet	SCM	SUS			SCM						2	●	
9	Piston rod	With magnet	SUS				Carbon steel						2		
		Without magnet	SUS			Carbon steel							2		
10	Body		Aluminum alloy										2		
11	Rod packing		NBR										2*	●	●
12	Rod cover		Aluminum alloy										2	●	
13	Bush		–			Bearing alloy							2	●	
14	Magnet ring		Magnet material										2	●	
15	Spring		SWP							–			2	●	
16	Silencer		Brass							–			2	●	
17	Screw		SCM										2	●	
18	Snap ring (Rear end)		SUS				Spring steel						2	●	

* Single acting / Normally returned, Q'y=0

Order example

Component parts

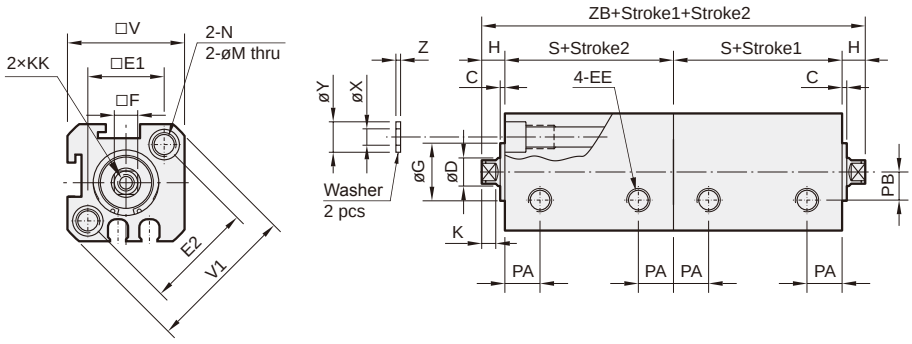
Tube I.D.	Component parts
ø12	**CP-MCJA-4-12(M)**
ø16	**CP-MCJA-4-16(M)**
ø20	**CP-MCJA-4-20(M)**
ø25	**CP-MCJA-4-25(M)**
ø32	**CP-MCJA-4-32(M)**
ø40	**CP-MCJA-4-40(M)**
ø50	**CP-MCJA-4-50(M)**
ø63	**CP-MCJA-4-63(M)**
ø80	**CP-MCJA-4-80(M)**
ø100	**CP-MCJA-4-100(M)**

M: With magnet

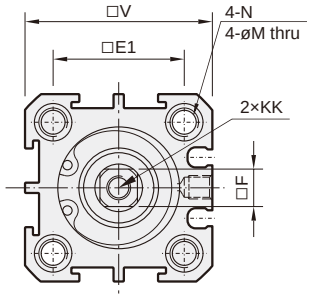
Repair kits

Tube I.D.	Repair kits
ø12	**PS-MCJA-4-12**
ø16	**PS-MCJA-4-16**
ø20	**PS-MCJA-4-20**
ø25	**PS-MCJA-4-25**
ø32	**PS-MCJA-4-32**
ø40	**PS-MCJA-4-40**
ø50	**PS-MCJA-4-50**
ø63	**PS-MCJA-4-63**
ø80	**PS-MCJA-4-80**
ø100	**PS-MCJA-4-100**

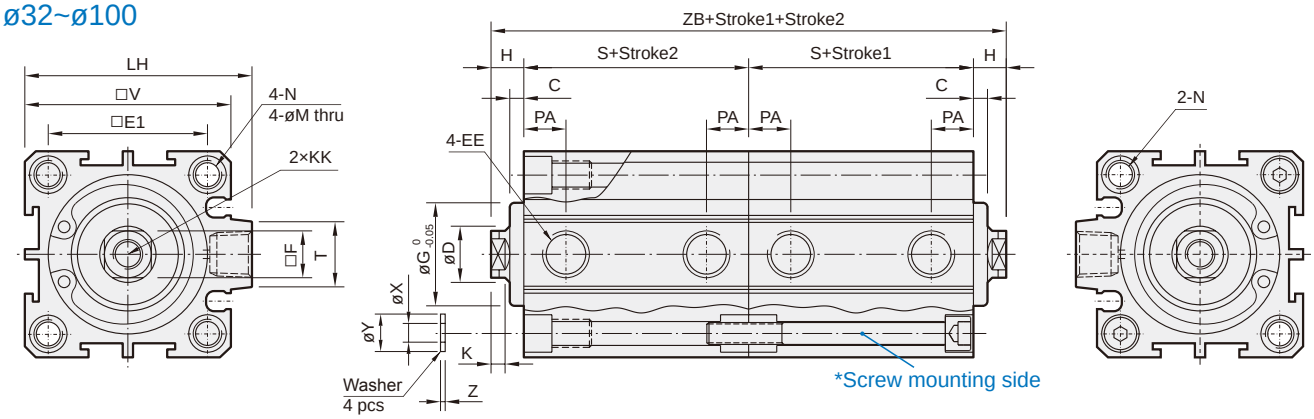
ø12,ø16



ø20,ø25



ø32~ø100



*Stroke 1: First stroke Stroke 2: Second stroke

Code / Tube I.D.	C	D	EE	E1	E2	F	G	H	K	KK	LH	M	N	PA	PB
12	1	6	M5×0.8	16.3	23	5	11	5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	6.5	6
16	1.5	6	M5×0.8	19.8	28	5	11	5.5	3	M3×0.5×6depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7	6.5
20	1.5	8	M5×0.8	24	–	6	15	5.5	3	M4×0.7×8depth	–	4.3	ø6.5×4.5depth, M5×0.8×7.5depth	7.5	–
25	2	10	M5×0.8	28	–	8	17	6	3	M5×0.8×10depth	–	5.1	ø9×7depth, M6×1.0×10depth	8	–
32	3	12	Rc1/8 (*1)	34	–	10	22	7	3	M6×1.0×12depth	48.5	5.1	ø9×7depth, M6×1.0×10depth	9	–
40	3	16	Rc1/8 (*1)	40	–	14	28	7	3	M8×1.25×12depth	56.5	6.9	ø10.5×8depth, M8×1.25×12depth	10	–
50	4	20	Rc1/4 (*2)	48	–	17	38	9	3	M10×1.5×15depth	70	6.9	ø11×8.5depth, M8×1.25×16.5depth	10	–
63	4	20	Rc1/4 (*2)	60	–	17	40	9	3	M10×1.5×15depth	83	6.9	ø11×8.5depth, M8×1.25×16.5depth	12	–
80	5	25	Rc3/8 (*3)	74	–	22	45	11	4	M14×1.5×20depth	102	10.5	ø14×10.5depth, M12×1.75×12depth	13	–
100	5	30	Rc3/8 (*3)	90	–	27	55	12	4	M18×1.5×20depth	122	12.3	ø18.5×13depth, M14×2×17depth	17	–

*1. Without magnet with stroke=5mm, EE=M5×0.8
*2. Without magnet with stroke=5mm, EE=Rc1/8
*3. Without magnet with stroke=5mm, EE=Rc1/4

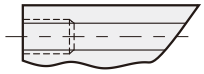
Code / Tube I.D.	T	V	V1	X	Y	Z	Without magnet		Magnet	
							S	ZB	S	ZB
12	–	25	32	3.2	6.3	1	17	44	27	64
16	–	29	38	3.2	6.3	1	18.5	48	28.5	68
20	–	34	–	3.2	6.3	1	19.5	50	29.5	70
25	–	40	–	4.2	7.8	1	21	54	31	74
32	14	44	–	4.2	7.8	1	24.5	63	34.5	83
40	14	52	–	6.2	10.3	1.6	26	66	36	86
50	19	62	–	6.2	10.8	1.6	28	74	38	94
63	20	75	–	6.2	10.8	1.6	32	82	42	102
80	27	94	–	8.2	13.8	1.6	41	104	51	124
100	26	114	–	10.2	17.3	2	51	126	61	146

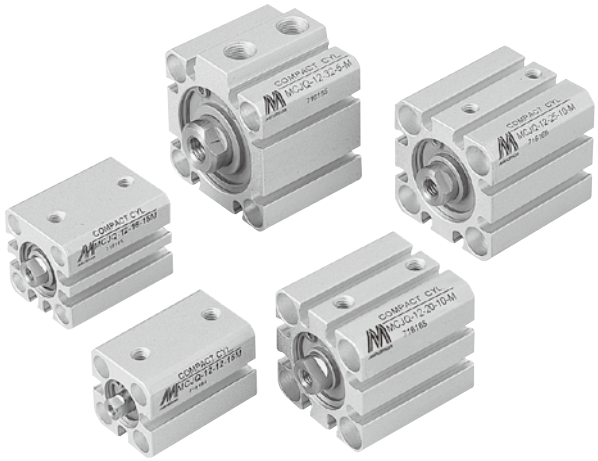
Long stroke

Without counter bore

With magnet type:
The stroke length must be over 100mm.
Without magnet type:
The stroke length must be over 110mm.

ø12~ø100





Features

- Ultra Compact, light weight and space saving cylinder.
- Wide range of bore sizes and strokes (12mm~100mm).
- Single and double acting available.
- Ideal for use in machinery where space is limited and incorporating sensor groove which enables flush fitting of sensors.
- Sensor can be mounted on any one of three faces on 12 and 16 bore and on four faces on 20~100 bore.

Specification

Model		MCJQ									
Acting type		Double acting / Single acting							Double		
Tube I.D. (mm)		12	16	20	25	32	40	50	63	80	100
Port size		M5×0.8				Rc1/8		Rc1/4		Rc3/8	
Medium		Air									
Operating perssure range (MPa)	Double acting	0.07~1		0.05~1							
	Single acting	0.2~1		0.15~1		0.1~1			–		
Proof pressure		1.5 MPa									
Ambient temperature		-5°C~+60°C (No freezing)									
Available speed range		50~500 mm/sec									
Sensor switch (*)		RCB, RCE, RCE1, RDEP									

* RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17. RCB sensor switch only for tube I.D. ø50~100.

Order example

* Order example for special specification, refer to page 0-7.

MCJQ — 12 — 20 — 25 M — F — G

- MODEL
- STYLE — **1**: Single rod, **2**: Double rod
- TUBE I.D.
- STROKE
- **M**: Magnet
- Blank: Standard, **F**: Rear flange
- PORT THREAD — Blank: M5×0.8 (for ø12~ø25); Blank: Rc thread, **G**: G thread, **NPT**: NPT thread (for ø32~ø100)

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread
1	3		Single acting / Normally extended male thread
1	4		Single acting / Normally extended female thread
1	5		Single acting / Normally returned male thread
1	6		Single acting / Normally returned female thread
2	1		Double rod / Male thread
2	2		Double rod / Female thread
2	3		Single acting / Double rod / Male thread
2	4		Single acting / Double rod / Female thread
2	7		Double rod / Adjustable male thread
2	8		Double rod / Adjustable female thread

Mounting accessories

FAC — MCJQ — 20

- MOUNTING TYPE
- MODEL
- TUBE I.D.

	LB		FBC
	CB		RF
	FAC		

* Only for double acting / single rod type.

Single acting – Table for standard stroke

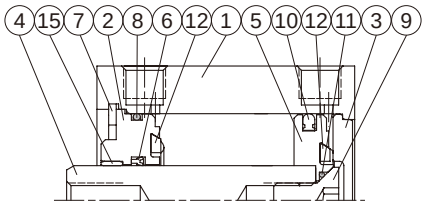
Tube I.D.	Standard stroke (mm)
ø12,16,20,25,32,40	5,10
ø50	5,10,15,20

Double acting – Table for standard stroke

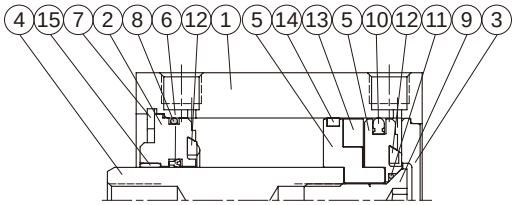
Tube I.D.	Standard stroke	Long stroke (mm)
ø12,16	5,10,15,20,25,30	35,40,45,50,75,100
ø20	5,10,15,20,25,30, 35,40,45,50	75,100,125,150,175,200
ø25		75,100,125,150,175,200,250,300
ø32~80	5,10,15,20,25,30, 35,40,45,50,75,100	125,150,175,200,250,300
Tube I.D.	Standard stroke (mm)	
ø100	5,10,15,20,25,30,35,40,45,50,75,100	

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

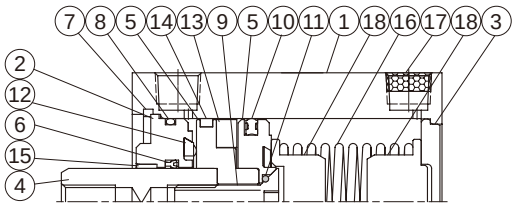
Double acting



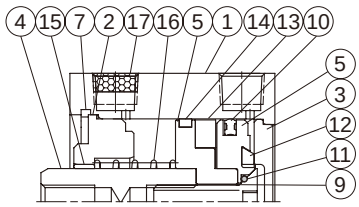
Double acting (with magnet)



Single acting Normally extended



Single acting Normally returned



Material

No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	80	100	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body	Aluminum alloy										Hard anodized	1		
2	Rod cover	Aluminum alloy										*	1	●	
3	End cover	Aluminum alloy										Anodized	1	●	
4	Piston rod (With magnet)	Stainless steel				Carbor steel							1		
	Piston rod (Without magnet)	SUS	Carbor steel										1		
5	Piston	Aluminum alloy										ø12~32 anodized	1	●	
6	Rod packing	NBR											1	●	●
7	Snap ring	Stainless steel				Spring steel							1	●	
8	Cover ring	NBR											1	●	●
9	Piston bolt	Stainless steel				SCM							1	●	
10	Piston packing	NBR											1	●	●
11	Piston gasket	NBR											1	●	●
12	Cushion packing	NBR											2	●	●
13	Magnet	Magnet											1	●	
14	Wear ring	–				Teflon							1	●	
15	Bush	–				Bearing alloy							1	●	
16	Spring	SWP							–				1	●	
17	Silencer	Brass							–				1	●	
18	Spring holder	Aluminum alloy						–					2	●	

* ø12~ø32 hard anodized, ø40~ø100 anodized.

Seal kit

	Rod packing		Piston packing		Cover ring		Piston gasket
Acting type	Double acting / Normally extended	Normally retruned	Double acting	Single acting	Double acting / Normally extended	Normally retruned	Double acting Single acting
Q'y	1	0	1	1	1	0	1
ø12	KSYR-6	–	OPA-12	OPA-12	S-11	–	d4×w1
ø16	KSYR-8	–	OPA-16	OPA-16	S-14	–	d5×w1
ø20	KSYR-10A	–	OPA-20	OPA-20	S-18	–	d6×w1
ø25	KSYR-12	–	OPA-25	OPA-25	S-22,4	–	d8×w1
ø32	KSYR-16	–	OPA-32	OPA-32	S-28	–	S-9
ø40	KSYR-16	–	OPA-40	OPA-40	S-36	–	S-10
ø50	KSYR-20	–	OPA-50	OPA-50	S-46	–	S-16
ø63	KSYR-20	–	OPA-63	–	S-60	–	S-16
ø80	ORA-25	–	OPA-80	–	G-75	–	d20×w1
ø100	ORA-30	–	OPA-100	–	G-95	–	S-26

Order example

Component parts

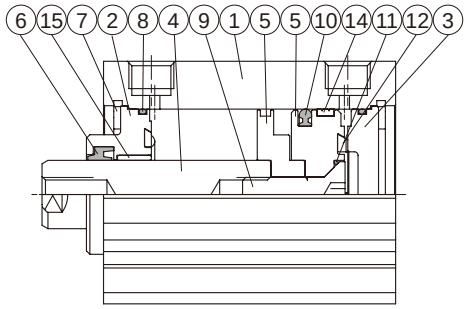
Tube I.D.	Component parts
ø12	**CP-MCJQ-12(M)**
ø16	**CP-MCJQ-16(M)**
ø20	**CP-MCJQ-20(M)**
ø25	**CP-MCJQ-25(M)**
ø32	**CP-MCJQ-32(M)**
ø40	**CP-MCJQ-40(M)**
ø50	**CP-MCJQ-50(M)**
ø63	**CP-MCJQ-63(M)**
ø80	**CP-MCJQ-80(M)**
ø100	**CP-MCJQ-100(M)**

M: With magnet

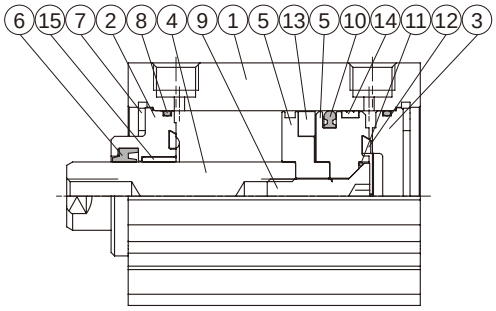
Repair kits

Tube I.D.	Repair kits
ø12	**PS-MCJQ-12**
ø16	**PS-MCJQ-16**
ø20	**PS-MCJQ-20**
ø25	**PS-MCJQ-25**
ø32	**PS-MCJQ-32**
ø40	**PS-MCJQ-40**
ø50	**PS-MCJQ-50**
ø63	**PS-MCJQ-63**
ø80	**PS-MCJQ-80**
ø100	**PS-MCJQ-100**

Long stroke



Long stroke
(with magnet)



Long stroke – Material

No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	80	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body	Aluminum alloy									Hard anodized	1		
2	Rod cover	Aluminum alloy									*	1	●	
3	End cover	Aluminum alloy									Anodized	1	●	
4	Piston rod – With magnet	Stainless steel				Carbor steel						1		
	Piston rod – Without magnet	SUS	Carbor steel									1		
5	Piston	Aluminum alloy									ø12~32 anodized	1	●	
6	Rod packing	NBR										1	●	●
7	Snap ring	Stainless steel					Spring steel					2	●	
8	Cover ring	NBR										2	●	●
9	Piston bolt	Stainless steel					SCM					1	●	
10	Piston packing	NBR										1	●	●
11	Piston gasket	NBR										1	●	●
12	Cushion packing	NBR										2	●	●
13	Magnet	Magnet										1	●	
14	Wear ring	Teflon										1	●	
15	Bush	–					Bearing alloy					1	●	

* ø12~ø32 hard anodized, ø40~ø80 anodized.

Long stroke – Seal kit

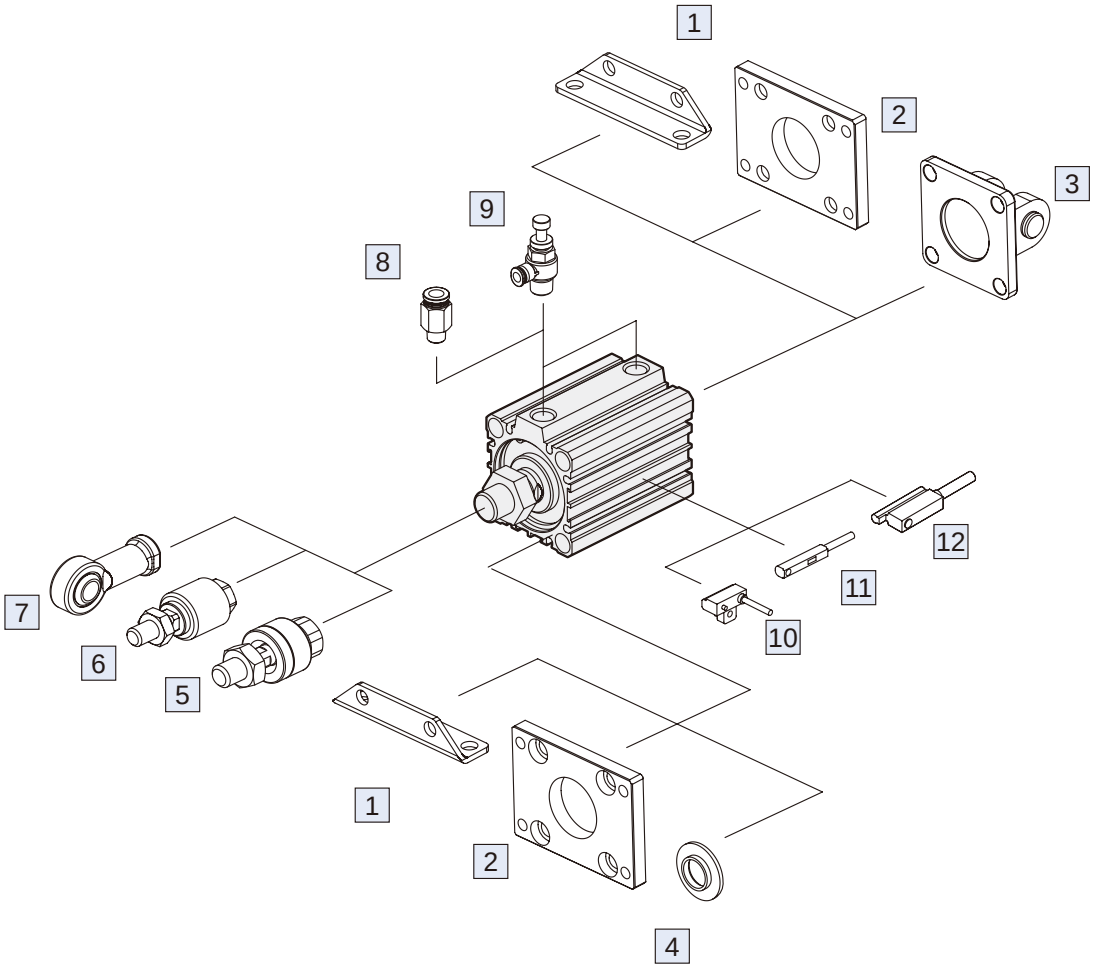
	Rod packing	Piston packing	Cover ring		Piston gasket
Acting type	Double acting				
Q'y	1	1	2		1
ø12	KSYR-6	OPA-12	S-11		d4×w1
ø16	KSYR-8	OPA-16	S-14		d5×w1
ø20	KSYR-10A	OPA-20	S-18		d6×w1
ø25	KSYR-12	OPA-25	S-22		d8×w1
ø32	KSYR-16	OPA-32	d28×w2		S-9
ø40	ORA-16	OPA-40	S-36		S-10
ø50	ORA-20	OPA-50	S-46		S-16
ø63	ORA-20	OPA-63	S-60		S-16
ø80	ORA-25	OPA-80	AS-41	G-75	d20×w1

Order example

Component parts / Repair kits

Tube I.D.	Component parts	Repair kits
ø12	**CPL-MCJQ-12(M)**	**PSL-MCJQ-12**
ø16	**CPL-MCJQ-16(M)**	**PSL-MCJQ-16**
ø20	**CPL-MCJQ-20(M)**	**PSL-MCJQ-20**
ø25	**CPL-MCJQ-25(M)**	**PSL-MCJQ-25**
ø32	**CPL-MCJQ-32(M)**	**PSL-MCJQ-32**
ø40	**CPL-MCJQ-40(M)**	**PSL-MCJQ-40**
ø50	**CPL-MCJQ-50(M)**	**PSL-MCJQ-50**
ø63	**CPL-MCJQ-63(M)**	**PSL-MCJQ-63**
ø80	**CPL-MCJQ-80(M)**	**PSL-MCJQ-80**

M: With magnet

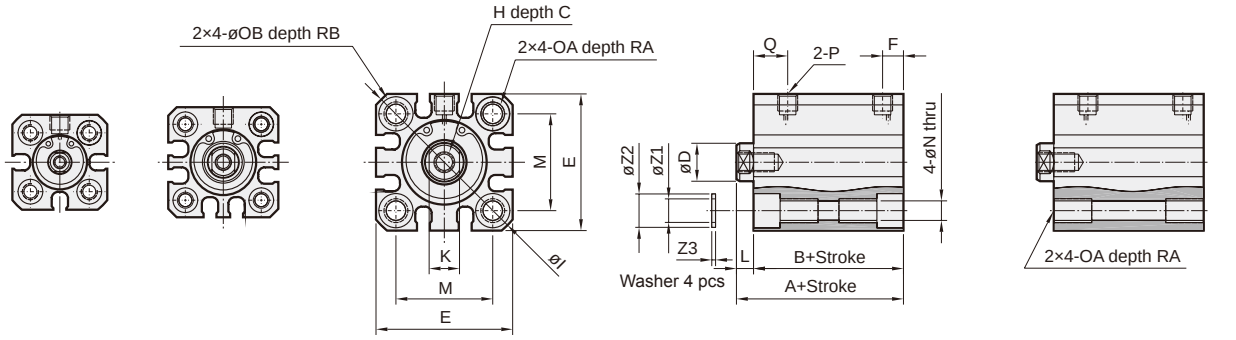


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	2-36, 38
2	Mounting accessories FAC/FBC	Carbon steel	2-36, 37, 39, 40
3	Mounting accessories CB+PIN	Cast iron / *	2-37, 41, 42
4	Mounting accessories RF	Aluminum	2-42
5	Floating joint MFC	Carbon steel	8-2
6	Floating joint MFCS	Carbon steel	8-5

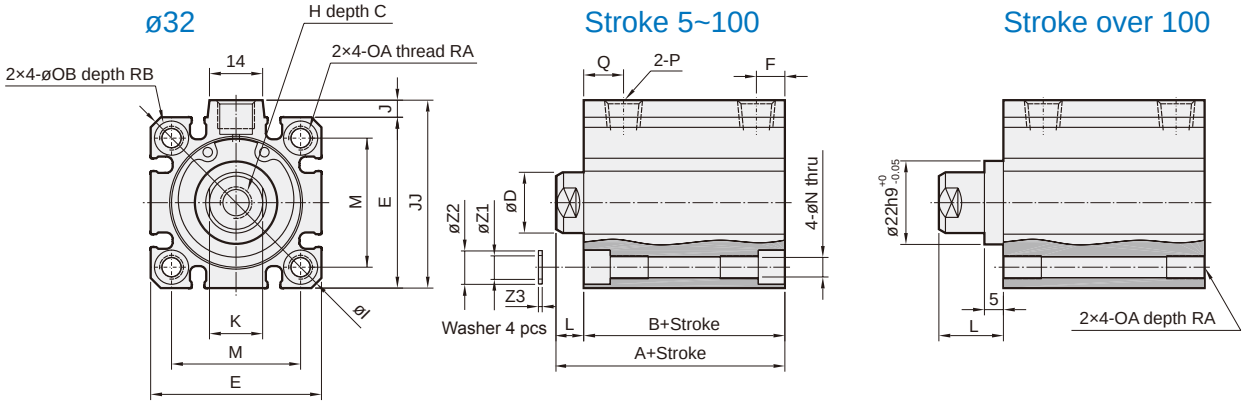
No.	Accessories	Material	Page
7	Female rod ends PHS	Carbon steel	8-6
8	Fitting PC (PISCO)	–	7-3 (Vol.1)
9	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
10	Sensor switch RCB	–	8-9
11	Sensor switch RCE/RCE1	–	8-11, 12
12	Sensor switch RDEP	–	8-17

* PIN and ø12, ø16 CB accessories material are carbon steel.

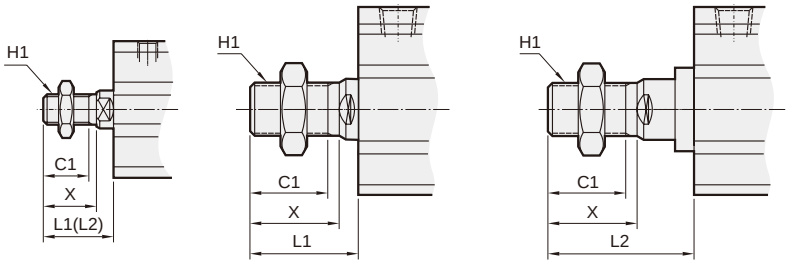
ø12 ø16 ø20, ø25 Stroke 5~100 Stroke over 100



ø32 Stroke 5~100 Stroke over 100



ø12~25 ø32 for stroke 5~100 ø32 for stroke over 100



MCJQ-11 male thread size

Code / Tube I.D.	C1	H1	L1	L2	X
12	9	M5×0.8	14	24	10.5
16	10	M6×1.0	15.5	25.5	12
20	12	M8×1.25	18.5	28.5	14
25	15	M10×1.25	22.5	32.5	17.5
32	20.5	M14×1.5	28.5	38.5	23.5

* L1: Standard stroke, L2: Long stroke

ø12~25

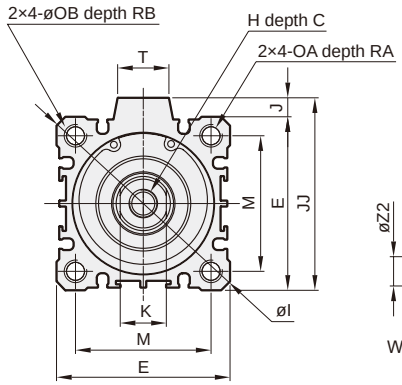
Code / Tube I.D.	Standard stroke									Long stroke					C	D	E	H	I	K	M	N	OA	OB	P	Q	RA	RB	Z1	Z2	Z3
	Stroke range	Without magnet				Magnet				Stroke range	A	B	F	L																	
		A	B	F	L	A	B	F	L																							
12	5~30	20.5	17	5	3.5	25.5	22	5	3.5	31~100	45.5	32	7.5	13.5	6	6	25	M3×0.5	32	5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
16	5~30	20.5	17	5	3.5	25.5	22	5	3.5	31~100	45.5	32	7.5	13.5	8	8	29	M4×0.7	38	6	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
20	5~50	24	19.5	5.5	4.5	34	29.5	5.5	4.5	51~200	55.5	41	9	14.5	7	10	36	M5×0.8	47	8	25.5	5.4	M6×1.0	9	M5×0.8	9	10	7	6.2	8.8	1
25	5~50	27.5	22.5	5.5	5	37.5	32.5	5.5	5	51~300	59	44	11	15	12	12	40	M6×1.0	52	10	28	5.4	M6×1.0	9	M5×0.8	11	10	7	6.2	8.8	1

ø32

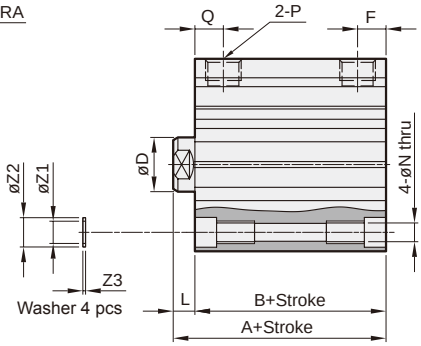
Code / Tube I.D.	Standard stroke							Long stroke						P	C	D	E	H	I	J	JJ	K	M	N	OA	OB	RA	RB	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet		F	L	Q	Stroke range	A	B	F	L	Q																	
		A	B	A	B																										
32	5~50	30	23	40	33	7.5	7	10.5	101 ~300	62.5	45.5	12.5	17	12.5	Rc1/8 (*1)	13	16	45	M8×1.25	60	4.5	49.5	14	34	5.5	M6×1.0	9	10	7	6.2	8.8	1
	51~100	40	33	40	33	7.5	7	10.5																							

*1. Without magnet with stroke=5mm, P=M5×0.8, Q=11.5, F=5.5

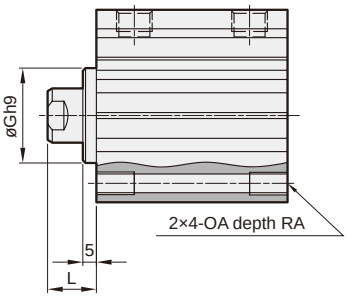
ø50~ø100



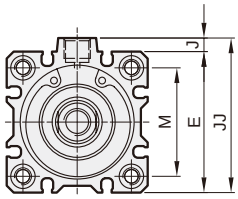
Stroke 5~100



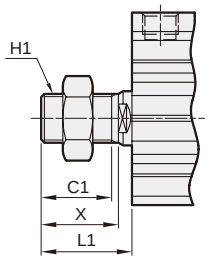
Stroke over 100



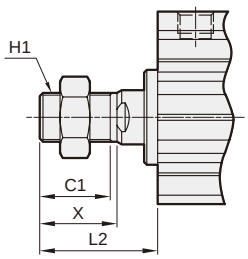
ø40



ø40~ø100 (Stroke 5~100)



ø40~ø80 (Stroke over 100)



MCJQ-11 male thread size

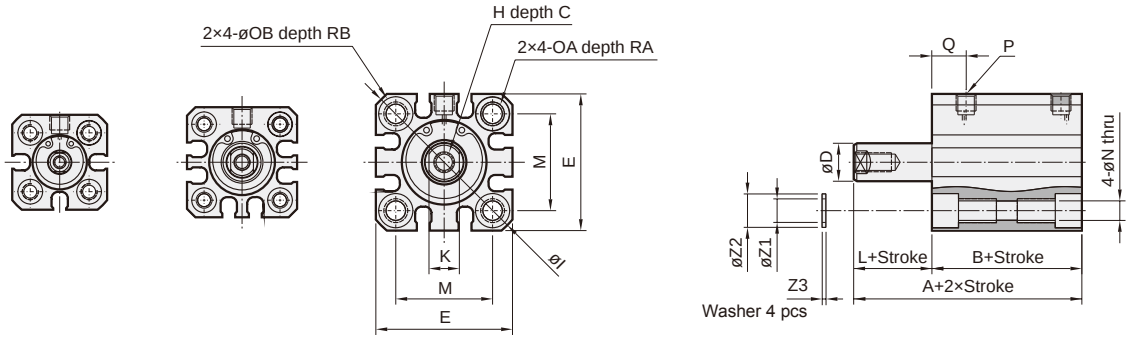
Code / Tube I.D.	C1	H1	L1	L2	X
40	20.5	M14×1.5	28.5	38.5	23.5
50	26	M18×1.5	33.5	43.5	28.5
63	26	M18×1.5	33.5	43.5	28.5
80	32.5	M22×1.5	43.5	53.5	35.5
100	32.5	M26×1.5	43.5	–	35.5

Code / Tube I.D.	Standard stroke								Long stroke					
	Stroke range	Without magnet		Magnet		F	L	Q	Stroke range	A	B	F	L	Q
		A	B	A	B									
40	5~50	36.5	29.5	46.5	39.5	8	7	11	125~300	72	55	14	17	14
	75,100	46.5	39.5											
50	5~50	38.5	30.5	48.5	40.5	10.5	8	10.5	125~300	73.5	55.5	14	18	14
	75,100	48.5	40.5											
63	5~50	44	36	54	46	10.5	8	15	125~300	75	57	16.5	18	16.5
	75,100	54	46											
80	5~50	53.5	43.5	63.5	53.5	12.5	10	16	125~300	86	66	19	20	19
	75,100	63.5	53.5											
100	5~50	65	53	75	63	13	12	23	–					
	75,100	75	63											

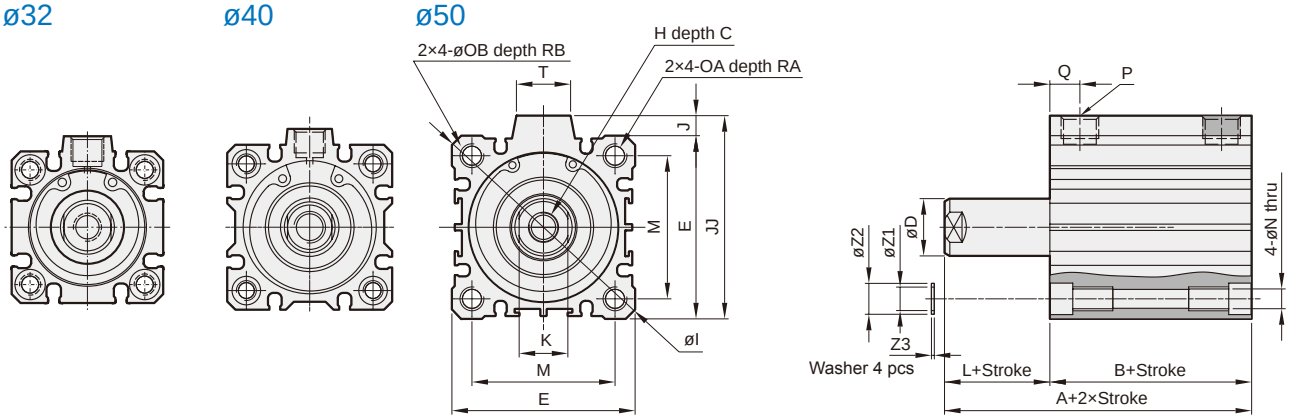
Code / Tube I.D.	C	D	E	G h9	H	I	J	JJ	K	M	N	OA	OB	P	RA	RB	T	Z1	Z2	Z3
40	13	16	52	28 $^{+0}_{-0.052}$	M8×1.25	70	5	57	14	40	5.5	M6×1.0	9	Rc1/8	10	7	14	6.2	8.8	1
50	15	20	64	35 $^{+0}_{-0.062}$	M10×1.5	86	7	71	17	50	6.6	M8×1.25	11	Rc1/4 (*1)	14	8	19	8.2	10.8	1
63	15	20	77	35 $^{+0}_{-0.062}$	M10×1.5	103	7	84	17	60	9	M10×1.5	14	Rc1/4 (*2)	18	10.5	19	10.2	13.8	1
80	21	25	98	43 $^{+0}_{-0.062}$	M16×2.0	132	6	104	22	77	11	M12×1.75	17.5	Rc3/8 (*3)	22	13.5	26	12.2	17.3	2
100	27	30	117	–	M20×2.5	156	6.5	123.5	27	94	11	M12×1.75	17.5	Rc3/8 (*3)	22	13.5	26	12.2	17.3	2

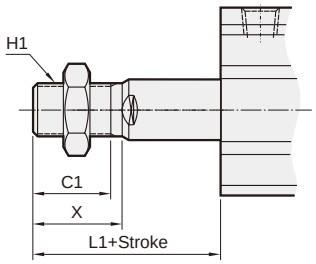
*1. Without magnet with stroke=5mm, P=Rc1/8, Q=12, F=8
*2. Without magnet with stroke=5mm, P=Rc1/8
*3. Without magnet with stroke=5mm, P=Rc1/4

ø12 ø16 ø20, ø25



ø32 ø40 ø50





* L1: Standard stroke

MCJQ-13 male thread size

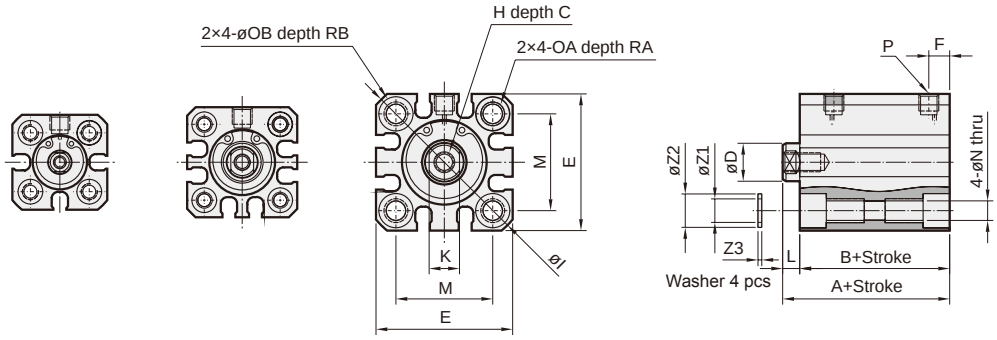
Code / Tube I.D.	C1	H1	L1	X
12	9	M5×0.8	14	10.5
16	10	M6×1.0	15.5	12
20	12	M8×1.25	18.5	14
25	15	M10×1.25	22.5	17.5
32	20.5	M14×1.5	28.5	23.5
40	20.5	M14×1.5	28.5	23.5
50	26	M18×1.5	33.5	28.5

Note: The value **B** of ø12~ø40 type is greater then double acting type.

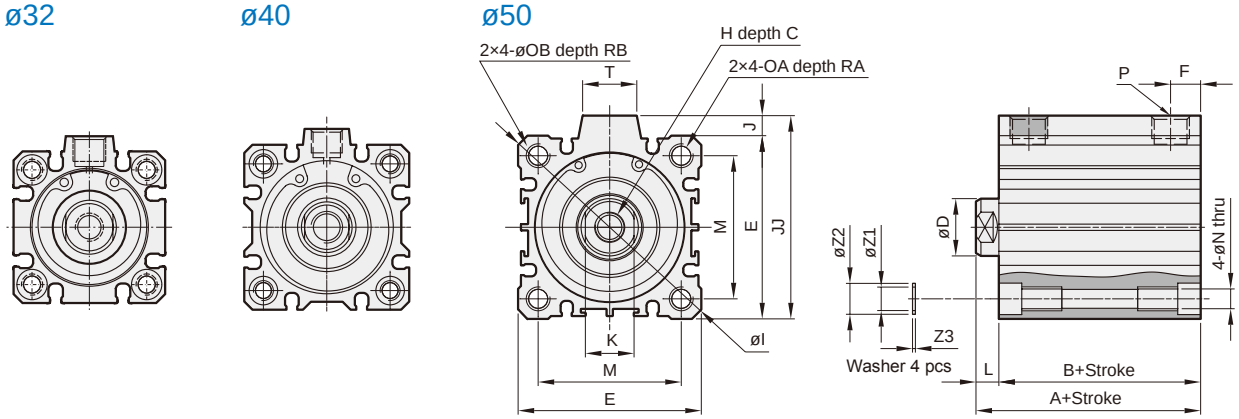
Code / Tube I.D.	Standard stroke					C	D	E	H	I	J	JJ	K	L	M	N	OA	OB	P	Q	RA	RB	T	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet																						
		A	B	A	B																					
12	5,10	30.5	27	35.5	32	6	6	25	M3×0.5	32	–	–	5	3.5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
16	5,10	35.5	32	40.5	37	8	8	29	M4×0.7	38	–	–	6	3.5	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
20	5,10	34	29.5	44	39.5	7	10	36	M5×0.8	47	–	–	8	4.5	25.5	5.4	M6×1.0	9	M5×0.8	9	10	7	–	6.2	8.8	1
25	5,10	47.5	42.5	57.5	52.5	12	12	40	M6×1.0	52	–	–	10	5	28	5.4	M6×1.0	9	M5×0.8	11	10	7	–	6.2	8.8	1
32	5,10	55	48	65	58	13	16	45	M8×1.25	60	4.5	49.5	14	7	34	5.5	M6×1.0	9	Rc1/8	10.5	10	7	14	6.2	8.8	1
40	5,10	61.5	54.5	71.5	64.5	13	16	52	M8×1.25	70	5	57	14	7	40	5.5	M6×1.0	9	Rc1/8	11	10	7	14	6.2	8.8	1
50	5~20	38.5	30.5	48.5	40.5	15	20	64	M10×1.5	86	7	71	17	8	50	6.5	M8×1.25	11	Rc1/4 (*1)	10.5	14	8	19	8.2	10.8	1

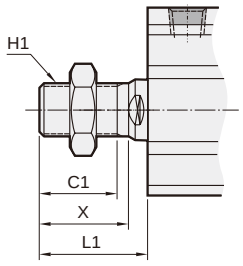
*1. Without magnet with stroke=5mm, P=Rc1/8, Q=12

ø12 ø16 ø20, ø25



ø32 ø40 ø50





* L1: Standard stroke

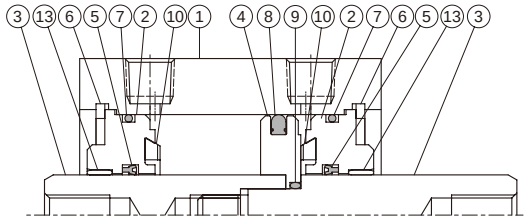
MCJQ-15 male thread size

Code / Tube I.D.	C1	H1	L1	X
12	9	M5×0.8	14	10.5
16	10	M6×1.0	15.5	12
20	12	M8×1.25	18.5	14
25	15	M10×1.25	22.5	17.5
32	20.5	M14×1.5	28.5	23.5
40	20.5	M14×1.5	28.5	23.5
50	26	M18×1.5	33.5	28.5

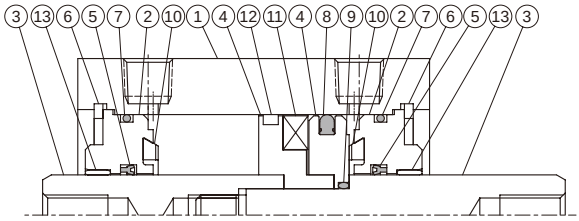
Code / Tube I.D.	Standard stroke					C	D	E	F	H	I	J	JJ	K	L	M	N	OA	OB	P	RA	RB	T	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet																						
		A	B	A	B																					
12	5,10	20.5	17	25.5	22	6	6	25	5	M3×0.5	32	–	–	5	3.5	15.5	3.5	M4×0.7	6.5	M5×0.8	7	4	–	4.2	6.3	0.5
16	5,10	20.5	17	25.5	22	8	8	29	5	M4×0.7	38	–	–	6	3.5	20	3.5	M4×0.7	6.5	M5×0.8	7	4	–	4.2	6.3	0.5
20	5,10	24	19.5	34	29.5	7	10	36	5.5	M5×0.8	47	–	–	8	4.5	25.5	5.4	M6×1.0	9	M5×0.8	10	7	–	6.2	8.8	1
25	5,10	27.5	22.5	37.5	32.5	12	12	40	5.5	M6×1.0	52	–	–	10	5	28	5.4	M6×1.0	9	M5×0.8	10	7	–	6.2	8.8	1
32	5,10	30	23	40	33	13	16	45	7.5	M8×1.25	60	4.5	49.5	14	7	34	5.5	M6×1.0	9	Rc1/8 (*1)	10	7	14	6.2	8.8	1
40	5,10	36.5	29.5	46.5	39.5	13	16	52	8	M8×1.25	70	5	57	14	7	40	5.5	M6×1.0	9	Rc1/8	10	7	14	6.2	8.8	1
50	5~20	38.5	30.5	48.5	40.5	15	20	64	10.5	M10×1.5	86	7	71	17	8	50	6.5	M8×1.25	11	Rc1/4 (*2)	14	8	19	8.2	10.8	1

*1. Without magnet with stroke=5mm, P=M5×0.8, F=5.5
*2. Without magnet with stroke=5mm, P=Rc1/8, F=8

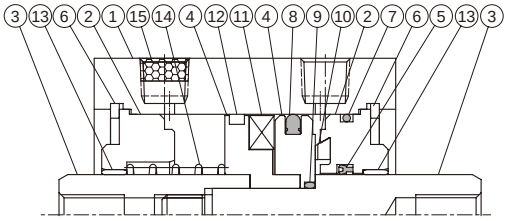
Double acting



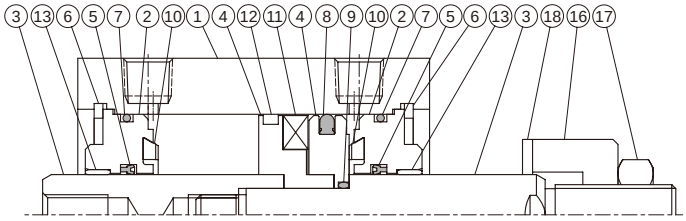
Double acting (with magnet)



Single acting



Adjustable stroke



Material

No.	Tube I.D. / Part name		12	16	20	25	32	40	50	63	80	100	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body		Aluminum alloy										Hard anodized	1		
2	Rod cover		Aluminum alloy										*1	2	●	
3	Piston rod	With magnet	Stainless steel					Carbor steel						2		
		Without magnet	SUS	Carbor steel										2		
4	Piston		Aluminum alloy											1	●	
5	Rod packing		NBR											2	●	●
6	Snap ring		Stainless steel					Spring steel						2	●	
7	Cover ring		NBR										*2	2	●	●
8	Piston packing		NBR											1	●	●
9	Piston gasket		NBR											1	●	●
10	Cushion packing		NBR											2	●	●
11	Magnet		Magnet											1	●	
12	Wear ring		–				Teflon							1	●	
13	Bush		–					Bearing alloy						2	●	
14	Spring		SWP							–				1	●	
15	Silencer		Brass							–				1	●	
16	Adjustble nut		Carbor steel											1	●	
17	Hexagon nut		Carbor steel											1	●	
18	Cushion packing		PU											1	●	

*1. ø12~ø32 hard anodized, ø40~ø100 anodized. *2. Single acting (Q'y=1 pc)

Seal kit

	Rod packing		Piston packing		Cover ring		Piston gasket
Acting type	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting Single acting
Q'y	2	1	1	1	2	1	1
ø12	KSYR-6	KSYR-6	OPA-12	OPA-12	S-11	S-11	d4×w1
ø16	KSYR-8	KSYR-8	OPA-16	OPA-16	S-14	S-14	d6×w1
ø20	KSYR-10A	KSYR-10A	OPA-20	OPA-20	S-18	S-18	d6×w1
ø25	KSYR-12	KSYR-12	OPA-25	OPA-25	S-22	S-22	S-9
ø32	KSYR-16	KSYR-16	OPA-32	OPA-32	d28×w2	d28×w2	d11×w1
ø40	KSYR-16	KSYR-16	OPA-40	OPA-40	S-36	S-36	S-10
ø50	KSYR-20	KSYR-20	OPA-50	OPA-50	S-46	S-46	S-16
ø63	KSYR-20	–	OPA-63	–	S-60	–	S-14
ø80	ORA-25	–	OPA-80	–	G-75	–	d20×w1
ø100	ORA-30	–	OPA-100	–	G-95	–	S-24

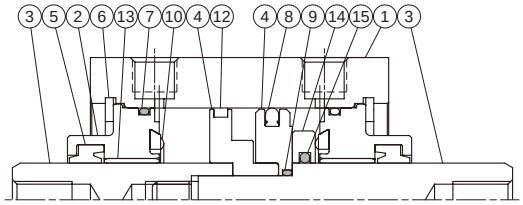
Order example

Component parts / Repair kits

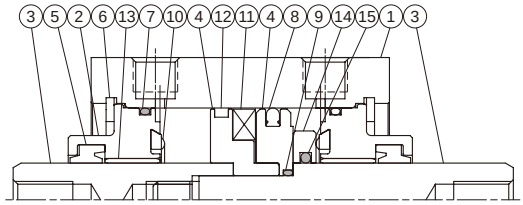
Tube I.D.	Component parts	Repair kits
ø12	**CP-MCJQ-2-12(M)**	**PS-MCJQ-2-12**
ø16	**CP-MCJQ-2-16(M)**	**PS-MCJQ-2-16**
ø20	**CP-MCJQ-2-20(M)**	**PS-MCJQ-2-20**
ø25	**CP-MCJQ-2-25(M)**	**PS-MCJQ-2-25**
ø32	**CP-MCJQ-2-32(M)**	**PS-MCJQ-2-32**
ø40	**CP-MCJQ-2-40(M)**	**PS-MCJQ-2-40**
ø50	**CP-MCJQ-2-50(M)**	**PS-MCJQ-2-50**
ø63	**CP-MCJQ-2-63(M)**	**PS-MCJQ-2-63**
ø80	**CP-MCJQ-2-80(M)**	**PS-MCJQ-2-80**
ø100	**CP-MCJQ-2-100(M)**	**PS-MCJQ-2-100**

M: With magnet

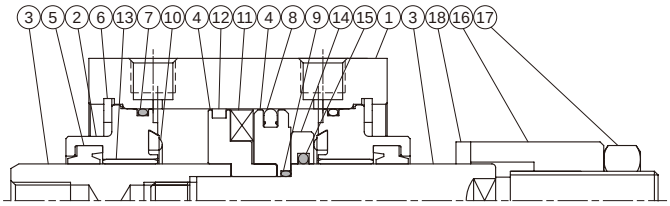
Double acting



Double acting (with magnet)



Adjustable stroke



Long stroke – Material

No.	Tube I.D. / Part name		12	16	20	25	32	40	50	63	80	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body		Aluminum alloy									Hard anodized	1		
2	Rod cover		Aluminum alloy									*	2	●	
3	Piston rod	With magnet	Stainless steel				Carbor steel						2		
		Without magnet	SUS	Carbor steel									2		
4	Piston		Aluminum alloy										2	●	
5	Rod packing		NBR										2	●	●
6	Snap ring		Stainless steel					Spring steel					2	●	
7	Cover ring		NBR										2	●	●
8	Piston packing		NBR										1	●	●
9	Piston gasket		NBR										1	●	●
10	Cushion packing		–	NBR									2	●	●
11	Magnet		Magnet										1	●	
12	Wear ring		–					Teflon					1	●	
13	Bush		–					Bearing alloy					2	●	
14	Sub-piston		–	PU			Aluminum alloy						1	●	
15	Sub-piston gasket		–				NBR						1	●	●
16	Adjust nut		Carbor steel										1	●	
17	Hexagon nut		Carbor steel										1	●	
18	Cushion gasket		PU										1	●	

* ø12~ø32 hard anodized, ø40~ø80 anodized.

Long stroke – Seal kit

	Rod packing	Piston packing	Cover ring	Piston gasket	Sub-piston gasket
Acting type	Double acting				
Q'y	2	1	2	1	1
ø12	KSYR-6	OPA-12	S-11	d4×w1	–
ø16	KSYR-8	OPA-16	S-14	d5×w1	–
ø20	KSYR-10A	OPA-20	S-18	d6×w1	–
ø25	KSYR-12	OPA-25	S-22	S-9	–
ø32	KSYR-16	OPA-32	d28×w2	d11×w1	P-16
ø40	ORA-16	OPA-40	S-36	S-10	P-16
ø50	ORA-20	OPA-50	S-46	S-16	P-20
ø63	ORA-20	OPA-63	S-60	S-14	P-20
ø80	ORA-25	OPA-80	G-75	S-18	S-25

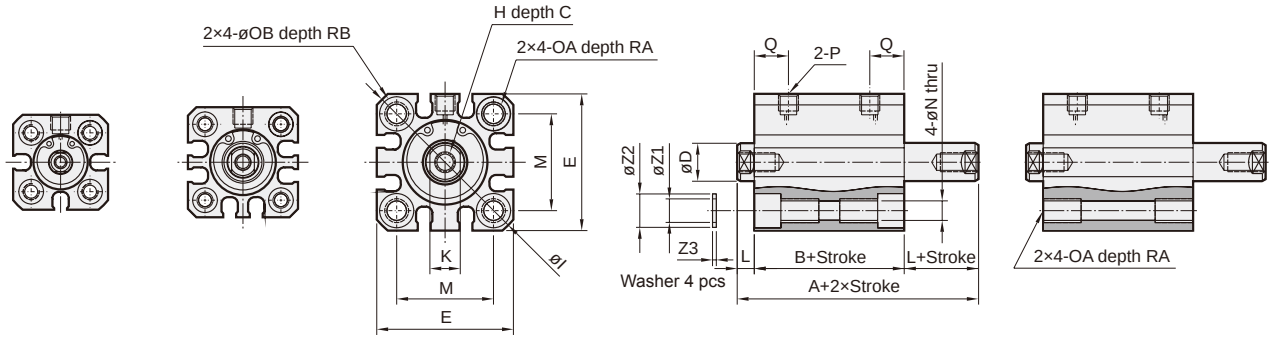
Order example

Component parts / Repair kits

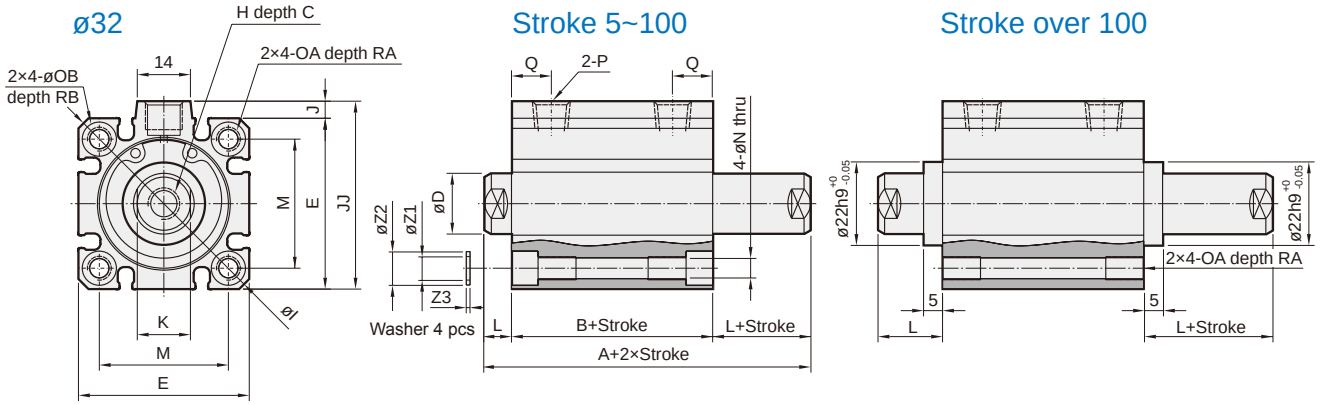
Tube I.D.	Component parts	Repair kits
ø12	**CPL-MCJQ-2-12(M)**	**PSL-MCJQ-2-12**
ø16	**CPL-MCJQ-2-16(M)**	**PSL-MCJQ-2-16**
ø20	**CPL-MCJQ-2-20(M)**	**PSL-MCJQ-2-20**
ø25	**CPL-MCJQ-2-25(M)**	**PSL-MCJQ-2-25**
ø32	**CPL-MCJQ-2-32(M)**	**PSL-MCJQ-2-32**
ø40	**CPL-MCJQ-2-40(M)**	**PSL-MCJQ-2-40**
ø50	**CPL-MCJQ-2-50(M)**	**PSL-MCJQ-2-50**
ø63	**CPL-MCJQ-2-63(M)**	**PSL-MCJQ-2-63**
ø80	**CPL-MCJQ-2-80(M)**	**PSL-MCJQ-2-80**

M: With magnet

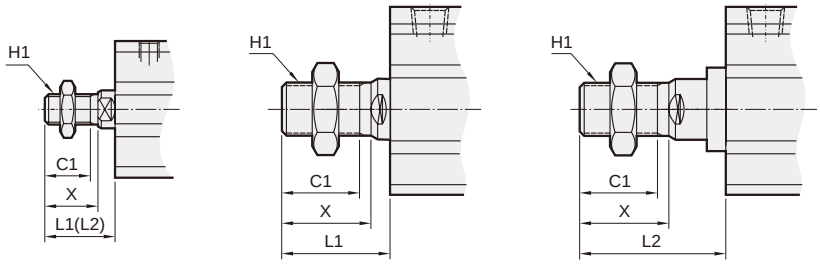
ø12 ø16 ø20, ø25 Stroke 5~100 Stroke over 100



ø32 Stroke 5~100 Stroke over 100



ø12~25 ø32 for stroke 5~100 ø32 for stroke over 100



* L1: Standard stroke, L2: Long stroke

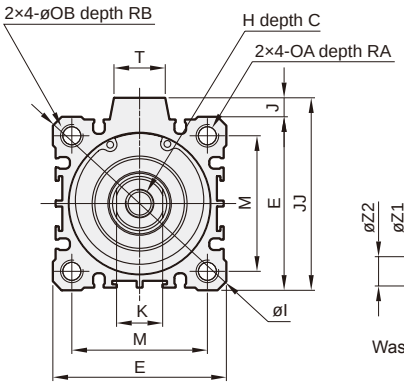
MCJQ-21 male thread size

Code / Tube I.D.	C1	H1	L1	L2	X
12	9	M5×0.8	14	24	10.5
16	10	M6×1.0	15.5	25.5	12
20	12	M8×1.25	18.5	28.5	14
25	15	M10×1.25	22.5	32.5	17.5
32	20.5	M14×1.5	28.5	38.5	23.5

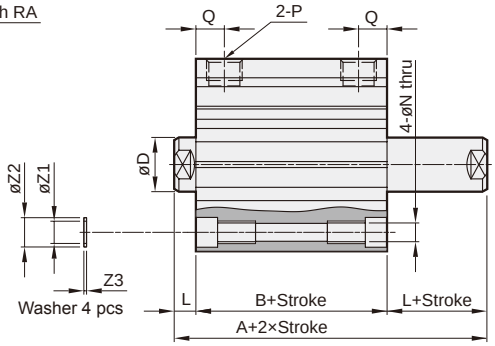
Code / Tube I.D.	Standard stroke							Long stroke				C	D	E	H	I	J	JJ	K	M	N	OA	OB	P	Q	RA	RB	Z1	Z2	Z3
	Stroke range	Without magnet			Magnet			Stroke range	A	B	L																			
		A	B	L	A	B	L																							
12	5~30	29	22	3.5	34	27	3.5	31~100	59	32	13.5	6	6	25	M3×0.5	32	–	–	5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
16	5~30	29	22	3.5	34	27	3.5	31~100	59	32	13.5	8	8	29	M4×0.7	38	–	–	6	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
20	5~50	35	26	4.5	45	36	4.5	51~200	70	41	14.5	7	10	36	M5×0.8	47	–	–	8	25.5	5.4	M6×1.0	9	M5×0.8	9	10	7	6.2	8.8	1
25	5~50	39	29	5	49	39	5	51~300	74	44	15	12	12	40	M6×1.0	52	–	–	10	28	5.4	M6×1.0	9	M5×0.8	11	10	7	6.2	8.8	1
32	5~50	44.5	30.5	7	54.5	40.5	7	101~300	79.5	45.5	17	13	16	45	M8×1.25	60	4.5	49.5	14	34	5.5	M6×1.0	9	Rc1/8 (*1)	12.5	10	7	6.2	8.8	1
	51~100	54.5	40.5	7	54.5	40.5	7																							

*1. Without magnet with stroke=5mm, P=M5×0.8

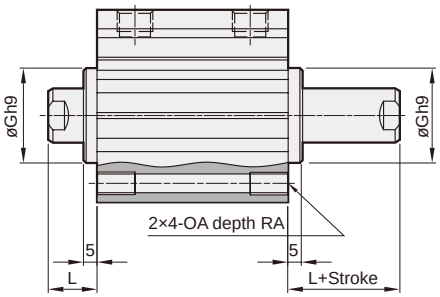
ø50~ø100



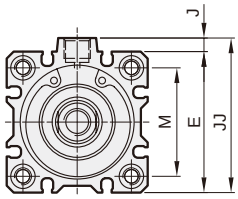
Stroke 5~100



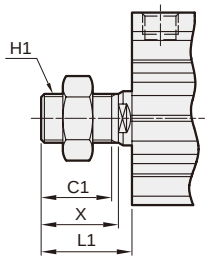
Stroke over 100



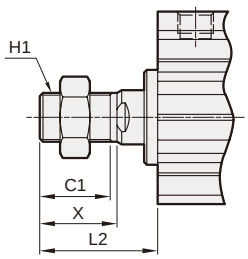
ø40



ø40~ø100 (Stroke 5~100)



ø40~ø80 (Stroke over 100)



MCJQ-21 male thread size

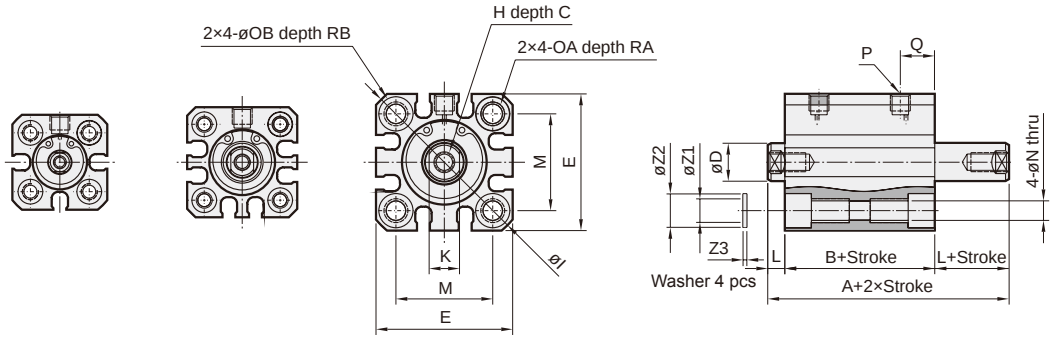
Code / Tube I.D.	C1	H1	L1	L2	X
40	20.5	M14×1.5	28.5	38.5	23.5
50	26	M18×1.5	33.5	43.5	28.5
63	26	M18×1.5	33.5	43.5	28.5
80	32.5	M22×1.5	43.5	53.5	35.5
100	32.5	M26×1.5	43.5	–	35.5

Code / Tube I.D.	Standard stroke							Long stroke				
	Stroke range	Without magnet A	Without magnet B	Magnet A	Magnet B	L	Q	Stroke range	A	B	L	Q
40	5~50	54	40	64	50	7	14	101~300	89	55	17	14
	51~100	64	50									
50	5~50	56.5	40.5	66.5	50.5	8	14	101~300	91.5	55.5	18	14
	51~100	66.5	50.5									
63	5~50	58	42	68	52	8	15.5	101~300	93	57	18	16.5
	51~100	68	52									
80	5~50	71	51	81	61	10	18	101~300	106	66	20	19
	51~100	81	61									
100	5~50	84.5	60.5	94.5	70.5	12	22	–				
	51~100	94.5	70.5									

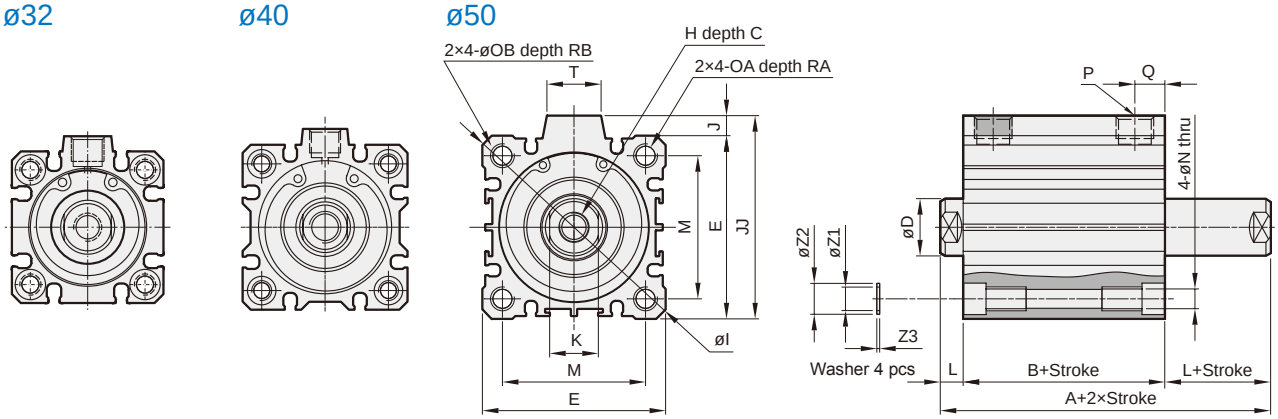
Code / Tube I.D.	C	D	E	G h9	H	I	J	JJ	K	M	N	OA	OB	P	RA	RB	T	Z1	Z2	Z3
40	13	16	52	28 $^{+0}_{-0.052}$	M8×1.25	70	5	57	14	40	5.5	M6×1.0	9	Rc1/8	10	7	14	6.2	8.8	1
50	15	20	64	35 $^{+0}_{-0.062}$	M10×1.5	86	7	71	17	50	6.6	M8×1.25	11	Rc1/4	14	8	19	8.2	10.8	1
63	15	20	77	35 $^{+0}_{-0.062}$	M10×1.5	103	7	84	17	60	9	M10×1.5	14	Rc1/4 (*1)	18	10.5	19	10.2	13.8	1
80	21	25	98	43 $^{+0}_{-0.062}$	M16×2.0	132	6	104	22	77	11	M12×1.75	17.5	Rc3/8 (*2)	22	13.5	26	12.2	17.3	2
100	27	30	117	–	M20×2.5	156	6.5	123.5	27	94	11	M12×1.75	17.5	Rc3/8 (*2)	22	13.5	26	12.2	17.3	2

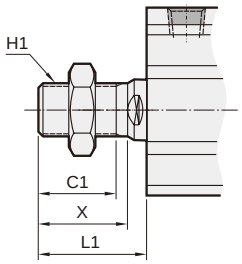
*1. Without magnet with stroke=5mm, P=Rc1/8
*2. Without magnet with stroke=5mm, P=Rc1/4

ø12 ø16 ø20, ø25



ø32 ø40 ø50





* L1: Standard stroke

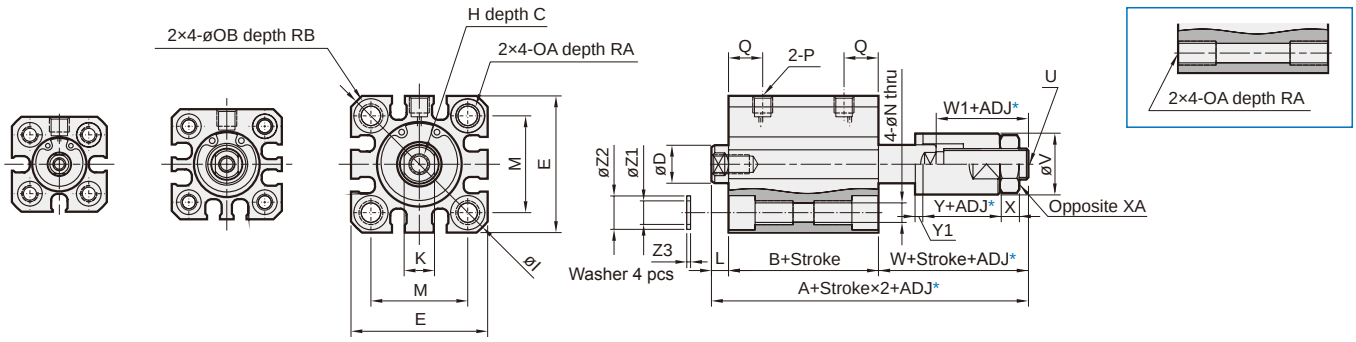
MCJQ-23 male thread size

Code / Tube I.D.	C1	H1	L1	X
12	9	M5×0.8	14	10.5
16	10	M6×1.0	15.5	12
20	12	M8×1.25	18.5	14
25	15	M10×1.25	22.5	17.5
32	20.5	M14×1.5	28.5	23.5
40	20.5	M14×1.5	28.5	23.5
50	26	M18×1.5	33.5	28.5

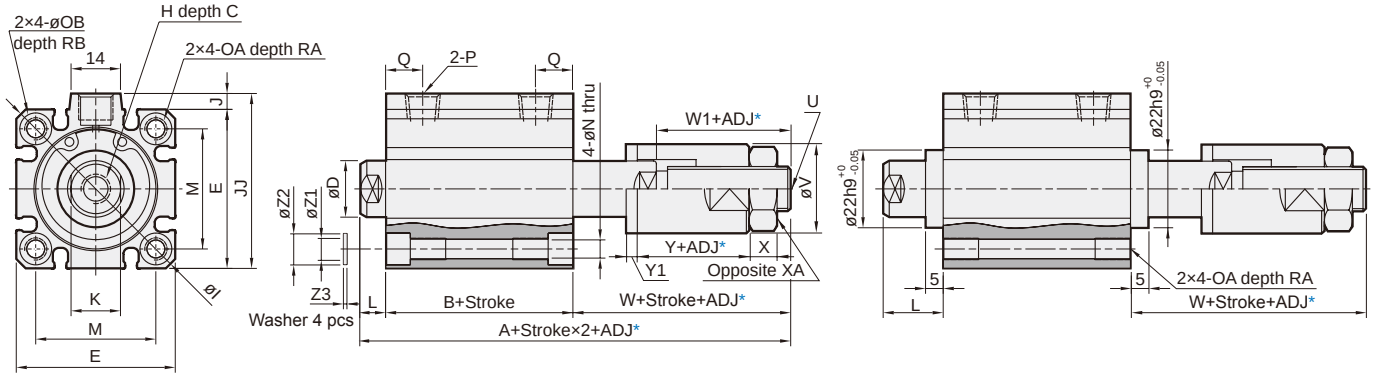
Code / Tube I.D.	Standard stroke					C	D	E	H	I	J	JJ	K	L	M	N	OA	OB	P	Q	RA	RB	T	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet																						
		A	B	A	B																					
12	5,10	29	22	34	27	6	6	25	M3×0.5	32	–	–	5	3.5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
16	5,10	29	22	34	27	8	8	29	M4×0.7	38	–	–	6	3.5	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
20	5,10	35	26	45	36	7	10	36	M5×0.8	47	–	–	8	4.5	25.5	5.4	M6×1.0	9	M5×0.8	9	10	7	–	6.2	8.8	1
25	5,10	39	29	49	39	12	12	40	M6×1.0	52	–	–	10	5	28	5.4	M6×1.0	9	M5×0.8	11	10	7	–	6.2	8.8	1
32	5,10	44.5	30.5	54.5	40.5	13	16	45	M8×1.25	60	4.5	49.5	14	7	34	5.5	M6×1.0	9	Rc1/8 (*1)	12.5	10	7	14	6.2	8.8	1
40	5,10	54	40	64	50	13	16	52	M8×1.25	70	5	57	14	7	40	5.5	M6×1.0	9	Rc1/8	14	10	7	14	6.2	8.8	1
50	5~20	56.5	40.5	66.5	50.5	15	20	64	M10×1.5	86	7	71	17	8	50	6.5	M8×1.25	11	Rc1/4	14	14	8	19	8.2	10.8	1

*1. Without magnet with stroke=5mm, P=M5×0.8

ø12 ø16 ø20, ø25 Stroke 5~100 Stroke over 100

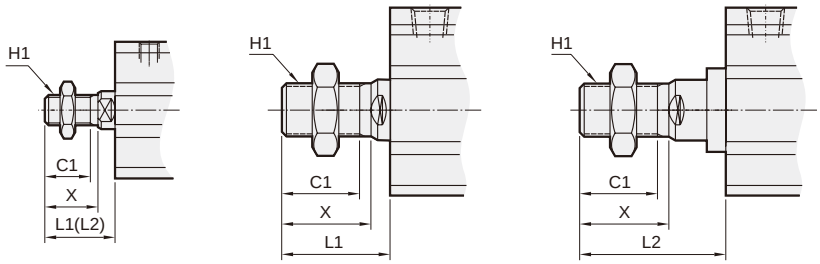


ø32 Stroke 5~100 Stroke over 100



* ADJ: Adjustable stroke

ø12~25 ø32 for stroke 5~100 ø32 for stroke over 100



* L1: Standard stroke, L2: Long stroke

MCJQ-27 male thread size

Code / Tube I.D.	C1	H1	L1	L2	X
12	9	M5×0.8	14	24	10.5
16	10	M6×1.0	15.5	25.5	12
20	12	M8×1.25	18.5	28.5	14
25	15	M10×1.25	22.5	32.5	17.5
32	20.5	M14×1.5	28.5	38.5	23.5

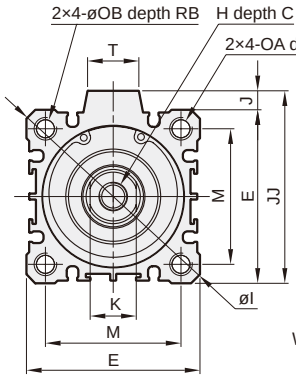
Code / Tube I.D.	Standard stroke						Long stroke				
	Stroke range	Without magnet		Magnet		L	W	Stroke range	A	B	L	W
		A	B	A	B							
12	5~30	45.5	22	50.5	27	3.5	20	31~100	65.5	32	13.5	20
16	5~30	49	22	54	27	3.5	23.5	31~100	69	32	13.5	23.5
20	5~50	54.3	26	64.3	36	4.5	23.8	51~200	79.3	41	14.5	23.8
25	5~50	56.5	29	66.5	39	5	22.5	51~300	81.5	44	15	22.5
32	5~50	60.9	30.5	70.9	40.5	7	23.4	101~300	91.5	45.5	17	29
	51~100	70.9	40.5									

*1. Without magnet with stroke=5mm, P=M5×0.8

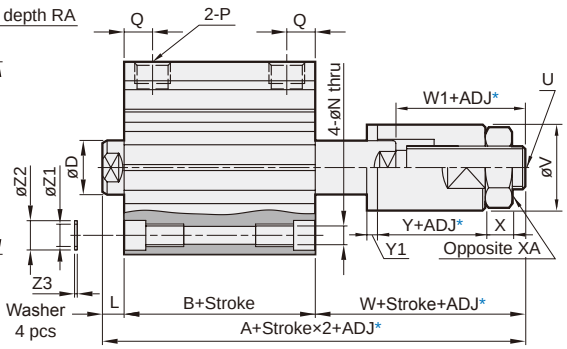
Code / Tube I.D.	C	D	E	H	I	J	JJ	K	M	N	OA	OB	P	Q
12	6	6	25	M3×0.5	32	–	–	5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5
16	8	8	29	M4×0.7	38	–	–	6	20	3.5	M4×0.7	6.5	M5×0.8	7.5
20	7	10	36	M5×0.8	47	–	–	8	25.5	5.4	M6×1.0	9	M5×0.8	9
25	12	12	40	M6×1.0	52	–	–	10	28	5.4	M6×1.0	9	M5×0.8	11
32	13	16	45	M8×1.25	60	4.5	49.5	14	34	5.5	M6×1.0	9	Rc1/8 (*1)	12.5

Code / Tube I.D.	RA	RB	U	V	W1	X	XA	Y	Y1	Z1	Z2	Z3
12	7	4	M5×0.8	12	16	4	8	13	2	4.2	6.3	0.5
16	7	4	M8×1.25	16	19	5	13	15	2	4.2	6.3	0.5
20	10	7	M8×1.25	16	19	5	13	15	2	6.2	8.8	1
25	10	7	M10×1.25	20	18	6	17	12	2	6.2	8.8	1
32	10	7	M12×1.25	30	19	7	19	12	2	6.2	8.8	1

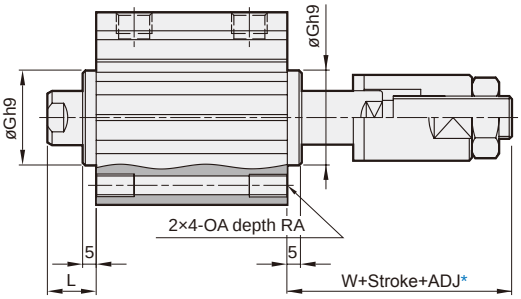
ø50~ø100



Stroke 5~100

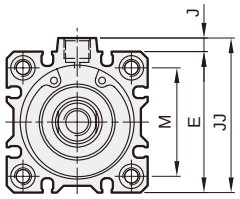


Stroke over 100

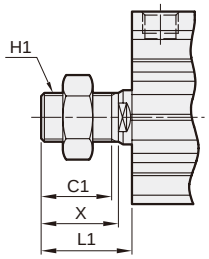


* ADJ: Adjustable stroke

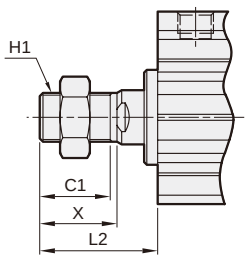
ø40



ø40~ø100 (Stroke 5~100)



ø40~ø80 (Stroke over 100)



MCJQ-27 male thread size

Code / Tube I.D.	C1	H1	L1	L2	X
40	20.5	M14×1.5	28.5	38.5	23.5
50	26	M18×1.5	33.5	43.5	28.5
63	26	M18×1.5	33.5	43.5	28.5
80	32.5	M22×1.5	43.5	53.5	35.5
100	32.5	M26×1.5	43.5	–	35.5

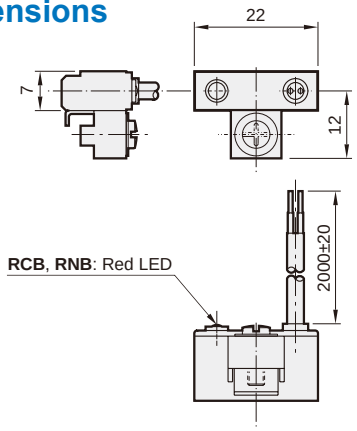
Code / Tube I.D.	Standard stroke								Long stroke					
	Stroke range	Without magnet		Magnet		L	Q	W	Stroke range	A	B	L	Q	W
		A	B	A	B									
40	5~50	71	40	81	50	7	14	24	101~300	102.5	55	17	14	30.5
	51~100	81	50											
50	5~50	75	40.5	85	50.5	8	14	26.5	101~300	105.5	55.5	18	14	32
	51~100	85	50.5											
63	5~50	80	42	90	52	8	15.5	30	101~300	110	57	18	16.5	35
	51~100	90	52											
80	5~50	100	51	110	61	10	18	39	101~300	130	66	20	19	44
	51~100	110	61											
100	5~50	111	60.5	121	70.5	12	22	38.5	–					
	51~100	121	70.5											

Code / Tube I.D.	C	D	E	G^{h9}	H	I	J	JJ	K	M	N	OA	OB	P	RA	RB	T	U	V	W1	X	XA	Y	Y1	Z1	Z2	Z3
40	13	16	52	28 $^{+0}_{-0.052}$	M8×1.25	70	5	57	14	40	5.5	M6×1.0	9	Rc1/8	10	7	14	M12×1.25	30	21	7	19	12	2	6.2	8.8	1
50	15	20	64	35 $^{+0}_{-0.062}$	M10×1.5	86	7	71	17	50	6.6	M8×1.25	11	Rc1/4	14	8	19	M16×1.5	40	22.5	8	24	15	2	8.2	10.8	1
63	15	20	77	35 $^{+0}_{-0.062}$	M10×1.5	103	7	84	17	60	9	M10×1.5	14	Rc1/4 (*1)	18	10.5	19	M16×1.5	40	25.5	8	24	15	2	10.2	13.8	1
80	21	25	98	43 $^{+0}_{-0.062}$	M16×2.0	132	6	104	22	77	11	M12×1.75	17.5	Rc3/8 (*2)	22	13.5	26	M22×1.5	50	33	13	32	20	3	12.2	17.3	2
100	27	30	117	–	M20×2.5	156	6.5	123.5	27	94	11	M12×1.75	17.5	Rc3/8 (*2)	22	13.5	26	M22×1.5	50	33	13	32	20	3	12.2	17.3	2

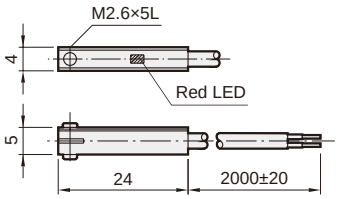
*1. Without magnet with stroke=5mm, P=Rc1/8
*2. Without magnet with stroke=5mm, P=Rc1/4

Dimensions

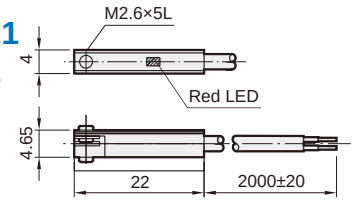
RCB
RNB



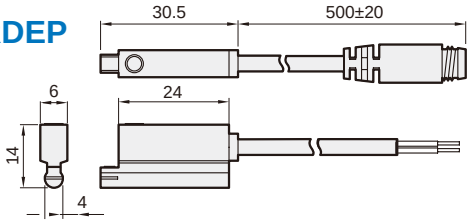
RCE



RCE1
RNE

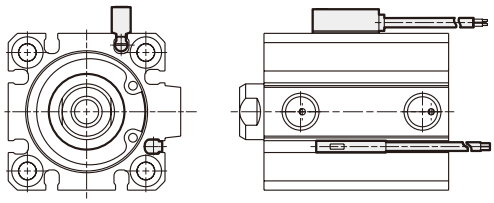


RDEP

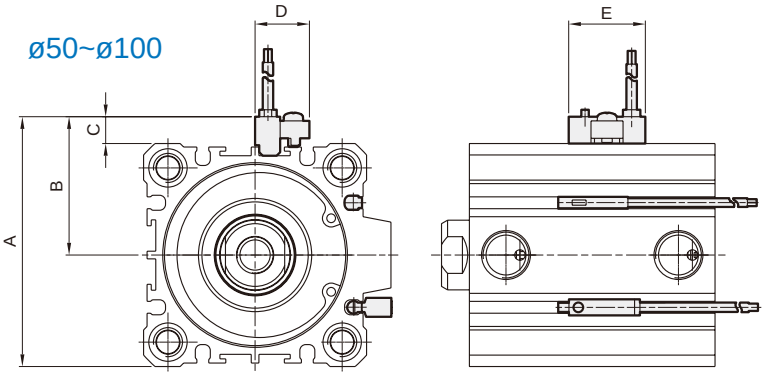


Installation of sensor switch

ø12~ø40



ø50~ø100



Order example

RCE1 — □

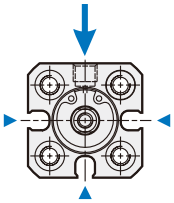
MODEL	WIRE LENGTH
RCB / RCE / RCE1 (C: Reed switch)	Blank: L=2000m
RNB / RNE (N: Solid state switch)	**1M**: L=1000m
RDEP (Solid state switch)	**QD**: M8 3Pin connector
	EQD: M8 3Pin connector

Code / Tube I.D.	A	B	C	D	E
50	72	40	8	16	22
63	85	46.5	8	16	22
80	106	57	8	16	22
100	125	66.5	8	16	22

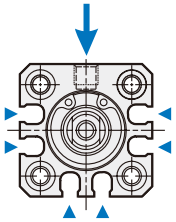
Description

▽ **RCB** switch ▼ **RCE, RCE1, RDEP switch** ↓ **Port**

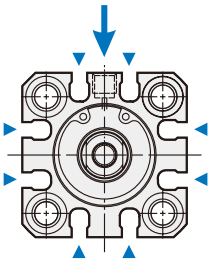
ø12



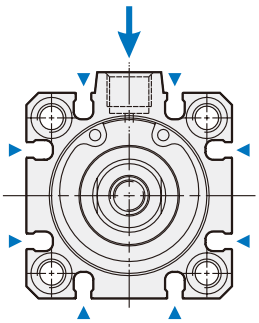
ø16



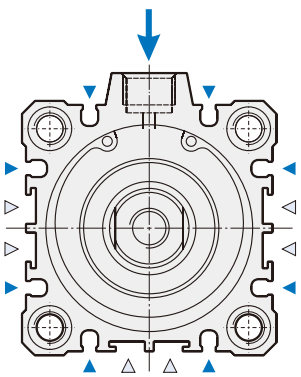
ø20, ø25



ø32, ø40

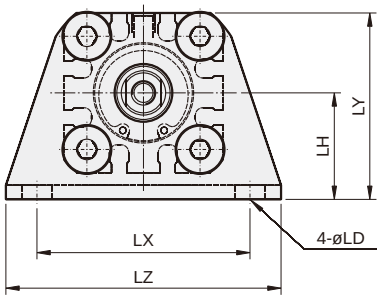


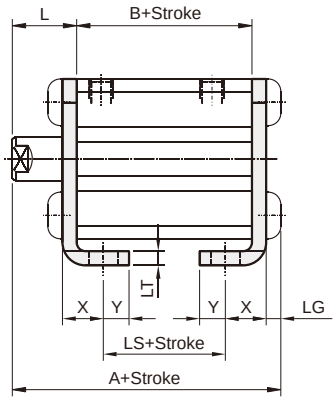
ø50~ø100



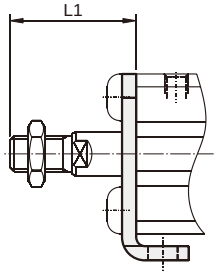
LB

Female thread





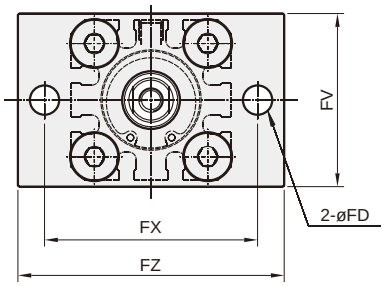
Male thread

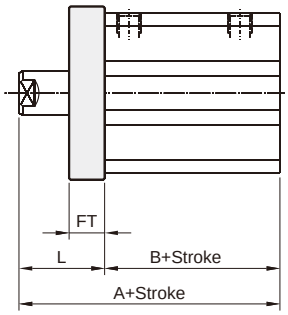


Code / Tube I.D.	Standard stroke							Long stroke				L	L1	LD	LG	LH	LT	LX	LY	LZ	X	Y
	Stroke range	Without magnet			Magnet			Stroke range	A	B	LS											
		A	B	LS	A	B	LS															
12	5~30	35.3	17	5	40.3	22	10	35~100	50.3	32	20	13.5	24	4.5	2.8	17	2	34	29.5	44	8	4.5
16	5~30	35.3	17	5	40.3	22	10	35~100	50.3	32	20	13.5	25.5	4.5	2.8	19	2	38	33.5	48	8	5
20	5~50	41.2	19.5	7.5	51.2	29.5	17.5	75~200	62.7	41	29	14.5	28.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25	5~50	44.7	22.5	7.5	54.7	32.5	17.5	75~300	66.2	44	29	15	32.5	6.6	4	26	3.2	52	46	66	10.7	5.8

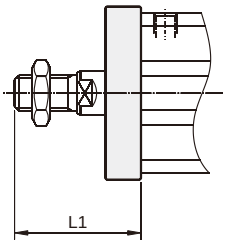
FAC

Female thread





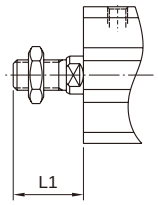
Male thread



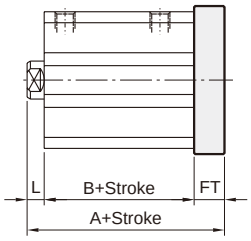
Code / Tube I.D.	Standard stroke					Long stroke			FD	FT	FV	FX	FZ	L	L1
	Stroke range	Without magnet		Magnet		Stroke range	A	B							
		A	B	A	B										
12	5~30	30.5	17	35.5	22	35~100	45.5	32	4.5	5.5	25	45	55	13.5	24
16	5~30	30.5	17	35.5	22	35~100	45.5	32	4.5	5.5	30	45	55	13.5	25.5
20	5~50	34	19.5	44	29.5	75~200	55.5	41	6.6	8	39	48	60	14.5	28.5
25	5~50	37.5	22.5	47.5	32.5	75~300	59	44	6.6	8	42	52	64	15	32.5

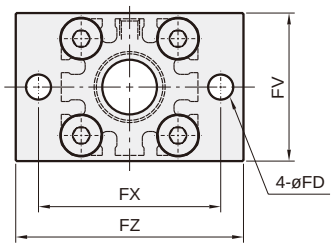
FBC

Male thread



Female thread

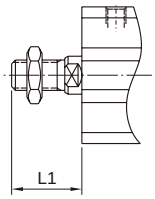




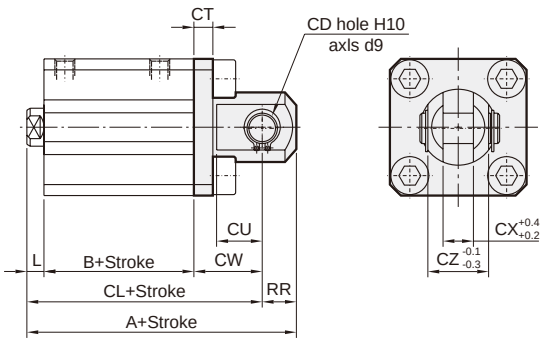
Code / Tube I.D.	Standard stroke									Long stroke					FD	FT	FV	FX	FZ
	Stroke range	Without magnet				Magnet				Stroke range	A	B	L	L1					
		A	B	L	L1	A	B	L	L1										
12	5~30	26	17	3.5	14	31	22	3.5	14	35~100	51	32	13.5	24	4.5	5.5	25	45	55
16	5~30	26	17	3.5	15.5	31	22	3.5	15.5	35~100	51	32	13.5	25.5	4.5	5.5	30	45	55
20	5~50	32	19.5	4.5	18.5	42	29.5	4.5	18.5	75~200	63.5	41	14.5	28.5	6.6	8	39	48	60
25	5~50	35.5	22.5	5	22.5	45.5	32.5	5	22.5	75~300	67	44	15	32.5	6.6	8	42	52	64

CB

Male thread



Female thread

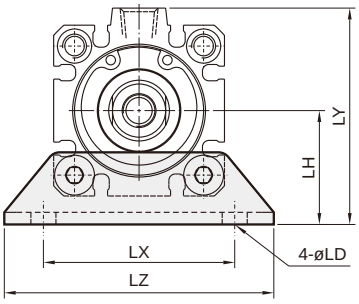


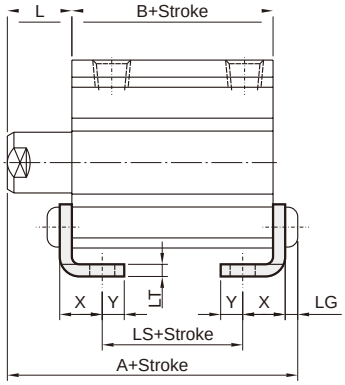
Code / Tube I.D.	Standard stroke										Long stroke						CD	CT	CU	CW	CX	CZ	RR
	Stroke range	Without magnet					Magnet				Stroke range	A	B	CL	L	L1							
		A	B	CL	L	L1	A	B	CL	L	L1													
12	5~30	40.5	17	34.5	3.5	14	45.5	22	39.5	3.5	14	35~100	65.5	32	59.5	13.5	24	5	4	7	14	5	10	6
16	5~30	41.5	17	35.5	3.5	15.5	46.5	22	40.5	3.5	15.5	35~100	66.5	32	60.5	13.5	25.5	5	4	10	15	6.5	12	6
20	5~50	51	19.5	42	4.5	18.5	61	29.5	52	4.5	18.5	75~200	82.5	41	73.5	14.5	28.5	8	5	12	18	8	16	9
25	5~50	57.5	22.5	47.5	5	22.5	67.5	32.5	57.5	5	22.5	75~300	89	44	79	15	32.5	10	5	14	20	10	20	10

LB

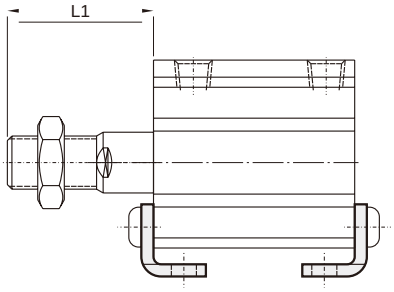
Standard stroke

Female thread



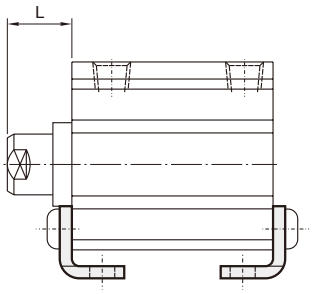


Male thread

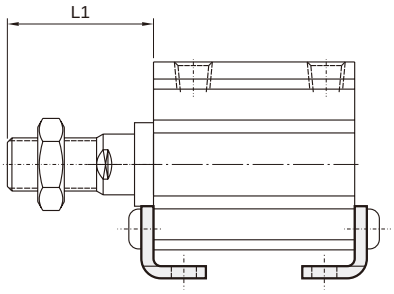


Long stroke

Female thread



Male thread

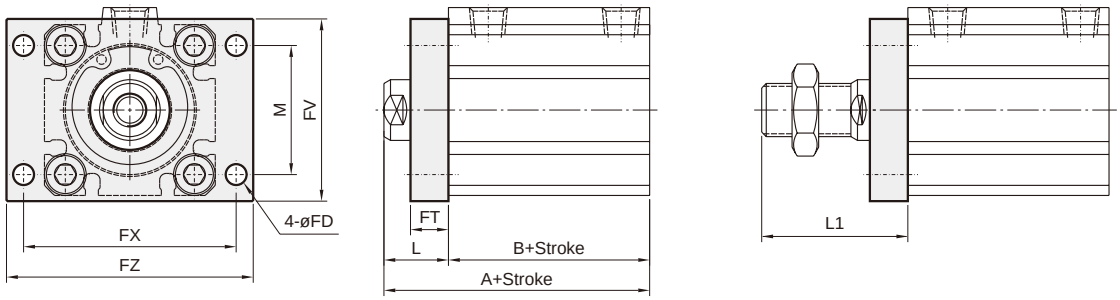


Code / Tube I.D.	Standard stroke							Long stroke				L	L1	LD	LG	LH	LT	LX	LY	LZ	X	Y
	Stroke range	Without magnet			Magnet			Stroke range	A	B	LS											
		A	B	LS	A	B	LS															
32	5~50	47.2	23	7	57.2	33	17	125~300	69.7	45.5	29.5	17	38.5	6.6	4	30	3.2	57	57	71	11.2	5.8
	75,100	57.2	33	17																		
40	5~50	53.7	29.5	13.5	63.7	39.5	23.5	125~300	79.2	55	39	17	38.5	6.6	4	33	3.2	64	64	78	11.2	7
	75,100	63.7	39.5	23.5																		
50	5~50	56.7	30.5	7.5	66.7	40.5	17.5	125~300	81.7	55.5	32.5	18	43.5	9	5	39	3.2	79	78	95	14.7	8
	75,100	66.7	40.5	17.5																		
63	5~50	62.2	36	10	72.2	46	20	125~300	83.2	57	31	18	43.5	11	5	46	3.2	95	91.5	113	16.2	9
	75,100	72.2	46	20																		
80	5~50	75	43.5	13.5	85	53.5	23.5	125~300	97.5	66	36	20	53.5	13	7	59	4.5	118	114	140	19.5	11
	75,100	85	53.5	23.5																		
100	5~50	88	53	19	98	63	29	125~300	–	–	–	22	53.5	13	7	71	6	137	136	162	23	12.5
	75,100	98	63	29																		

FAC

Female thread

Male thread

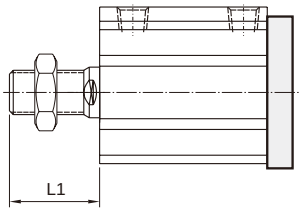


Code / Tube I.D.	Standard stroke					Long stroke			FD	FT	FV	FX	FZ	L	L1	M
	Stroke range	Without magnet		Magnet		Stroke range	A	B								
		A	B	A	B											
32	5~50	40	23	50	33	125~300	62.5	45.5	5.5	8	48	56	65	17	38.5	34
	75,100	50	33													
40	5~50	46.5	29.5	56.5	39.5	125~300	72	55	5.5	8	54	62	72	17	38.5	40
	75,100	56.5	39.5													
50	5~50	48.5	30.5	58.5	40.5	125~300	73.5	55.5	6.6	9	67	76	89	18	43.5	50
	75,100	58.5	40.5													
63	5~50	54	36	64	46	125~300	75	57	9	9	80	92	108	18	43.5	60
	75,100	64	46													
80	5~50	63.5	43.5	73.5	53.5	125~300	86	66	11	11	99	116	134	20	53.5	77
	75,100	73.5	53.5													
100	5~50	75	53	85	63	125~300	–	–	11	11	117	136	154	22	53.5	94
	75,100	85	63													

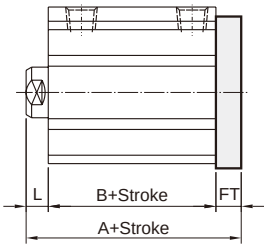
FBC

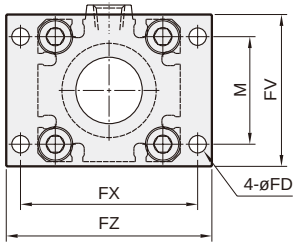
Standard stroke

Male thread



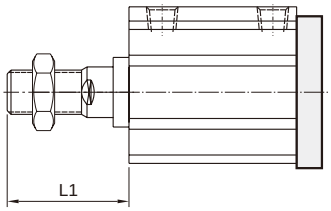
Female thread



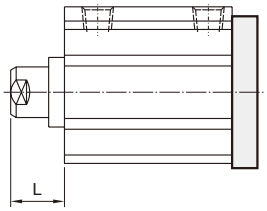


Long stroke

Male thread



Female thread

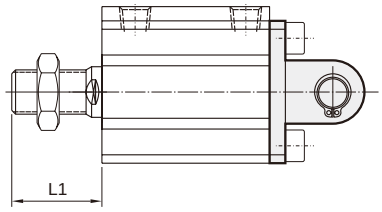


Code / Tube I.D.	Standard stroke							Long stroke					FD	FT	FV	FX	FZ	M
	Stroke range	Without magnet		Magnet		L	L1	Stroke range	A	B	L	L1						
		A	B	A	B													
32	5~50	38	23	48	33	7	28.5	125~300	70.5	45.5	17	38.5	5.5	8	48	56	65	34
	75,100	48	33															
40	5~50	44.5	29.5	54.5	39.5	7	28.5	125~300	80	55	17	38.5	5.5	8	54	62	72	40
	75,100	54.5	39.5															
50	5~50	47.5	30.5	57.5	40.5	8	33.5	125~300	82.5	55.5	18	43.5	6.6	9	67	76	89	50
	75,100	57.5	40.5															
63	5~50	53	36	63	46	8	33.5	125~300	84	57	18	43.5	9	9	80	92	108	60
	75,100	63	46															
80	5~50	64.5	43.5	74.5	53.5	10	43.5	125~300	97	66	20	53.5	11	11	99	116	134	77
	75,100	74.5	53.5															
100	5~50	76	53	86	63	12	43.5	125~300	–	–	–	–	11	11	117	136	154	94
	75,100	86	63															

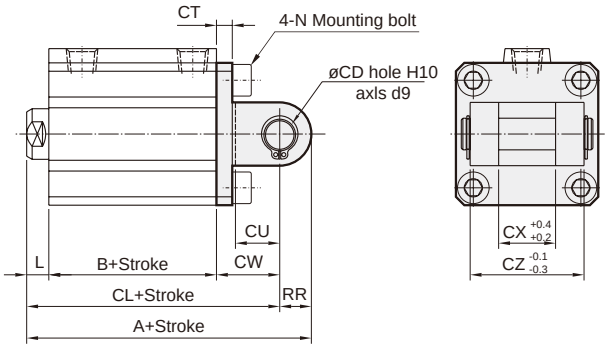
CB

Standard stroke

Male thread

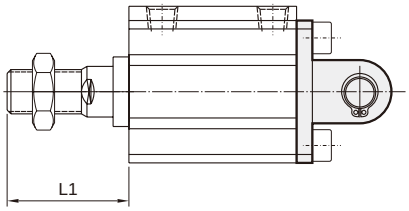


Female thread

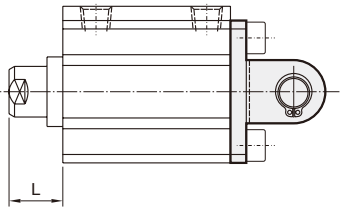


Long stroke

Male thread

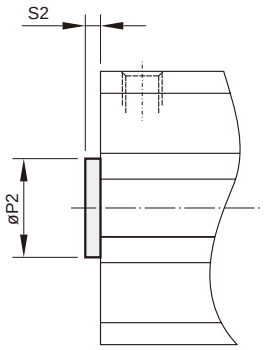


Female thread



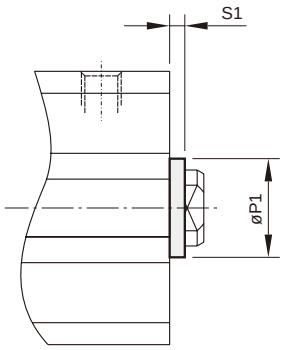
Code / Tube I.D.	Standard stroke									Long stroke						CD	CT	CU	CW	CX	CZ	N	RR
	Stroke range	Without magnet			Magnet			L	L1	Stroke range	A	B	CL	L	L1								
		A	B	CL	A	B	CL																
32	5~50	60	23	50	70	33	60	7	28.5	125~300	92.5	45.5	82.5	17	38.5	10	5	14	20	18	36	M6×1.0	10
	75,100	70	33	60																			
40	5~50	68.5	29.5	58.5	78.5	39.5	68.5	7	28.5	125~300	104	55	94	17	38.5	10	6	14	22	18	36	M6×1.0	10
	75,100	78.5	39.5	68.5																			
50	5~50	80.5	30.5	66.5	90.5	40.5	76.5	8	33.5	125~300	115.5	55.5	101.5	18	43.5	14	7	20	28	22	44	M8×1.25	14
	75,100	90.5	40.5	76.5																			
63	5~50	88	36	74	98	46	84	8	33.5	125~300	119	57	105	18	43.5	14	8	20	30	22	44	M10×1.5	14
	75,100	98	46	84																			
80	5~50	109.5	43.5	91.5	119.5	53.5	101.5	10	43.5	125~300	142	66	124	20	53.5	18	10	27	38	28	56	M12×1.75	18
	75,100	119.5	53.5	101.5																			
100	5~50	132	53	110	142	63	120	12	43.5	125~300	–	–	–	–	–	22	13	31	45	32	64	M12×1.75	22
	75,100	142	63	120																			

F Rear flange



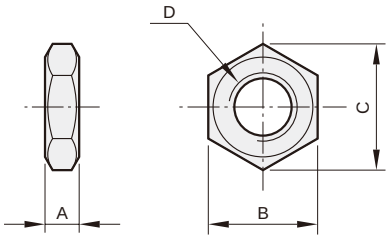
Code / Tube I.D.	P2 h9	S2
12	6	1.5
16	10	1.5
20	13	2
25	15	2
32	21	2
40	28	2
50	35	2
63	35	2
80	43	2
100	59	2

RF



Code / Tube I.D.	P1 h9	S1
12	15	1.5
16	20	1.5
20	13	2
25	15	2
32	21	2
40	28	2
50	35	2
63	35	2
80	43	2
100	59	2

Rod front nut



Code / Tube I.D.	A	B	C	D
12	4	8	9.2	M5×0.8
16	5	10	11.5	M6×1.0
20	5	13	15	M8×1.25
25	6	17	19.6	M10×1.25
32,40	8	22	25.4	M14×1.5
50,63	11	27	31.4	M18×1.5
80	13	32	37	M22×1.5
100	16	41	47.3	M26×1.5

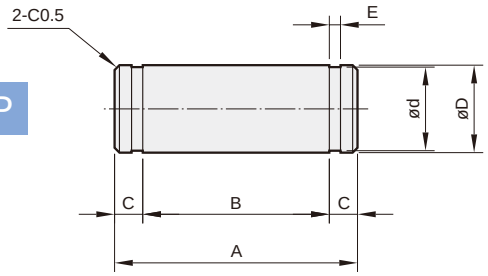
Pin for CB

Order example

PIN — MCJQ — 20 — CB — P

- PIN
- TUBE I.D.: **12** **16** **20** **25** **32** **40** **50** **63** **80** **100**
- TYPE: **CB**: for CB accessory
- **P**: With split pin

P



Code / Tube I.D.	A	B	C	øD d9	ød	E	Snap ring
12	14.6	10.2	2.2	5 -0.03 -0.06	4.8 0 -0.04	0.7 +0.10 0	STW-5
16	16.6	12.2	2.2	5 -0.03 -0.06	4.8 0 -0.04	0.7 +0.10 0	STW-5
20	21	16.2	2.4	8 -0.04 -0.08	7.6 0 -0.06	0.9 +0.10 0	STW-8
25	25.6	20.2	2.7	10 -0.04 -0.08	9.6 0 -0.06	1.15 +0.14 0	STW-10
32,40	41.6	36.2	2.7	10 -0.04 -0.08	9.6 0 -0.09	1.15 +0.14 0	STW-10
50,63	50.6	44.2	3.2	14 -0.05 -0.10	13.4 0 -0.11	1.15 +0.14 0	STW-14
80	64	56.2	3.9	18 -0.05 -0.10	17.0 0 -0.11	1.35 +0.14 0	STW-18
100	72	64.2	3.9	22 -0.07 -0.12	21.0 0 -0.21	1.35 +0.14 0	STW-22

Cylinder weight

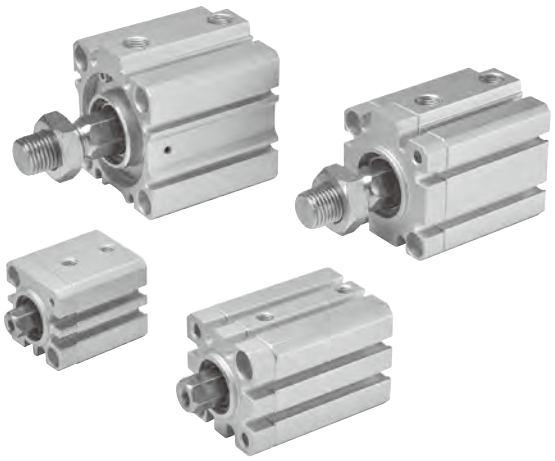
Unit: g

Model	Basic weight **MCJQ-11**	Basic weight (magnet) **MCJQ-11**	Stroke 5 mm **MCJQ-11**	Basic weight **MCJQ-12**	Basic weight (magnet) **MCJQ-12**	Stroke 5 mm **MCJQ-12**
Tube I.D.						
ø12	22	31	7	21	28	7
ø16	33	42	8	28	37	8
ø20	55	82	12	47	75	12
ø25	92	140	16	75	110	15
ø32	129	199	25	109	158	21
ø40	226	292	23	184	249	23
ø50	367	461	34	317	385	35
ø63	530	670	39	446	589	39
ø80	–	–	–	–	1042	63
ø100	–	–	–	–	1913	88

Accessories weight

Unit: g

Model	**LB**	**CB**	**FAC/FBC**	**F**	**RF**	**Pin**
Tube I.D.						
ø12	51	31	56	1	1	2
ø16	60	37	67	2	1	3
ø20	145	61	135	3	1	8
ø25	166	94	153	4	2	16
ø32	107	136	165	9	3	25
ø40	125	171	203	17	9	25
ø50	209	331	357	28	16	61
ø63	296	538	547	52	30	61
ø80	586	1034	1046	107	52	127
ø100	960	1765	1328	175	82	214



Features

- The profile designs are based on MCJQ.
- Hexagonal rods for non-rotating feature.
- Anodised aluminum tubes provie better corrosion and abrasion resistance.
- Stainless Steel rods for higher corrosion resistance.

Specification

Model	MCKJQ					
Acting type	Double acting					
Tube I.D. (mm)	12	16	20	25	32	40
Port size	M5×0.8				Rc1/8	
Medium	Air					
Operating perssure range	0.1~1 MPa		0.8~1 MPa		0.6~1 MPa	
Proof pressure	1.5 MPa					
Ambient temperature	-5°C~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Rod non-rotating accuracy	±1°		±0.7°		±0.5°	
Allowable rotational torque (kgf-cm)	0.4	2	2.5		4.5	
Sensor switch (*1)	RCE, RCE1, RDEP					

*1. RCE, RCE1, RDEP specification, please refer to page 8-11, 12, 17.
*2. The cylinder is allowed little leakage. Before the cylinder is sale, it has passed the standard of leakage test.

Table for standard stroke

Tube I.D.	Standard stroke
ø12, 16	5,10,15,20,25,30
ø20, 25 (*)	5,10,15,20,25,30,35,40,45,50,75,100
ø32, 40	

* Using long stroke type body when the cylinder stroke is longer than 51 mm.

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Order example

MCKJQ — 12 — 20 — 25 M — F — G

- MODEL
- STYLE — **1**: Single rod
- TUBE I.D.
- STROKE
- **M**: Magnet
- Blank: Standard; **F**: Rear flange
- PORT THREAD
  - Blank: M5×0.8 (for ø12~ø25)
  - Blank: Rc thread; **G**: G thread; **NPT**: NPT thread (for ø32, ø40)

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread

* Order example for special specification, refer to page 0-7.
* Please confirm the mounting method before purchase and contact our sales department (refer to page 2-47 "Plate mounting methods").

Mounting accessories

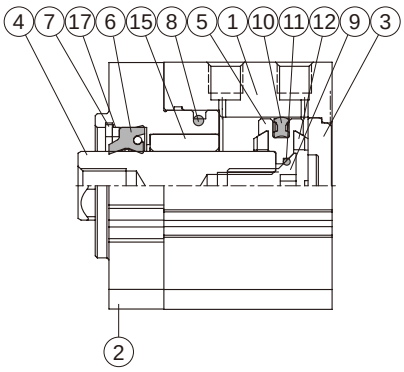
FAC — MCJQ — 40

- MOUNTING TYPE
- MODEL
- TUBE I.D. — **40**

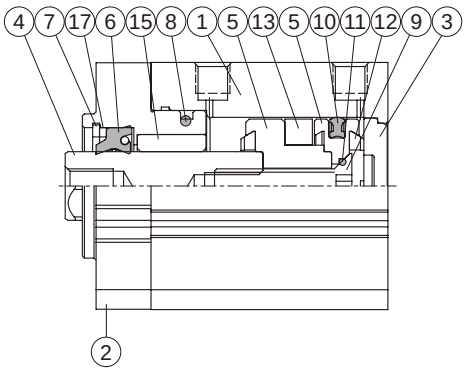
	LB
	CB
	FAC
	FBC

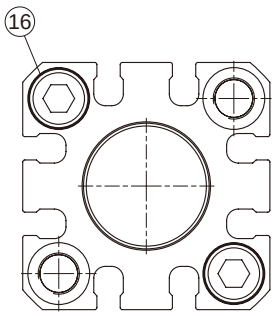
* Use the same accessories with MCJQ.
* The mounting accessories only for tube I.D. ø40.
* Refer to MCJQ dimension.

Standard stroke ø12~ø32

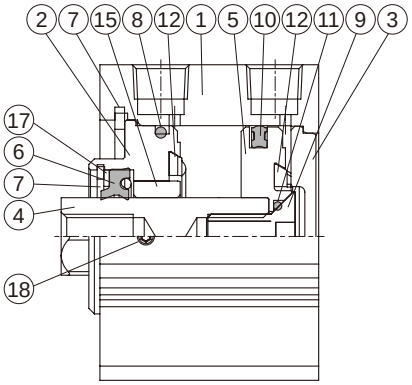


Standard stroke ø12~ø32 (with magnet)

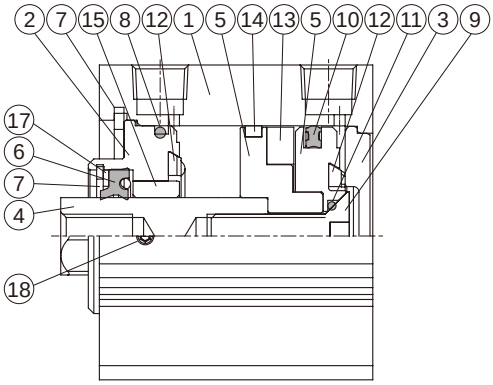




Standard stroke ø40



Standard stroke ø40 (with magnet)



Standard stroke – Material

No.	Tube I.D. / Part name	12	16	20	25	32	40	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body	Aluminum alloy						Hard anodized	1		
2	Rod cover	Aluminum alloy						Anodized	1	●	
3	End cover	Aluminum alloy						Anodized	1	●	
4	Piston rod	Stainless steel							1		
5	Piston	Aluminum alloy						ø12~32 Anodized	1	●	
6	Rod packing	NBR							1	●	●
7	Snap ring	Spring steel							1	●	
8	Cover ring	NBR							1	●	●
9	Piston bolt	Stainless steel					SCM		1	●	
10	Piston packing	NBR							1	●	●
11	Piston gasket	NBR							1	●	●
12	Cushion packing	NBR							2	●	●
13	Magnet ring	Magnet							1	●	
14	Wear ring	–				Teflon			1	●	
15	Bush	Bearing alloy							1	●	
16	Bolt	Carbon steel				–			2		
17	Washer	Carbon steel							1	●	
18	Set screw	–					*		1	●	

* Carbon steel

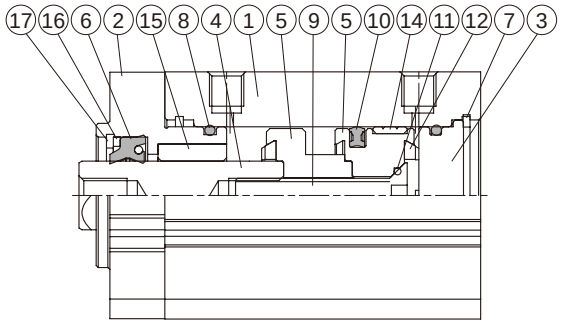
Order example

Component parts / Repair kits

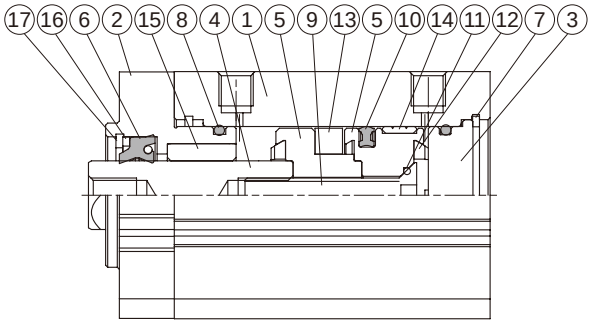
Tube I.D.	Component parts	Repair kits
ø12	CP-MCKJQ-12(M)	PS-MCKJQ-12
ø16	CP-MCKJQ-16(M)	PS-MCKJQ-16
ø20	CP-MCKJQ-20(M)	PS-MCKJQ-20
ø25	CP-MCKJQ-25(M)	PS-MCKJQ-25
ø32	CP-MCKJQ-32(M)	PS-MCKJQ-32
ø40	CP-MCKJQ-40(M)	PS-MCKJQ-40

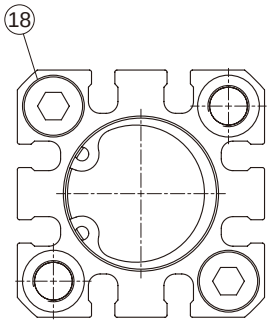
M: With magnet

Long stroke ø20, ø25



Long stroke ø20, ø25
(with magnet)





Long stroke – Material

No.	Tube I.D. / Part name	Material	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body	Aluminum alloy	Hard anodized	1		
2	Rod cover	Aluminum alloy	Anodized	1	●	
3	End cover	Aluminum alloy	Anodized	1	●	
4	Piston rod	Stainless steel		1		
5	Piston	Aluminum alloy	Anodized	1	●	
6	Rod packing	NBR		1	●	●
7	Snap ring	Stainless steel		1	●	
8	Cover ring	NBR		2	●	●
9	Piston bolt	Stainless steel		1	●	
10	Piston packing	NBR		1	●	●
11	Piston gasket	NBR		1	●	●
12	Cushion packing	NBR		2	●	●
13	Magnet ring	Magnet		1	●	
14	Wear ring	Teflon		1	●	
15	Bush	Bearing alloy		1	●	
16	Washer	Carbon steel		1	●	
17	Snap ring	Spring steel		1	●	
18	Bolt	Carbon steel		2		

Order example

Component parts

Tube I.D.	Component parts
ø20	**CPL-MCKJQ-20(M)**
ø25	**CPL-MCKJQ-25(M)**

M: With magnet

Repair kits

Tube I.D.	Repair kits
ø20	**PSL-MCKJQ-20**
ø25	**PSL-MCKJQ-25**

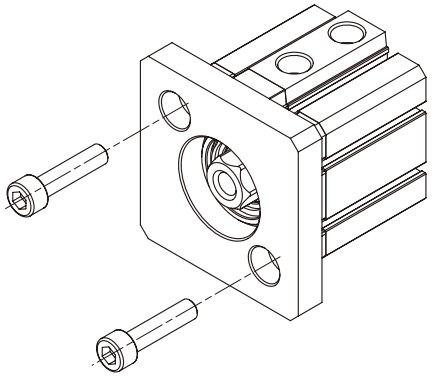
⚠ Caution

Different mounting methods match different bolts and plate.
Please confirm the mounting method before purchase.

A The plate is in front and the bolt is mounted from the front.

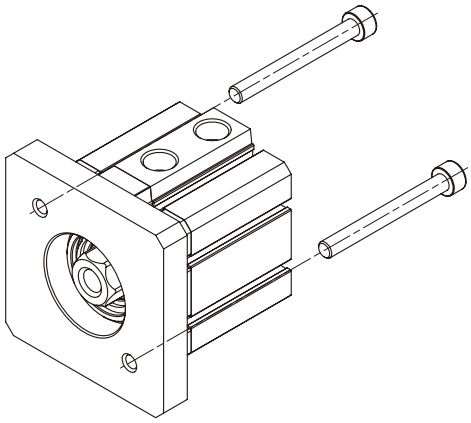
When mounting method '**A**' is selected for ø12~ø32, the body requires special dimension, see dimension N2-b.

Order example: **MCKJQ-12-20-25M**, N2=6.5

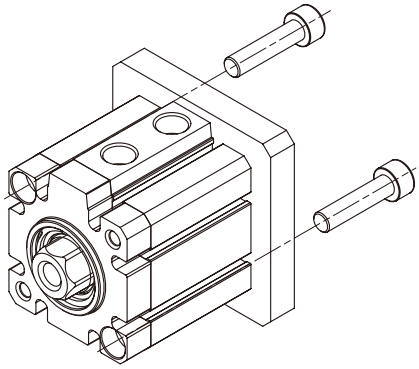


Code / Tube I.D.	N2
	b
12	4.5
16	4.5
20	6.5
25	6.5
32	6.5

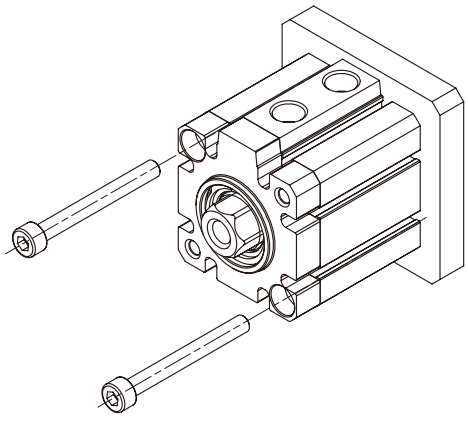
B The plate is in front and the bolt is mounted from the back.



C The plate is in back and the bolt is mounted from the back.



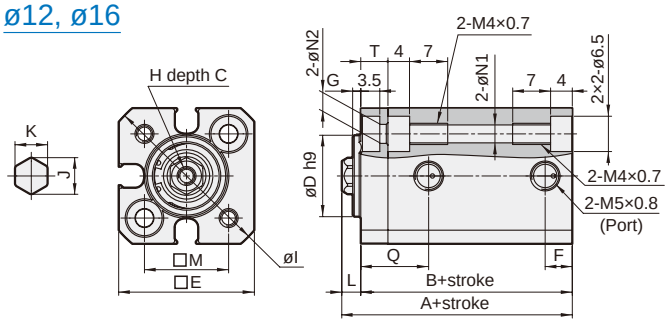
D The plate is in back and the bolt is mounted from the front.



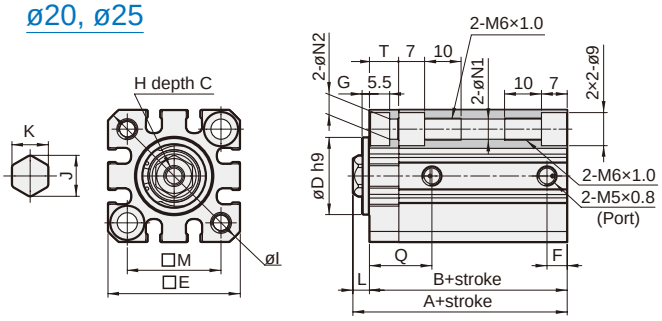
Bolt specification

Tube I.D. / Mounting	ø12	ø16	ø20	ø25	ø32	ø40
A	M4×0.7	M4×0.7	M6×1.0	M6×1.0	M6×1.0	M6×1.0
B	M3×0.5	M3×0.5	M5×0.8	M5×0.8	M5×0.8	M5×0.8
C	M4×0.7	M4×0.7	M6×1.0	M6×1.0	M6×1.0	M6×1.0
D	M3×0.5	M3×0.5	M5×0.8	M5×0.8	M5×0.8	M5×0.8

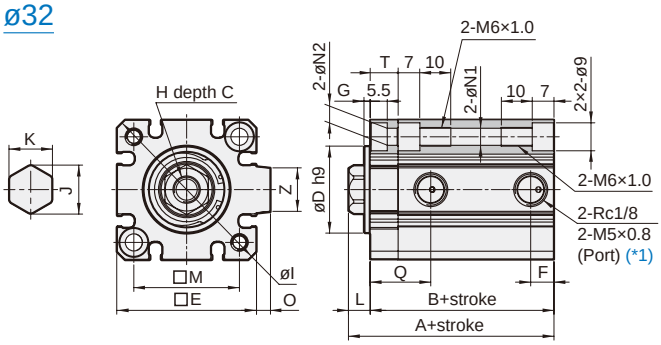
ø12, ø16



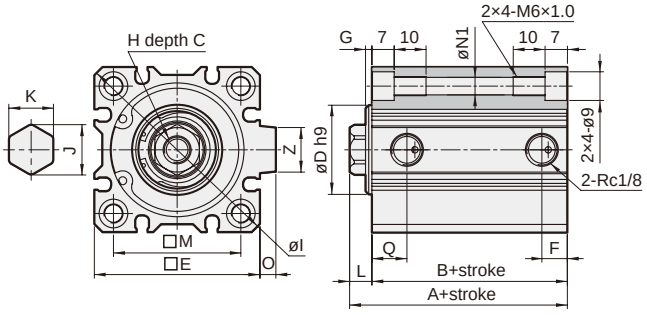
ø20, ø25



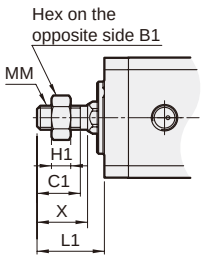
ø32



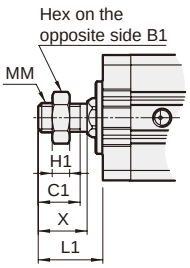
ø40



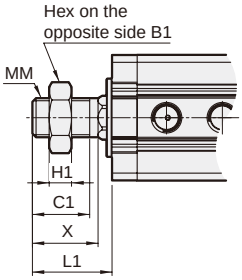
ø12, ø16



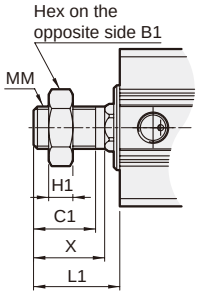
ø20, ø25



ø32



ø40



MCKJQ-11 male thread size

Code / Tube I.D.	B1	C1	H1	L1	MM	X
12	8	9	4	14	M5×0.8	10.5
16	10	10	5	15.5	M6×1.0	12
20	13	12	5	18.5	M8×1.25	14
25	17	15	6	22.5	M10×1.25	17.5
32	22	20.5	8	28.5	M14×1.5	23.5
40	22	20.5	8	28.5	M14×1.5	23.5

Code / Tube I.D.	Standard stroke							Long stroke				C	D	E	F	G	H	I	J	K	L	M	N1	N2*2		O	Q	T	Z
	Stroke range	Without magnet			Magnet			Stroke range	A	B	F													a	b				
		A	B	F	A	B	F																						
12	5~30	25.5	22	–	30.5	27	–	–	–	–	–	6	15 $^{0}_{-0.043}$	25	5	1.5	M3×0.5	32	6.74	6	3.5	15.5	3.5	3.5	4.5	–	12.5	5	–
16	5~30	27	23.5	–	32	28.5	–	–	–	–	–	8	19 $^{0}_{-0.052}$	29	5	1.5	M4×0.7	38	8.96	8	3.5	20	3.5	3.5	4.5	–	14	6.5	–
20	5~50	32	27.5	5.5	42	37.5	5.5	51~100	53.5	49	9	7	21 $^{0}_{-0.052}$	36	–	2	M5×0.8	47	11.24	10	4.5	25.5	5.5	5.5	6.5	–	17	8	–
25	5~50	35.5	30.5	5.5	45.5	40.5	5.5	51~100	57	52	11	12	22 $^{0}_{-0.052}$	40	–	2	M6×1.0	52	13.52	12	5	28	5.5	5.5	6.5	–	19	8	–
32	5~50	39	32	–	49	42	–	–	–	–	–	13	28 $^{0}_{-0.052}$	45	7.5*1	2	M8×1.25	60	15.76	14	7	34	5.5	5.5	6.5	4.5	19.5*1	9	14
	51~100	49	42	–	49	42	–	–	–	–	–	13	28 $^{0}_{-0.052}$	45	7.5*1	2	M8×1.25	60	15.76	14	7	34	5.5	5.5	6.5	4.5	19.5*1	9	14
40	5~50	36.5	29.5	–	46.5	39.5	–	–	–	–	–	13	28 $^{0}_{-0.052}$	52	8	2	M8×1.25	70	15.76	14	7	40	5.5	–	–	5	11	–	14
	51~100	46.5	39.5	–	46.5	39.5	–	–	–	–	–	13	28 $^{0}_{-0.052}$	52	8	2	M8×1.25	70	15.76	14	7	40	5.5	–	–	5	11	–	14

*1. Without magnet with stroke=5mm, Port size = M5×0.8, Q=20.5, F=5.5

*2. a: Standard type, b: Special type for mounting method **A**.

Features

- Ultra Compact, light weight and space saving cylinder.
- Single and double acting available.
- Ideal for use in machinery where space is limited and incorporating sensor groove which enables flush fitting of sensors.
- Magnetic as standard.

Specification

Model	MCJQ2	
Acting type	Double acting	
Tube I.D. (mm)	12,16	20,25
Port size	M5×0.8	
Medium	Air	
Operating perssure range	0.07~1 MPa	0.05~1 MPa
Proof pressure	1.5 MPa	
Ambient temperature	-5°C~+60°C (No freezing)	
Available speed range	50~500 mm/sec	
Sensor switch	RCB (Please refer to page 8-9)	

Order example

MCJQ2 – 12 – 20 – 25 M

MODEL **1**: Single rod

TUBE I.D.

STROKE

M: Magnet
* Magnetic as standard

STYLE

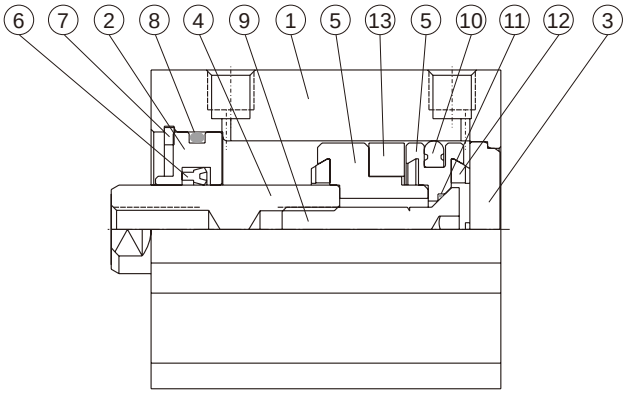
Code		Symbol	Description
1	**1**		Double acting / Male thread
1	**2**		Double acting / Female thread

Double acting – Table for standard stroke

Tube I.D.	Standard stroke
ø12, 16	5,10,15,20,25,30
ø20, 25	5,10,15,20,25,30,35,40,45,50

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Double acting
(with magnet)



Material

No.	Part name	Material	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body	Aluminum alloy	Hard anodized	1		
2	Rod cover	Aluminum bearing alloy	Anodized	1	●	
3	End cover	Aluminum alloy	Anodized	1	●	
4	Piston rod	Stainless steel		1		
5	Piston	Aluminum alloy	Anodized	1	●	
6	Rod packing	NBR		1	●	●
7	Snap ring	Stainless steel		1	●	
8	Cover ring	NBR		1	●	●
9	Piston bolt	Stainless steel		1	●	
10	Piston packing	NBR		1	●	●
11	Piston gasket	NBR		1	●	●
12	Cushion packing	NBR		2	●	●
13	Magnet	Magnet		1	●	

Seal kit

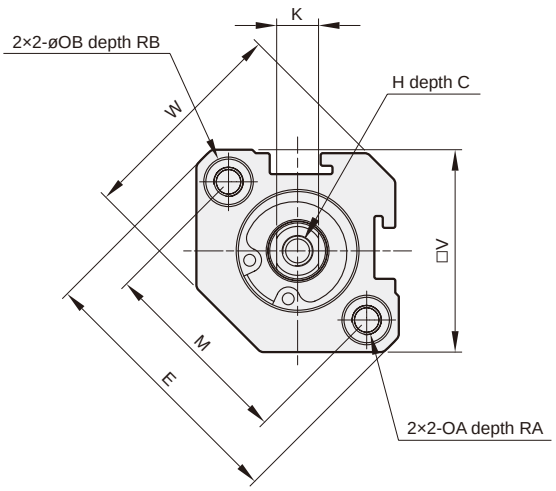
	Rod packing	Piston packing	Cover ring	Piston gasket
Acting type	Double acting			
Tube I.D. / Q'y	1	1	2	1
ø12	KSYR-6	OPA-12	S-11	d4×w1
ø16	KSYR-8	OPA-16	S-14	d4×w1
ø20	KSYR-10A	OPA-20	S-18	d6×w1
ø25	KSYR-12	OPA-25	S-22.4	d8×w1

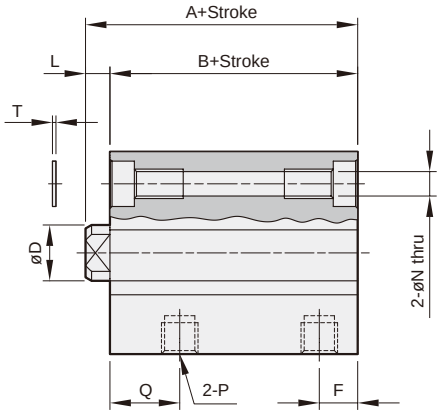
Order example

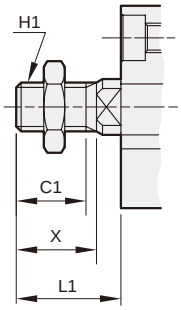
Component parts / Repair kits

Tube I.D.	Component parts	Repair kits
ø12	**CP-MCJQ2-12(M)**	**PS-MCJQ2-12**
ø16	**CP-MCJQ2-16(M)**	**PS-MCJQ2-16**
ø20	**CP-MCJQ2-20(M)**	**PS-MCJQ2-20**
ø25	**CP-MCJQ2-25(M)**	**PS-MCJQ2-25**

M: With magnet





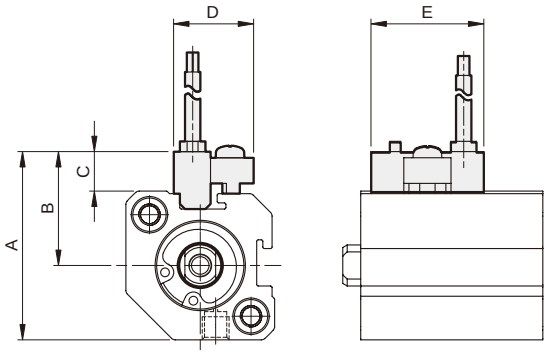


MCJQ2-11 male thread size

Code / Tube I.D.	C1	H1	L1	X
12	9	M5×0.8	14	10.5
16	10	M6×1.0	15.5	12
20	12	M8×1.25	18.5	14
25	15	M10×1.25	22.5	17.5

Code / Tube I.D.	Stroke range	A	B	C	D	E	F	H	K	L	M	N	OA	RA	OB	RB	T	P	Q	V	W
12	5~30	31.5	28	6	6	32	6.5	M3×0.5	5	3.5	22	3.5	M4×0.7	7	6.5	3.5	0.5	M5×0.8	11	25	28
16	5~30	34	30.5	8	8	38	5.5	M4×0.7	6	3.5	28	3.5	M4×0.7	7	6.5	3.5	0.5	M5×0.8	10	29	31
20	5~50	36	31.5	10	10	47	5.5	M5×0.8	8	4.5	36	5.5	M6×1.0	10	9	7	1	M5×0.8	10.5	36	30
25	5~50	37.5	32.5	12	12	52	5.5	M6×1.0	10	5	40	5.5	M6×1.0	10	9	7	1	M5×0.8	11	40	35

Installation of sensor switch



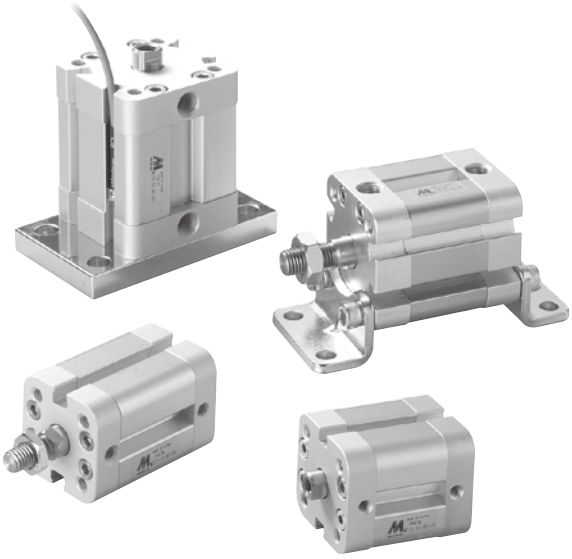
Order example

RCB – □

MODEL
RCB (**C**: Reed switch)
RNB (**N**: Solid state switch)

WIRE LENGTH
Blank: L=2000m
1M: L=1000m
QD: M8 3Pin connector
EQD: M8 3Pin connector

Code / Tube I.D.	A	B	C	D	E
12	33	20.5	8	16	22
16	37	22.5	8	16	22
20	42.5	24	5.5	16	22
25	46	26	6	16	22



Features

- ISO-21287 standard.
- Wide range of bore sizes and strokes.
- Ultra compact, light weight and space saving.
- Sensor slots on RCI sides for flush mounting of proximity sensors.
- Magnetic as standard.

Specification

Model	MCJI	
Acting type	Double acting	
Tube I.D. (mm)	20,25	32,40,50,63,80,100
Port size	M5×0.8	G1/8
Medium	Air	
Operating perssure range	0.05~1 MPa	
Proof pressure	1.5 MPa	
Cushion	Rubber bumper	
Lubricator	Without lubrication	
Stroke length tolerance (*)	+0~+1.0 mm	
Ambient temperature	-5°C~+60°C (No freezing)	
Available speed range	50~500 mm/sec	
Sensor switch	RCI (Please refer to page 8-13)	

* Stroke length tolerance does not include the amount of bumper change.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25	5,10,15,20,25,30,40,50,60,80,100,200
ø32,40	5,10,15,20,25,30,40,50,60,80,100,200,300
ø50,63	10,15,20,25,30,40,50,60,80,100,200,300,400
ø80,100	15,20,25,30,40,50,60,80,100,200,300,400,500

* Please consult us if stroke out of specification.

Order example

MCJI — 12 — 20 — 25

MODEL

1: Single rod
2: Double rod

TUBE I.D.

STROKE

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread
2	1		Double rod / Male thread
2	2		Double rod / Female thread

* Order example for special specification, refer to page 0-7.

Mounting accessories

FAC — MCJI — 20

MOUNTING TYPE

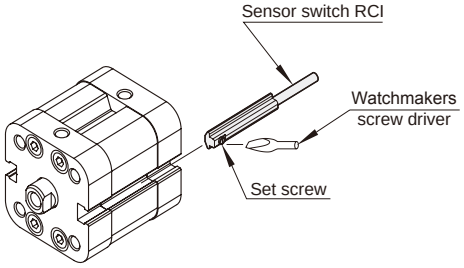
MODEL

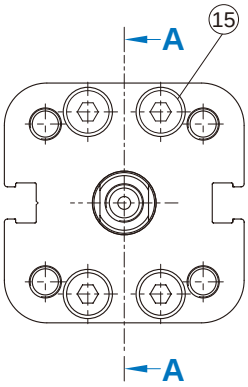
TUBE I.D.

	LB
	CA
	CB
	FAC
	FBC
	MP

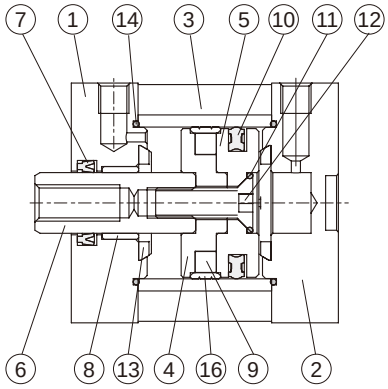
* ø20, ø25 without CB accessory.

Installation of sensor switch

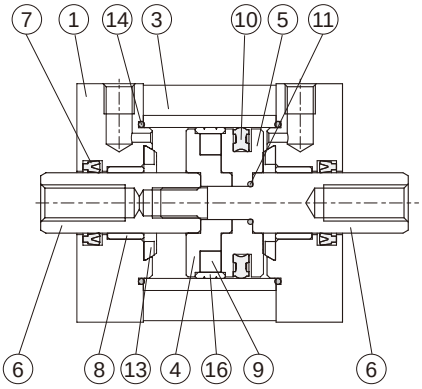




Single rod



Double rod



Material

No.	Part name	Material	Q'y		Component parts (inclusion)	Repair kits (inclusion)
			Single	Double		
1	Rod cover	Aluminum alloy	1	2	●	
2	End cover	Aluminum alloy	1	—	●	
3	Tube	Aluminum alloy	1	1		
4	Piston-R	Aluminum alloy	1	1	●	
5	Piston-H	Aluminum alloy	1	1	●	
6	Piston rod	*	1	2		
7	Rod packing	NBR	1	1	●	●
8	Bush	Bearing alloy	1	1	●	
9	Magnet ring	Magnet material	1	1	●	
10	Piston packing	NBR	1	1	●	●
11	O-ring	NBR	1	1	●	●
12	Screw	Carbon steel	1	—	●	
13	Cushion	NBR	2	2	●	●
14	O-ring	NBR	2	2	●	●
15	Screw	Stainless steel	8	8	●	
16	Wear ring	Teflon	1	1	●	

* Material ø20, ø25: Stainless steel; ø32~ø100: Medium carbon steel.

Cylinder weight

Unit: g

Model	Basic weight **MCJI-11**	Stroke 10mm **MCJI-11**	Basic weight **MCJI-12**	Stroke 10mm **MCJI-12**
Tube I.D.				
ø20	121	14	108	14
ø25	147	18	135	18
ø32	238	24	214	24
ø40	322	32	291	32
ø50	493	46	455	46
ø63	703	48	667	48
ø80	1,260	76	1,190	76
ø100	2,140	92	2,060	92

Order example

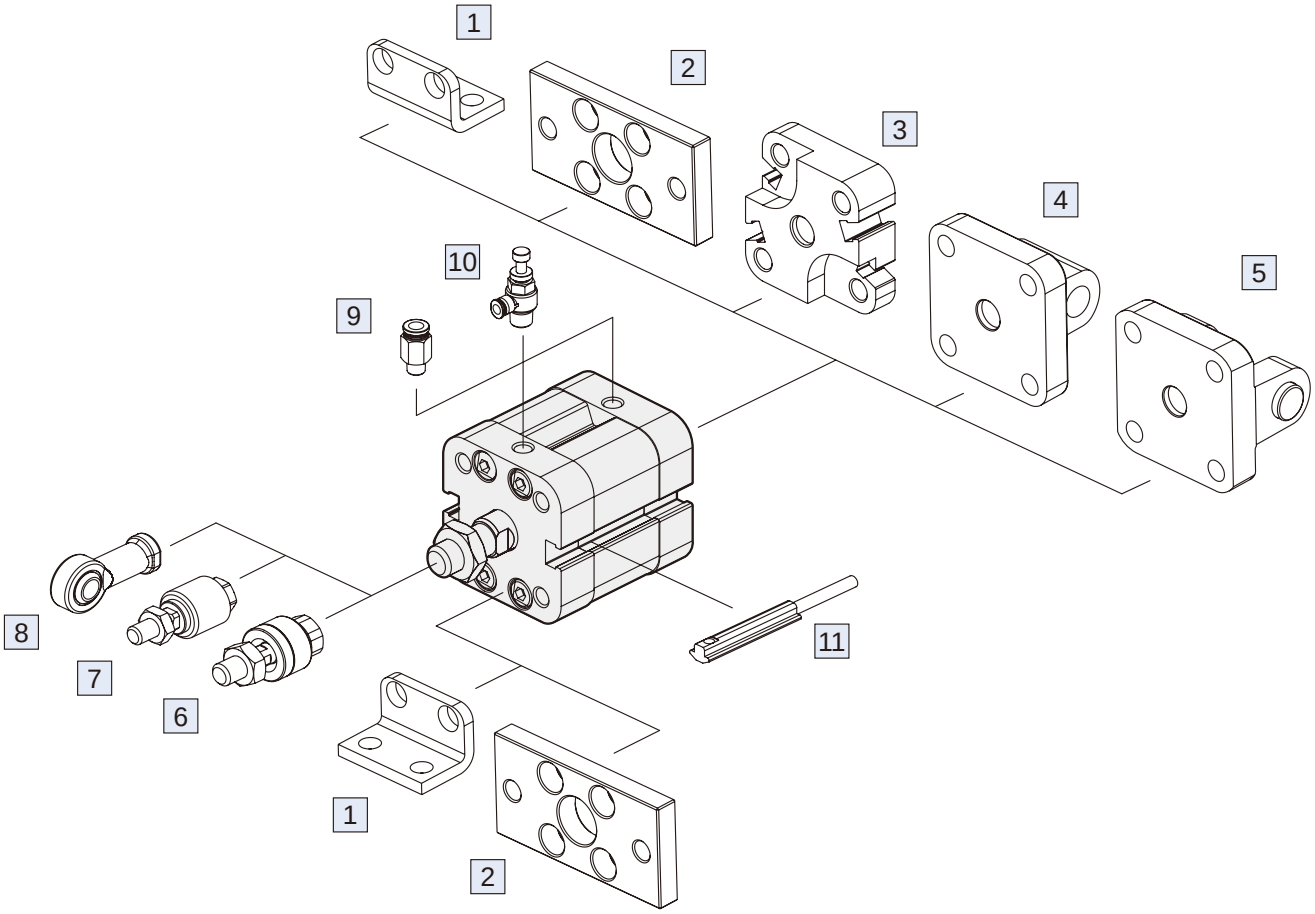
Component parts / Repair kits

Single rod

Tube I.D.	Component parts	Repair kits
ø20	**CP-MCJI-20**	**PS-MCJI-20**
ø25	**CP-MCJI-25**	**PS-MCJI-25**
ø32	**CP-MCJI-32**	**PS-MCJI-32**
ø40	**CP-MCJI-40**	**PS-MCJI-40**
ø50	**CP-MCJI-50**	**PS-MCJI-50**
ø63	**CP-MCJI-63**	**PS-MCJI-63**
ø80	**CP-MCJI-80**	**PS-MCJI-80**
ø100	**CP-MCJI-100**	**PS-MCJI-100**

Double rod

Tube I.D.	Component parts	Repair kits
ø20	**CP-MCJI-2-20**	**PS-MCJI-2-20**
ø25	**CP-MCJI-2-25**	**PS-MCJI-2-25**
ø32	**CP-MCJI-2-32**	**PS-MCJI-2-32**
ø40	**CP-MCJI-2-40**	**PS-MCJI-2-40**
ø50	**CP-MCJI-2-50**	**PS-MCJI-2-50**
ø63	**CP-MCJI-2-63**	**PS-MCJI-2-63**
ø80	**CP-MCJI-2-80**	**PS-MCJI-2-80**
ø100	**CP-MCJI-2-100**	**PS-MCJI-2-100**



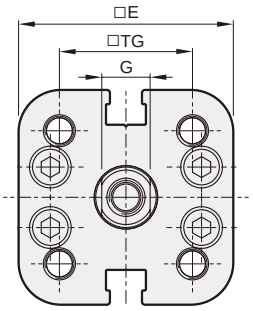
No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	2-56
2	Mounting accessories FAC/FBC	Carbon steel	2-57
3	Mounting accessories MP	Aluminum	2-56
4	Mounting accessories CA	Cast iron	2-58
5	Mounting accessories CB+PIN	Cast iron / *	2-58
6	Floating joint MFC	Carbon steel	8-2
7	Floating joint MFCS	Carbon steel	8-5
8	Female rod ends PHS	Carbon steel	8-6
9	Fitting PC (PISCO)	–	7-3 (Vol.1)
10	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
11	Sensor switch RCI	–	8-13

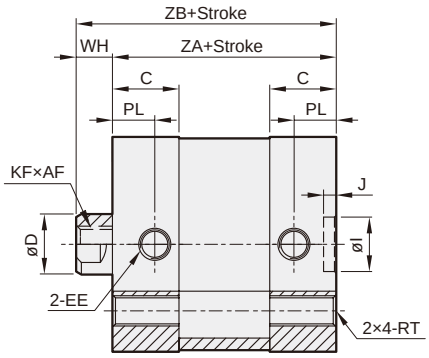
* PIN material is carbon steel.

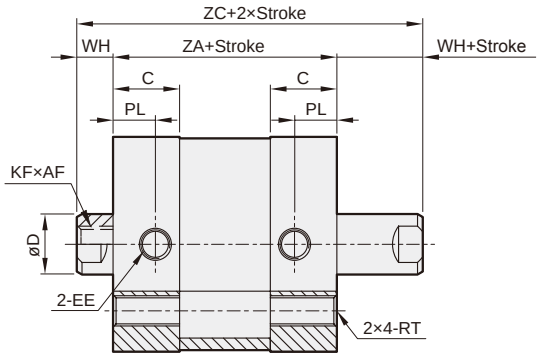
Single rod

Double rod

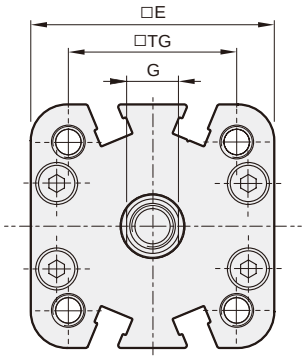
ø20~ø25

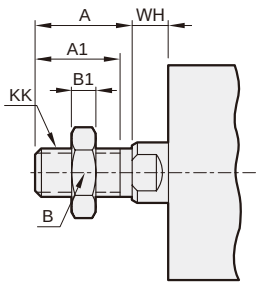






ø32~ø100



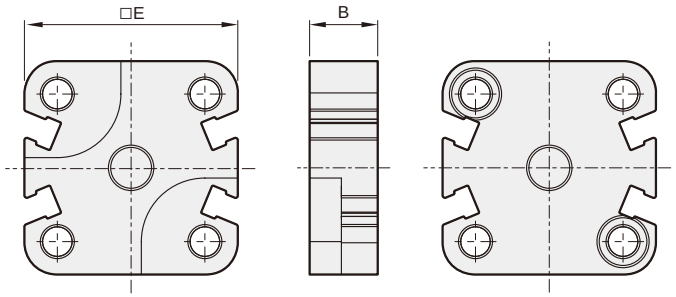


MCJI-11/21 male thread size

Code / Tube I.D.	A	A1	B	B1	KK
20	16	14	13	4	M8×1.25
25	16	14	13	4	M8×1.25
32	19	17	17	5	M10×1.25
40	19	17	17	5	M10×1.25
50	22	20	19	6	M12×1.25
63	22	20	19	6	M12×1.25
80	28	26	24	8	M16×1.5
100	28	26	24	8	M16×1.5

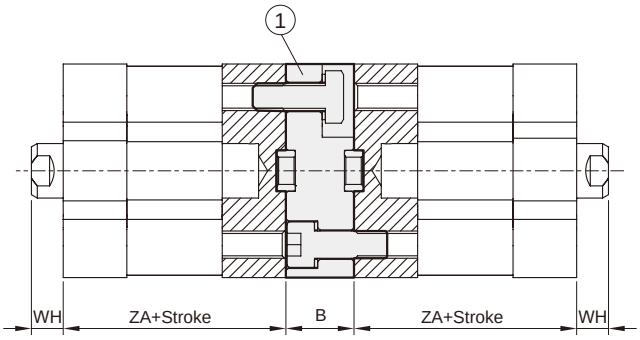
Code / Tube I.D.	AF	C	D	E	EE	G	WH	I	J	KF	PL	TG	RT	ZA	ZB	ZC
20	14	11	10	35.5	M5×0.8	8	6	9	2.1	M6×1.0	7	22	M5×0.8	37	43	49
25	14	11	10	39.5	M5×0.8	8	6	9	2.1	M6×1.0	7	26	M5×0.8	39	45	51
32	15	14	12	47.0	G1/8	10	7	9	2.1	M8×1.25	7.5	32.5	M6×1.0	44	51	58
40	15	14	12	54.5	G1/8	10	7	9	2.1	M8×1.25	7.5	38	M6×1.0	45	52	59
50	18	14	16	65.5	G1/8	14	8	12	2.6	M10×1.5	7.5	46.5	M8×1.25	45	53	61
63	18	14.5	16	75.5	G1/8	14	8	12	2.6	M10×1.5	7.5	56.5	M8×1.25	49	57	65
80	20	15.5	20	95.5	G1/8	17	10	12	2.6	M12×1.75	8	72	M10×1.5	54	64	74
100	20	18.5	20	113.5	G1/8	17	10	12	2.6	M12×1.75	9.5	89	M10×1.5	67	77	87

MP

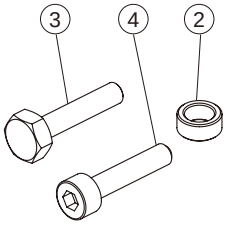


Code / Tube I.D.	B	E	WH	ZA	Max. overall stroke
20	13	35.5	6	37	600 mm
25	13	39.5	6	39	600 mm
32	15	47.0	7	44	800 mm
40	15	54.5	7	45	800 mm
50	15	65.5	8	45	800 mm
63	15	75.5	8	49	800 mm
80	17	95.5	10	54	1000 mm
100	19.5	113.5	10	67	1000 mm

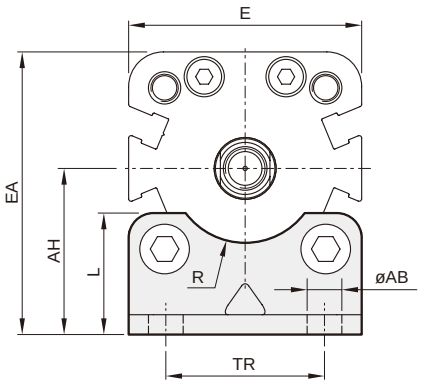
* The max. overall stroke length may not be exceeded when combining cylinders and multi-position kits.

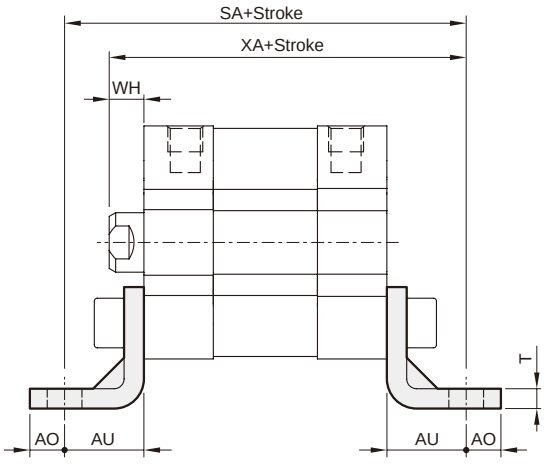


No.	Part name	Q'y
1	Connection block	1
2	Flange	2
3	Bolt	2
4	Bolt	2



LB

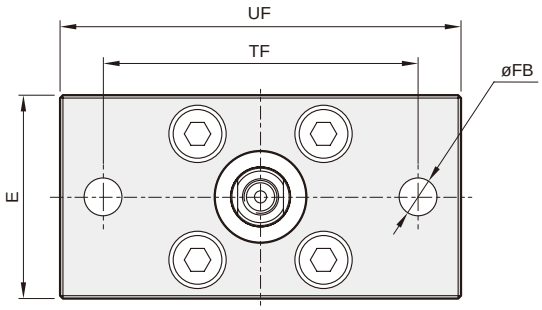


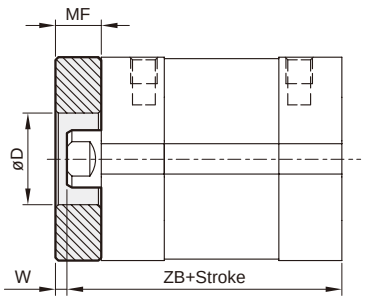


Code / Tube I.D.	AB	AH	AO	AU	E	EA	L	R	SA	T	TR	WH	XA
20	7	27	7	16	35.5	44.8	21	–	69	4	22	6	59
25	7	29	7	16	39.5	48.8	22	–	71	4	26	6	61
32	7	33.5	7	16	47.0	57.0	24.5	15	76	4	32	7	67
40	10	38	9	18	54.5	65.3	26	17.5	81	4	36	7	70
50	10	45	9	21	65.5	77.8	31	20	87	5	45	8	74
63	10	50	9	21	75.5	87.8	31	22.5	91	5	50	8	78
80	12	63	11	26	95.5	110.8	40	–	106	6	63	10	90
100	14.5	74	13	27	113.5	130.8	46	–	121	6	75	10	104

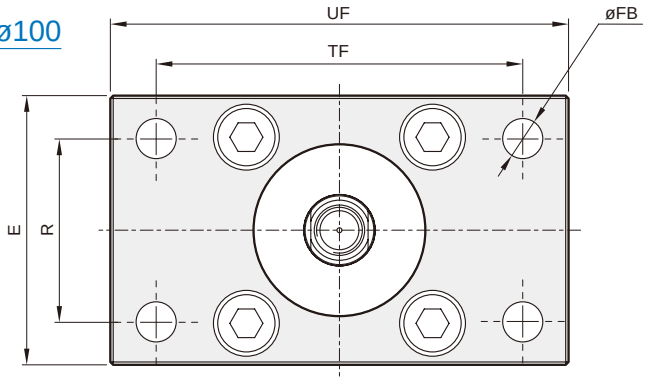
FAC

ø20~ø25





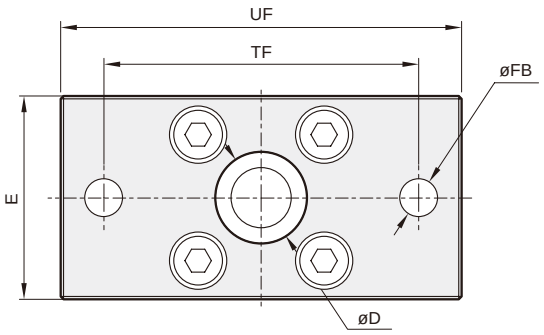
ø32~ø100

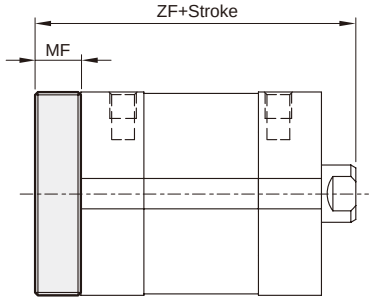


Code / Tube I.D.	D	E	FB	MF	R	TF	UF	W	ZB
20	16	35.5	6.6	8	–	55	70	2	43
25	16	39.5	6.6	8	–	60	76	2	45
32	30	47.0	7	10	32	64	80	3	51
40	35	54.5	9	10	36	72	90	3	52
50	40	65.5	9	12	45	90	110	4	53
63	45	75.5	9	12	50	100	120	4	57
80	45	95.5	12	16	63	126	150	6	64
100	55	113.5	14	16	75	150	175	6	77

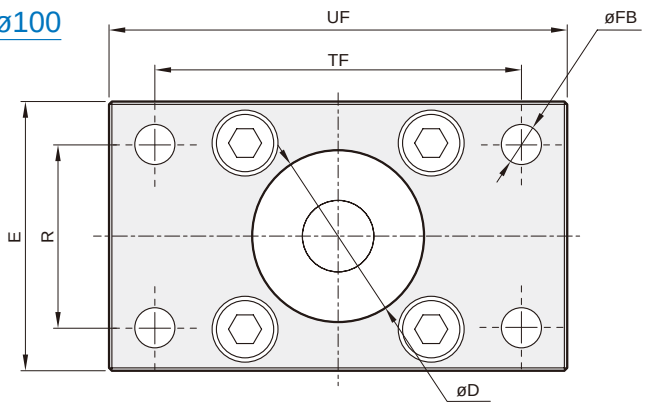
FBC

ø20~ø25



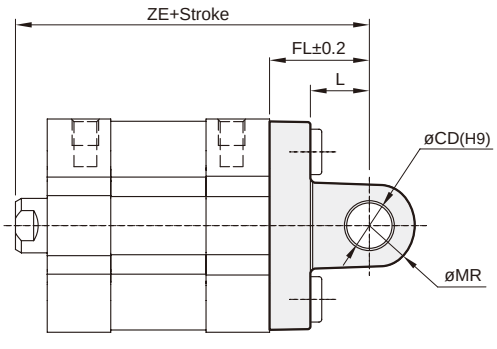


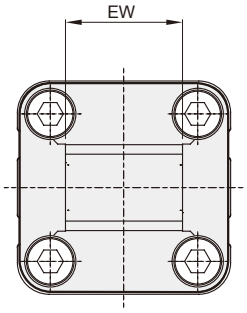
ø32~ø100



Code / Tube I.D.	D	E	FB	MF	R	TF	UF	ZF
20	16	35.5	6.6	8	–	55	70	51
25	16	39.5	6.6	8	–	60	76	53
32	30	47.0	7	10	32	64	80	61
40	35	54.5	9	10	36	72	90	62
50	40	65.5	9	12	45	90	110	65
63	45	75.5	9	12	50	100	120	69
80	45	95.5	12	16	63	126	150	80
100	55	113.5	14	16	75	150	175	93

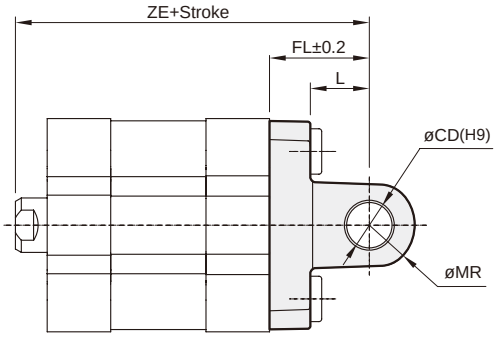
CA

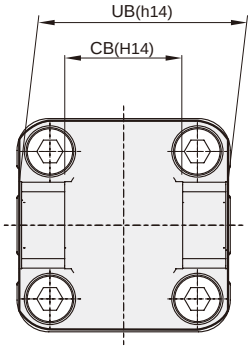




Code / Tube I.D.	CD	EW	FL	L	MR	ZE
20	8	16 h12	20	14	8	63
25	8	16 h12	20	14	8	65
32	10	25.8 $^{+0}_{-0.4}$	22	13	10	73
40	12	27.8 $^{+0}_{-0.4}$	25	16	12	77
50	12	31.8 $^{+0}_{-0.4}$	27	16	12	80
63	16	39.8 $^{+0}_{-0.4}$	32	21	16	89
80	16	49.8 $^{+0}_{-0.4}$	36	22	16	100
100	20	59.8 $^{+0}_{-0.4}$	41	30	21	118

CB





Code / Tube I.D.	CB	CD	FL	L	MR	UB	ZE
32	26	10	22	13	10	45	73
40	28	12	25	16	12	52	77
50	32	12	27	16	12	60	80
63	40	16	32	21	16	70	89
80	50	16	36	22	16	90	100
100	60	20	41	29	20	110	118

* ø20, ø25 without **CB** accessory.

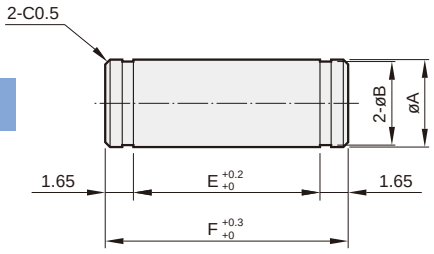
PIN

Order example

PIN — MCJI — 32 — CB — P

- PIN
- TUBE I.D.: **32** / **40** / **50** / **63** / **80** / **100**
- TYPE: **CB**: for CB accessory
- **P**: With split pin

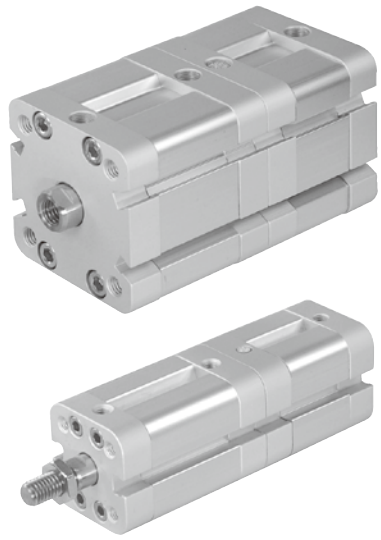
P



Code / Tube I.D.	A(e8)	B	C	E	F	Snap ring
32	10	9.6	2.65	45.2	50.5	STW-10
40	12	11.5	2.65	52.2	57.5	STW-12
50	12	11.5	2.65	60.2	65.5	STW-12
63	16	15.2	2.65	70.2	75.5	STW-16
80	16	15.2	2.65	90.2	95.5	STW-16
100	20	19	2.85	110.3	116	STW-20

MCJI Multiple position

COMPACT CYLINDER



Specification

Model	MCJI-3*	
Acting type	Double acting	
Tube I.D. (mm)	20,25	32,40,50,63,80,100
Port size	M5×0.8	G1/8
Medium	Air	
Operating perssure range	0.05~1 MPa	
Proof pressure	1.5 MPa	
Cushion	Rubber bumper	
Lubricator	Without lubrication	
Stroke length tolerance (*)	+0~+1.0 mm	
Ambient temperature	-5°C~+60°C (No freezing)	
Available speed range	50~500 mm/sec	
Sensor switch	RCI (Please refer to page 8-13)	

* Stroke length tolerance does not include the amount of bumper change.

Order example

MCJI — 32 — 40 — 20×25

- MODEL
- 3: Multiple position
- TUBE I.D.
- STROKE1×STROKE2
  - Stroke1: First stroke
  - Stroke2: Total stroke
- STYLE

Code		Symbol	Description
3	1		Double acting / Male thread
3	2		Double acting / Female thread

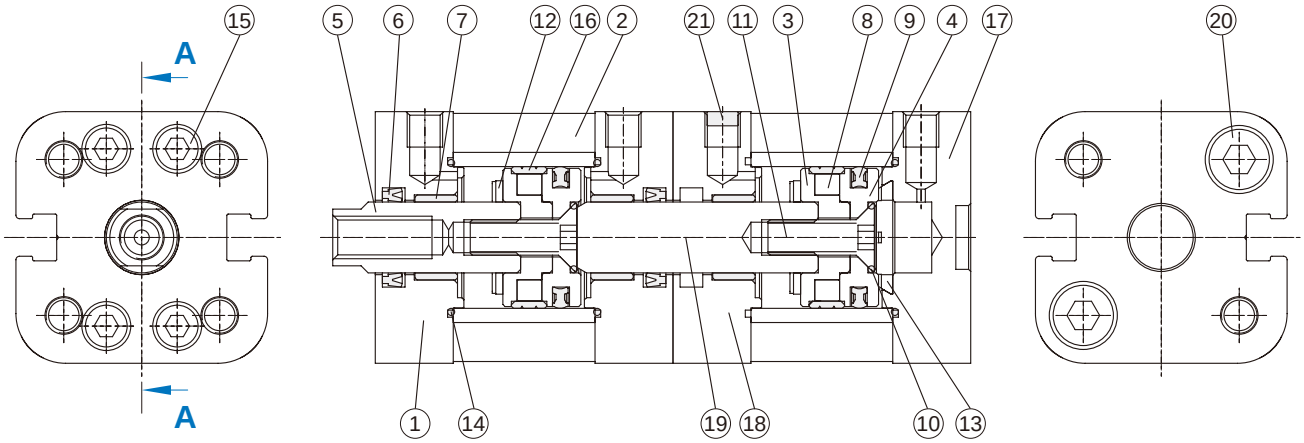
* Order example for special specification, refer to page 0-7.

Table for standard stroke

Tube I.D.	First stroke (mm)	Max. stroke
ø20,25	5,10,15,20,25,30,40,50,60,80,100	110
ø32,40	5,10,15,20,25,30,40,50,60,80,100	120
ø50,63	10,15,20,25,30,40,50,60,80,100,110,120	150
ø80,100	15,20,25,30,40,50,60,80,100,110,120	140

Tube I.D.	Total stroke (mm)
ø20,25	5,10,15,20,25,30,40,50,60,80,100,200
ø32,40	5,10,15,20,25,30,40,50,60,80,100,200,300
ø50,63	10,15,20,25,30,40,50,60,80,100,200,300,400
ø80,100	15,20,25,30,40,50,60,80,100,200,300,400,500

* Please consult us if stroke out of specification.



A—A

Material

No.	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod cover	Aluminum alloy	2	●	
2	Tube	Aluminum alloy	2		
3	Piston-R	Aluminum alloy	2	●	
4	Piston-H	Aluminum alloy	2	●	
5	Piston rod	*	1		
6	Rod packing	NBR	2	●	●
7	Bush	Bearing alloy	3	●	
8	Magnet ring	Magnet material	2	●	
9	Piston packing	NBR	2	●	●
10	O-ring	NBR	2	●	●
11	Screw	Carbon steel	2	●	
12	Cushion	NBR	2	●	●
13	Cushion	NBR	1	●	●
14	O-ring	NBR	3	●	●
15	Screw	Stainless steel	8	●	
16	Wear ring	Teflon	2	●	
17	End cover	Aluminum alloy	1	●	
18	Center cover	Aluminum alloy	1	●	
19	Piston rod	*	1		
20	Screw	Carbon steel	2		
21	Silencer	Brass	1	●	

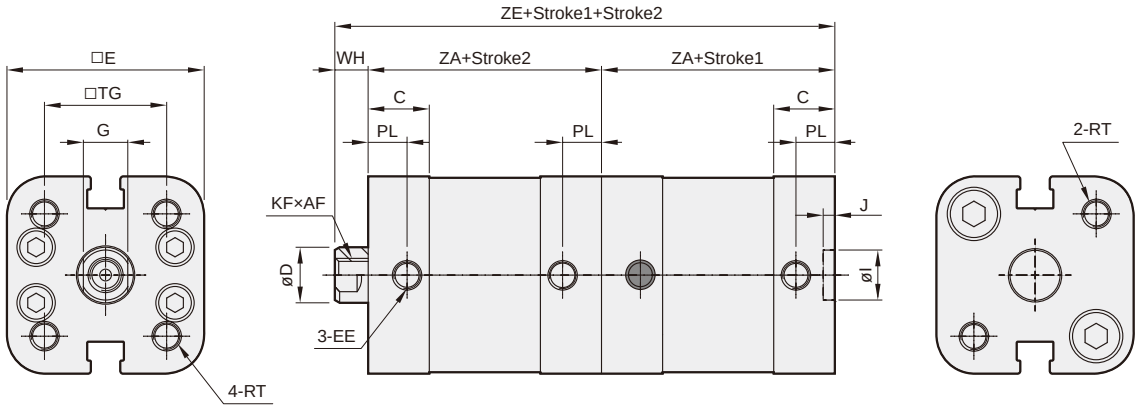
* Material ø20, ø25: Stainless steel; ø32~ø100: Medium carbon steel.

Order example

Component parts / Repair kits

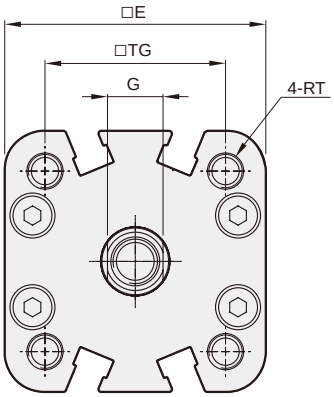
Tube I.D.	Component parts	Repair kits
ø20	**CP-MCJI-3-20**	**PS-MCJI-3-20**
ø25	**CP-MCJI-3-25**	**PS-MCJI-3-25**
ø32	**CP-MCJI-3-32**	**PS-MCJI-3-32**
ø40	**CP-MCJI-3-40**	**PS-MCJI-3-40**
ø50	**CP-MCJI-3-50**	**PS-MCJI-3-50**
ø63	**CP-MCJI-3-63**	**PS-MCJI-3-63**
ø80	**CP-MCJI-3-80**	**PS-MCJI-3-80**
ø100	**CP-MCJI-3-100**	**PS-MCJI-3-100**

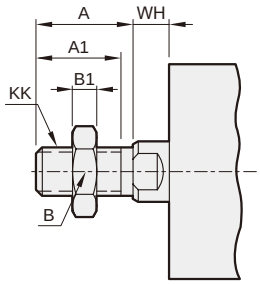
ø20, ø25



* Stroke1: First stroke, Stroke2: Total stroke.

ø32~ø100



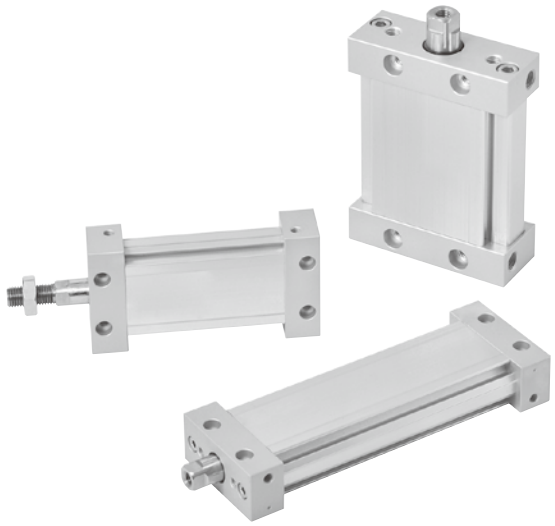


MCJI-31
(Double acting / Male thread)

Code / Tube I.D.	A	A1	B	B1	KK
20	16	14	13	4	M8×1.25
25	16	14	13	4	M8×1.25
32	19	17	17	5	M10×1.25
40	19	17	17	5	M10×1.25
50	22	20	19	6	M12×1.25
63	22	20	19	6	M12×1.25
80	28	26	24	8	M16×1.5
100	28	26	24	8	M16×1.5

Code / Tube I.D.	AF	C	D	E	EE	G	WH	I	J	KF	PL	TG	RT	ZA	ZE
20	14	11	10	35.5	M5×0.8	8	6	9	2.1	M6×1.0	7	22	M5×0.8	37	80
25	14	11	10	39.5	M5×0.8	8	6	9	2.1	M6×1.0	7	26	M5×0.8	39	84
32	15	14	12	47.0	G1/8	10	7	9	2.1	M8×1.25	7.5	32.5	M6×1.0	44	95
40	15	14	12	54.5	G1/8	10	7	9	2.1	M8×1.25	7.5	38	M6×1.0	45	97
50	18	14	16	65.5	G1/8	14	8	12	2.6	M10×1.5	7.5	46.5	M8×1.25	45	98
63	18	14.5	16	75.5	G1/8	14	8	12	2.6	M10×1.5	7.5	56.5	M8×1.25	49	106
80	20	15.5	20	95.5	G1/8	17	10	12	2.6	M12×1.75	8	72	M10×1.5	54	118
100	20	18.5	20	113.5	G1/8	17	10	12	2.6	M12×1.75	9.5	89	M10×1.5	67	144

* Stroke1: First stroke, Stroke2: Total stroke.



Features

- Plate type design for ultra compact, Oval piston design for space saving.
- Sensor slots on sides for flush mounting of proximity sensors.
- Magnetic as standard.

Specification

Model	MCJU				
Acting type	Double acting				
Tube I.D. (mm)	25	32	40	50	63
Port size	M5×0.8	Rc1/8		Rc1/4	
Medium	Air				
Operating perssure range	0.05~0.7 MPa				
Proof pressure	1.0 MPa				
Available speed range	50~500 mm/sec				
Cushion	Rubber bumper				
Lubricator	Without lubrication				
Stroke length tolerance (*1)	+0~+1.5 mm				
Ambient temperature	-5°C~+60°C (No freezing)				
Sensor switch (*2)	RDFE(V), RDGV				

*1. Stroke length tolerance does not include the amount of bumper change.
*2. RDFE, RDGV specification, please refer to page 8-18, 19.

Table for standard stroke

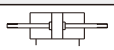
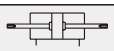
Tube I.D.	Stroke (mm)	Max. stroke
ø25,32,40 50,63	5,10,15,20,25,30,40,50,75, 100,200,250	300

* Please consult us if stroke out of specification.

Order example

MCJU — 12 — 25 — 25 — □

- MODEL
- STYLE
  - **1**: Single rod
- TUBE I.D.
- STROKE
- PORT THREAD
  - Blank: M5×0.8 (only for ø25)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (only for ø32~ø63)

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread
2	1		Double rod / Male thread
2	2		Double rod / Female thread

* Order example for special specification, refer to page 0-7.

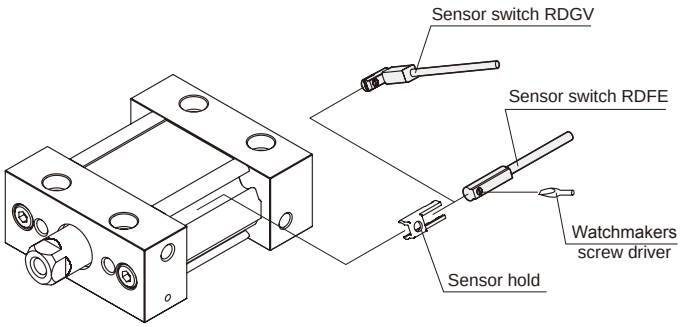
Mounting accessories

FAC — MCJU — 25

- MOUNTING TYPE
- MODEL
- TUBE I.D.

	**LB**
	**FAC**
	**FBC**

Installation of sensor switch

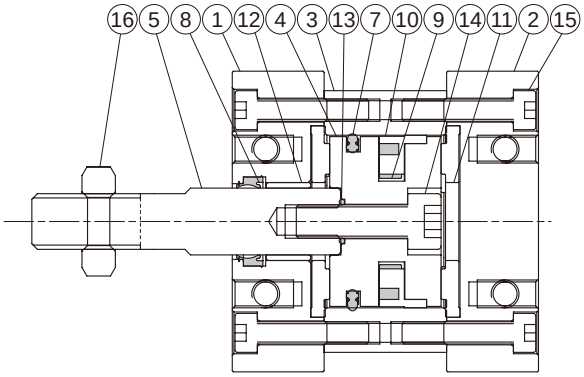


MCJU Inside structure & Parts list

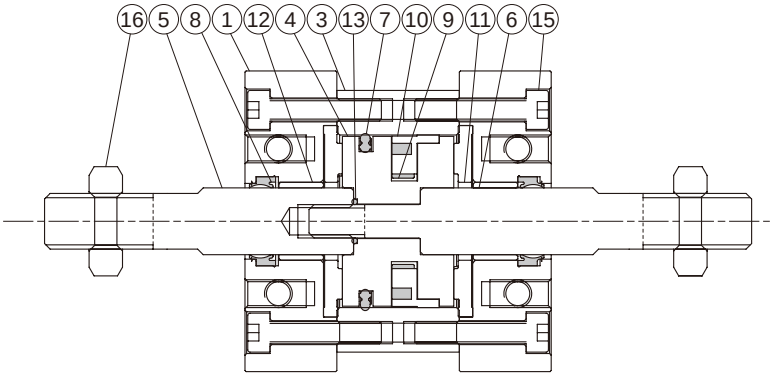
PLATE OVAL CYLINDER (NON-ROTATION ROD)

mindman

Single rod



Double rod



Material

No.	Part name	Material	Q'y / Style				Repair kits (inclusion)
			11	12	21	22	
1	Rod cover	Aluminum alloy	1		2		
2	End cover	Aluminum alloy	1		–		
3	Tube	Aluminum alloy	1				
4	Piston	Aluminum alloy	1				
5	Piston rod-R	Carbon steel	1				
6	Piston rod-H	Carbon steel	–		1		
7	Piston packing	HNBR	1				●
8	Rod packing	HNBR	1		2		●
9	Magnet	Magnet material	4				
10	Wear ring	POM	1				
11	Cushion pad	TPU	2				
12	Bush	Bearing alloy	1		2		
13	O-ring	NBR	1				
14	Piston bolt	Stainless steel	1		–		
15	Bolt	Stainless steel	4				
16	Nut	Carbon steel	1	–	2	–	

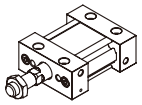
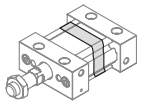
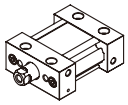
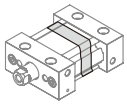
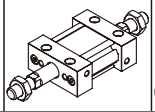
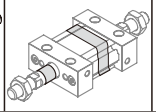
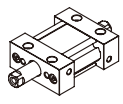
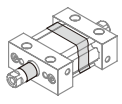
Order example

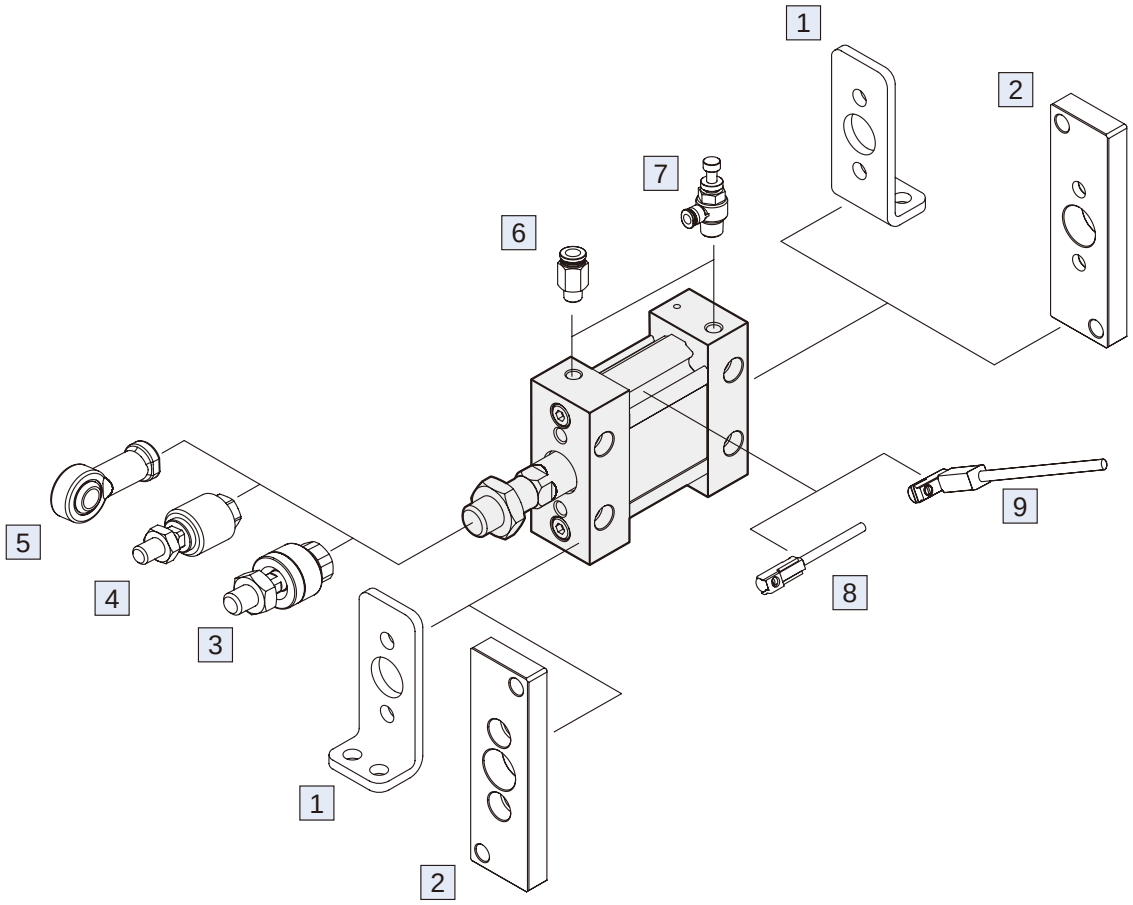
Repair kits

Tube I.D.	Repair kits
ø25	**PS-MCJU-25**
ø32	**PS-MCJU-32**
ø40	**PS-MCJU-40**
ø50	**PS-MCJU-50**
ø63	**PS-MCJU-63**

Cylinder weight

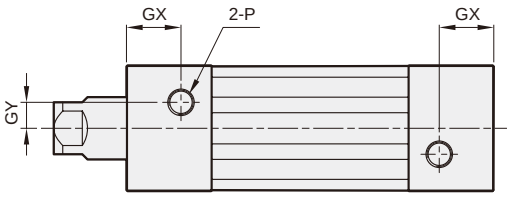
Unit: g

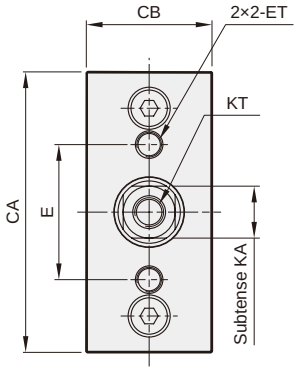
Model	Basic weight **MCJU-11**	Stroke 10mm **MCJU-11**	Basic weight **MCJU-12**	Stroke 10mm **MCJU-12**	Basic weight **MCJU-21**	Stroke 10mm **MCJU-21**	Basic weight **MCJU-22**	Stroke 10mm **MCJU-22**
Tube I.D.								
ø25	192	20	167	20	246	28	198	28
ø32	320	27	282	27	381	40	305	40
ø40	454	37	403	37	561	54	444	54
ø50	846	57	768	57	1060	83	842	83
ø63	1234	76	1157	76	1466	102	1248	102

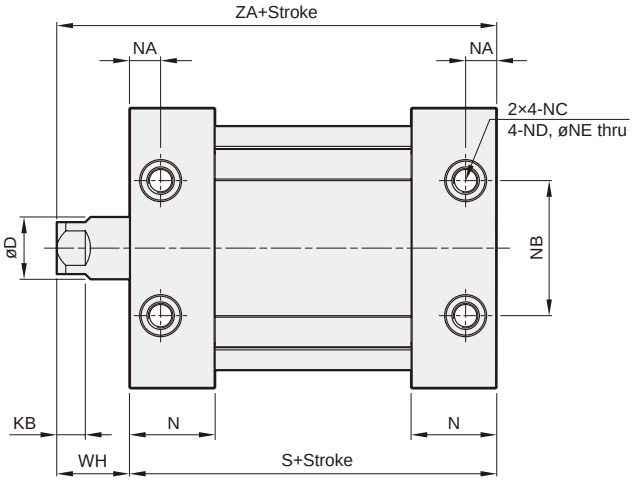


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	2-67
2	Mounting accessories FAC/FBC	Carbon steel	2-67
3	Floating joint MFC	Carbon steel	8-2
4	Floating joint MFCS	Carbon steel	8-5
5	Female rod ends PHS	Carbon steel	8-6
6	Fitting PC (PISCO)	–	7-3 (Vol.1)
7	Speed controller JSC (PISCO)	–	7-15 (Vol.1)
8	Sensor switch RDFE	–	8-18
9	Sensor switch RDGV	–	8-19

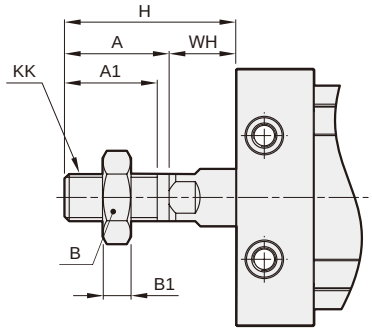
MCJU-12 female thread size

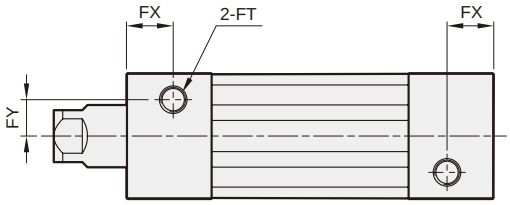






MCJU-11 male thread size

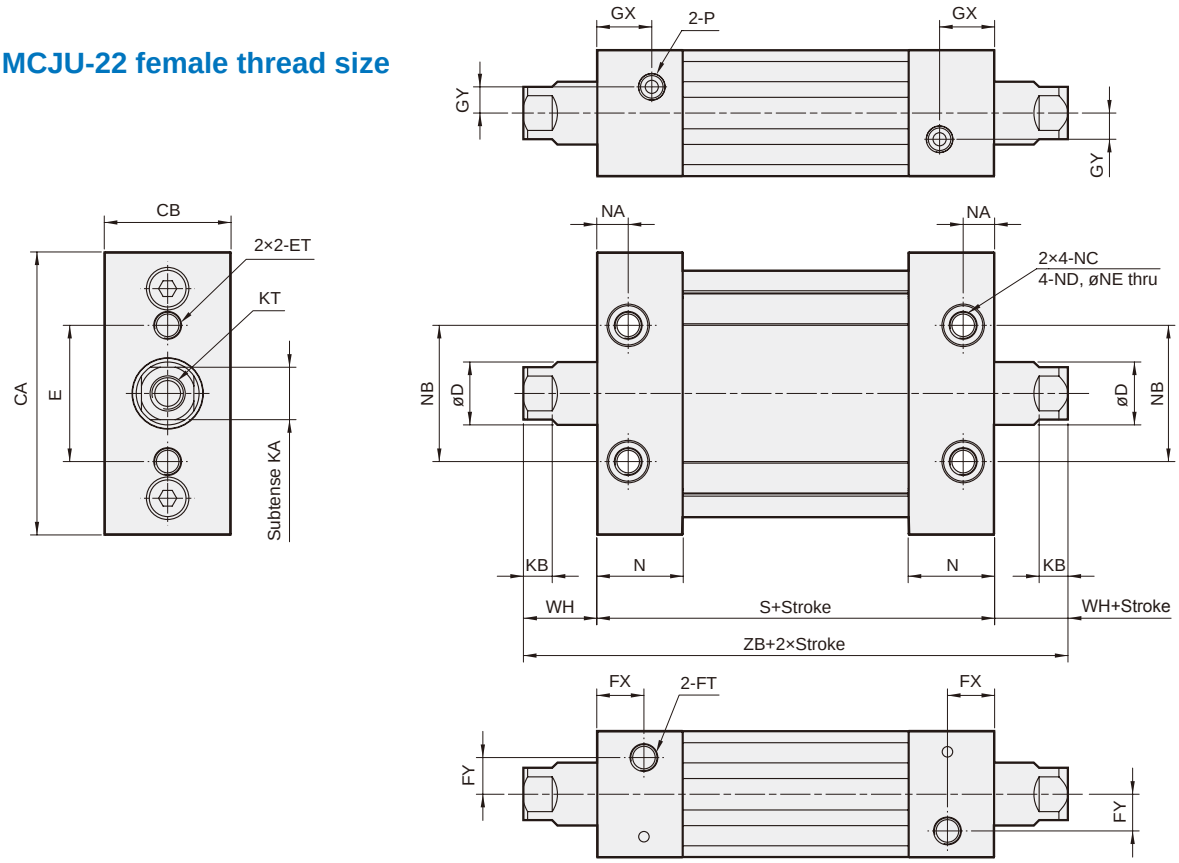




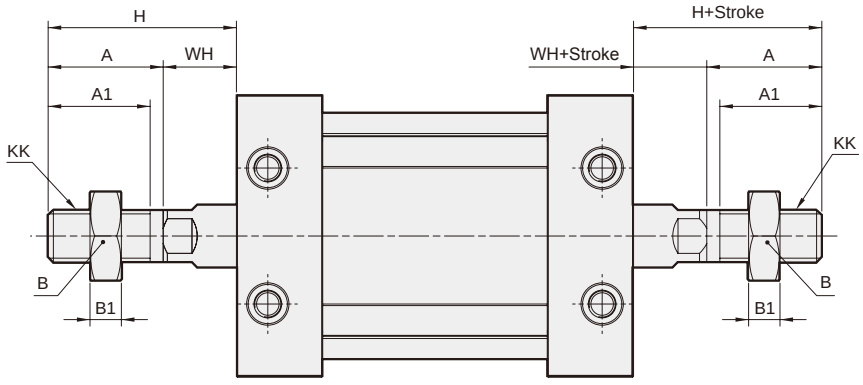
Code / Tube I.D.	A	A1	B	B1	CA	CB	D	E	ET	FT	FX	FY	GX	GY	H	KA	KB	KK
25	22	19.5	17	6	54	24.2	12	26	M5×0.8×11 dp	M5×0.8×7.5 dp	9	7	10.5	5	36	10	5.5	M10×1.25
32	26	23.5	19	7	68	28	14	42	M6×1.0×11 dp	M6×1.0×12 dp	6.5	8	9	5.5	40	12	5.5	M12×1.75
40	30	27	22	8	86	32	16	54	M8×1.25×11 dp	M8×1.25×13 dp	8	9	10	7	45	14	6	M14×1.5
50	35	32	26	11	104	39	20	64	M10×1.5×15 dp	M10×1.5×14.5 dp	10	9	11.5	8	53	18	7	M18×1.5
63	35	32	26	11	124	50	20	72	M12×1.75×15 dp	M12×1.75×18 dp	11	12	11.5	10	56	18	7	M18×1.5

Code / Tube I.D.	KT	N	NA	NB	NC	ND	NE	S	P	WH	ZA
25	M6×1.0×12 dp	16.5	6	26	sinkø7.5×4.5 dp	M5×0.8	4.2	55	M5×0.8	14	69
32	M8×1.25×13 dp	18	6.5	28	sinkø9×5.5 dp	M6×1.0	5.1	58	Rc1/8	14	72
40	M8×1.25×13 dp	18.5	8	36	sinkø10.5×6.5 dp	M8×1.25	6.7	60	Rc1/8	15	75
50	M10×1.5×15 dp	24	10	42	sinkø13.5×8.5 dp	M10×1.5	8.5	74	Rc1/4	18	92
63	M10×1.5×15 dp	24	11	46	sinkø17×10.5 dp	M12×1.75	10.2	75	Rc1/4	21	96

MCJU-22 female thread size



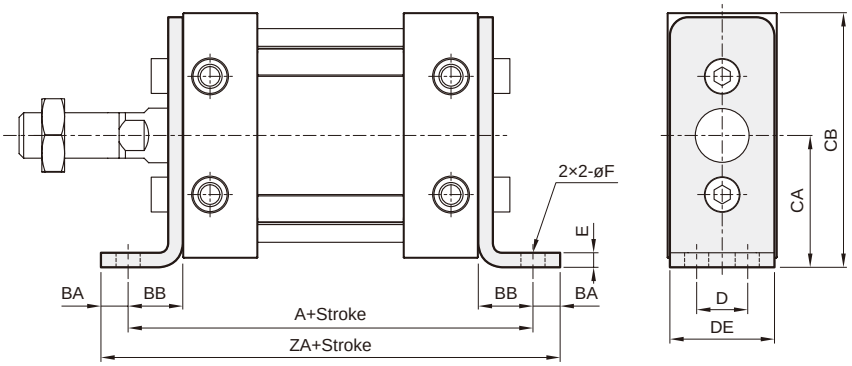
MCJU-21 male thread size



Code / Tube I.D.	A	A1	B	B1	CA	CB	D	E	ET	FT	FX	FY	GX	GY	H	KA	KB	KK
25	22	19.5	17	6	54	24.2	12	26	M5×0.8×11 dp	M5×0.8×7.5 dp	9	7	10.5	5	36	10	5.5	M10×1.25
32	26	23.5	19	7	68	28	14	42	M6×1.0×11 dp	M6×1.0×12 dp	6.5	8	9	5.5	40	12	5.5	M12×1.75
40	30	27	22	8	86	32	16	54	M8×1.25×11 dp	M8×1.25×13 dp	8	9	10	7	45	14	6	M14×1.5
50	35	32	26	11	104	39	20	64	M10×1.5×15 dp	M10×1.5×14.5 dp	10	9	11.5	8	53	18	7	M18×1.5
63	35	32	26	11	124	50	20	72	M12×1.75×15 dp	M12×1.75×18 dp	11	12	11.5	10	56	18	7	M18×1.5

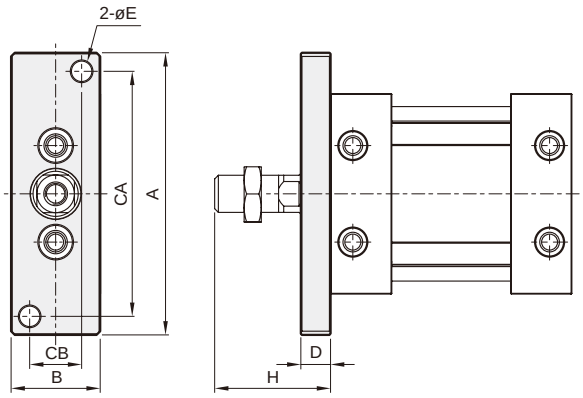
Code / Tube I.D.	KT	N	NA	NB	NC	ND	NE	S	P	WH	ZB
25	M6×1.0×12 dp	16.5	6	26	sinkø7.5×4.5 dp	M5×0.8	4.2	55	M5×0.8	14	83
32	M8×1.25×13 dp	18	6.5	28	sinkø9×5.5 dp	M6×1.0	5.1	58	Rc1/8	14	86
40	M8×1.25×13 dp	18.5	8	36	sinkø10.5×6.5 dp	M8×1.25	6.7	60	Rc1/8	15	90
50	M10×1.5×15 dp	24	10	42	sinkø13.5×8.5 dp	M10×1.5	8.5	74	Rc1/4	18	110
63	M10×1.5×15 dp	24	11	46	sinkø17×10.5 dp	M12×1.75	10.2	75	Rc1/4	21	117

LB



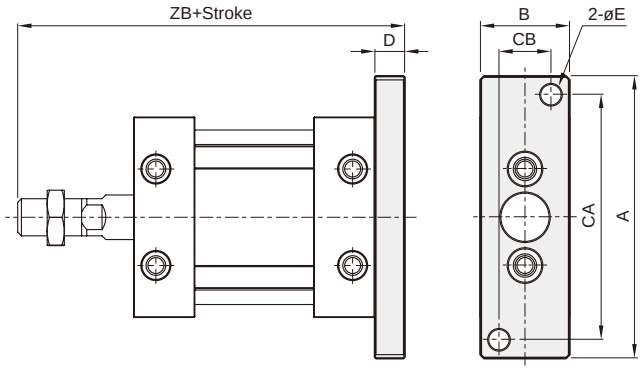
Code / Tube I.D.	A	BA	BB	CA	CB	D	DE	E	F	ZA
25	79	6	12	29	56	11	23	3.2	5.5	109
32	90	8	16	37	71	12	27	4.5	6.6	122
40	96	10	18	46	89	15	31	4.5	9	133
50	116	11	21	57	109	18	37	5	11	159
63	123	14	24	67	129	22	48	6	13.5	169

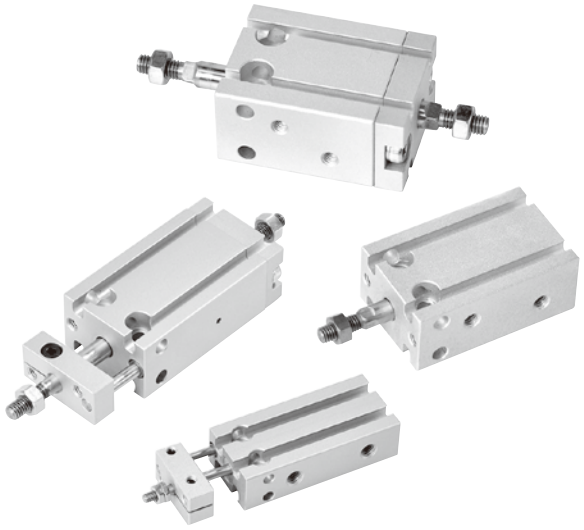
FAC



Code / Tube I.D.	A	B	CA	CB	D	E	H	ZB
25	76	24	66	14	8	5.5	36	99
32	94	28	82	16	8	7	40	106
40	118	32	102	18	9	9	45	114
50	144	39	126	22	12	11	53	139
63	168	50	148	30	14	13	56	145

FBC





Features

- Compact and space saving.

Specification

Model	MCFA					
Acting type	Double acting					
Tube I.D. (mm)	6	10	16	20	25	32
Port size	M5×0.8					Rc1/8
Medium	Air					
Max. operating perssure	0.7 MPa					
Min. operating perssure (MPa)	0.12	0.06		0.05		
Proof pressure	1 MPa					
Cushion	With rubber cushion pad					
Lubrication	Not required					
Ambient temperature	-5~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Sensor switch (*)	RCE, RCE1, RDEP					

* RCE, RCE1, RDEP specification, please refer to page 8-11, 12, 17.

Order example

MCFA — 11 — 6 — 10M — K — □

- MODEL
- 1: Single rod, 2: Double rod
- STYLE
- TUBE I.D.
- STROKE
- M: Magnet
- Blank: Standard, K: Non-rotating rod
- PORT THREAD
  - Blank: M5×0.8 (for ø6~ø25)
  - Blank: Rc thread, G: G thread, NPT: NPT thread (for ø32)

Code		Symbol	Description
1	1		Double action / Male thread
2	1		Double rod / Male thread

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6, 10, 16	5,10,15,20,25,30
ø20, 25, 32	5,10,15,20,25,30,40,50

Tightening torque

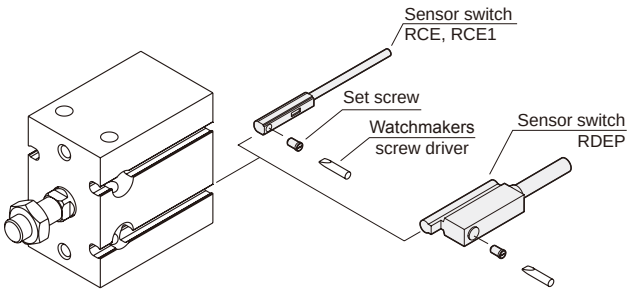
When mounting MCFA series,refer to the below table.

Tube I.D.	Hexagon socket head cap screw dia.(mm)	Proper tightening toque N.m[kgf.cm]
ø6, 10	M3	1.1 [11.2] ± 10%
ø16	M4	2.5 [25.5] ± 10%
ø20, 25	M5	5.0 [51.0] ± 10%
ø32	M6	8.0 [81.6] ± 10%

Cylinder weight

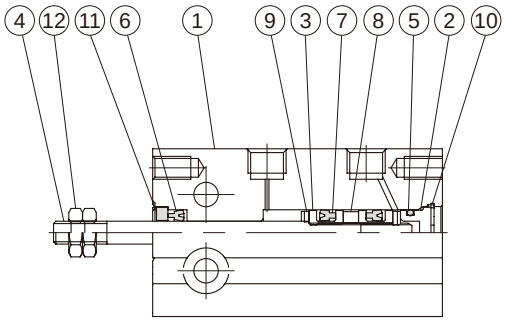
Model	Basic weight **MCFA-11**	Basic weight (magnet) **MCFA-11**	Stroke 5 mm **MCFA-11**
Tube I.D.			
ø6	20	18	3
ø10	32	31	3
ø16	42	58	6
ø20	90	118	10
ø25	161	202	17
ø32	268	330	26

Installation of sensor switch

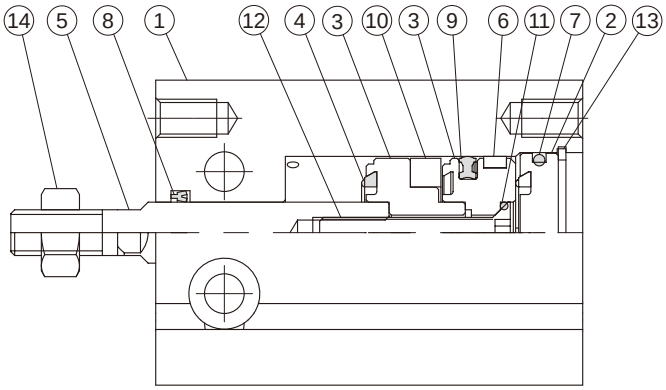


Double acting

ø6



ø10~ø32



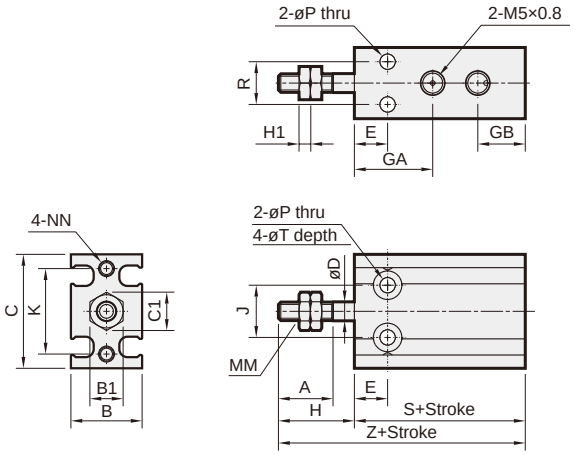
Material

No.	Tube I.D. / Part name	6	Note
1	Body	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Piston	Aluminum alloy	
4	Rod	Stainless steel	
5	Cover ring	NBR	
6	Rod packing	NBR	
7	Piston packing	NBR	
8	Magnet ring	Magnet material	for with magnet
9	Cushion packing	PU	
10	Snap ring	Spring steel	
11	Fixed ring	Aluminum alloy	
12	Rod front nut	Carbon steel	

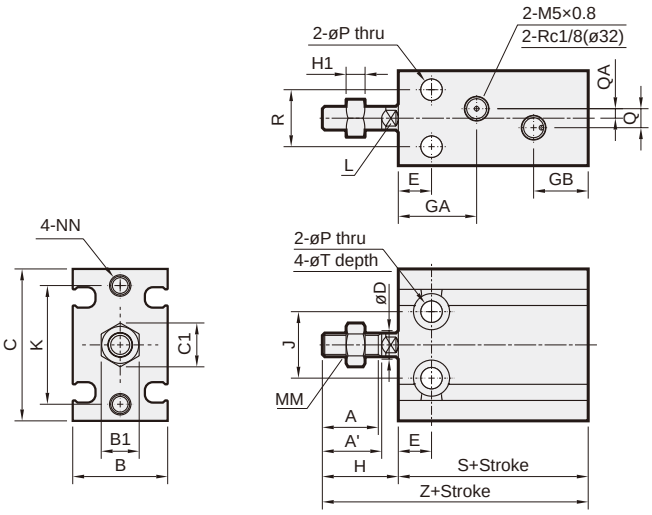
No.	Tube I.D. / Part name	10	16	20	25	32	Note
1	Body	Aluminum alloy					
2	Head cover	Aluminum alloy					
3	Piston	Aluminum alloy					
4	Cushion packing	NBR					
5	Rod	Stainless steel				*	
6	Wear ring	Teflon					
7	Cover ring	NBR					
8	Rod packing	NBR					
9	Piston packing	NBR					
10	Magnet ring	Magnet material					for with magnet
11	Piston gasket	–	NBR				
12	Piston bolt	–	SCM				for without magnet
		–	Stainless steel				for with magnet
13	Snap ring	Spring steel					
14	Rod front nut	Carbon steel					

* Medium carbon steel

ø6, ø10



ø16~ø32

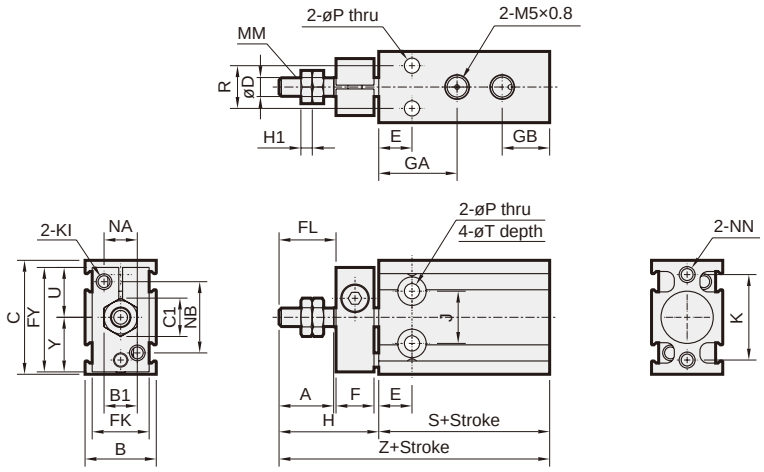


Code / Tube I.D.	A	A'	B	B1	C	C1	D	E	GA	GB	H	H1	J	K	L	MM	NN	P	Q	QA	R
6	7	–	13	5.5	22	6.4	3	7	15	10	13	1.8	10	17	–	M3×0.5	M3×0.5×5depth	3.2	–	–	7
10	10	–	15	7	24	8.1	4	7	16.5	10	16	2.4	11	18	–	M4×0.7	M3×0.5×5depth	3.2	–	–	9
16	11	12.5	20	8	32	9.2	6	7	16.5*	11.5	16	4	14	25	5	M5×0.8	M4×0.7×6depth	4.5	4	2	12
20	12	14	26	10	40	11.5	8	9	19	12.5	19	5	16	30	6	M6×1.0	M5×0.8×8depth	5.5	9	4.5	16
25	15.5	18	32	13	50	15.0	10	10	21.5	13	23	5	20	38	8	M8×1.25	M5×0.8×8depth	5.5	9	4.5	20
32	19.5	22	40	17	62	19.6	12	11	23	12.5	27	6	24	48	10	M10×1.25	M6×1.0×9depth	6.6	13.5	4.5	24

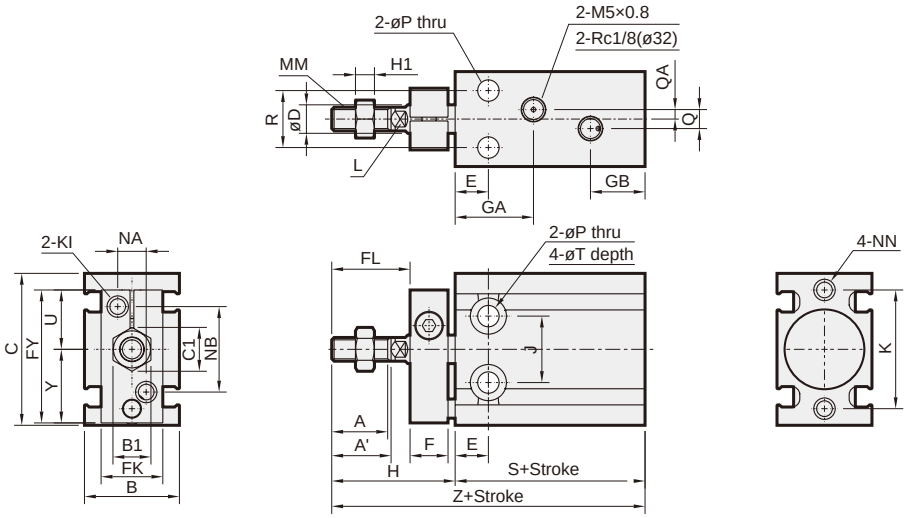
* Without magnet with stroke=5mm, GA=14.5mm.

Code / Tube I.D.	T	Without magnet		Magnet	
		S	Z	S	Z
6	6×4.8depth	33	46	33	46
10	6×5depth	36	52	36	52
16	7.6×6.5depth	30	46	40	56
20	9.3×8depth	36	55	46	65
25	9.3×9depth	40	63	50	73
32	11×11.5depth	42	69	52	79

ø6, ø10



ø16~ø32

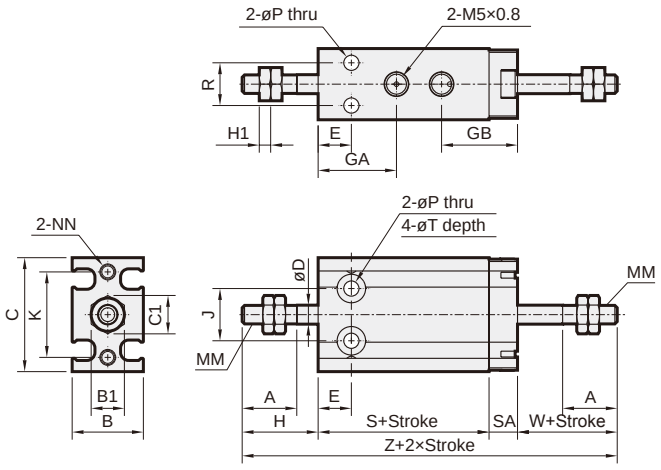


Code / Tube I.D.	A	A'	B	B1	C	C1	D	E	F	FL	FK	FY	GA	GB	H	H1	J	K	KI	L	MM	NA	NB
6	7	–	13	5.5	22	6.4	3	7	8	9	11	20.5	15	10	18	1.8	10	17	M3×0.5	–	M3×0.5	6	14
10	10	–	15	7	24	8.1	4	7	8	12	12	22	16.5	10	21	2.4	11	18	M3×0.5	–	M4×0.7	7	15
16	11	12.5	20	8	32	9.2	6	7	8	17	13	28	16.5*	11.5	26	4	14	25	M4×0.7	5	M5×0.8	6	18
20	12	14	26	10	40	11.5	8	9	8	20	16	33	19	12.5	29	5	16	30	M4×0.7	6	M6×1.0	8	20
25	15.5	18	32	13	50	15.0	10	10	10	22	20	43.5	21.5	13	33	5	20	38	M5×0.8	8	M8×1.25	10	28
32	19.5	22	40	17	62	19.6	12	11	12	29	24	51.5	23	12.5	42	6	24	48	M5×0.8	10	M10×1.25	12	32

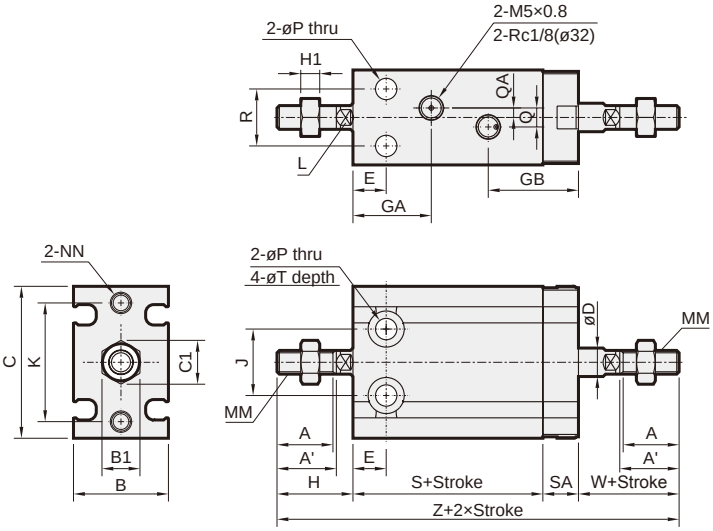
* Without magnet with stroke=5mm, GA=14.5mm.

Code / Tube I.D.	NN	P	Q	QA	R	T	U	Y	Without magnet		Magnet	
									S	Z	S	Z
6	M3×0.5×5depth	3.2	–	–	7	6×4.8depth	10	10.5	33	51	33	51
10	M3×0.5×5depth	3.2	–	–	9	6×5depth	10.5	11.5	36	57	36	57
16	M4×0.7×6depth	4.5	4	2	12	7.6×6.5depth	12.5	15.5	30	56	40	66
20	M5×0.8×8depth	5.5	9	4.5	16	9.3×8depth	13.5	19.5	36	65	46	75
25	M5×0.8×8depth	5.5	9	4.5	20	9.3×9depth	19	24.5	40	73	50	83
32	M6×1.0×9depth	6.6	13.5	4.5	24	11×11.5depth	21	30.5	42	84	52	94

ø6, ø10



ø16~ø32

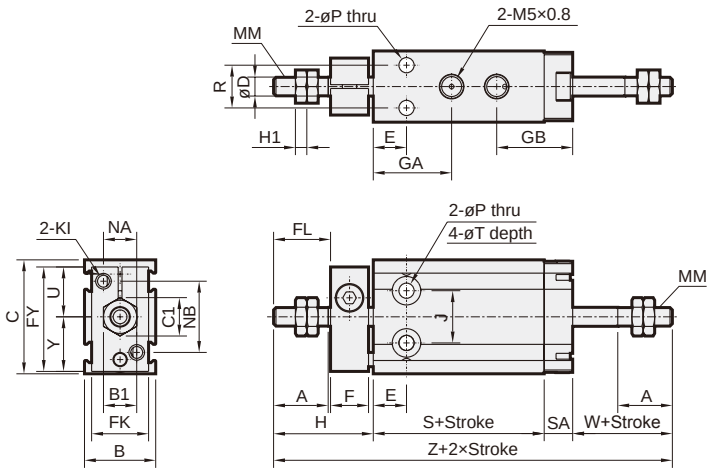


Code / Tube I.D.	A	A'	B	B1	C	C1	D	E	GA	GB	H	H1	J	K	L	MM	NN	P	Q	QA	R	SA
6	7	–	13	5.5	22	6.4	3	7	15	16	13	1.8	10	17	–	M3×0.5	M3×0.5×5depth	3.2	–	–	7	6
10	10	–	15	7	24	8.1	4	7	16.5	16	16	2.4	11	18	–	M4×0.7	M3×0.5×5depth	3.2	–	–	9	6
16	11	12.5	20	8	32	9.2	6	7	16.5*	19	16	4	14	25	5	M5×0.8	M4×0.7×6depth	4.5	4	2	12	7.5
20	12	14	26	10	40	11.5	8	9	19	21.5	19	5	16	30	6	M6×1.0	M5×0.8×8depth	5.5	9	4.5	16	9
25	15.5	18	32	13	50	15.0	10	10	21.5	22	23	5	20	38	8	M8×1.25	M5×0.8×8depth	5.5	9	4.5	20	9
32	19.5	22	40	17	62	19.6	12	11	23	22.5	27	6	24	48	10	M10×1.25	M6×1.0×9depth	6.6	13.5	4.5	24	10

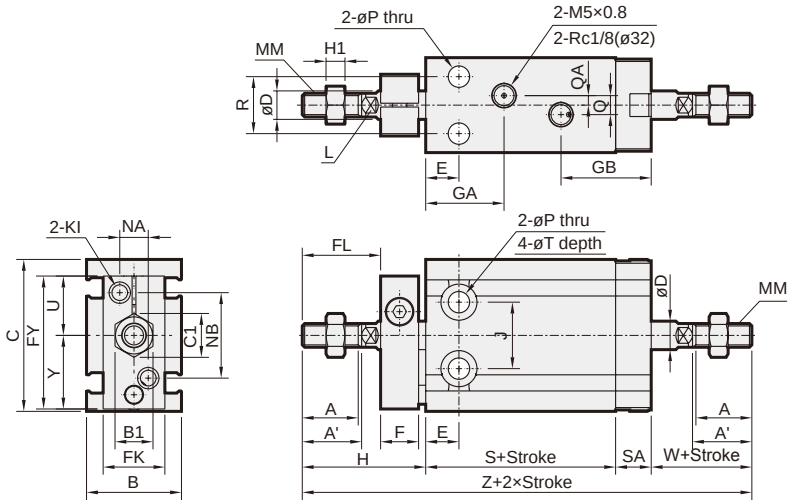
* Without magnet with stroke=5mm, GA=14.5mm.

Code / Tube I.D.	T	W	Without magnet		Magnet	
			S	Z	S	Z
6	6×4.8depth	13	38	70	38	70
10	6×5depth	16	36	74	36	74
16	7.6×6.5depth	16	30	69.5	40	79.5
20	9.3×8depth	19	36	83	46	93
25	9.3×9depth	23	40	95	50	105
32	11×11.5depth	27	42	106	52	116

ø6, ø10



ø16~ø32



Code / Tube I.D.	A	A'	B	B1	C	C1	D	E	F	FL	FK	FY	GA	GB	H	H1	J	KI	L	MM	NA	NB	P	Q
6	7	–	13	5.5	22	6.4	3	7	8	9	11	20.5	15	16	18	1.8	10	M3×0.5	–	M3×0.5	6	14	3.2	–
10	10	–	15	7	24	8.1	4	7	8	12	12	22	16.5	16	21	2.4	11	M3×0.5	–	M4×0.7	7	15	3.2	–
16	11	12.5	20	8	32	9.2	6	7	8	17	13	28	16.5*	19	26	4	14	M4×0.7	5	M5×0.8	6	18	4.5	4
20	12	14	26	10	40	11.5	8	9	8	20	16	33	19	21.5	29	5	16	M4×0.7	6	M6×1.0	8	20	5.5	9
25	15.5	18	32	13	50	15.0	10	10	10	22	20	43.5	21.5	22	33	5	20	M5×0.8	8	M8×1.25	10	28	5.5	9
32	19.5	22	40	17	62	19.6	12	11	12	29	24	51.5	23	22.5	42	6	24	M5×0.8	10	M10×1.25	12	32	6.6	13.5

* Without magnet with stroke=5mm, GA=14.5mm.

Code / Tube I.D.	QA	R	SA	T	U	W	Y	Without magnet		Magnet	
								S	Z	S	Z
6	–	7	6	6×4.8depth	10	13	10.5	38	75	38	75
10	–	9	6	6×5depth	10.5	16	11.5	36	79	36	79
16	2	12	7.5	7.6×6.5depth	12.5	16	15.5	30	79.5	40	89.5
20	4.5	16	9	9.3×8depth	13.5	19	19.5	36	93	46	103
25	4.5	20	9	9.3×9depth	19	23	24.5	40	105	50	115
32	4.5	24	10	11×11.5depth	21	27	30.5	42	121	52	131

Features

- Compact and space saving.
- Flush fitting sensor.

Specification

Model		MCFB					
Acting type		Single / Double			Double acting		
Tube I.D. (mm)		6	8	10	12	16	20
Port size		M3×0.5					M5×0.8
Medium		Air					
Max. operating perssure		0.7 MPa					
Min. operating perssure (MPa)	Single	0.3		0.2	–		
	Double	0.15		0.1	0.07		0.05
Proof pressure		1 MPa					
Lubrication		Not required					
Ambient temperature		-5~+60°C (No freezing)					
Available speed range		50~500 mm/sec					
Sensor switch (*)		RDFE(V), RDGV					

* Short stroke length (4, 6, 8mm) only use RDGV.
* RDFE(V), RDGV specification, please refer to page 8-18, 19.

Order example

MCFB — S — 11 — 16 — 10M

- MODEL
- **S**: Axial mounting (Only for ø12,16,20); Blank: Both mounting
- **1**: Single rod
- STYLE (*)
- TUBE I.D.
- STROKE
- **M**: Magnet

* STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread
1	5		Single acting / Normally returned male thread
1	6		Single acting / Normally returned female thread

* Single acting only for ø6, ø8, ø10.
* Single acting without magnet type.

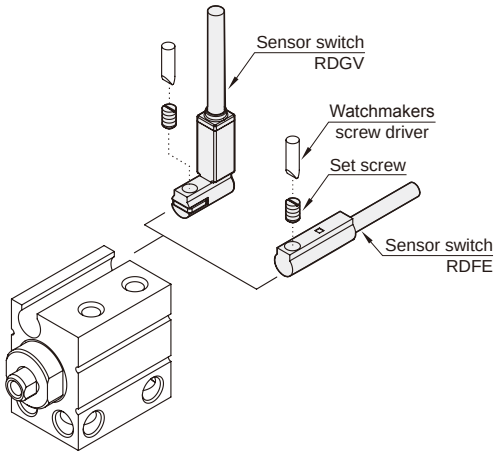
Double acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø6,8	4,6,8,10,15,20,25
ø10	4,6,8,10,15,20,30
ø12,16	5,10,15,20,25,30
ø20	5,10,15,20,25,30,35,40,45,50

Single acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	4,6,8
ø8,10	4,6,8,10

Installation of sensor switch

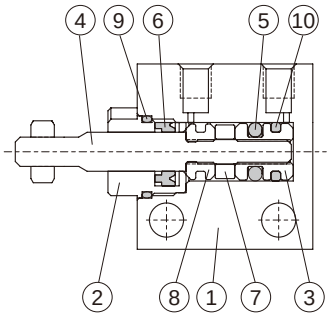


MCFB Inside structure & Parts list

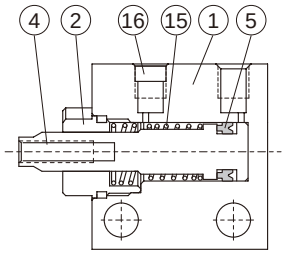
MULTI-MOUNT CYLINDER

ø6, ø8, ø10

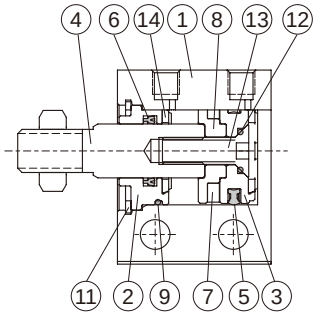
Double acting



Single acting



ø12, ø16, ø20



Material

No.	Part name	Material	Note	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Body	Aluminum alloy		1		
2	Rod cover	Copper	ø12~20 use aluminum alloy	1	●	
3	Piston	Aluminum alloy		1	●	
4	Piston rod	Stainless steel		1		
5	Piston packing	NBR		1	●	●
6	Rod packing	NBR		1	●	●
7	Magnet ring	Magnet material	for with magnet	1	●	
8	Piston	Aluminum alloy	for with magnet	1	●	
9	Cover ring	NBR		1	●	●
10	Wear ring	Teflon		1	●	
11	Snap ring	Spring steel		1	●	
12	Piston gasket	NBR	Only for ø20	1	●	●
13	Piston bolt	Stainless steel	Only for ø20	1	●	
14	Cushion packing	PU		2	●	●
15	Spring	Stainless steel		1	●	
16	Silencer	Brass		1	●	

Order example

Component parts

Tube I.D.	Component parts
ø6	**CP-MCFB-6(M)**
ø8	**CP-MCFB-8(M)**
ø10	**CP-MCFB-10(M)**
ø12	**CP-MCFB-12(M)**
ø16	**CP-MCFB-16(M)**
ø20	**CP-MCFB-20(M)**

* M: With magnet.

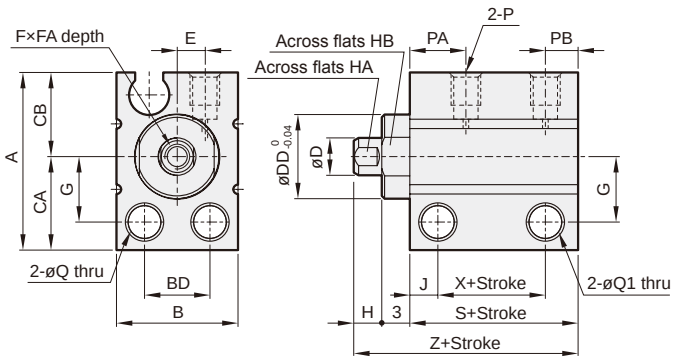
Repair kits

Tube I.D.	Repair kits
ø6	**PS-MCFB-6**
ø8	**PS-MCFB-8**
ø10	**PS-MCFB-10**
ø12	**PS-MCFB-12**
ø16	**PS-MCFB-16**
ø20	**PS-MCFB-20**

Seal kit

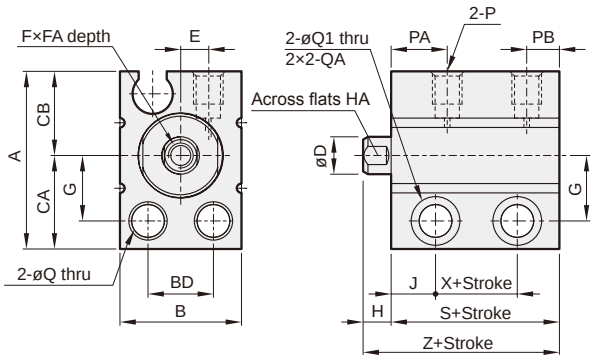
	Rod packing		Piston packing		Cover ring		Piston gasket	
Acting type	Double acting	Normally retruned	Double acting	Single acting	Double acting	Normally retruned	Double acting	Normally retruned
Tube I.D. / Q'y	1	0	1	1	1	0	1	0
ø6	KSYR-4	–	PP-6	KSYP-6	d7×w1	–	–	–
ø8	KSYR-5	–	PP-8	KSYP-8	d9×w1	–	–	–
ø10	KSYR-6	–	OPA-10	KSYP-10	d10×w1	–	–	–
ø12	KSYR-6	–	OPA-12	–	d10×w1	–	–	–
ø16	KSYR-8	–	OPA-16	–	d14×w1	–	–	–
ø20	KSYR-10	–	OPA-20	–	d18×w1	–	d6×w1	–

ø6, ø8, ø10



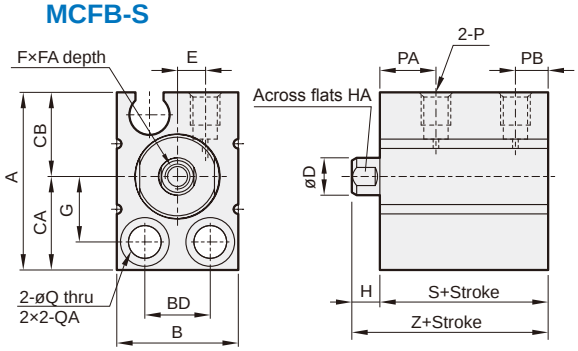
ø12, ø16, ø20

Both mounting

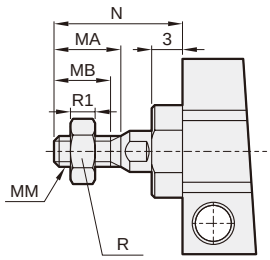


Axial mounting

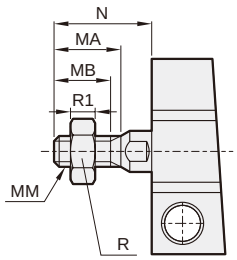
MCFB-S



ø6, ø8, ø10



ø12, ø16, ø20



MCFB-11/15 male thread size

Code / Tube I.D.	MA	MB	MM	N	R	R1
6	6.5	5.5	M3×0.5	12.5	5.5	2.4
8	8.5	7	M4×0.7	14.5	7	3.2
10	10.5	9	M5×0.8	16.5	8	4
12	10.5	9	M5×0.8	14	8	4
16	12	10	M6×1.0	15.5	10	5
20	14	12	M8×1.25	18.5	13	5

Code / Tube I.D.	A	B	BD	CA	CB	D	DD	E	F	FA	G	H	HA	HB	J	P	PA	PB	Q	Q1	QA	Without magnet			Magnet		
																						X	S	Z	X	S	Z
6	19	13	7	10	9	4	9	3	M2.5×0.45	5	7	3	3.5	8	3	M3×0.5	6	3.5	3.5	3.2	–	6.5	13	19	11.5	18	24
8	21	13	7	11	10	5	11	3	M3×0.5	6	8	3	4.5	10	3	M3×0.5	6	3.5	3.5	3.2	–						
10	22	13.5	7	11.5	10.5	6	12	3.2	M3×0.5	6	8.5	3	5	11	3	M3×0.5	6	3.5	3.5	3.2	–						
12	26.5	17	8	15.5	11	6	–	3.5	M3×0.5	6	11	3.5	5	–	6	M3×0.5	7.5	4	4.4	4.4	ø7.5, 7dp	3.5	15.5	19	7.5	19.5	23
16	29.5	21	11.5	17	12.5	8	–	5.5	M4×0.7	8	12.5	3.5	6	–	6	M3×0.5	8.5	4	4.4	4.4	ø7.5, 7dp	4	16.5	20	8.5	21	24.5
20	36	25	13.5	21	15	10	–	7	M5×0.8	7	15.5	4.5	8	–	7	M5×0.8	9	5.5	5.5	5.2	ø9.5, 9dp	5.5	19.5	24	9.5	23.5	28

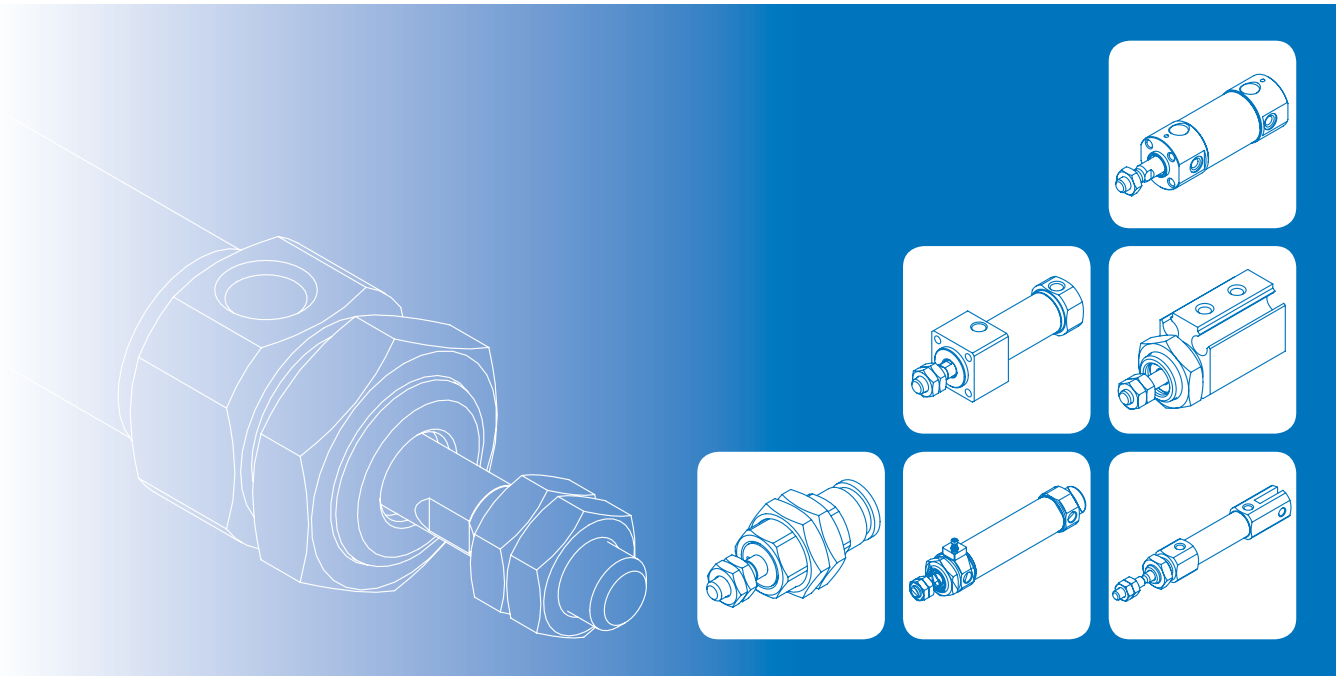
Cylinder weight

Unit: g

11: Male thread (With magnet)								**11**: Male thread (Without magnet)							
Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20	Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20
4	16	20	23	5	27	42	68	4	15	19	21	5	24	38	63
6	17	21	24	10	32	49	78	6	16	20	22	10	29	45	73
8	18	23	26	15	37	56	88	8	18	22	24	15	34	52	83
10	19	24	27	20	42	63	98	10	19	23	25	20	39	59	93
15	22	27	31	25	47	70	108	15	22	26	29	25	44	66	103
20	25	31	34	30	52	77	118	20	25	29	32	30	49	73	113
25	28	34	38	40	–	–	138	25	28	33	36	40	–	–	133
30	–	–	41	50	–	–	158	30	–	–	39	50	–	–	153

12: Male thread (With magnet)								**12**: Male thread (Without magnet)							
Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20	Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20
4	15	18	20	5	24	35	57	4	14	17	18	5	21	31	52
6	16	19	21	10	29	42	67	6	15	18	19	10	26	38	62
8	17	20	23	15	34	49	77	8	16	19	21	15	31	45	72
10	18	22	24	20	39	56	87	10	18	21	22	20	36	52	82
15	21	25	28	25	44	63	97	15	21	24	26	25	41	59	92
20	24	28	31	30	49	70	107	20	24	27	29	30	46	66	102
25	27	31	35	40	–	–	127	25	27	30	33	40	–	–	122
30	–	–	38	50	–	–	147	30	–	–	36	50	–	–	142

MINIATURE CYLINDER



F Fast delivery (11 style)

Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our MINDMAN website (www.mindman.com.tw) and click on the "Component Set Inventory" button.

Miniature / Guide cylinder

❶ **Don't twist the cover.**
Don't twist the cover when install the cylinder or fitting. If cover rotate, the junction is probably destroyed.

❷ **Install the speed control valve to adjust speed.**
When operate the cylinders, please install the control valve to adjust the speed of piston within the regular usage range.

❸ **Don't exert the lateral load on the piston rod.**
Please operate the cylinders within the regular usage ranges. Do not exert excessively lateral load on the piston rod.

❹ **The long piston rod need to be braced by supports.**
Operate the long stroke cylinders, please use supports to brace the piston rod for avoiding piston rod droop.

❺ **Don't close the needle valve completely.**
Don't operate the cylinders that the needle valve of which is close completely. That cause packings and related parts are broken.

❻ **Don't open the needle valve excessively.**
Open the needle valve excessively that like no buffer. The piston hit the cover directly, lead to the piston and cover probably broken.

❼ **The parts inside the cylinder tube can't be replaced.**
The cover and cylinder tube are combined by rolling, so that can't be disassembled. The parts inside the cylinder tube can't be replaced except the rod packing.

❽ **Assemble snap ring into the groove certainly.**
Please use the appropriate tool to disassemble the snap ring for replacing the rod packing, Don't support the air to the cylinders until finish replacing certainly to avoid snap ring spouting hurt people or machines.

Miniature cylinder
Applicable model
MCMA
MCMB
MCKMB
MCMBL
MCMBR*
MCMI
MCMIS
MCKMI

Guide cylinder
Applicable model
MGTB
MGTK
MGTU

Pen cylinder

❶ **Don't twist the cover.**
Don't twist the cover when install the cylinder or fitting. If cover rotate, the junction is probably destroyed.

❷ **Install the speed control valve to adjust speed.**
When operate the cylinders, please install the control valve to adjust the speed of piston within the regular usage range.

❸ **Don't exert the lateral load on the piston rod.**
Please operate the cylinders within the regular usage ranges. Do not exert excessively lateral load on the piston rod.

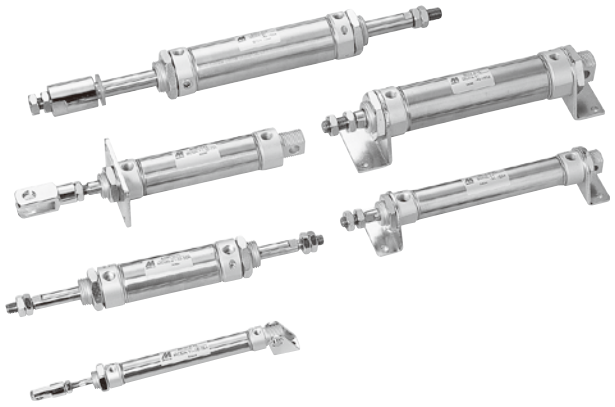
❹ **The parts inside the cylinder tube can't be replaced.**
The cover and cylinder tube are combined by rolling, so that can't be disassembled. The parts inside the cylinder tube can't be replaced.

Applicable model
MCMJ
MCMJ1

MCMA series

MINIATURE CYLINDER

mindman



Features

■ Non lubrication

- Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

- Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.
- Operation, with the exception of MCMA-11, single and doubling type available MCMA-13 / 15.

■ Magnetic as standard

Specification

Model		MCMA				
Tube I.D.		16	20	25	32	40
Port size		M5×0.8	Rc1/8			
Medium		Air				
Max. operating perssure		0.7 MPa				
Min. operating perssure		Double: 0.06 MPa ; Single: 0.15 MPa				
Proof pressure		1 MPa				
Available speed range		50~500 mm/sec				
Ambient temperature		-5~+60°C (No freezing)				
Lubricator		Not required				
Max. allowable kinetic energy (J)	Cushion pad	0.16	0.27	0.4	0.65	1.2
	Cushion air	0.32	0.54	0.78	1.27	2.35
Sensor switch		RCM (Please refer to page 8-15)				
Sensor switch (band)		BM16	BM20	BM25	BM32	BM40

* For precautions, please refer to page 3-2.

Table for standard stroke

	Tube I.D.	Stroke (mm)
Single acting	ø16	15,25,50,75,100
	ø20, 25, 32	15,25,50,75,100,125,150
Double acting	ø16	15,25,50,75,100,125,150,200,250, 300,350,400,450,500
	ø20, 25, 32,40	15,25,50,75,100,125,150,200,250, 300,350,400,450,500

- Available with double action type cylinder with stroke more than 500 mm. Sub-piston increases the total length of cylinder by 10 mm and provides further stability.
- Please consult us if stroke out of specification.

Order example

MCMA — 11 — 32 — 100 — A — N — □

- MODEL
- STYLE
  - **1**: Single rod
  - **2**: Double rod
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable)
  A: Cushion air (Adjustable) ⚠
- Blank: Standard
  N: Non-pivot type (end-plain)
- PORT THREAD
  - Blank: M5×0.8 (for ø16)
  - Blank: Rc thread
    G: G thread
    NPT: NPT thread
    (for ø20~ø40)

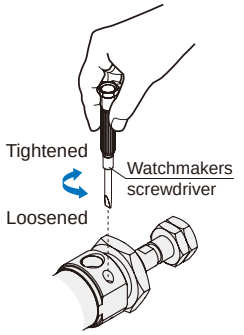
Code		Symbol	Description
1	1		Double acting / Male thread
1	3		Single acting / Normally extended male thread
1	5		Single acting / Normally returned male thread
2	1		Double rod / Male thread
2	3		Single acting / Double rod male thread
2	7		Double rod / Adjustable male thread Please mark "adjustable distance(mm)" at order list

* Order example for special specification, refer to page 0-7.

Caution

For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.

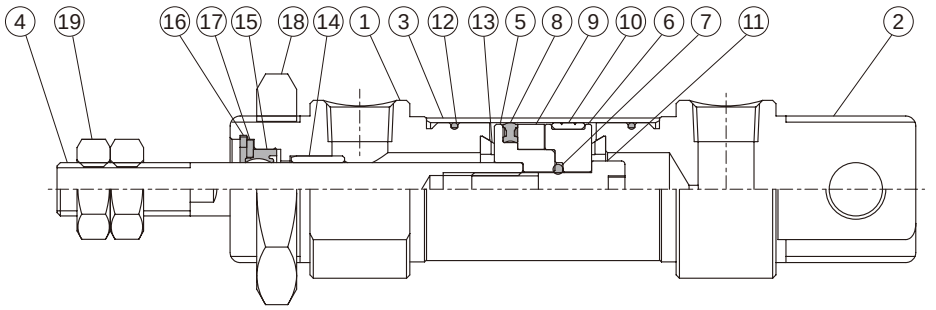


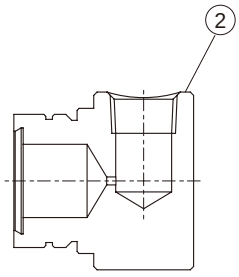
Mounting accessories

FA — MCMA — 32

- MODEL
- TUBE I.D.
- MOUNTING TYPE

	LB
	FA
	FB
	SDB
	Y
	I
	YS (Y+Floaing+PIN)





N type

Material

No.	Tube I.D. / Part name	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) **11** type	Component parts (inclusion) **21** type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy					1	2	●	●	
2	Head cover	Aluminum alloy					1	–	●		
3	Tube	Stainless steel					1	1			
4	Piston rod	*1	Carbon steel				1	1			
5	Piston-R	Aluminum alloy					1	1	●	●	
6	Piston-H	Aluminum alloy					1	1	●	●	
7	Piston gasket	NBR					1	1	●	●	
8	Piston packing	NBR					1	1	●	●	
9	Magnet ring	Magnet material					1	1	●	●	
10	Wear ring	POM					1	1	●	●	
11	Piston bolt	SCM					1	–	●		
12	Cover ring	NBR					2	2	●	●	
13	Cushion gasket	NBR					2	2	●	●	
14	Rod bush	Bearing alloy					1	2	●	●	
15	Rod packing	NBR					1	2	●	●	●
16	Snap ring	Spring steel					1	2	●	●	
17	Washer	Carbon steel					1	2	●	●	
18	Tie nut	Carbon steel					1	2	●	●	
19	Rod front nut	Carbon steel					2	2	●	●	

*1. Stainless steel

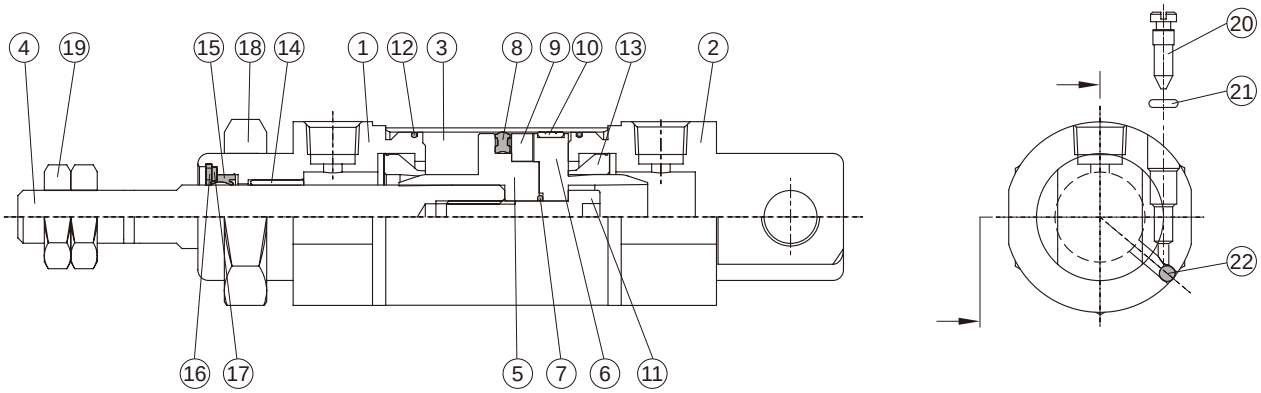
Order example

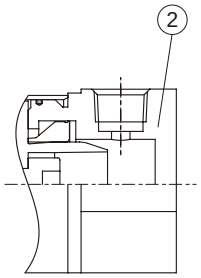
Component parts / Repair kits

Tube I.D.	Component parts	Repair kits
ø16	**CP-MCMA-16**	**PS-MCMA-16**
ø20	**CP-MCMA-20**	**PS-MCMA-20**
ø25	**CP-MCMA-25**	**PS-MCMA-25**
ø32	**CP-MCMA-32**	**PS-MCMA-32**
ø40	**CP-MCMA-40**	**PS-MCMA-40**

Non-pivot type (end-plain)

Tube I.D.	Component parts
ø16	**CP-MCMA-16-N**
ø20	**CP-MCMA-20-N**
ø25	**CP-MCMA-25-N**
ø32	**CP-MCMA-32-N**
ø40	**CP-MCMA-40-N**





N type

Material

No.	Tube I.D. / Part name	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) **11** type	Component parts (inclusion) **21** type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy					1	2	●	●	
2	Head cover	Aluminum alloy					1	–	●		
3	Tube	Stainless steel					1	1			
4	Piston rod	*1	Carbon steel				1	1			
5	Piston-R	Aluminum alloy					1	1	●	●	
6	Piston-H	Aluminum alloy					1	1	●	●	
7	Piston gasket	NBR					1	1	●	●	
8	Piston packing	NBR					1	1	●	●	
9	Magnet ring	Magnet material					1	1	●	●	
10	Wear ring	POM					1	1	●	●	
11	Piston bolt	SCM					1	–	●		
12	Cover ring	NBR					2	–	●	●	
13	Cushion packing	NBR					2	2	●	●	
14	Rod bush	Bearing alloy					1	2	●	●	
15	Rod packing	NBR					1	2	●	●	●
16	Snap ring	Spring steel					1	2	●	●	
17	Washer	Carbon steel					1	2	●	●	
18	Tie nut	Carbon steel					1	2	●	●	
19	Rod front nut	Carbon steel					2	2	●	●	
20	Needle valve	Stainless steel			Carbon steel		2	2	●	●	
21	Needle valve packing	NBR					2	2	●	●	●
22	Steel ball	Stainless steel					2	2	●	●	

*1. Stainless steel

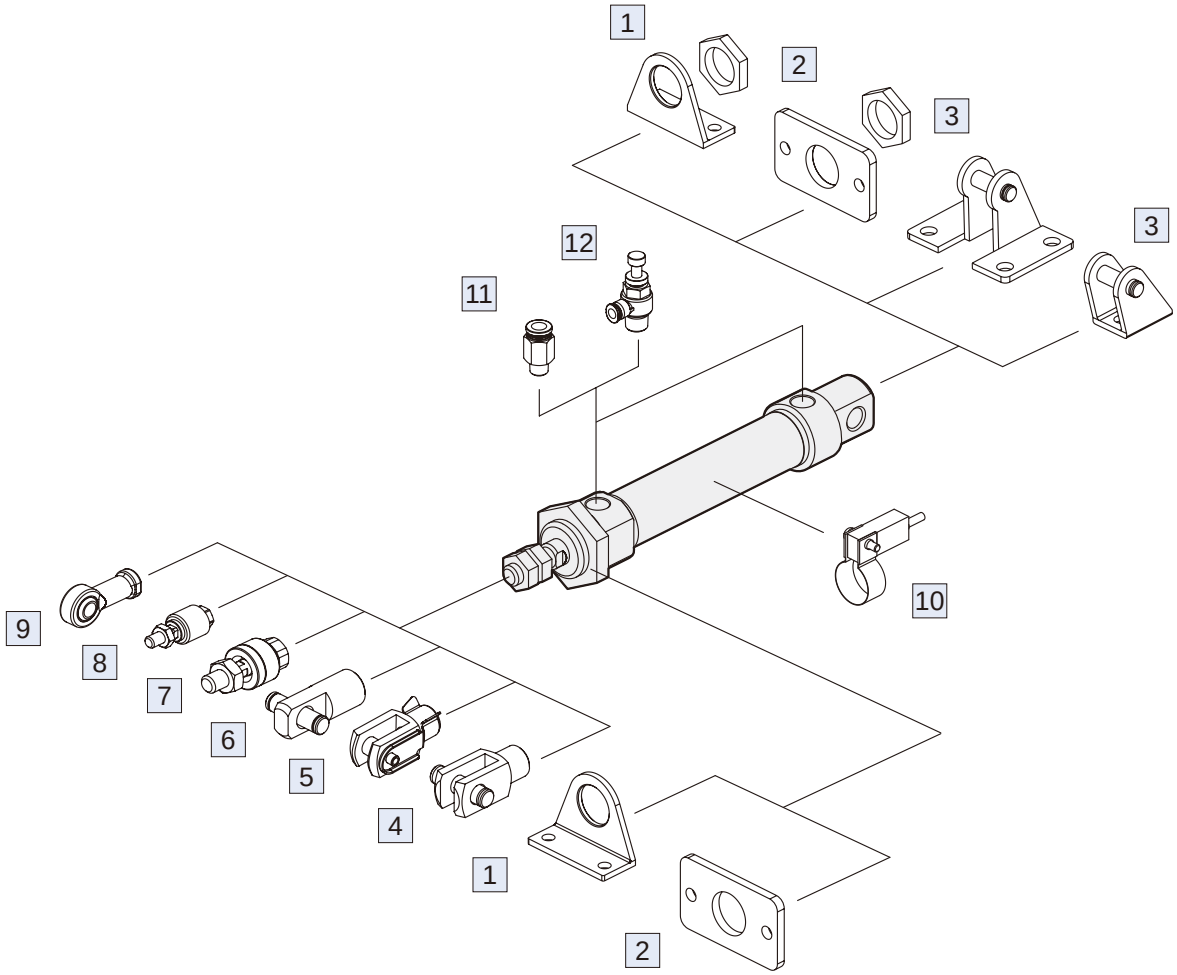
Order example

Component parts / Repair kits

Tube I.D.	Component parts	Repair kits
ø16	**CP-MCMA-16A**	**PS-MCMA-16A**
ø20	**CP-MCMA-20A**	**PS-MCMA-20A**
ø25	**CP-MCMA-25A**	**PS-MCMA-25A**
ø32	**CP-MCMA-32A**	**PS-MCMA-32A**
ø40	**CP-MCMA-40A**	**PS-MCMA-40A**

Non-pivot type (end-plain)

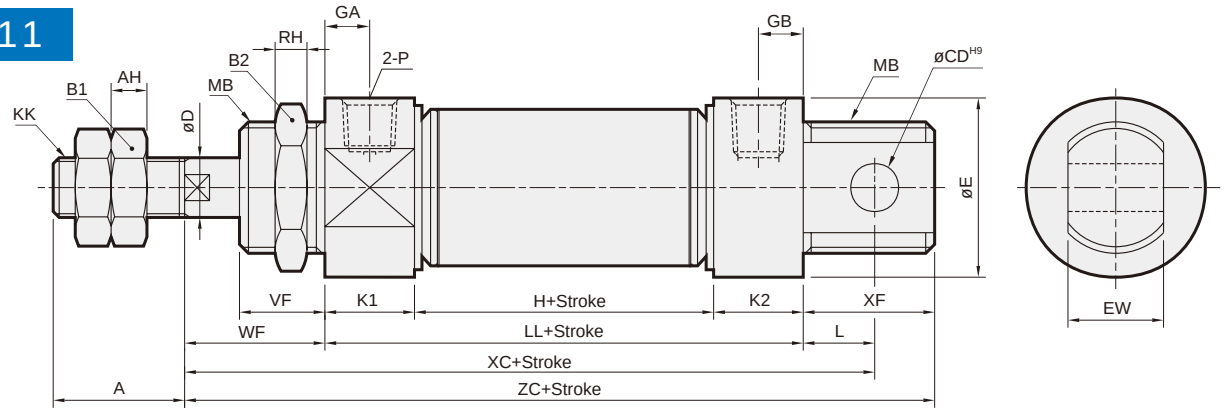
Tube I.D.	Component parts
ø16	**CP-MCMA-16A-N**
ø20	**CP-MCMA-20A-N**
ø25	**CP-MCMA-25A-N**
ø32	**CP-MCMA-32A-N**
ø40	**CP-MCMA-40A-N**



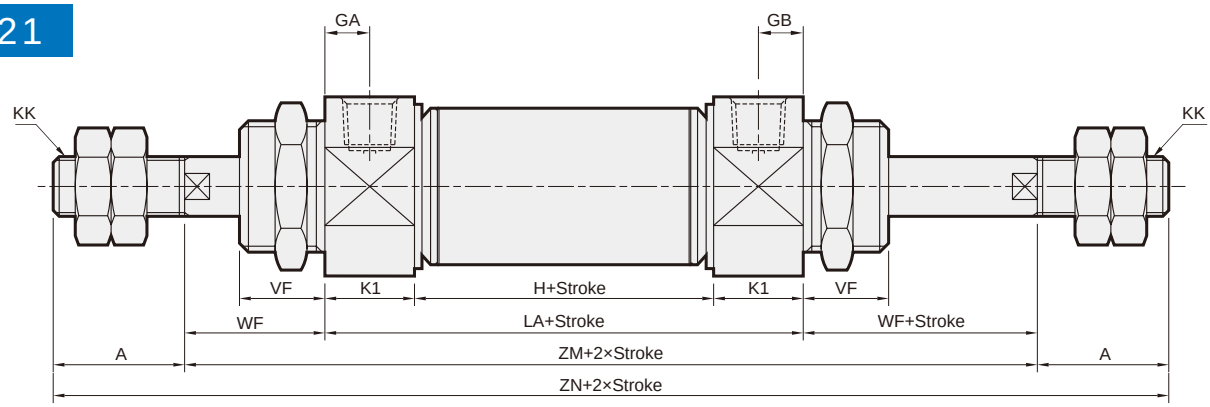
No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-8, 12
2	Mounting accessories FA/FB	Carbon steel	3-9, 13
3	Mounting accessories SDB+PIN	Carbon steel	3-9, 13, 14
4	Accessories Y+PIN	Carbon steel	3-14
5	Accessories YS (Y+Floating pin)	Carbon steel	3-14
6	Accessories I+PIN	Carbon steel	3-14

No.	Accessories	Material	Page
7	Floating joint MFC	Carbon steel	8-2
8	Floating joint MFCS	Carbon steel	8-5
9	Female rod ends PHS	Carbon steel	8-6
10	Sensor switch RCM+BM**	–	8-15
11	Fitting PC (PISCO)	–	7-3 (Vol.1)
12	Speed controller JSC (PISCO)	–	7-15 (Vol.1)

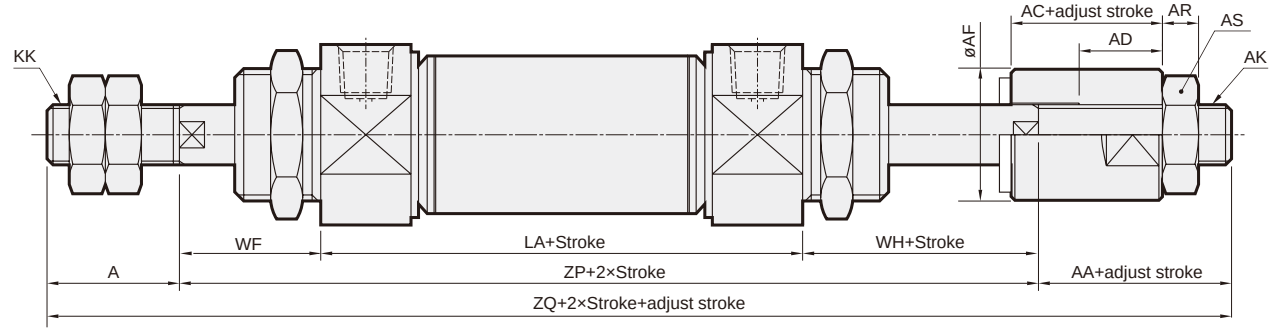
11



21



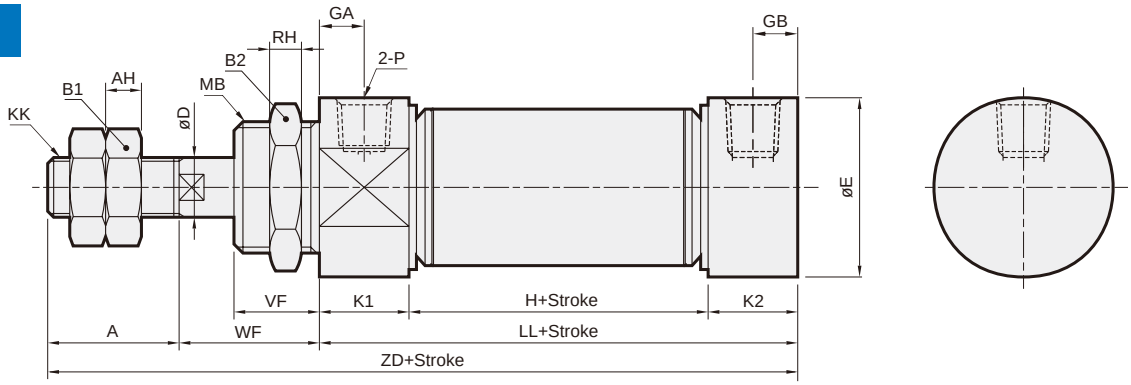
27



Code / Tube I.D.	A	AA	AC	AD	AF	AH	AR	AS	AK	B1	B2	CD	D	E	EW	GA	GB	H	KK
16	16	16	13	7.5	12	5	4	8	M5×0.8	10	22	6	6	19.7	12 $^{-0.05}_{-0.4}$	5	5	34	M6×1.0
20	20	19	15	9.5	16	5	5	13	M8×1.25	13	30	8	8	26.7	16 $^{-0.05}_{-0.4}$	7.5	7.5	40	M8×1.25
25	22	19	15	9.5	16	6	5	13	M8×1.25	17	30	8	10	29.7	16 $^{-0.05}_{-0.4}$	7.5	7.5	40	M10×1.25
32	22	18	12	7	20	6	6	17	M10×1.25	17	32	10	12	36	16 $^{-0.05}_{-0.4}$	7.5	10.5	37	M10×1.25
40	30	18	12	7	30	7	7	19	M12×1.25	19	41	12	14	45	20 $^{-0.05}_{-0.4}$	7.5	10.5	42	M12×1.25

Code / Tube I.D.	K1	K2	L	LA	LL	MB	P	RH	VF	WF	WH	XC	XF	ZC	ZM	ZN	ZP	ZQ
16	10	10	9	54	54	M16×1.5	M5×0.8	6	12	22	19.5	85	16	92	98	130	95.5	127.5
20	15	15	12	70	70	M22×1.5	Rc1/8	6	12	18	19.5	100	21	109	106	146	107.5	146.5
25	15	15	12	70	70	M22×1.5	Rc1/8	6	15	27	22.5	109	21	118	124	168	119.5	160.5
32	15	18	14	67	70	M24×2.0	Rc1/8	8	18	30	24	114	24	124	127	171	121	161
40	15	18	16	72	75	M30×2.0	Rc1/8	8	17	27	24	118	28	130	126	186	123	171

N

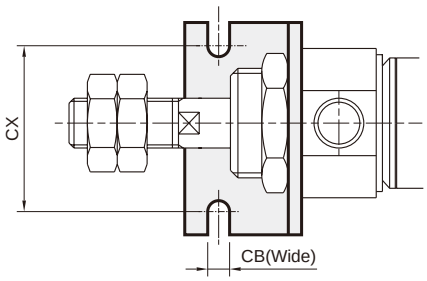


Code / Tube I.D.	A	AH	B1	B2	D	E	GA	GB	H	KK	K1	K2	LL	MB	P	RH	VF	WF	ZD
16	16	5	10	22	6	19.7	5	5	34	M6×1.0	10	10	54	M16×1.5	M5×0.8	6	12	22	92
20	20	5	13	30	8	26.7	7.5	7.5	40	M8×1.25	15	15	70	M22×1.5	Rc1/8	6	12	18	108
25	22	6	17	30	10	29.7	7.5	7.5	40	M10×1.25	15	15	70	M22×1.5	Rc1/8	6	15	27	119
32	22	6	17	32	12	36	7.5	10.5	37	M10×1.25	15	18	70	M24×2.0	Rc1/8	8	18	30	122
40	30	7	19	41	14	45	7.5	10.5	42	M12×1.25	15	18	75	M30×2.0	Rc1/8	8	17	27	132

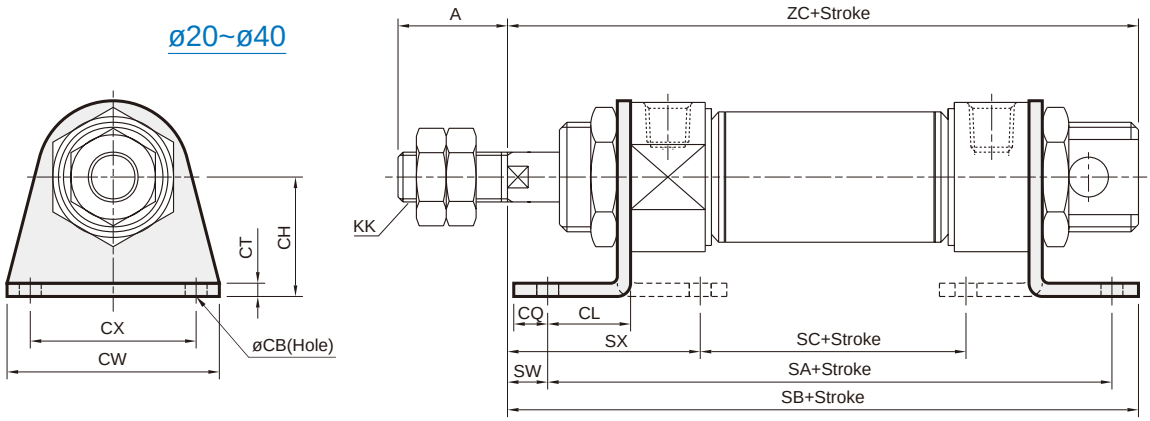
Mounting accessories

LB

ø16

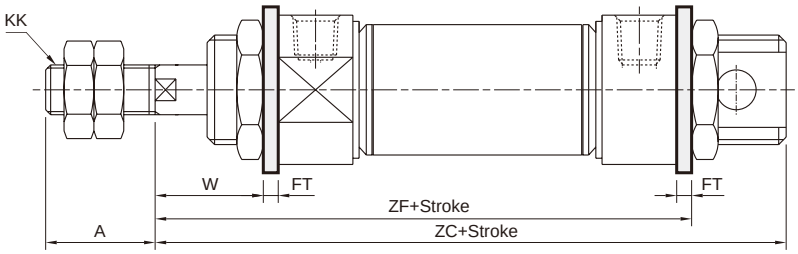


ø20~ø40

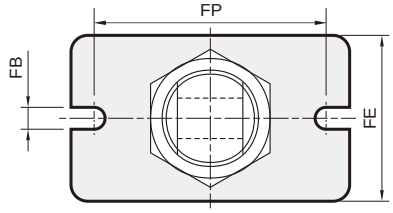


Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SA	SB	SC	SW	SX	ZC
16	16	5.5	20	13	6	3.2	44	32	M6×1.0	80	95	34.4	9	31.8	92
20	20	6.6	25	15	8	3.2	54	40	M8×1.25	100	111	46.4	3	29.8	109
25	22	6.6	25	15	8	3.2	54	40	M10×1.25	100	120	46.4	12	38.8	118
32	22	6.6	32	25	8	4	59	45	M10×1.25	120	133	28	5	51	124
40	30	6.6	36	25	8	4	64	50	M12×1.25	125	135	33	2	48	130

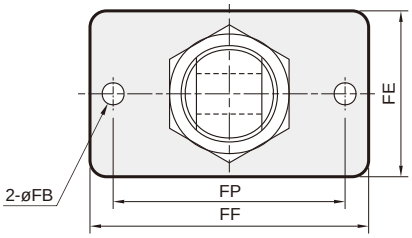
FA/FB



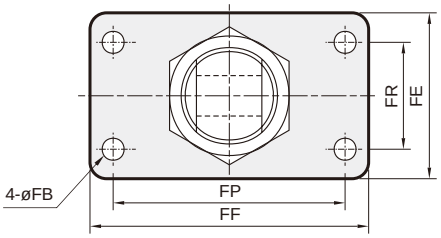
ø16



ø20, ø25

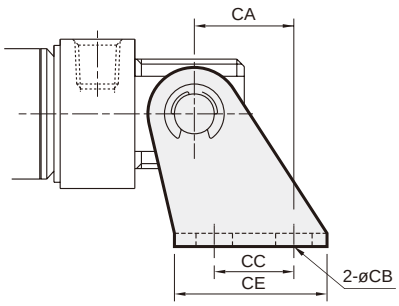


ø32, ø40

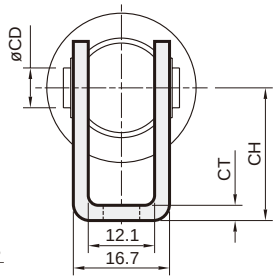


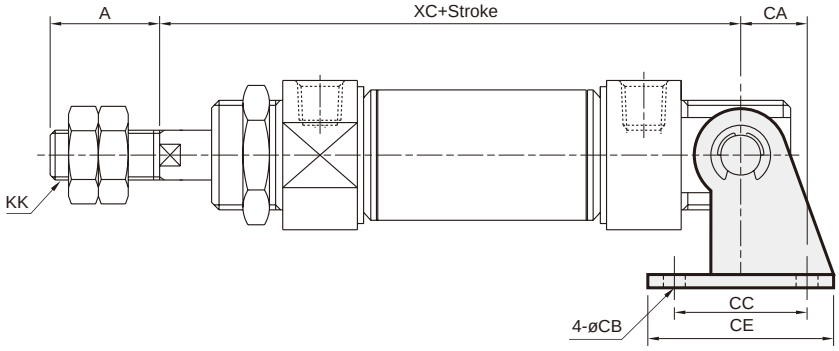
Code / Tube I.D.	A	FB	FE	FF	FP	FR	FT	KK	W	ZC	ZF
16	16	5.5	26	52	40	–	3.2	M6×1.0	18.8	92	79.2
20	20	6.6	38	64	50	–	4.5	M8×1.25	13.5	109	92.5
25	22	6.6	38	64	50	–	4.5	M10×1.25	22.5	118	101.5
32	22	6.6	47	72	58	33	4.5	M10×1.25	25.5	124	104.5
40	30	6.6	50	84	70	36	4.5	M12×1.25	22.5	130	105.5

SDB

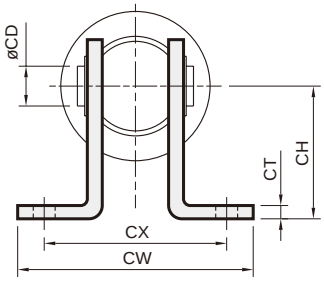


ø16





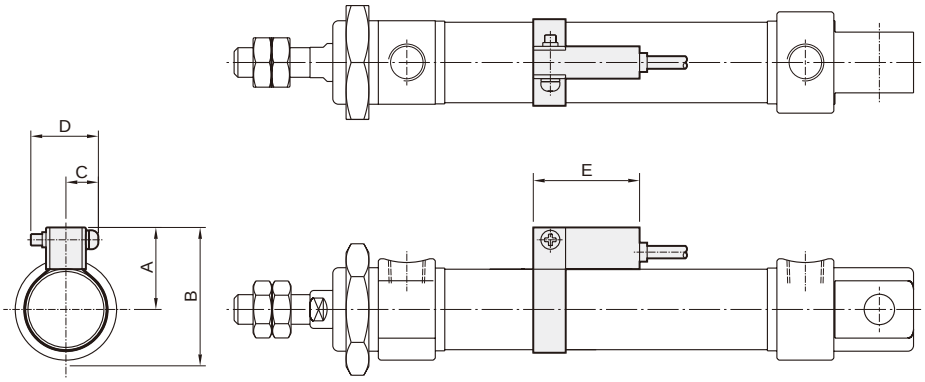
ø20~ø40



Code / Tube I.D.	A	CA	CB	CC	CD	CE	CH	CT	CW	CX	KK	XC
16	16	15	5.5	12	6	23	20	2.3	–	–	M6×1.0	85
20	20	16	6.6	32	8	48	32	3.2	67	51	M8×1.25	100
25	22	16	6.6	32	8	48	32	3.2	67	51	M10×1.25	109
32	22	18	6.6	36	10	52	36	4	67	51	M10×1.25	114
40	30	20	6.6	40	12	56	40	4	69	53	M12×1.25	118

Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**

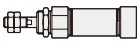
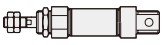


Code / Tube I.D.	A	B	C	D	E
16	20	30	10	16	28
20	22	36	10	16	28
25	25	40	10	16	28
32	28	46	10	16	28
40	32	55	10	16	28

Cylinder & accessories weight

Cylinder weight

Unit: g

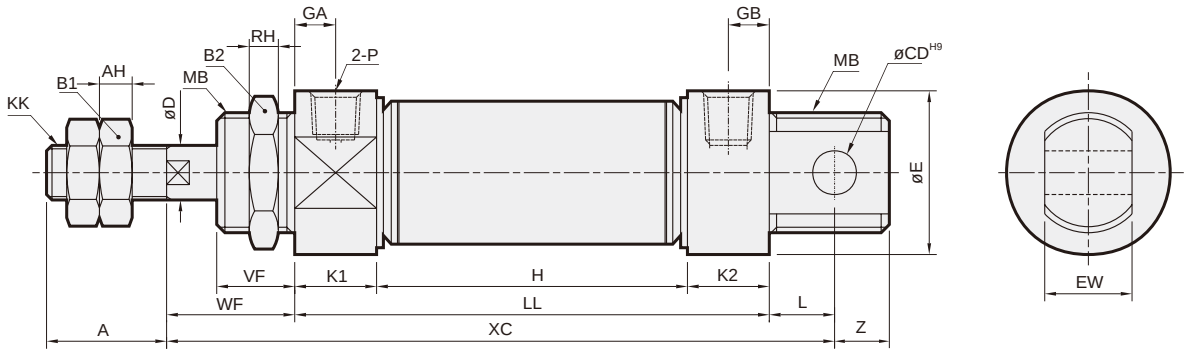
Model	Basic weight **MCMA-11**	Basic weight **MCMA-11-N**	Stroke 25 mm **MCMA-11**	Basic weight **MCMA-11-A**	Stroke 25 mm **MCMA-11-A**
Tube I.D.					
ø16	76	70	12	74	13
ø20	178	162	23	159	24
ø25	230	214	30	202	27
ø32	295	277	39	363	39
ø40	496	462	60	506	60

Accessories weight

Unit: g

Model	LB	FA/FB	SDB	Y	I	Pin	YS	Rod nut	Cover nut
Tube I.D.									
ø16	65	25	24	13	15	5	5	2	11
ø20	103	67	103	40	42	10	10	4	20
ø25	103	67	103	72	82	19	18	8	20
ø32	200	95	153	72	72	19	18	8	29
ø40	233	110	184	96	96	33	32	11	47

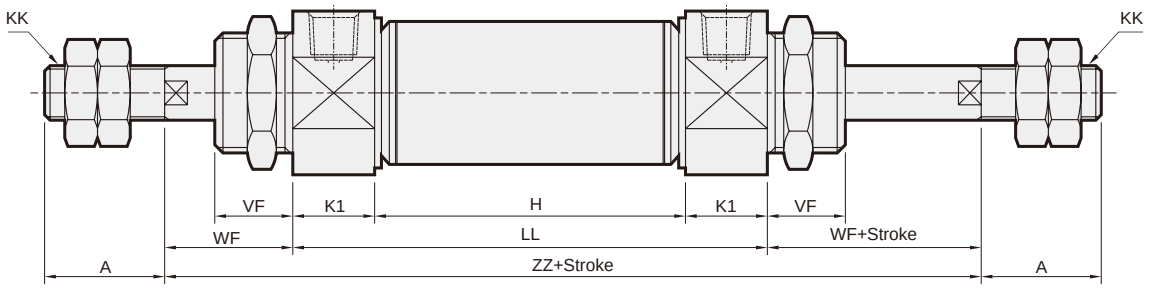
15



Code / Tube I.D.	A	AH	B1	B2	CD	D	E	EW	GA	GB	KK	K1	K2	L	MB	P	RH	VF	WF	Z
16	16	5	10	22	6	6	19.7	12 $^{-0.05}_{-0.4}$	5	5	M6×1.0	10	10	9	M16×1.5	M5×0.8	6	12	22	7
20	20	5	13	30	8	8	26.7	16 $^{-0.05}_{-0.4}$	7.5	7.5	M8×1.25	15	15	12	M22×1.5	Rc1/8	6	12	18	9
25	22	6	17	30	8	10	29.7	16 $^{-0.05}_{-0.4}$	7.5	7.5	M10×1.25	15	15	12	M22×1.5	Rc1/8	6	15	27	9
32	22	6	17	32	10	12	36	16 $^{-0.05}_{-0.4}$	7.5	10.5	M10×1.25	15	18	14	M24×2.0	Rc1/8	8	18	30	10

Code / Stroke / Tube I.D.	H							LL							XC						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	64	74	114	154	194	–	–	84	94	134	174	214	–	–	115	125	165	205	245	–	–
20	80	90	140	190	240	290	340	110	120	170	220	270	320	370	140	150	200	250	300	350	400
25	80	90	140	190	240	290	340	110	120	170	220	270	320	370	149	159	209	259	309	359	409
32	77	87	137	187	237	287	337	110	120	170	220	270	320	370	154	164	214	264	314	364	414

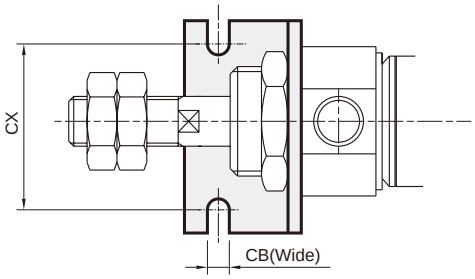
23



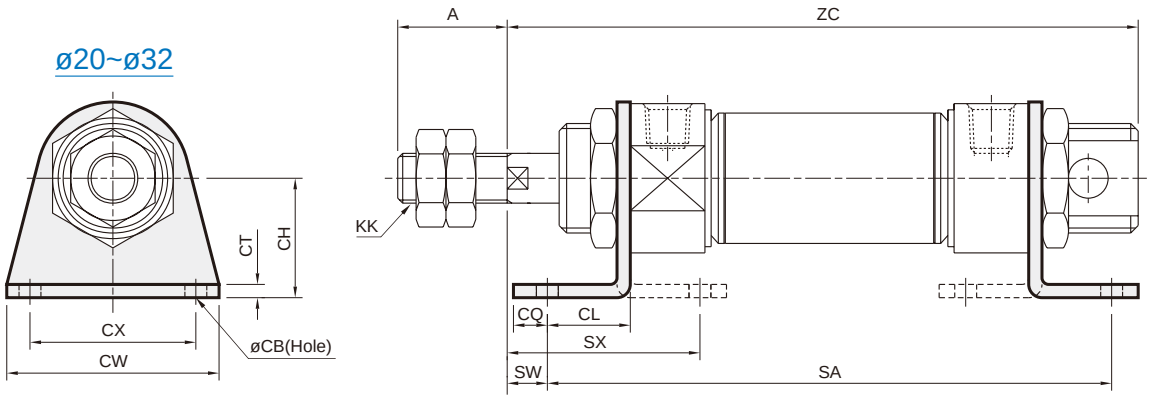
Code / Stroke / Tube I.D.	H							LL							ZZ						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	64	74	114	154	194	–	–	84	94	134	174	214	–	–	125	135	175	215	255	–	–
20	80	90	140	190	240	290	340	110	120	170	220	270	320	370	146	156	206	256	306	356	406
25	80	90	140	190	240	290	340	110	120	170	220	270	320	370	164	174	224	274	324	374	424
32	77	87	137	187	237	287	337	107	117	167	217	267	317	367	167	177	227	277	327	377	427

LB

ø16



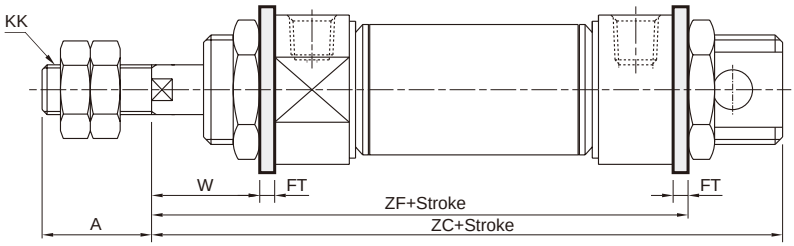
ø20~ø32

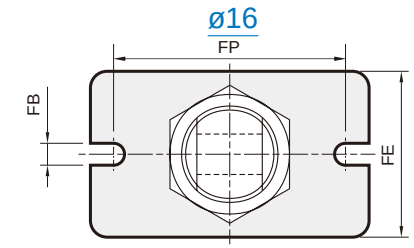


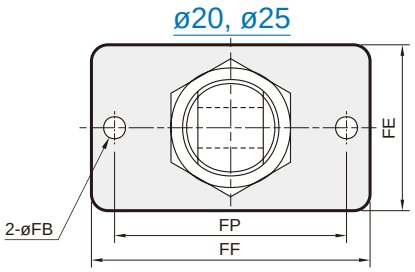
Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SW	SX
16	16	5.5	20	13	6	3.2	44	32	M6×1.0	9	31.8
20	20	6.6	25	15	8	3.2	54	40	M8×1.25	3	29.8
25	22	6.6	25	15	8	3.2	54	40	M10×1.25	12	38.8
32	22	6.6	32	25	8	4	59	45	M10×1.25	5	51

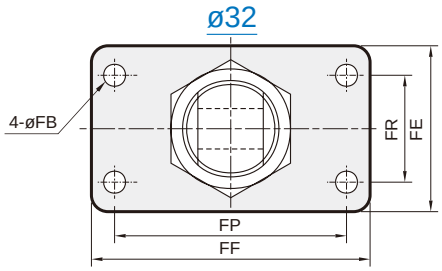
Code / Stroke / Tube I.D.	SA							ZC						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	110	120	160	200	240	–	–	121	131	171	211	251	–	–
20	140	150	200	250	300	350	400	146	156	206	256	306	356	406
25	140	150	200	250	300	350	400	155	165	215	265	315	365	415
32	160	170	220	270	320	370	420	162	172	222	272	322	372	422

FA/FB





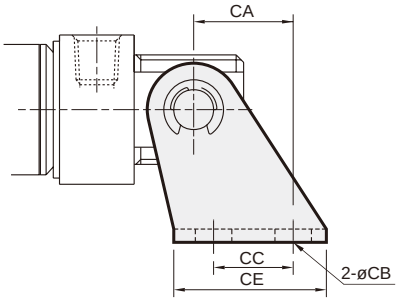


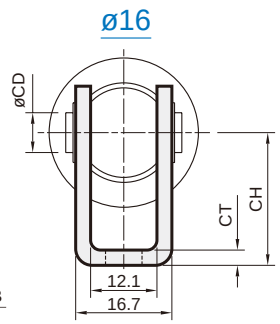


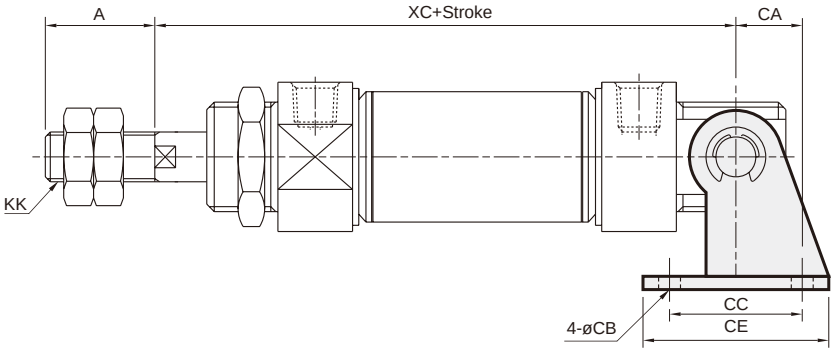
Code / Stroke / Tube I.D.	ZC							ZF						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	121	131	171	211	251	–	–	109.2	119.2	159.2	199.2	239.2	–	–
20	146	156	206	256	306	356	406	132.5	142.5	192.5	242.5	292.5	342.5	392.5
25	155	165	215	265	315	365	415	141.5	151.5	201.5	251.5	301.5	351.5	401.5
32	162	172	222	272	322	372	422	144.5	154.5	204.5	254.5	304.5	354.5	404.5

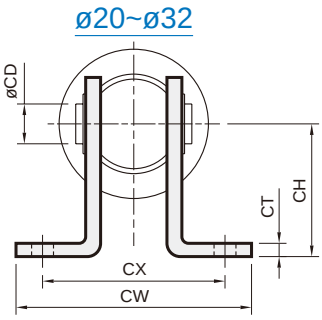
Code / Tube I.D.	A	FB	FE	FF	FP	FR	FT	KK	W
16	16	5.5	26	52	40	–	3.2	M6×1.0	18.8
20	20	6.6	38	64	50	–	4.5	M8×1.25	13.5
25	22	6.6	38	64	50	–	4.5	M10×1.25	22.5
32	22	6.6	47	72	58	33	4.5	M10×1.25	25.5

SDB







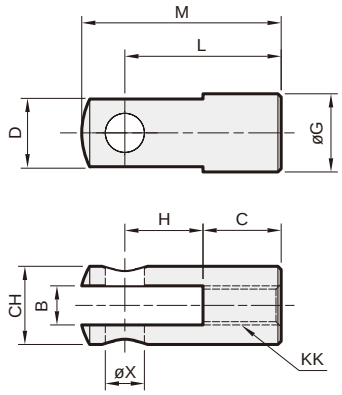


Code / Tube I.D.	A	CA	CB	CC	CD	CE	CH	CT	CW	CX	KK
16	16	15	5.5	12	6	23	20	2.3	–	–	M6×1.0
20	20	16	6.6	32	8	48	32	3.2	67	51	M8×1.25
25	22	16	6.6	32	8	48	32	3.2	67	51	M10×1.25
32	22	18	6.6	36	10	52	36	4	67	51	M10×1.25

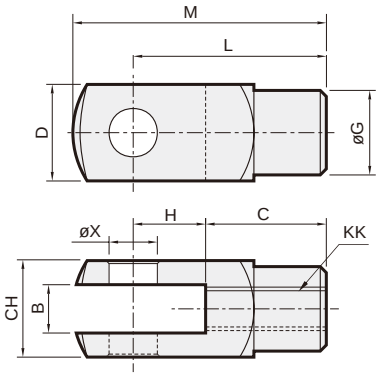
Code / Stroke / Tube I.D.	XC						
	15	25	50	75	100	125	150
16	107	117	157	197	257	–	–
20	139	149	199	249	299	349	399
25	141	151	172	222	272	322	372
32	142	152	173	223	273	323	373

Y connector

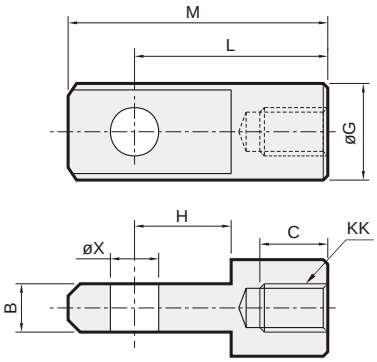
ø8~ø16



ø20~ø40



I connector



Code / Tube I.D.	B		C		CH		D		G		H		KK		L		M		X
	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	
8,10	4 +0.4 +0.1	–	8	–	8	–	8	–	–	–	8	–	M4×0.7	–	16	–	20.75	–	4 +0.1 +0.01
12,16	6 +0.4 +0.1	6 -0.2 -0.3	12	8	12	–	–	–	12	12	12	10	M6×1.0		24	21	31	28	6 +0.1 +0.01
20	8 +0.5 +0.15	8 -0.1 -0.2	16	14	16	–	16	–	14	16	16	12	M8×1.25		32	32	42	42	8 +0.1 +0.01
25,32	10 +0.5 +0.15	10 -0.1 -0.2	20	17	19	–	19	–	18	20	20	15	M10×1.25		40	40	52	52	10 +0.1 +0.01
40	12 +0.5 +0.15	12 -0.1 -0.2	24	21	22	–	22	–	20	24	24	18	M12×1.25		48	48	62	62	12 +0.1 +0.01

PIN

* Only for Y connector and ø20~40 tube I.D.
* ø16 tube I.D. use this order: **YS-MCMA-16** & **YS-MCMI-16**.

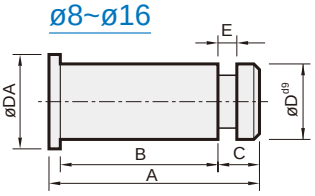
Order example

PIN — MCMA — 16 — Y — P

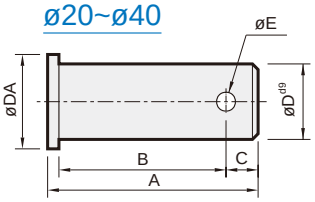
- PIN
- MODEL — **MCMI**: for ø8~25 tube I.D. / **MCMA**: for ø16~40 tube I.D.
- TUBE I.D.
- TYPE — **Y**: for Y & I connector / **SDB**: for SDB accessory
- **P**: With split pin / **S**: Floating pin (*)

P

ø8~ø16



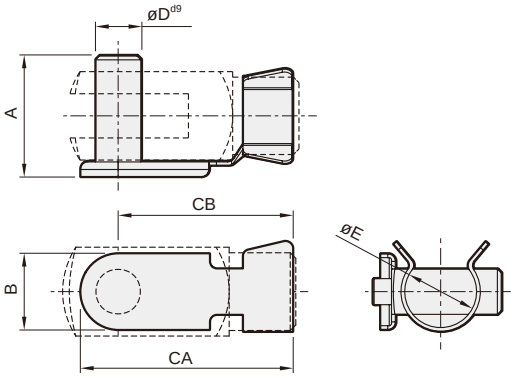
ø20~ø40



for Y & I connector

Code / Tube I.D.	A	B	C	D d9	DA	E	Split pin
8,10	12	8.5	2	4 -0.03 -0.06	8	0.7	E3
12,16	18.5	15	2	6 -0.03 -0.06	10	0.7	E4
20	24.5	20.5	2.5	8 -0.04 -0.08	12	ø2.5	2.5×16L
25,32	30	25	3.5	10 -0.04 -0.08	14	ø3.2	3.2×20L
40	37	30	5	12 -0.05 -0.09	16	ø3.2	3.2×20L

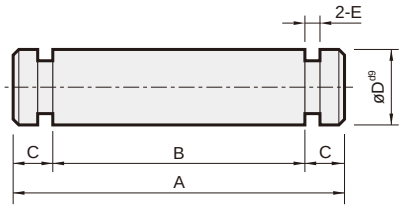
S



for floating pin

Code / Tube I.D.	A	B	CA	CB	D d9	E
16	16	10	28	23	ø6 -0.03 -0.06	9.5
20	22	12	37	31	ø8 -0.04 -0.08	13.5
25,32	26	14	45	38	ø10 -0.04 -0.08	17
40	31	16	54	46	ø12 -0.05 -0.09	19

P



for SDB

Code / Tube I.D.	A	B	C	D d9	E	Split pin
8,10	18	14	2	4 -0.03 -0.06	0.7	E3.2
12	23.5	19.5	2	6 -0.03 -0.06	0.7	E5
16	21	17	2	6 -0.03 -0.06	0.7	E5
20,25	30	25	2.5	8 -0.04 -0.08	0.9	E7
32	33	27	3	10 -0.04 -0.08	0.9	E9
40	37	31	3	12 -0.05 -0.09	0.9	E9

MCMB series

MINIATURE CYLINDER

mindman

Features

■ Non lubrication

- Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

- Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.

■ Magnetic as standard

Specification

Model		MCMB			
Tube I.D.		20	25	32	40
Port size		Rc1/8			Rc1/4
Medium		Air			
Max. operating perssure		1 MPa			
Min. operating perssure	Double acting	0.05 MPa			
	Single acting	Extended: 0.23, Returned: 0.18 MPa			
Proof pressure		1.5 MPa			
Ambient temperature		-5~+60°C (No freezing)			
Lubricator		Not required			
Available speed range		50~500 mm/sec			
Max. allowable kinetic energy (J)	Cushion pad	0.27	0.4	0.65	1.2
	Cushion air	0.54	0.78	1.27	2.35
Sensor switch (*)		RCM			
Sensor switch (band)		BM20	BM25	BM32	BM40

* RCM specification, please refer to page 8-15.
* For precautions, please refer to page 3-2.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25,32,40	25,50,75,100,125,150,200,250,300

Order example

MCMB — 11 — 20 — 50 — A — N — G

- MODEL
- STYLE — **1**: Single rod, **2**: Double rod
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable), **A**: Cushion air (Adjustable) ⚠
- END COVER TYPE
- PORT THREAD — Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
1	3		Single acting / Normally extended male thread
1	5		Single acting / Normally returned male thread
2	1		Double rod / Male thread
2	7		Double rod / Adjustable male thread Please mark "adjustable distance(mm)" at order list

END COVER TYPE

Code	Symbol	Description
Blank		Standard type
N		End-plain
E		With pivot type

* Single acting type, please consult us.
* Order example for special specification, refer to page 0-7.

Mounting accessories

LB — MCMB — 20

- MODEL
- TUBE I.D.
- MOUNTING TYPE

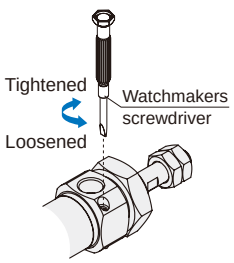
	LB		SDB*
	CA		TA
	CB		TB
	FA		Y
	FB		I

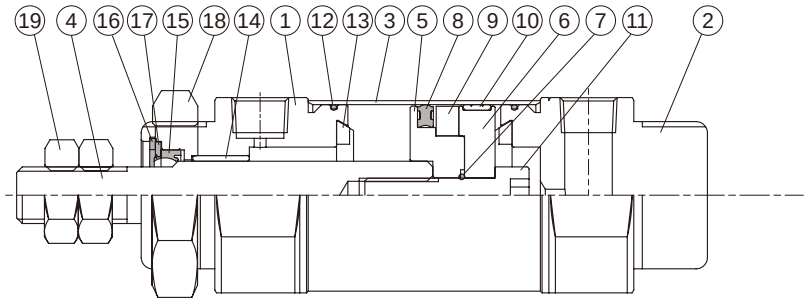
* For end cover "E" type.

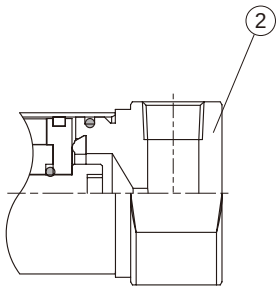
⚠ Caution

For (**A**) Cushion air (Adjustable)

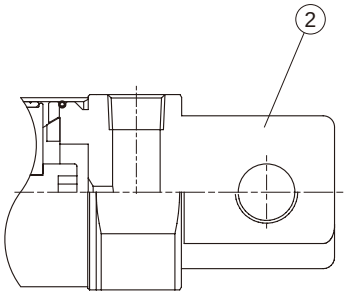
1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.







N type



E type

Material

No.	Tube I.D. / Part name	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) **11** type	Component parts (inclusion) **21** type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy				1	2	●	●	
2	Head cover	Aluminum alloy				1	—	●		
3	Tube	Stainless steel				1	1			
4	Piston rod	Carbon steel				1	1			
5	Piston-R	Aluminum alloy				1	1	●	●	
6	Piston-H	Aluminum alloy				1	1	●	●	
7	Piston gasket	NBR				1	1	●	●	
8	Piston packing	NBR				1	1	●	●	
9	Magnet ring	Magnet material				1	1	●	●	
10	Wear ring	POM				1	1	●	●	
11	Piston bolt	SCM				1	—	●		
12	Cover ring	NBR				2	2	●	●	
13	Cushion gasket	NBR				2	2	●	●	
14	Rod bush	Bearing alloy				1	2	●	●	
15	Rod packing	NBR				1	2	●	●	●
16	Snap ring	Spring steel				1	2	●	●	
17	Washer	Carbon steel				1	2	●	●	
18	Tie nut	Carbon steel				1	2	●	●	
19	Rod front nut	Carbon steel				2	2	●	●	

Order example

Component parts / Repair kits

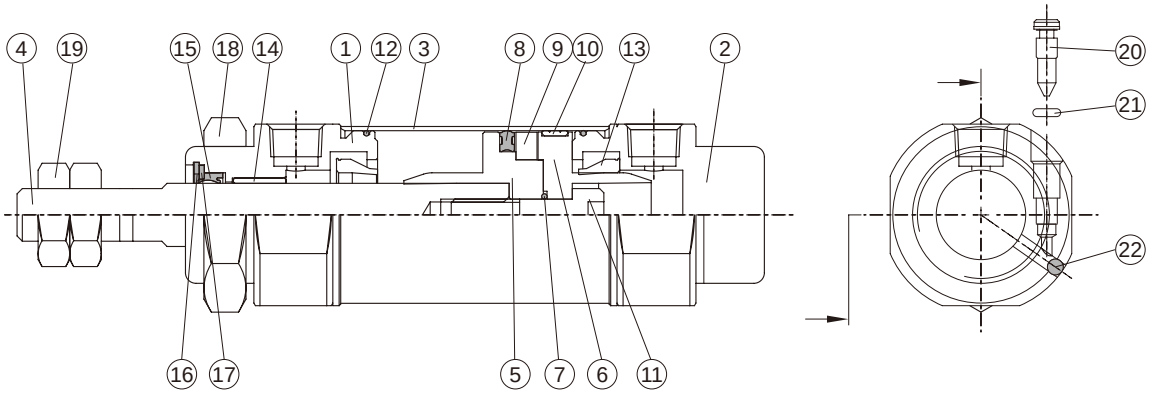
Tube I.D.	Component parts	Repair kits
ø20	**CP-MCMB-20**	**PS-MCMB-20**
ø25	**CP-MCMB-25**	**PS-MCMB-25**
ø32	**CP-MCMB-32**	**PS-MCMB-32**
ø40	**CP-MCMB-40**	**PS-MCMB-40**

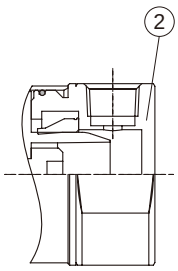
Non-pivot type (end-plain)

Tube I.D.	Component parts
ø20	**CP-MCMB-20-N**
ø25	**CP-MCMB-25-N**
ø32	**CP-MCMB-32-N**
ø40	**CP-MCMB-40-N**

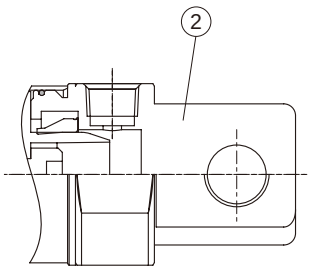
Pivot type

Tube I.D.	Component parts
ø20	**CP-MCMB-20-E**
ø25	**CP-MCMB-25-E**
ø32	**CP-MCMB-32-E**
ø40	**CP-MCMB-40-E**





N type



E type

Material

No.	Tube I.D. / Part name	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy				1	2	●	●	
2	Head cover	Aluminum alloy				1	—	●		
3	Tube	Stainless steel				1	1			
4	Piston rod	Carbon steel				1	1			
5	Piston-R	Aluminum alloy				1	1	●	●	
6	Piston-H	Aluminum alloy				1	1	●	●	
7	Piston gasket	NBR				1	1	●	●	
8	Piston packing	NBR				1	1	●	●	
9	Magnet ring	Magnet material				1	1	●	●	
10	Wear ring	POM				1	1	●	●	
11	Piston bolt	SCM				1	—	●		
12	Cover ring	NBR				2	2	●	●	
13	Cushion packing	NBR				2	2	●	●	
14	Rod bush	Bearing alloy				1	2	●	●	
15	Rod packing	NBR				1	2	●	●	●
16	Snap ring	Spring steel				1	2	●	●	
17	Washer	Carbon steel				1	2	●	●	
18	Tie nut	Carbon steel				1	2	●	●	
19	Rod front nut	Carbon steel				2	2	●	●	
20	Needle valve	Stainless steel		Carbon steel		2	2	●	●	
21	Needle vavle packing	NBR				2	2	●	●	●
22	Steel ball	Stainless steel				2	2	●	●	

Order example

Component parts / Repair kits

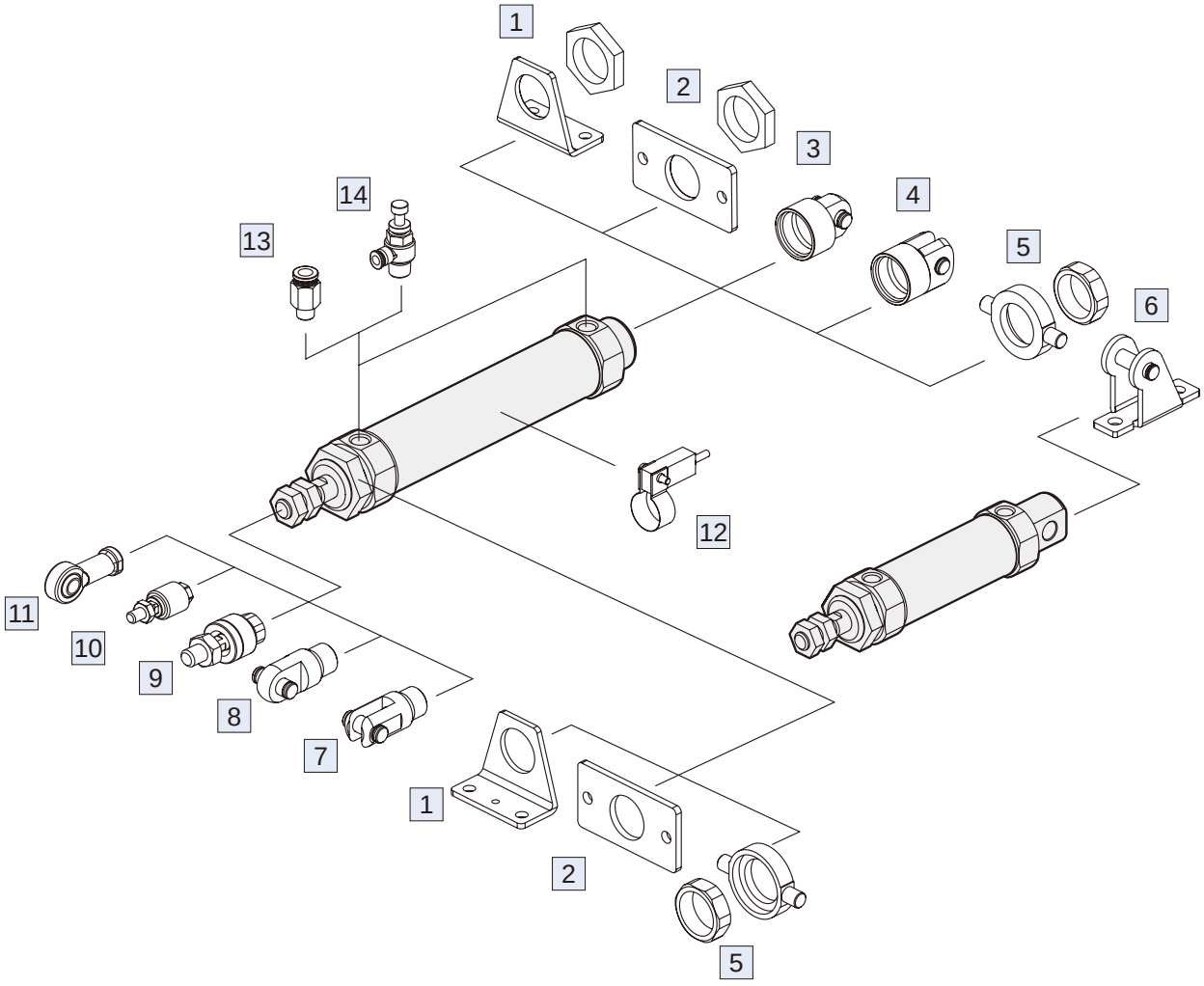
Tube I.D.	Component parts	Repair kits
ø20	**CP-MCMB-20A**	**PS-MCMB-20A**
ø25	**CP-MCMB-25A**	**PS-MCMB-25A**
ø32	**CP-MCMB-32A**	**PS-MCMB-32A**
ø40	**CP-MCMB-40A**	**PS-MCMB-40A**

Non-pivot type (end-plain)

Tube I.D.	Component parts
ø20	**CP-MCMB-20A-N**
ø25	**CP-MCMB-25A-N**
ø32	**CP-MCMB-32A-N**
ø40	**CP-MCMB-40A-N**

Pivot type

Tube I.D.	Component parts
ø20	**CP-MCMB-20A-E**
ø25	**CP-MCMB-25A-E**
ø32	**CP-MCMB-32A-E**
ø40	**CP-MCMB-40A-E**

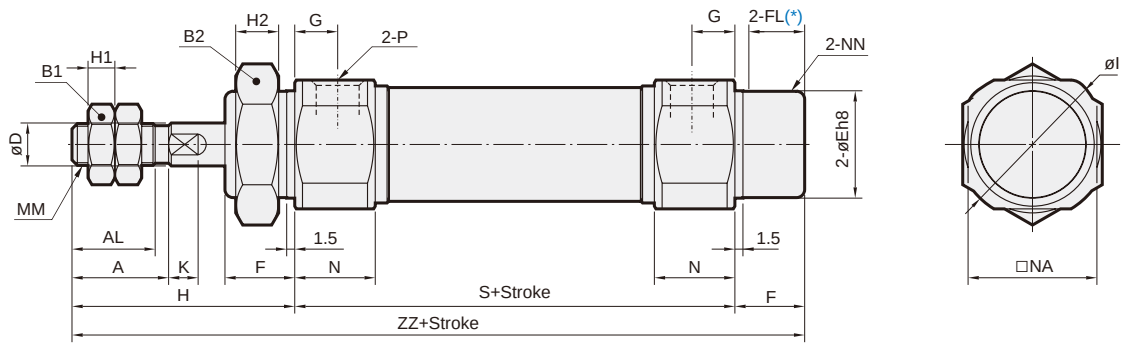


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-23
2	Mounting accessories FA/FB	Carbon steel	3-24
3	Mounting accessories CA+PIN	Carbon steel	3-23, 26
4	Mounting accessories CB+PIN	Carbon steel	3-23, 26
5	Mounting accessories TA/TB	Cast iron *2	3-25
6	Mounting accessories SDB+PIN (*1)	Carbon steel	3-24, 26
7	Accessories Y+PIN	Carbon steel *3	3-26
8	Accessories I+PIN	Carbon steel	3-26

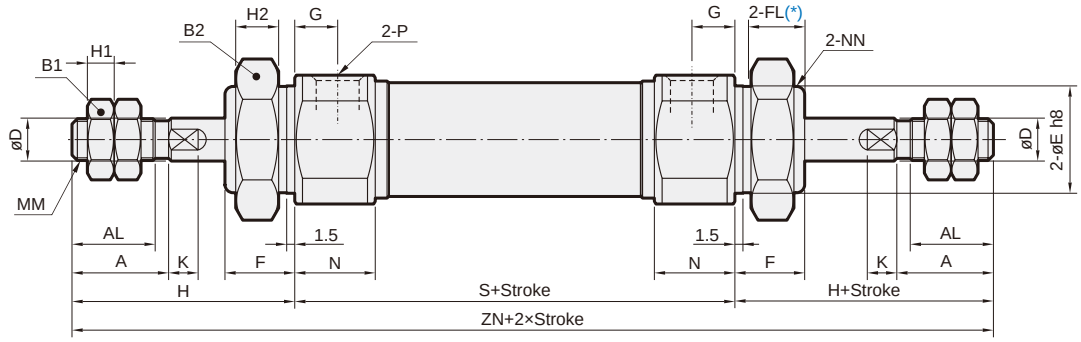
No.	Accessories	Material	Page
9	Floating joint MFC	Carbon steel	8-2
10	Floating joint MFCS	Carbon steel	8-5
11	Female rod ends PHS	Carbon steel	8-6
12	Sensor switch RCM+BM**	–	8-15
13	Fitting PC (PISCO)	–	7-3 (Vol.1)
14	Speed controller JSC (PISCO)	–	7-15 (Vol.1)

*1. Only for end cover "E" type.
*2. ø20 material is carbon steel.
*3. Y accessories ø40 material is cast iron.

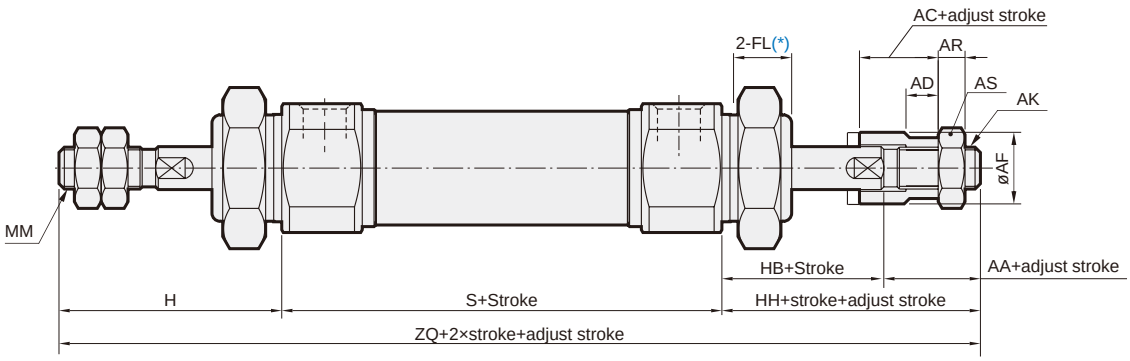
11



21



27



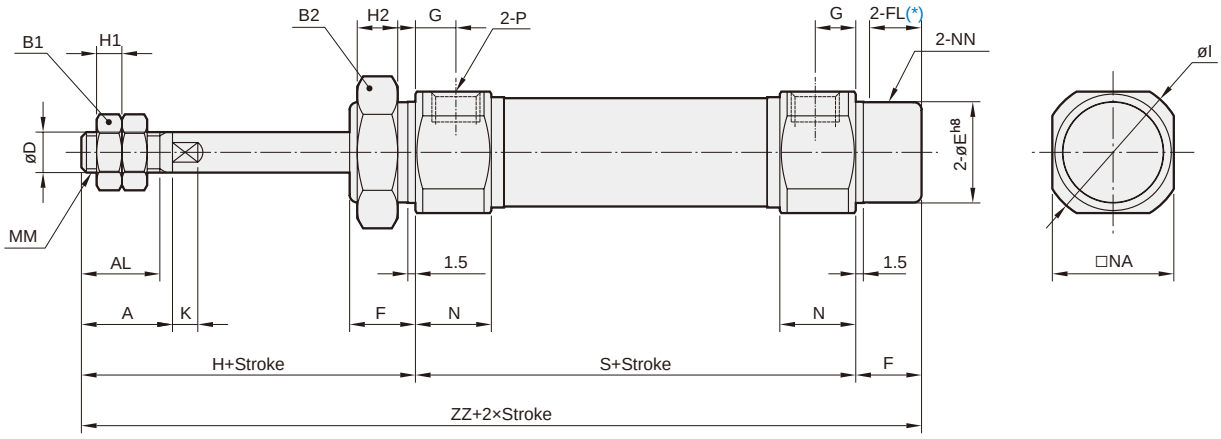
Unit: mm

Code / Tube I.D.	A	AA	AC	AD	AF	AK	AL	AR	AS	B1	B2	D	E	F	FL	G	H	H1	H2	HB	HH	I	K	MM
20	18	17.5	15	9.5	16	M8×1.25	15.5	5	13	13	26	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	8	20.5	38	28	5	M8×1.25
25	22	18.5	15	9.5	16	M8×1.25	19.5	5	13	17	32	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	20.5	39	33.5	5	M10×1.25
32	22	16	12	7	20	M10×1.25	19.5	6	17	17	32	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	20	36	37.5	5.5	M10×1.25
40	24	17	12	7	30	M12×1.25	21	7	19	22	41	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	10	23	40	46.5	7	M14×1.5

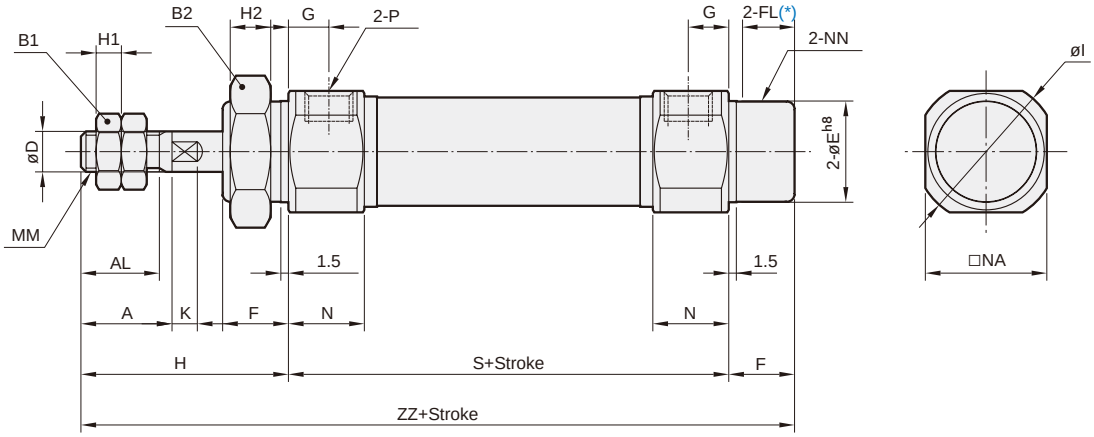
Code / Tube I.D.	N	NA	NN	P	S	ZN	ZQ	ZZ
20	15	24	M20×1.5	Rc1/8	62	144	141	116
25	15	30	M26×1.5	Rc1/8	62	152	146	120
32	15	34.5	M26×1.5	Rc1/8	64	154	145	122
40	21.5	42.5	M32×2.0	Rc1/4	88	188	178	154

* FL: Effective thread length

13



15

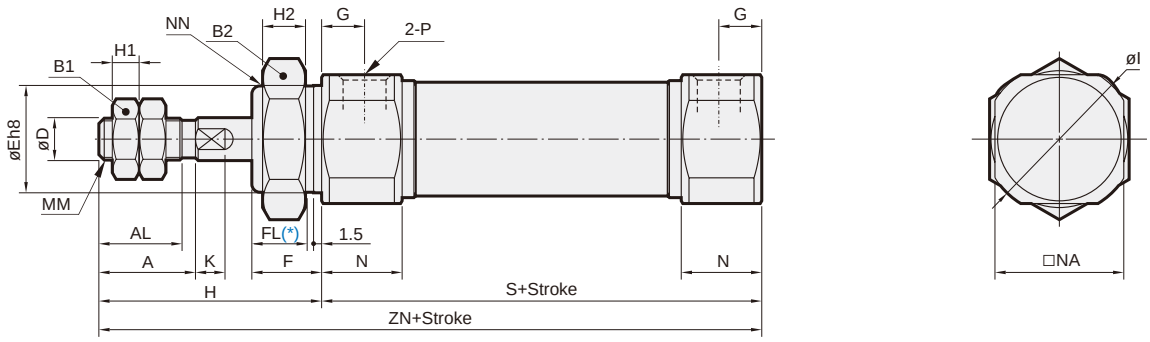


Code / Tube I.D.	A	AL	B1	B2	D	E	F	FL	G	H	H1	H2	I	K	MM	N	NA	NN	P
20	18	15.5	13	26	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	8	28	5	M8×1.25	15	24	M20×1.5	Rc1/8
25	22	19.5	17	32	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	33.5	5	M10×1.25	15	30	M26×1.5	Rc1/8
32	22	19.5	17	32	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	37.5	5.5	M10×1.25	15	34.5	M26×1.5	Rc1/8
40	24	21	22	41	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	10	46.5	7	M14×1.5	21.5	42.5	M32×2.0	Rc1/4

Code / Stroke / Tube I.D.	S			ZZ		
	1~50	51~100	101~150	1~50	51~100	101~150
20	87	112	137	141	166	191
25	87	112	137	145	170	195
32	89	114	139	147	172	197
40	113	138	163	179	204	229

* FL: Effective thread length

N

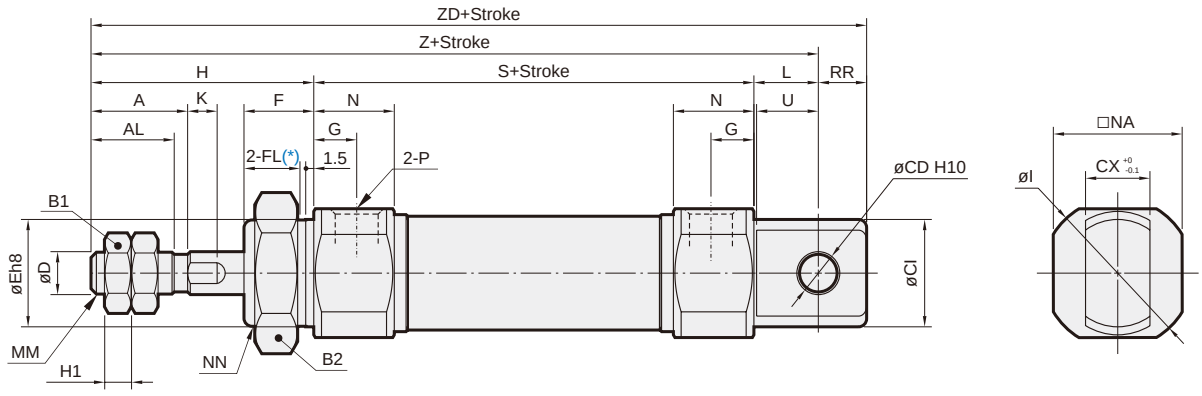


* FL: Effective thread length

Unit: mm

Code / Tube I.D.	A	AL	B1	B2	D	E	F	FL	G	H	H1	H2	I	K	MM	N	NA	NN	P	S	ZN
20	18	15.5	13	26	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	8	28	5	M8×1.25	15	24	M20×1.5	Rc1/8	62	103
25	22	19.5	17	32	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	33.5	5	M10×1.25	15	30	M26×1.5	Rc1/8	62	107
32	22	19.5	17	32	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	37.5	5.5	M10×1.25	15	34.5	M26×1.5	Rc1/8	64	109
40	24	21	22	41	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	10	46.5	7	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	88	138

E



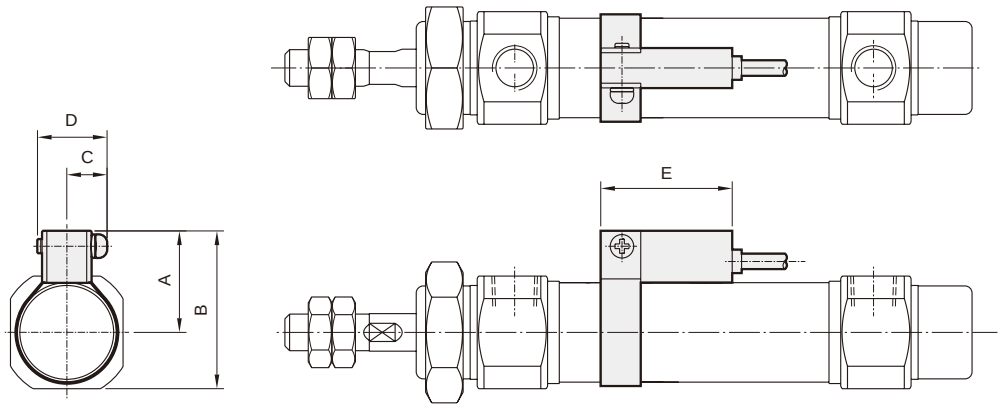
* FL: Effective thread length

Unit: mm

Code / Tube I.D.	A	AL	B1	B2	CD	CX	CI	D	E	F	FL	G	H	H1	I	K	L	MM	N	NA	NN	P	RR	S	U	Z	ZD
20	18	15.5	13	26	8	12	20	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	28	5	12	M8×1.25	15	24	M20×1.5	Rc1/8	9	62	11.5	115	124
25	22	19.5	17	32	8	12	22	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	33.5	5	12	M10×1.25	15	30	M26×1.5	Rc1/8	9	62	11.5	119	128
32	22	19.5	17	32	10	20	27	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	37.5	5.5	15	M10×1.25	15	34.5	M26×1.5	Rc1/8	12	64	14.5	124	136
40	24	21	22	41	10	20	33	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	46.5	7	15	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	12	88	14.5	153	165

Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**

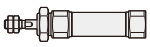
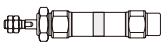
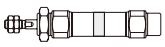


Code / Tube I.D.	A	B	C	D	E
20	22	34	10	16	28
25	25	40	10	16	28
32	28	46	10	16	28
40	32	54	10	16	28

Cylinder & accessories weight

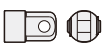
Cylinder weight

Unit: g

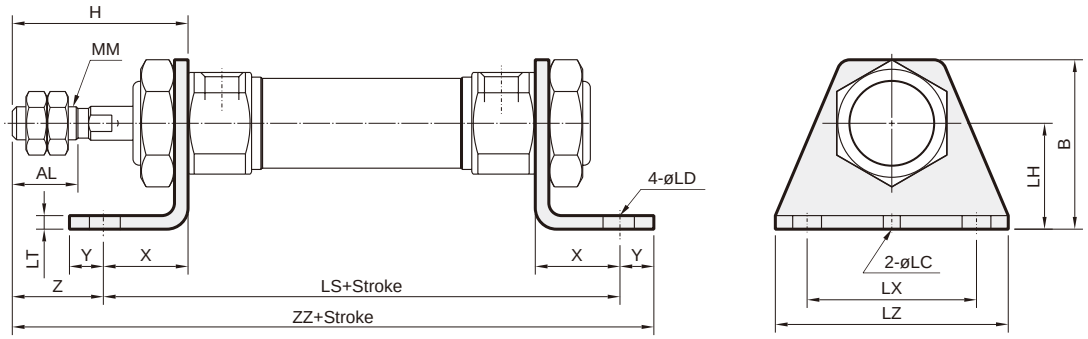
Model	Basic weight **MCMB-11**	Basic weight **MCMB-11-N**	Basic weight **MCMB-11-E**	Stroke 25 mm **MCMB-11**	Basic weight **MCMB-11-A**	Stroke 25 mm **MCMB-11-A**
Tube I.D.						
ø20	146	146	148	18	144	20
ø25	232	232	228	28	252	26
ø32	275	275	287	38	340	38
ø40	568	568	576	50	565	51

Accessories weight

Unit: g

Model	LB	CA	CB	FA/FB	SDB	TA/TB	Y	I	Pin	Rod nut	Cover nut
Tube I.D.											
ø20	122	53	49	66	62	37	53	63	13	4	19
ø25	129	63	69	73	62	47	49	62	13	8	23
ø32	129	63	69	73	140	47	49	62	13	8	23
ø40	207	162	168	124	140	94	230	164	43	16	50

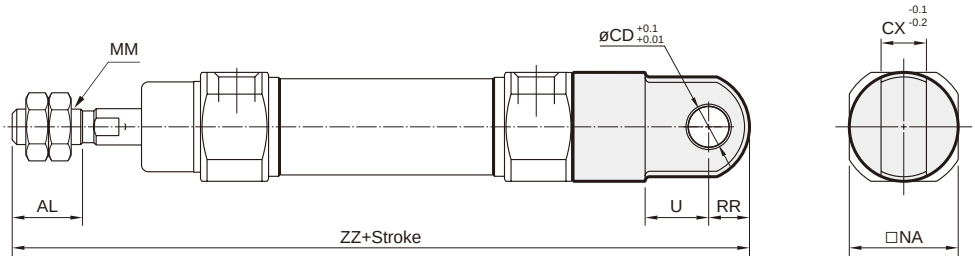
LB



Unit: mm

Code / Tube I.D.	AL	B	H	LC	LD	LH	LS	LT	LX	LZ	MM	X	Y	Z	ZZ
20	15.5	40	41	4	6.8	25	102	3.2	40	55	M8×1.25	20	8	21	131
25	19.5	47	45	4	6.8	28	102	3.2	40	55	M10×1.25	20	8	25	135
32	19.5	47	45	4	6.8	28	104	3.2	40	55	M10×1.25	20	8	25	137
40	21	54	50	4	7	30	134	3.2	55	75	M14×1.5	23	10	27	171

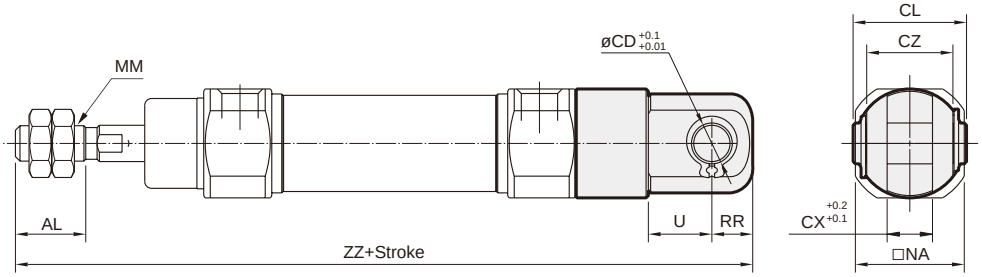
CA



Unit: mm

Code / Tube I.D.	AL	CD	CX	MM	NA	RR	U	ZZ
20	15.5	9	10	M8×1.25	24	9	14	142
25	19.5	9	10	M10×1.25	30	9	14	146
32	19.5	9	10	M10×1.25	34.5	9	14	148
40	21	10	15	M14×1.5	42.5	11	18	188

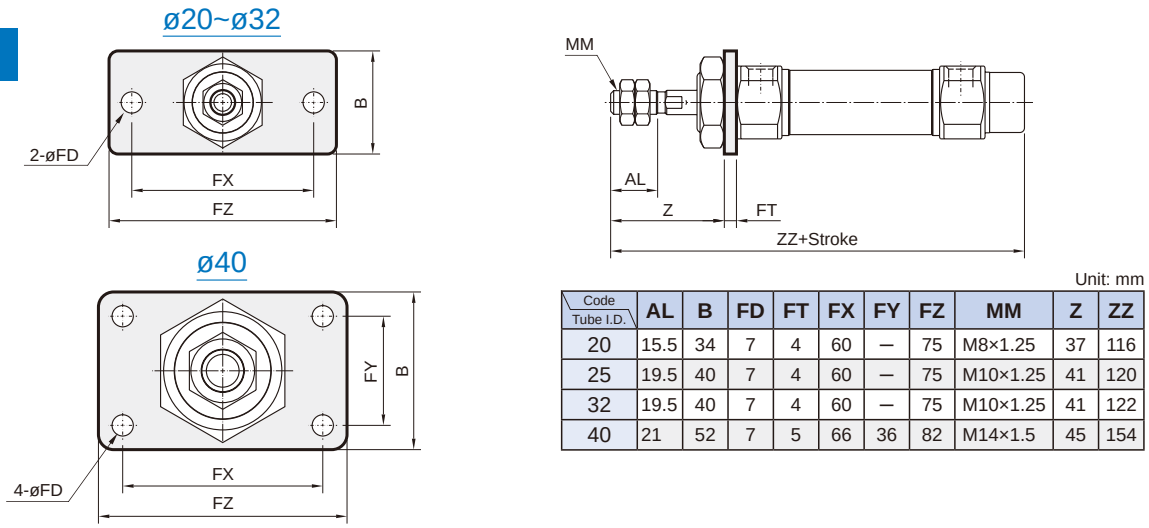
CB



Unit: mm

Code / Tube I.D.	AL	CD	CL	CX	CZ	MM	NA	RR	U	ZZ
20	15.5	9	25	10	19	M8×1.25	24	9	14	142
25	19.5	9	25	10	19	M10×1.25	30	9	14	146
32	19.5	9	25	10	19	M10×1.25	34.5	9	14	148
40	21	10	41.2	15	30	M14×1.5	42.5	11	18	188

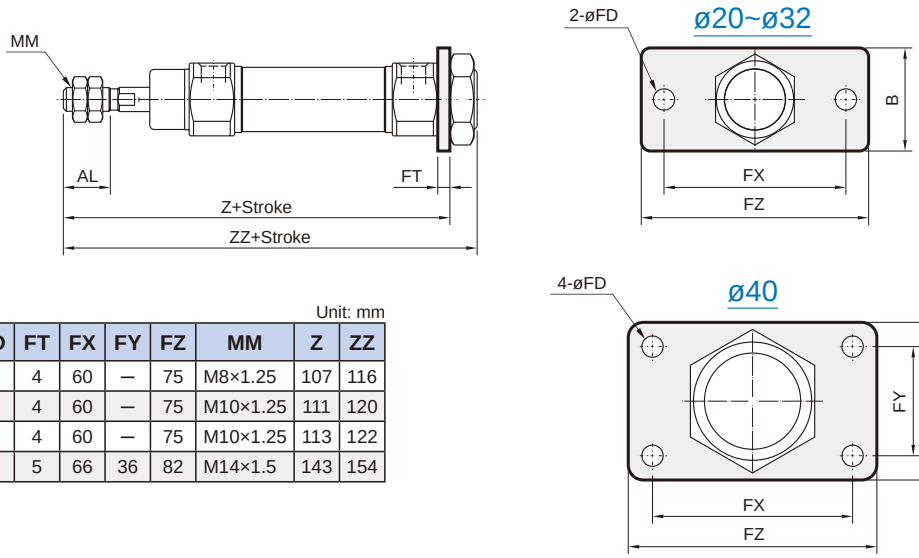
FA



Unit: mm

Code / Tube I.D.	AL	B	FD	FT	FX	FY	FZ	MM	Z	ZZ
20	15.5	34	7	4	60	–	75	M8×1.25	37	116
25	19.5	40	7	4	60	–	75	M10×1.25	41	120
32	19.5	40	7	4	60	–	75	M10×1.25	41	122
40	21	52	7	5	66	36	82	M14×1.5	45	154

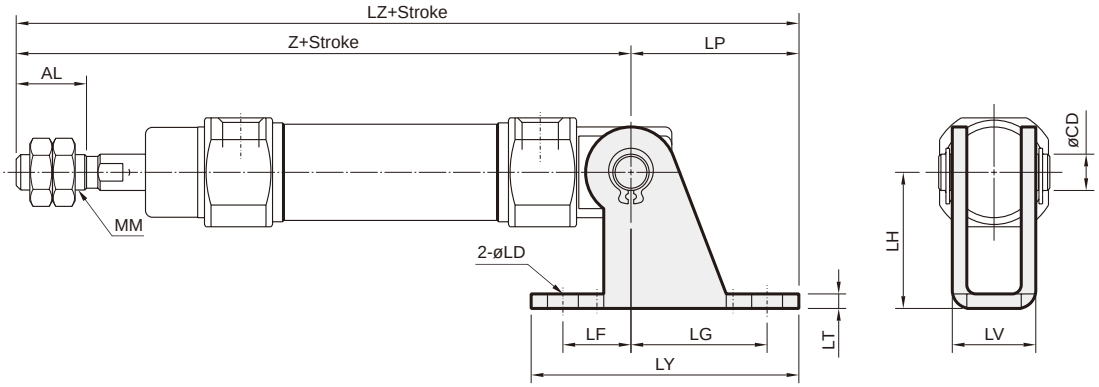
FB



Unit: mm

Code / Tube I.D.	AL	B	FD	FT	FX	FY	FZ	MM	Z	ZZ
20	15.5	34	7	4	60	–	75	M8×1.25	107	116
25	19.5	40	7	4	60	–	75	M10×1.25	111	120
32	19.5	40	7	4	60	–	75	M10×1.25	113	122
40	21	52	7	5	66	36	82	M14×1.5	143	154

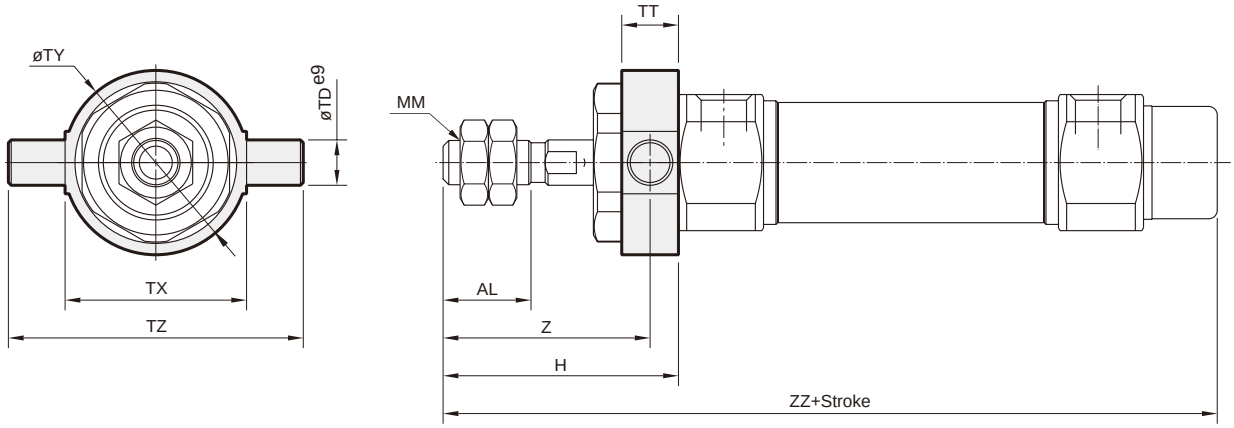
SDB



Unit: mm

Code / Tube I.D.	AL	CD	LD	LF	LG	LH	LP	LT	LV	LY	LZ	MM	N	Z
20	15.5	8	6.8	15	30	30	37	3.2	18.4	59	152	M8×1.25	15	115
25	19.5	8	6.8	15	30	30	37	3.2	18.4	59	156	M10×1.25	15	119
32	19.5	10	9	15	40	40	50	4	28	75	174	M10×1.25	15	124
40	21	10	9	15	40	40	50	4	28	75	203	M14×1.5	21.5	153

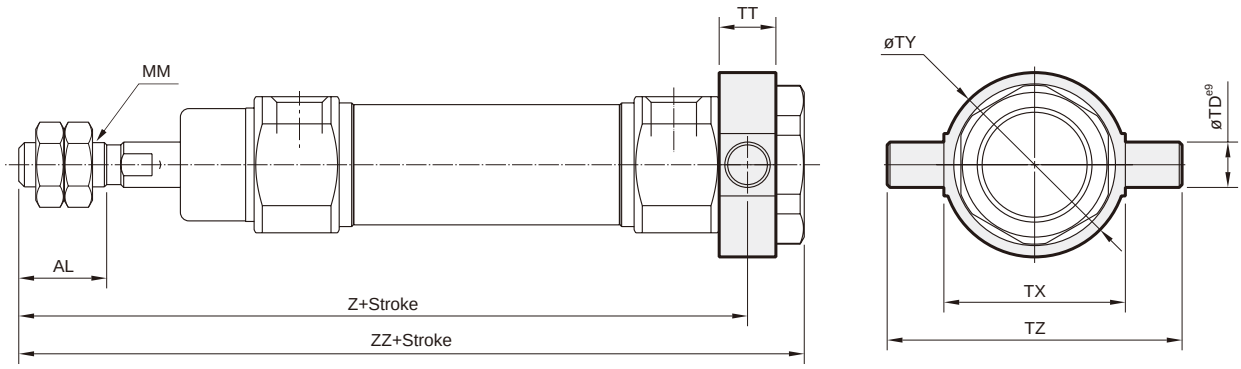
TA



Unit: mm

Code / Tube I.D.	AL	H	MM	TD	TT	TX	TY	TZ	Z	ZZ
20	15.5	41	M8×1.25	8	10	32	32.5	52	36	116
25	19.5	45	M10×1.25	9	10	40	40.5	60	40	120
32	19.5	45	M10×1.25	9	10	40	40.5	60	40	122
40	21	50	M14×1.5	10	11	53	53.5	77	44.5	154

TB

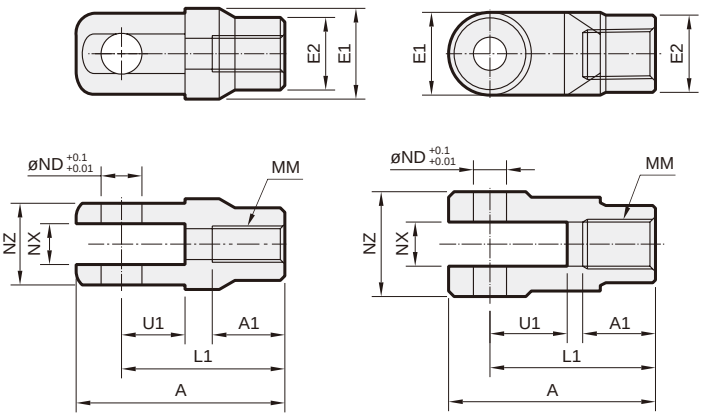


Unit: mm

Code / Tube I.D.	AL	MM	TD	TT	TX	TY	TZ	Z	ZZ
20	15.5	M8×1.25	8	10	32	32.5	52	108	118
25	19.5	M10×1.25	9	10	40	40.5	60	112	122
32	19.5	M10×1.25	9	10	40	40.5	60	114	124
40	21	M14×1.5	10	11	53	53.5	77	143.5	154

Y connector

ø20~ø32

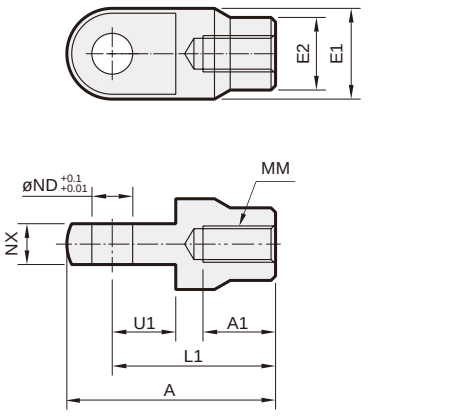


ø40

Unit: mm

Code / Tube I.D.	A	A1	E1	E2	L1	MM	ND	NX	NZ	U1
20	46	16	ø20	ø16	36	M8×1.25	9	9 +0.2 +0.1	18	14
25, 32	46	16	ø20	ø16	36	M10×1.25	9	9 +0.2 +0.1	18	14
40	68	25	ø26	ø24	55	M14×1.5	12	16 +0.3 +0.1	38	25

I connector



Unit: mm

Code / Tube I.D.	A	A1	E1	E2	L1	MM	ND	NX	U1
20	46	16	ø20	ø16	36	M8×1.25	9	9 +0.1 +0.2	14
25, 32	46	16	ø20	ø16	36	M10×1.25	9	9 +0.1 +0.2	14
40	69	22	ø24	–	55	M14×1.5	12	16 +0.1 +0.2	20

PIN

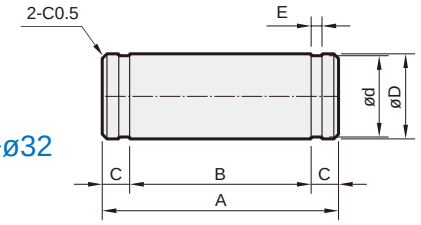
Order example

PIN – MCMB – 32 – Y – P

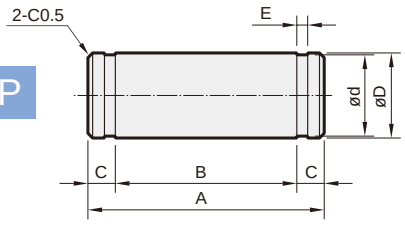
- PIN
- TUBE I.D.
- TYPE
  - **Y**: for Y & I connector
  - **CB**: for CA & CB accessory
  - **SDB**: for SDB accessory
- **P**: With split pin

P

ø20~ø32

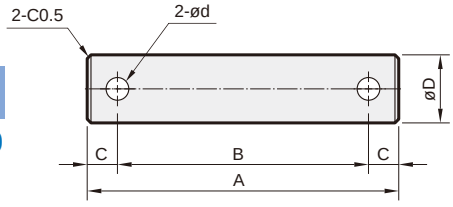


P



P

ø40



for SDB

Code / Tube I.D.	A	B	C	øD^{d9}	ød	E	Snap ring
20~25	24.5	19.5	2.5	8 -0.04 -0.08	7.6 0 -0.06	0.9 +0.10 0	STW-8
32~40	34	29	2.5	10 -0.04 -0.08	9.6 -0 -0.09	1.15 +0.14 0	STW-9

for CB & Y connector

Code / Tube I.D.	A	B	C	øD^{d9}	ød	E	Snap ring Split pin
20~32-CB, Y	25	19.2	2.9	9 -0.04 -0.08	8.6 0 -0.06	1.15 +0.14 0	STW-9
40-CB	41.2	33.2	4	10 -0.04 -0.08	3.2	–	ø3.2×20L
40-Y	49.7	41.7	4	12 -0.05 -0.09	3.2	–	ø3.2×20L

MCKMB series

MINIATURE CYLINDER WITH NO-ROTATION

mindman

Features

■ Non lubrication

- Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

- Cylinder with hexagonal rod design enables non-rotation of rod.
- Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.
- Magnetic as standard

Specification

Model		MCKMB			
Tube I.D. (mm)		20	25	32	40
Port size		Rc1/8			Rc1/4
Medium		Air			
Operating perssure range		0.05~0.7 MPa			
Proof pressure		1 MPa			
Lubricator		Not required			
Ambient temperature		-5~+60°C (No freezing)			
Available speed range		50~500 mm/sec			
Max. allowable kinetic energy (J)	Cushion pad	0.27	0.4	0.65	1.2
	Cushion air	0.54	0.78	1.27	2.35
Rod non-rotating accuracy		±0.7°		±0.5°	
Allowable rotational torque		2.0 kgf-cm	2.5 kgf-cm	2.5 kgf-cm	4.5 kgf-cm

* The cylinder is allowed little leakage. Before the cylinder is sale, it has passed the standard of leakage test.
* For precautions, please refer to page 3-2.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25,32,40	25,50,75,100,125,150,200,250,300

* Please consult us if stroke out of specification.

Sensor switch / Sensor switch band

Sensor switch (*1)	RCM			
Sensor switch band	BM20	BM25	BM32	BM40

*1. RCM specification, please refer to page 8-15.

Order example

MCKMB — 11 — 40 — 50 — A — N — G

- MODEL
- 1: Single rod
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable)
  A: Cushion air (Adjustable) ⚠
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread

END COVER TYPE

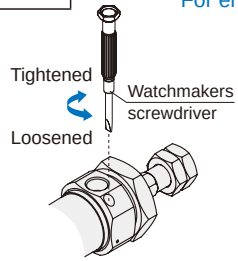
Code	Symbol	Description
Blank		Standard type
N		End-plain
E		With pivot type

* Order example for special specification, refer to page 0-7.

Caution

For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



* Use the same accessories with MCMB.

Mounting accessories

LB — MCMB — 20

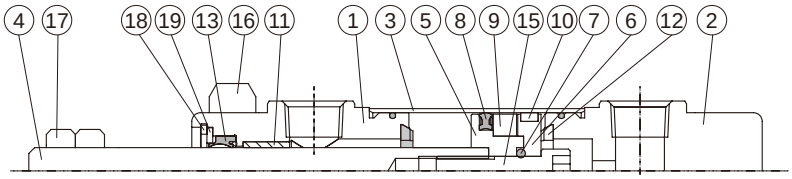
- MODEL
- TUBE I.D.

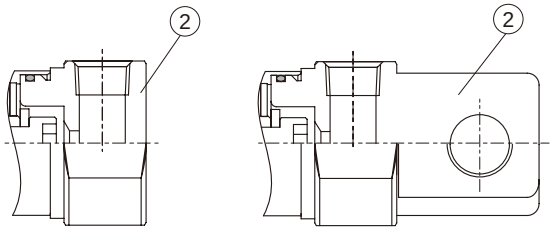
MOUNTING TYPE

	LB		SDB*
	CA		TA
	CB		TB
	FA		Y
	FB		I

* For end cover "E" type.

Cushion pad Unadjustable





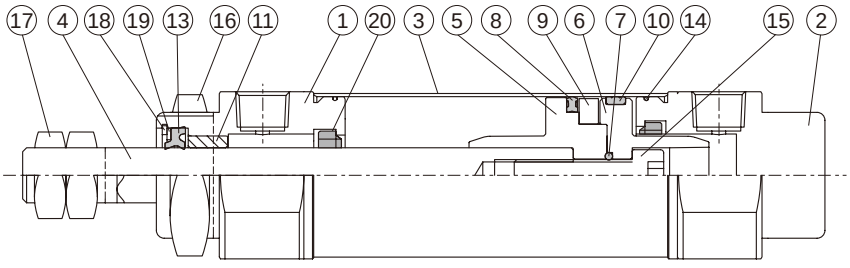
N type **E** type

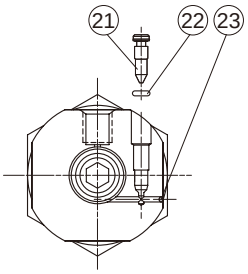
Order example
Component parts

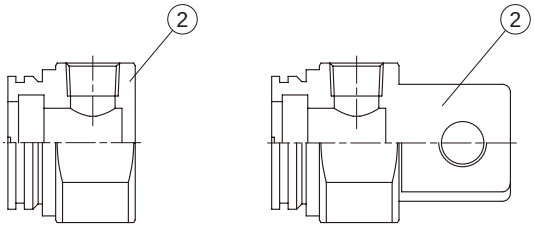
Tube I.D.	Cushion pad
ø20	**CP-MCKMB-20**
ø25	**CP-MCKMB-25**
ø32	**CP-MCKMB-32**
ø40	**CP-MCKMB-40**

Tube I.D.	Cushion air
ø20	**CP-MCKMB-20A**
ø25	**CP-MCKMB-25A**
ø32	**CP-MCKMB-32A**
ø40	**CP-MCKMB-40A**

Cushion air Adjustable







N type **E** type

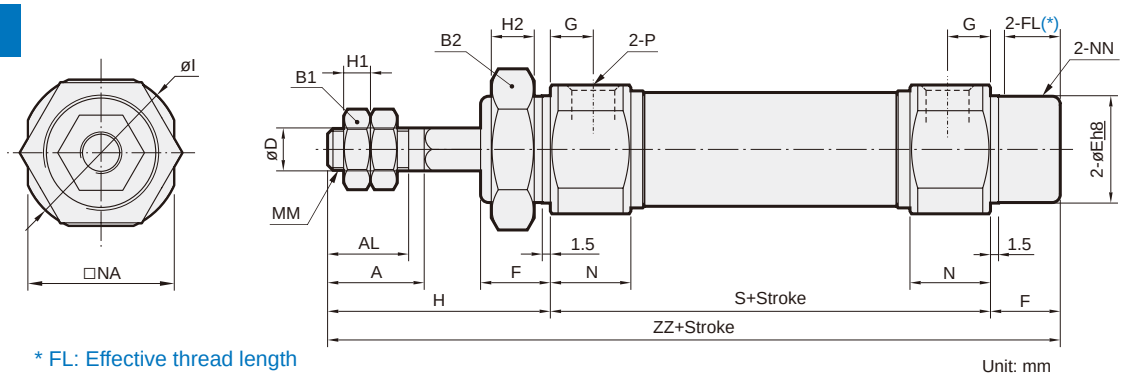
Material

* CP: Component parts (inclusion)

No.	Cushion		Part name	Material	Q'y	CP *	
	Pad	Air				Pad	Air
1	●	●	Rod cover	Aluminum alloy	1	●	●
2	●	●	Head cover	Aluminum alloy	1	●	●
3	●	●	Tube	Stainless steel	1		
4	●	●	Piston rod	Stainless steel	1		
5	●	●	Piston-R	Aluminum alloy	1	●	●
6	●	●	Piston-H	Aluminum alloy	1	●	●
7	●	●	Piston gasket	NBR	1	●	●
8	●	●	Piston packing	NBR	1	●	●
9	●	●	Magnet ring	Magnet material	1	●	●
10	●	●	Wear ring	POM	1	●	●
11	●	●	Rod bush	Bearing alloy	1	●	●
12	●		Cushion gasket	NBR	2	●	

No.	Cushion		Part name	Material	Q'y	CP *	
	Pad	Air				Pad	Air
13	●	●	Rod packing	NBR	1	●	●
14	●	●	Cover ring	NBR	2	●	●
15	●	●	Piston bolt	SCM	1	●	●
16	●	●	Tie nut	Carbon steel	1	●	●
17	●	●	Rod front nut	Carbon steel	2	●	●
18	●	●	Snap ring	Spring steel	1	●	●
19	●	●	Washer	Carbon steel	1	●	●
20		●	Cushion packing	NBR	2		●
21		●	Needle valve packing	NBR	2		●
22		●	Needle valve	Carbon steel	2		●
23		●	Steel ball	Stainless steel	2		●

11

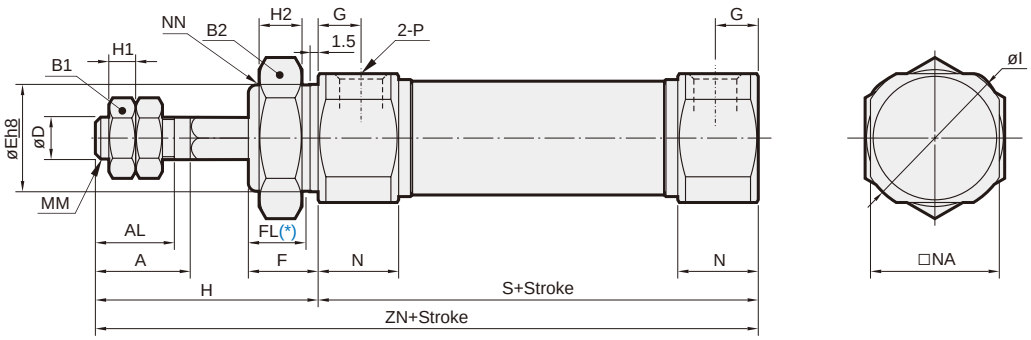


* FL: Effective thread length

Unit: mm

Code / Tube I.D.	A	AL	B1	B2	D	E	F	FL	G	H	H1	H2	I	MM	N	NA	NN	P	S	ZZ
20	18	15.5	13	26	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	8	28	M8×1.25	15	24	M20×1.5	Rc1/8	62	116
25	22	19.5	17	32	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	33.5	M10×1.25	15	30	M26×1.5	Rc1/8	62	120
32	22	19.5	17	32	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	37.5	M10×1.25	15	34.5	M26×1.5	Rc1/8	64	122
40	24	21	22	41	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	10	46.5	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	88	154

N

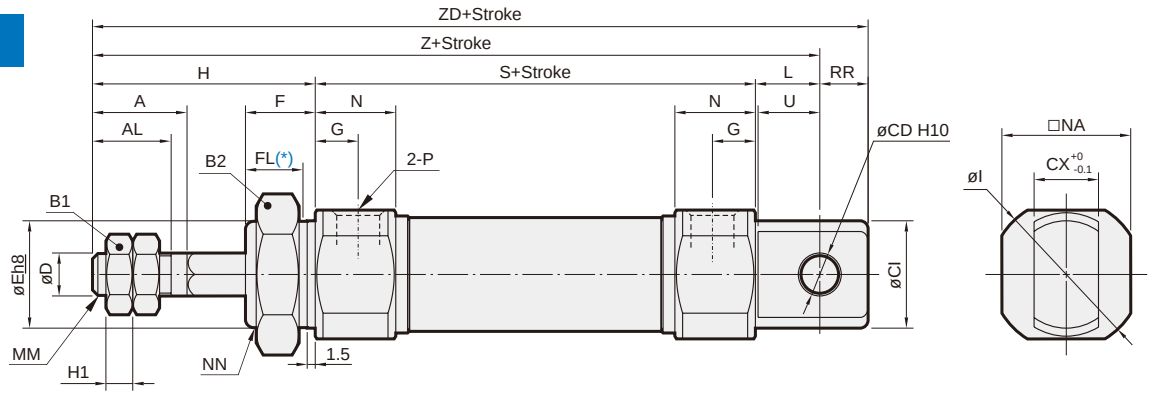


* FL: Effective thread length

Unit: mm

Code / Tube I.D.	A	AL	B1	B2	D	E	F	FL	G	H	H1	H2	I	MM	N	NA	NN	P	S	ZN
20	18	15.5	13	26	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	8	28	M8×1.25	15	24	M20×1.5	Rc1/8	62	103
25	22	19.5	17	32	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	33.5	M10×1.25	15	30	M26×1.5	Rc1/8	62	107
32	22	19.5	17	32	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	8	37.5	M10×1.25	15	34.5	M26×1.5	Rc1/8	64	109
40	24	21	22	41	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	10	46.5	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	88	138

E



* FL: Effective thread length

Unit: mm

Code / Tube I.D.	A	AL	B1	B2	CD	CX	CI	D	E	F	FL	G	H	H1	I	L	MM	N	NA	NN	P	RR	S	U	Z	ZD
20	18	15.5	13	26	8	12	20	8	20 $^{0}_{-0.03}$	13	10.5	8	41	5	28	12	M8×1.25	15	24	M20×1.5	Rc1/8	9	62	11.5	115	124
25	22	19.5	17	32	8	12	22	10	26 $^{0}_{-0.03}$	13	10.5	8	45	6	33.5	12	M10×1.25	15	30	M26×1.5	Rc1/8	9	62	11.5	119	128
32	22	19.5	17	32	10	20	27	12	26 $^{0}_{-0.03}$	13	10.5	8	45	6	37.5	15	M10×1.25	15	34.5	M26×1.5	Rc1/8	12	64	14.5	124	136
40	24	21	22	41	10	20	33	14	32 $^{0}_{-0.04}$	16	13.5	11	50	8	46.5	15	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	12	88	14.5	153	165

Features

- Cylinder remains same position when it reaches either end of stroke even if the input air source is gone.

■ Non lubrication

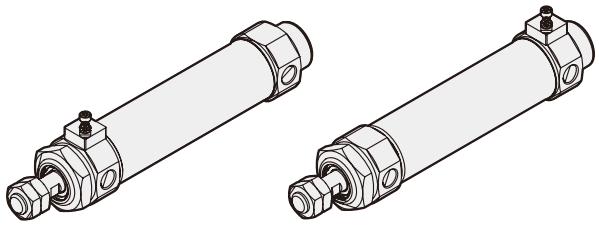
- Self-lubricating bush prorides longer service life.

■ High quality long service life

- Stainless steel cylinder tubes for better corrosion resistance.

■ Magnetic as standard

End lock type



R: Rod cover **H**: Head cover

Specification

Model		MCMBL	
Tube I.D. (mm)		32	40
Port size		Rc1/8	Rc1/4
Medium		Air	
Max. operating perssure		1 MPa	
Min. operating perssure		0.15 MPa	
Proof pressure		1.5 MPa	
Lubricator		Not required	
Ambient temperature		-5~+60°C (No freezing)	
Available speed range		50~500 mm/sec	
Max. allowable kinetic energy (J)	Cushion pad	0.29	0.53
	Cushion air	0.32	0.59
Lock unit backlash		2 mm or less	
Sensor switch		RCM (Please refer to page 8-15)	
Sensor switch (band)		BM32	BM40

* For precautions, please refer to page 3-2.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø32, 40	25,50,75,100,125,150,200,250,300

Order example

MCMBL — 11 — 40 — 100 — AR — G

MODEL | 1: Single rod | TUBE I.D. | STROKE | END LOCK TYPE | PORT THREAD

STYLE

Code		Symbol	Description	
1	1		Double acting / Male thread	Rod cover
				Head cover

END LOCK TYPE
R: Rod cover
H: Head cover

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Blank: Cushion pad (Unadjustable)
A: Cushion air (Adjustable) ⚠

* Order example for special specification, refer to page 0-7.

* Use the same accessories with **MCMB**.

Mounting accessories

LB — MCMB — 40

MODEL | TUBE I.D.

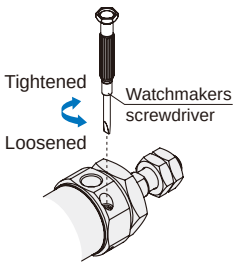
MOUNTING TYPE

	LB		TA
	CA		TB
	CB		Y
	FA		I
	FB		

⚠ Caution

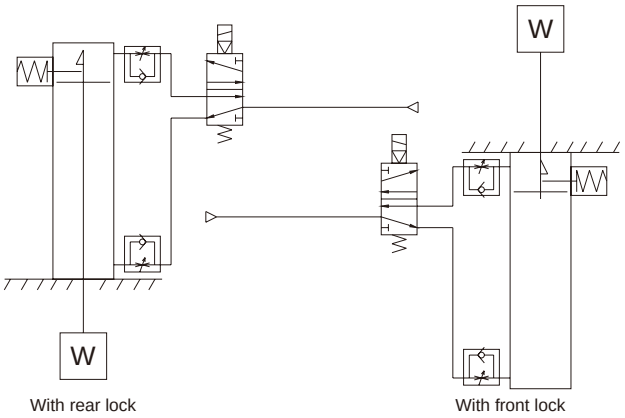
For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



Use recommended air pressure circuit

❶ The circuit layout must be settled properly. The recommended circuit design is shown below.



Precautions

❶ Do not use 3-way solenoid valves. The cylinder cannot be locked when compressed air is trapped in the lock side port. And the lock may be released due to the air leakage of solenoid valve, even it was locked successfully.

❷ Do not adjust or mount the cylinder when the lock is on.

❸ The operation load do not exceed 50% of the cylinder maximum output.

❹ Do not operate a workpiece with multiple end-lock cylinders simultaneously.

❺ Use an one-way speed control valve with meter-out circuit layout design. The lock cannot be released when the circuit layout is meter-in design.

❻ Operate the lock only when the cylinder is at the either end-position of stroke.

❼ The air supply must be higher than 0.15 MPa to operate the lock.

❽ The lock will be on when automatically when the pressure of the lock is lower than 0.1 MPa or less.

❾ There are many conditions that will cause the exhaust speed to reduce. The examples are shown below.

ⓐ When the exhausting route length is too long.

ⓑ When the one-way speed control valve is too far from cylinder port.

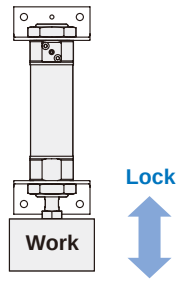
ⓒ When the silencer of the solenoid valve is blocked or clogged.

❿ When the cushion needle is fully closed, the piston rod may not be able to reach the end of its stroke. When the cushion needle is fully closed and the cylinder is locked, the lock may not be able to be released.

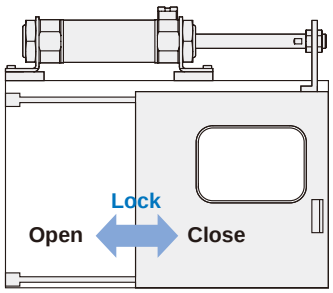
Maintains the cylinder's original position even if the air supply is interrupted.

Prevention of dropping at the rising end

With rear lock



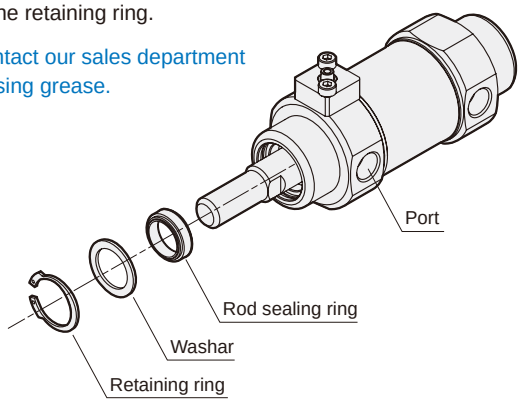
Locking of door With front lock



The replacement of rod sealing ring

ⓐ Remove the retaining ring.
ⓑ Take out the washer and clean it.
ⓒ Take out the rod sealing ring.
ⓓ Lubricate the new rod sealing ring and piston rod with grease.
ⓔ Put in the new rod sealing ring.
ⓕ Put in the washer.
ⓖ Install the retaining ring.

Please contact our sales department for purchasing grease.



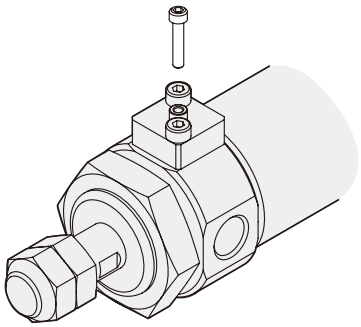
Manual Lock Releasing

❶ Install a bolt into the locking rod and pull it up by hands. When your hands release, the locking rod will move back by spring force and continue locking.

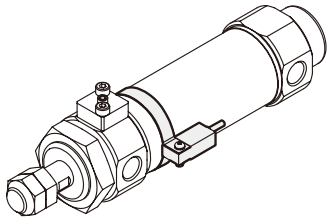
The bolt size, inner spring pulling force and the stroke of locking rod are listed below.

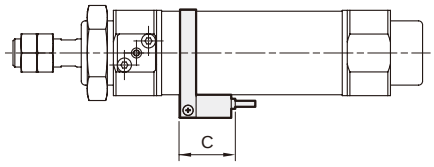
MODEL	Thread size	Pulling force	Stroke (mm)
MCMBL-32	M2.5×0.45×25 ℓ	4.9 N	2
MCMBL-40	M3×0.5×30 ℓ	10.0 N	3

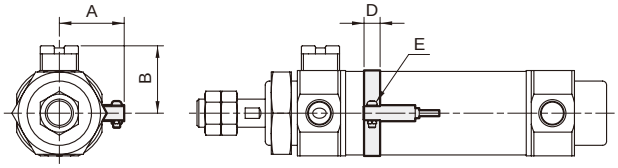
❷ The bolt must be uninstalled after manual lock releasing, or the weight of bolt may cause some performance problems of the lock.



Installation of sensor switch





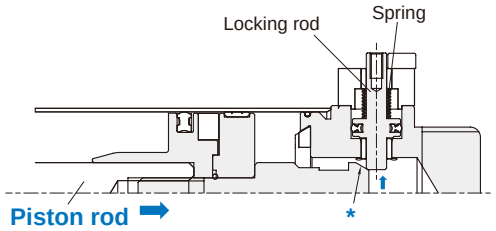


Code / Tube I.D.	Sensor switch	Band	A	B	C	D	E
32	RCM	BM32	28.3	27.55	28	9	M3×16L
40	RCM	BM40	32.3	33.55	28	9	M3×16L

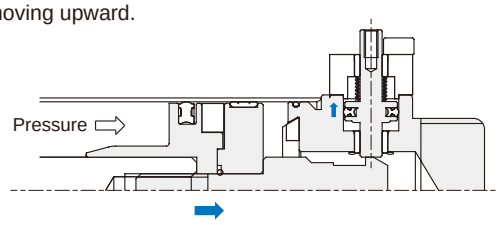
Working Principle

● Both front locking type and rear locking type have the same mechanism. The pictures below shows that how a rear locking type cylinder works.

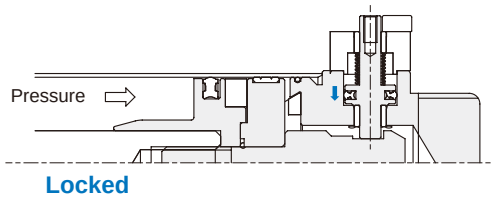
❶ When the air pressure is input from front cap, the piston will move backward. After the piston nears the end of the stroke, the slope of chamfered rod (the position of *mark) will touch the locking rod.



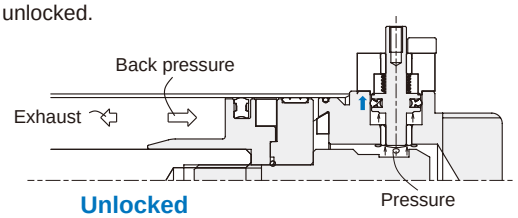
❷ The locking rod will be guided with the slope and keeps moving upward.



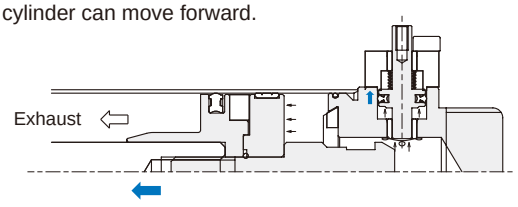
❸ The locking rod will be pushed into the locking slot of the piston rod by the spring force. At this time, the cylinder is locked.



❹ When the air pressure is input from rear cap, the piston will start moving forward. At the same time, the locking rod will be pushed up by the compressed air and make the piston rod unlocked.

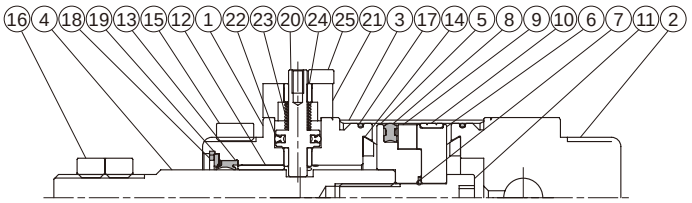


❺ As the locking rod is no longer locking the piston rod, the cylinder can move forward.

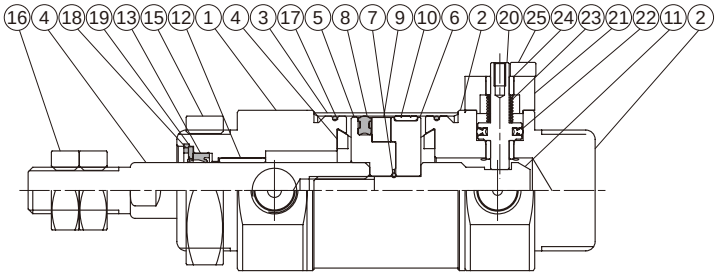


Cushion pad Unadjustable

R

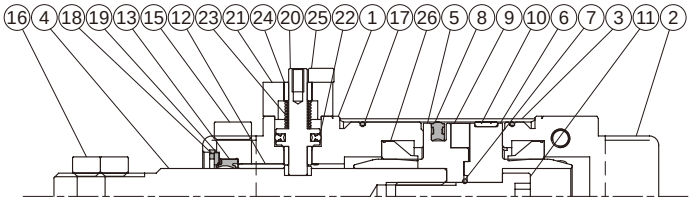


H

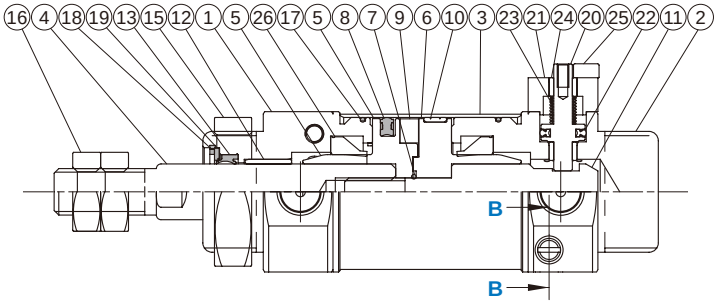


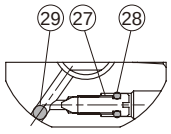
Cushion air Adjustable

AR



AH





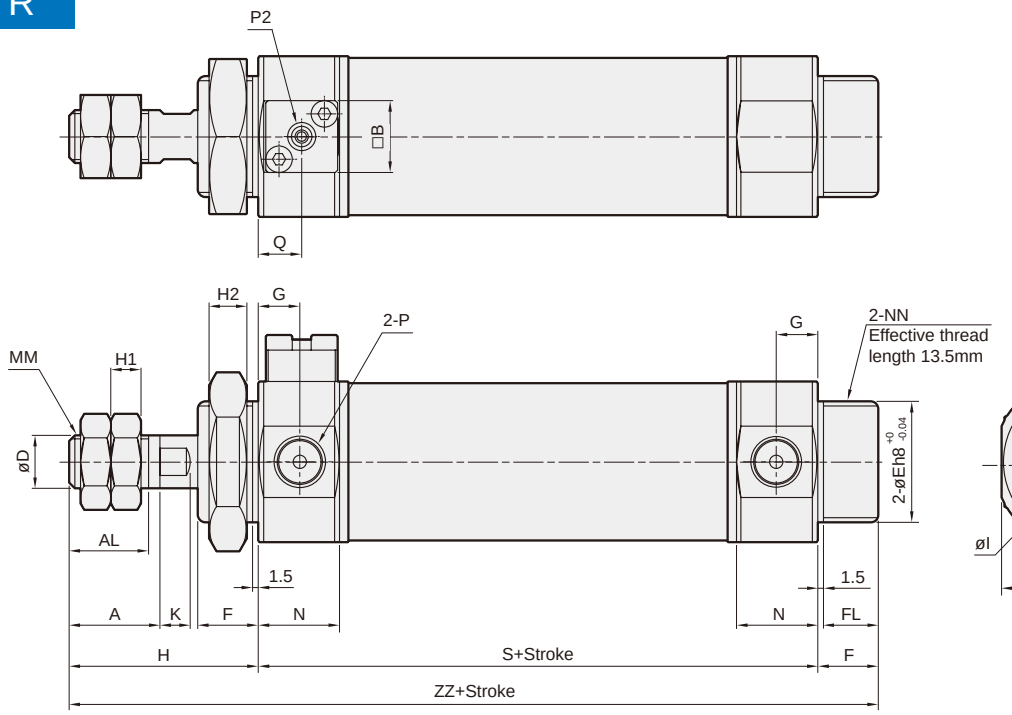
B-B

Material

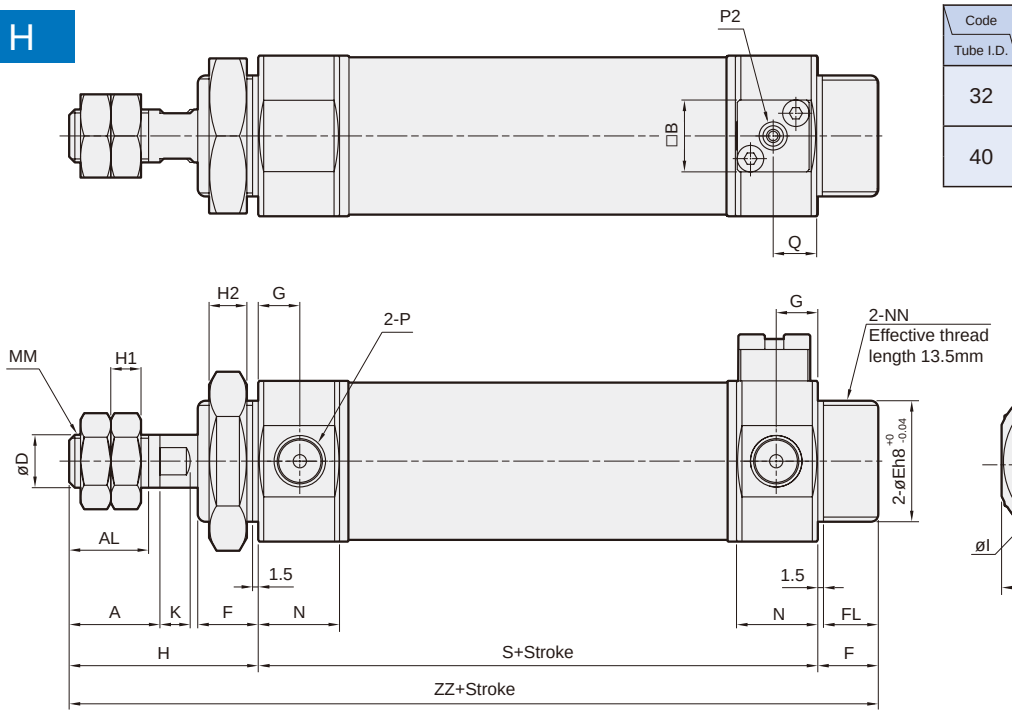
No.	Cushion		Part name	Material	Q'y
	Pad	Air			
1	●	●	Rod cover	Aluminum alloy	1
2	●	●	Head cover	Aluminum alloy	1
3	●	●	Tube	Stainless steel	1
4	●	●	Piston rod	Carbon steel	1
5	●	●	Piston-R	Aluminum alloy	1
6	●	●	Piston-H	Aluminum alloy	1
7	●	●	O-ring	NBR	1
8	●	●	Piston packing	NBR	1
9	●	●	Magnet ring	Magnet	1
10	●	●	Wear ring	POM	1
11	●	●	Piston bolt	Carbon steel	1
12	●	●	Rod bush	Bearing alloy	1
13	●	●	Rod sealing ring	HNBR	1
14	●		Cushion gasket	NBR	2
15	●	●	Cover nut	Carbon steel	1
16	●	●	Nut	Carbon steel	2

No.	Cushion		Part name	Material	Q'y
	Pad	Air			
17	●	●	O-ring	NBR	2
18	●	●	Retaining ring	Spring steel	1
19	●	●	Washer	Carbon steel	1
20	●	●	Lock piston	Carbon steel	1
21	●	●	Holder	Aluminum alloy	1
22	●	●	Piston packing	NBR	1
23	●	●	Spring	SWP	1
24	●	●	DU bush	–	2
25	●	●	Bolt	Carbon steel	2
26		●	Cushion ring	NBR	2
27		●	Cushion needle valve	Carbon steel	2
28		●	O-ring	NBR	2
29		●	Steel ball	Stainless steel	2

R



H



Code / Tube I.D.	End lock	S		ZZ	
		Pad	Air	Pad	Air
32	R	64	75	122	133
	H	64	72	122	130
40	R	88	96	154	162
	H	88	93	154	159

Code / Tube I.D.	A	B	AL	D	E	F	FL	G	H	H1	H2	I	K	MM	N	NA	NB	NN	P	P1	P2	Q
32	22	15	19.5	12	26	13	11.5	8	45	6	8	37.5	6.5	M10×1.25	15	34.5	44.8	M26×1.5	Rc1/8	10.3	M2.5×0.45	8
40	24	19	21	14	32	16	14.5	11	50	8	10	46.5	7	M14×1.5	21.5	42.5	54.8	M32×2.0	Rc1/4	12.3	M3×0.5	11.5

MCMBR* series

MINIATURE CYLINDER

Features

■ Compact type

The cylinder can be directly mounted without bracket (You have bracket) the overall length is shorter and so it will fit into a more confined space. This gives the benefit of saving space when installing the cylinder.

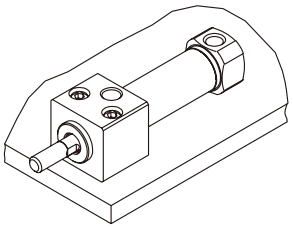
■ Improved strength and accuracy of installation.

■ Two installation methods.

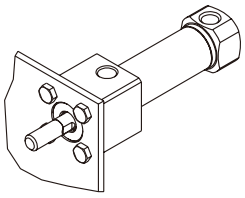
Cylinder can be front mounted or mounted from underneath.

■ Magnetic as standard.

Mounting



A: Bottom mounting



B: Front mounting

Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25,32,40	25,50,75,100,125,150,200,250,300

Specification

Model		MCMBRA, MCMBRB			
Tube I.D. (mm)		ø20	ø25	ø32	ø40
Port size		Rc1/8			Rc1/4
Medium		Air			
Max. operating perssure		1 MPa			
Min. operating perssure		0.05 MPa			
Proof pressure		1.5 MPa			
Lubrication		Not required			
Ambient temperature		-5~+60°C (No freezing)			
Available speed range		50~500 mm/sec			
Max. allowable kinetic energy (J)	Cushion pad	0.12	0.18	0.29	0.53
	Cushion air	0.14	0.20	0.32	0.59
Sensor switch (*)		RCM			
Sensor switch (band)		BM20	BM25	BM32	BM40

* RCM specification, please refer to page 8-15.
* For precautions, please refer to page 3-2.

Order example

MCMBRA — 11 — 25 — 100 — A — G

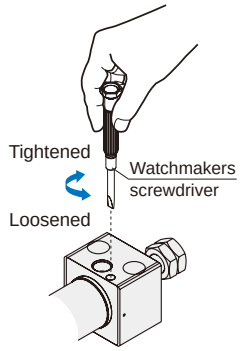
- MODEL
- 1: Single rod
- TUBE I.D.
- STROKE
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- MOUNTING
  - **A**: Bottom mounting
  - **B**: Front mounting
- Blank: Cushion pad (Unadjustble)
  A: Cushion air (Adjustable) ⚠
- STYLE

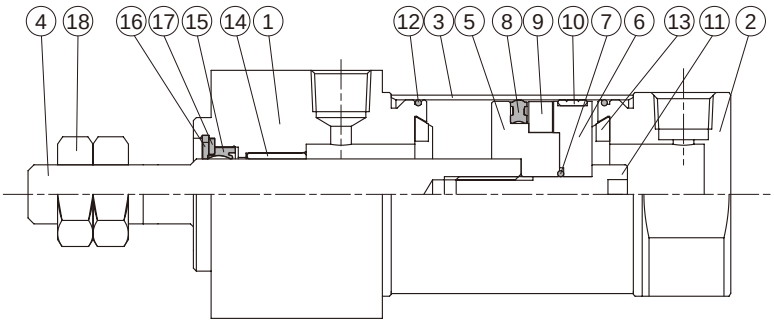
Code		Symbol	Description
1	1		Double acting / Male thread

⚠ Caution

For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.





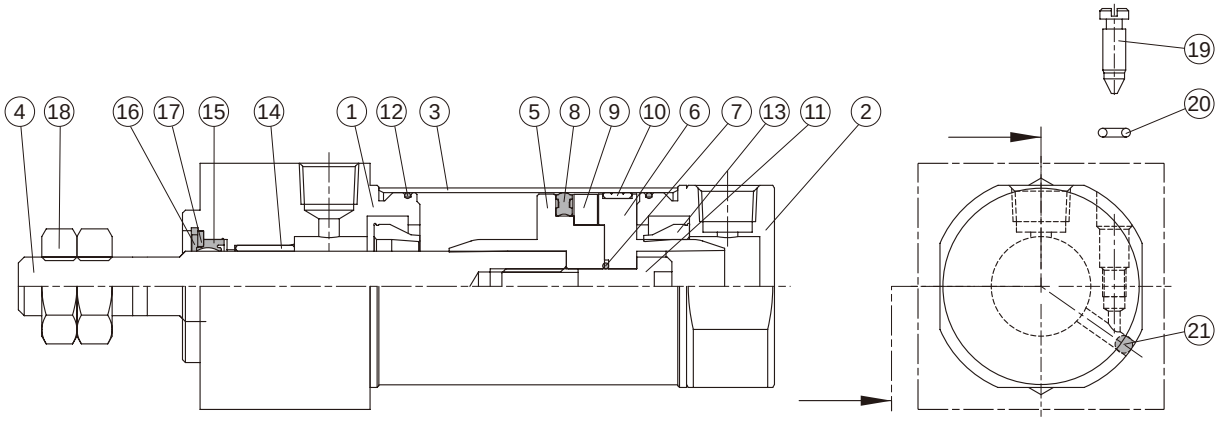
Material

No.	Tube I.D. / Part name	20	25	32	40	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod cover	Aluminum alloy				1	●	
2	Head cover	Aluminum alloy				1	●	
3	Tube	Stainless steel				1		
4	Piston rod	Carbon steel				1		
5	Piston-R	Aluminum alloy				1	●	
6	Piston-H	Aluminum alloy				1	●	
7	Piston gasket	NBR				1	●	
8	Piston packing	NBR				1	●	
9	Magnet ring	Magnet material				1	●	
10	Wear ring	POM				1	●	
11	Piston bolt	SCM				1	●	
12	Cover ring	NBR				2	●	
13	Cushion gasket	NBR				2	●	
14	Rod bush	Bearing alloy				1	●	
15	Rod packing	NBR				1	●	●
16	Snap ring	Spring steel				1	●	
17	Washer	Carbon steel				1	●	
18	Rod front nut	Carbon steel				2	●	

Order example of component parts / repair kits

Tube I.D.	Component parts	Repair kits
ø20	**CP-MCMBRA-20**	**PS-MCMB-20**
	CP-MCMBRB-20	
ø25	**CP-MCMBRA-25**	**PS-MCMB-25**
	CP-MCMBRB-25	
ø32	**CP-MCMBRA-32**	**PS-MCMB-32**
	CP-MCMBRB-32	
ø40	**CP-MCMBRA-40**	**PS-MCMB-40**
	CP-MCMBRB-40	

* Use the same repair kits with **MCMB**.



Material

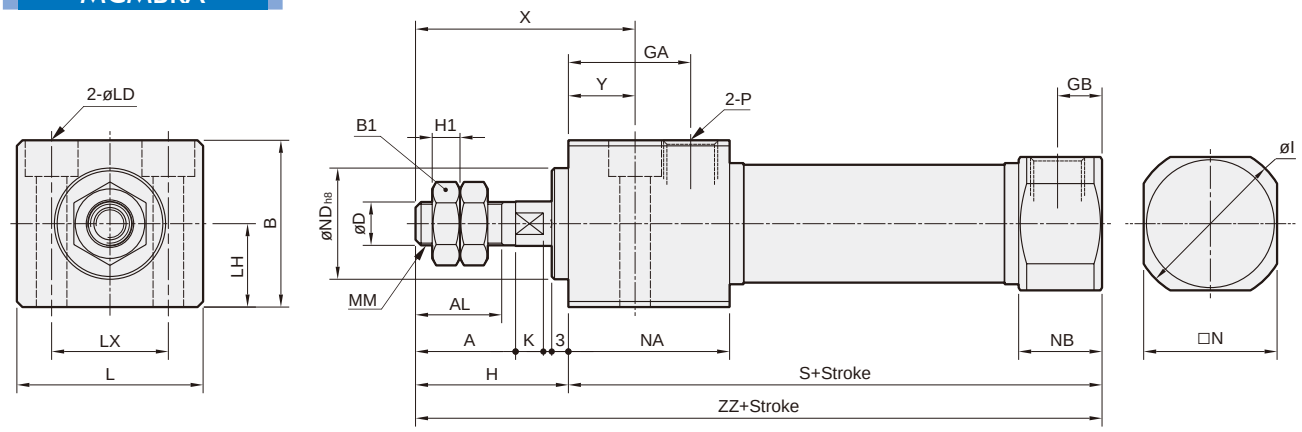
No.	Tube I.D. / Part name	20	25	32	40	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod cover	Aluminum alloy				1	●	
2	Head cover	Aluminum alloy				1	●	
3	Tube	Stainless steel				1		
4	Piston rod	Carbon steel				1		
5	Piston-R	Aluminum alloy				1	●	
6	Piston-H	Aluminum alloy				1	●	
7	Piston gasket	NBR				1	●	
8	Piston packing	NBR				1	●	
9	Magnet ring	Magnet material				1	●	
10	Wear ring	POM				1	●	
11	Piston bolt	SCM				1	●	
12	Cover ring	NBR				2	●	
13	Cushion gasket	NBR				2	●	
14	Rod bush	Bearing alloy				1	●	
15	Rod packing	NBR				1	●	●
16	Snap ring	Spring steel				1	●	
17	Washer	Carbon steel				1	●	
18	Rod front nut	Carbon steel				2	●	
19	Needle valve	Stainless steel		Carbon steel		2	●	
20	Needle vavle packing	NBR				2	●	
21	Steel ball	Stainless steel				2	●	

Order example of component parts / repair kits

Tube I.D.	Component parts	Repair kits
ø20	**CP-MCMBRA-20A**	**PS-MCMB-20A**
	CP-MCMBRB-20A	
ø25	**CP-MCMBRA-25A**	**PS-MCMB-25A**
	CP-MCMBRB-25A	
ø32	**CP-MCMBRA-32A**	**PS-MCMB-32A**
	CP-MCMBRB-32A	
ø40	**CP-MCMBRA-40A**	**PS-MCMB-40A**
	CP-MCMBRB-40A	

* Use the same repair kits with **MCMB**.

MCMBRA

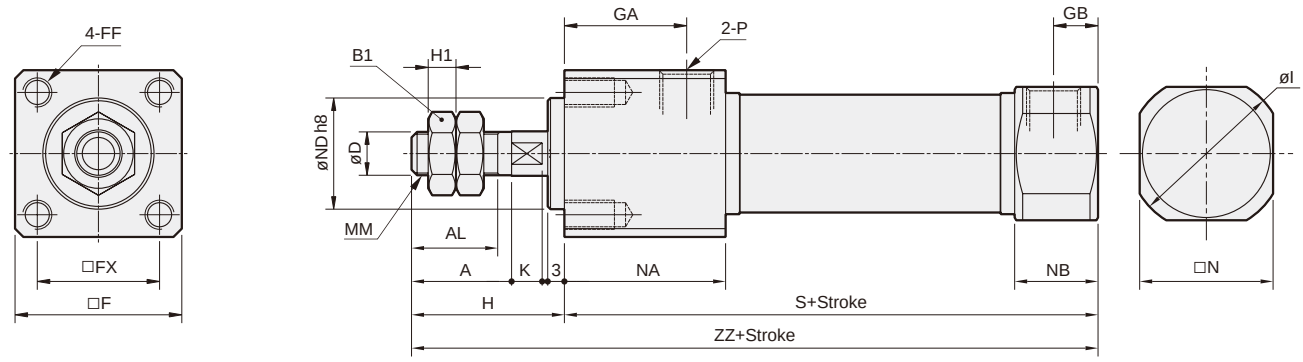


Unit: mm

Code / Tube I.D.	A	AL	B	B1	D	GA	GB	H	H1	I	K	L	LD	LH	LX	MM	N	NA	NB	ND
20	18	15.5	30	13	8	22	8	27	5	28	5	33.5	ø5.5thru,ø9.5×6.5depth	15	21	M8×1.25	24	29	15	20 $^{0}_{-0.033}$
25	22	19.5	36	17	10	22	8	31	6	33.5	5	39	ø6.6thru,ø11×7.5depth	18	25	M10×1.25	30	29	15	26 $^{0}_{-0.033}$
32	22	19.5	42	17	12	22	8	31	6	37.5	5.5	47	ø9thru,ø14×10depth	21	30	M10×1.25	34.5	29	15	26 $^{0}_{-0.033}$
40	24	21	52	22	14	27	11	34	8	46.5	7	58.5	ø11thru,ø17.5×12.5depth	26	38	M14×1.5	42.5	37.5	21.5	32 $^{0}_{-0.039}$

Code / Tube I.D.	P	S	X	Y	ZZ
20	Rc1/8	76	39	12	103
25	Rc1/8	76	43	12	107
32	Rc1/8	78	43	12	109
40	Rc1/4	104	49	15	138

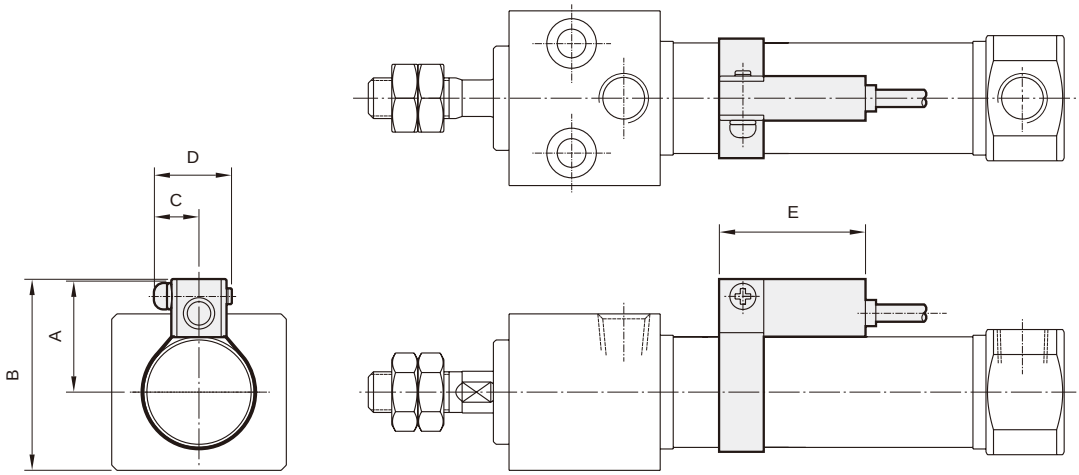
MCMBRB



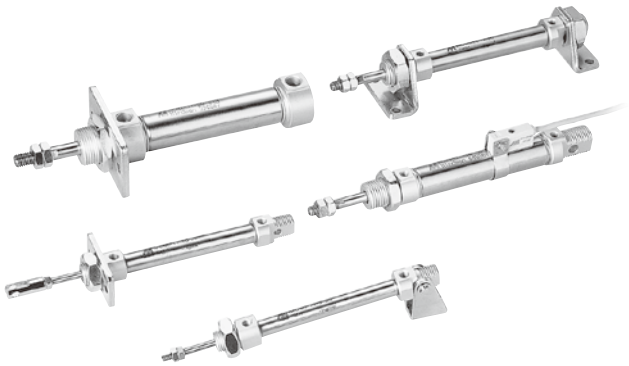
Unit: mm

Code / Tube I.D.	A	AL	B1	D	F	FF	FX	GA	GB	H	H1	I	K	MM	N	NA	NB	ND	P	S	ZZ
20	18	15.5	13	8	30	M5×0.8×9depth	22	22	8	27	5	28	5	M8×1.25	24	29	15	20 $^{0}_{-0.033}$	Rc1/8	76	103
25	22	19.5	17	10	36	M6×1.0×11depth	26	22	8	31	6	33.5	5	M10×1.25	30	29	15	26 $^{0}_{-0.033}$	Rc1/8	76	107
32	22	19.5	17	12	42	M6×1.0×11depth	30	22	8	31	6	37.5	5.5	M10×1.25	34.5	29	15	26 $^{0}_{-0.033}$	Rc1/8	78	109
40	24	21	22	14	52	M8×1.25×14depth	36	27	11	34	8	46.5	7	M14×1.5	42.5	37.5	21.5	32 $^{0}_{-0.039}$	Rc1/4	104	138

Sensor switch: RCM
Sensor switch band: BM**



Code / Tube I.D.	A	B	C	D	E
20	22	37	10	16	28
25	25	43	10	16	28
32	28	50	10	16	28
40	32	59	10	16	28



Features

■ Non lubrication
Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life
Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Cylinder mountings
Available with a comprehensive range of accessories for rigid or flexible mounting.

■ ISO-6432 standard (ø8~ø25)
Enables world-wide inter-changeability.

■ Port thread Rc. NPT. are also available

■ Magnetic as standard

Table for standard stroke

	Tube I.D.	Stroke (mm)
Single acting	ø16	15,25,50,75,100
	ø20,25	15,25,50,75,100,125,150
Double acting	ø8,10	10,25,40,50,80,100
	ø12	10,25,40,50,80,100,125,160,200
	ø16,20,25 ø32,40	15,25,50,75,100,125,150,200,250, 300,350,400,450,500

* Stroke out of specification is also available.
* Please consult us if stroke out of specification.

Specification

Model		MCMI							
Tube I.D. (mm)		8	10	12	16	20	25	32	40
Port size		M5×0.8				G1/8			G1/4
Medium		Air							
Max. operating perssure		0.7 MPa							
Min. operating perssure (MPa)	Double acting	0.1	0.08		0.06				
	Single acting Extended	–			0.23			–	
	Single acting Returned	–			0.18			–	
Proof pressure		1 MPa							
Lubricator		Not required							
Ambient temperature		-5~+60°C (No freezing)							
Available speed range		50~500 mm/sec							
Max. allowable kinetic energy (J)	Cushion pad	0.02	0.03	0.04	0.09	0.27	0.4	0.65	1.2
	Cushion air	–	–	–	0.4	0.66	0.97	1.27	2.35
Sensor switch (*)		RCM							
Sensor switch (band)		BM8	BM10	BM12	BM16	BM20	BM25	BM32	BM40

* RCM specification, please refer to page 8-15.
* For precautions, please refer to page 3-2.

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)
ø8	M4×0.7	11.8
ø10	M4×0.7	11.8
ø12	M6×1.0	41
ø16	M6×1.0	41
ø20	M8×1.25	170
ø25	M10×1.25	340
ø32	M10×1.25	340
ø40	M12×1.25	590

* Make sure the tightening torque of rod thread does not exceed the value above. The tolerance of tightening torque is ±5%.

MCMI Order example

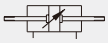
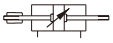
ISO-6432 **MINIATURE CYLINDER**/NON-PIVOT TYPE **MINIATURE CYLINDER** mindman

Order example

MCMI — 11 — 16 — 100 — A — NC

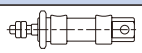
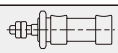
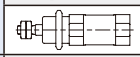
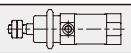
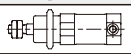
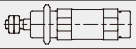
- MODEL
- **1**: Single rod, **2**: Double rod
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable), **A**: Cushion air (Adjustable) ⚠ (*)
  * ø8~12 not applicable.

STYLE

Code		Symbol	Description	Tube I.D.
1	1		Double acting / Male thread	ø8~ø40
1	3		Single acting / Normally extended male thread	ø16~ø25
1	5		Single acting / Normally returned male thread	
2	1		Double rod / Male thread	
2	7		Double rod / Adjustable male thread Please mark "adjustable distance(mm)" at order list	

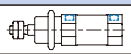
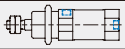
* Single acting type, please consult us.
* Order example for special specification, refer to page 0-7.

END COVER TYPE

Code	Symbol	Description	Tube I.D.
–		Standard type	ø8~ø25
N		Non-pivot type	
		Non-pivot type	ø32~ø40
R		Rod clevis	
H		Head clevis	
F		Head foot type	

* (R), (H) not suitable for (A) cushion air.

PORT POSITION

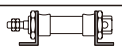
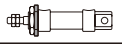
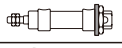
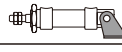
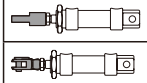
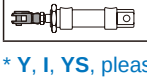
Code	Symbol	Description	Tube I.D.	Suitable end cover
–		Standard type	ø8~ø40	All end cover
C		Axial port	ø32~ø40	N, R

Mounting accessories

LB — MCMI — 16

- MODEL
- TUBE I.D.

MOUNTING TYPE

	**LB**
	**FA**
	**FB**
	**SDB**
	**Y**
	**I**
	**YS** (Y+Floating pin)

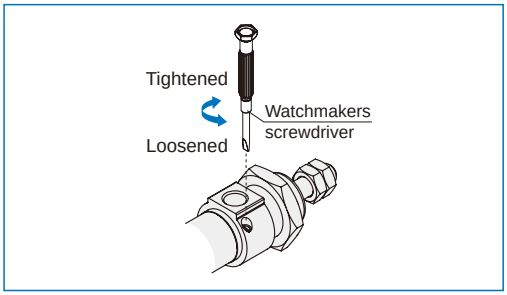
Only for ø8~ø25

* **Y**, **I**, **YS**, please refer to page 3-14.

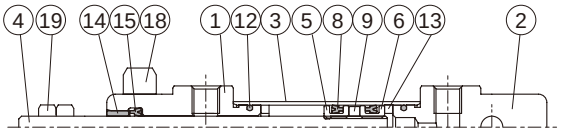
⚠ Caution

For (**A**) Cushion air (Adjustable)

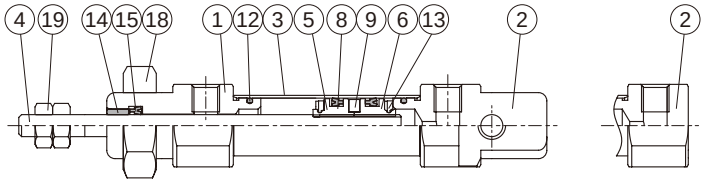
1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



ø8, ø12

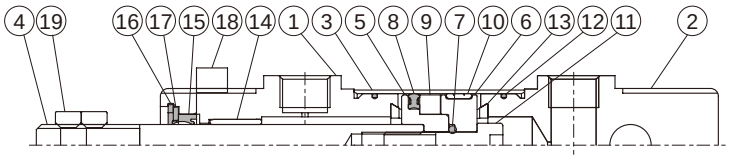


ø10

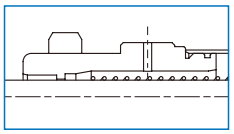


N type: ø8~ø40

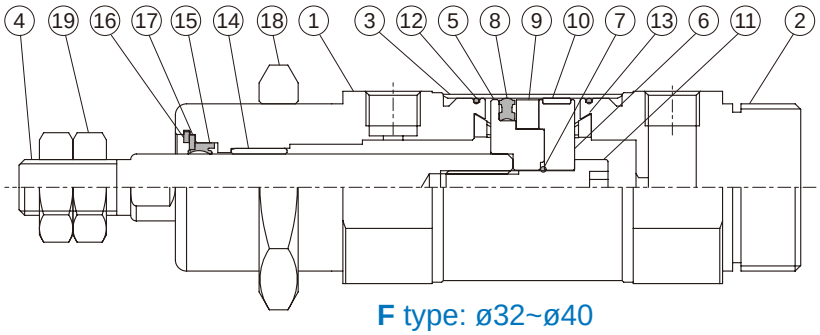
ø16~ø25



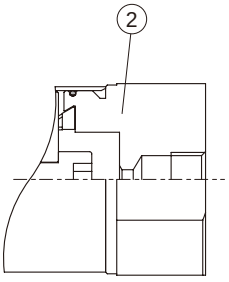
15 type: ø16



ø32, ø40



F type: ø32~ø40



C type: ø32~ø40

Material

* Style 21 is not applicable in cylinder bore ø8~ø12.
* Repair kit is not applicable for cylinder bore ø8~ø12.

No.	Tube I.D. / Part name	8	10	12	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy								1	2	●	●	
2	Head cover	Aluminum alloy								1	–	●		
3	Tube	Stainless steel								1	1			
4	Piston rod	Stainless steel				Carbon steel				1	1			
5	Piston-R	Aluminum alloy								1	1	●	●	
6	Piston-H	Aluminum alloy								1	1	●	●	
7	Piston gasket	–			NBR					1	1	●	●	
8	Piston packing	NBR								1*1	1*1	●	●	
9	Magnet ring	Magnet material								1	1	●	●	
10	Wear ring	–			POM					1	1	●	●	
11	Piston bolt	–			SCM					1	–	●		
12	Cover ring	NBR								2	2	●	●	
13	Cushion gasket	NBR								2	2	●	●	
14	Rod bush	Bearing alloy								1	2	●	●	
15	Rod packing	NBR								1	2	●	●	●
16	Snap ring	–			Spring steel					1	2	●	●	
17	Washer	–			Carbon steel					1	2	●	●	
18	Tie nut	Carbon steel								1	2	●	●	
19	Rod front nut	Carbon steel								2	2	●	●	

*1. ø8~ø12 (Q'y: 2 psc)

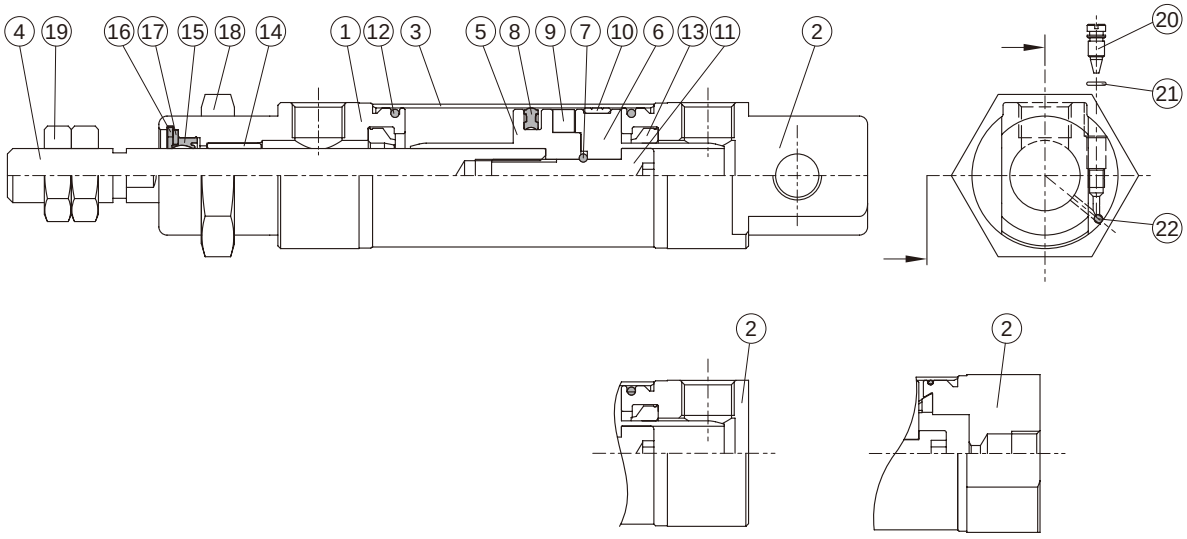
Order example

Component parts / Repair kits

Tube I.D.	Component parts	Repair kits
ø8	**CP-MCMI-8**	**PS-MCMI-8**
ø10	**CP-MCMI-10**	**PS-MCMI-10**
ø12	**CP-MCMI-12**	**PS-MCMI-12**
ø16	**CP-MCMI-16**	**PS-MCMI-16**
ø20	**CP-MCMI-20**	**PS-MCMI-20**
ø25	**CP-MCMI-25**	**PS-MCMI-25**
ø32	–	**PS-MCMI-32**
ø40	–	**PS-MCMI-40**

End cover type

Tube I.D.	Component parts	N	R	H	F
ø8	**CP-MCMI-8**	**-N**			
ø10	**CP-MCMI-10**	**-N**			
ø12	**CP-MCMI-12**	**-N**			
ø16	**CP-MCMI-16**	**-N**			
ø20	**CP-MCMI-20**	**-N**			
ø25	**CP-MCMI-25**	**-N**			
ø32	**CP-MCMI-32**	**-N**	**-R**	**-H**	**-F**
ø40	**CP-MCMI-40**	**-N**	**-R**	**-H**	**-F**



N type: ø16~ø40 **C** type: ø32~ø40

Material

* Cylinder bore ø8~12 is not applicable.

No.	Tube I.D. / Part name	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy					1	2	●	●	
2	Head cover	Aluminum alloy					1	–	●		
3	Tube	Stainless steel					1	1			
4	Piston rod	*1	Carbon steel				1	1			
5	Piston-R	Aluminum alloy					1	1	●	●	
6	Piston-H	Aluminum alloy					1	1	●	●	
7	Piston gasket	NBR					1	1	●	●	
8	Piston packing	NBR					1*2	1*2	●	●	
9	Magnet ring	Magnet material					1	1	●	●	
10	Wear ring	POM					1	1	●	●	
11	Piston bolt	SCM					1	–	●		
12	Cover ring	NBR					2	2	●	●	
13	Cushion packing	NBR					2	2	●	●	
14	Rod bush	Bearing alloy					1	2	●	●	
15	Rod packing	NBR					1	2	●	●	●
16	Snap ring	Spring steel					1	2	●	●	
17	Washer	Carbon steel					1	2	●	●	
18	Tie nut	Carbon steel					1	2	●	●	
19	Rod front nut	Carbon steel					2	2	●	●	
20	Needle valve	Stainless steel					2	2	●	●	
21	Needle valve packing	NBR					2	2	●	●	●
22	Steel ball	Stainless steel					2	2	●	●	

*1. Stainless steel
*2. ø8~ø12 (Q'y: 2 psc)

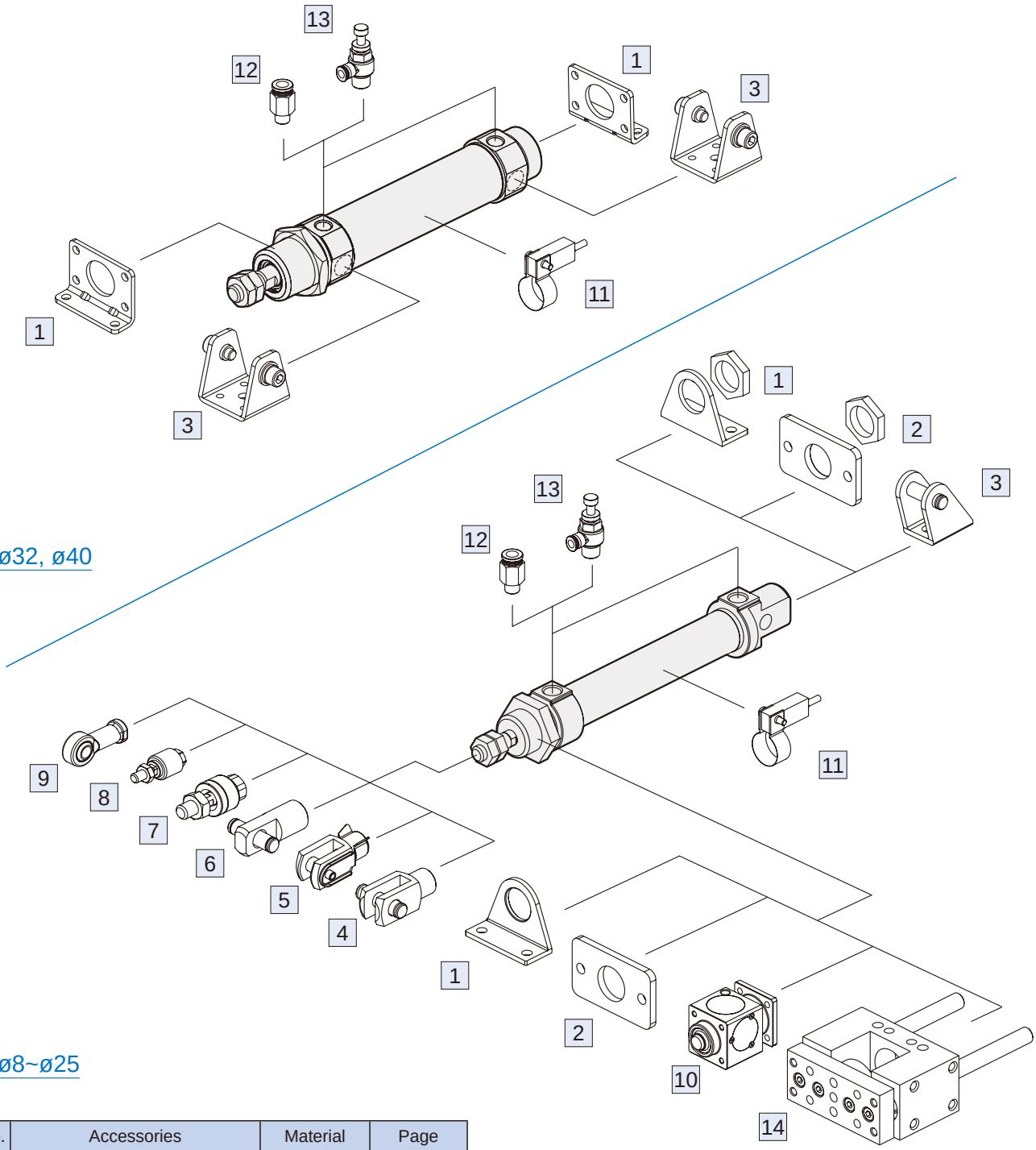
Order example

Component parts / Repair kits

Tube I.D.	Component parts	Repair kits
ø16	**CP-MCMI-16A**	**PS-MCMI-16A**
ø20	**CP-MCMI-20A**	**PS-MCMI-20A**
ø25	**CP-MCMI-25A**	**PS-MCMI-25A**
ø32	–	**PS-MCMI-32A**
ø40	–	**PS-MCMI-40A**

End cover type

Tube I.D.	Component parts	N	R	H	F
ø16	**CP-MCMI-16A**	**-N**	–		
ø20	**CP-MCMI-20A**	**-N**			
ø25	**CP-MCMI-25A**	**-N**			
ø32	**CP-MCMI-32A**	**-N**	**-R**	**-H**	**-F**
ø40	**CP-MCMI-40A**	**-N**	**-R**	**-H**	**-F**



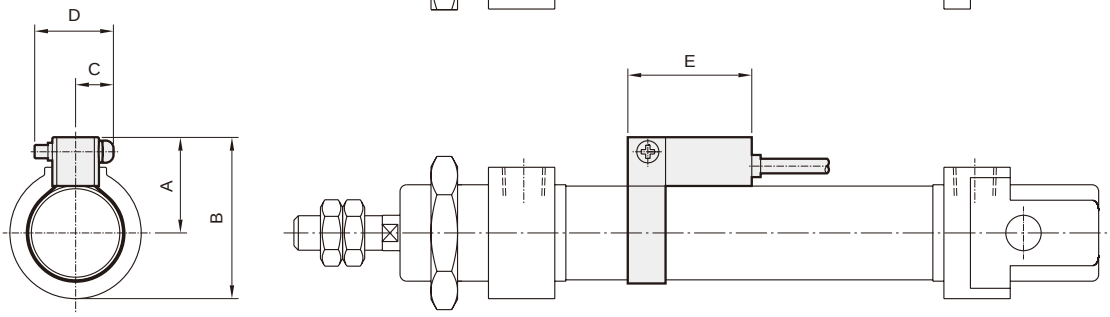
No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-49, 51
2	Mounting accessories FA/FB	Carbon steel	3-48, 49
3	Mounting accessories SDB+PIN	Carbon steel	3-48, 51, 14
4	Accessories Y+PIN	Carbon steel	3-14
5	Accessories YS (Y+Floating pin)	Carbon steel	3-14
6	Accessories I+PIN	Carbon steel	3-14
7	Floating joint MFC	Carbon steel	8-2
8	Floating joint MFCS	Carbon steel	8-5

* Aluminum alloy + copper alloy

No.	Accessories	Material	Page
9	Female rod ends PHS	Carbon steel	8-6
10	Locking unit MCBMI	(*)	1-77
11	Sensor switch RCM+BM**	–	8-15
12	Fitting PC	–	7-3 (Vol.1)
13	Fitting JSC	–	7-15 (Vol.1)
14	Twin-guide cylinders MGTB/TK/TU	–	4-33

Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**

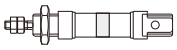
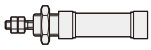
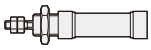
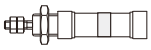


Code / Tube I.D.	A	B	C	D	E
8	16	23.5	10	16	28
10	17	24.5	10	16	28
12	18	28	10	16	28
16	20	30	10	16	28
20	22	35.5	10	16	28
25	25	38.5	10	16	28
32	28	45.5	10	16	28
40	32	54	10	16	28

Cylinder & accessories weight

Cylinder weight

Unit: g

Model	Basic weight **MCMI-11**	Basic weight **MCMI-11-A**	Stroke 25 mm **MCMI-11**	Basic weight **MCMI-11-N**	Basic weight **MCMI-11-A-N**	Stroke 25 mm **MCMI-11-***
Tube I.D.						
ø8	36	–	6	32	–	6
ø10	38	–	8	35	–	8
ø12	78	–	11	69	–	11
ø16	95	93	13	88	85	13
ø20	162	190	18	151	179	18
ø25	206	229	28	191	214	28

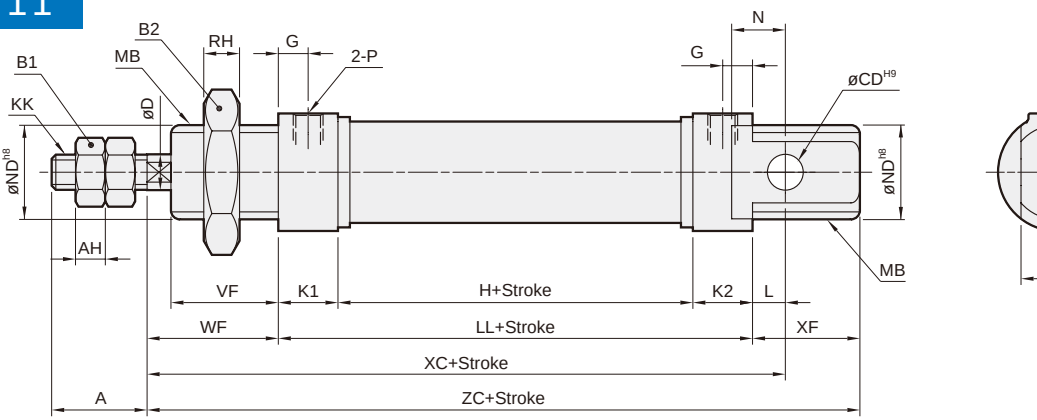
Model	Basic weight **MCMI-11-F**	Basic weight **MCMI-11-A-F**	Stroke 25 mm **MCMI-11-F**	Basic weight **MCMI-11-N/C/R/H**	Basic weight **MCMI-11-A-N/C**	Stroke 25 mm **MCMI-11-***
Tube I.D.						
ø32	334	402	39	307	375	39
ø40	591	601	60	639	649	60

Accessories weight

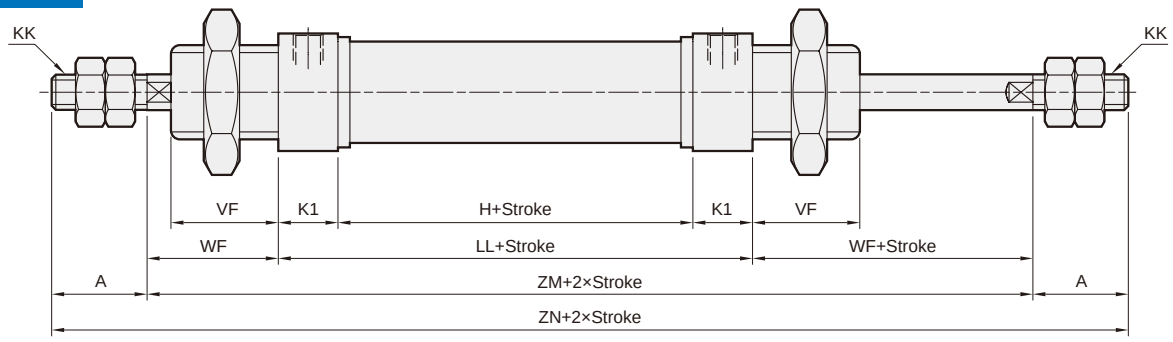
Unit: g

Model	LB	FA/FB	SDB	Y	I	Pin	Rod nut	Cover nut
Tube I.D.								
ø8	42	16	16	4	–	2	1	8
ø10	42	16	16	4	–	2	1	8
ø12	65	25	24	13	15	4	2	16
ø16	65	25	24	13	15	5	2	11
ø20	103	67	103	40	42	10	4	20
ø25	103	67	103	72	82	19	8	20
ø32	160	–	111	–	–	–	8	28
ø40	246	–	164	–	–	–	10	41

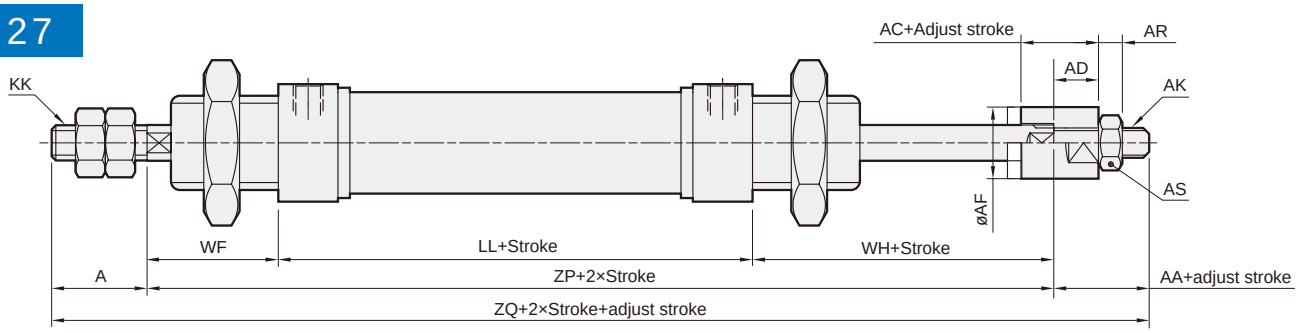
11



21



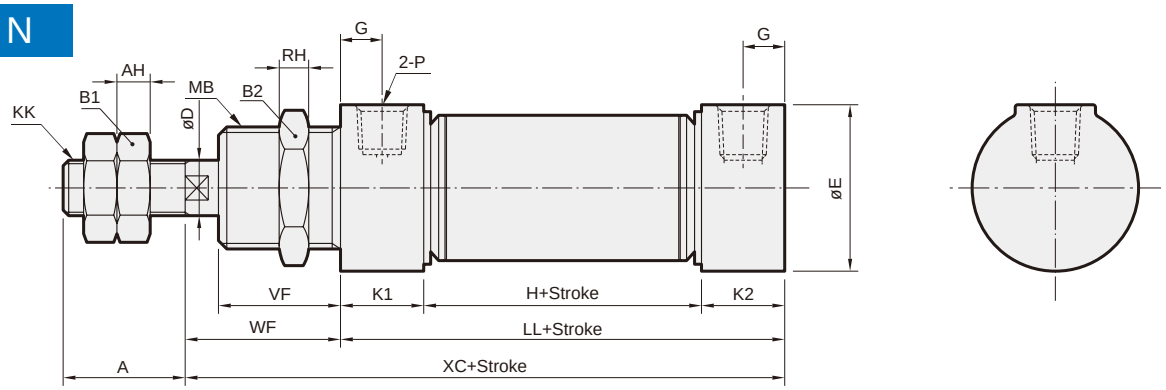
27



Code / Tube I.D.	A	AA	AC	AD	AF	AH	AK	AR	AS	B1	B2	CD	D	E	EH	EW	G	H	KK	K1	K2	L	LL
8	12	–	–	–	–	3.2	–	–	–	7	19	4	4	15	15	8	6	24	M4×0.7	11	11	2	46
10	12	–	–	–	–	3.2	–	–	–	7	19	4	4	15	15	8	6	24	M4×0.7	11	11	2	46
12	16	–	–	–	–	5	–	–	–	10	24	6	6	20	20	12	6	28	M6×1.0	11	11	3	50
16	16	16	13	7.5	12	5	M5×0.8	4	8	10	22	6	6	20	20	12	5	34.5	M6×1.0	10	10	5.5	54.5
20	20	19	15	9.5	16	5	M8×1.25	5	13	13	30	8	8	27	27	16	8	38	M8×1.25	15	15	3	68
25	22	19	15	9.5	16	6	M8×1.25	5	13	17	30	8	10	27	27	16	7.5	37	M10×1.25	15	15	9	67

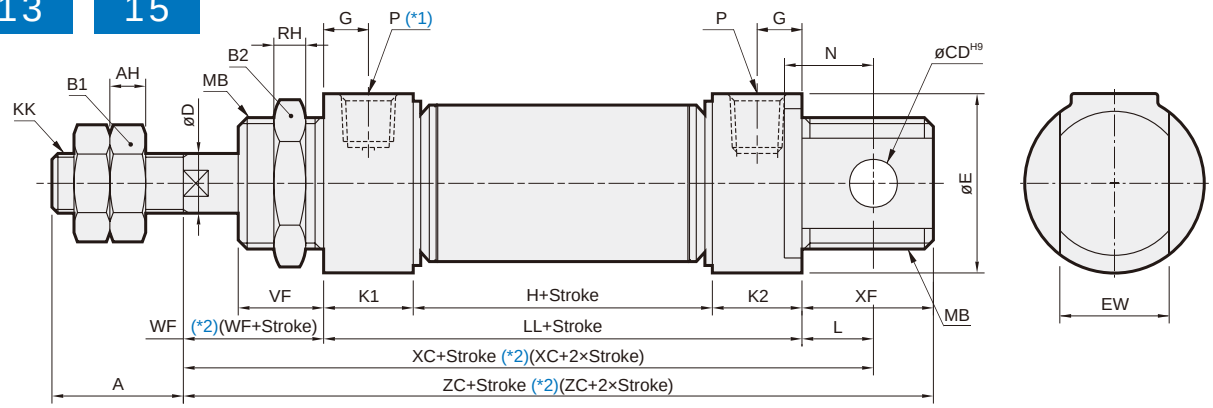
Code / Tube I.D.	MB	N	ND	P	RH	VF	WF	WH	XC	XF	ZC	ZM	ZN	ZP	ZQ
8	M12×1.25	6	12	M5×0.8	6	12	16	–	64	12	74	–	–	–	–
10	M12×1.25	6	12	M5×0.8	6	12	16	–	64	12	74	–	–	–	–
12	M16×1.5	9	16	M5×0.8	8	17	22	–	75	17	89	–	–	–	–
16	M16×1.5	9	16	M5×0.8	6	18	22	25.5	82	18	94.5	98.5	130.5	102	134
20	M22×1.5	12	22	G1/8	6	20	24	27	95	20	112	116	156	119	158
25	M22×1.5	12	22	G1/8	6	22	28	29.5	104	22	117	123	167	124.5	165.5

N



Code / Tube I.D.	A	AH	B1	B2	D	E	G	H	KK	K1	K2	LL	MB	P	RH	VF	WF	XC
8	12	3.2	7	19	4	16.7	6	24	M4×0.7	11	11	46	M12×1.25	M5×0.8	6	12	16	62
10	12	3.2	7	19	4	16.7	6	24	M4×0.7	11	11	46	M12×1.25	M5×0.8	6	12	16	62
12	16	5	10	24	6	19.7	6	28	M6×1.0	11	11	50	M16×1.5	M5×0.8	8	17	22	72
16	16	5	10	22	6	20	5	34.5	M6×1.0	10	10	54.5	M16×1.5	M5×0.8	6	18	22	76.5
20	20	5	13	30	8	27	8	38	M8×1.25	15	15	68	M22×1.5	G1/8	6	20	24	92
25	22	6	17	30	10	27	7.5	37	M10×1.25	15	15	67	M22×1.5	G1/8	6	22	28	95

13 15



*1. 15 type ø16 without this air port.
*2. ( ) Dimension for 13 type.

Code / Tube I.D.	A	AH	B1	B2	CD	D	E	EW	G	KK	K1	K2	L	LA	MB	N	P	RH	VF	WF	XF	ZM	ZN	ZP	ZQ
16	16	5	10	22	6	6	20	12 $^{-0.05}_{-0.4}$	5	M6×1.0	10	10	5.5	54.5	M16×1.5	9	M5×0.8	6	18	22	18	98.5	130.5	96	134
20	20	5	13	30	8	8	27	16 $^{-0.05}_{-0.4}$	8	M8×1.25	15	15	3	68	M22×1.5	12	G1/8	6	20	24	20	116	156	119	158
25	22	6	17	30	8	10	27	16 $^{-0.05}_{-0.4}$	7.5	M10×1.25	15	15	9	67	M22×1.5	12	G1/8	6	22	28	22	123	167	124.5	165.5

MCMI-13

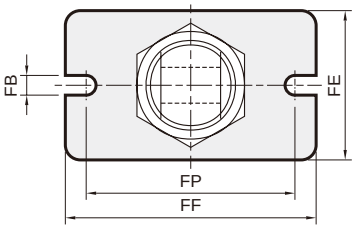
Code / Stroke / Tube I.D.	H			LL			XC			ZC		
	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
16	53.5	79.5	105.5	73.5	99.5	125.5	101	127	153	113.5	139.5	165.5
20	63	88	113	93	118	143	120	145	170	137	162	187
25	60.5	85.5	110.5	90.5	115.5	140.5	127.5	152.5	177.5	140.5	165.5	190.5

MCMI-15

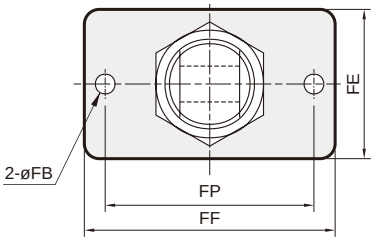
Code / Stroke / Tube I.D.	H			LL			XC			ZC		
	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
16	34.5	50	65.5	54.5	70	85.5	82	97.5	113	94.5	110	125.5
20	38	88	113	68	118	143	95	145	170	112	162	187
25	37	85.5	110.5	67	115.5	140.5	104	152.5	177.5	117	165.5	190.5

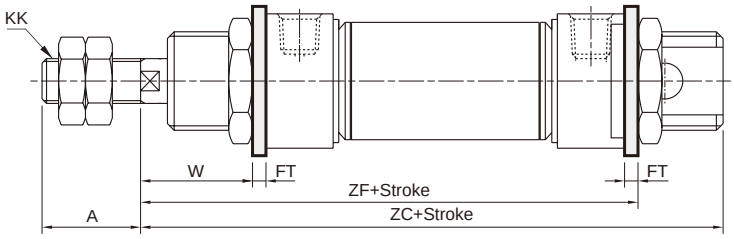
FA / FB

ø12, ø16



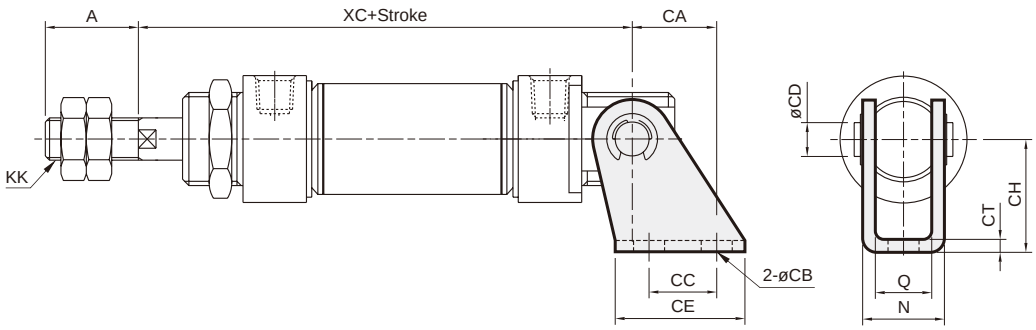
ø8, ø10, ø20, ø25





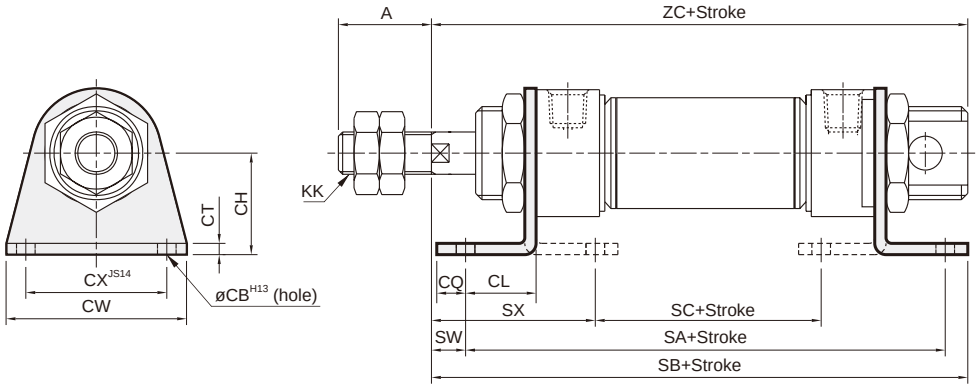
Code / Tube I.D.	A	FB	FE	FF	FP	FT	KK	W	ZC	ZF
8	12	4.5	22	40	30	3.2	M4×0.7	12.8	74	65.2
10	12	4.5	22	40	30	3.2	M4×0.7	12.8	74	65.2
12	16	5.5	26	52	40	3.2	M6×1.0	18.8	89	75.2
16	16	5.5	26	52	40	3.2	M6×1.0	18.8	94.5	79.7
20	20	6.6	38	64	50	4.5	M8×1.25	19.5	112	96.5
25	22	6.6	38	64	50	4.5	M10×1.25	23.5	117	99.5

SDB



Code / Tube I.D.	A	CA	CB	CC	CD	CE	CH	CT	KK	N	Q	XC
8	12	11	4.5	12.5	4	20	24	2.5	M4×0.7	13.1	8.1	64
10	12	11	4.5	12.5	4	20	24	2.5	M4×0.7	13.1	8.1	64
12	16	13	5.5	15	6	25	27	3.2	M6×1.0	18.5	12.1	75
16	16	13	5.5	15	6	25	27	3.2	M6×1.0	18.5	12.1	82
20	20	16	6.6	20	8	32	30	3.2	M8×1.25	22.5	16.1	95
25	22	16	6.6	20	8	32	30	3.2	M10×1.25	22.5	16.1	104

LB



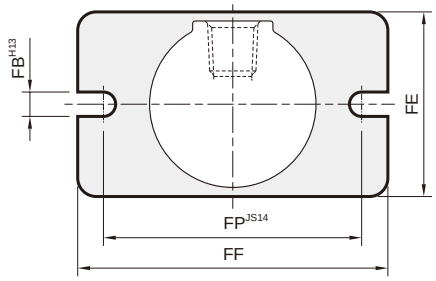
Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SA	SB	SC	SW	SX	ZC
8	12	4.5	16	11	5	3.2	35	25	M4×0.7	68	78	30.4	5	23.8	74
10	12	4.5	16	11	5	3.2	35	25	M4×0.7	68	78	30.4	5	23.8	74
12	16	5.5	20	14	6	4	42	32	M6×1.0	78	92	30	8	32	89
16	16	5.5	20	14	6	4	42	32	M6×1.0	82.5	96.5	34.5	8	32	94.5
20	20	6.6	25	15	8	3.2	54	40	M8×1.25	98	115	44.4	9	35.8	112
25	22	6.6	25	15	8	3.2	54	40	M10×1.25	97	118	43.4	13	39.8	117

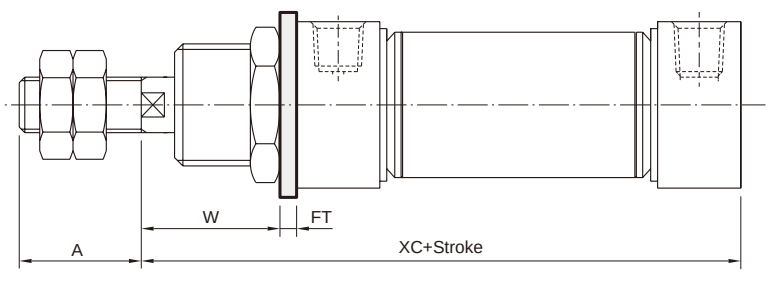
FA

N Non-pivot type

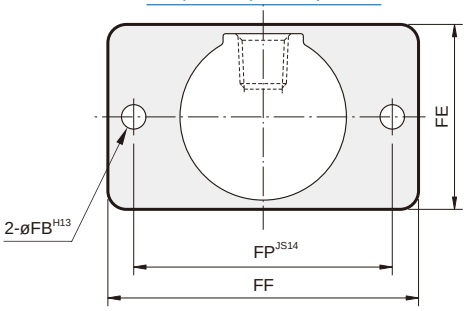
Code / Tube I.D.	A	FB	FE	FF	FP	FT	W	XC
8	12	4.5	22	40	30	3.2	12.8	62
10	12	4.5	22	40	30	3.2	12.8	62
12	16	5.5	26	52	40	3.2	18.8	72
16	16	5.5	26	52	40	3.2	18.8	76.5
20	20	6.6	38	64	50	4.5	19.5	92
25	22	6.6	38	64	50	4.5	23.5	96

ø12, ø16

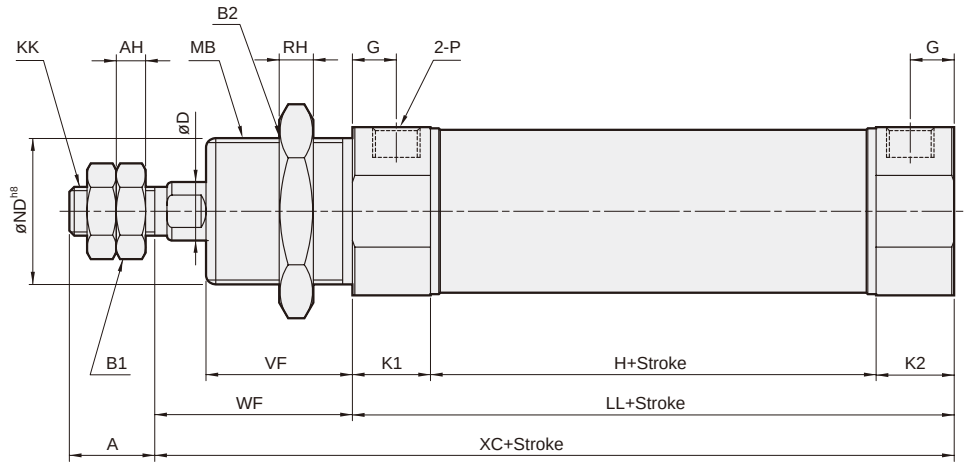




ø8, ø10, ø20, ø25

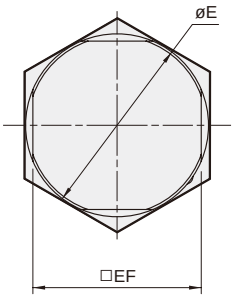


11



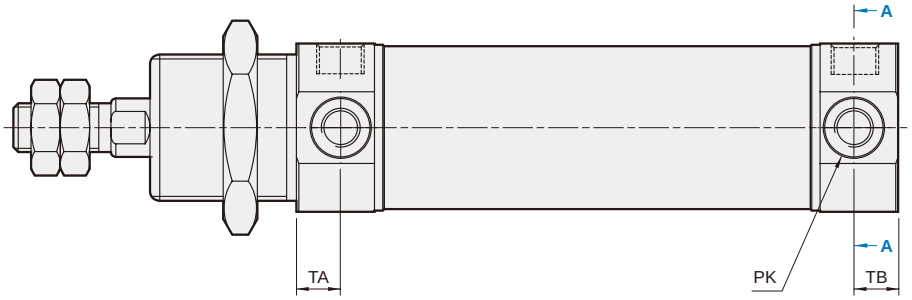
N

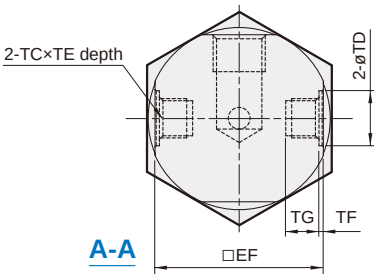
Non-pivot type



R H

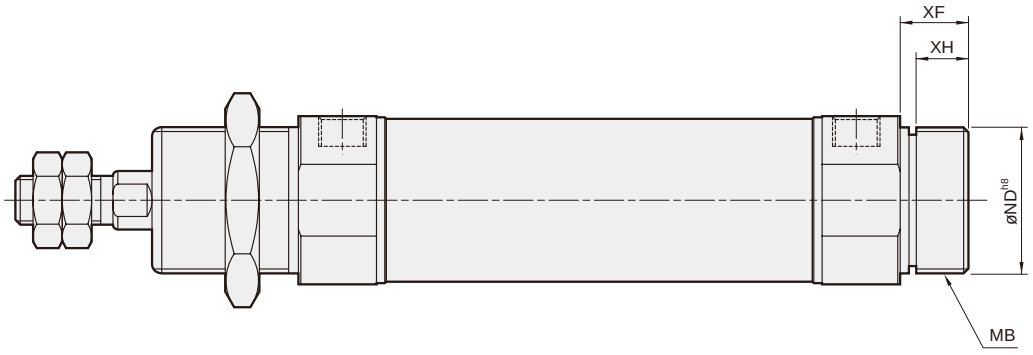
Rod / Head clevis type

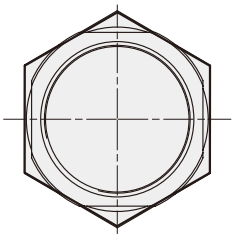




F

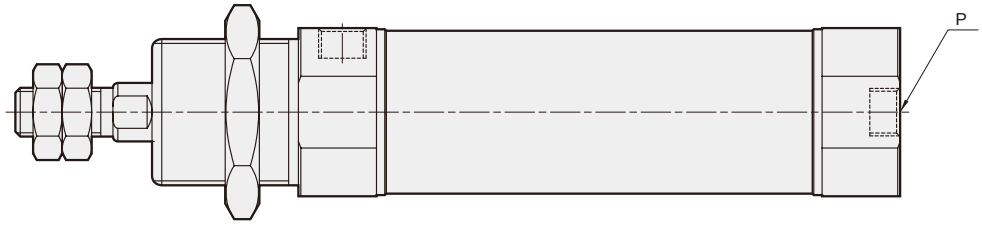
Head foot type

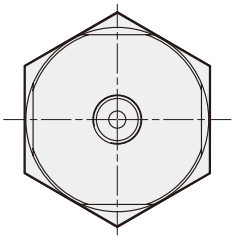




C

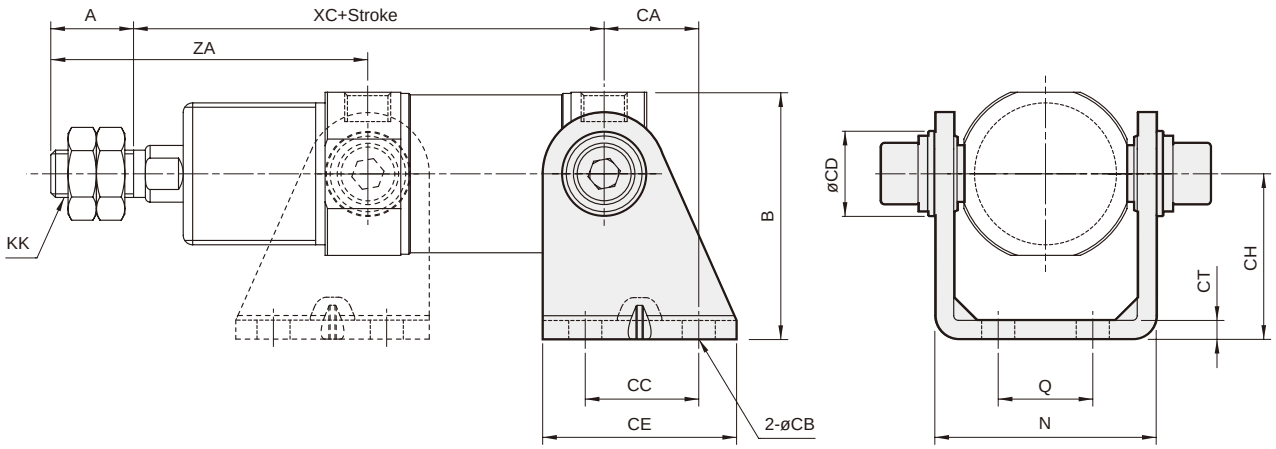
Axis port





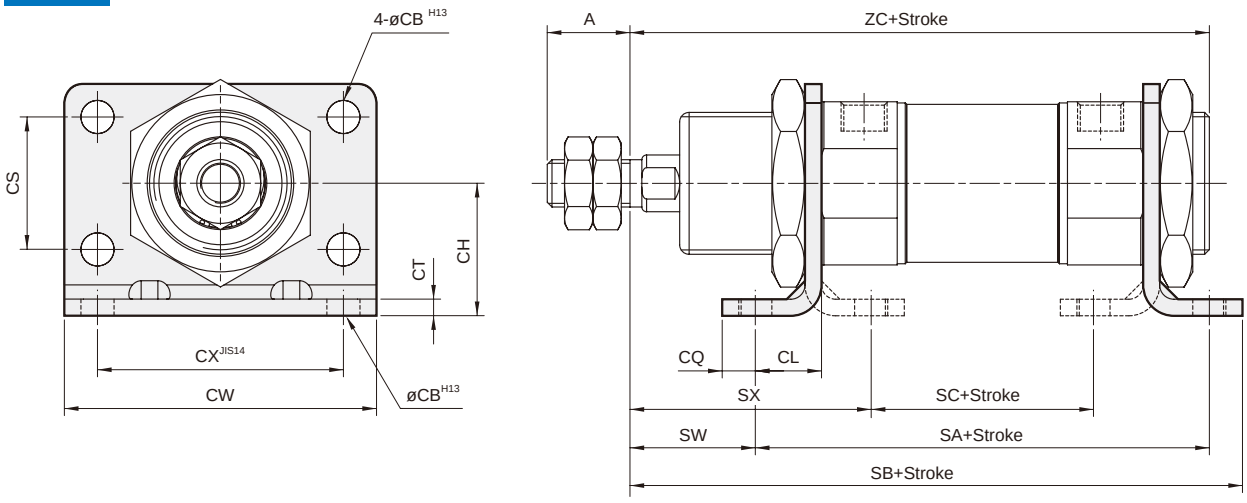
Code / Tube I.D.	A	AH	B1	B2	D	E	EF	G	H	KK	K1	K2	LL	MB	ND	P	PK	RH	TA	TB	TC	TD	TE	VF	WF	XC	XF	XH
32	17.5	6	17	38	12	37.5	34.5	9	36	M10×1.5	16	16	68	M30×1.5	30	G1/8	M8×1	7	9	9	M8×1	12	6.5	30	40.5	108.5	14	10.7
40	21	7	19	46	14	46.5	42.5	12	45	M12×1.75	22	22	89	M38×1.5	38	G1/4	M10×1	8	12	12	M10×1	14	8	35	48	137	16	12.2

SDB



Code / Tube I.D.	A	B	CA	CB	CC	CD	CE	CH	CT	KK	N	Q	XC	ZA
32	17.5	52.3	20	7	24	18	41	35	4	M10×1.25	46.8	20	99.5	67
40	21	61.3	27	9	30	22	52	40	4	M12×1.25	58.2	28	125	81

LB



Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	CS	KK	SA	SB	SC	SW	SX	ZC
32	17.5	7	28	14	7	3.5	66	52	28	M10×1.25	96	129.5	47	26.5	51	122.5
40	21	9	33	20	10	3.5	80	60	30	M12×1.25	129	167	56	28	64.5	153

MCMIS series

ISO-6432 **MINIATURE CYLINDER** (STAINLESS STEEL)

Feature

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High strength steel & chemical resistance

Highly resistant with crimped covers and entirely built in stainless steel. Available with or without adjustable cushioning, double acting or through piston rod.
On request complaint with 2014/34/UE ATEX directive.

■ ISO-6432 standard

Enables world-wide inter-changeability.

■ Cylinder mountings

Available with a comprehensive range of accessories for rigid or flexible mounting.

■ Magnetic as standard

Table for standard stroke

	Tube I.D.	Stroke (mm)
Double acting	ø10	10,25,40,50,80,100,125,150
	ø12, 16	10,25,40,50,80,100,125,160,200
	ø20	15,25,50,75,100,125,150,200,250, 300,350
	ø25	15,25,50,75,100,125,150,200,250, 300,350,400,450,500

• Please consult us if stroke out of specification.

Tightening torque

Tube I.D.	Bolt	Max. tightening torque (kgf·cm)	Tube I.D.	Bolt	Max. tightening torque (kgf·cm)
ø10	M4×0.7	11.8	ø20	M8×1.25	170
ø12, 16	M6×1.0	41.0	ø25	M10×1.25	340

• Make sure the tightening torque of rod thread does not exceed the value above.

• Tightening torque tolerance ±5%.

Specification

Model	MCMIS				
Tube I.D. (mm)	10	12	16	20	25
Port size	M5×0.8			Rc1/8	
Medium	Air				
Max. operating perssure	1.0 MPa				
Min. operating perssure	0.1 MPa		0.08 MPa		
Proof pressure	1 MPa				
Available speed range	50~500 mm/sec				
Ambient temperature	–35~+80°C (No freezing)				
Lubricator	Not required				
Sensor switch	RCM (Refer to page 8-15)				
Sensor switch (band)	BM10	BM12	BM16	BM20	BM25

* For precautions, please refer to page 3-2.

Order example

MCMIS — 11 — 16 — 100 — A

- MODEL
- **1**: Single rod, **2**: Double rod* — * Double rod only for ø20, ø25.
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable), **A**: Cushion air (Adjustable) ⚠

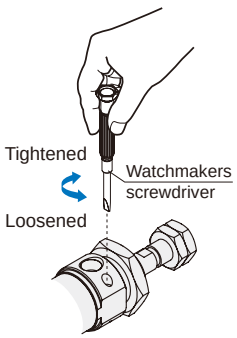
STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
2	1		Double rod / Double acting / Male thread

⚠ Caution

For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



Mounting accessories

LB — MCMIS — 16

- MODEL
- TUBE I.D.

MOUNTING TYPE

	LB
	FA
	FB
	SDB
	YP (Y+Pin)

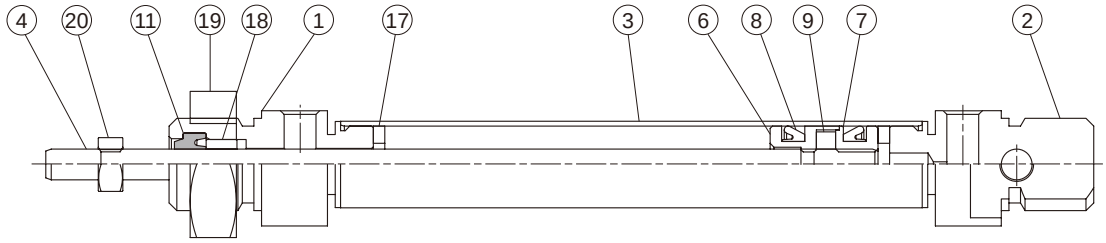
* Material: Stainless steel

MCMIS Inside structure & Parts list

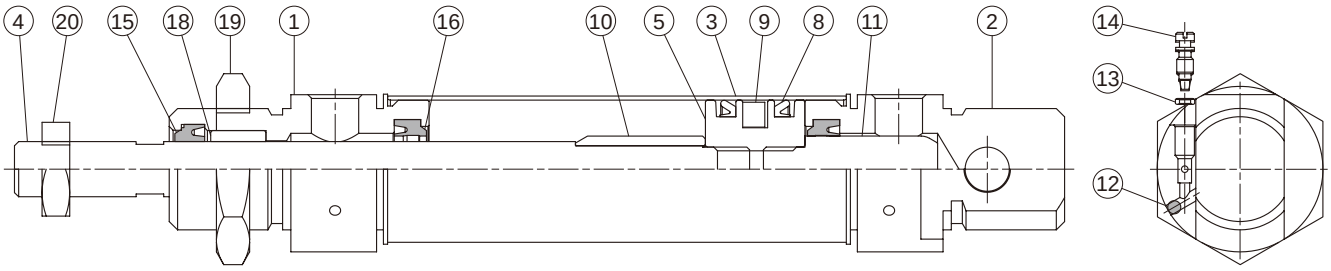
ISO-6432 **MINIATURE CYLINDER** (STAINLESS STEEL)

mindman

Cushion pad Unadjustable



Cushion air Adjustable



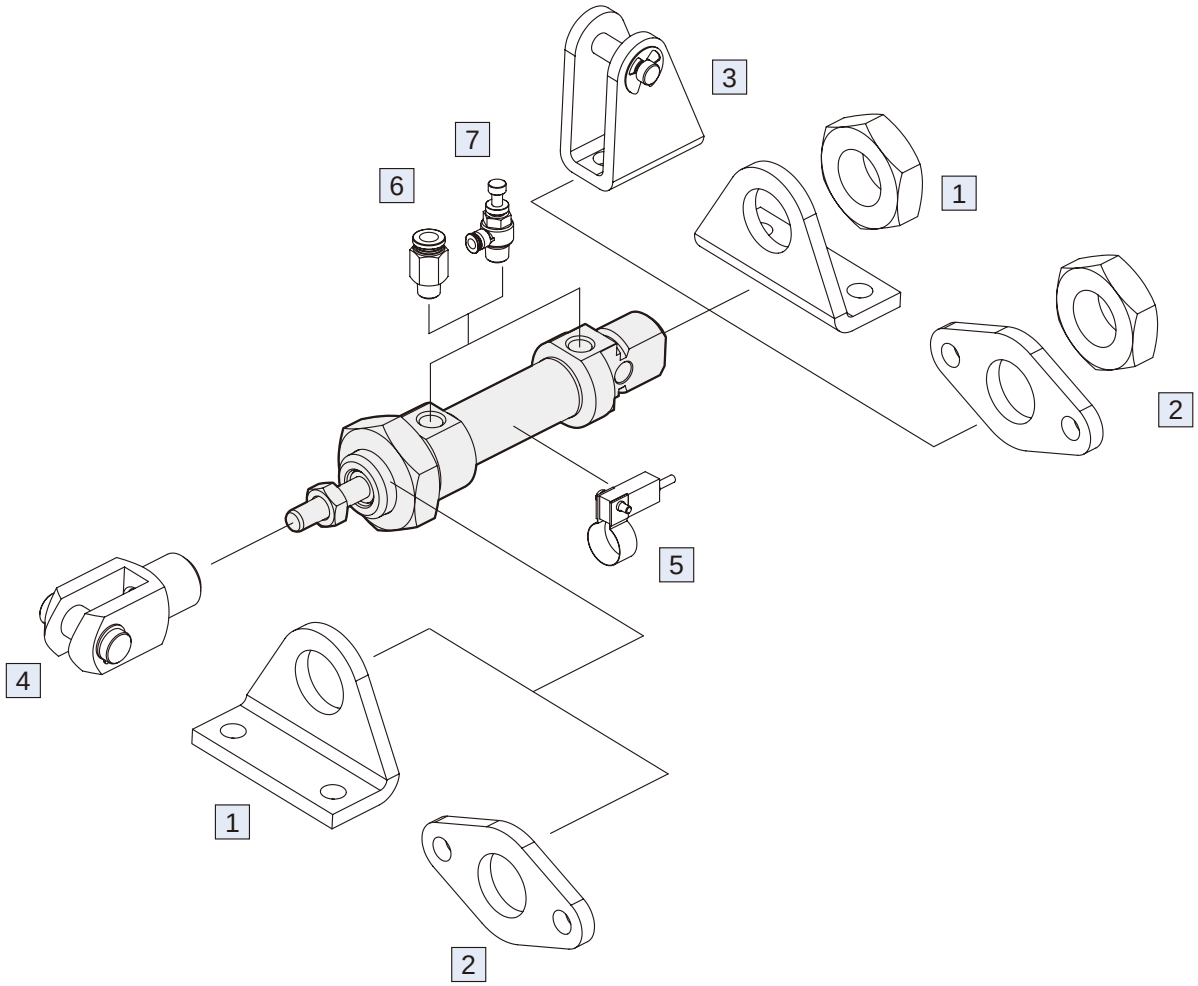
Material

No.	Cushion		Part name	Material	Q'y	Component parts (inclusion)	
	Pad	Air				Pad	Air
1	●	●	Head cover	SUS304	1	●	●
2	●	●	Rear cover	SUS304	1	●	●
3	●	●	Cylinder	SUS304	1		
4	●	●	Piston rod	SUS316	1		
5		●	Piston	Brass	1		●
6	●		Piston-H	Brass	1	●	
7	●		Piston-R	Brass	1	●	
8	●	●	Piston packing	FKM	2	●	●
9	●	●	Magnet ring	Magnet	1	●	●
10		●	#1 Shock absorber axis	Aluminum alloy	1		●
11		●	#2 Shock absorber axis	Aluminum alloy	1		●
12		●	Steel ball	Stainless steel	2		●
13		●	Needle valve packing	FKM	2		●
14		●	Needle valve	Stainless steel	2		●
15	●	●	Rod packing	FKM	1	●	●
16		●	Cushion ring	FKM	2		●
17	●		Cushion pad	NBR	2	●	
18	●	●	Bushing	Copper alloy	1	●	●
19	●	●	Nut	SUS304	1	●	●
20	●	●	Nut	SUS304	1	●	●

Order example of Component parts

Tube I.D.	Cushion pad
ø6	**CP-MCMIS-10**
ø10	**CP-MCMIS-12**
ø16	**CP-MCMIS-16**
ø10	**CP-MCMIS-20**
ø16	**CP-MCMIS-25**

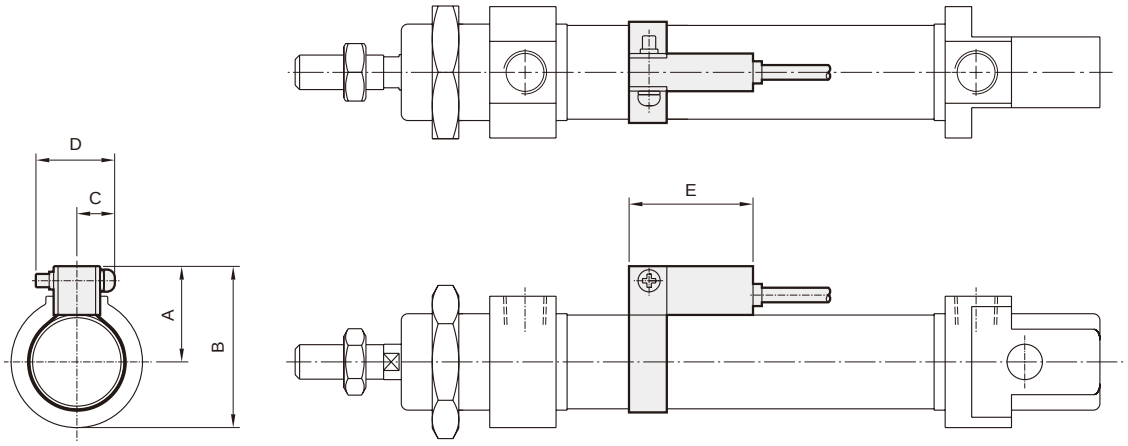
Tube I.D.	Cushion air
ø6	**CP-MCMIS-10-A**
ø10	**CP-MCMIS-12-A**
ø16	**CP-MCMIS-16-A**
ø10	**CP-MCMIS-20-A**
ø16	**CP-MCMIS-25-A**



No.	Accessories	Material	Page
1	Mounting accessories LB	Stainless steel	3-57
2	Mounting accessories FA/FB	Stainless steel	3-57
3	Mounting accessories SDB+PIN	Stainless steel	3-58
4	Accessories Y+PIN	Stainless steel	3-58
5	Sensor switch RCM+BM**	–	8-15
6	Fitting PC (PISCO)	–	7-3 (Vol.1)
7	Fitting JSC (PISCO)	–	7-15 (Vol.1)

Installation of sensor switch

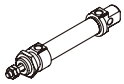
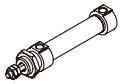
Sensor switch: RCM
Sensor switch band: BM**



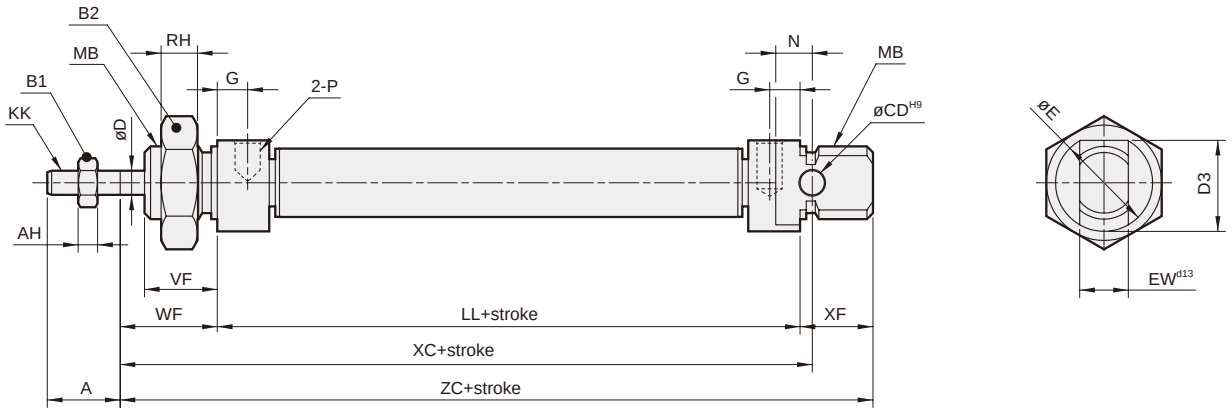
Code / Tube I.D	A	B	C	D	E
10	17	24.5	10	16	28
12	18	28	10	16	28
16	20	30	10	16	28
20	22	35.5	10	16	28
25	25	38.5	10	16	28

Cylinder weight

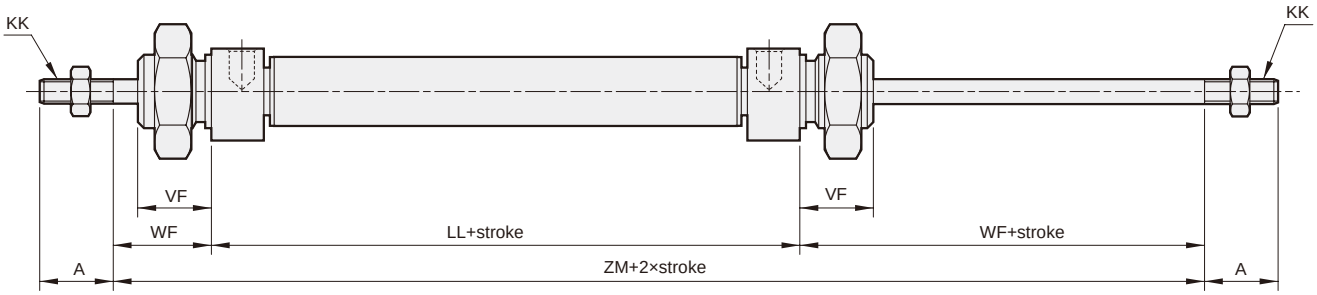
Unit: g

Model	Basic weight **MCMIS-11**	Stroke 25 mm **MCMIS-11**	Basic weight **MCMIS-11-A**	Stroke 25 mm **MCMIS11-A**
Tube I.D.				
ø10	68	6	–	–
ø12	119	10	–	–
ø16	147	12	–	–
ø20	307	20	298	20
ø25	409	27	398	27

11

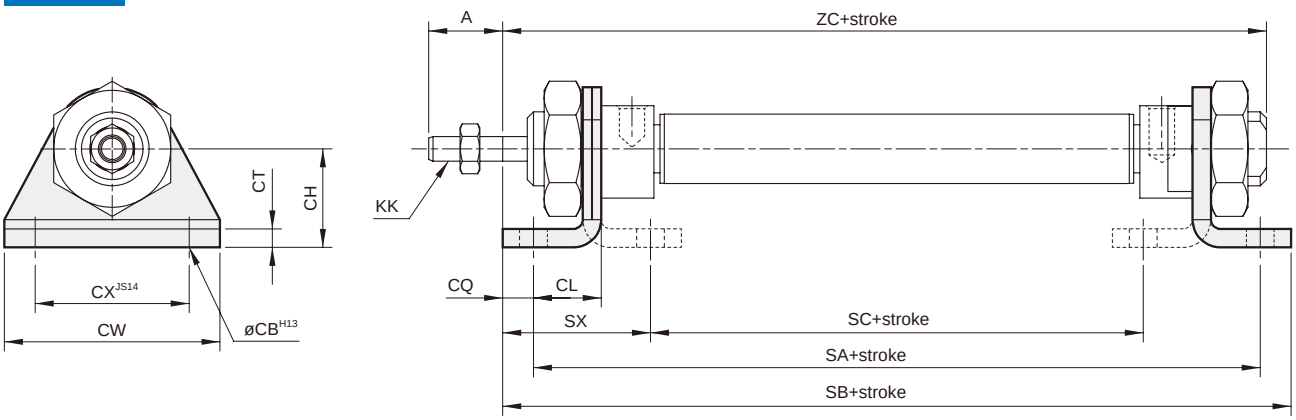


21



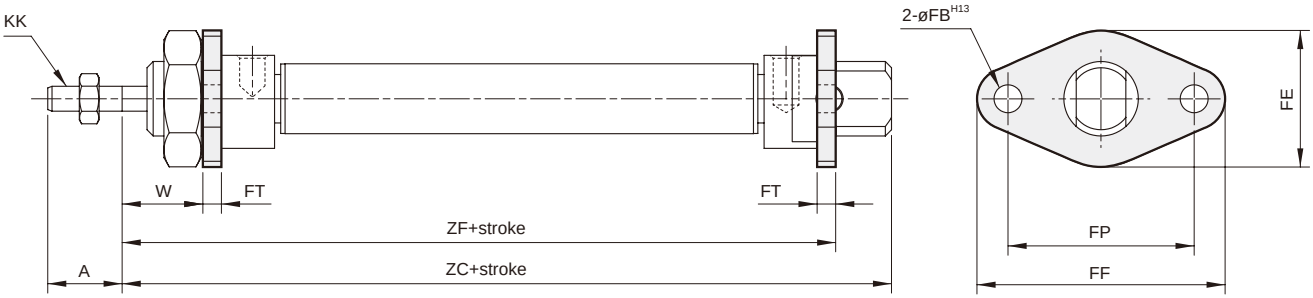
Code / Tube I.D.	A	AH	B1	B2	CD	D	D3	E	EW	G	KK	LL	MB	N	ND	P	RH	VF	WF	XC	XF	ZC	ZM
10	12	3.2	7	16	4	4	15	16	8	5	M4×0.7	46	M12×1.25	6	12	M5×0.8	7	12	16	64	12	74	–
12	16	4	10	22	6	6	18	19	12	5	M6×1.0	48	M16×1.5	9	16	M5×0.8	5	17	22	75	18	88	–
16	16	4	10	22	6	6	18	19	12	4.5	M6×1.0	53	M16×1.5	9	16	M5×0.8	5	18	22	82	18	93	–
20	20	5	13	27	8	8	25.5	27	16	8	M8×1.25	67	M22×1.5	12	22	G1/8	8	20	24	95	20	111	115
25	22	6	17	27	8	10	28.5	30	16	8	M10×1.25	68	M22×1.5	12	22	G1/8	8	22	28	104	22	118	124

LB



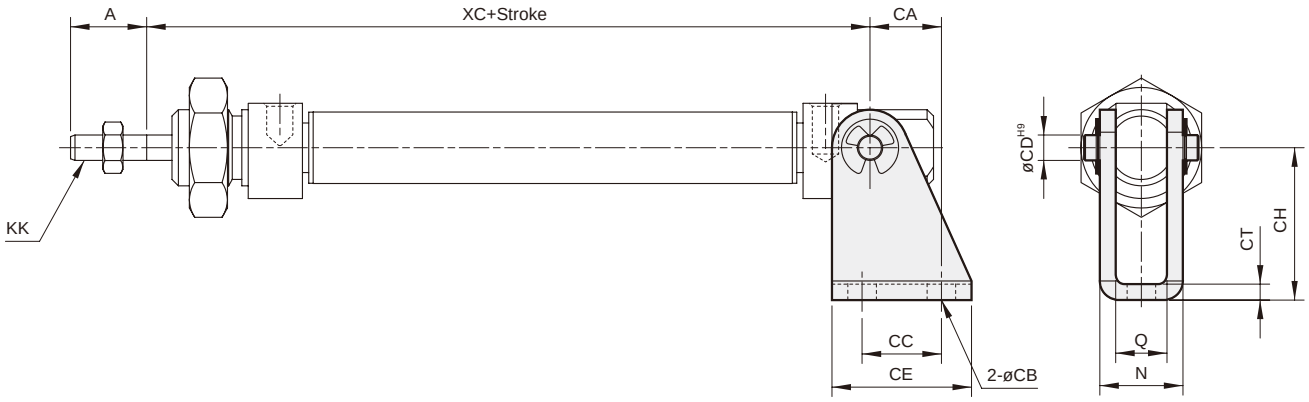
Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SA	SB	SC	SX	ZC
10	12	4.5	16	11	5	3	35	25	M4×0.7	68	78	30	24	74
12	16	5.5	20	14	6	4	42	32	M6×1.0	76	90	28	32	88
16	16	5.5	20	14	6	4	42	32	M6×1.0	81	95	33	32	93
20	20	6.6	25	17	8	5	54	40	M8×1.25	101	116	43	36	111
25	22	6.6	25	17	8	5	54	40	M10×1.5	102	121	44	40	118

FA / FB



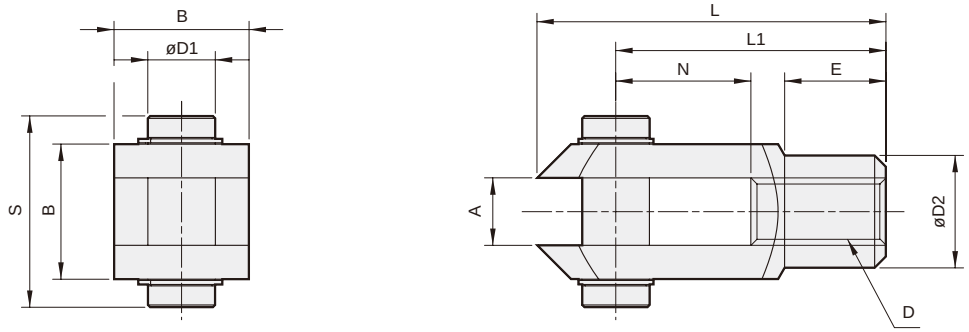
Code / Tube I.D.	A	FB	FE	FF	FP	FT	KK	W	ZC	ZF
10	12	4.5	22	40	30	3	M4×0.7	13	74	65
12	16	5.5	30	52	40	4	M6×1.0	18	88	74
16	16	5.5	30	52	40	4	M6×1.0	18	93	79
20	20	6.6	40	66	50	5	M8×1.25	19	111	96
25	22	6.6	40	66	50	5	M10×1.5	23	118	101

SDB



Code / Tube I.D.	A	CA	CB	CC	CD	CE	CH	CT	KK	N	Q	XC
10	12	11.25	4.5	12.5	4	22	24	2.5	M4×0.7	13.1	8.1	64
12	16	13	5.5	15	6	25	27	3	M6×1.0	18.1	12.1	75
16	16	13	5.5	15	6	25	27	3	M6×1.0	18.1	12.1	82
20	20	16	6.6	20	8	32	30	4	M8×1.25	24.1	16.1	95
25	22	16	6.6	20	8	32	30	4	M10×1.5	24.1	16.1	104

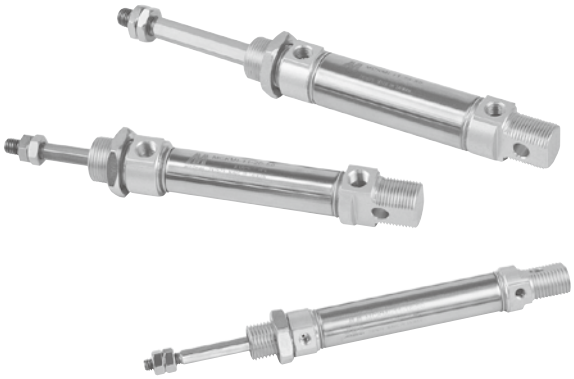
YP Y+Pin



Code / Tube I.D.	A	B	D	D1	D2	E	L	L1	N	S
12,16	6	12	M6	6	10	9	31	24	12	17
20	8	16	M8	8	14	12	42	32	16	21
25	10	20	M10×1.5	10	18	15	52	40	20	25

MCKMI series

ISO-6432 **MINIATURE CYLINDER** WITH NO-ROTATION



Features

- ISO-6432 standard.
- Stainless steel rod and tube for good corrsion resistance.
- Comprehensive types of mounting accessories available.
- Hexagonal rod design provides rod non-rotaion function.
- Magnetic as standard

Table for standard stroke

Tube I.D.	Stroke (mm)
ø16	15,25,50,75,100,125,150,200
ø20,25	15,25,50,75,100,125,150,200,250,300

- Please consult us if stroke out of specification.

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)
ø16	M6×1.0	41
ø20	M8×1.25	100
ø25	M10×1.25	190

* Make sure the tightening torque of rod thread does not exceed the value above.
* The tolerance of tightening torque is ±5%.

Specification

Model		MCKMI		
Tube I.D. (mm)		16	20	25
Port size		M5×0.8	G1/8	
Medium		Air		
Operating perssure range		0.06~0.7 MPa		
Proof pressure		1 MPa		
Lubricator		Not required		
Ambient temperature		-5°C~+60°C (No freezing)		
Available speed range		50~500 mm/sec		
Max. allowable kinetic energy (J)	Cushion pad	0.09	0.27	0.4
	Cushion air	—	0.66	0.97
Rod non-rotating accuracy		±1°	±0.7°	
Allowable rotational torque		0.4 kgf-cm	2.0 kgf-cm	2.5 kgf-cm
Sensor switch (band) (*1)		RCM(BM16)	RCM(BM20)	RCM(BM25)

*1. RCM specification, please refer to page 8-15.
2. The cylinder is allowed little leakage. Before the cylinder is sale, it has passed the standard of leakage test. For precautions,
*3. For precautions, please refer to page 3-2.

Order example

MCKMI — 11 — 20 — 100 — A — N

- MODEL
- 1: Single rod
- TUBE I.D.
- STROKE
- Blank: Standard
  N: Non-pivot type (end-plain)
- Blank: Cushion pad (Unadjustable)
  A: Cushion air (Adjustable) ⚠
  (Only for ø20, 25)

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread

Mounting accessories

FA — MCMI — 20

- MODEL
- TUBE I.D.

MOUNTING TYPE

	LB
	FA
	FB
	SDB
	Y
	I
	YS (Y+Floating pin)

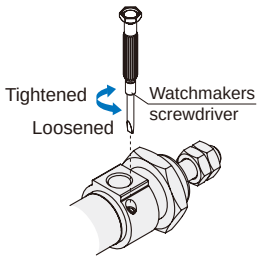
* Use the same accessories with **MCMI**.

* **Y**, **I**, **YS**, please refer to page 3-14.

⚠ Caution

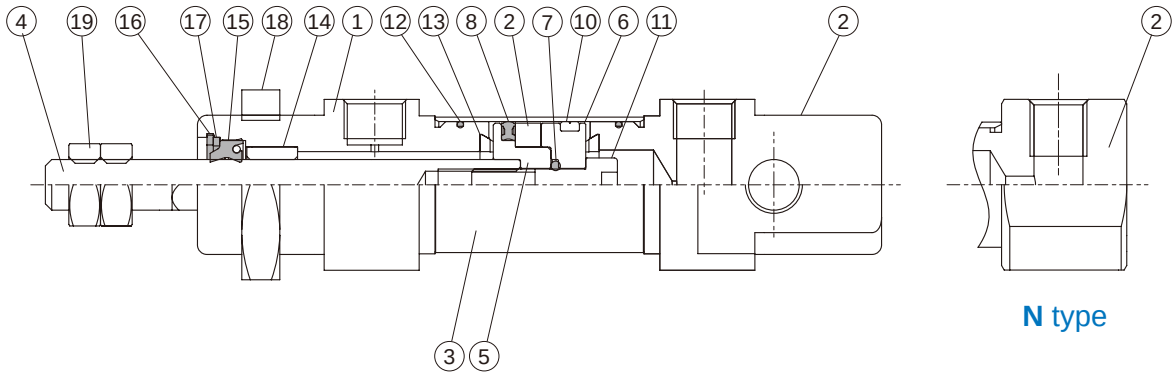
For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



Cushion pad Unadjustable

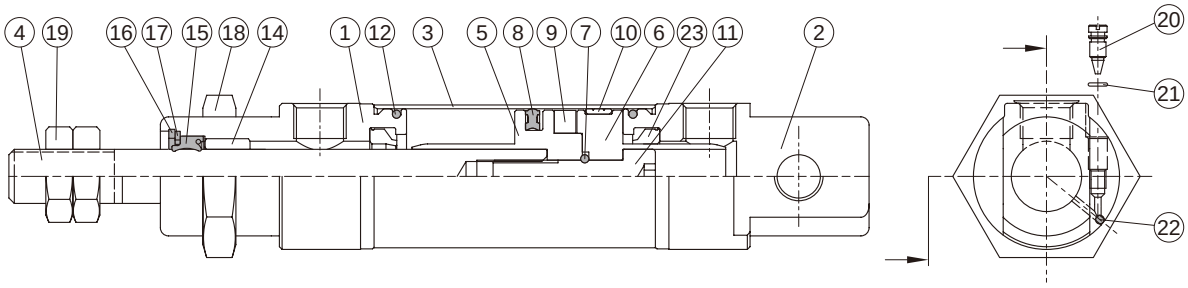
ø16~ø25



N type

Cushion air Adjustable

ø20, ø25



Material

* CP: Component parts (inclusion)

No.	Cushion		Part name	Tube I.D.			Q'y	CP *	
	Pad	Air		16	20	25		Pad	Air
1	●	●	Rod cover	Aluminum alloy			1	●	●
2	●	●	Head cover	Aluminum alloy			1	●	●
3	●	●	Tube	Stainless steel			1		
4	●	●	Piston rod	Stainless steel			1		
5	●	●	Piston-R	Aluminum alloy			1	●	●
6	●	●	Piston-H	Aluminum alloy			1	●	●
7	●	●	Piston gasket	NBR			1	●	●
8	●	●	Piston packing	NBR			1	●	●
9	●	●	Magnet ring	Magnet material			1	●	●
10	●	●	Wear ring	POM			1	●	●
11	●	●	Piston bolt	SCM			1	●	●
12	●	●	Cover ring	NBR			2	●	●
13	●	●	Cushion gasket	NBR	TPU		2	●	●
14	●	●	Rod bush	Bearing alloy			1	●	●
15	●	●	Rod packing	NBR			1	●	●
16	●	●	Snap ring	Spring steel			1	●	●
17	●	●	Washer	Carbon steel			1	●	●
18	●	●	Tie nut	Carbon steel			1	●	●

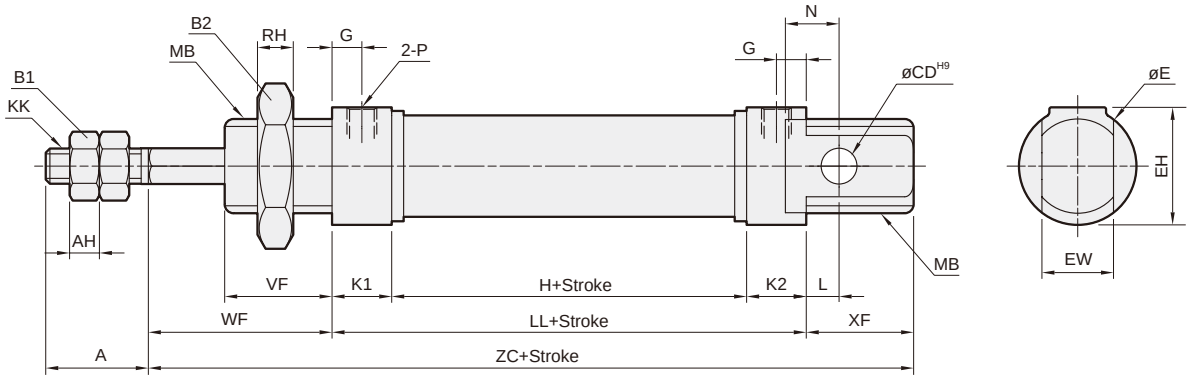
No.	Cushion		Part name	Tube I.D.			Q'y	CP *	
	Pad	Air		16	20	25		Pad	Air
19	●	●	Rod front nut	Carbon steel			2	●	●
20		●	Needle valve	Stainless steel			2		●
21		●	Needle valve packing	NBR			2		●
22		●	Steel ball	Stainless steel			2		●
23		●	Cushion packing	NBR			2		●

Order example

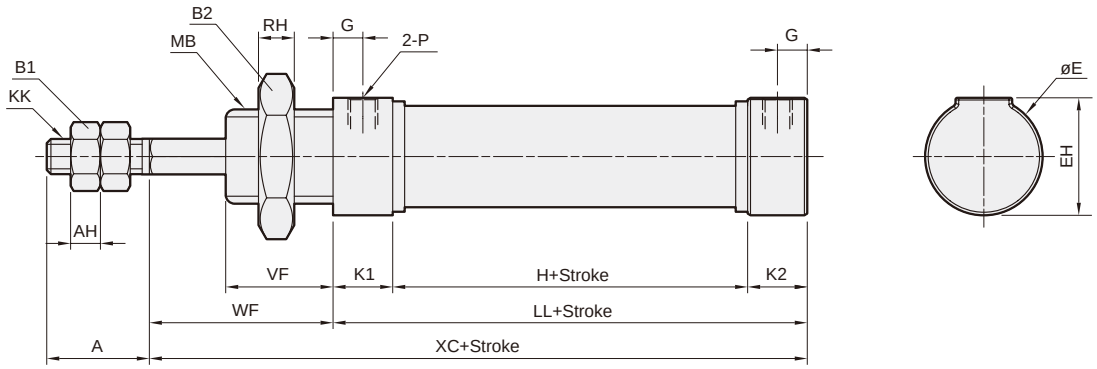
Component parts

Tube I.D.	Cushion pad	Cushion air
ø16	**CP-MCKMI-16**	**CP-MCKMI-16A**
ø20	**CP-MCKMI-20**	**CP-MCKMI-20A**
ø25	**CP-MCKMI-25**	**CP-MCKMI-25A**

11



N

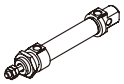
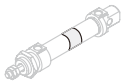
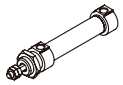
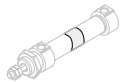


Code / Tube I.D.	A	AH	B1	B2	CD	E	EH	EW	G	H	KK	K1	K2	L	LL	MB	N	P	RH	VF
16	16	5	10	22	6	20	20	12 $^{-0.05}_{-0.4}$	5	34.5	M6×1	10	10	5.5	54.5	M16×1.5	9	M5×0.8	6	18
20	20	5	13	30	8	27	27	16 $^{-0.05}_{-0.4}$	8	38	M8×1.25	15	15	3	68	M22×1.5	12	G1/8	6	20
25	22	6	17	30	8	27	27	16 $^{-0.05}_{-0.4}$	7.5	37	M10×1.25	15	15	9	67	M22×1.5	12	G1/8	6	22

Code / Tube I.D.	WF	XC	XF	ZC
16	22	76.5	18	94.5
20	24	92	20	112
25	28	95	22	117

Cylinder weight

Unit: g

Model	Basic weight **MCKMI**	Stroke 25mm **MCKMI**	Basic weight **MCKMI-*-N**	Stroke 25mm **MCKMI-*-N**
Tube I.D.				
ø16	69	13.0	62	13.0
ø20	126	20.3	116	20.3
ø25	168	28.7	153	28.7

Features

- High quality long service life.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.

Specification

Model	MCMJ		
Tube I.D. (mm)	ø6	ø10	ø16
Port size	M5×0.8		
Medium	Air		
Max. operating perssure	0.7 MPa		
Min. operating perssure (MPa) — Single acting — normally extended	0.25	0.15	
Min. operating perssure (MPa) — Single acting — normally returned	0.2	0.15	
Min. operating perssure (MPa) — Double acting	0.12	0.06	
Proof pressure	1 MPa		
Lubrication	Not required		
Ambient temperature	-5~+60°C (No freezing)		
Available speed range	50~500 mm/sec		
Max. allowable kinetic energy (J)	0.16	0.27	0.4
Sensor switch (*)	RCM		
Sensor switch band	BM6	BM10	BM16

* RCM specification, please refer to page 8-15.
* For precautions, please refer to page 3-2.

Table for standard stroke

	Tube I.D.	Stroke (mm)
Single acting	ø6	15,30,45,60
	ø10	15,30,45,60
	ø16	15,30,45,60,75,100,125,150
Double acting	ø6	15,30,45,60
	ø10	15,30,45,60,75,100,125,150
	ø16	15,30,45,60,75,100,125,150,175,200

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)
ø6	M3×0.5	4.79
ø10	M4×0.7	11.8
ø16	M5×0.8	22.8

* Make sure the tightening torque of rod thread does not exceed the value above.
* The tolerance of tightening torque is ±5%.

Order example

MCMJ — 11 — 16 — 45M — B

MODEL | 1: Single rod, 2: Double rod | TUBE I.D. | STROKE | M: Magnet | END COVER TYPE

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
1	3		Single acting / Normally extended male thread
1	5		Single acting / Normally returned male thread
2	1		Double rod / Male thread
2	7		Double rod / Adjustable male thread

END COVER TYPE

Code	Symbol	Tube I.D.
B		ø10,16
D		ø10,16
R		ø6,10,16

for tube I.D. ø10,16.

* Order example for special specification, refer to page 0-7.
* Order for **21**, **27** type, please consult us.

Mounting accessories

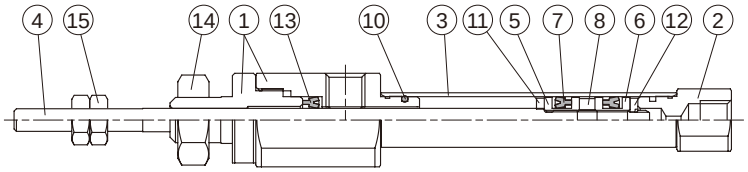
FA — MCMJ — 16

MODEL | TUBE I.D.

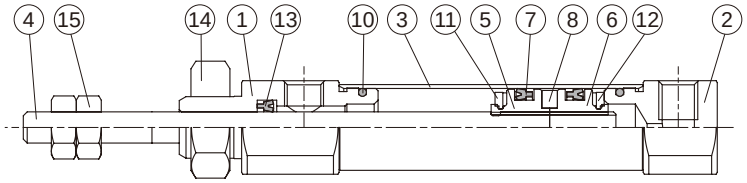
MOUNTING TYPE

	LB
	FA
	T
	Y
	I

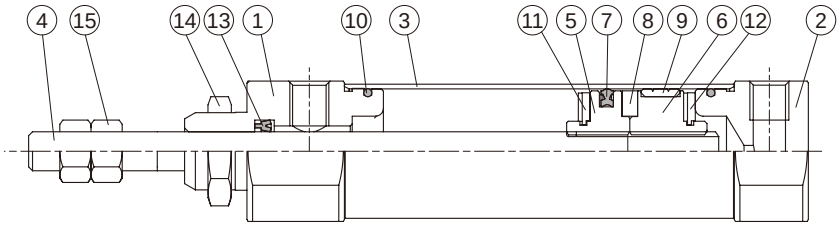
ø6

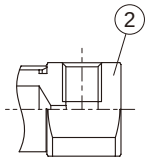


ø10

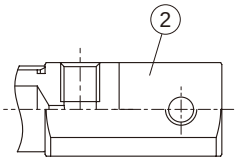


ø16

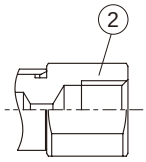




B type: ø10, ø16



D type: ø10, ø16



R type: ø6, ø10, ø16

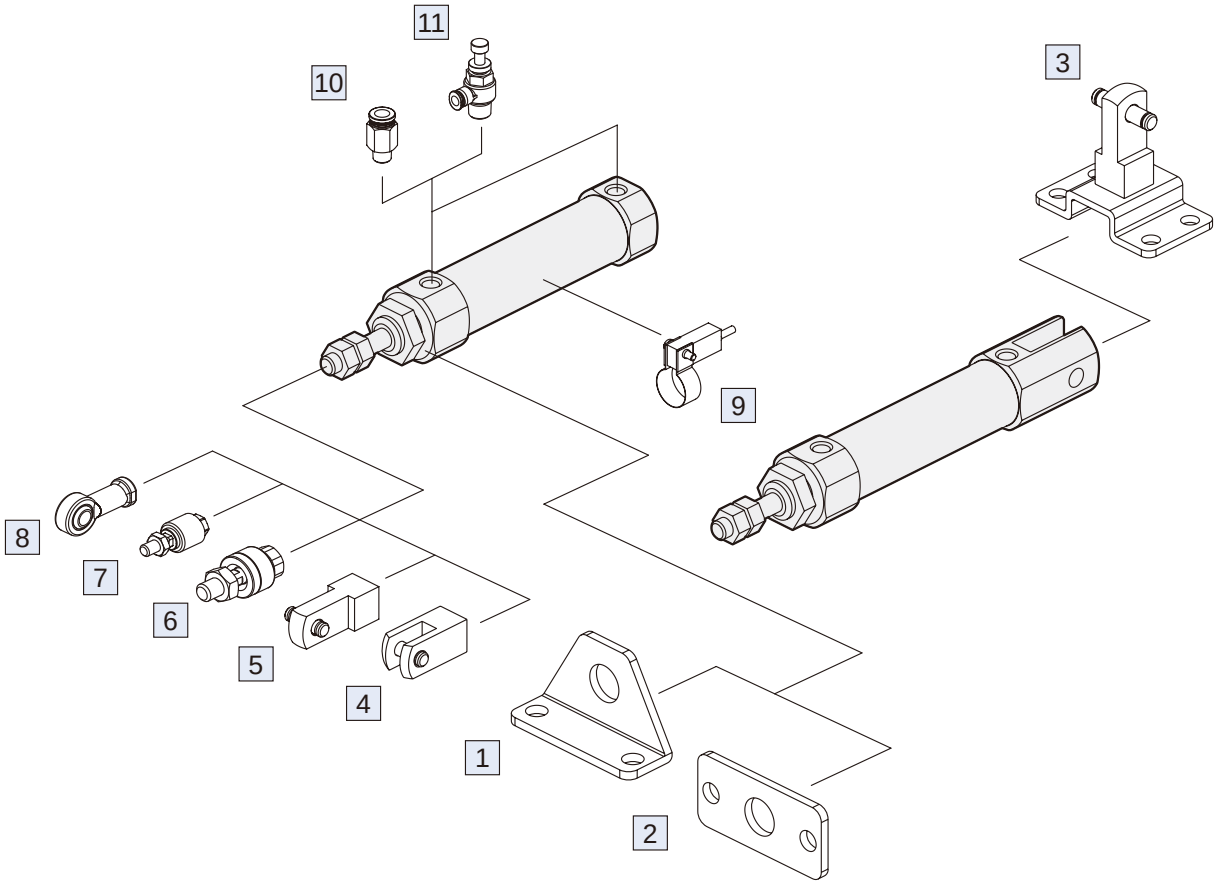
Material

No.	Tube I.D. / Part name	6	10	16	Q'y	Component parts (inclusion)
1	Rod cover	Aluminum alloy			1	●
2	Head cover	Aluminum alloy			1	●
3	Tube	Stainless steel			1	
4	Piston rod	Stainless steel			1	
5	Piston-R	Aluminum alloy			1	●
6	Piston-H	Aluminum alloy			1	●
7	Piston packing	NBR			2*1	●
8	Magnet ring	Magnet material			1	●
9	Wear ring	–		POM	1	●
10	Cover ring	NBR			2	●
11	Cushion packing #1	TPU	NBR		1	●
12	Cushion packing #2	NBR			1	●
13	Snap ring	NBR			1	●
14	Tie nut	Carbon steel			1	●
15	Rod front nut	Carbon steel			2	●

*1. Cylinder bore 6 (Required quantity: 1 pc)

Order example of Component parts

Tube I.D.	Component parts
ø6	**CP-MCMJ-6-R**
ø10	**CP-MCMJ-10-R**
	CP-MCMJ-10-B
	CP-MCMJ-10-D
ø16	**CP-MCMJ-16-R**
	CP-MCMJ-16-B
	CP-MCMJ-16-D

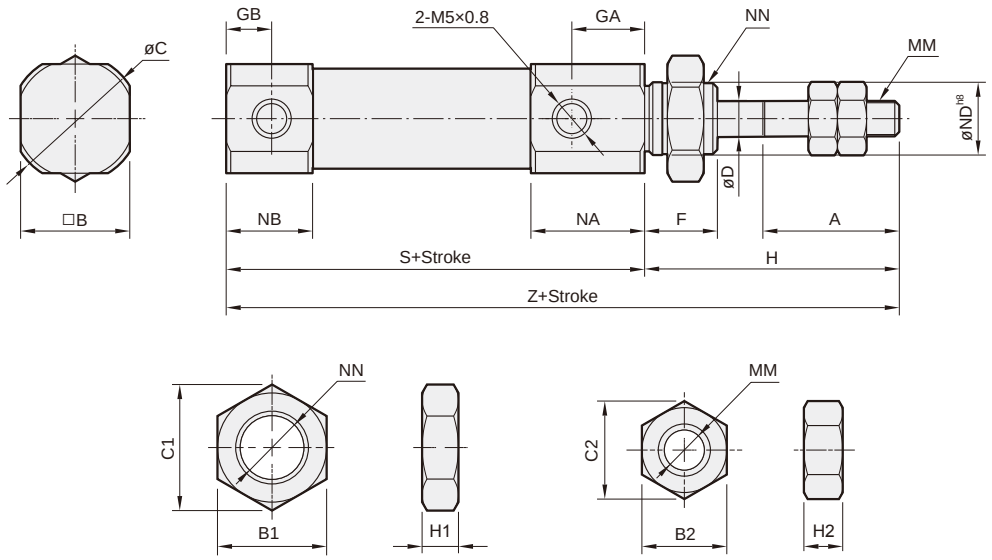


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-68, 70, 72
2	Mounting accessories FA	Carbon steel	3-69, 71, 73
3	Mounting accessories T+I+PIN (*)	Carbon steel	3-69, 71, 73, 74
4	Accessories Y+PIN	Carbon steel	3-74
5	Accessories I+PIN	Carbon steel	3-74
6	Floating joint MFC	Carbon steel	8-2

No.	Accessories	Material	Page
7	Floating joint MFCS	Carbon steel	8-5
8	Female rod ends PHS	Carbon steel	8-6
9	Sensor switch RCM+BM**	–	8-15
10	Fitting PC (PISCO)	–	7-3 (Vol.1)
11	Speed controller JSC (PISCO)	–	7-15 (Vol.1)

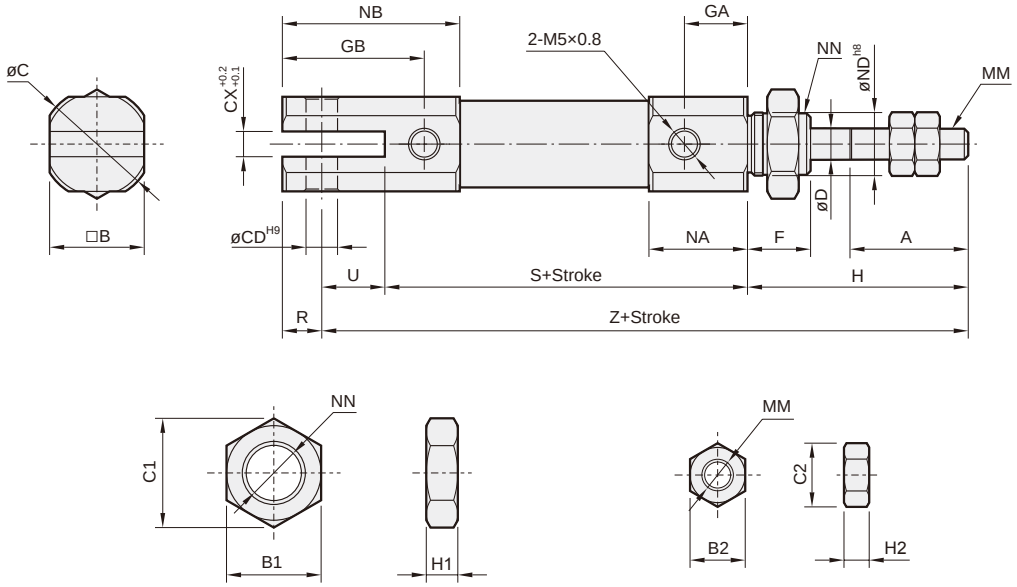
* Only for end cover "D" type.

B



Code / Tube I.D.	A	B	B1	B2	C	C1	C2	D	F	GA	GB	H	H1	H2	MM	NA	NB	ND h8	NN	S	Z
10	15	12	11	7	14	11.5	8.1	4	8	8	5	28	4	3.2	M4×0.7	12.5	9.5	8 $^{0}_{-0.022}$	M8×1.0	46	74
16	15	18	14	8	20	16.2	9.2	5	8	8	5	28	4	4	M5×0.8	12.5	9.5	10 $^{0}_{-0.022}$	M10×1.0	47	75

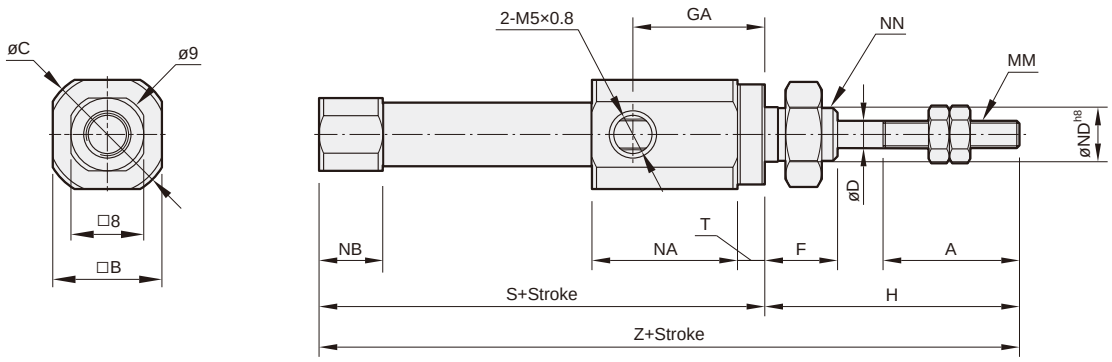
D



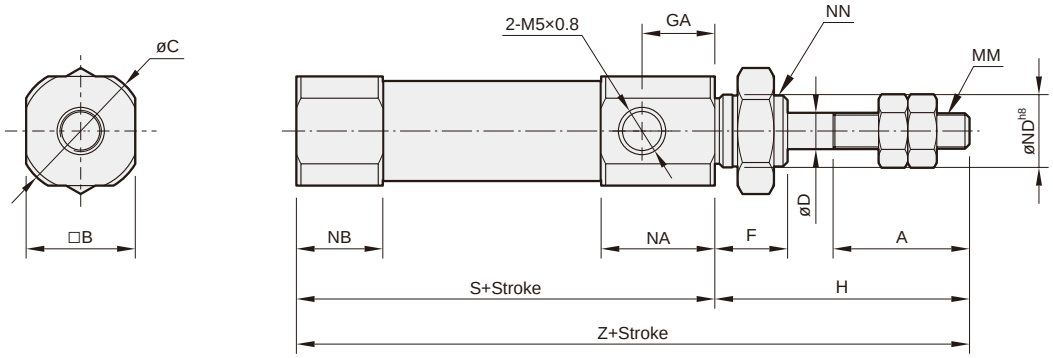
Code / Tube I.D.	A	B	B1	B2	C	CD	CX	C1	C2	D	F	GA	GB	H	H1	H2	MM	NA	NB	ND h8	NN	R	S	U	Z
10	15	12	11	7	14	3.3	3.2	12.7	8.1	4	8	8	18	28	4	3.2	M4×0.7	12.5	22.5	8 $^{0}_{-0.022}$	M8×1.0	5	46	8	82
16	15	18	14	8	20	5	6.5	16.2	9.2	5	8	8	23	28	4	4	M5×0.8	12.5	27.5	10 $^{0}_{-0.022}$	M10×1.0	8	47	10	85

R

ø6



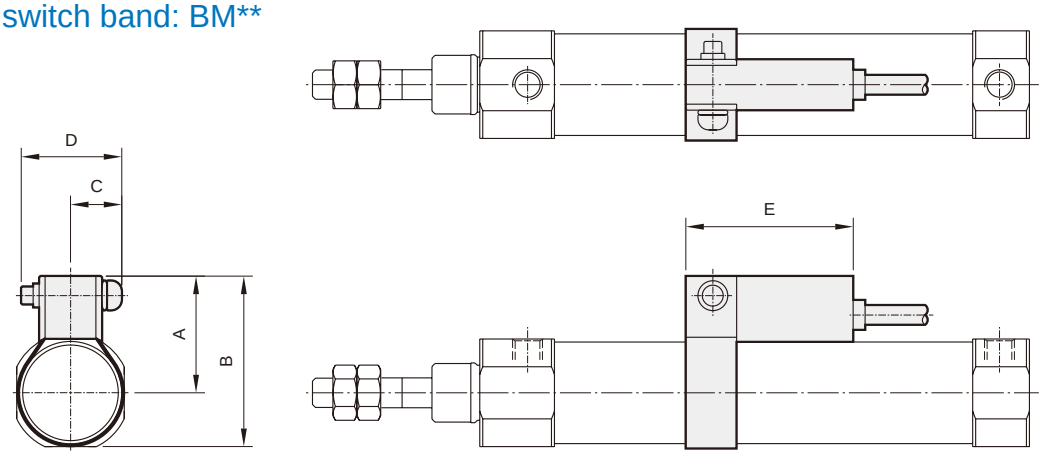
ø10~ø16



Code / Tube I.D.	A	B	B1	B2	C	C1	C2	D	F	GA	H	H1	H2	MM	NA	NB	ND h8	NN	S	T	Z
6	15	12	8	5.5	14	9.2	6.4	3	8	14.5	28	4	2.4	M3×0.5	16	7	6 $^{0}_{-0.022}$	M6×1.0	49	3	77
10	15	12	11	7	14	12.7	8.1	4	8	8	28	4	3.2	M4×0.7	12.5	9.5	8 $^{0}_{-0.022}$	M8×1.0	46	–	74
16	15	18	14	8	20	16.2	9.2	5	8	8	28	4	4	M5×0.8	12.5	9.5	10 $^{0}_{-0.022}$	M10×1.0	47	–	75

Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**



Code / Tube I.D.	A	B	C	D	E
6	15	21	10	16	28
10	17	23	10	16	28
16	20	29	10	16	28

Cylinder & accessories weight

Cylinder weight

Unit: g

Model	Basic weight MCMJ-11-B	Stroke 15 mm MCMJ-11-B	Basic weight MCMJ-11-D	Stroke 15 mm MCMJ-11-D	Basic weight MCMJ-11-R	Stroke 15 mm MCMJ-11-R
Tube I.D.						
ø6	–	–	–	–	18	2
ø10	21	4	24	4	23	3
ø16	46	7	52	8	46	7

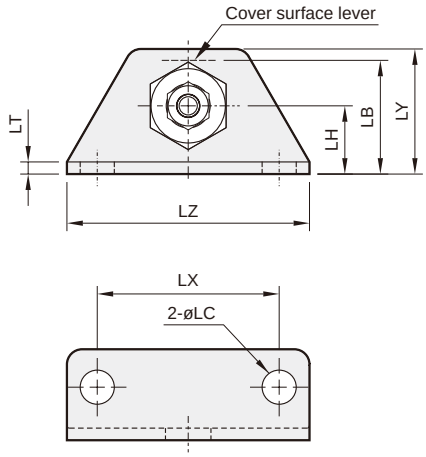
Accessories weight

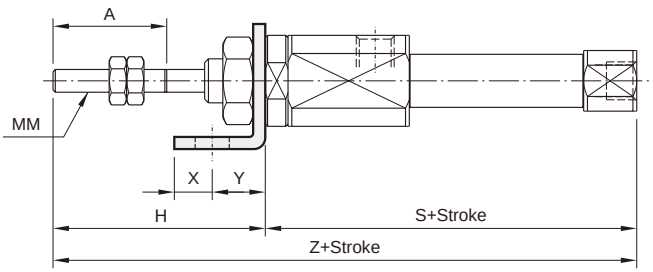
Unit: g

Model	LB	FA	T	Y	I	Pin
Tube I.D.						
ø6	129	63	–	–	–	–
ø10	129	63	14	22	16	1
ø16	207	162	54	17	21	3

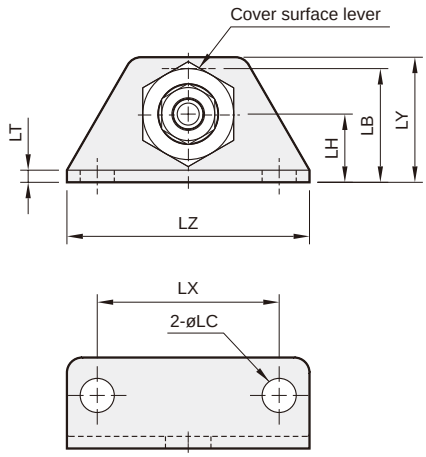
LB

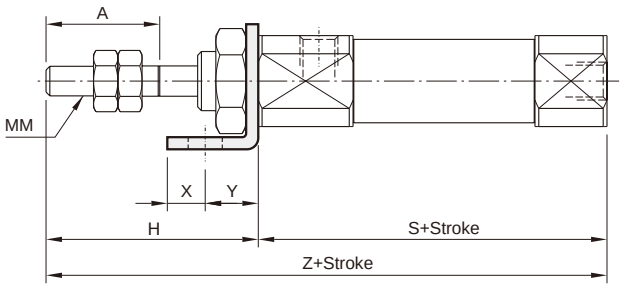
ø6





ø10~ø16

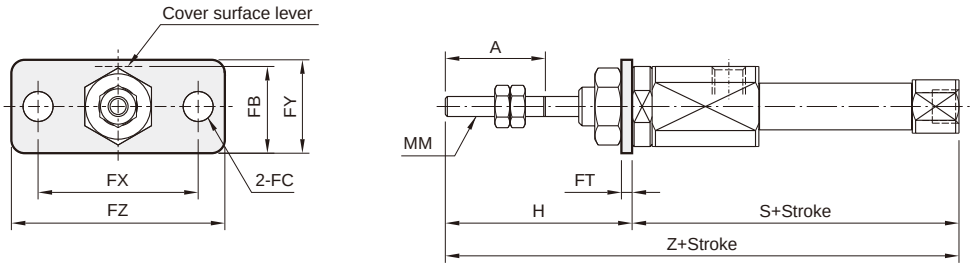




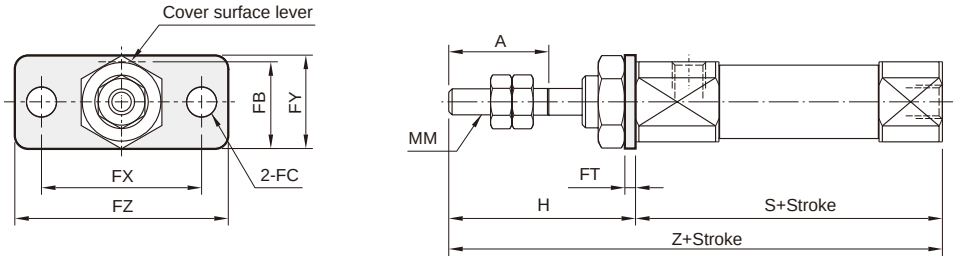
Code / Tube I.D.	A	H	LB	LC	LH	LT	LX	LY	LZ	MM	S	X	Y	Z
6	15	28	15	4.5	9	1.6	24	16.5	32	M3×0.5	49	5	7	77
10	15	28	15	4.5	9	1.6	24	16.5	32	M4×0.7	46	5	7	74
16	15	28	23	5.5	14	2.3	33	25	42	M5×0.8	47	6	9	75

FA

ø6



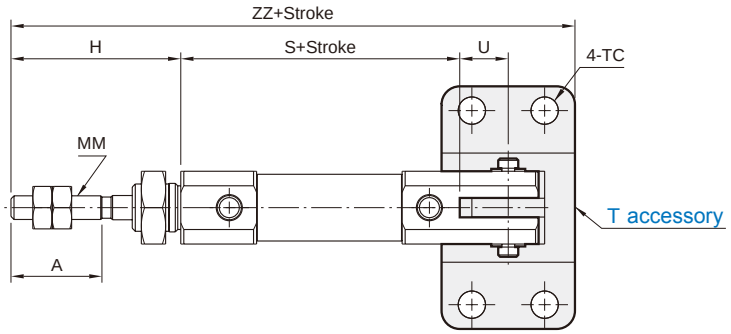
ø10~ø16

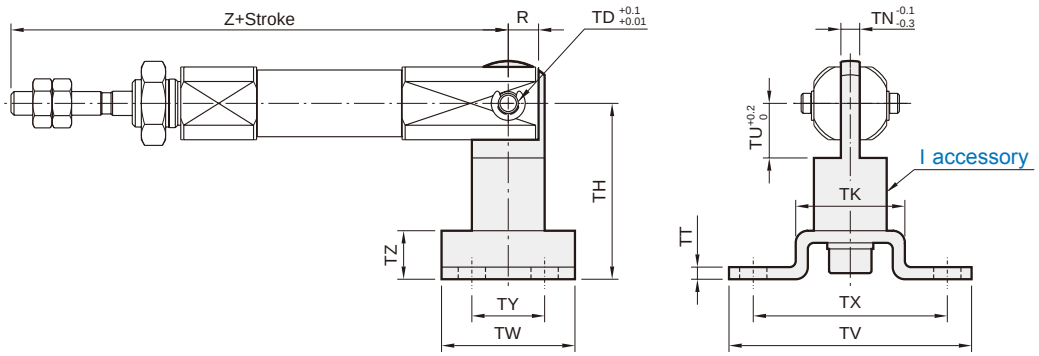


Code / Tube I.D.	A	FB	FC	FT	FX	FY	FZ	H	MM	S	Z
6	15	13	4.5	1.6	24	14	32	28	M3×0.5	49	77
10	15	13	4.5	1.6	24	14	32	28	M4×0.7	46	74
16	15	19	5.5	2.3	33	20	42	28	M5×0.8	47	75

T

I+Pin
(Extra pruchase)

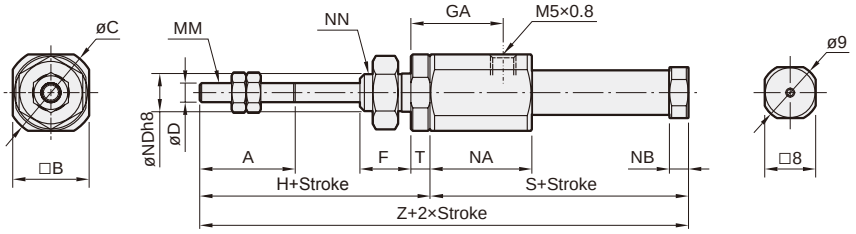




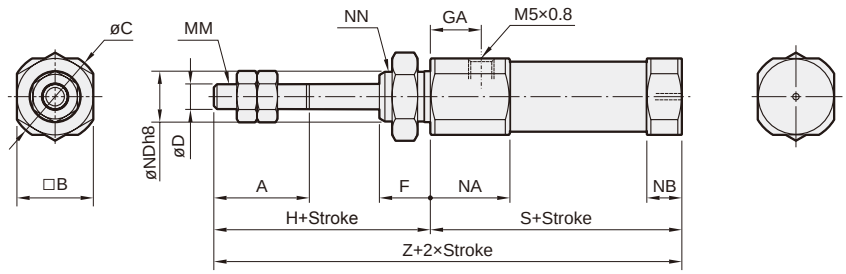
Code / Tube I.D.	A	H	MM	R	S	TC	TD	TH	TK	TN	TT	TU	TV	TW	TX	TY	TZ	U	Z	ZZ
10	15	28	M4×0.7	5	46	4.5	3.3	29	18	3.1	2	9	40	22	32	12	8	8	8	93
16	15	28	M5×0.8	8	47	5.5	5	35	20	6.4	2.3	14	48	28	38	16	10	10	10	99

13

ø6



ø10, ø16



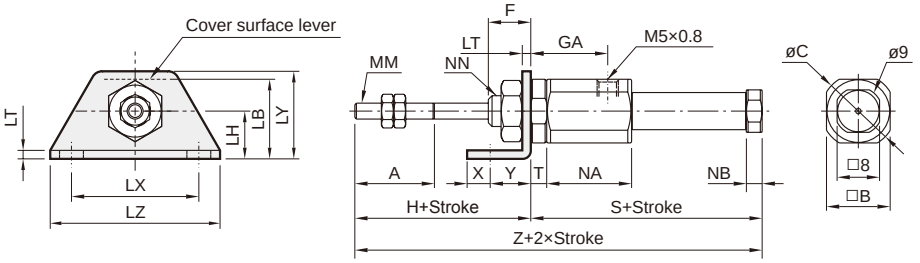
Code / Tube I.D.	A	B	C	D	F	GA	H	MM	NA	NB	ND	NN	T
6	15	12	14	3	8	14.5	28	M3×0.5	16	3	$6\ ^{0}_{-0.018}$	M6×1.0	3
10	15	12	14	4	8	8	28	M4×0.7	12.5	5.5	$8\ ^{0}_{-0.022}$	M8×1.0	–
16	15	18	20	5	8	8	28	M5×0.8	12.5	5.5	$10\ ^{0}_{-0.022}$	M10×1.0	–

* (S), (Z) ( ) indicate the size of that with magnet ring.

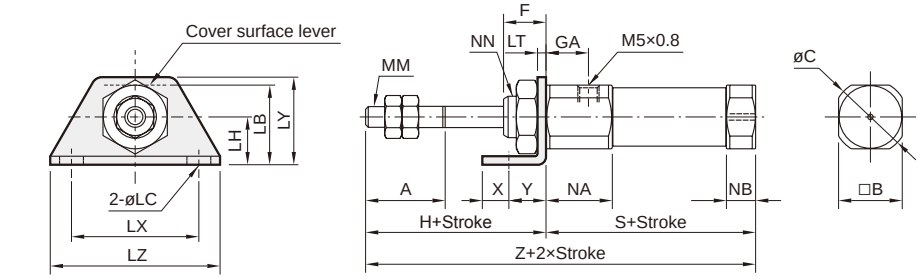
Code / Stroke / Tube I.D.	S *								Z *							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
6	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	–	–	–	–	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	–	–	–	–
10	48.5	56	68	80	–	–	–	–	76.5	84	96	108	–	–	–	–
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

LB

ø6



ø10, ø16



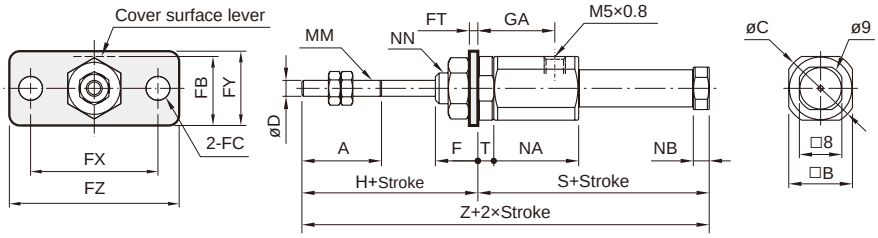
Code / Tube I.D.	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	T	X	Y
6	15	12	14	3	8	14.5	28	15	4.5	9	1.6	24	16.5	32	M3×0.5	16	3	M6×1.0	3	5	7
10	15	12	14	4	8	8	28	15	4.5	9	1.6	24	16.5	32	M4×0.7	12.5	5.5	M8×1.0	–	5	7
16	15	18	20	5	8	8	28	23	5.5	14	2.3	33	25	42	M5×0.8	12.5	5.5	M10×1.0	–	6	9

Code / Stroke / Tube I.D.	S *								Z *							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
6	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	–	–	–	–	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	–	–	–	–
10	48.5	56	68	80	–	–	–	–	76.5	84	96	108	–	–	–	–
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

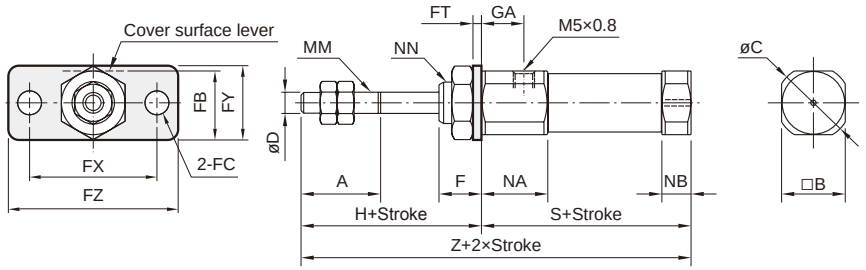
* (S), (Z) ( ) indicate the size of that with magnet ring.

FA

ø6



ø10~ø16



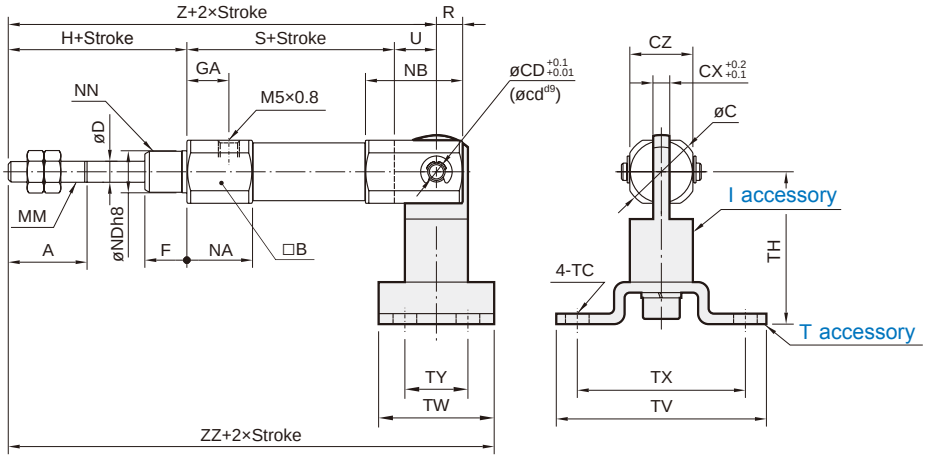
Code / Tube I.D.	A	B	C	D	F	GA	H	FB	FC	FT	FX	FY	FZ	MM	NA	NB	NN	T	X	Y
6	15	12	14	3	8	14.5	28	11	4.5	1.6	24	14	32	M3×0.5	16	3	M6×1.0	3	5	7
10	15	12	14	4	8	8	28	13	4.5	1.6	24	14	32	M4×0.7	12.5	5.5	M8×1.0	–	5	7
16	15	18	20	5	8	8	28	19	5.5	2.3	33	20	42	M5×0.8	12.5	5.5	M10×1.0	–	6	9

Code / Stroke / Tube I.D.	S *								Z *							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
6	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	–	–	–	–	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	–	–	–	–
10	48.5	56	68	80	–	–	–	–	76.5	84	96	108	–	–	–	–
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

* (S), (Z) ( ) indicate the size of that with magnet ring.

T

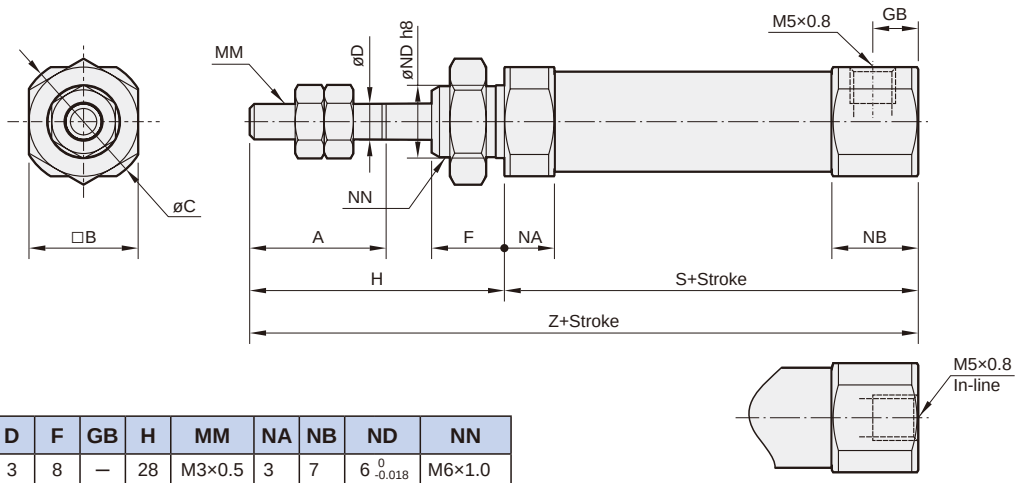
I+Pin
(Extra pruchase)



Code / Tube I.D.	A	B	C	CD (cd)	CX	CZ	D	F	GA	H	MM	NA	NB	ND	NN	R	TC	TH	TV	TW	TX	TY	U
10	15	12	14	3.3	3.2	12	4	8	8	28	M4×0.7	12.5	18.5	8 $^{0}_{-0.022}$	M8×1.0	5	4.5	29	40	22	32	12	8
16	15	18	20	5	6.5	18	5	8	8	28	M5×0.8	12.5	23.5	10 $^{0}_{-0.022}$	M10×1.0	8	5.5	35	48	28	38	16	10

Code / Stroke / Tube I.D.	S								Z								ZZ							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
10	48.5	56	68	80	–	–	–	–	84.5	92	104	116	–	–	–	–	95.5	103	115	127	–	–	–	–
16	48.5	57	69	81	87	111	129	141	86.5	95	107	119	125	149	167	179	100.5	109	121	133	139	163	181	193

15

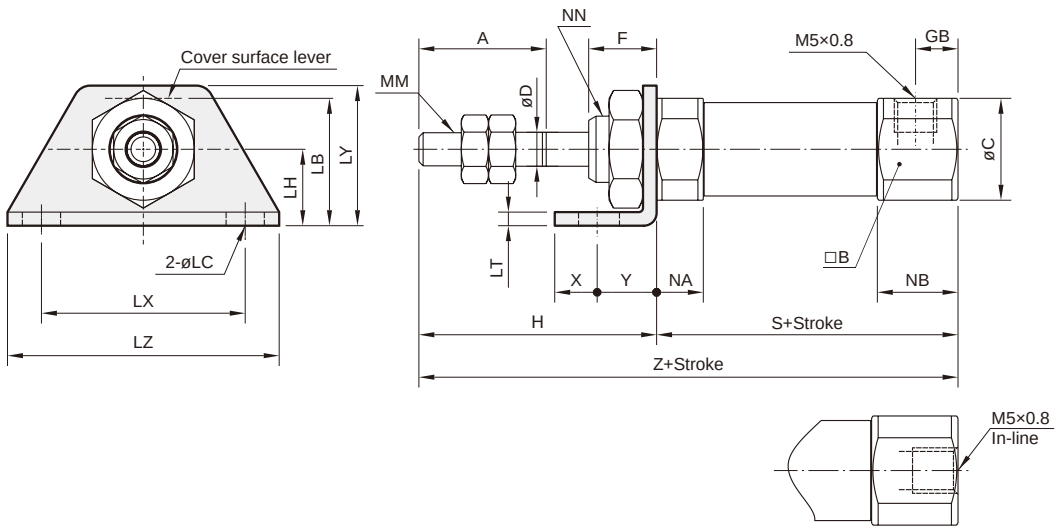


Code / Tube I.D.	A	B	C	D	F	GB	H	MM	NA	NB	ND	NN
6	15	8	9	3	8	–	28	M3×0.5	3	7	$6^{\ 0}_{-0.018}$	M6×1.0
10	15	12	14	4	8	5	28	M4×0.7	5.5	9.5	$8^{\ 0}_{-0.022}$	M8×1.0
16	15	18	20	5	8	5	28	M5×0.8	5.5	9.5	$10^{\ 0}_{-0.022}$	M10×1.0

Code / Stroke / Tube I.D.	S *								Z *							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
6	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	–	–	–	–	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	–	–	–	–
10	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

* (S), (Z) ( ) indicate the size of that with magnet ring.

LB

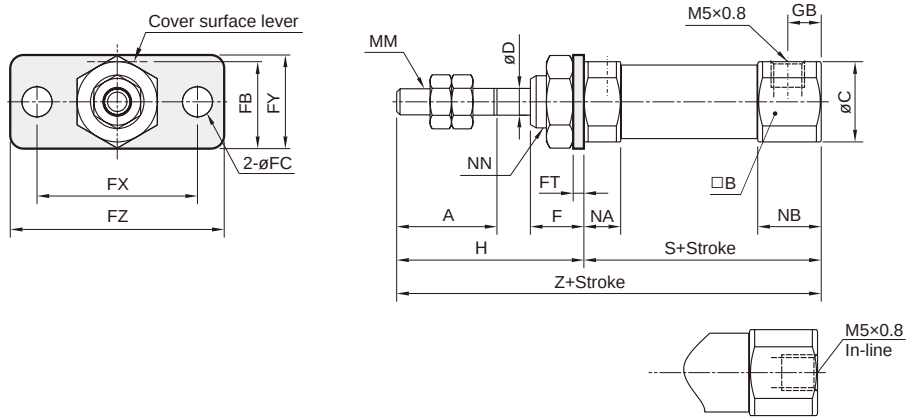


Code / Tube I.D.	A	B	C	D	F	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	X	Y
6	15	8	9	3	8	–	28	13	4.5	9	1.6	24	16.5	32	M3×0.5	3	7	M6×1.0	5	7
10	15	12	14	4	8	5	28	15	4.5	9	1.6	24	16.5	32	M4×0.7	5.5	9.5	M8×1.0	5	7
16	15	18	20	5	8	5	28	23	5.5	14	2.3	33	25	42	M5×0.8	5.5	9.5	M10×1.0	6	9

Code / Stroke / Tube I.D.	S *								Z *							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
6	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	–	–	–	–	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	–	–	–	–
10	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

* (S), (Z) ( ) indicate the size of that with magnet ring.

FA



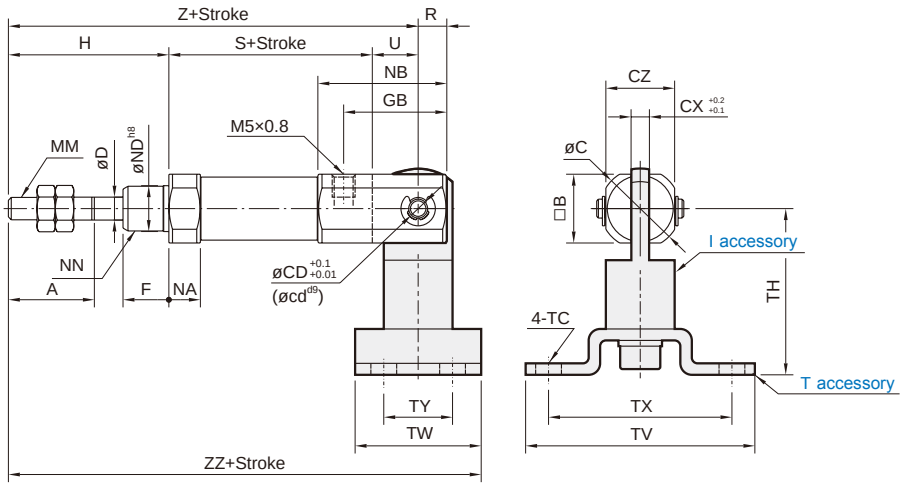
Code / Tube I.D.	A	B	C	D	F	GB	H	FB	FC	FT	FX	FY	FZ	MM	NA	NB	NN	X	Y
6	15	8	9	3	8	–	28	11	4.5	1.6	24	14	32	M3×0.5	3	7	M6×1.0	5	7
10	15	12	14	4	8	5	28	13	4.5	1.6	24	14	32	M4×0.7	5.5	9.5	M8×1.0	5	7
16	15	18	20	5	8	5	28	19	5.5	2.3	33	20	42	M5×0.8	5.5	9.5	M10×1.0	6	9

Code / Stroke / Tube I.D.	S *								Z *							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
6	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	–	–	–	–	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	–	–	–	–
10	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

* (S), (Z) ( ) indicate the size of that with magnet ring.

T

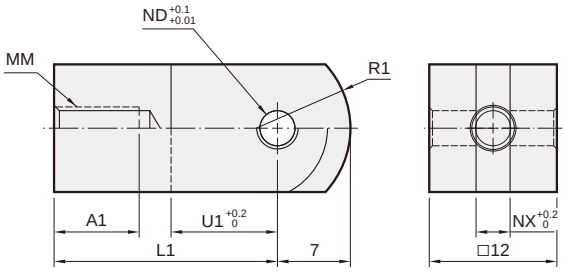
I+Pin
(Extra pruchase)



Code / Tube I.D.	A	B	C	CD (cd)	CX	CZ	D	F	GB	H	MM	NA	NB	ND	NN	R	TC	TH	TV	TW	TX	TY	U
10	15	12	14	3.3	3.2	12	4	8	18	28	M4×0.7	5.5	22.5	8 $^{0}_{-0.022}$	M8×1.0	5	4.5	29	40	22	32	12	8
16	15	18	20	5	6.5	18	5	8	23	28	M5×0.8	5.5	27.5	10 $^{0}_{-0.022}$	M10×1.0	8	5.5	35	48	28	38	16	10

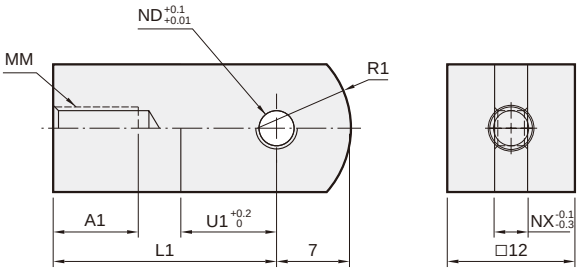
Code / Stroke / Tube I.D.	S								Z								ZZ							
	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150	5~15	16~30	31~45	46~60	61~75	76~100	101~125	126~150
10	45.5	53	65	77	–	–	–	–	81.5	89	101	113	–	–	–	–	92.5	100	112	124	–	–	–	–
16	45.5	54	66	78	84	108	126	138	83.5	92	104	116	122	146	164	176	97.5	106	118	130	136	160	178	190

Y connector



Code / Tube I.D.	A1	L1	MM	ND	NX	R1	U1
10	8	21	M4×0.7	3.3	3.2	8	10
16	11	21	M5×0.8	5	6.5	12	10

I connector



Code / Tube I.D.	A1	L1	MM	ND	NX	R1	U1
10	8	21	M4×0.7	3.3	3.1	8	9
16	8	25	M5×0.8	5	6.4	12	14

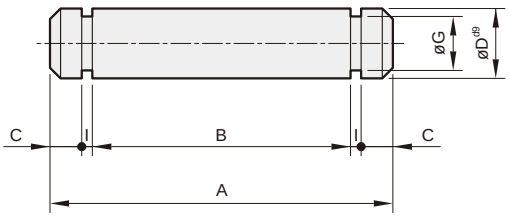
PIN

Order example

PIN — MCMJ — 10 — Y — P

- PIN
- TUBE I.D.
- TYPE — **Y**: for Y & I connector; **D**: for end cover D type
- **P**: With split pin

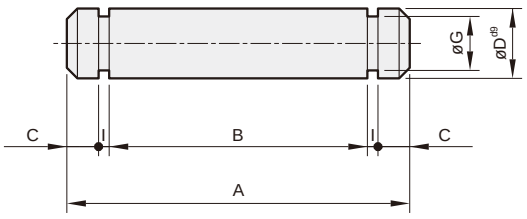
P



for Y & I connector

Code / Tube I.D.	A	B	C	D d9	G	I	Split pin
10	16.2	12.2	1.5	3.3 -0.03 -0.06	2.5	0.5	E-2.5
16	16.2	12.2	1.5	5 -0.03 -0.06	4	0.7	E-4

P

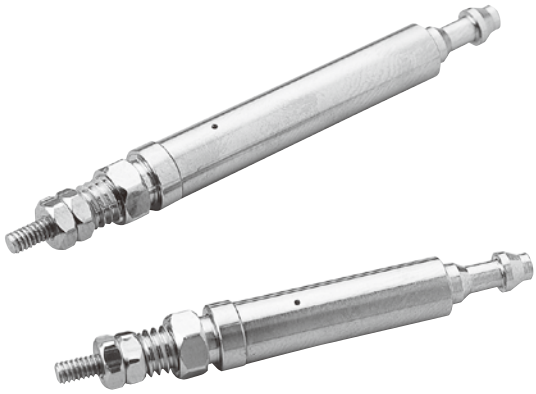


for end cover D type

Code / Tube I.D.	A	B	C	D d9	G	I	Split pin
10	15.2	12.2	1	3.3 -0.03 -0.06	2.5	0.5	E-2.5
16	22.7	18.3	1.5	5 -0.03 -0.06	4	0.7	E-4

MCMJ1 series

PEN CYLINDER



Specification

Model	MCMJ1
Acting type	Single acting
Tube I.D. (mm)	4
Medium	Air
Max. operating perssure	0.7 MPa
Min. operating perssure	0.3 MPa
Proof pressure	1 MPa
Lubrication	Not required
Ambient temperature	-5~+60°C (No freezing)
Available speed range	50~500 mm/sec
Max. allowable kinetic energy	0.004J

* All this product line is without magnet.
* For precautions, please refer to page 3-2.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø4	5,10,15,20

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)
ø4	M2×0.4	1.39

* Make sure the tightening torque of rod thread does not exceed the value above.
* The tolerance of tightening torque is ±5%.

Spring retracting force

Unit: N

Tube I.D.	Extended position	Retracted position
ø4	3.04	1.07

Theoretical force

Unit: N

Tube I.D.	Operation direction	Piston area (mm)	Operating pressure (MPa)				
			0.3	0.4	0.5	0.6	0.7
ø4	OUT	12.6	0.74	2.0	3.26	4.52	5.78
	IN	—	1.47				

Order example

MCMJ1 — 15 — 4 — 10

- MODEL
- 1: Single rod
- TUBE I.D.
- STROKE (mm) **5,10,15,20**
- STYLE

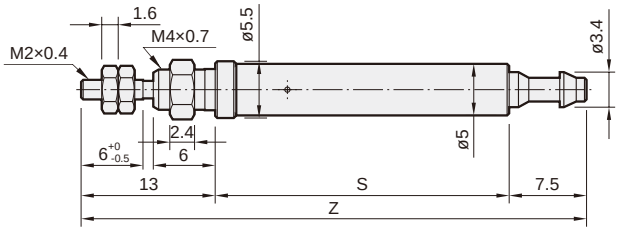
Code		Symbol	Description
1	5		Single acting / Normally returned male thread

Cylinder weight

Unit: g

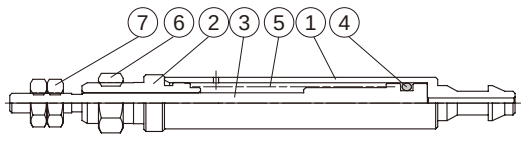
Tube I.D.	Stroke (mm)			
	5	10	15	20
ø4	38	48	58	68

Dimensions



Code / Stroke / Tube I.D.	S				Z			
	5	10	15	20	5	10	15	20
4	19.5	28.5	37.5	46.5	40	49	58	67

Inside structure & Parts list



No.	Part name	Material
1	Tube	Copper
2	Rod cover	Copper
3	Piston rod	Stainless steel
4	Piston packing	NBR
5	Spring	Stainless steel
6	Tie nut	Copper
7	Rod front nut	Copper

Features

- Space saving, compact design enables simple mounting.
- Flush fitting sensor switch.

Specification

Model	MCMJP		
Acting type	Double acting		
Tube I.D. (mm)	6	10	16
Port size	M3×0.5		M5×0.8
Medium	Air		
Max. operating perssure	0.7 MPa		
Min. operating perssure	0.12 MPa		0.06 MPa
Proof pressure	1 MPa		
Lubrication	Not required		
Ambient temperature	-5~+60°C (No freezing)		
Available speed range	50~500 mm/sec		
Max. allowable kinetic energy	0.012J	0.025J	0.05J
Sensor switch (*)	RDFE(V), RDGV		

* RDFE(V), RDGV specification, please refer to page 8-18, 19.

Table for standard stroke

Unit: mm

Tube I.D.	Standard type	End-plain
ø6	5,10,15,20,25	5,10,15,20
ø10	5,10,15,20,25,30	5,10,15,20
ø16	5,10,15,20,25,30,40	5,10,15,20,25

* It can't be supplied if the stroke is out of the maximum of above table.

Order example

MCMJP — 11 — 6 — 10M — E

MODEL | **1**: Single rod | TUBE I.D. | STROKE | **M**: Magnet

STYLE

Code		Symbol	Description
1	**1**		Double acting / Male thread
1	**8**		Double acting / Threadless

TYPE

Code	Symbol	Description
Blank		Standard type
E		End-plain

Mounting accessories

FA — MCMJP — 6

MODEL | TUBE I.D.

MOUNTING TYPE

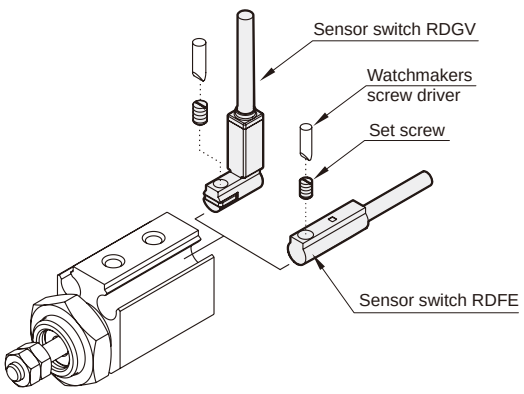
	LB
	FA
	SDB

Cylinder weight

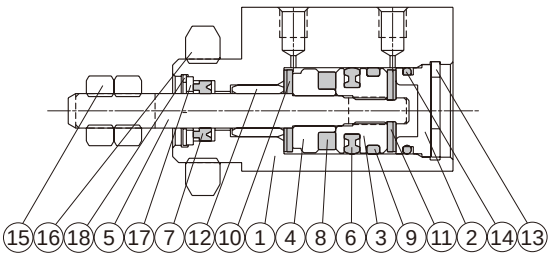
Unit: g

Stroke (mm)	**11**: Male thread			**18**: Threadless		
	ø6	ø10	ø16	ø6	ø10	ø16
5	19	29	46	18	28	45
10	21	31	50	20	30	49
15	24	34	54	23	33	53
20	26	36	58	25	35	57
25	29	39	62	28	38	61
30	–	41	66	–	40	65
40	–	–	74	–	–	73

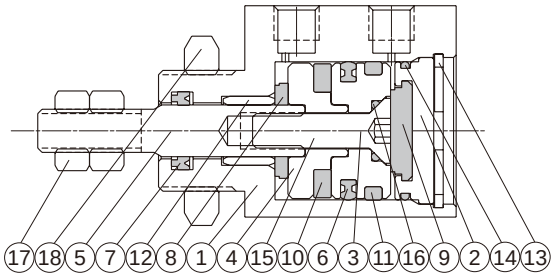
Installation of sensor switch



ø6, ø10



ø16



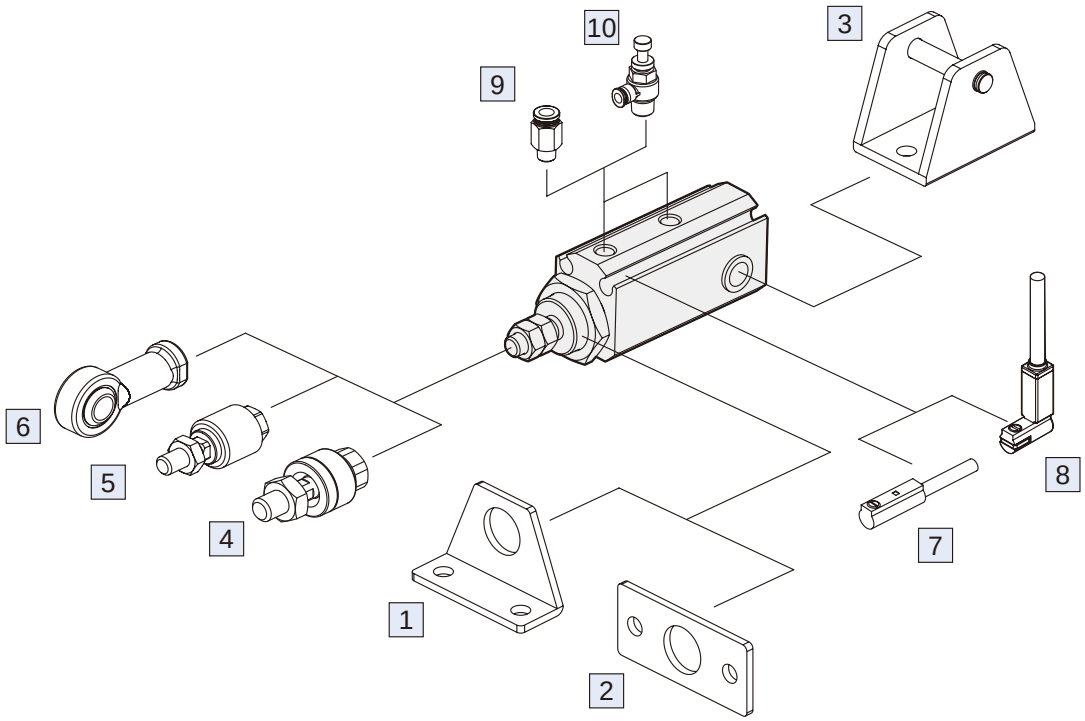
Material

No.	Tube I.D. / Part name	6	10	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy			1	
2	End cover	Aluminum alloy			1	
3	Piston	Aluminum alloy			1	
4	Piston	Aluminum alloy		for with magnet	1	
5	Piston rod	Stainless steel			1	
6	Pistion packing	NBR			1	●
7	Rod packing	NBR			1	●
8	Magnet ring	Magnet material		for with magnet	1	
9	Wear ring	Teflon			1	
10	Cushion	NBR			1	●
11	Cushion	NBR			1	●
12	Rod bush	Copper			1	
13	Stop ring	Carbon steel			1	
14	Cover ring	NBR			1	●
15	Rod front nut	Copper			2	
16	Tie nut	Carbon steel			1	
17	Fixed ring	Aluminum alloy			1	
18	Stop ring	Carbon steel			1	

No.	Tube I.D. / Part name	16	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy		1	
2	End cover	Aluminum alloy		1	
3	Piston	Aluminum alloy		1	
4	Piston	Aluminum alloy	for with magnet	1	
5	Piston rod	Stainless steel		1	
6	Pistion packing	NBR		1	●
7	Rod packing	NBR		1	●
8	Cushion	NBR		1	●
9	Cushion	NBR		1	●
10	Magnet ring	Magnet material	for with magnet	1	
11	Wear ring	Teflon		1	
12	Rod bush	Copper		1	
13	Stop ring	Carbon steel		1	
14	Cover ring	NBR		1	●
15	Piston bolt	SCM		1	
16	Piston gasket	NBR		1	●
17	Rod front nut	Copper		2	
18	Tie nut	Carbon steel		1	

Order example of repair kits

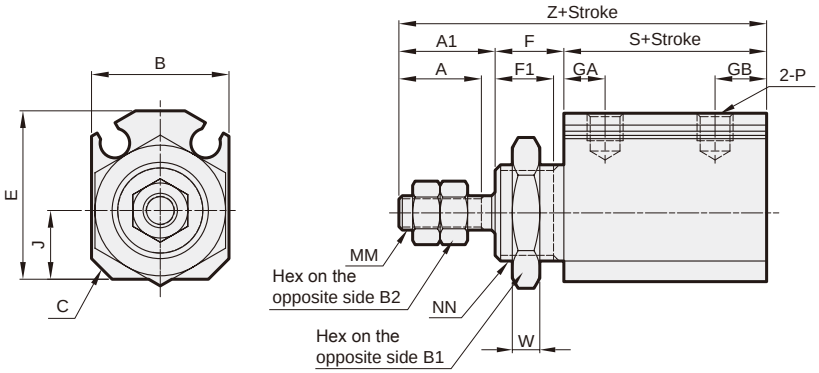
Tube I.D.	Repair kits
ø6	**PS-MCMJP-6**
ø10	**PS-MCMJP-10**
ø16	**PS-MCMJP-16**



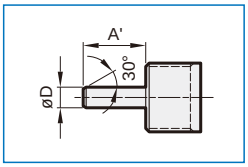
No.	Accessories	Page
1	Mounting accessories LB	3-80
2	Mounting accessories FA	3-80
3	Mounting accessories SDB+PIN	3-80, 79
4	Floating joint MFC	8-2
5	Floating joint MFCS	8-5
6	Female rod ends PHS	8-6
7	Sensor switch RDFE	8-18
8	Sensor switch RDGV	8-19
9	Fitting PC (PISCO)	7-3 (Vol.1)
10	Speed controller JSC (PISCO)	7-15 (Vol.1)

MCMJP Dimensions ø6~ø16

PEN CYLINDER

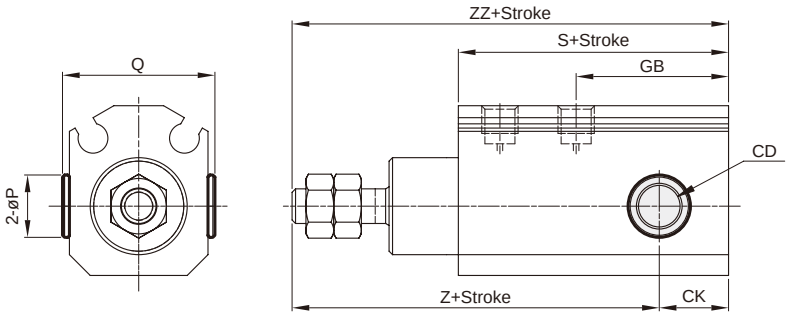


MCMJP-18



Code / Tube I.D.	A	A1	B	B1	B2	C	D	E	F	F1	GA	GB	J	MM	NN	P	W	Without magnet		Magnet	
																		S	Z	S	Z
6	7	9	14	14	5.5	2	3	16.5	8	6.5	5.5	6	6	M3×0.5	M10×1.0	M3×0.5	4	16	33	21	38
10	10	12	15	17	7	2.5	4	19	8	6.5	6	7	7	M4×0.7	M12×1.0	M3×0.5	4	19.5	39.5	24.5	44.5
16	12	14	20	19	8	3	6	24.5	10	8.5	6	7.5	10	M5×0.8	M14×1.0	M5×0.8	4	19.5	43.5	24.5	48.5

E



Code / Tube I.D.	CD	CK	GB	P	Q	Without magnet			Magnet		
						S	Z	ZZ	S	Z	ZZ
6	3 $^{+0.04}_{+0}$	4	11	—	—	21	34	38	26	39	43
10	5 $^{+0.06}_{+0}$	6.5	18	8	17	30.5	44	50.5	35.5	49	55.5
16	6 $^{+0.06}_{+0}$	10	22	9	22	34	48	58	39	53	63

PIN

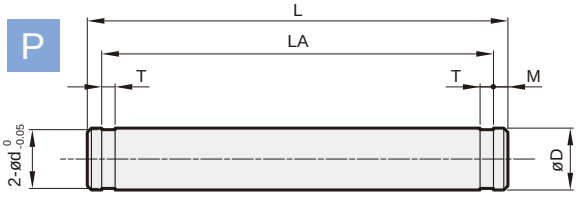
Order example

PIN — MCMJP — 10 — SDB — P

- PIN
- TUBE I.D.
- TYPE
- **P**: With split pin

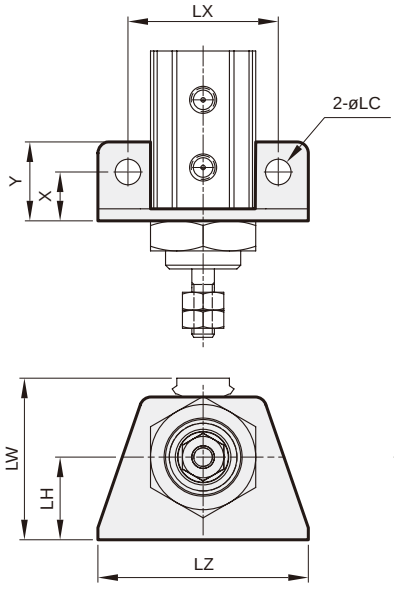
SDB: for SDB connector

P



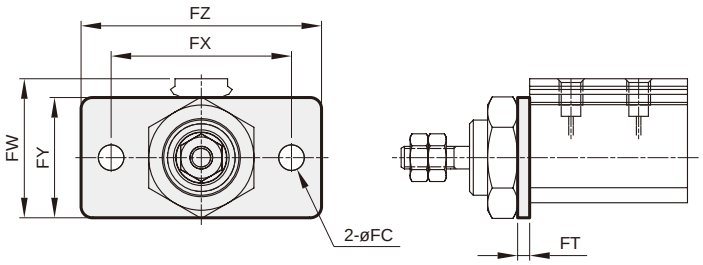
Code / Tube I.D.	D^{d9}	d	L	LA	M	T	Split pin
6	3 $^{-0.02}_{-0.05}$	2.85	20.4	19	0.7	0.5	STW-3
10	5 $^{-0.03}_{-0.06}$	4.8	23.9	21.9	1	0.7	STW-5
16	6 $^{-0.03}_{-0.06}$	5.7	31.9	29.9	1	0.8	STW-6

LB



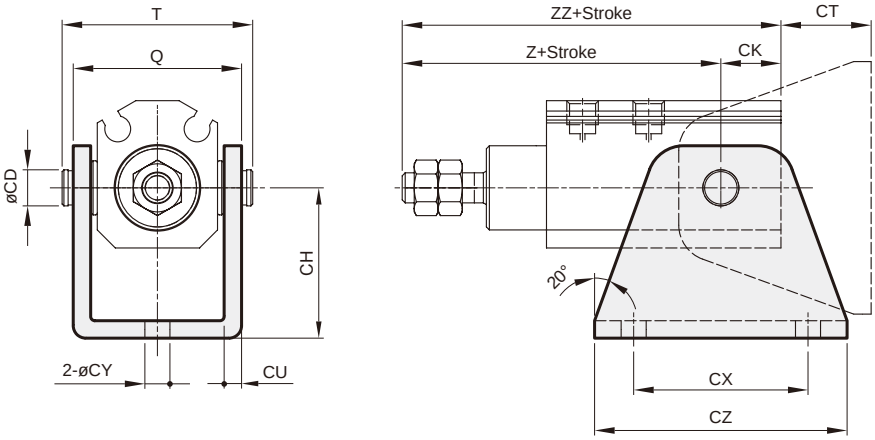
Code / Tube I.D.	LC	LH	LT	LW	LX	LZ	X	Y
6	3.4	11	1.6	21.5	20	28	6.5	10.5
10	4.5	13	1.6	25	24	33	7	12
16	5.5	18	2.3	32.5	30	43	10	16.5

FA



Code / Tube I.D.	FC	FT	FW	FX	FY	FZ
6	3.4	1.6	18.5	24	16	32
10	4.5	1.6	21	28	18	37
16	5.5	2.3	25.5	36	22	49

SDB



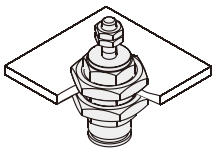
Code / Tube I.D.	CD	CH	CK	CT	CU	CX	CY	CZ	Q	T	Without magnet		Magnet	
											Z	ZZ	Z	ZZ
6	3	16	4	12	1.6	18	3.4	26	18.5	20.4	34	38	39	43
10	5	20	6.5	13.5	1.6	24	4.5	33	20.5	23.9	44	50.5	49	55.5
16	6	25	10	15	3	29	5.5	42	28.2	31.9	48	58	53	63

MCMJP* series

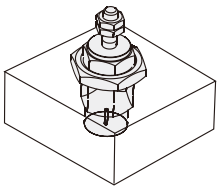
PEN CYLINDER

mindman

Mounting type



B: Panel mounting style



S: Plug mounting style

Order example

MCMJPB — 15 — 6 — 15

- MODEL
- **B**: Panel mounting, **S**: Plug mounting
- **1**: Single rod
- TUBE I.D.
- STROKE (mm) **5**,**10**,**15**
- STYLE

Code		Symbol	Description
1	**0**		Single acting / Normally returned without thread
1	**5**		Single acting / Normally returned male thread

Features

■ A short stroke miniature cylinder with a shorter overall length.

The installation space can be significantly reduced because this cylinder can be recessed directly into a machine body or installed on a panel. Thus, the machines can be made more compact.

Specification

Model		MCMJPB		MCMJPS
Acting type		Single acting		
Tube I.D. (mm)		6	10	15
Medium		Air		
Max. operating perssure		0.7 MPa		
Min. operating perssure	ø6	0.2MPa		
	ø10,15	0.15MPa		
Proof pressure		1 MPa		
Lubrication		Not required		
Ambient temperature		-5~+60°C (No freezing)		
Available speed range		50~500 mm/sec		
Max. allowable kinetic energy		0.003J	0.008J	0.019J

* All this product line is without magnet

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6,10,15	5,10,15

Spring retracting force

Unit: N

Tube I.D.	Extended position	Retracted position
ø6	3.92	1.42
ø10	5.98	2.45
ø15	10.80	4.41

Theoretical force

Unit: N

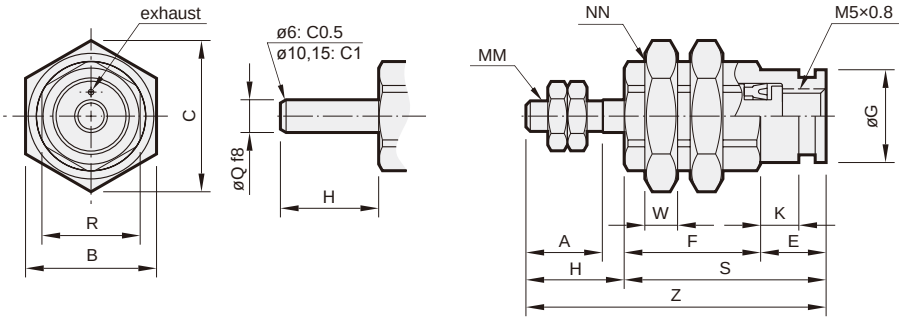
Tube I.D.	Operation direction	Operating pressure (MPa)		
		0.3	0.5	0.7
ø6	OUT	4.56	10.2	15.9
	IN	1.42		
ø10	OUT	17.6	33.3	49.0
	IN	2.45		
ø15	OUT	42.2	77.5	113
	IN	4.41		

Weight

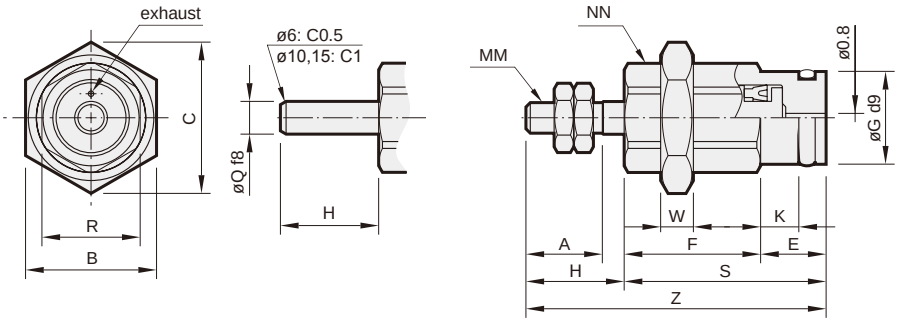
Unit: g

Tube I.D.	Basic weight **MCMJPB**	Stroke 5 mm **MCMJPB**	Basic weight **MCMJPS**	Stroke 5 mm **MCMJPS**
ø6	8	2	–	–
ø10	224	50	–	–
ø15	622	94	–	–

MCMJPB

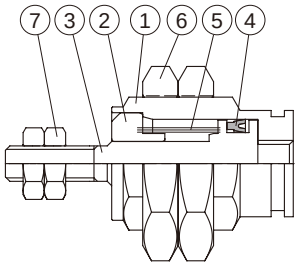


MCMJPS



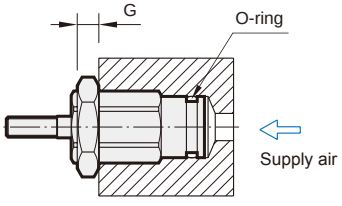
Code / Tube I.D.	A	B	C	E	F			G	H	K	MM	NN	Q	R	S			W	Z		
					5st	10st	15st								5st	10st	15st		5st	10st	15st
6	7	12	13.9	6	12.5	19.5	26.5	8.5	9	3.5	M3×0.5	M10×1.0	3	9	18.5	25.5	32.5	3	27.5	34.5	41.5
10	10	19	22	6	14.5	21	28	12	12	3.5	M4×0.7	M15×1.5	5	13	20.5	27	34	4	32.5	39	46
15	12	27	31	7	16.5	22.5	29	19	14	4.2	M5×0.8	M22×1.5	6	20	23.5	29.5	36	5	37.5	43.5	50

Inside structure & Parts list

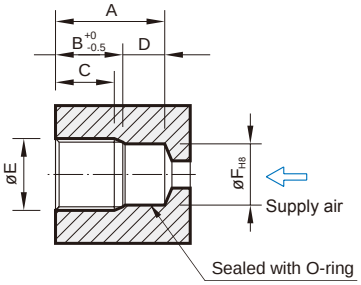


No.	Part name	Material		
		6	10	16
1	Body	Copper		
2	Cover	Copper		
3	Piston rod	Stainless steel		
4	Piston packing	NBR		
5	Spring	SWP		
6	Nut	Copper		*
7	Rod front nut	Carbon steel		

* Carbon steel



When plug mounting



Maching dimension for mounting

Tube I.D.	Code / Stroke	A	B	C	D	E	F	G
6	5	16	12.5	10	3.5	M10×1.0	8.5	3
	10	23	19.5	17				
	15	30	26.5	24				
10	5	17	13.5	10.5	3.5	M15×1.5	12	4
	10	23.5	20	17				
	15	30.5	27	24				
15	5	19	14.5	11.5	4.5	M22×1.5	19	5
	10	25	20.5	17.5				
	15	31.5	27	24				

Specification

Model	MCCG							
Acting type	Double acting							
Tube I.D. (mm)	20	25	32	40	50	63	80	100
Port size	Rc1/8				Rc1/4		Rc3/8	Rc1/2
Medium	Air							
Max. operating perssure	1 MPa							
Min. operating perssure	0.05 MPa							
Proof pressure	1.5 MPa							
Lubrication	Not required							
Ambient temperature	-5~+60°C (No freezing)							
Available speed range	50~500 mm/sec							
Max. allowable kinetic energy (J) Cushion pad	0.07	0.10	0.17	0.3	0.5	0.85	1.48	2.48
Max. allowable kinetic energy (J) Cushion air	0.09	0.14	0.23	0.45	0.85	1.23	2.95	4.18
Sensor switch	RCM (Please refer to page 8-15)							
Sensor switch band	BMG20	BMG25	BMG32	BMG40	BMG50	BMG63	BMG80	BMG100

Table for standard stroke

Tube I.D.	Stroke (mm)	Long stroke
ø20	25,50,75,100,125,150,200	201~350
ø25	25,50,75,100,125,150,200, 250,300	301~400
ø32		301~450
ø40		301~800
ø50		301~1200
ø63		301~700
ø80		301~700
ø100		301~700

Please reconfirm the dimension with our sales department when the stroke over our standard.

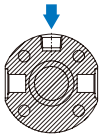
Order example

MCCG — 11 — 40 — 100M — A — □

- MODEL
- 1: Single rod
- TUBE I.D.
- STROKE
- M: Magnet
- Blank: Cushion pad (Unadjustable)
  A: Cushion air (Adjustable) ⚠
- PORT THREAD
  Blank: Rc thread
  NPT: NPT thread

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread



* Order example for special specification, refer to page 0-7.
* Order example for **G** thread, please consult us.

Mounting accessories

FAC — MCCG — 40

- MODEL
- TUBE I.D.

MOUNTING TYPE

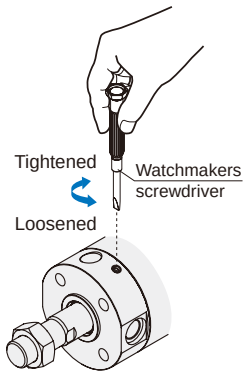
	LB		CB+SDB*1,3
	CB		CB+SDB*2
	FAC		TA*3
	FBC		TB*3
	SDB-R*1,3		Y
	SDB-H*1,3		I

1. Mounting procedures please refer to page 3-90.
2. For tube I.D. ø80,100
3. For tube I.D. ø20~63

⚠ Caution

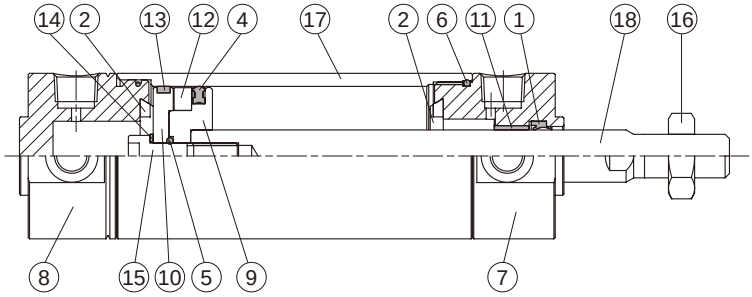
For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.

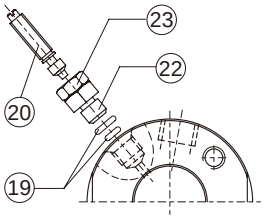


Cushion pad

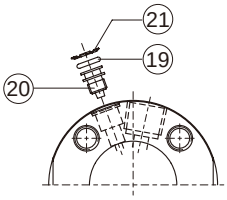
Unadjustable



ø20~ø32

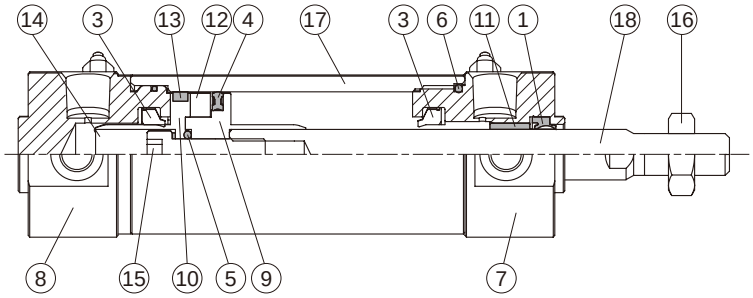


ø50

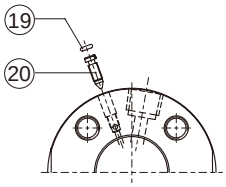


Cushion air

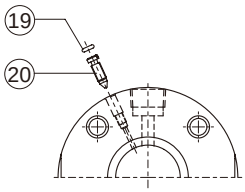
Adjustable



ø40, ø63



ø80, ø100



Material

A: Component parts, **B**: Repair kits

No.	Cushion		Part name	Material	Q'y	A	B	Note
	Pad	Air				(inclusion)		
1	●	●	Rod packing	NBR	1	●	●	
2	●		Cushion pad	NBR	2	●	●	
3		●	Cushion pad	NBR	2	●	●	
4	●	●	Piston packing	NBR	1	●	●	
5	●	●	O-ring	NBR	1	●	●	
6	●	●	O-ring	NBR	1 or 2	●	●	ø50~100 (Q'y=2)
7	●	●	Rod cover	Aluminum alloy	1	●		
8	●	●	Head cover	Aluminum alloy	1	●		
9	●	●	Piston-R	Aluminum alloy	1	●		
10	●	●	Piston-H	Aluminum alloy	1	●		
11	●	●	Bush	Bearing alloy	1	●		
12	●	●	Magnet ring	Magnet material	1	◎		◎ Option
			Spacer ring	Aluminum alloy	1	●		for ø20~ø32
13	●	●	Wear ring	Teflon	1	●		
14	●	●	Washer	Carbon steel	1	●		ø20 without
15	●	●	Piston bolt	Carbon steel	1	●		
16	●	●	Nut	Carbon steel	1	●		
17	●	●	Cylinder tube	Aluminum alloy	1			
18	●	●	Piston rod	Carbon steel	1			ø20~25 stainless steel
19		●	O-ring	NBR	4 or 2			ø40~80 (Q'y=2)
20		●	Needle valve	Stainless steel	2			*
21		●	Needle valve packing	Carbon steel	2			only for ø50
22		●	Needle valve fixed nut	Stainless steel	2			only for ø20~32
23		●	Hex nut	Carbon steel	2			only for ø20~32

* ø50: Copper, ø63~100: Carbon steel

■ Order example of component parts

CP — MCCG — 20 SM — □

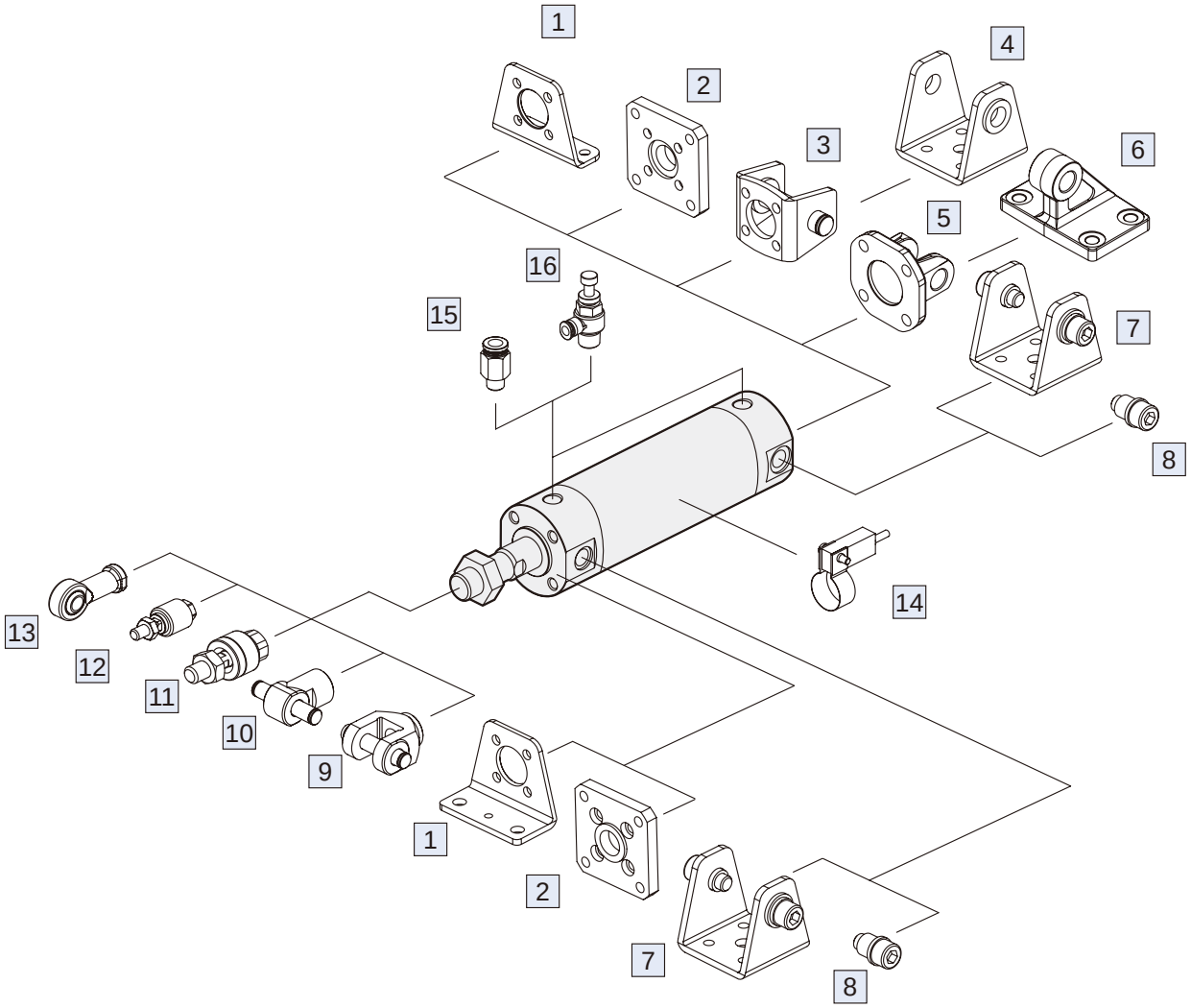
- MODEL: **MCCG**, **MCCN**
- TUBE I.D.: **20**, **25**, **32**, **40**, **50**, **63**, **80**, **100**
- **S**: Standard stroke, **H**: Long stroke
- **M**: Magnet
- PORT THREAD: Blank: Rc thread, **NPT**: NPT thread

* **MCCN** only be used for NPT.
* Order example for **G** thread, please consult us.

■ Order example of repair kits

PS — MCCG — 20 — XB6

- MODEL: **MCCG**, **MCCN**
- TUBE I.D.: **20**, **25**, **32**, **40**, **50**, **63**, **80**, **100**
- Blank: NBR, **XB6**: Heat resistant material

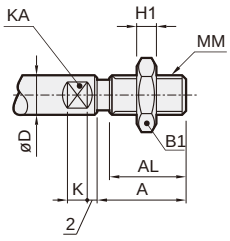


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-87
2	Mounting accessories FAC/FBC	Carbon steel	3-87
3	Mounting accessories CB+PIN *1	Carbon steel	3-88, 91
4	Mounting accessories SDB *1	Carbon steel	3-89
5	Mounting accessories CB+PIN *2	Cast iron / *3	3-88, 91
6	Mounting accessories SDB *2	Cast iron	3-89
7	Mounting accessories SDB-R/H	Carbon steel	3-89
8	Mounting accessories TA/TB	Carbon steel	3-90

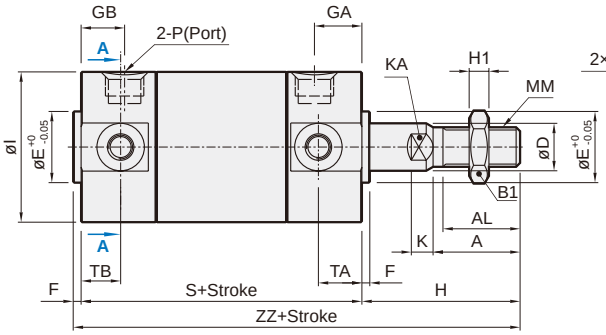
No.	Accessories	Material	Page
9	Accessories Y+PIN	Carbon steel	3-91
10	Accessories I+PIN	Carbon steel	3-91
11	Floating joint MFC	Carbon steel	8-2
12	Floating joint MFCS	Carbon steel	8-5
13	Female rod ends PHS	Carbon steel	8-6
14	Sensor switch RCM+BMG**	–	8-15
15	Fitting PC (PISCO)	–	7-3 (Vol.1)
16	Speed controller JSC (PISCO)	–	7-15 (Vol.1)

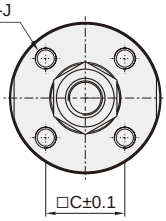
*1. For tube I.D. ø20~63.
*2. For tube I.D. ø80,100.
*3. PIN material is carbon steel.

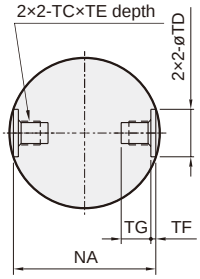
ø20, ø25



ø32~ø100



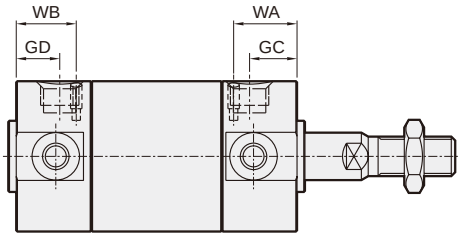




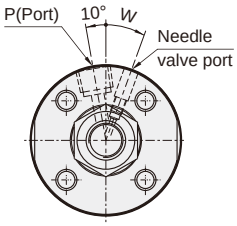
A-A

■ With cushion air (Adjustagle)

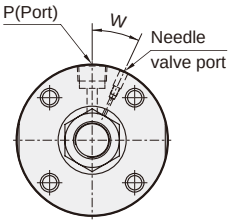
A



ø20~ø63



ø80, ø100



Code / Tube I.D.	Standard stroke range	Long stroke range	A	AL	B1	C	D	E	F	GA	GB	GC	GD	H	H1	I	J	K	KA
20	~200	201~350	18	15.5	13	14	8	12	2	12	12 (12)	12	12 (12)	35	5	26	M4×0.7×7 dp	4	6
25	~300	301~400	22	19.5	17	16.5	10	14	2	12	12 (12)	12	12 (12)	40	6	31	M5×0.8×7.5 dp	5	8
32	~300	301~450	22	19.5	17	20	12	18	2	12	11 (12)	12	11 (12)	40	6	38	M5×0.8×8 dp	5.5	10
40	~300	301~800	30	27	22	26	16	25	2	13	12 (13)	13	10 (13)	50	8	47	M6×1.0×12 dp	6	14
50	~300	301~1200	35	32	26	32	20	30	2	14	13 (13)	14	12 (14)	58	11	58	M8×1.25×16 dp	7	18
63	~300	301~700	35	32	26	38	20	32	2	14	13 (13)	14	12 (14)	58	11	72	M10×1.5×16 dp	7	18
80	~300	301~700	40	37	32	50	25	40	3	20	16 (16)	20	16 (16)	71	13	89	M10×1.5×22 dp	10	22
100	~300	301~700	40	37	35	60	30	50	3	20	16 (16)	20	16 (16)	71	14	110	M12×1.75×22 dp	10	26

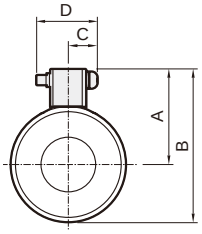
Code / Tube I.D.	MM	NA	P	S	TA	TB	TC	TD_{H9}	TE	TF	TG	W	WA	WB	ZZ
20	M8×1.25	24	Rc1/8	69(77)	11	11 (11)	M5×0.8	$8^{+0.036}_{-0}$	4	0.5	5.5	40°	14	14 (14)	106 (114)
25	M10×1.25	29	Rc1/8	69(77)	11	11 (11)	M6×0.75	$10^{+0.036}_{-0}$	5	1	6.5	40°	14	13 (13)	111 (119)
32	M10×1.25	36	Rc1/8	71(79)	11	10 (11)	M8×1.0	$12^{+0.043}_{-0}$	5.5	1.25	7.5	30°	14	13 (13)	113 (121)
40	M14×1.5	44	Rc1/8	78(87)	12	10 (12)	M10×1.25	$14^{+0.043}_{-0}$	6	1.25	8	20°	16	15 (16)	130 (139)
50	M18×1.5	55	Rc1/4	90(102)	13	12 (13)	M12×1.25	$16^{+0.043}_{-0}$	7.5	2	10	20°	16	16 (16)	150 (162)
63	M18×1.5	69	Rc1/4	90(102)	13	12 (13)	M14×1.5	$18^{+0.043}_{-0}$	11.5	3	14.5	20°	18	18 (18)	150 (162)
80	M22×1.5	86	RC3/8	108(122)	–	–	–	–	–	–	–	25°	24	20 (20)	182 (196)
100	M26×1.5	106	RC1/2	108(122)	–	–	–	–	–	–	–	25°	24	20 (20)	182 (196)

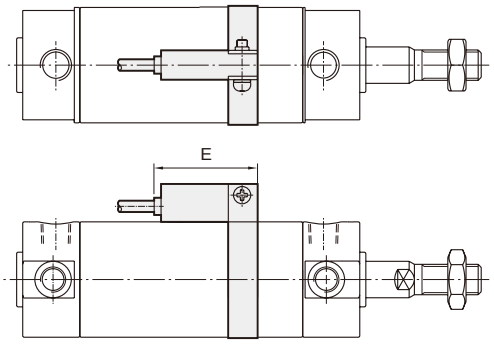
( ): Dimension for long stroke.

■ Installation of sensor switch

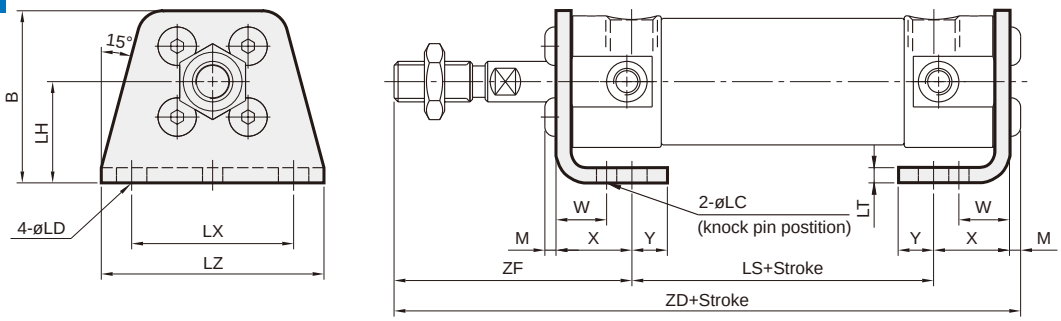
Sensor switch: RCM (Band: BMG**)

Code / Tube I.D.	A	B	C	D	E
20	24	37.5	7	16	28
25	26.5	42.5	7	16	28
32	30.5	50.5	7	16	28
40	35	59.5	7	16	28
50	40.5	70.5	7	16	28
63	47.5	84.5	7	16	28
80	56	101.5	7	16	28
100	66.5	122.5	7	16	28





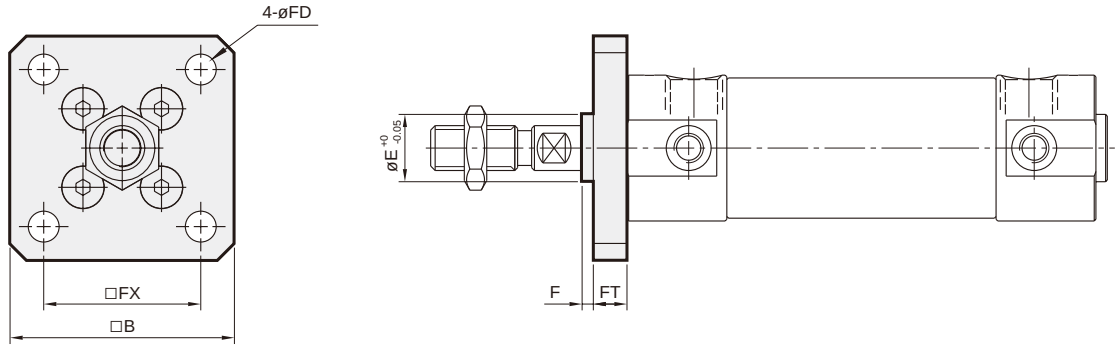
LB



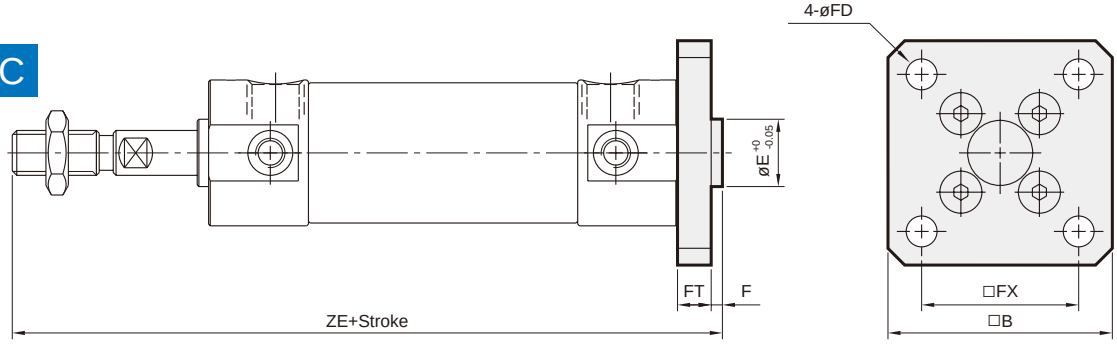
Code / Tube I.D.	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	ZD	ZF
20	34	4	6	20	45 (53)	3	32	44	2.2	10	15	7	109.2 (117.2)	47
25	38.5	4	6	22	45 (53)	3	36	49	2.8	10	15	7	114.8 (122.8)	52
32	45	4	6.6	25	45 (53)	3	44	58	2.8	10	16	8	116.8 (124.8)	53
40	54.5	4	6.6	30	51 (60)	3	54	71	3.3	10	16.5	8.5	134.3 (143.3)	63.5
50	70.5	5	9	40	55 (67)	4.5	66	86	4.4	17.5	22	11	156.9 (168.9)	75.5
63	82.5	5	11	45	55 (67)	4.5	82	106	5.5	17.5	22	13	158.0 (170.0)	75.5
80	101	6	11	55	60 (74)	4.5	100	125	5.5	20	28.5	14	189.0 (203.0)	95.0
100	121	6	14	65	60 (74)	6	120	150	6.2	20	30	16	192.2 (206.2)	95.0

( ): Dimension for long stroke.

FAC



FBC

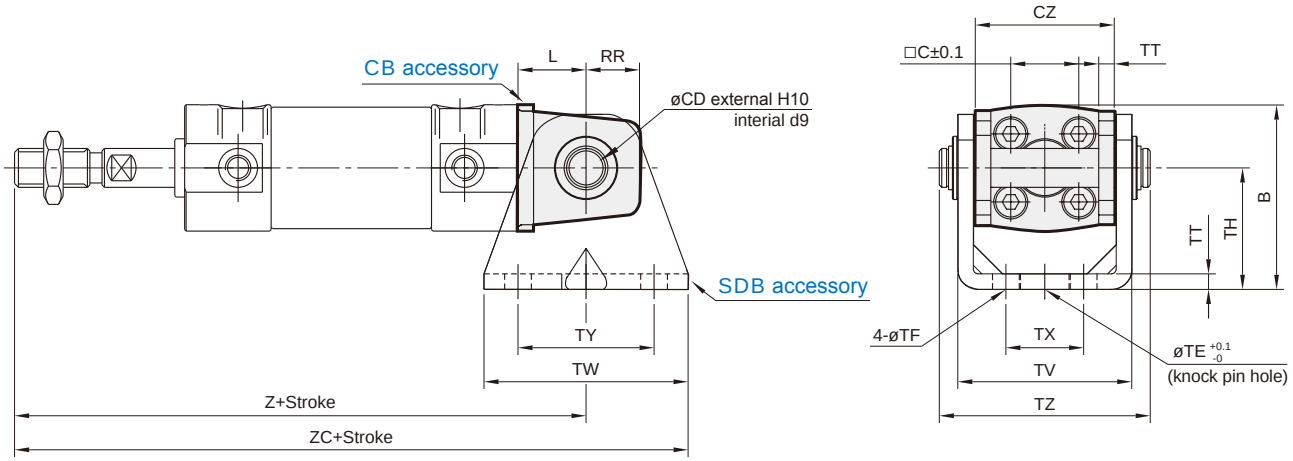


Code / Tube I.D.	B	E	F	FX	FD	FT	ZE
20	40	12	2	28	5.5	6	112 (120)
25	44	14	2	32	5.5	7	118 (126)
32	53	18	2	38	6.6	7	120 (128)
40	61	25	2	46	6.6	8	138 (147)
50	76	30	2	58	9	9	159 (171)
63	92	32	2	70	11	9	159 (171)
80	104	40	3	82	11	11	193 (207)
100	128	50	3	100	14	14	196 (210)

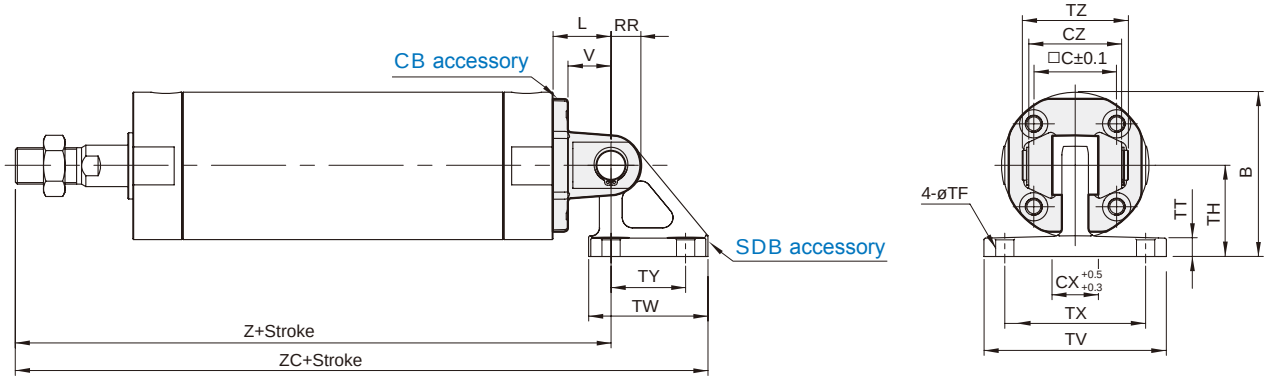
( ): Dimension for long stroke.

CB SDB+Pin (Extra purchase)

ø20~63



ø80, 100

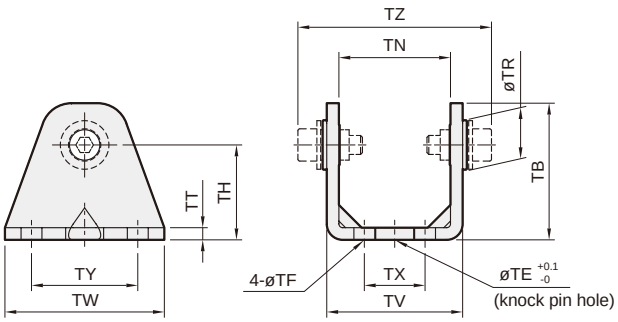


Code / Tube I.D.	B	C	CD	CX	CZ	L	RR	V	TE	TF	TH	TT	TV	TW	TX	TY	TZ	Z	ZC
20	38	14	8	–	29	14	11	–	10	5.5	25	3.2	35.8	42	16	28	43.4	118 (126)	139 (147)
25	45.5	16.5	10	–	33	16	13	–	10	5.5	30	3.2	39.8	42	20	28	48	125 (133)	146 (154)
32	54	20	12	–	40	20	15	–	10	6.6	35	4.5	49.4	48	22	28	59.4	131 (139)	155 (163)
40	63.5	26	14	–	49	22	18	–	10	6.6	40	4.5	58.4	56	30	30	71.4	150 (159)	178 (187)
50	79	32	16	–	60	25	20	–	20	9	50	6	72.4	64	36	36	86	173 (185)	205 (217)
63	96	38	18	–	74	30	22	–	20	11	60	8	90.4	74	46	46	105.4	178 (190)	215 (227)
80	99.5	50	18	28	56	35	18	26	–	11	55	11	110	72	85	45	64	214 (228)	272.5 (286.5)
100	120	60	22	32	64	43	22	32	–	13.5	65	12	130	93	100	60	72	222 (236)	298.5 (312.5)

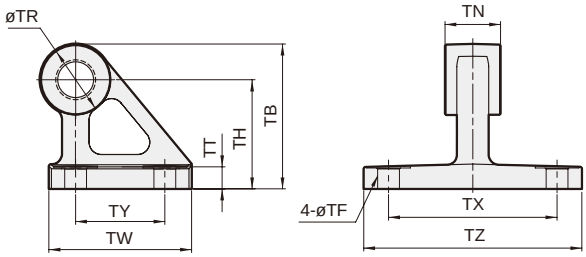
( ): Dimension for long stroke.

SDB

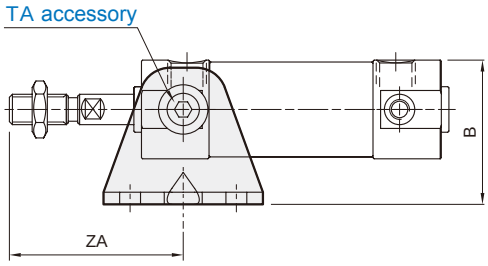
ø20~63 **TA / TB** (Extra purchase)



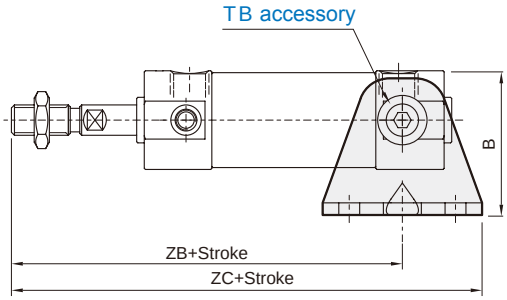
ø80, 100



SDB-R ø20~63



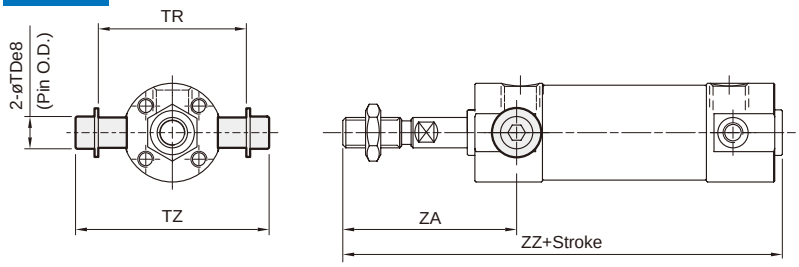
SDB-H ø20~63



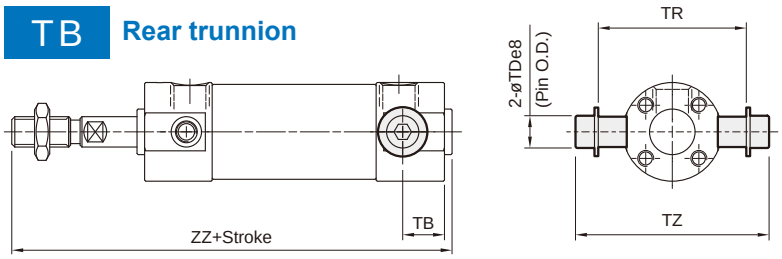
Code / Tube I.D.	B	TB	TE	TF	TH	TN	TR	TT	TV	TW	TX	TY	TZ	ZA	ZB	ZC	Applicable pin O.D.
20	38	36	10	5.5	25	29.3	14	3.2	35.8	42	16	28	51	46	93(101)	114(122)	8d9 -0.040 -0.076
25	45.5	43	10	5.5	30	33.1	16	3.2	39.8	42	20	28	58.2	51	98(106)	119(127)	10d9 -0.040 -0.076
32	54	50	10	6.6	35	40.4	18	4.5	49.4	48	22	28	71.5	51	101(108)	125(132)	12d9 -0.050 -0.093
40	63.5	58	10	6.6	40	49.2	22	4.5	58.4	56	30	30	88.5	62	118(125)	146(153)	14d9 -0.050 -0.093
50	79	70	20	9	50	60.4	25	6	72.4	64	36	36	109	71	136(147)	168(179)	16d9 -0.050 -0.093
63	96	82	20	11	60	74.6	27	8	90.4	74	46	46	131	71	136(147)	173(184)	18d9 -0.050 -0.093
80	–	73	–	11	55	28	36	11	–	72	85	45	110	–	–	–	18d9 -0.050 -0.093
100	–	90	–	13.5	65	32	50	12	–	93	100	60	130	–	–	–	22d9 -0.065 -0.117

( ): Dimension for long stroke.

TA Front trunnion



TB Rear trunnion

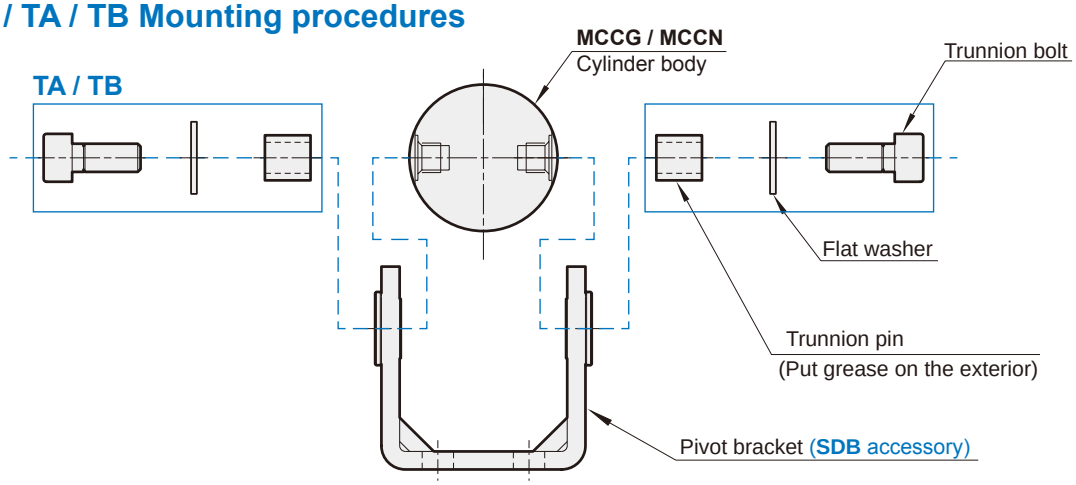


Code / Tube I.D.	TB	TDe8	TR	TZ	ZA	ZZ
20	11(11)	8 $^{-0.025}_{-0.047}$	39	51	46	106 (114)
25	11(11)	10 $^{-0.025}_{-0.047}$	43	58.2	51	111 (119)
32	10(11)	12 $^{-0.032}_{-0.059}$	53.5	71.5	51	113 (121)
40	10(12)	14 $^{-0.032}_{-0.059}$	64.5	88.5	62	130 (139)
50	12(13)	16 $^{-0.032}_{-0.059}$	80	109	71	150 (162)
63	12(13)	18 $^{-0.032}_{-0.059}$	98	131	71	150 (162)

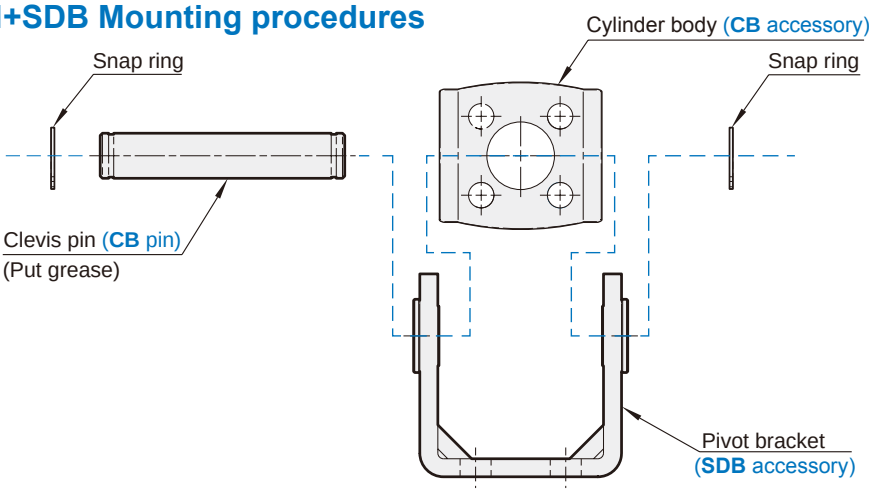
( ): Dimension for long stroke.

MCCG / MCCN

SDB-R(H) / TA / TB Mounting procedures

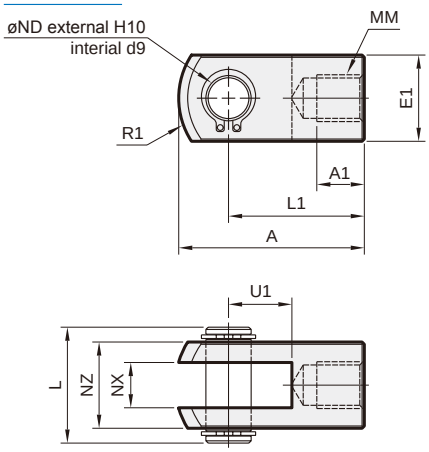


CB+PIN+SDB Mounting procedures

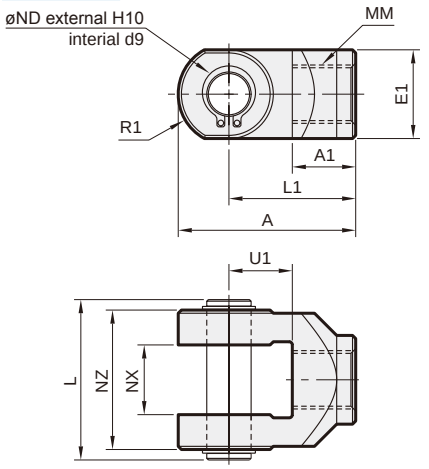


Y connector

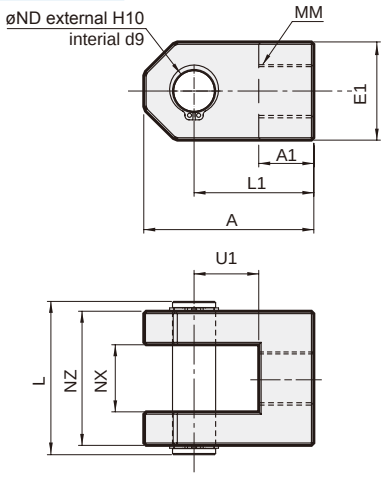
ø20~ø32



ø40~ø63



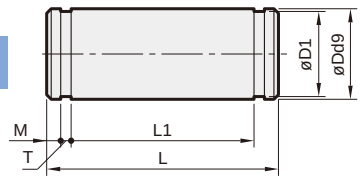
ø80, ø100



Code / Tube I.D.	A	A1	E1	L	L1	MM	R1	U1	ND	NX	NZ
20	34	8.5	□16	21	25	M8×1.25	14	11.5	8	8 $^{+0.4}_{+0.2}$	15.88
25,32	41	10.5	□20	25.6	30	M10×1.25	18	14	10	10 $^{+0.4}_{+0.2}$	19.05
40	42	16	ø20	41.6	30	M14×1.5	12	14	10	18 $^{+0.5}_{+0.3}$	36
50,63	56	20	ø25	50.6	40	M18×1.5	16	20	14	22 $^{+0.5}_{+0.3}$	44
80	71	23	41	64	50	M22×1.5	–	27	18	28 $^{+0.5}_{+0.3}$	56
100	79	24	47	72	55	M26×1.5	–	31	22	32 $^{+0.5}_{+0.3}$	64

PIN

P



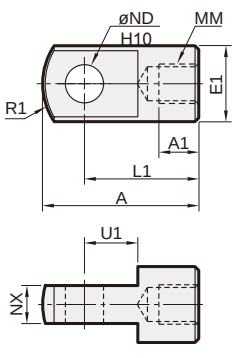
Order example

PIN — MCCG — 32 — CB — P

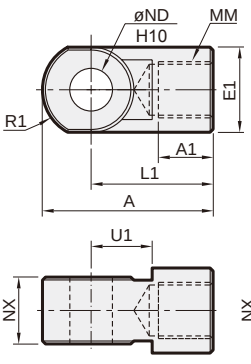
- PIN
- TUBE I.D.
- TYPE — **Y**: for Y & I connector; **CB**: for CB accessory
- **P**: With split pin

I connector

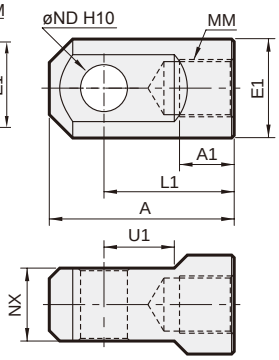
ø20~ø32



ø40~ø63



ø80, ø100



Code / Tube I.D.	A	A1	E1	L1	MM	R1	U1	ND_{H10}	NX
20	34	8.5	ø16	25	M8×1.25	14	11.5	8 $^{+0.058}_{0}$	8 $^{-0.2}_{-0.4}$
25,32	41	10.5	ø20	30	M10×1.25	18	14	10 $^{+0.058}_{0}$	10 $^{-0.2}_{-0.4}$
40	42	14	ø22	30	M14×1.5	12	14	10 $^{+0.058}_{0}$	18 $^{-0.3}_{-0.5}$
50,63	56	18	ø28	40	M18×1.5	16	20	14 $^{+0.070}_{0}$	22 $^{-0.3}_{-0.5}$
80	71	21	ø38	50	M22×1.5	–	27	18 $^{-0.070}_{0}$	28 $^{-0.3}_{-0.5}$
100	79	21	ø45	55	M26×1.5	–	31	22 $^{-0.084}_{0}$	32 $^{-0.3}_{-0.5}$

for CB

Code / Tube I.D.	Dd9	D1	L	L1	M	T	Snap ring
20	8 $^{-0.04}_{-0.08}$	7.6	43.4	38.6	1.5	0.9	STW-8
25	10 $^{-0.04}_{-0.08}$	9.6	48	42.6	1.55	1.15	STW-10
32	12 $^{-0.05}_{-0.09}$	11.5	59.4	54	1.55	1.15	STW-12
40	14 $^{-0.05}_{-0.09}$	13.4	71.4	65	2.05	1.15	STW-14
50	16 $^{-0.05}_{-0.09}$	15.2	86	79.6	2.05	1.15	STW-16
63	18 $^{-0.05}_{-0.09}$	17.0	105.4	97.8	2.45	1.35	STW-18
80	18 $^{-0.05}_{-0.09}$	17	64	56.2	2.55	1.35	STW-18
100	22 $^{-0.06}_{-0.11}$	21	72	64.2	2.55	1.35	STW-22

for Y & I connector

Code / Tube I.D.	Dd9	D1	L	L1	M	T	Snap ring
20	8 $^{-0.04}_{-0.08}$	7.6	21	16.2	1.5	0.9	STW-8
25,32	10 $^{-0.04}_{-0.08}$	9.6	25.6	20.2	1.55	1.15	STW-10
40	10 $^{-0.04}_{-0.08}$	9.6	41.6	36.2	1.55	1.15	STW-10
50,63	14 $^{-0.05}_{-0.09}$	13.4	50.6	44.2	2.05	1.15	STW-14
80	18 $^{-0.05}_{-0.09}$	17	64	56.2	2.55	1.35	STW-18
100	22 $^{-0.06}_{-0.11}$	21	72	64.2	2.55	1.35	STW-22

Specification

Model	MCCN					
Acting type	Double acting					
Tube I.D. (mm)	20	25	32	40	50	63
Port size	NPT1/8				NPT1/4	
Medium	Air					
Max. operating perssure	1 MPa					
Min. operating perssure	0.05 MPa					
Proof pressure	1.5 MPa					
Lubrication	Not required					
Ambient temperature	-5~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Max. allowable kinetic energy (J) Cushion pad	0.07	0.10	0.17	0.3	0.5	0.85
Max. allowable kinetic energy (J) Cushion air	0.09	0.14	0.23	0.45	0.85	1.23
Sensor switch	RCM (Please refer to page 8-15)					
Sensor switch band	BMG20	BMG25	BMG32	BMG40	BMG50	BMG63

Table for standard stroke

Unit: inch

Tube I.D.	Stroke	Long stroke
3/4"	1,2,3,4,5,6,8	8.01~14
1"	1,2,3,4,5,6,8,10,12	12.01~16
1 1/4"		12.01~18
1 1/2"		12.01~32
2"		12.01~48
2 1/2"		12.01~27.5

- Please reconfirm the dimension with our sales department when the stroke over our standard.

Mounting accessories

FAC — MCCN — 40

MODEL

TUBE I.D.

MOUNTING TYPE

	LB		SDB-R*
	CA		SDB-H*
	CB		CB+SDB*
	FAC		TA*
	FBC		TB

* **CB+SDB**: SDB + PIN was extra purchase.
* Mounting procedures please refer to page 3-90.

Order example

MCCN — 11 — 40 — 0425M — A

- MODEL
- STYLE — **1**: Single rod
- TUBE I.D. — **20**: 3/4", **25**: 1", **32**: 1 1/4", **40**: 1 1/2", **50**: 2", **63**: 2 1/2"
- STANDARD STROKE (Inches) — **04**=4" stroke
- STROKE (Hundred of an inch) — **12**=0.125 (1/8) inch stroke, **25**=0.25 (1/4), **37**=0.375 (3/8)
- **M**: Magnet
- Blank: Cushion pad (Unadjustable), **A**: Cushion air (Adjustable) ⚠

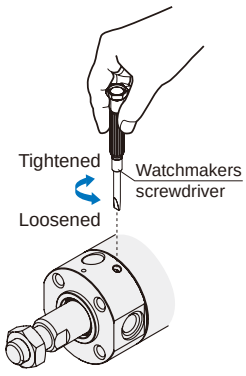
Code		Symbol	Description
1	1		Double acting / Male thread

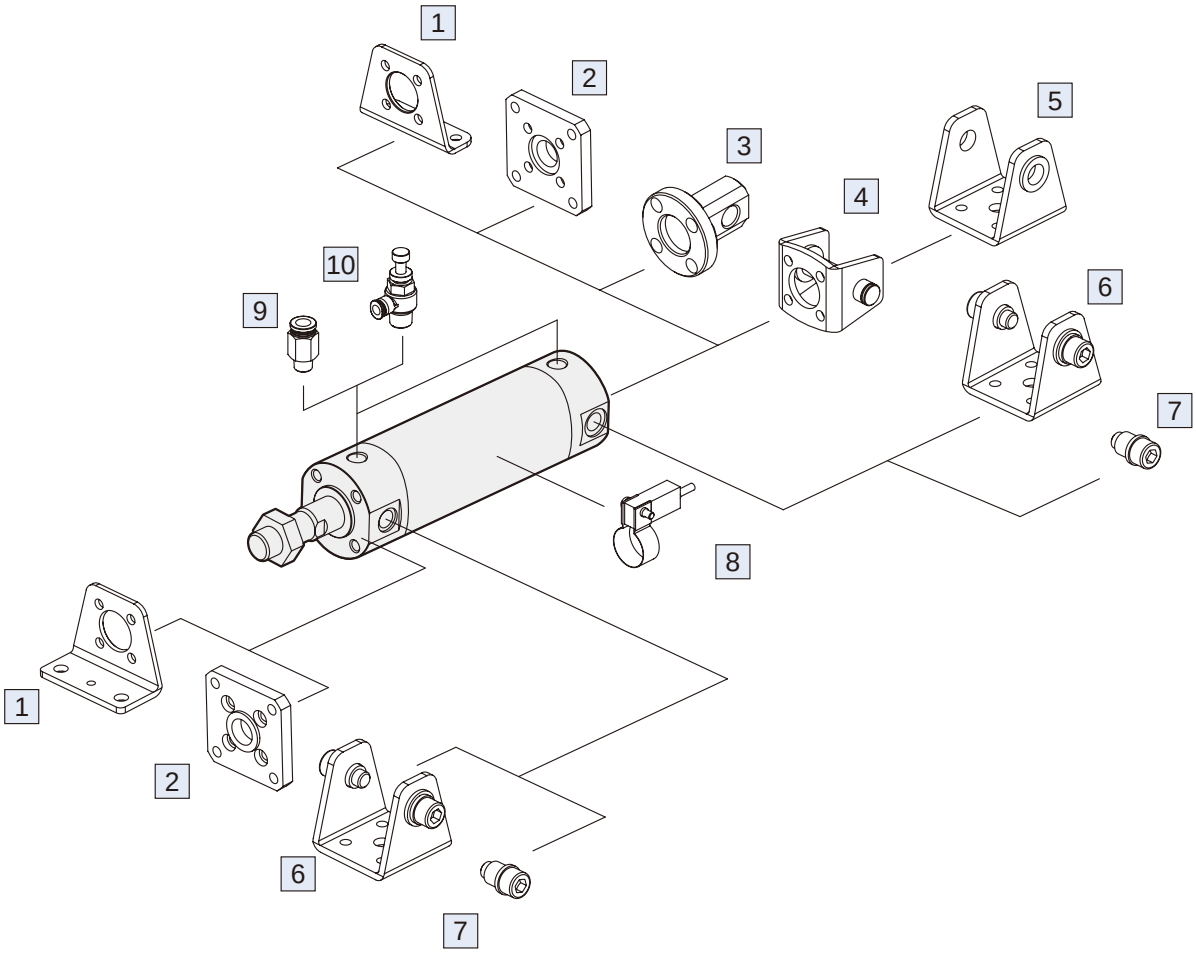
* Order example for special specification, refer to page 0-7.
* Order example for component parts and repair kits, refer to page 3-84.

⚠ Caution

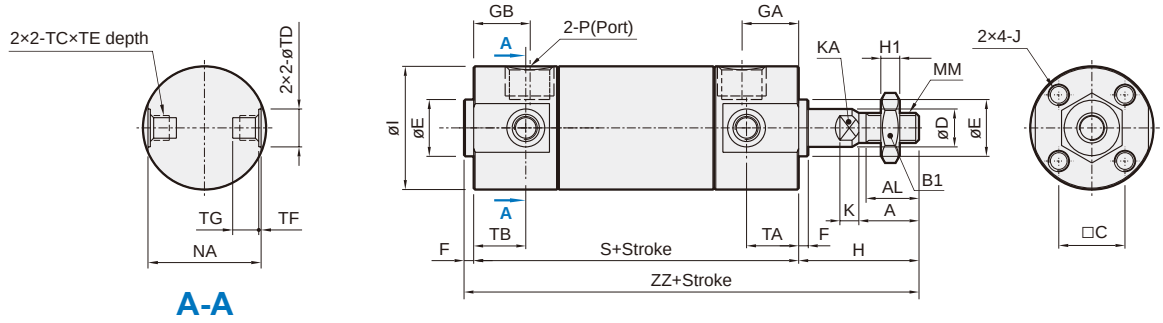
For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



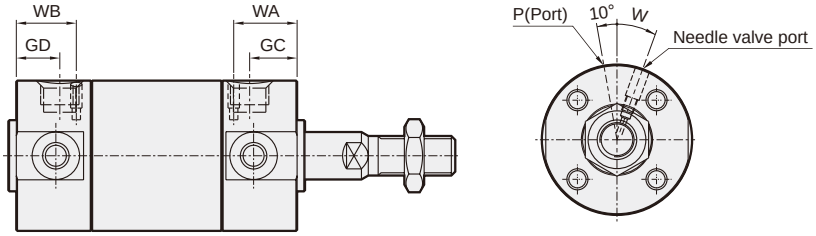


No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-95
2	Mounting accessories FAC/FBC	Carbon steel	3-95
3	Mounting accessories CA	Carbon steel	3-96
4	Mounting accessories CB+PIN	Carbon steel	3-96, 98
5	Mounting accessories SDB	Carbon steel	3-97
6	Mounting accessories SDB-R/H	Carbon steel	3-97
7	Mounting accessories TA/TB	Carbon steel	3-98
8	Sensor switch RCM+BMG**	–	8-15
9	Fitting PC (PISCO)	–	7-3 (Vol.1)
10	Speed controller JSC (PISCO)	–	7-15 (Vol.1)



■ Cushion air (Adjustable)

A



Unit: inch

Code / Tube I.D.	Standard stroke range	Long stroke range	A	AL	B1	C	D	E	F	GA	GB	GC	GD	H	H1	I	J	K
20	~ 8	8.01 ~ 14	0.50	0.44	0.44	0.55	0.315	0.472 $^{+0}_{-0.002}$	0.08	0.47	0.47 (0.47)	0.47	0.47 (0.47)	1	0.16	1.02	#8-32×0.28 dp	0.157
25	~12	12.01 ~ 16	0.50	0.44	0.50	0.65	0.394	0.551 $^{+0}_{-0.002}$	0.08	0.47	0.47 (0.47)	0.47	0.47 (0.47)	1.12	0.19	1.22	#10-32×0.30 dp	0.197
32	~12	12.01 ~ 18	0.75	0.69	0.69	0.79	0.472	0.709 $^{+0}_{-0.002}$	0.08	0.47	0.43 (0.47)	0.47	0.43 (0.47)	1.63	0.26	1.50	#10-32×0.30 dp	0.217
40	~12	12.01 ~ 32	0.75	0.69	0.69	1.02	0.630	0.984 $^{+0}_{-0.002}$	0.08	0.51	0.47 (0.51)	0.51	0.39 (0.51)	1.63	0.26	1.85	1/4-28×0.47 dp	0.3
50	~12	12.01 ~ 48	0.88	0.84	0.75	1.26	0.787	1.181 $^{+0}_{-0.002}$	0.08	0.55	0.51 (0.51)	0.55	0.47 (0.55)	2.07	0.32	2.28	5/16-24×0.63 dp	0.276
63	~12	12.01 ~ 27.5	0.88	0.84	0.75	1.50	0.787	1.260 $^{+0}_{-0.002}$	0.08	0.55	0.51 (0.51)	0.55	0.47 (0.55)	2.07	0.32	2.83	3/8-24×0.63 dp	0.276

Code / Tube I.D.	KA	MM	NA	P	S	TA	TB	TC	TD_{H9}	TE	TF	TG	W	WA	WB	ZZ
20	0.24	1/4-28 UNF	0.94	NPT1/8	2.72 (3.03)	0.43	0.43 (0.43)	M5×0.8	0.315	0.157	0.020	0.217	40°	0.551	0.551 (0.551)	3.80 (4.11)
25	0.31	5/16-24 UNF	1.14	NPT1/8	2.72 (3.03)	0.43	0.43 (0.43)	M6×0.75	0.394	0.197	0.039	0.256	40°	0.551	0.511 (0.511)	3.92 (4.23)
32	0.39	7/16-20 UNF	1.42	NPT1/8	2.80 (3.11)	0.43	0.39 (0.43)	M8×1.0	0.472	0.217	0.049	0.295	30°	0.551	0.511 (0.511)	4.51 (4.82)
40	0.55	7/16-20 UNF	1.73	NPT1/8	3.07 (3.43)	0.47	0.39 (0.47)	M10×1.25	0.551	0.236	0.049	0.315	20°	0.629	0.590 (0.629)	4.78 (5.14)
50	0.71	1/2-20 UNF	2.17	NPT1/4	3.54 (4.02)	0.51	0.47 (0.51)	M12×1.25	0.630	0.295	0.079	0.394	20°	0.629	0.629 (0.629)	5.69 (6.17)
63	0.71	1/2-20 UNF	2.72	NPT1/4	3.54 (4.02)	0.51	0.47 (0.51)	M14×1.5	0.709	0.453	0.118	0.571	20°	0.708	0.708 (0.708)	5.69 (6.17)

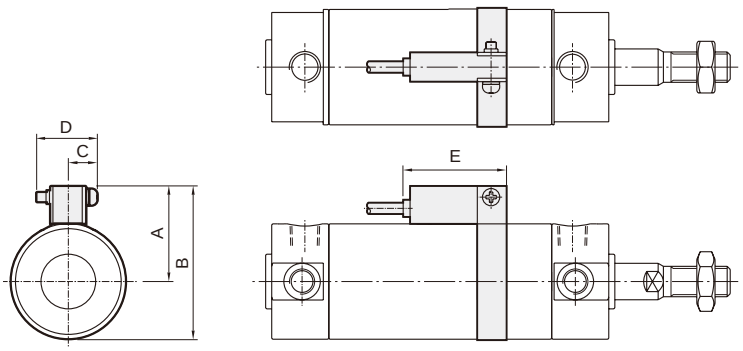
( ): Dimension for long stroke.

■ Installation of sensor switch

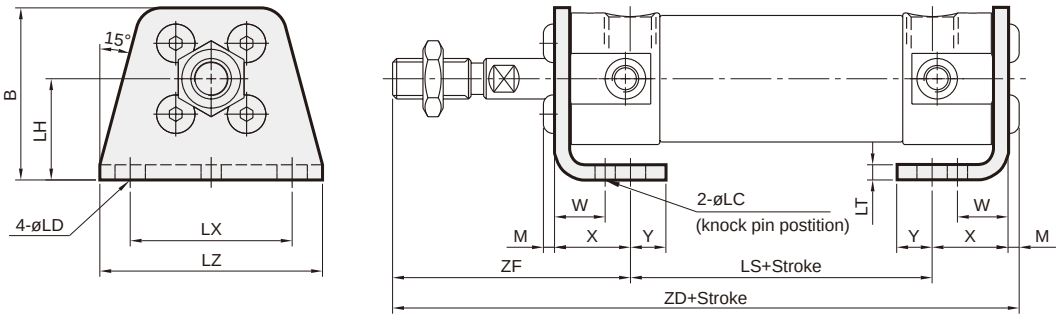
Sensor switch: RCM
Sensor switch band: BMG**

Unit: inch

Code / Tube I.D.	A	B	C	D	E
20	0.9449	1.4764	0.2756	0.6299	1.1024
25	1.0433	1.6732	0.2756	0.6299	1.1024
32	1.2008	1.9882	0.2756	0.6299	1.1024
40	1.3780	2.3425	0.2756	0.6299	1.1024
50	1.5945	2.7756	0.2756	0.6299	1.1024
63	1.8701	3.3268	0.2756	0.6299	1.1024



LB

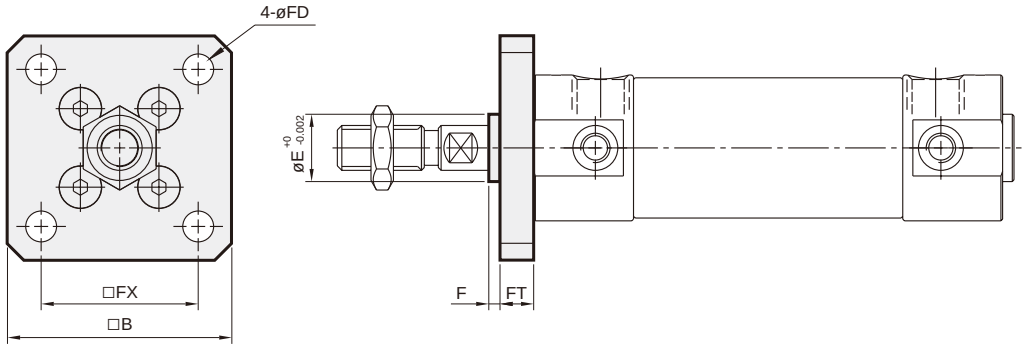


Unit: inch

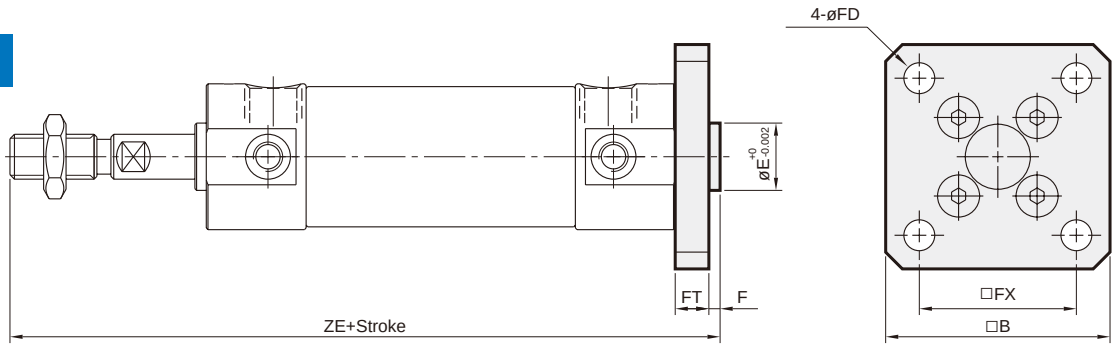
Code / Tube I.D.	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	ZD	ZF
20	1.34	0.16	0.24	0.79	1.78 (2.09)	0.12	1.26	1.73	0.09	0.39	0.59	0.28	3.93 (4.24)	1.47
25	1.52	0.16	0.24	0.87	1.78 (2.09)	0.12	1.42	1.93	0.11	0.39	0.59	0.28	4.07 (4.38)	1.59
32	1.77	0.16	0.26	0.98	1.78 (2.09)	0.12	1.73	2.28	0.11	0.39	0.63	0.31	4.66 (4.97)	2.14
40	2.15	0.16	0.26	1.18	2.01 (2.37)	0.12	2.13	2.80	0.13	0.39	0.65	0.33	4.95 (5.31)	2.16
50	2.78	0.20	0.35	1.57	2.16 (2.64)	0.18	2.60	3.39	0.17	0.69	0.87	0.43	5.96 (6.44)	2.76
63	3.25	0.20	0.43	1.77	2.16 (2.64)	0.18	3.23	4.17	0.22	0.69	0.87	0.51	6.01 (6.49)	2.76

( ): Dimension for long stroke.

FAC



FBC

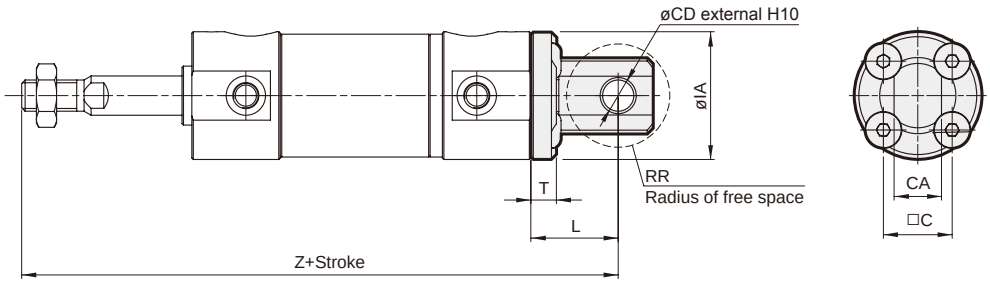


Unit: inch

Code / Tube I.D.	B	E	F	FX	FD	FT	ZE
20	1.57	0.472	0.08	1.10	0.22	0.24	4.04 (4.35)
25	1.73	0.551	0.08	1.26	0.22	0.28	4.20 (4.51)
32	2.09	0.709	0.08	1.50	0.26	0.28	4.79 (5.10)
40	2.40	0.984	0.08	1.81	0.26	0.31	5.09 (5.45)
50	2.99	1.181	0.08	2.28	0.35	0.35	6.04 (6.52)
63	3.62	1.260	0.08	2.76	0.43	0.35	6.04 (6.52)

( ): Dimension for long stroke.

CA

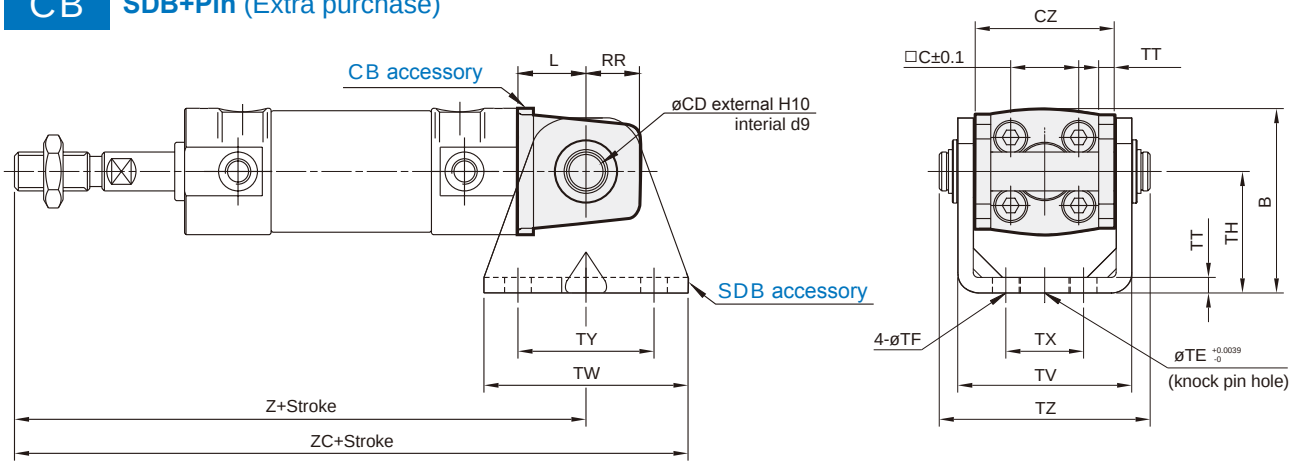


Unit: inch

Code / Tube I.D.	C	CA	CD	IA	L	RR	T	Z
20	0.55	0.38	0.25	1.02	0.70	0.42	0.20	4.42(4.73)
25	0.65	0.38	0.25	1.22	0.68	0.75	0.21	4.52(4.83)
32	0.79	0.5	0.25	1.49	1.07	0.60	0.47	5.50(5.81)
40	1.02	0.62	0.375	1.85	0.88	0.65	0.25	5.58(5.94)
50	1.26	0.75	0.375	2.28	0.91	0.38	0.29	6.52(7)
63	1.5	0.75	0.375	2.83	0.91	0.38	0.29	6.52(7)

( ): Dimension for long stroke.

CB SDB+Pin (Extra purchase)

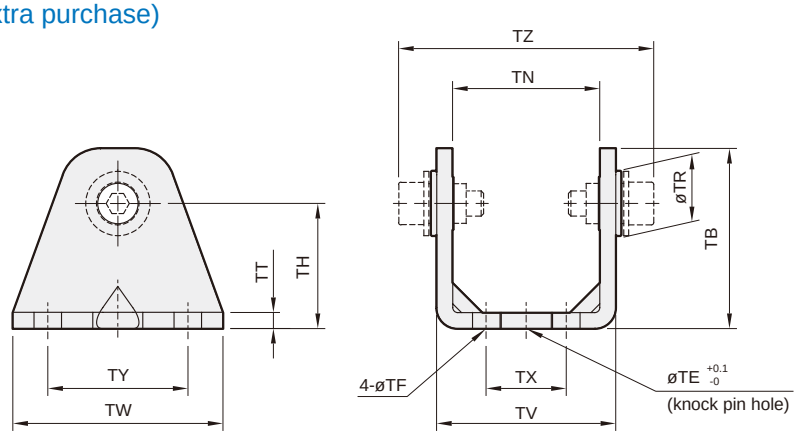


Unit: inch

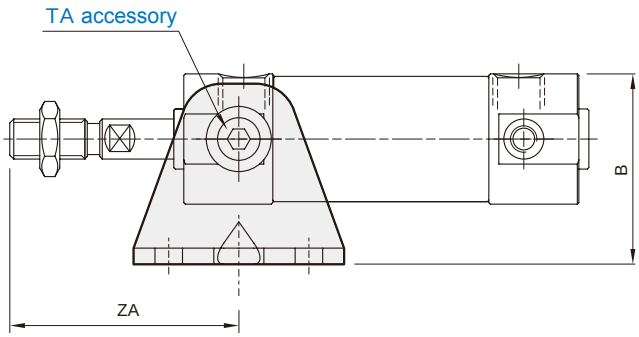
Code / Tube I.D.	B	CD	CZ	L	RR	TE	TF	TH	TT	TV	TW	TX	TY	TZ	Z	ZC
20	1.50	0.315	1.14	0.55	0.43	0.394	0.22	0.98	0.13	1.41	1.65	0.63	1.10	1.71	4.27 (4.58)	5.10 (5.41)
25	1.79	0.394	1.30	0.63	0.51	0.394	0.22	1.18	0.13	1.57	1.65	0.79	1.10	1.89	4.47 (4.78)	5.30 (5.61)
32	2.13	0.472	1.57	0.79	0.59	0.394	0.26	1.38	0.18	1.94	1.89	0.87	1.10	2.34	5.22 (5.53)	6.16 (6.47)
40	2.50	0.551	1.93	0.87	0.71	0.394	0.26	1.57	0.18	2.30	2.20	1.18	1.18	2.81	5.57 (5.93)	6.67 (7.03)
50	3.11	0.630	2.36	0.98	0.79	0.787	0.35	1.97	0.24	2.85	2.52	1.42	1.42	3.39	6.59 (7.07)	7.85 (8.33)
63	3.78	0.709	2.91	1.18	0.87	0.787	0.43	2.36	0.31	3.56	2.91	1.81	1.81	4.15	6.79 (7.27)	8.25 (8.73)

( ): Dimension for long stroke.

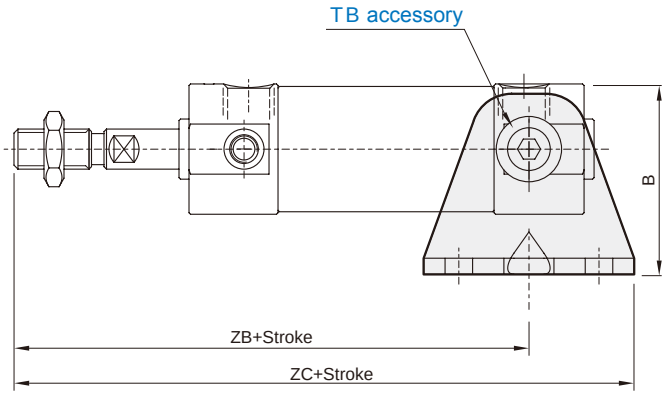
SDB TA/TB (Extra purchase)



SDB-R



SDB-H

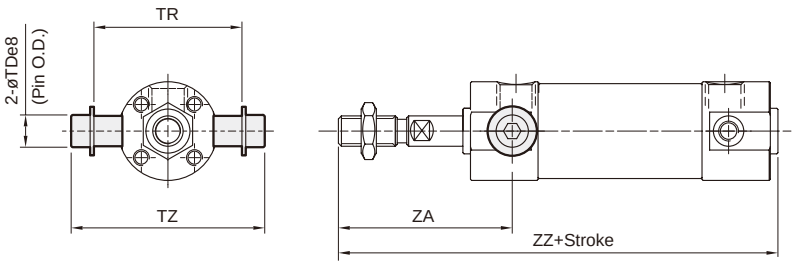


Unit: inch

Code / Tube I.D.	B	TB	TE	TF	TH	TN	TR	TT	TV	TW	TX	TY	TZ	ZA	ZB	ZC	Applicable pin O.D.
20	1.50	1.42	0.394	0.22	0.98	1.15	0.55	0.13	1.41	1.65	0.63	1.10	2.00	1.43	3.29(3.6)	3.80(4.11)	0.315 -0.0016 -0.0030
25	1.79	1.69	0.394	0.22	1.18	1.30	0.63	0.13	1.57	1.65	0.79	1.10	2.29	1.55	3.41(3.72)	3.92(4.23)	0.394 -0.0016 -0.0030
32	2.13	1.97	0.394	0.26	1.38	1.59	0.71	0.18	1.94	1.89	0.87	1.10	2.81	2.06	4.04(4.31)	4.51(4.82)	0.472 -0.0020 -0.0037
40	2.50	2.28	0.394	0.26	1.57	1.94	0.87	0.18	2.30	2.20	1.18	1.18	3.48	2.10	4.31(4.59)	4.78(5.14)	0.551 -0.0020 -0.0037
50	3.11	2.76	0.787	0.35	1.97	2.38	0.98	0.24	2.85	2.52	1.42	1.42	4.29	2.58	5.14(5.58)	5.69(6.17)	0.630 -0.0020 -0.0037
63	3.78	3.23	0.787	0.43	2.36	2.94	1.06	0.31	3.56	2.91	1.81	1.81	5.15	2.58	5.14(5.58)	5.69(6.17)	0.709 -0.0020 -0.0037

( ): Dimension for long stroke.

TA Front trunnion

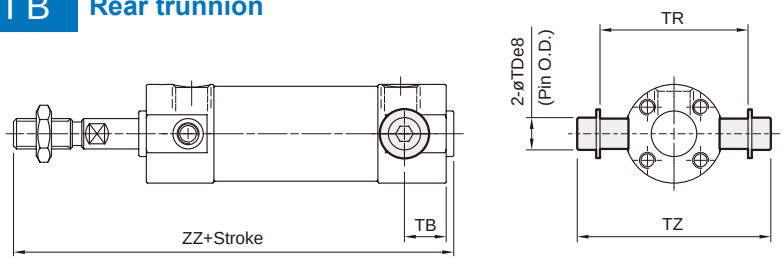


Unit: inch

Code / Tube I.D.	TB	TDe8	TR	TZ
20	0.43(0.43)	0.315	1.54	2.00
25	0.43(0.43)	0.394	1.69	2.29
32	0.39(0.43)	0.472	2.11	2.81
40	0.39(0.47)	0.551	2.54	3.48
50	0.47(0.51)	0.630	3.15	4.29
63	0.47(0.51)	0.709	3.86	5.15

( ): Dimension for long stroke.

TB Rear trunnion



Unit: inch

Code / Tube I.D.	ZA	ZB	ZZ
20	1.43	3.29 (3.60)	3.80 (4.11)
25	1.55	3.41 (3.72)	3.92 (4.23)
32	2.06	4.04 (4.31)	4.51 (4.82)
40	2.10	4.31 (4.59)	4.78 (5.14)
50	2.58	5.14 (5.58)	5.69 (6.17)
63	2.58	5.14 (5.58)	5.69 (6.17)

( ): Dimension for long stroke.

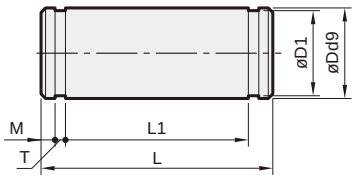
PIN

Order example * MCCG / MCCN are common accessories.

PIN — MCCG — 32 — CB — P

- PIN
- TUBE I.D.
- TYPE
- **P**: With split pin
- **CB**: for CB accessory

P



for CB

Unit: inch

Code / Tube I.D.	Dd9	D1	L	L1	M	T	Snap ring
20	0.315 $^{-0.0016}_{-0.0030}$	0.30	1.71	1.52	0.06	0.04	STW-8
25	0.394 $^{-0.0016}_{-0.0030}$	0.38	1.89	1.68	0.06	0.05	STW-10
32	0.472 $^{-0.0020}_{-0.0037}$	0.45	2.34	2.13	0.06	0.05	STW-12
40	0.551 $^{-0.0020}_{-0.0037}$	0.53	2.81	2.56	0.08	0.05	STW-14
50	0.630 $^{-0.0020}_{-0.0037}$	0.60	3.39	3.13	0.08	0.05	STW-16
63	0.709 $^{-0.0020}_{-0.0037}$	0.67	4.15	3.85	0.10	0.05	STW-18

MCCH series

HIGH SPEED CYLINDER

Feature

- The diameter of the port orifice has been enlarged to support high speed operation. max speed: 3000mm/sec
- Longer cushion rod to absorb more exercise energy and reduce external cushioning settings.
- The cylinder with relief valve provides better cushioning performance than the general purpose cylinder with needle valve.
- The relief valve body can rotate 360 degrees freely, which is convenient for adjustment and use.
- Magnetic as standard.

Specification

Model	MCCH	
Acting type	Double acting	
Tube I.D. (mm)	25	32
Port size	Rc1/4	Rc3/8
Medium	Air	
Max. operating perssure	1 MPa	
Min. operating perssure	0.05 MPa	
Proof pressure	1.5 MPa	
Lubrication	Not required	
Ambient temperature	-5~+60°C (No freezing)	
Available speed range	50~3000 mm/sec	
Cushion	Air cushion	
Max energy absorption (J)	12	21
Standard stroke (*1,2,3)	250~700 mm	250~1000 mm
Max. stroke	1500 mm	
Effective cushioning stroke	80 mm	
Sensor switch	RCM (Please refer to page 8-15)	
Sensor switch band	BMG25	BMG32

*1. Minimum stroke unit 1mm.
*2. Outside the guaranteed range when the stroke exceeds standard stroke, please reconfirm the dimension with our sales department when the stroke over our standard.
*3. This product has a large absorption energy and a longer effective buffer range. Therefore, when the stroke below 250mm is used at high speed, the cushioning performance may not meet the catalog standard.

Order example

MCCH — 11 — 32 — 250 — □

MODEL
1: Single rod
TUBE I.D.
STROKE
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread

Mounting accessories

LB — MCCH — 32

MODEL
TUBE I.D.
MOUNTING TYPE

	LB

Weight

Unit: g

Tube I.D.	Basic weight (magnet)	Stroke 100 mm	LB
			
25	777	137	228
32	1090	180	368

Operation

⚠ Caution

❶ Install the speed control valve to adjust speed
When operate the cylinders, please install the control valve to adjust the speed of piston within the regular usage range.

❷ Don't exert the lateral load on the piston rod
Please operate the cylinders within the regular usage ranges. Do not exert excessively lateral load on the piston rod.

❸ The long piston rod need to be braced by supports
Operate the long stroke cylinders, please use supports to brace the piston rod for avoiding piston rod droop.

❹ Assemble snap ring into the groove certainly
Please use the appropriate tool to disassemble the snap ring for replacing the rod packing, Don't support the air to the cylinders until finish replacing certainly to avoid snap ring spouting hurt people or machines.

❺ Adjustment method of relief valve screw

ⓐ When using, please adjust the relief valve screw to the fully closed state (do not lock too tightly, or this will damage internal parts), then turn overflow valve screw counterclockwise according to the buffer requirements, and finally fix it with the lock nut.

ⓑ Loosing relief valve screw excessively will invalidate the buffer and shorten the life of the cylinder. Therefore, the relief valve screw must be adjusted from tight to loose first.

❻ Across flats cover designed for disassembly
When removing the cylinder, use a vise to fix the flat surface on both sides of the rod cover or the head cover, and then remove the other end cap with a wrench.

Operation

⚠ Caution

❼ The method of adjustment relief valve body
The relief valve body can be adjusted 360 degrees arbitrarily, please follow the procedure as bellow:

ⓐ Turn off the source of pressure and confirm that there is no residual pressure in the cylinder, then loosen the accessories.

ⓑ Loosen the fixing screw of the relief valve fixing seat,and then the relief valve body can be rotated and adjusted.

ⓒ After adjustment, fix it with fixing screws until the relief valve body does not rotate.

Before use the air cylinder which has been installed, please confirm whether the relief valve body is loose. The looseness may cause buffer failure.

❽ Illustration of speed 3000 mm/s

ⓐ The velocity of using speed is 3000mm / s that means the maximum speed, not the average speed.

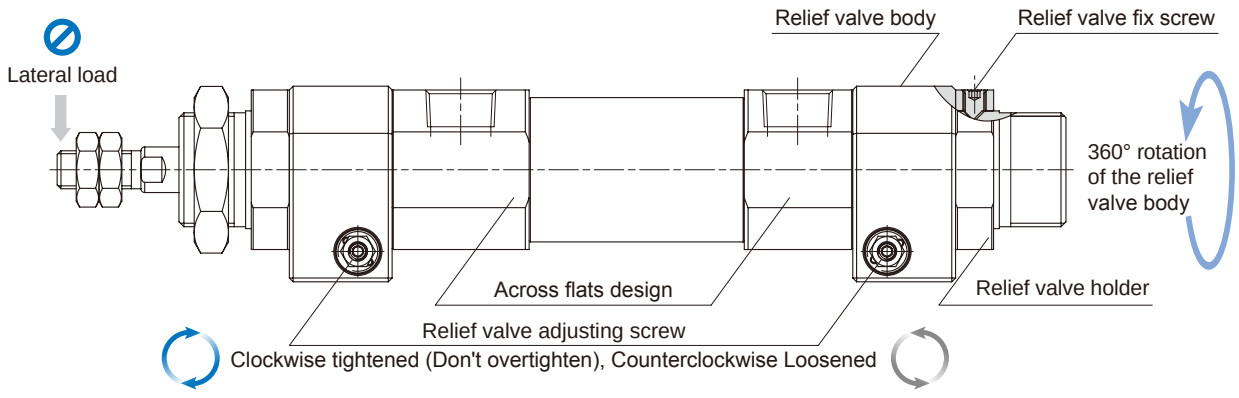
ⓑ The short stroke may not achieve the desired speed.

ⓒ The speed is related to the speed control valve, piping, and fittings, etc. When the flow rate is restricted, the desired speed may not be achieved. Therefore, ensure that the pneumatic system has a sufficient effective area.

❾ Do not exceed absorbed energy
If the maximum absorbed energy (J) value is exceeded, an external buffer is required.

❿ Back pressure on exhaust side is necessary
Before starting the cylinder, make a back pressure on the exhaust side of the cylinder to prevent the piston rod from flying out.

⓫ The source of pressure is stable
Please make sure that the source of pressure is stable when use the cylinder. The Sudden rise in pressure will cause buffering performance invalid.



Seloection example1. **Horizontal operation**

* Use an external guide, etc. for horizontal actuation of a load.

Operating conditions

Horizontal operation ..... Graph 1
Load mass ..... M = 8kg
Stroke ..... St = 600mm
Time for stroke required . To = 0.6s

Estimate of the max speed

Average speed ..... Vm = St/To = 1000mm/s
Maximum speed ..... Vmax = 1.5Vm = 1500mm/s

Model selection by graph

Load mass ..... M = 8kg
Maximum speed ..... Vmax = 1500mm/s

Graph 1, Mark ●

MCCH-25

Seloection example2. **Vertical operation**

Operating conditions

Vertical operation ..... Graph 2
Load mass ..... M = 6kg
Stroke ..... St = 700mm
Time for stroke required . To = 0.5s

Estimate of the max speed

Average speed ..... Vm = St/To = 1400mm/s
Maximum speed ..... Vmax = 1.5Vm = 2100mm/s

Model selection by graph

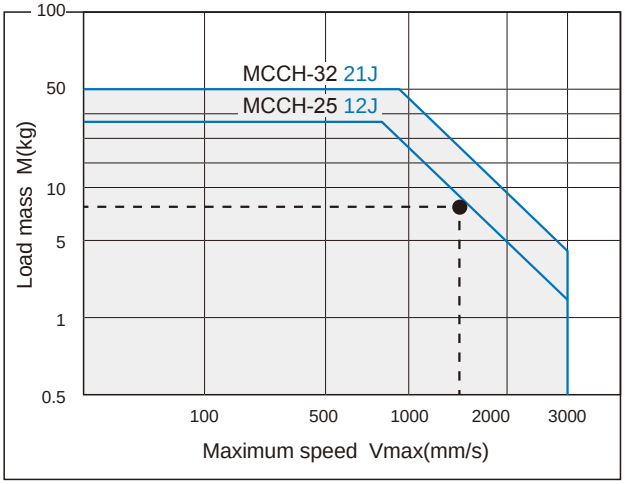
Load mass ..... M = 6kg
Maximum speed ..... Vmax = 2100mm/s

Graph 2, Mark ●

MCCH-32

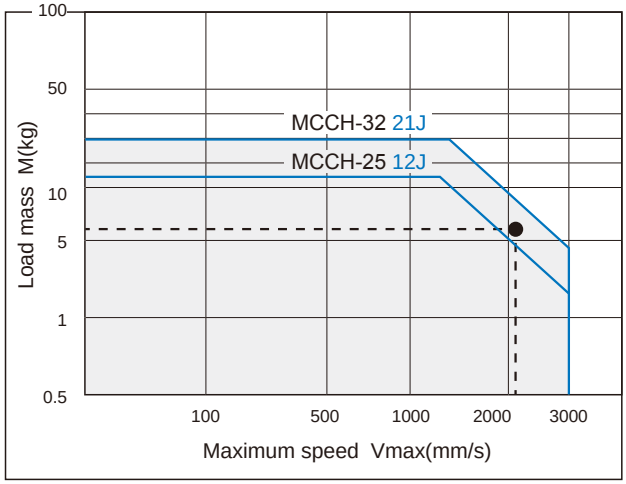
Graph 1 - Horizontal operation

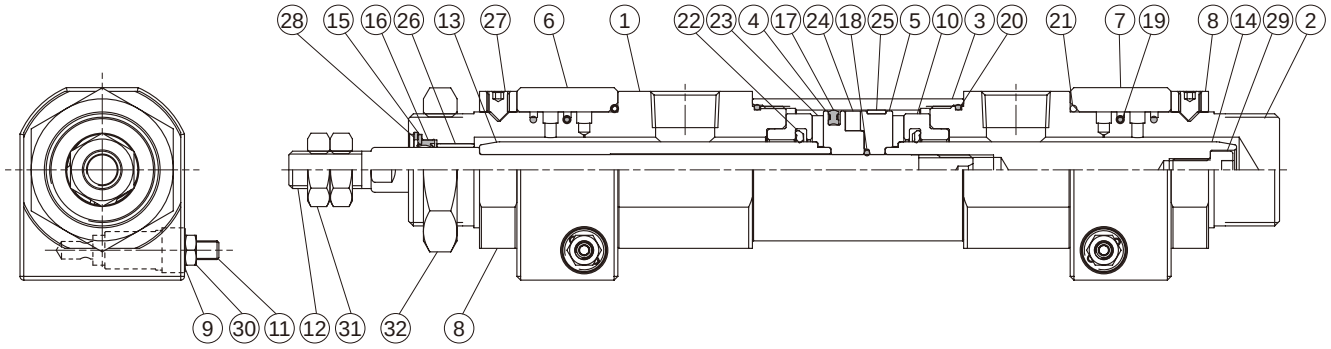
Supply pressure 0.5 MPa



Graph 2 - Vertical operation

Supply pressure 0.5 MPa





Material

A: Component parts, B: Repair kits

No.	Part name	Material	Q'y	A inclusion	B inclusion
1	Cover-R	Aluminum alloy	1	●	
2	Cover-H	Aluminum alloy	1	●	
3	Tube	Aluminum alloy	1		
4	Piston-R	Aluminum alloy	1	●	
5	Piston-H	Aluminum alloy	1	●	
6	Relief valve body-R	Aluminum alloy	1	●	
7	Relief valve body-H	Aluminum alloy	1	●	
8	Relief valve holder	Aluminum alloy	2	●	
9	Relief valve cover	Stainless steel	2	●	
10	Cushion spacer	Stainless steel	2	●	
11	Relief valve adjustment screw	Stainless steel	2	●	
12	Piston rod	Carbon steel	1		
13	Cushion axis-R	Carbon steel	1	●	
14	Cushion axis-H	Carbon steel	1	●	
15	Washer	Carbon steel	1	●	
16	Rod packing	NBR	1	●	●
17	Piston packing	NBR	1	●	●
18	O-ring	NBR	1	●	
19		NBR	4	●	●
20		NBR	2	●	●
21		NBR	2	●	●
22	Cushion packing	NBR	2	●	●
23	Gasket	PU	2	●	
24	Magnet ring	Magnet material	1	●	
25	Wear ring	POM	1	●	●
26	Rod bush	Bearing alloy	1	●	
27	Screw	SCM	4	●	
28	Snap ring	Spring steel	1	●	
29	Bolt	Carbon steel	1	●	
30	Nut	Carbon steel	2	●	
31	Rod front nut	Carbon steel	2	●	
32	Tie nut	Carbon steel	1	●	

Order example of
Component parts

CP — MCCH — 32 — G

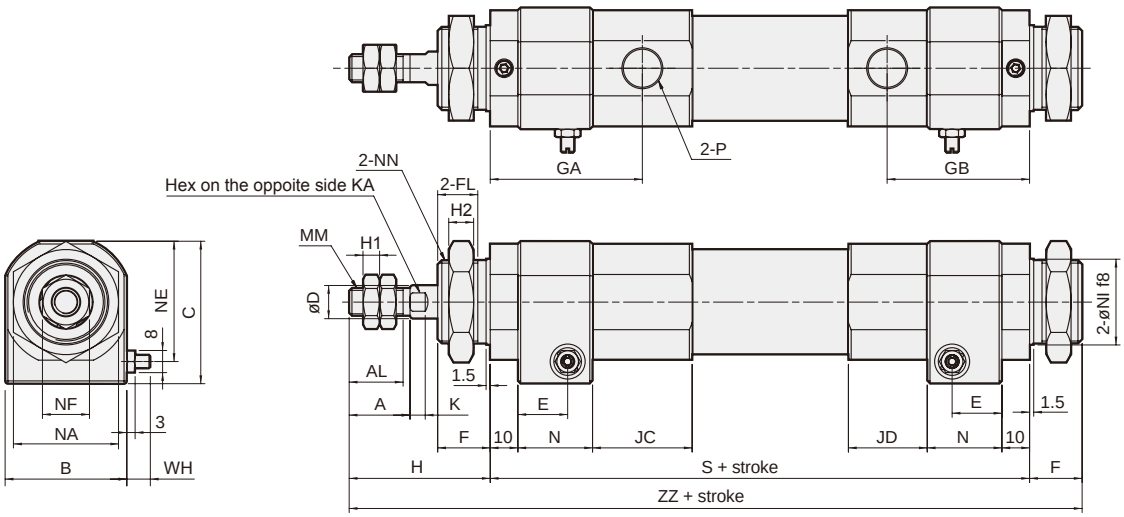
- MCCH: MODEL
- 32: TUBE I.D.
- G: PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Repair kits

Tube I.D.	Repair kits
25	**PS-MCCH-25**
32	**PS-MCCH-32**

MCCH Dimensions ø25, ø32

HIGH SPEED CYLINDER

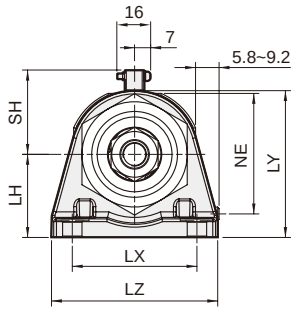


Code / Tube I.D.	A	AL	B	C	D	E	F	FL	GA	GB	H	H1	H2	JC	JD	K	KA	MM	N	NE	NA
25	22	19.5	36	45.5	12	18	16	11.5	56.5	49.5	48	6	7	39	25.5	5.5	10	M10×1.25	27	37	32
32	22	19.5	44	51.5	12	18	19	14.5	55	51.5	51	6	9	36	28.5	5.5	10	M10×1.25	27	43.5	38

Code / Tube I.D.	NF	NI	NN	P	S	WH	ZZ
25	17	25 $^{-0.020}_{-0.053}$	M24×1.5	Rc1/4	193	5.8~9.2	257
32	17	31 $^{-0.025}_{-0.064}$	M30×1.5	Rc3/8	195	5.8~9.2	265

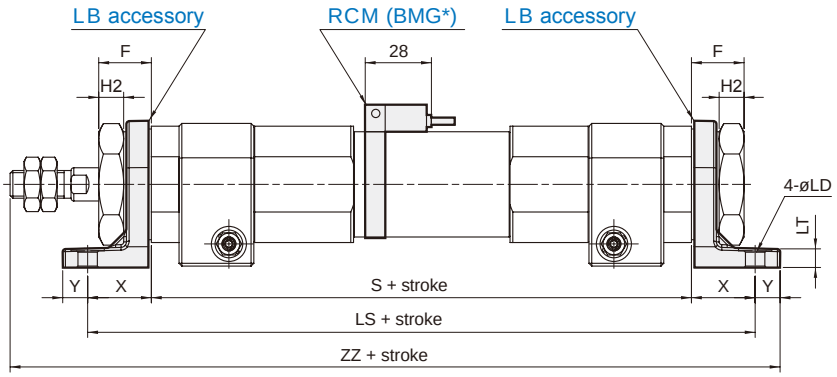
■ Mounting accessories

LB Material: Carbon steel



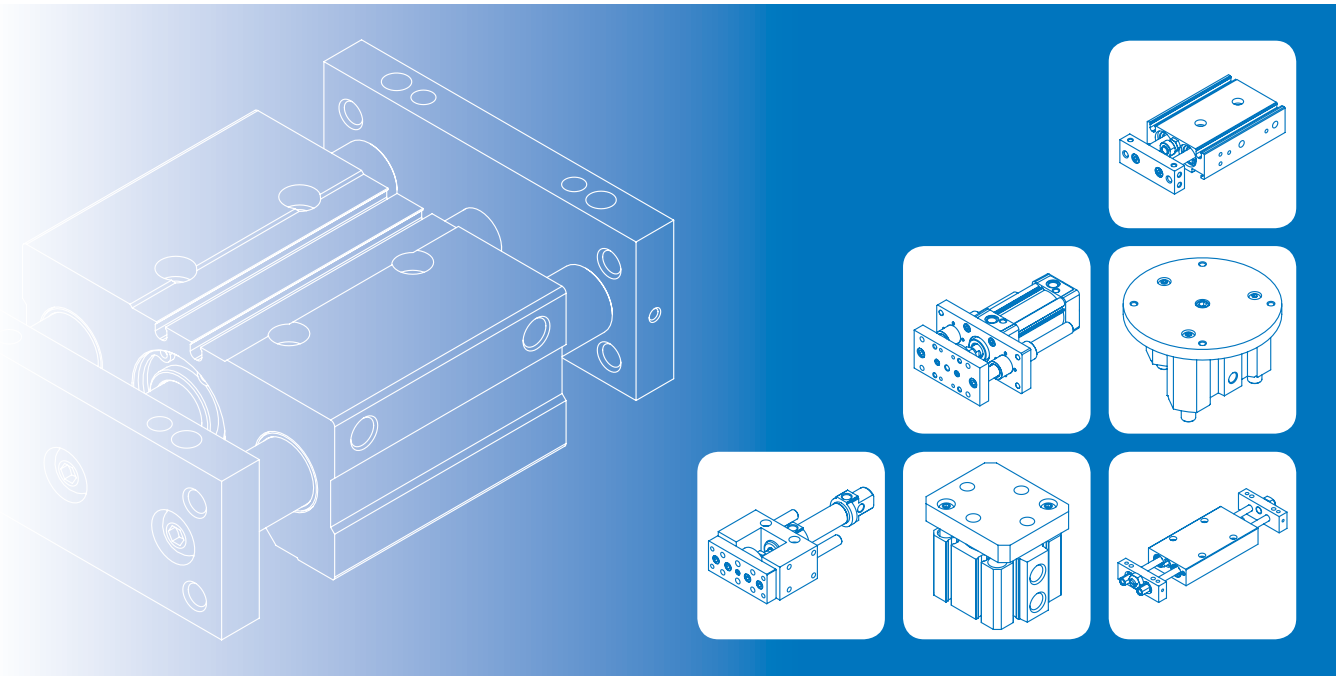
■ Installation of sensor switch

Sensor switch: RCM (Band: BMG*)



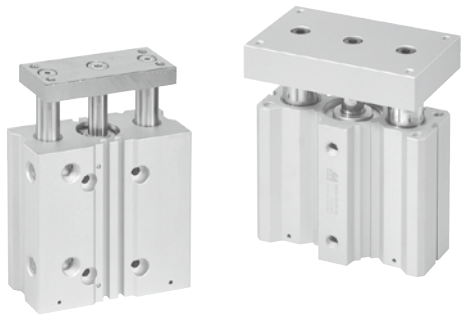
Code / Tube I.D.	F	H2	LD	LH	LS	LT	LX	LY	LZ	NE	S	SH	X	Y	ZZ
25	16	8	7	28	233	6.5	40	46.5	55	37	193	26.5	20	9	270
32	19	9	7	30	241	7	45	53	60	43.5	195	30.5	23	9	278

GUIDE CYLINDER



F Fast delivery

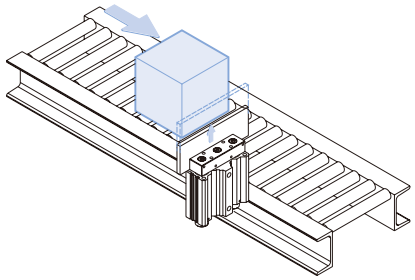
Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our MINDMAN website (www.mindman.com.tw) and click on the “Component Set Inventory” button.



Several uses

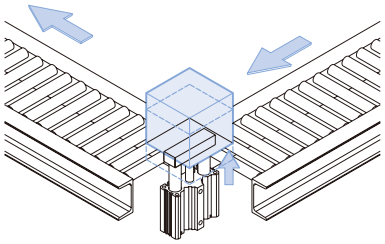
- **S**-Stopper cylinder Takes very high lateral loadings as such can stop very wide and heavy objects.
- **L**-Lift cylinder Large bearing area enables heavy off-set loads to be applied.
- **P**-Pusher cylinder Long strokes available with extremely rigid guidance, precise movement of load is possible.

S Stopper cylinder



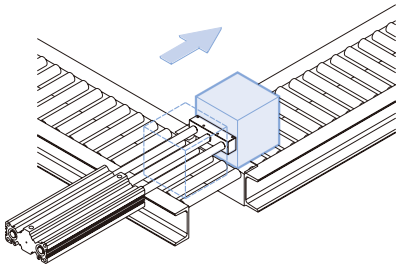
Tough type of stopping a large-load work carrier at a fixed point, and for the straggle of a number of work carriers, etc.

L Lift cylinder



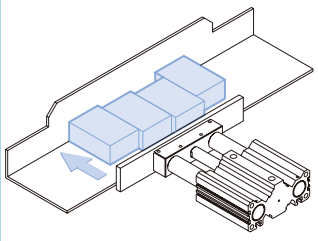
Special design which stands the large one-sided load. Lifts the work carrier at a fixed point not changing the posture.

P Pusher cylinder



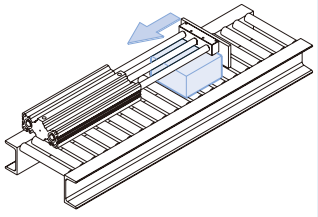
Long strokes available, the highly precise pushing work transfers and places a work carrier and changes the direction.

Multi-Purpose



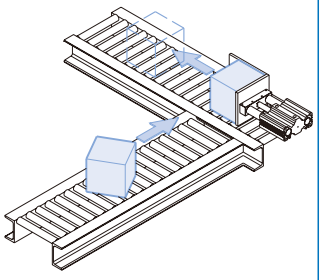
Arranges in line

Can move loads into a parallel position from different start points.



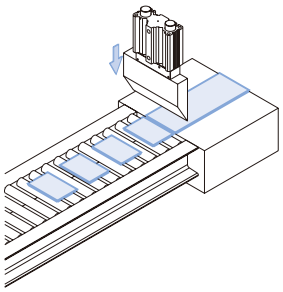
Draws in

Can move high loads consistently on the inward stroke of the cylinder.



Corrects misalignment

Repositions uneven loads.



Cuts sheets

Can be use as the power source for cutting sheets on a shearing machine.

MCGA series Stop / Lift

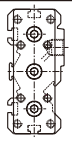
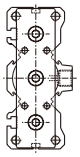
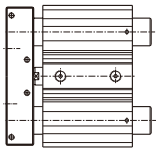
TWIN-GUIDE CYLINDER

mindman

Features

- Strong cylinder capable of high loads, used extensively for stopping work carriers in both the vertical and horizontal position.
- Large diameter guide rods enable cylinder to take high off-set loads.
- Can be used as 90 degree pusher on large conveyor systems.
- Magnetic as standard.

Specification

Model	MCGA			
Model (Stop type view)	 Up view			
Acting type	Double acting			
Tube I.D.	20	32,40	50,63	80
Port size	Rc1/8		Rc1/4	Rc3/8
Medium	Air			
Operating perssure range	0.1~1 MPa			
Proof pressure	1.5 MPa			
Lubrication	Not required			
Cushion	With rubber cushion pad			
Ambient temperature	-5~+60°C (No freezing)			
Available speed range	50~500 mm/sec			
Sensor switch	RCB (Please refer to page 8-9)			

Order example

MCGA — 03 — 20 — 50 — G

MODEL | TUBE I.D. | STROKE | PORT THREAD

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
03	Stop / Slide bush
13	Lift / Linear bearing (*)
53	Lift / Slide bush

* The type is not available as a stopper.

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

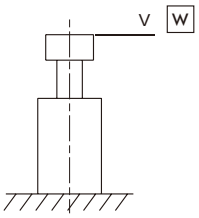
Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm) 30	50	75	100
MCGA-03 (Slide bush)	ø20	■	■	■	■
	ø32	■	■	■	■
	ø40	■	■	■	■
	ø50	■	■	■	■
	ø63	■	■	■	■
	ø80	■	■	■	■
MCGA-13 (Linear bearing)	ø20	■	■	■	■
	ø32	■	■	■	■
	ø40	■	■	■	■
	ø50		■	■	■
	ø63			■	■
	ø80			■	■
MCGA-53 (Slide bush)	ø20	■	■	■	■
	ø32	■	■	■	■
	ø40	■	■	■	■
	ø50	■	■	■	■
	ø63	■	■	■	■
	ø80	■	■	■	■

- The other stroke lengths that fall in the range between our standard strokes will be manufacture by the next large standard stroke with additional spacer. ex: The 40mm stroke length will be made by 50mm stroke with additional spacer.
- Stroke out of specification is also available.
- Please consult us if stroke exceed 100mm.

Capacity graph

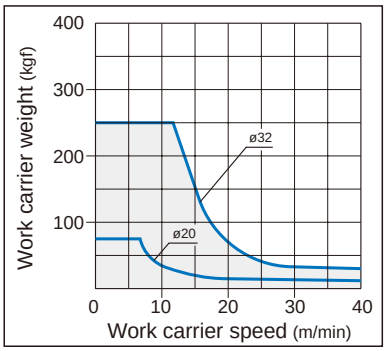
Capacity for the use as a stopper



Linear bearing type is not available as a stopper.

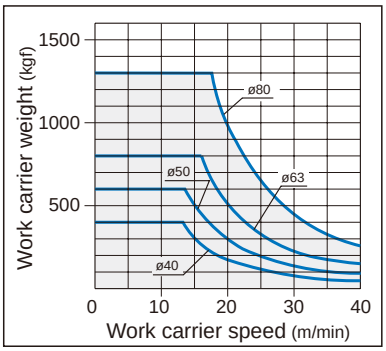
Stop capacity

MCGA-03...ø20,ø32-30st



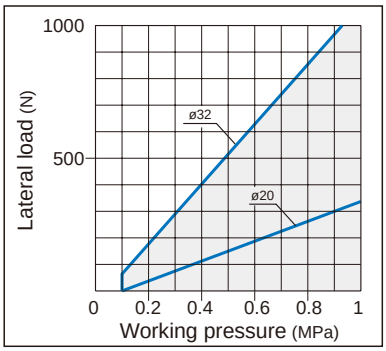
Stop capacity

MCGA-03...ø40,ø50,ø63,ø80-50st



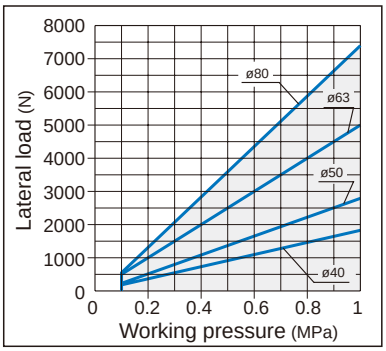
Normal lateral load

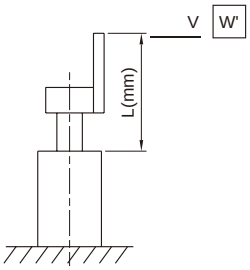
MCGA-03...ø20,ø32-30st



Normal lateral load

MCGA-03...ø40,ø50,ø63,ø80-50st





For the use of attaching a plate to the link bar, choose a bore size referring to the formula below.

$$W = W' \times \frac{L}{\ell}$$

Coefficients for conversion

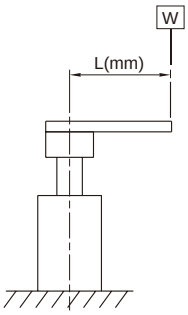
MCGA series	ø20	ø32	ø40	ø50	ø63	ø80
ℓ	48	55	80	85	90	98

W: The maximum weight of the work carrier in the above graph for the stopper's.

Capacity graph

Capacity for the use as a lifter

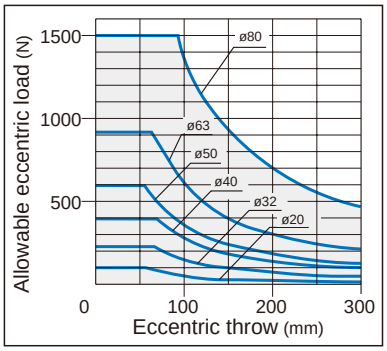
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5MPa)



Show the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

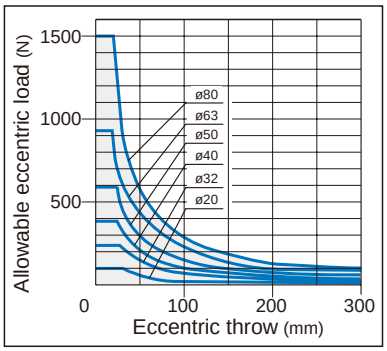
Linear bearing

MCGA-13...ø20,ø32-30~100st
MCGA-13...ø40,ø50,ø63,ø80-50~100st



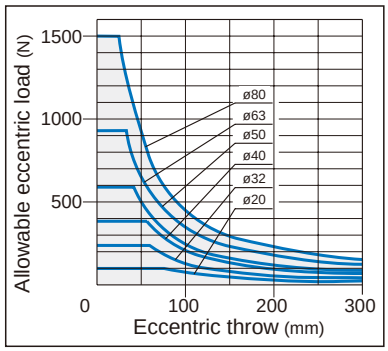
Slide bush

MCGA-53...ø20,ø32-30st
MCGA-53...ø40,ø50,ø63,ø80-50st



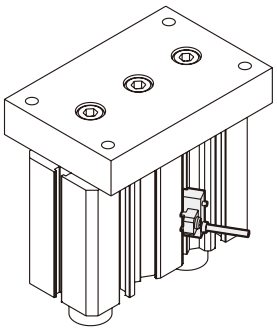
Slide bush

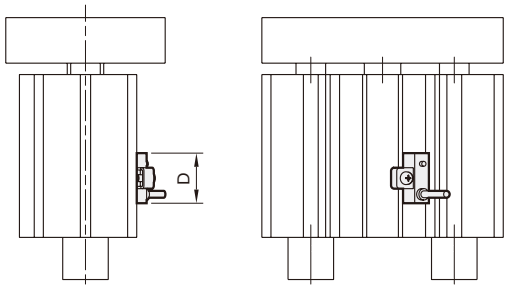
MCGA-53...ø20,ø32-50~100st
MCGA-53...ø40,ø50,ø63,ø80-75~100st

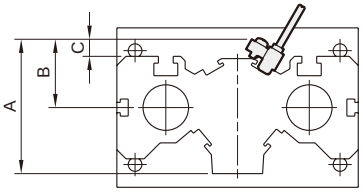


■ Installation of sensor switch (For Stop / Lift / Push type)

Sensor switch: RCB



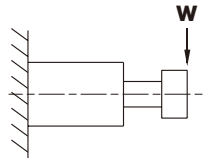




Code / Tube I.D.	A	B	C	D
20	39.5	24.5	7.5	22
32	59.5	30.5	8	22
40	64	31	5	22
50	71.5	33.5	2.5	22
63	88.5	40.5	1.5	22
80	103	43	0	22

Capacity table

Allowable lateral load

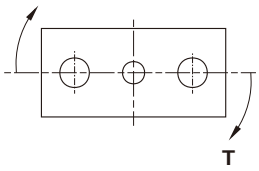


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)			
		30	50	75	100
ø20	Slide bush	58.84	88.26	73.55	58.84
	Linear bearing	78.45	63.74	49.03	39.23
ø32	Slide bush	117.7	147.1	117.7	98.07
	Linear bearing	156.9	127.5	98.07	78.45
ø40	Slide bush	–	147.1	166.7	137.3
	Linear bearing	–	225.6	186.3	156.9
ø50	Slide bush	–	147.1	176.5	147.1
	Linear bearing	–	245.2	196.1	166.7
ø63	Slide bush	–	215.7	274.6	215.7
	Linear bearing	–	–	323.6	284.4
ø80	Slide bush	–	245.2	294.2	245.2
	Linear bearing	–	–	588.4	539.4

Allowable rotating torque

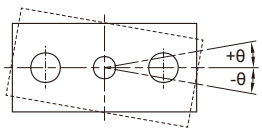


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

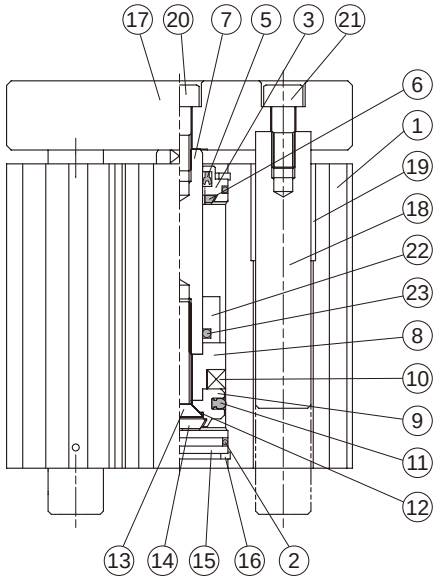
Tube I.D.	Bearing type	Stroke (mm)			
		30	50	75	100
ø20	Slide bush	0.686	0.981	0.785	0.686
	Linear bearing	0.883	0.686	0.539	0.441
ø32	Slide bush	2.059	2.55	2.059	1.765
	Linear bearing	4.609	2.157	1.765	1.471
ø40	Slide bush	–	3.628	3.727	3.236
	Linear bearing	–	4.609	3.825	3.236
ø50	Slide bush	–	4.315	5.099	4.511
	Linear bearing	–	6.865	5.786	4.903
ø63	Slide bush	–	6.276	8.041	6.276
	Linear bearing	–	–	9.512	8.336
ø80	Slide bush	–	10.79	13.73	12.75
	Linear bearing	–	–	27.46	24.52

Anti-roll accuracy



- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø20	Slide bush	±0.08°
	Linear bearing	±0.03°
ø32	Slide bush	±0.07°
	Linear bearing	±0.03°
ø40	Slide bush	±0.06°
	Linear bearing	±0.03°
ø50	Slide bush	±0.05°
	Linear bearing	±0.02°
ø63	Slide bush	±0.05°
	Linear bearing	±0.02°
ø80	Slide bush	±0.04°
	Linear bearing	±0.02°



Material

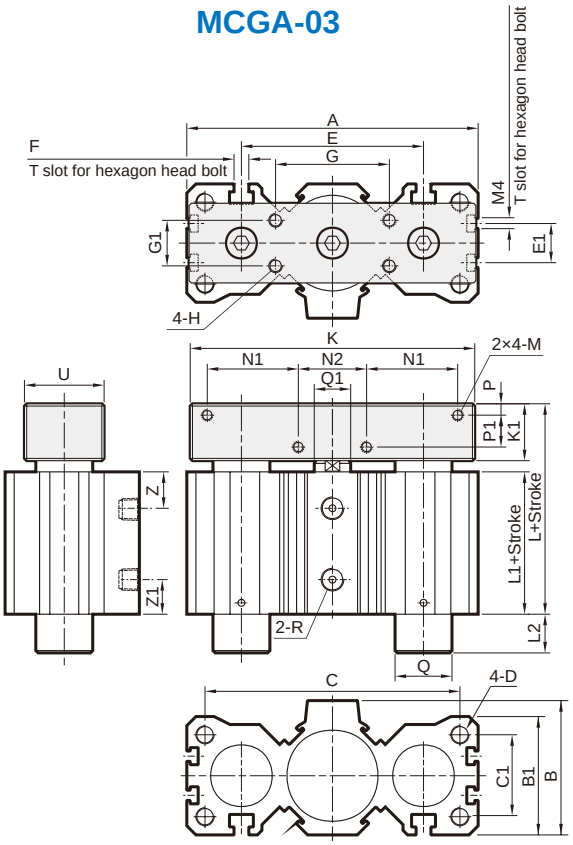
No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Cover ring	NBR	2	●
3	Rod cover	Aluminum alloy	1	
4	Rod bush	Bearing alloy	1	
5	Rod packing	NBR	1	●
6	Rod cushion	NBR	1	●
7	Piston rod	Carbon steel	1	
8	Piston	Aluminum alloy	1	
9	Piston for magnet ring	Aluminum alloy	1	
10	Magnet ring	Magnet material	1	
11	Piston packing	NBR	1	●
12	Piston gasket	NBR	1	●
13	Bolt for piston	Carbon steel	1	
14	Head cushion	NBR	1	●
15	End cover	Aluminum alloy	1	
16	Snap ring	Spring steel	2	
17	Plate	Aluminum alloy	1	
18	Guide rod	Carbon steel	2	
19	Guide rod bush	Bearing alloy	4	
20	Bolt for piston rod	Carbon steel	1	
21	Bolt for guide rod	Carbon steel	2	
22	Spacer	Aluminum alloy	1	
23	O-ring	NBR	1	

Order example of repair kits

Tube I.D.	Repair kits
ø20	**PS-MCGA-20**
ø32	**PS-MCGA-32**
ø40	**PS-MCGA-40**
ø50	**PS-MCGA-50**
ø63	**PS-MCGA-63**
ø80	**PS-MCGA-80**

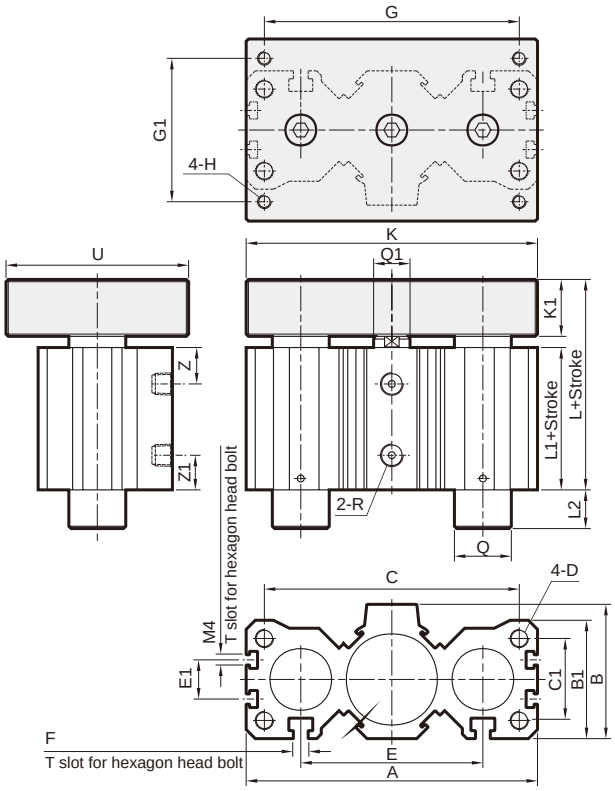
Stop type

MCGA-03



Lift type

MCGA-53/13



MCGA-03

Code / Tube I.D.	A	B	B1	C	C1	D	E	E1	F	G	G1	H	K	K1	L	L1	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
20	75	34	32	63	20	M5×0.8×15dp	45	–	M4	32	16	M5×0.8×10dp	75	15	54	36	M4×0.7×8dp	22.5	20	4	6	ø12	ø10	Rc1/8	25	11	10
32	106	51.5	45	90	30	M8×1.25×20dp	63	–	M6	40	18	M6×1.0×12dp	100	20	66.5	41.5	M5×0.8×10dp	32	25	5	9	ø20	ø16	Rc1/8	30	12	12
40	128	59	52	112	36	M8×1.25×20dp	80	–	M6	50	20	M6×1.0×12dp	125	25	81	51	M5×0.8×10dp	40	30	5	14	ø25	ø16	Rc1/8	35	16	16.5
50	150	69	62	132	45	M10×1.5×25dp	100	20	M8	63	25	M8×1.25×16dp	140	30	87	52	M6×1.0×12dp	37.5	50	6	16	ø30	ø20	Rc1/4	40	16	17.5
63	180	87	78	156	53	M12×1.75×30dp	118	25	M10	80	40	M10×1.5×20dp	175	35	100	60	M8×1.25×16dp	47.5	60	9	16	ø35	ø20	Rc1/4	60	17.5	21
80	243	110	100	212	71	M16×2.0×40dp	160	30	M12	106	56	M10×1.5×20dp	224	40	110.5	62.5	M10×1.5×20dp	60	80	10	18	ø45	ø25	Rc3/8	75	22	19.5

MCGA-53/13

Code / Tube I.D.	G	G1	K	Q	U
20	63	32	75	ø12 (ø8)	45
32	90	50	106	ø20 (ø13)	70
40	112	63	128	ø25 (ø16)	80
50	132	71	150	ø30 (ø20)	100
63	150	85	175	ø35 (ø25)	110
80	212	125	236	ø45 (ø35)	150

( ): For MCGA-13 type

L2 dimensions list

MCGA-03/53

Code / Tube I.D.	Stroke (mm)			
	30	50	75	100
20	0	17	17	17
32	0	18.5	18.5	18.5
40	0	0	22	22
50	0	0	18	18
63	20	20	20	20
80	0	0	38.5	38.5

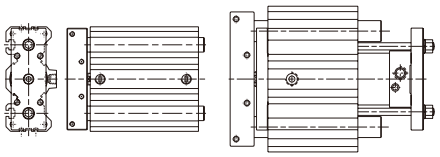
MCGA-13

Code / Tube I.D.	Stroke (mm)			
	30	50	75	100
20	18	18	18	18
32	29.5	29.5	29.5	29.5
40	30	30	30	30
50	–	39	39	39
63	11	11	70	70
80	19.5	19.5	19.5	89.5

Features

- Long stroke type of the anti-turn accuracy, impoved by integrating the guides and cylinder.
- Linear bearing type available for high accuracy in the high speed work.
- On the link bar at the top, Many thread holeas for mounting attachments are provided for easy mounting.
- Lift type of long stroke is available by replacing the link bar with table plate.
- Magnetic as standard.

Specification

Model	MCGA					
Model	 (for 23/63 type ø80 stroke over 100mm)					
Acting type	Double acting					
Tube I.D. (mm)	20	32	40	50	63	80
Port size (Rc)	1/8	1/4 [1/8]	1/4 [1/8]	3/8 [1/4]	3/8	3/8
Medium	Air					
Operating perssure range	0.1~1 MPa					
Proof pressure	1.5 MPa					
Lubrication	Not required					
Cushion	With rubber cushion pad					
Ambient temperature	-5~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Sensor switch	RCB (Please refer to page 8-9)					

[ ] : For MCGA-23 type, stroke 30~100mm.

Order example

MCGA — 23 — 20 — 50 — G

MODEL | PURPOSE / TYPE OF BEARING | TUBE I.D. | STROKE | PORT THREAD

Code	Purpose / Type of bearing
23	Push / Linear bearing
63	Push / Slide bush

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

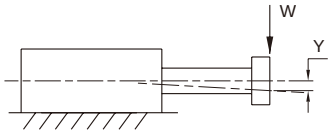
Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm)										
		30	50	75	100	200	300	350	400	500	600	700
MCGA-23 (Linear bearing)	ø20	●	●	●	●	●	●					
	ø32	●	●	●	●	●	●	●				
	ø40	●	●	●	●	●	●	●				
	ø50		●	●	●	●	●	●				
	ø63				●	●	●	●				
	ø80				●	●	●	●	●	●	●	●
MCGA-63 (Slide bush)	ø20					●	●					
	ø32					●	●	●				
	ø40					●	●	●				
	ø50					●	●	●				
	ø63					●	●	●				
	ø80					●	●	●	●	●	●	●

- Stroke out of specification is also available, please consult us.
- Tube I.D. ø20~ø63 the max stroke is 350mm.

Capacity graph

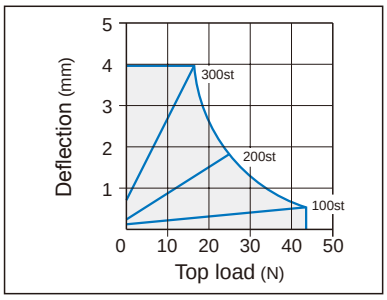
Capacity for the use as a pusher



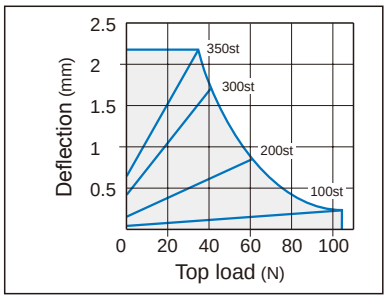
MCGA-23 / MCGA-63, deflection and allowable top load.

- In the actual operation, load at the top should be below the allowable top load.
- Y—Deflection
- W—Allowable top load

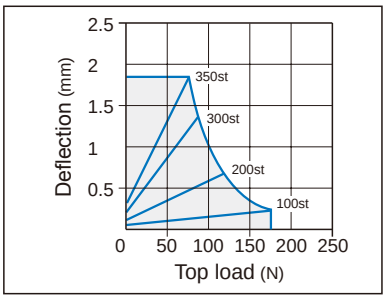
MCGA-23...ø20



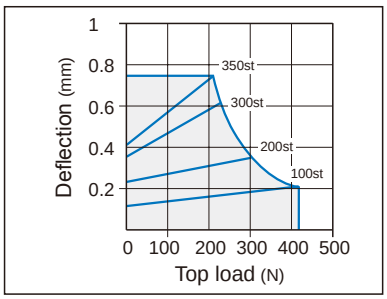
MCGA-23...ø32



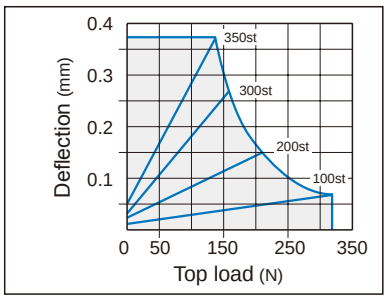
MCGA-23...ø40



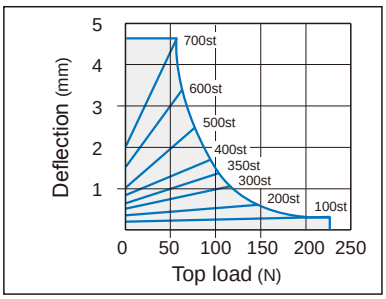
MCGA-23...ø50



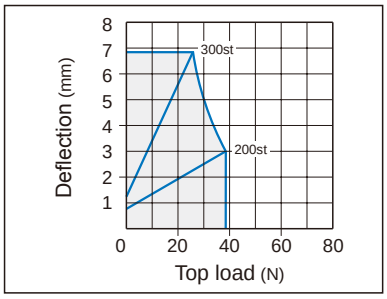
MCGA-23...ø63



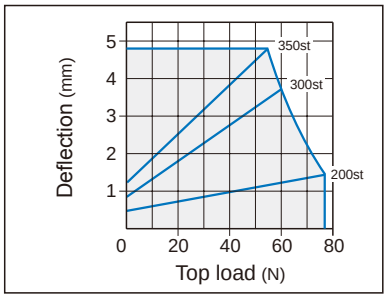
MCGA-23...ø80



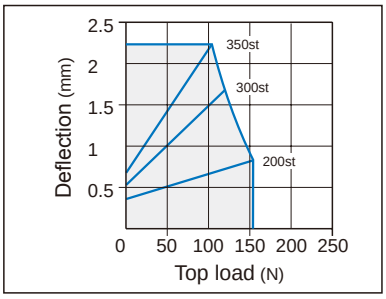
MCGA-63...ø20



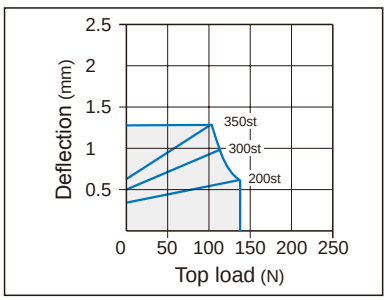
MCGA-63...ø32



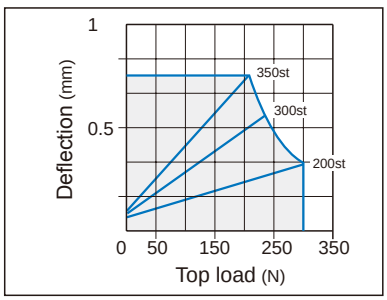
MCGA-63...ø40



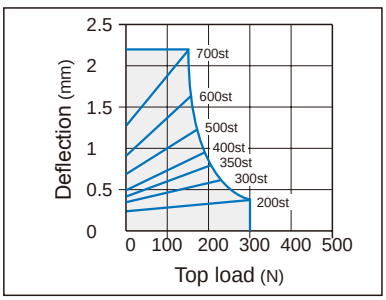
MCGA-63...ø50



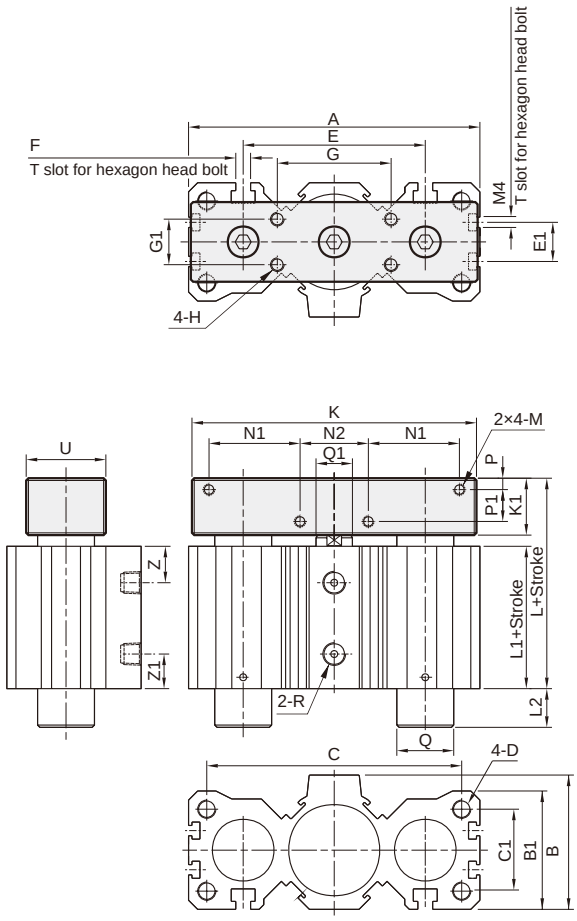
MCGA-63...ø63



MCGA-63...ø80

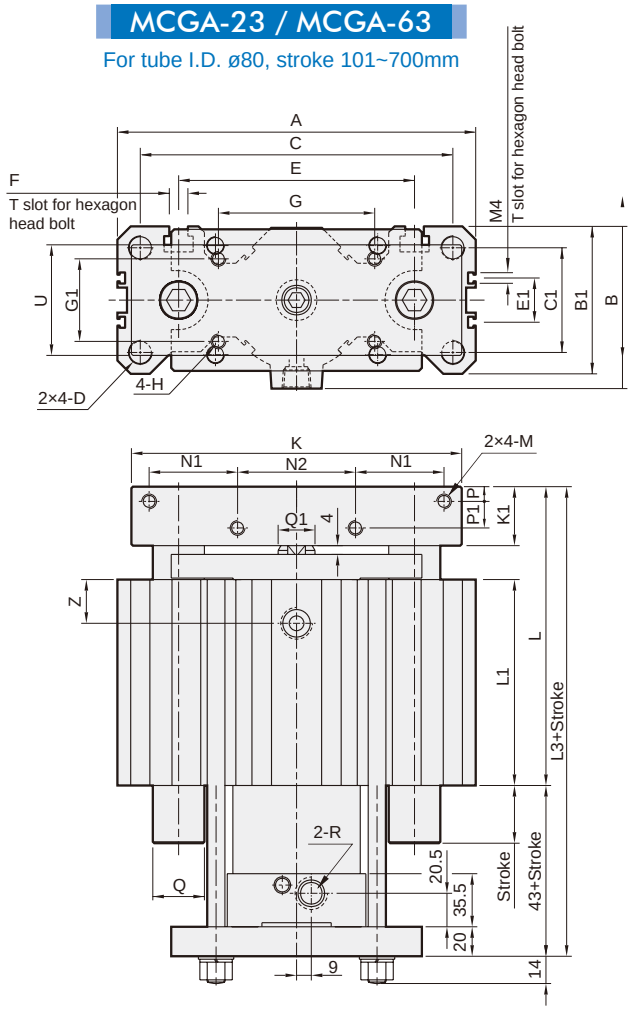


MCGA-23 / MCGA-63



MCGA-23 / MCGA-63

For tube I.D. ø80, stroke 101~700mm



MCGA-23 / MCGA-63

Code / Tube I.D.	A	B	B1	C	C1	D	E	E1	F	G	G1	H	K	K1	L	L1	L2	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
20	75	34	32	63	20	M5×0.8×15dp	45	—	M4	32	16	M5×0.8×10dp	75	15	54	36	18	M4×0.7×8dp	22.5	20	4	6	ø8	ø10	Rc1/8	25	11	10
32	106	51.5	45	90	30	M8×1.25×20dp	63	—	M6	40	18	M6×1.0×12dp	100	20	66.5	41.5	29.5	M5×0.8×10dp	32	25	5	9	ø13(ø12)	ø16	Rc1/4 [1/8]	30	12	12
40	128	59	52	112	36	M8×1.25×20dp	80	—	M6	50	20	M6×1.0×12dp	125	25	81	51	30	M5×0.8×10dp	40	30	5	14	ø16	ø16	Rc1/4 [1/8]	35	16	16.5
50	150	69	62	132	45	M10×1.5×25dp	100	20	M8	63	25	M8×1.25×16dp	140	30	87	52	39	M6×1.0×12dp	37.5	50	6	16	ø20	ø20	Rc3/8 [1/4]	40	16	17.5
63	180	87	78	156	53	M12×1.75×30dp	118	25	M10	80	40	M10×1.5×20dp	175	35	100	60	68	M8×1.25×16dp	47.5	60	9	16	ø25	ø20	Rc3/8	60	17.5	21
80	243	110	100	212	71	M16×2.0×40dp	160	30	M12	106	56	M10×1.5×20dp	224	40	110.5	62.5	*	M10×1.5×20dp	60	80	10	18	ø35	ø25	Rc3/8	75	22	19.5

* With stroke 30~75mm **L2**=17.5 , stroke 100mm **L2**=87.5

[ ]: For MCGA-23 type, stroke 30~100mm, ( ): For MCGA-63 type.

MCGA-23 / MCGA-63 Tube I.D. ø80, stroke 101~700mm

Code / Tube I.D.	A	B	B1	C	C1	D	E	E1	F	G	G1	H	K	K1	L	L1	L3	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
80	243	110	100	212	71	M16×2.0×40dp	160	30	M12	106	56	M10×1.5×20dp	224	40	213	150	256	M10×1.5×20dp	60	80	10	18	ø35	ø25	Rc3/8	75	40	—

Features

- Multi-ports as standard enabling both direction mounting.
- Non-rotating accuracy ± 0.1°
- Embedding type sensors.
- The sensor cable will be in the same direction as the piping tube if vertical type sensor switch (Angle cable) is used.
- Magnetic as standard.

Specification

Model	MCGS	
Acting type	Double acting	
Tube I.D. (mm)	6	10
Stroke (mm)	5, 10, 15	5, 10, 15, 20
Port size	M3×0.5	
Medium	Air	
Max. operating perssure	0.7 MPa	
Min. operating perssure	0.15 MPa	
Proof pressure	1 MPa	
Lubrication	Not required	
Ambient temperature	-5~+60°C (No freezing)	
Available speed range	50~400 mm/sec	
Sensor switch	RDGV (Please refer to page 8-19)	

* This product is not applicable for stopper purpose.

Order example

MCGS — 6 — 10

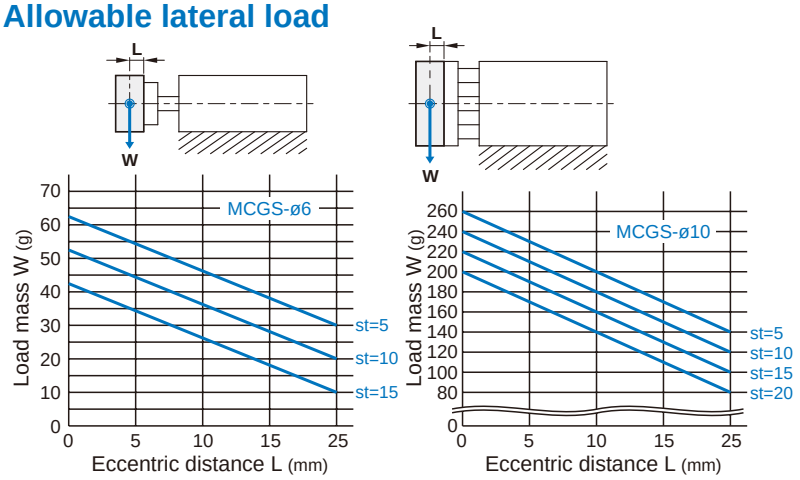
MODEL TUBE I.D. STROKE

Cylinder weight

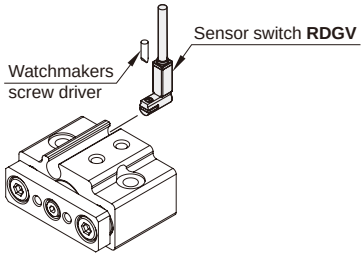
Unit: g

Tube I.D.	Stroke (mm)			
	5	10	15	20
ø6	29	34	39	—
ø10	41	49	57	65

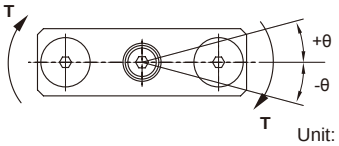
Allowable lateral load



Installation of sensor switch



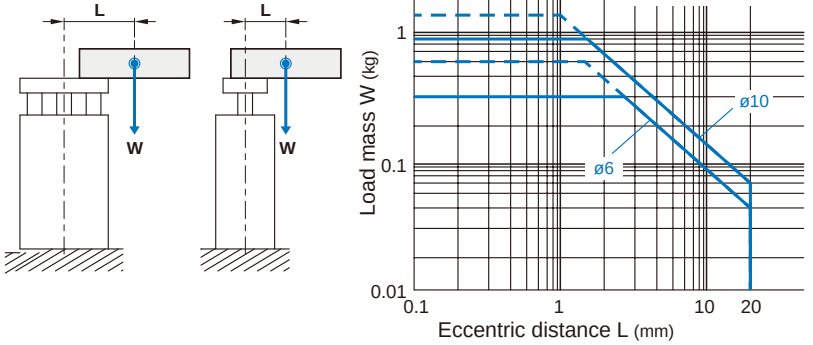
Allowable rotational torque & Non-rotating accuracy



Unit: N.m

Tube I.D.	Stroke (mm)				Non-rotating accuracy θ
	5	10	15	20	
ø6	0.9	0.7	0.6	—	±0.15°
ø10	4.7	3.9	3.3	2.8	

Allowable eccentric load



Handling

⚠ Caution

❶ **Please control the cylinder within the allowable speed range**:

If the cylinder is not using the speed control valve, it may occur beyond the speed range of the piston. If it is used outside the allowable speed range, it will cause cylinder damage or reduce product life. Therefore, please install the speed control valve and adjust the speed within the allowable range. The product allowable speed is shown in Table 1.

❷ **Please note the speed control during vertical installation**:

When the cylinder is used vertically, if the load rate is large, it will cause the speed control valve to exceed the upper limit and could cause sudden unintended acceleration which will affect the product life. Therefore, it is recommended to use a dual speed controller.

❸ **The lateral load of the cylinder during the operation must be within the allowable range**:

Exceeding the allowable value will prevent the cylinder from operating properly and affect the life of the product.

❹ **Do not scratch the mounting surface of the cylinder body and end plate to avoid affecting the flatness**:

If the flatness of the mounting surface is poor, the cylinder will malfunction. The mounting surface of the cylinder body and the end plate should have a flatness of less than 0.05 mm.

❺ **Do not cause surface damage or impact marks on the operating parts of the piston rod and the guide rod**:

Damage to the appearance will result in damage to the seal ring which could cause leakage or malfunction of the cylinder.

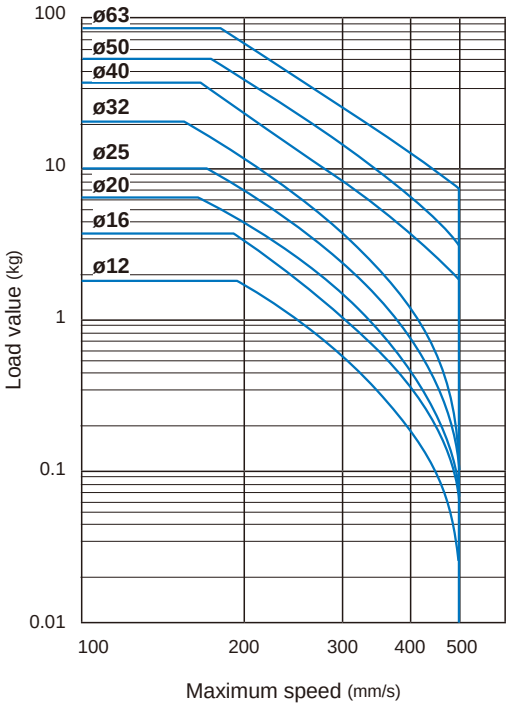
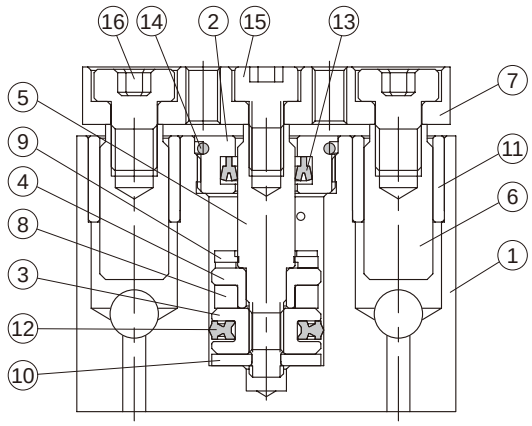


Table 1

Inside structure & Parts list



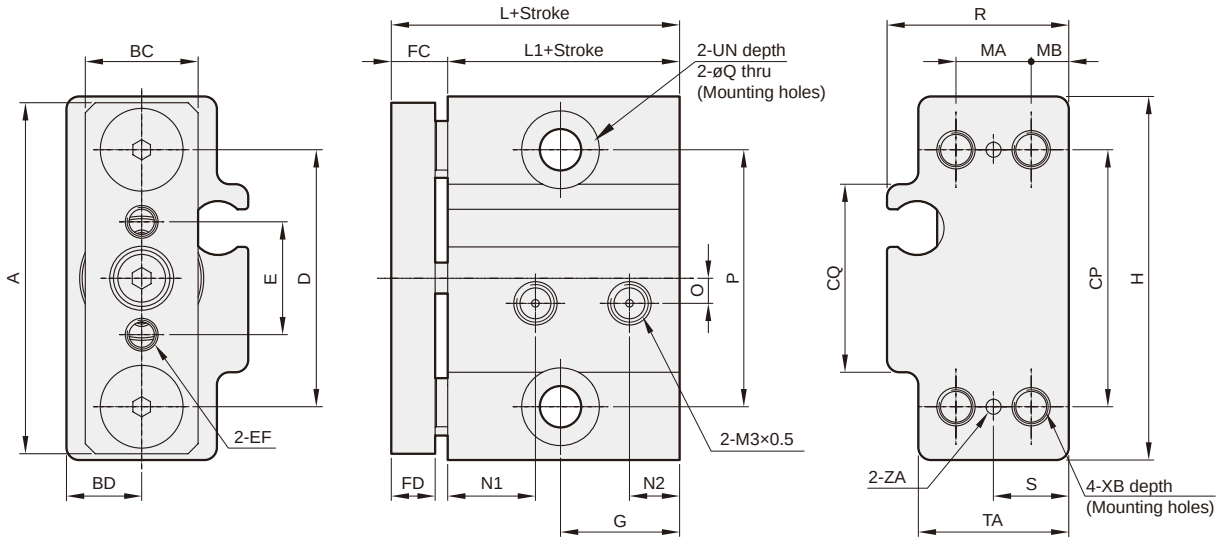
Material

No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Rod cover	Aluminum alloy	1	
3	Piston- H	Aluminum alloy	1	
4	Piston- R	Aluminum alloy	1	
5	Piston rod	Stainless steel	1	
6	Guide rod	Carbon steel	2	
7	Plate	Aluminum alloy	1	
8	Magnet ring	Magnet material	1	
9	Cushion	NBR	1	●
10	Cushion	NBR	1	●
11	Bush	Copper	2	
12	Piston seal	NBR	1	●
13	Rod seal	NBR	1	●
14	O ring	NBR	1	●
15	Screw	Carbon steel	1	
16	Screw	Carbon steel	2	

Order example of repair kits

Tube I.D.	Repair kits
ø6	**PS-MCGS-6**
ø10	**PS-MCGS-10**

Dimensions



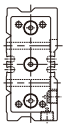
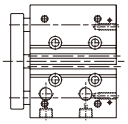
Code / Tube I.D.	A	BC	BD	CP	CQ	D	E	EF	FC	FD	G	H	L	L1	MA	MB	N1	N2
6	28	9	6	20.5	15	20.5	9	M2.5×0.45 thru	4.5	3.5	9.5	29	23	18.5	6	3	7	4
10	32	10	7.5	23	17.5	23	11	M3×0.5 thru	6	5	8.5	33	25	19	8	3.5	7	4.5

Code / Tube I.D.	O	P	Q	R	S	TA	UN	XB	ZA
6	2	20.5	3.3	14.5	6	12	ø6.2×0.5	M3×0.5×5	ø1.2
10	3	23	4.3	17	7.5	15	ø8×0.5	M4×0.7×5	ø2

Features

- Proven track record in manufacturing precision guided cylinders.
- Multi-Ports as standard enabling two direction mounting option.
- Flush fitting sensors.
- Flush fitting sensors.
- Magnetic as standard

Specification

Model	MCGS		
Model	 		
Acting type	Double acting		
Tube I.D. (mm)	12,16	20,25,32,40	50,63
Port size	M5×0.8	Rc1/8	Rc1/4
Medium	Air		
Operating perssure range	0.1~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	–5~+60°C (No freezing)		
Cushion	With rubber cushion pad		
Available speed range	50~500 mm/sec		
Lubrication	Not required		
Sensor switch (*)	RCE, RCE1, RDEP		

* RCE, RCE1, RDEP specification, please refer to page 8-11,12, 17.

Order example

MCGS – 03 – 12 – 50 – 20 – G

- MODEL
- TUBE I.D.
- STROKE
- ADJUST STROKE (for 07, 27 type)
- PORT THREAD
  - Blank: M5×0.8 (for ø12, ø16)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (for ø20~ø63)

PURPOSE / TYPE OF BEARING

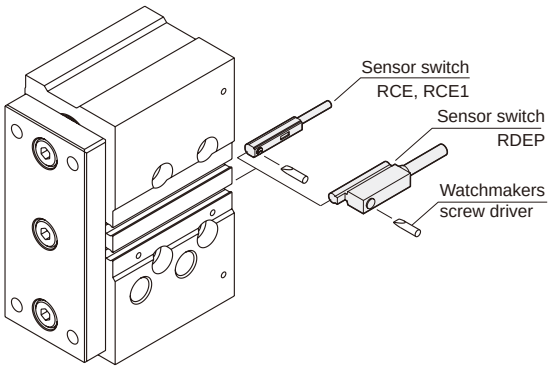
Code	Purpose / Type of bearing
03	Stop / Slide bush
07	Stop / Slide bush / Stroke adjustable
23	Push / Linear bearing (Could attach a table for the use as a lifter)
27	Push / Linear bearing / Stroke adjustable (Could attach a table for the use as a lifter)

Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm) 10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
MCGS-03 MCGS-07 (Slide bush)	ø12	●	●		●	●	●	●	●	●	●	●	●	●			
	ø16	●	●		●	●	●	●	●	●	●	●	●	●			
	ø20		●		●	●	●	●	●	●	●	●	●	●	●	●	●
	ø25		●		●	●	●	●	●	●	●	●	●	●	●	●	●
	ø32*			●			●	●	●	●	●	●	●	●	●	●	●
	ø40			●			●	●	●	●	●	●	●	●	●	●	●
	ø50			●			●	●	●	●	●	●	●	●	●	●	●
	ø63			●			●	●	●	●	●						
MCGS-23 MCGS-27 (Linear bearing)	ø12	●	●		●	●	●	●	●	●	●	●	●	●			
	ø16	●	●		●	●	●	●	●	●	●	●	●	●			
	ø20		●		●	●	●	●	●	●	●	●	●	●	●	●	●
	ø25		●		●	●	●	●	●	●	●	●	●	●	●	●	●
	ø32*			●			●	●	●	●	●	●	●	●	●	●	●
	ø40			●			●	●	●	●	●	●	●	●	●	●	●
	ø50			●			●	●	●	●	●	●	●	●	●	●	●
	ø63			●			●	●	●	●	●						

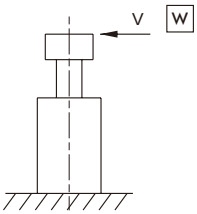
* Tube I.D. ø32: 25mm for the shortest standard stroke.
* Adjustable air cushion type, please consult us.

Installation of sensor switch



Capacity graph

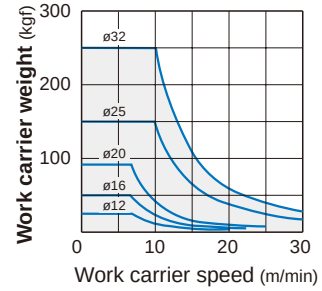
Capacity for the use as a stopper



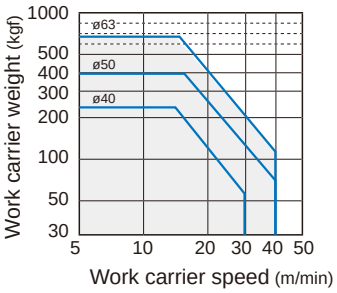
Linear bearing type is not available as a stopper.

Stop capacity

MCGS-03/07...30st ø12~ø32

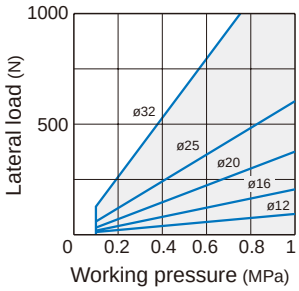


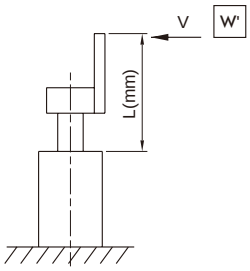
MCGS-03/07...25st ø40~ø63



Normal lateral load

MCGS-03/07...30st





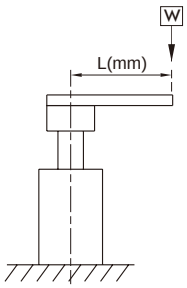
$$W = W' \times \frac{L}{\ell}$$

For the use of attaching a plate to the link bar, choose a bore size referring to the formula below.

W: The maximum weight of the work carrier in the above graph for the stopper's capacity.

Coefficients for conversion

Tube I.D.	ℓ
ø12	40
ø16	42
ø20	42
ø25	42
ø32	44
ø40	72
ø50	78
ø63	78



Capacity for the use as a lifter

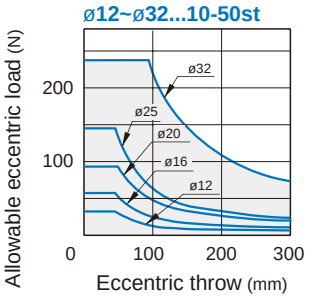
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)

Show the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

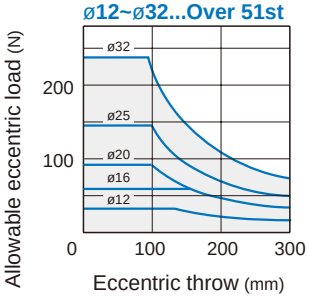
Slide bush

MCGS-03/07

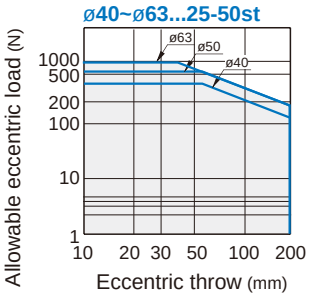
ø12~ø32...10-50st



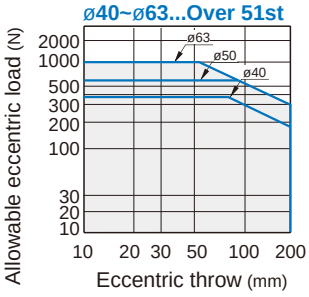
ø12~ø32...Over 51st



ø40~ø63...25-50st



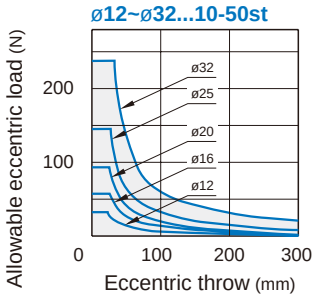
ø40~ø63...Over 51st



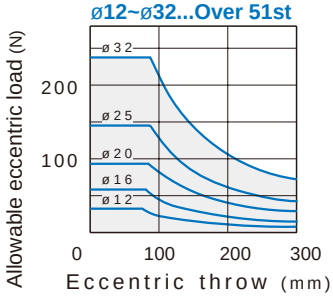
Linear bearing

MCGS-23/27

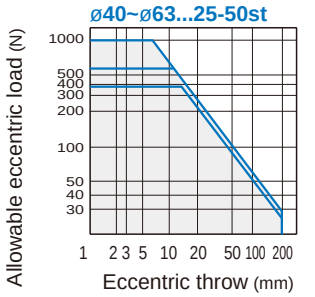
ø12~ø32...10-50st



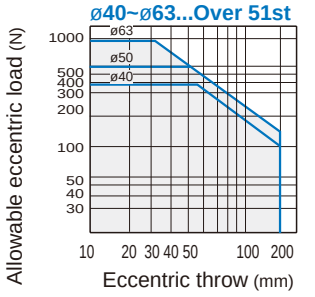
ø12~ø32...Over 51st



ø40~ø63...25-50st

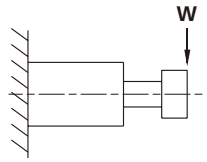


ø40~ø63...Over 51st



Capacity table

Allowable lateral load

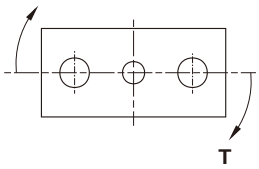


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
ø12	Slide bush	31	24	–	19	16	13	37	31	15	13	12	10	9	–	–	–
	Linear bearing	23	17	–	14	34	30	23	19	12	11	9	8	6	–	–	–
ø16	Slide bush	50	39	–	32	27	24	54	45	27	24	21	19	16	–	–	–
	Linear bearing	36	29	–	24	59	52	40	33	20	17	15	13	10	–	–	–
ø20	Slide bush	–	51	–	44	39	35	54	46	74	66	59	54	28	24	21	19
	Linear bearing	–	43	–	36	98	87	69	57	46	40	36	32	32	27	23	20
ø25	Slide bush	–	68	–	59	52	46	72	61	98	88	79	72	53	46	41	37
	Linear bearing	–	67	–	56	148	132	105	87	70	62	55	50	42	36	30	27
ø32	Slide bush	–	–	165	–	–	129	106	90	138	123	111	101	88	77	68	61
	Linear bearing	–	–	104	–	–	74	165	138	114	100	90	81	66	56	48	42
ø40	Slide bush	–	–	203	–	–	164	182	159	142	127	190	174	150	132	118	106
	Linear bearing	–	–	113	–	–	78	129	106	130	114	106	95	78	67	58	50
ø50	Slide bush	–	–	296	–	–	245	273	241	216	195	190	174	150	132	118	106
	Linear bearing	–	–	120	–	–	83	178	148	148	129	106	95	78	67	58	50
ø63	Slide bush	–	–	296	–	–	245	273	241	216	195	–	–	–	–	–	–
	Linear bearing	–	–	117	–	–	81	176	145	145	126	–	–	–	–	–	–

Allowable rotating torque

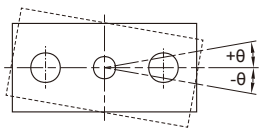


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
ø12	Slide bush	0.64	0.48	–	0.39	0.32	0.28	0.75	0.63	0.15	0.13	0.12	0.11	0.09	–	–	–
	Linear bearing	0.47	0.35	–	0.29	0.71	0.62	0.40	0.38	0.13	0.11	0.09	0.08	0.07	–	–	–
ø16	Slide bush	1.14	0.90	–	0.74	0.63	0.55	1.23	1.04	0.31	0.27	0.24	0.22	0.18	–	–	–
	Linear bearing	0.84	0.66	–	0.54	1.35	1.19	0.93	1.76	0.23	0.19	0.17	0.15	0.12	–	–	–
ø20	Slide bush	–	1.14	–	1.21	1.07	0.95	1.49	1.25	2.03	1.81	1.63	1.48	0.37	0.32	0.29	0.26
	Linear bearing	–	1.19	–	0.99	2.69	2.40	1.89	1.56	1.26	1.10	0.98	0.88	0.43	0.36	0.31	0.27
ø25	Slide bush	–	2.19	–	1.88	1.65	1.47	2.31	1.94	3.15	2.80	2.52	2.30	0.85	0.74	0.66	0.59
	Linear bearing	–	2.14	–	1.79	4.74	4.22	3.36	2.78	2.25	1.98	1.76	1.59	0.68	0.57	0.49	0.42
ø32	Slide bush	–	–	6.61	–	–	5.16	4.23	3.59	5.52	4.93	4.45	4.06	1.72	1.50	1.33	1.20
	Linear bearing	–	–	4.17	–	–	2.95	6.60	5.52	4.56	4.02	3.59	3.24	1.29	1.09	0.94	0.82
ø40	Slide bush	–	–	7.00	–	–	5.66	6.27	5.48	4.87	4.38	5.21	4.79	4.13	3.63	3.23	2.92
	Linear bearing	–	–	5.24	–	–	4.25	7.19	6.33	7.81	7.11	2.93	2.61	2.16	1.83	1.58	1.39
ø50	Slide bush	–	–	13.0	–	–	10.8	12.0	10.6	9.50	8.60	5.88	5.41	4.66	4.09	3.65	3.29
	Linear bearing	–	–	7.02	–	–	5.76	12.3	10.9	11.2	10.2	3.30	2.94	2.43	2.06	1.78	1.57
ø63	Slide bush	–	–	14.7	–	–	12.1	13.5	12.0	10.7	9.69	–	–	–	–	–	–
	Linear bearing	–	–	7.77	–	–	3.35	13.7	12.2	12.5	11.4	–	–	–	–	–	–

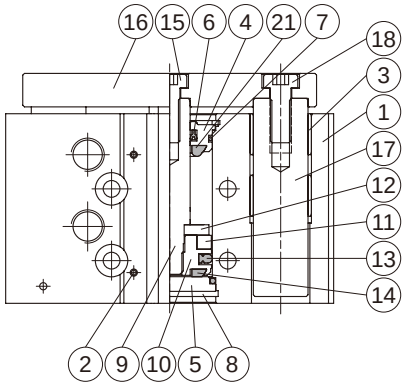
Anti-roll accuracy



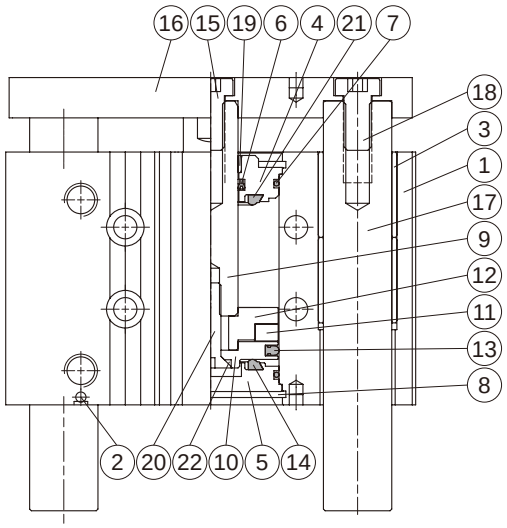
- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø12	Slide bush	±0.09°
	Linear bearing	±0.06°
ø16	Slide bush	±0.08°
	Linear bearing	±0.06°
ø20	Slide bush	±0.08°
	Linear bearing	±0.03°
ø25	Slide bush	±0.07°
	Linear bearing	±0.05°
ø32	Slide bush	±0.07°
	Linear bearing	±0.03°
ø40	Slide bush	±0.06°
	Linear bearing	±0.08°
ø50	Slide bush	±0.05°
	Linear bearing	±0.06°
ø63	Slide bush	±0.05°
	Linear bearing	±0.06°

ø12~ø32



ø40~ø63



Material

No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover	Aluminum alloy								1	
5	Head cover	(*)	Carbon steel				Aluminum alloy			1	
6	Rod packing	NBR								1	●
7	Cover ring	NBR								2	●
8	Snap ring	Spring steel								2	
9	Piston rod	Stainless steel			Carbon steel					1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel					Aluminum alloy			1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Carbon steel								2	
18	Screw	SCM								2	
19	Rod bush	—					Bearing alloy			1	
20	Piston bolt	—					SCM			1	
21	Rod cushion	NBR								1	●
22	Piston gasket	—					NBR			1	●

* Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ø12	**PS-MCGS-12**
ø16	**PS-MCGS-16**
ø20	**PS-MCGS-20**
ø25	**PS-MCGS-25**
ø32	**PS-MCGS-32**
ø40	**PS-MCGS-40**
ø50	**PS-MCGS-50**
ø63	**PS-MCGS-63**

Cylinder weight

Unit: g

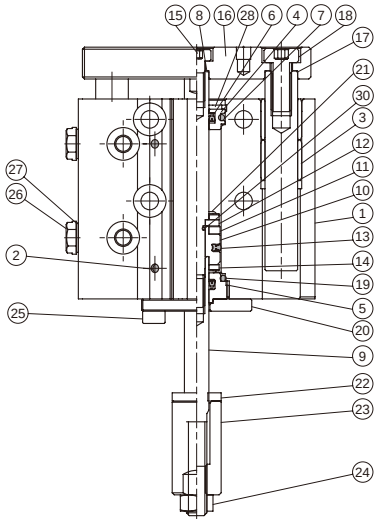
Model	Basic weight **MCGS-03**	Stroke 5mm **MCGS-03**
Tube I.D.		
ø12	191	21
ø16	283	28
ø20	450	45
ø25	670	63
ø32	1,210	90
ø40	1,474	88
ø50	2,540	140
ø63	3,295	151

MCGS-07 Inside structure & Parts list

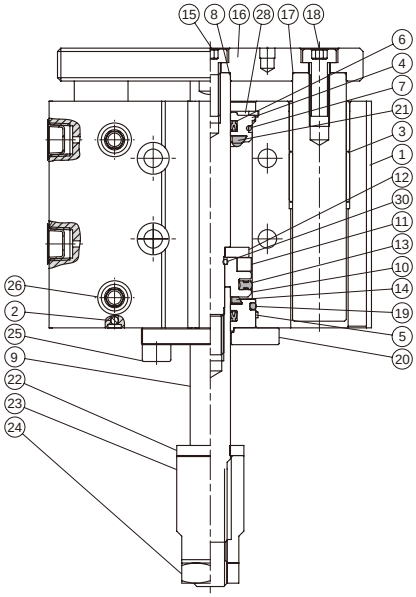
TWIN-GUIDE CYLINDER

mindman

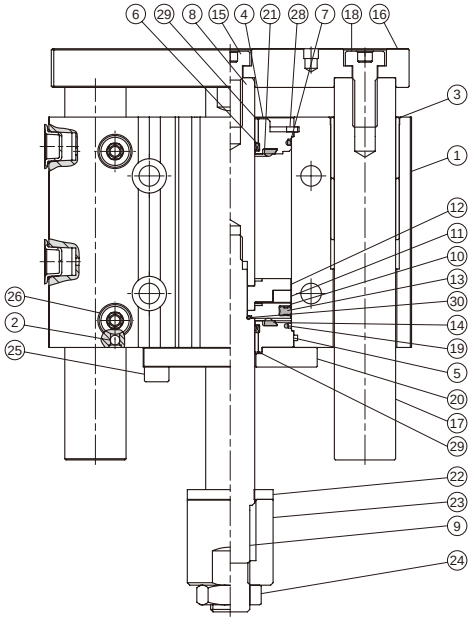
ø12~ø16



ø20~ø32



ø40~ø63



Material

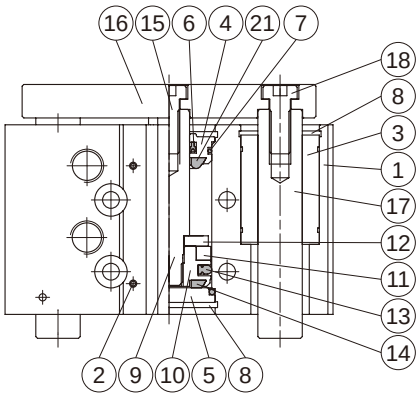
No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
7	Cover ring #1	NBR								1	●
8	Piston rod #1	Stainless steel			Carbon steel					1	
9	Piston rod #2	Stainless steel			Carbon steel					1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel					Aluminum alloy			1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Carbon steel								2	
18	Bolt	SCM								2	
19	Cover ring #2	NBR								1	●
20	FBC board	Carbon steel								1	
21	Rod cushion	NBR								1	●
22	Gasket	PU								1	
23	Adjustable nut	Carbon steel								1	
24	Nut	Carbon steel								1	
25	Bolt	Stainless steel			SCM					2	
26	Screw	Bronze alloy			Carbon steel (*)					2	
27	Washer	PET			—					2	
28	Snap ring	Spring steel								1	
29	Bush	—					Bearing alloy			2	
30	Piston gasket	NBR								1	●

Order example of repair kits

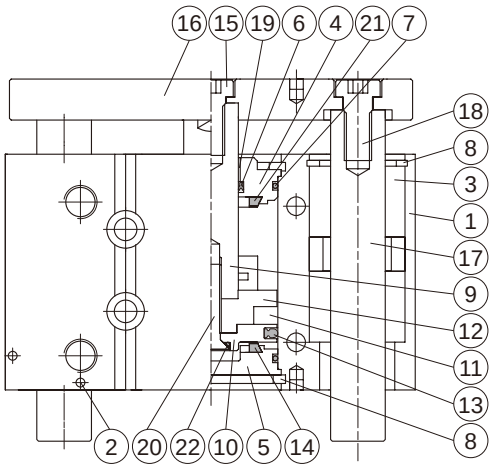
Tube I.D.	Repair kits
ø12	**PS-MCGS-2-12**
ø16	**PS-MCGS-2-16**
ø20	**PS-MCGS-2-20**
ø25	**PS-MCGS-2-25**
ø32	**PS-MCGS-2-32**
ø40	**PS-MCGS-2-40**
ø50	**PS-MCGS-2-50**
ø63	**PS-MCGS-2-63**

* The material changes into bronze alloy when the part thread is BSPF. (JISPF)

ø12~ø32



ø40~ø63



Material

No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1	
3	Linear bearing	—								2 or 4	
4	Rod cover	Aluminum alloy								1	
5	Head cover	(*)	Carbon steel				Aluminum alloy			1	
6	Rod packing	NBR								1	●
7	Cover ring	NBR								2	●
8	Snap ring	Spring steel								2	
9	Piston rod	Stainless steel			Carbon steel					1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel					Aluminum alloy			1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Special steel								2	
18	Screw	SCM								2	
19	Rod bush	—					Bearing alloy			1	
20	Piston bolt	—					SCM			1	
21	Rod cushion	NBR								1	●
22	Piston gasket	—					NBR			1	●

* Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ø12	**PS-MCGS-12**
ø16	**PS-MCGS-16**
ø20	**PS-MCGS-20**
ø25	**PS-MCGS-25**
ø32	**PS-MCGS-32**
ø40	**PS-MCGS-40**
ø50	**PS-MCGS-50**
ø63	**PS-MCGS-63**

Cylinder weight

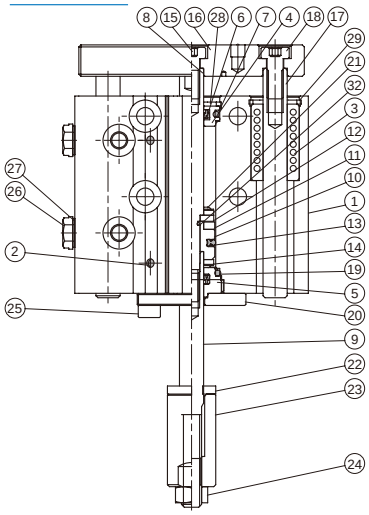
Unit: g

Model	Basic weight **MCGS-23**	Stroke 5mm **MCGS-23**
Tube I.D.		
ø12	211	18
ø16	260	30
ø20	470	45
ø25	740	60
ø32	1,170	85
ø40	1,300	98
ø50	2,360	150
ø63	3,010	168

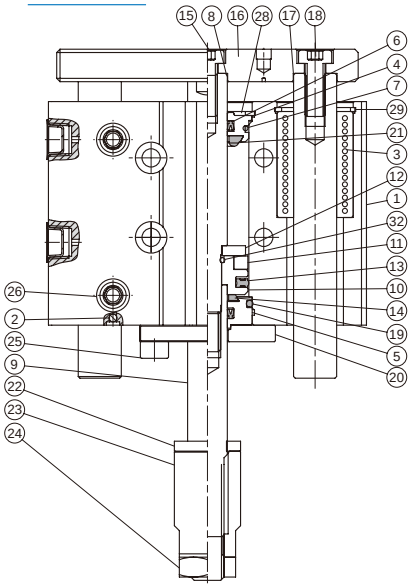
MCGS-27 Inside structure & Parts list

TWIN-GUIDE CYLINDER

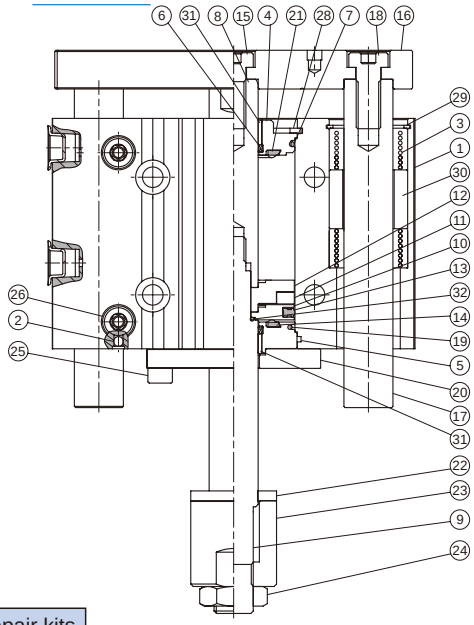
ø12~ø16



ø20~ø32



ø40~ø63



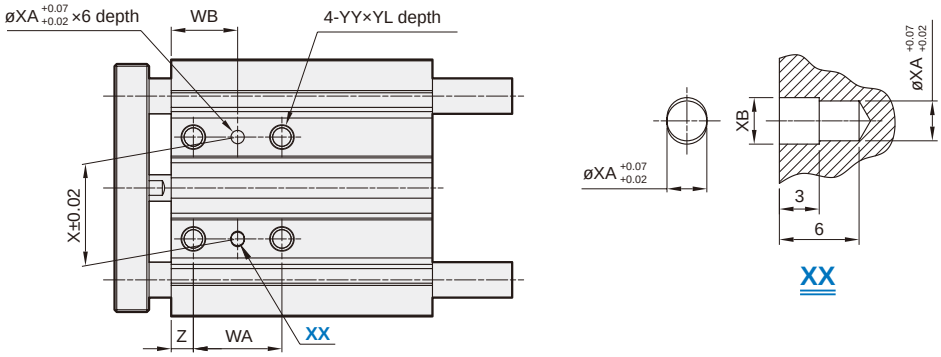
Material

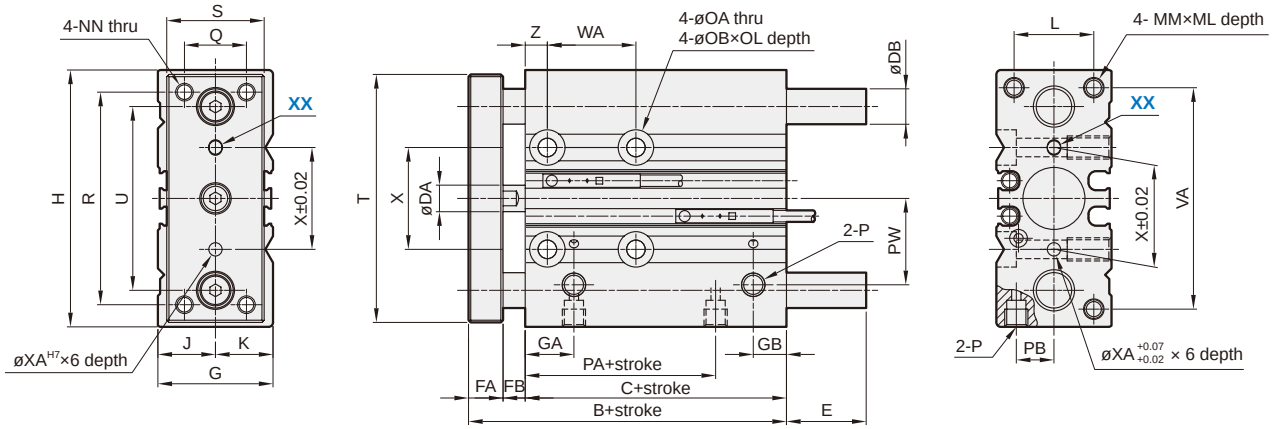
No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Linear bearing	—								2 or 4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
7	Cover ring #1	NBR								1	●
8	Piston rod #1	Stainless steel			Carbon steel					1	
9	Piston rod #2	Stainless steel			Carbon steel					1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel					Aluminum alloy			1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Special steel								2	
18	Bolt	SCM								2	
19	Cover ring #2	NBR								1	●
20	FBC board	Carbon steel								1	
21	Rod cushion	NBR								1	●
22	Gasket	PU								1	
23	Adjustable nut	Carbon steel								1	
24	Nut	Carbon steel								1	
25	Bolt	Stainless steel		SCM						2	
26	Screw	Bronze alloy		Carbon steel (*2)						2	
27	Washer	PET		—						2	
28	Snap ring #1	Spring steel								1	
29	Snap ring #2	Spring steel								2	
30	Collar (*1)	Aluminum alloy		Carbon steel						2	
31	Bush	—					Bearing alloy			2	
32	Piston gasket	NBR								1	●

Order example of repair kits

Tube I.D.	Repair kits
ø12	**PS-MCGS-2-12**
ø16	**PS-MCGS-2-16**
ø20	**PS-MCGS-2-20**
ø25	**PS-MCGS-2-25**
ø32	**PS-MCGS-2-32**
ø40	**PS-MCGS-2-40**
ø50	**PS-MCGS-2-50**
ø63	**PS-MCGS-2-63**

*1. Use for stroke 101 or more.
*2. The material changes into bronze alloy when the part thread is BSPF. (JISPF)





MCGS-03 / MCGS-23

Code / Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	H	J	K	L	MM	ML	NN	OA	OB	OL	P	PA	PB
				03 type	23 type																		
12	42	29	6	8	6	8	5	26	11	15(*1)	58	13	13	18	M4×0.7	10	M4×0.7	4.3	8.0	4.5	M5×0.8	14	8.5
16	46	33	8	10	8	8	5	30	11	18(*2)	64	15	15	22	M5×0.8	12	M5×0.8	4.3	8.0	4.5	M5×0.8	15	10.0
20	53	37	10	12	10	10	6	36	10.5	8.5	85	17	19	24	M5×0.8	13	M5×0.8	5.2	9.5	5.5	Rc1/8	12.5	11.5
25	53.5	37.5	12	16	13	10	6	42	11.5	9	96	21	21	30	M6×1.0	15	M6×1.0	5.2	9.5	5.5	Rc1/8	12.5	13.5
32	59.5	37.5	16	20	16	12	10	51	12.5	9	116	26	25	34	M8×1.25	20	M8×1.25	6.6	11.0	7.5	Rc1/8	7	16.0

Code / Tube I.D.	PW	Q	R	S	T	U	VA	X	XA	XB	YY	YL	Z
12	18	14	48	22	56	41.5	50	23	3	3.5	M5×0.8	10	5
16	19	16	54	25	62	46	56	24	3	3.5	M5×0.8	10	5
20	25	18	70	30	81	55	72	28	3	3.5	M6×1.0	12	17
25	28.5	26	78	38	91	65	82	34	4	4.5	M6×1.0	12	17
32	34	30	96	44	110	80	98	42	4	4.5	M8×1.25	16	21

Code / Tube I.D.	WA					WB				
	~39st	40~100st	125~200st	201st~300st	301st~	20~39st	40~100st	125~200st	201~300st	301st~
12	20	40	110	200	—	15	25	60	105	—
16	24	44	110	200	—	17	27	60	105	—
20	24	44	120	200	300	29	39	77	117	167
25	24	44	120	200	300	29	39	77	117	167

Code / Tube I.D.	WA					WB				
	25~49st	50~100st	125~200st	201st~300st	301st~	25~49st	50~100st	125~200st	201~300st	301st~
32	24	48	124	200	300	33	45	83	121	171

*1. When stroke length is equal to 19mm or less, GB=7.5 mm
*2. When stroke length is equal to 19mm or less, GB=9 mm

MCGS-03

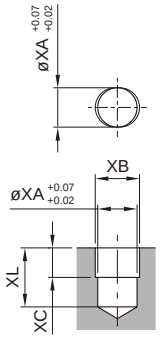
Code / Tube I.D.	E		
	10~50st	51~100st	101st~
12	—	18.5	43
16	—	18.5	49
	10~50st	51~200st	201st~
20	—	31.5	69
25	—	31.5	68.5
32	37.5	42.5	80.5

MCGS-23

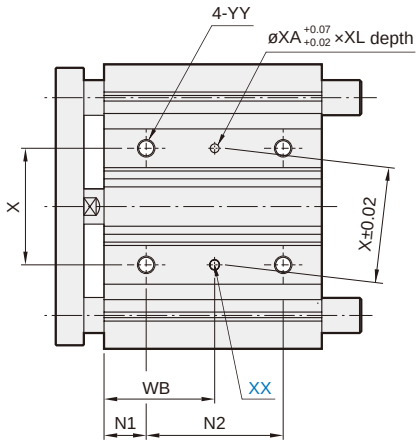
Code / Tube I.D.	E			
	10~30st	31~100st	101st~	
12	1	13	43	
16	3	19	49	
	20~30st	31~100st	101~200st	201st~
20	10	27	51	69
25	16	32	51	68.5
32	21.5	38.5	58.5	80.5

MCGS-03/23 Dimensions ø40~ø63

TWIN-GUIDE CYLINDER

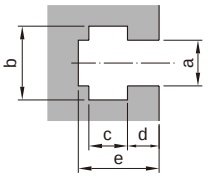


XX



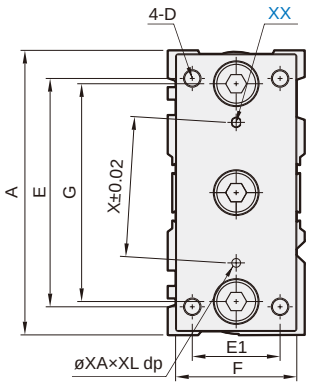
Back side

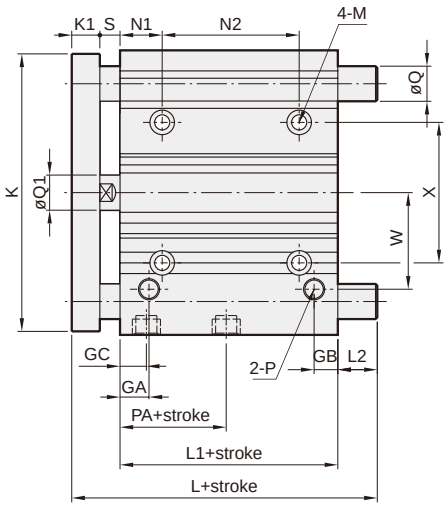
T slot for hexagon head bolt

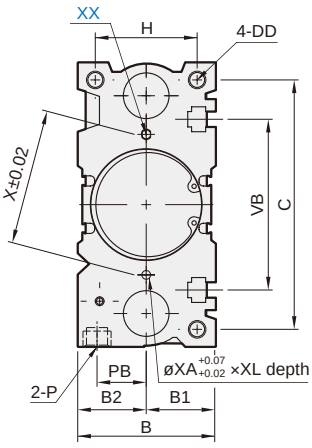


T slot for hexagon head bolt

Code / Tube I.D.	a	b	c	d	e
40	6.5	10.5	5.5	4	11
50	8.5	13.5	7.5	4.5	13.5
63	11	17.8	10	7	18.5







MCGS-03 / MCGS-23

Code / Tube I.D.	A	B	B1	B2	C	D	DD	E	E1	F	G	GA	GB	GC	H	K	K1	L1	M	N1	P
40	120	54	27	27	106	M8×1.25	M8×1.25×20 dp	104	30	44	86	14	10	14	40	118	12	44	ø6.8thru, ø11×7.5dp	22	Rc1/8
50	148	64	32	32	130	M10×1.5	M10×1.5×22 dp	130	40	60	110	14	11	12	46	146	16	44	ø8.6thru, ø14×9dp	24	Rc1/4
63	162	78	39	39	142	M10×1.5	M10×1.5×22 dp	130	50	70	124	16.5	13.5	16.5	58	158	16	49	ø8.6thru, ø14×9dp	24	Rc1/4

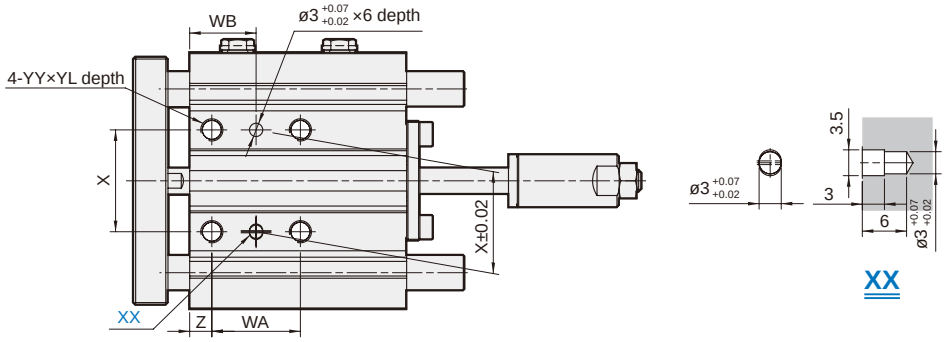
Code / Tube I.D.	PA	PB	Q1	S	VB	W	X	XA	XB	XC	XL	YY	N2					WB				
													25st	50,75,100st	101st~200st	201~300st	301~400st	25st	50,75,100st	101st~200st	201~300st	301~400st
40	13	18	16	10	72	38	50	4	4.5	3	6	M8×1.25×16 dp	24	48	124	200	300	34	46	84	122	172
50	9	21.5	20	12	92	47	66	5	6	4	8	M10×1.5×20 dp	24	48	124	200	300	36	48	86	124	174
63	14	28	20	12	110	55	80	5	6	4	8	M10×1.5×20 dp	28	52	128	–	–	38	50	88	–	–

MCGS-03

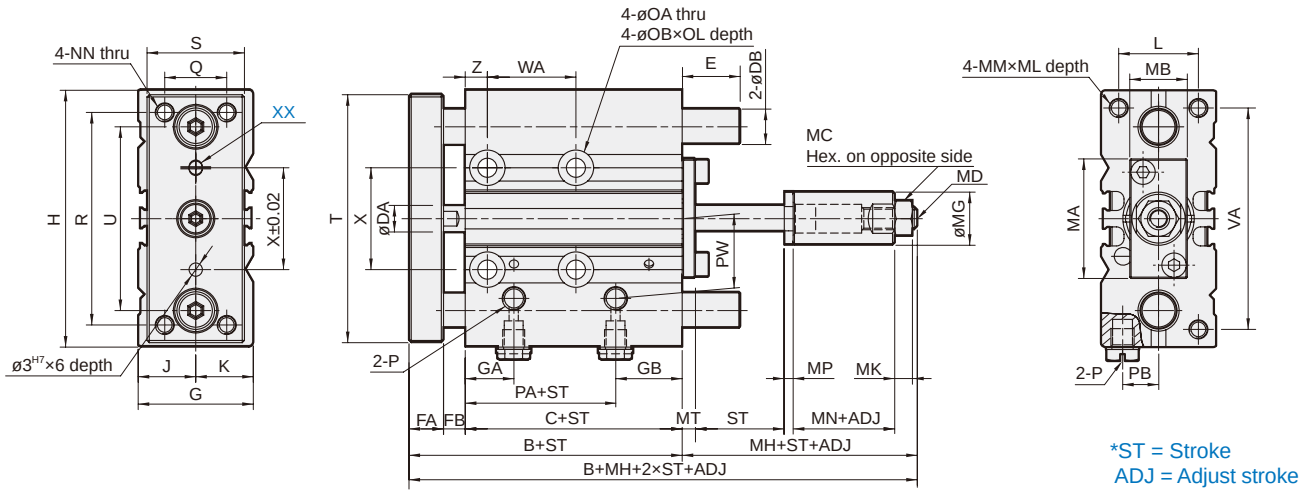
Code / Tube I.D.	L		L2			Q
	25,50st	51st~	25,50st	51~200st	201~400st	
40	97	102	31	36	63.5	ø20
50	106.5	118	34.5	46	78.5	ø25
63	106.5	118	29.5	41	–	ø25

MCGS-23

Code / Tube I.D.	L			L2				Q
	25,50st	75,100st	101st~	25,50st	75,100st	101~200st	201~400st	
40	81	98	118	15	32	52	72.5	ø16
50	93	114	134	21	42	62	87.5	ø20
63	93	114	134	16	37	57	–	ø20



Back side



*ST = Stroke
ADJ = Adjust stroke

MCGS-07 / MCGS-27

Code / Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	H	J	K	L	MA	MB	MC	MD	MG	MH	MK	MN	MM	ML	MP	MT
				07 type	27 type																					
12	42	29	6	8	6	8	5	26	11	15(*1)	58	13	13	18	27	13	8	M5×0.8	12	23	4	13	M4×0.7	10	2	3
16	46	33	8	10	8	8	5	30	11	18(*2)	64	15	15	22	28	16	10	M6×1.0	15	26	5	15	M5×0.8	12	2	3
20	53	37	10	12	10	10	6	36	10.5	8.5	85	17	19	24	33	22	13	M8×1.25	20	26	5	12	M5×0.8	13	3	4

Code / Tube I.D.	NN	OA	OB	OL	P	PA	PB	PW	Q	R	S	T	U	VA	X	YY	YL	Z
12	M4×0.7	4.3	8	4.5	M5×0.8	14	8.5	18	14	48	22	56	41.5	50	23	M5×0.8	10	5
16	M5×0.8	4.3	8	4.5	M5×0.8	15	10.0	19	16	54	25	62	46	56	24	M5×0.8	10	5
20	M5×0.8	5.2	9.5	5.5	Rc1/8	12.5	11.5	25	18	70	30	81	55	72	28	M6×1.0	12	17

Code / Tube I.D.	WA					WB				
	10~39st	40~100st	125~200st	201st~300st		10~39st	40~100st	125~200st	201~300st	
12	20	40	110	200		15	25	60	105	
	~39st	40~100st	125~200st	201st~300st		~39st	40~100st	125~200st	201st~300st	
16	24	44	110	200		17	27	60	105	
	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st	201st~300st	301st~
20	24	44	120	200	300	29	39	77	117	167

MCGS-07

Code / Tube I.D.	E		
	~50st	51~100st	101st~
12	0	18.5	43
	10~50st	51~100st	101st~
16	0	18.5	49
	~50st	51~200st	201st~
20	0	31.5	69

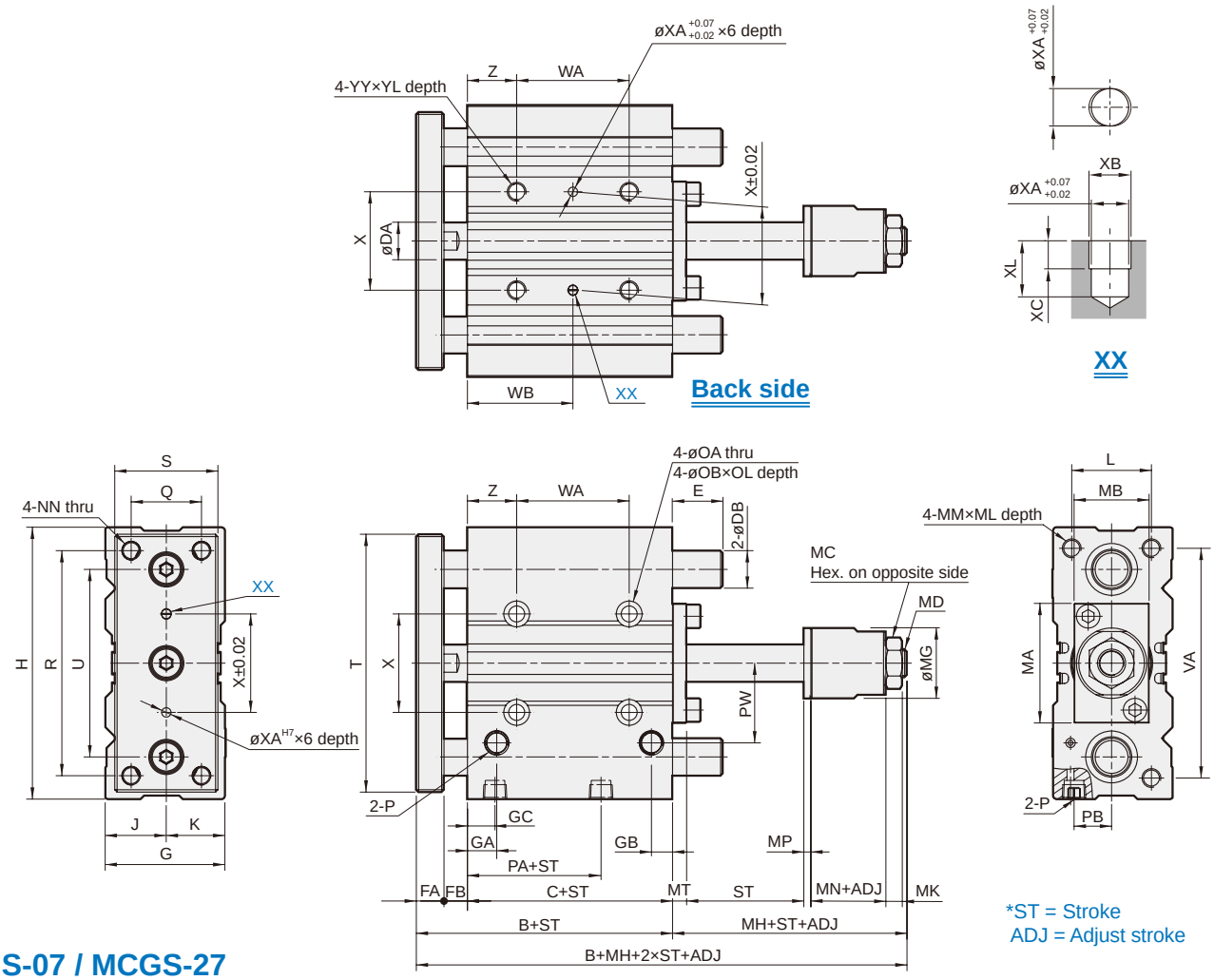
MCGS-27

Code / Tube I.D.	E			
	~30st	31~100st	101st~	
12	1	13	43	
	10~30st	31~100st	101st~	
16	3	19	49	
	20~30st	31~100st	101~200st	201st~
20	10	27	51	69

*1. When stroke length is equal to 19mm or less, GB=7.5 mm
*2. When stroke length is equal to 19mm or less, GB=9 mm

MCGS-07/27 Dimensions ø25~ø63

TWIN-GUIDE CYLINDER



MCGS-07 / MCGS-27

Code / Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	GC	H	J	K	L	MA	MB	MC	MD	MG	MH	MK	MN	MM	ML	MP	MT
				07 type	27 type																						
25	53.5	37.5	12	16	13	10	6	42	11.5	9	11.5	96	21	21	30	41	25	17	M10×1.25	20	27	6	12	M6×1.0	15	3	5
32	59.5	37.5	16	20	16	12	10	51	12.5	9	12.5	116	26	25	34	51	32	19	M12×1.25	30	30	7	12	M8×1.25	20	3	6
40	66	44	16	20	16	12	10	54	14	10	14	120	27	27	40	60	32	19	M12×1.25	30	30	7	12	M8×1.25	20	3	6
50	72	44	20	25	20	16	12	64	14	11	12	148	32	32	46	71	38	24	M16×1.5	35	38	8	15	M10×1.5	22	4	8
63	77	49	20	25	20	16	12	78	16.5	13.5	16.5	162	39	39	58	84	50	24	M16×1.5	35	38	8	15	M10×1.5	22	4	8

Code / Tube I.D.	NN	OA	OB	OL	P	PA	PB	PW	Q	R	S	T	U	VA	X	XA	XB	XC	XL	YY	YL	Z
25	M6×1.0	5.2	9.5	5.5	Rc1/8	12.5	13.5	28.5	26	78	38	91	65	82	34	4	4.5	3	6	M6×1.0	12	17
32	M8×1.25	6.6	11	7.5	Rc1/8	7	16	34	30	96	44	110	80	98	42	4	4.5	3	6	M8×1.25	16	21
40	M8×1.25	6.8	11	7.5	Rc1/8	13	18	38	30	104	44	118	86	106	50	4	4.5	3	6	M8×1.25	16	22
50	M10×1.5	8.6	14	9	Rc1/4	9	21.5	47	40	130	60	146	110	130	66	5	6	4	8	M10×1.5	20	24
63	M10×1.5	8.6	14	9	Rc1/4	14	28	55	50	130	70	158	124	142	80	5	6	4	8	M10×1.5	20	24

Code / Tube I.D.	WA						WB					
	~39st	40~100st		125~200st	201st~300st	301st~	~39st	40~100st		125~200st	201~300st	301st~
25	24	44		120	200	300	29	39		77	117	167
32	~49st	50~100st		125~200st	201st~300st	301st~	~49st	50~100st		125~200st	201st~300st	301st~
	24	48		124	200	300	33	45		83	121	171
40	~49st	50~69st	70~100st	125~200st	201st~300st	301st~	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
	24	48	48	124	200	300	34	46	46	84	122	172
50	~49st	50~69st	70~100st	125~200st	201st~300st	301st~	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
	24	48	48	124	200	300	36	48	48	86	124	174
63	~49st	50~100st		125st~			~49st	50~100st		125st~		
	28	52		128			38	50		88		

MCGS-07

Code / Tube I.D.	E		
	~50st	51~200st	201st~
25	0	31.5	68.5
32	37.5	42.5	80.5
40	31	36	63.5
50	34.5	46	78.5
63	~50st	51st~	
	29.5	41	

MCGS-27

Code / Tube I.D.	E			
	20~30st	31~100st	101~200st	201st~
25	16	32	51	68.5
32	20~50st	51~100st	101~200st	201st~
	21.5	38.5	58.5	80.5
40	~69st	70~100st	101~200st	201st~
	15	32	52	72.5
50	21	42	62	87.5
63	~69st	70~100st	101st~	
	16	37	57	

MCGI series

COMPACT **TWIN-GUIDE CYLINDER**

Features

- Higher loading capacity compared to unguided standard compact cylinders.
- Wide range of bore sizes and strokes.
- Ultra compact, light weight and space saving.
- Sensor slots on RCI sides for flush mounting of proximity sensors.
- Magnetic as standard.

Specification

Model	MCGI	
Acting type	Double acting	
Tube I.D. (mm)	20,25	32,40,50,63,80,100
Port size	M5×0.8	G1/8
Medium	Air	
Operating perssure range	0.15~1 MPa	0.1~1 MPa
Proof pressure	1.5 MPa	
Ambient temperature	–5~+60°C (No freezing)	
Cushion	Rubber bumper	
Available speed range	50~500 mm/sec	
Stroke length tolerance (*)	+0~+1.0 mm	
Lubricator	Without lubrication	
Sensor switch	RCI (Please refer to page 8-13)	

* Stroke length tolerance does not include the amount of bumper change.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100
ø32,40	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 150, 200
ø50,63,80,100	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 150, 200, 250, 300

● Please consult us if stroke out of specification.

Order example

MCGI — 12 — 20 — 25

MODEL | TUBE I.D. | STROKE

PURPOSE / TYPE OF BEARING

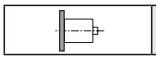
Code	Purpose / Type of bearing
12	Lift / Slide bush

Mounting accessories

FBC — MCJI — 20

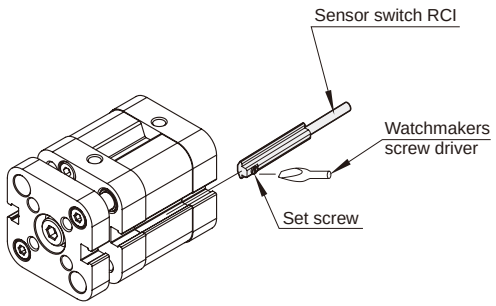
MODEL | TUBE I.D.

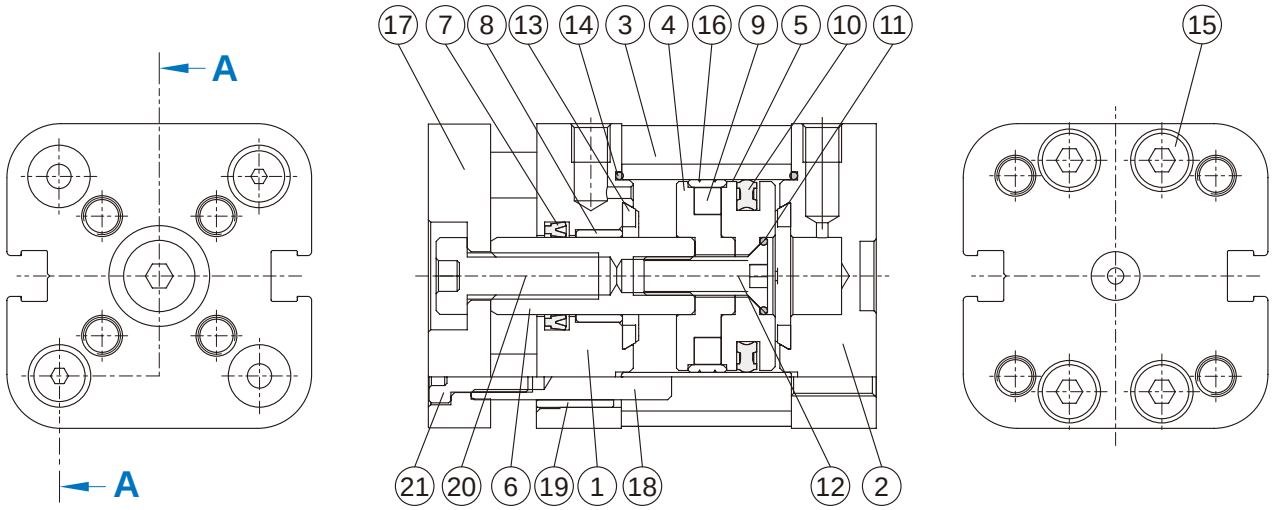
MOUNTING TYPE

	**FBC**

* Use the same accessory with **MCJI**.

Installation of sensor switch





A-A

Material

No.	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod cover	Aluminum alloy	1	●	
2	End cover	Aluminum alloy	1	●	
3	Tube	Aluminum alloy	1		
4	Piston-R	Aluminum alloy	1	●	
5	Piston-H	Aluminum alloy	1	●	
6	Piston rod	(*)	1		
7	Rod packing	NBR	1	●	●
8	Bush	Bearing alloy	1	●	
9	Magnet ring	Magnet material	1	●	
10	Piston packing	NBR	1	●	●
11	O-ring	NBR	1	●	●
12	Screw	Carbon steel	1	●	
13	Cushion	NBR	2	●	●
14	O-ring	NBR	2	●	●
15	Screw	Stainless steel	6	●	
16	Wear ring	Teflon	1	●	
17	Plate	Aluminum alloy	1	●	
18	Guide rod	Medium carbon steel	2		
19	Guide rod bush	Bearing alloy	2	●	
20	Bolt for piston rod	Carbon steel	1	●	
21	Bolt for guide rod	Carbon steel	2	●	

* Material ø20,ø25: Stainless steel
ø32~ø100: Medium carbon steel

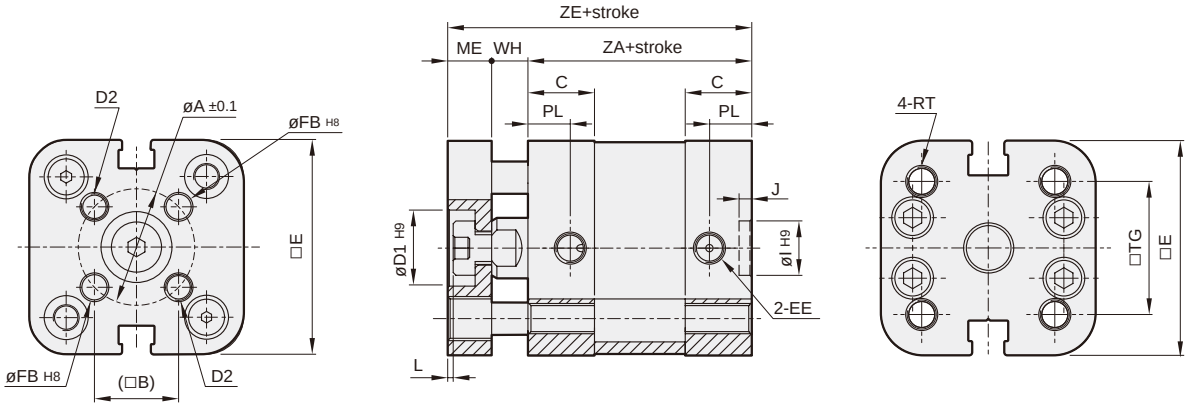
Order example of component parts / repair kits

Tube I.D.	Component parts	Repair kits
ø20	**CP-MCGI-20**	**PS-MCJI-20**
ø25	**CP-MCGI-25**	**PS-MCJI-25**
ø32	**CP-MCGI-32**	**PS-MCJI-32**
ø40	**CP-MCGI-40**	**PS-MCJI-40**
ø50	**CP-MCGI-50**	**PS-MCJI-50**
ø63	**CP-MCGI-63**	**PS-MCJI-63**
ø80	**CP-MCGI-80**	**PS-MCJI-80**
ø100	**CP-MCGI-100**	**PS-MCJI-100**

*Use the same repair kits with **MCJI**.

Cylinder weight

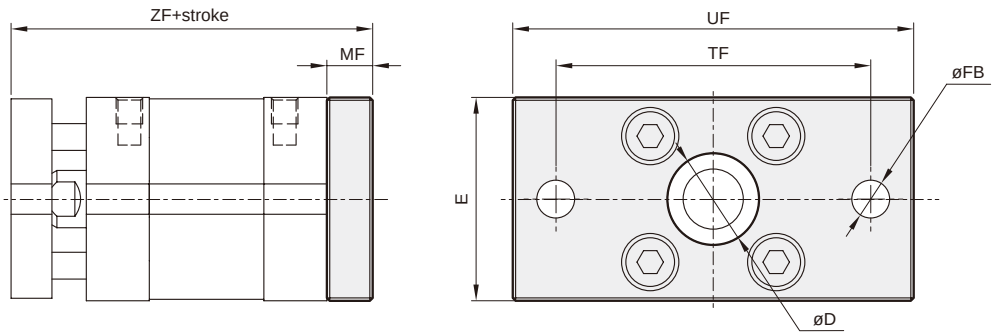
Model	Basic weight **MCGI-12**	Stroke 5mm **MCGI-12**
Tube I.D.		
ø20	146	18
ø25	172	22
ø32	280	28
ø40	378	40
ø50	614	58
ø63	871	60
ø80	1,564	94
ø100	2,595	100



Code / Tube I.D.	A	B	C	D1	D2	E	EE	FB	I	J	L	ME	PL	RT	TG	WH	ZA	ZE
20	17	12	11	11	M4×0.7	35.5	M5×0.8	4	9	2.1	1	8	7	M5×0.8	22	6	37	51
25	22	15.6	11	14	M5×0.8	39.5	M5×0.8	5	9	2.1	1	8	7	M5×0.8	26	6	39	53
32	28	19.8	14	17	M5×0.8	47	G1/8	5	9	2.1	1.5	10	7.5	M6×1.0	32.5	7	44	61
40	33	23.3	14	17	M5×0.8	54.5	G1/8	5	9	2.1	1.5	10	7.5	M6×1.0	38	7	45	62
50	42	29.7	14	22	M6×1.0	65.5	G1/8	6	12	2.6	1.5	12	7.5	M8×1.25	46.5	8	45	65
63	50	35.4	14.5	22	M6×1.0	75.5	G1/8	6	12	2.6	1.5	12	7.5	M8×1.25	56.5	8	49	69
80	65	46	15.5	24	M8×1.25	95.5	G1/8	8	12	2.6	2	14	8	M10×1.5	72	10	54	78
100	80	56.6	18.5	24	M10×1.5	113.5	G1/8	10	12	2.6	2	14	9.5	M10×1.5	89	10	67	91

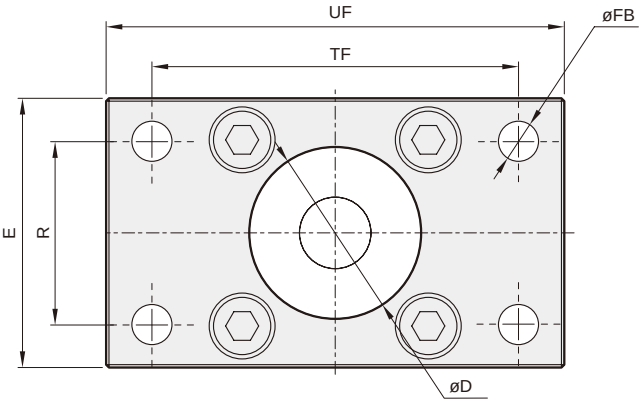
FBC

ø20, ø25



ø32~ø100

Code / Tube I.D.	D	E	FB	MF	R	TF	UF	ZF
20	16	35.5	6.6	8	—	55	70	59
25	16	39.5	6.6	8	—	60	76	61
32	30	47	7	10	32	64	80	71
40	35	54.5	9	10	36	72	90	72
50	40	65.5	9	12	45	90	110	77
63	45	75.5	9	12	50	100	120	81
80	45	95.5	12	16	63	126	150	94
100	55	113.5	14	16	75	150	175	107



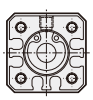
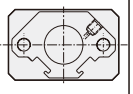
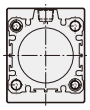
MCGJ series

TWIN-GUIDE CYLINDER

Features

- Higher loading capacity compared to unguided standard compact cylinders.
- Wide range of bore sizes available 12mm ~ 100mm.
- Up to 6 flush fitting reed switches can be mounted.
- Piston rod available in high resistant carbon steel or stainless steel.
- Magnetic as standard.

Specification

Model	MCGJ			
Model (Up view)				
Acting type	Double acting			
Tube I.D. (mm)	12,16	20,25	32,40	50,63,80,100
Port size	M5×0.8		Rc1/8	Rc1/4
Medium	Air			
Operating perssure range	0.1~1 MPa			
Proof pressure	1.5 MPa			
Ambient temperature	–5~+60°C (No freezing)			
Cushion	Without	With rubber cushion pad		
Available speed range	50~500 mm/sec			
Lubrication	Not required			
Sensor switch (*) RCB		●		●
Sensor switch (*) RCE, RCE1	●		●	●
Sensor switch (*) RDEP	●		●	●

* RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17.

Order example

MCGJ – 12 – 12 – 50 – □

MODEL

TUBE I.D.

STROKE

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
12	Lift / Slide bush

PORT THREAD

Blank: M5×0.8 (for ø12~ø25)
Blank: Rc thread
G: G thread
NPT: NPT thread (for ø32~ø100)

Weight

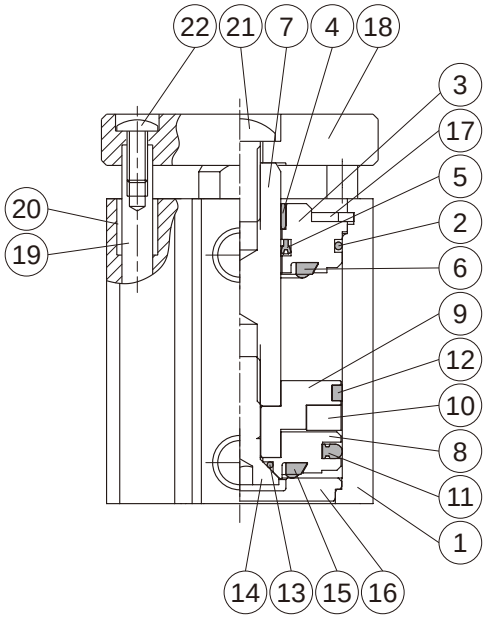
Unit: g

Tube I.D.	Basic weight **MCGJ-12**	Stroke 5 mm **MCGJ-12**
ø12	45	7
ø16	66	8
ø20	110	14
ø25	148	16
ø32	241	23
ø40	349	25
ø50	595	38
ø63	904	46
ø80	1648	72
ø100	2752	97

Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm) 5	10	15	20	25	30	35	40	45	50
MCGJ (Slide bush)	ø12	■	■	■	■	■	■	■	■	■	■
	ø16	■	■	■	■	■	■	■	■	■	■
	ø20	■	■	■	■	■	■	■	■	■	■
	ø25	■	■	■	■	■	■	■	■	■	■
	ø32*	■	■	■	■	■	■	■	■	■	■
	ø40	■	■	■	■	■	■	■	■	■	■
	ø50		■	■	■	■	■	■	■	■	■
	ø63		■	■	■	■	■	■	■	■	■
	ø80		■	■	■	■	■	■	■	■	■
	ø100		■	■	■	■	■	■	■	■	■

* Please consult us if stroke out of specification.



Material

No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Cover ring	NBR	2	●
3	Rod cover	Aluminum alloy	1	
4	Rod bush	Bearing alloy (for ø40~ø100)	1	
5	Rod packing	NBR	1	●
6	Rod cushion	NBR	1	●
7	Piston rod	Carbon steel	1	
8	Piston	Aluminum alloy	1	
9	Piston for magnet ring	Aluminum alloy	1	
10	Magnet ring	Magnet material	1	
11	Piston packing	NBR	1	●
12	Wear ring	Teflon	1	
13	Piston gasket	NBR	1	●
14	Bolt for piston	Carbon steel	1	
15	Head cushion	NBR	1	●
16	End cover	Aluminum alloy	1	
17	Snap ring	Spring steel	1	
18	Plate	Aluminum alloy	1	
19	Guide rod	Carbon steel	2	
20	Guide rod bush	Bearing alloy	2	
21	Bolt for piston rod	Carbon steel	1	
22	Bolt for guide rod	Carbon steel	2	

Order example of repair kits

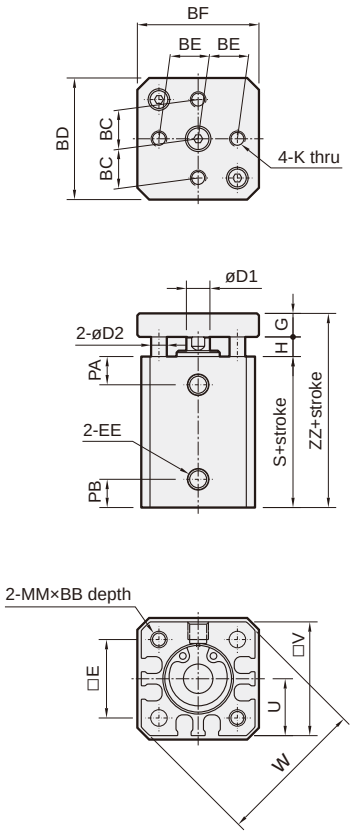
Tube I.D.	Repair kits
ø12	**PS-MCGJ-12**
ø16	**PS-MCGJ-16**
ø20	**PS-MCGJ-20**
ø25	**PS-MCGJ-25**
ø32	**PS-MCGJ-32**
ø40	**PS-MCGJ-40**
ø50	**PS-MCGJ-50**
ø63	**PS-MCGJ-63**
ø80	**PS-MCGJ-80**
ø100	**PS-MCGJ-100**

MCGJ Dimensions ø12~ø100

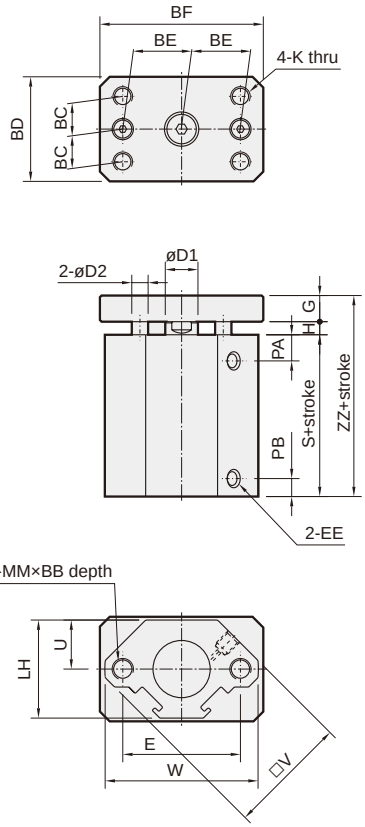
TWIN-GUIDE CYLINDER

mindman

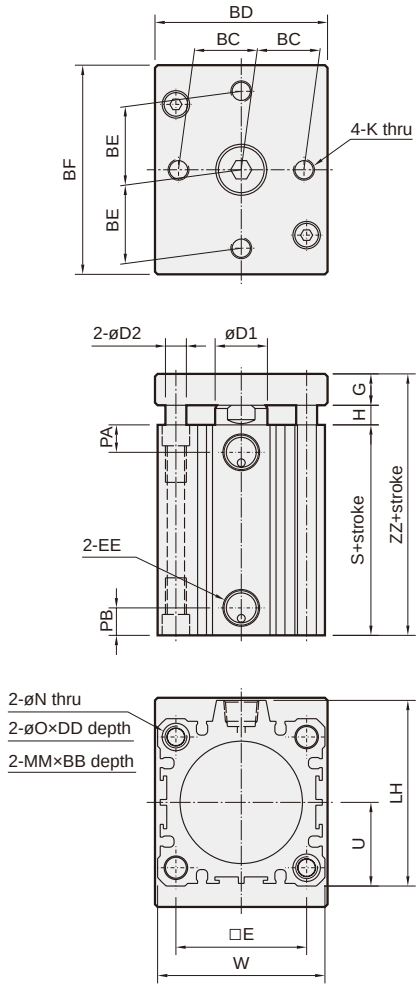
ø12, ø16



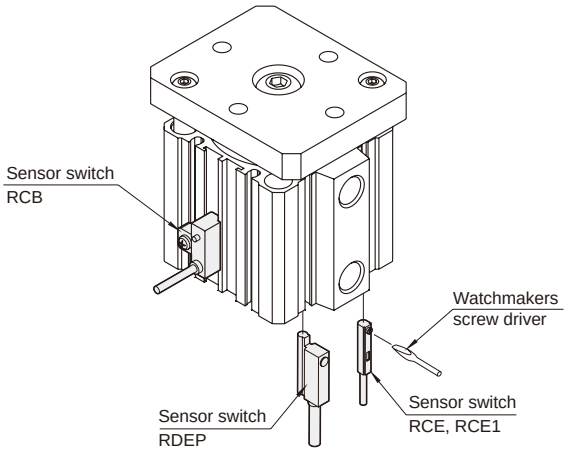
ø20, ø25



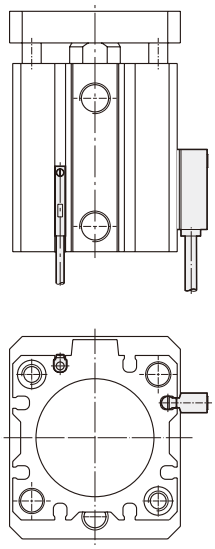
ø32~ø100



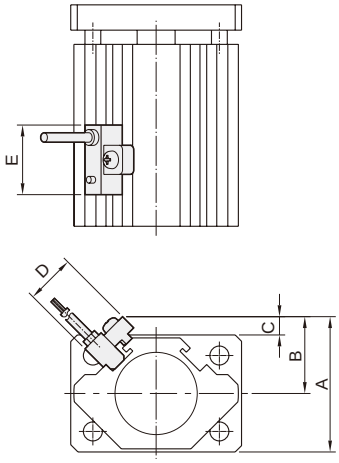
Code / Tube I.D.	BB	BC	BD	BE	BF	D1	D2	DD	E	EE	G	H	K	LH	MM	N	O	PA	PB	S	U	V	W	ZZ
12	10	9	27	9	27	6	4		15.5	M5×0.8	6	4.5	M4×0.7		M5×0.8			6.5	6.5	22	12.5	25	32	32.5
16	10	10	31	10	31	6	4		20	M5×0.8	6	5	M4×0.7		M5×0.8			7.2	7.2	28.5	14.5	29	38	39.5
20	10	10	32	18	50	10	5		36	M5×0.8	8	4	M6×1.0	30	M6×1.0			8	5.5	29.5	15	37	47	41.5
25	10	12	37	20	54	12	5		40	M5×0.8	8	4.5	M6×1.0	35	M6×1.0			9.5	5.5	32.5	17.5	40	52	45
32	10	16	47	20	56	16	6	7	34	Rc1/8	10	6.5	M6×1.0	49.5	M6×1.0	5.5	9	10.5	8	33	22.5		45	49.5
40	10	19	54	25	64	16	6	7	40	Rc1/8	10	6.5	M8×1.25	57	M6×1.0	5.5	9	11	8	39.5	26		52	56
50	14	24	66	30	80	20	8	8	50	Rc1/4	12	7.5	M8×1.25	71	M8×1.25	6.6	10.5	10.5	10.5	40.5	32		64	60
63	18	31	80	38	94	20	10	10.5	60	Rc1/4	12	7.5	M8×1.25	84	M10×1.5	9	14	14.5	10.5	46	38.5		77	65.5
80	22	38	100	40	108	25	12	11	77	Rc1/4	15	15	M10×1.5	104	M12×1.75	11	17.5	20	12	52	49		98	82
100	22	46	120	48	128	30	12	11	94	Rc1/4	18	19	M10×1.5	123.5	M12×1.75	11	17.5	22	13	57.5	58.5		117	94.5



Sensor switch: RCE, RCE1, RDEP
ø12, ø16, ø32, ø40

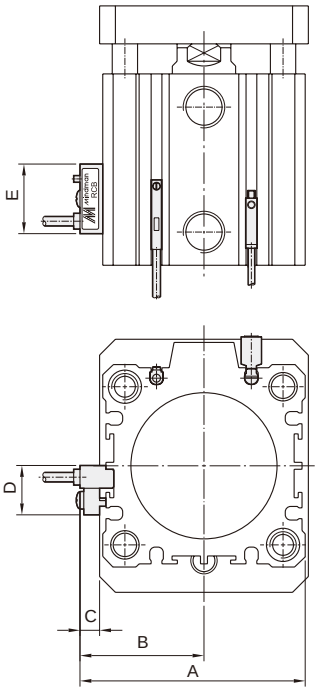


Sensor switch: RCB
ø20, ø25



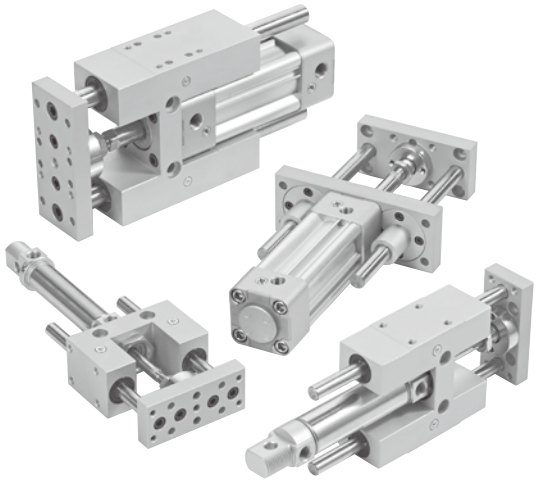
Code / Tube I.D.	A	B	C	D	E
20	38	22	6	16	22
25	43	25	6	16	22
50	72	40	6	16	22
63	85	46.5	6	16	22
80	106	57	6	16	22
100	125	66.5	6	16	22

Sensor switch: RCB, RCE, RCE1, RDEP
ø50~ø100



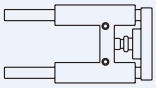
MGT* Inside structure & Parts list

TWIN-GUIDE CYLINDER



MGTK Light duty type

MGTX Light duty flange type



MGTB Heavy duty (bush) type

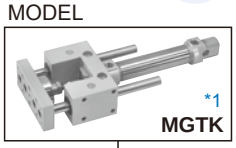
MGTU Heavy duty (linear bearing) type

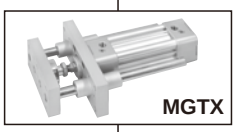
Order example

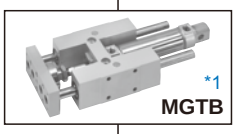
MGTB — 40 — 100 — RP

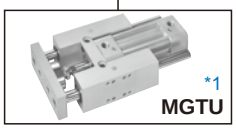
TUBE I.D. STROKE

MODEL

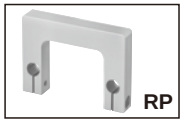








REAR FLANGE COUPLING



RP: With rear flange coupling

*1. For precautions, please refer to page 3-2.

*2. Order example for special specification, refer to page 0-7.

Features

- The guide units can be assembled to cylinders that then conform to ISO6432.
- Anti rotation guaranteed by use of external guide rods.
- Four self lube bushes or linear bearings enable high loadings and consistent movement.
- Simple to install by universal mounting holes.
- For ø32~ø63 MGTB / U / X is standard with adjustable cushion.
- Flush fitting reed switch.
- Magnetic as standard.

Specification

Model		MGTB, MGTU					
		MGTK		MGTX			
Tube I.D. (mm)		20	25	32	40	50	63
Port size		G1/8		G1/8	G1/4		G3/8
The range of stroke (mm)		Stroke by request					
Medium		Air					
Operating pressure range		0.2~0.7 MPa					
Ambient temperature		-5~+60°C (No freezing)					
Lubrication	Cylinder	Not required					
	Guide (*)	Lubricating grease					
Available speed range		50~500 mm/sec					
Sensor switch		RCM		RCI			
Sensor switch holder		BM20	BM25	—			

* Periodically refill of the Lubricating grease is required to enhance the lubricative grade and its lifetime.

RCM sensor switch specification

Model	RCM	RDM	RNM	RPM
Switch type	Reed switch	Without contact	NPN current sinking	PNP current sourcing
Voltage range	5~240V DC/AC	10~30V DC	5~28V DC	
Current range	100mA max.	50mA max.		
Shock resistance	30G	50G		

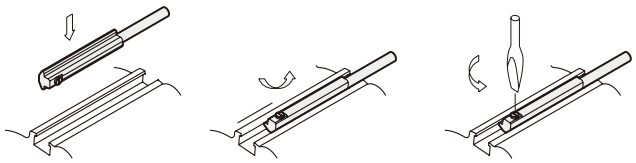
* RCM specification, please refer to page 8-15.

RCI sensor switch specification

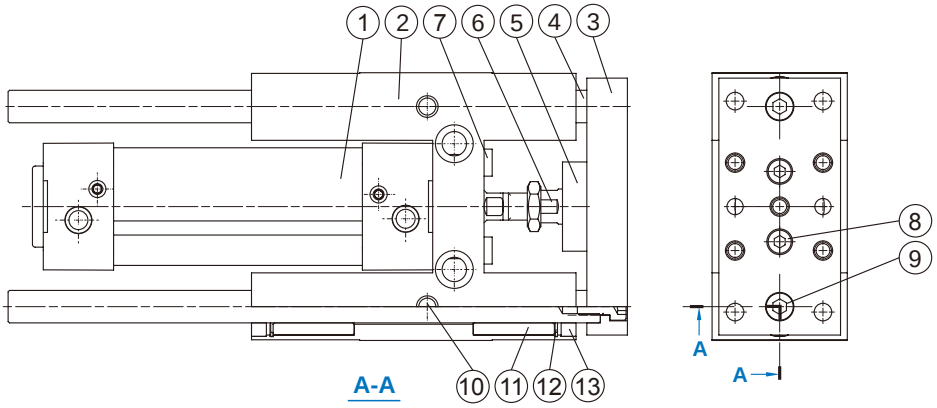
Model	RCI	RCI-N	RCI-P	RNI	RPI
Switch type	Reed switch	NPN Reed switch	PNP Reed switch	NPN current sinking	PNP current sourcing
Voltage range	5~240V DC/AC	10 ~ 30V DC			
Current range	100mA max.	500mA max.		200mA max.	
Shock resistance	30G			50G	

* RCI specification, please refer to page 8-13.

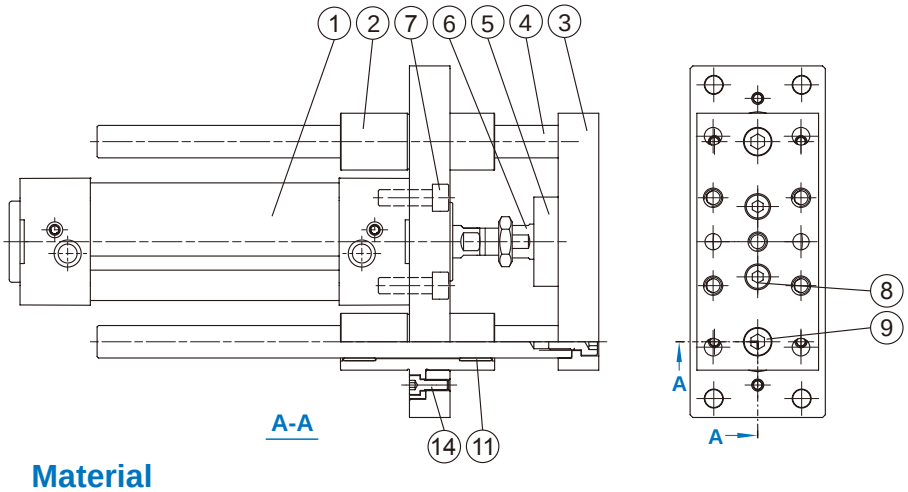
Mounting



MGTB / MGTU /MGTK



MGTX

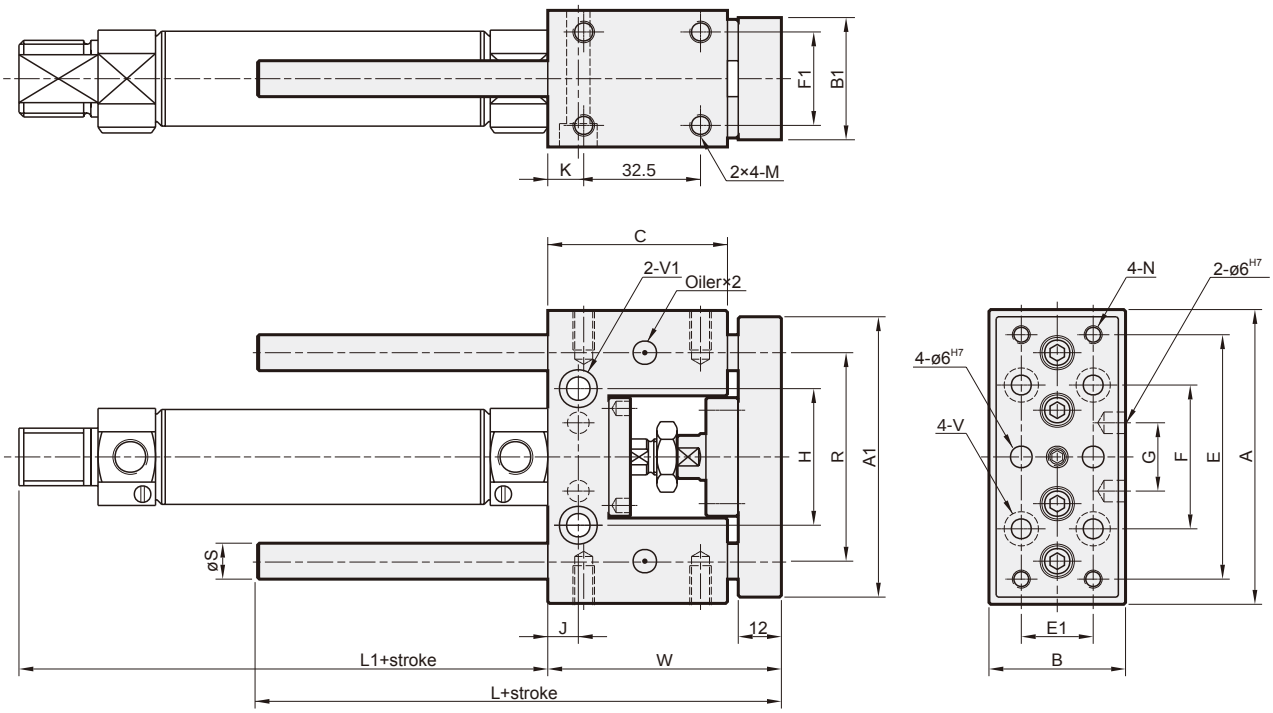


Material

No.	Part name	Material	Note
1	Cylinder	—	ø20, ø25: MCMI series
			ø32~ø63: MCQI series
2	Guide holder	Aluminum alloy	
3	Plate	Aluminum alloy	
4	Guide rod	Medium carbon steel	for MGTB, MGTK, MGTX series
		Bearing steel	for MGTU series
5	Piston rod holder	Carbon steel	
6	Floating connector	Carbon steel	
7	Bolt	SCM	
8	Bolt	SCM	
9	Bolt	SCM	
10	Oiler	Copper	
11	Rod bush	Copper	for MGTB, MGTK, MGTX series
	Linear bearing	–	for MGTU series
12	Snap ring	Spring steel	
13	Wiper seal	NBR	
14	Bolt	SCM	

MGTK (Oilless bush guide)

ø20, ø25

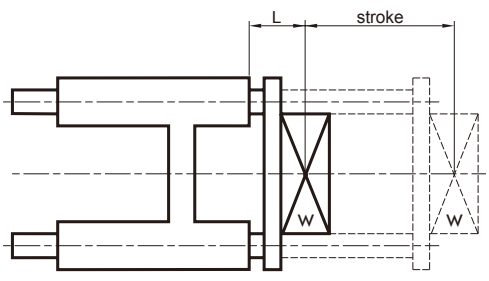


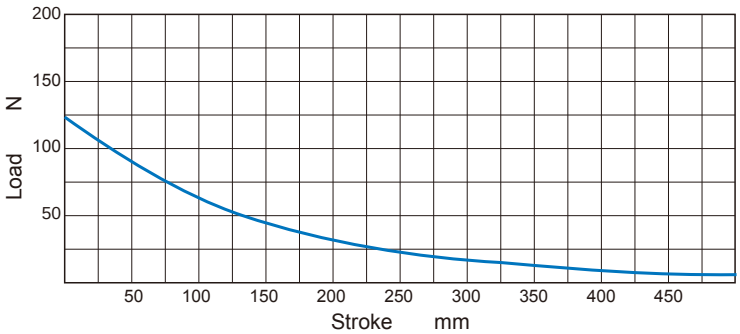
Code / Tube I.D	A	A1	B	B1	C	E	E1	F	F1	G	H	J	K	L	L1	M	N	R	S	V	V1	W
20	82	78	38	34	50	68	20	40	26	19	38	8.5	5	85	88	M6,(D)11	M5×0.8 thru	58	10	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65
25	82	78	38	34	50	68	20	40	26	19	38	8.5	5	85	89	M6,(D)11	M5×0.8 thru	58	10	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65

Maximum allowable torque moment

Max. allowable load

MGTK ø20, ø25

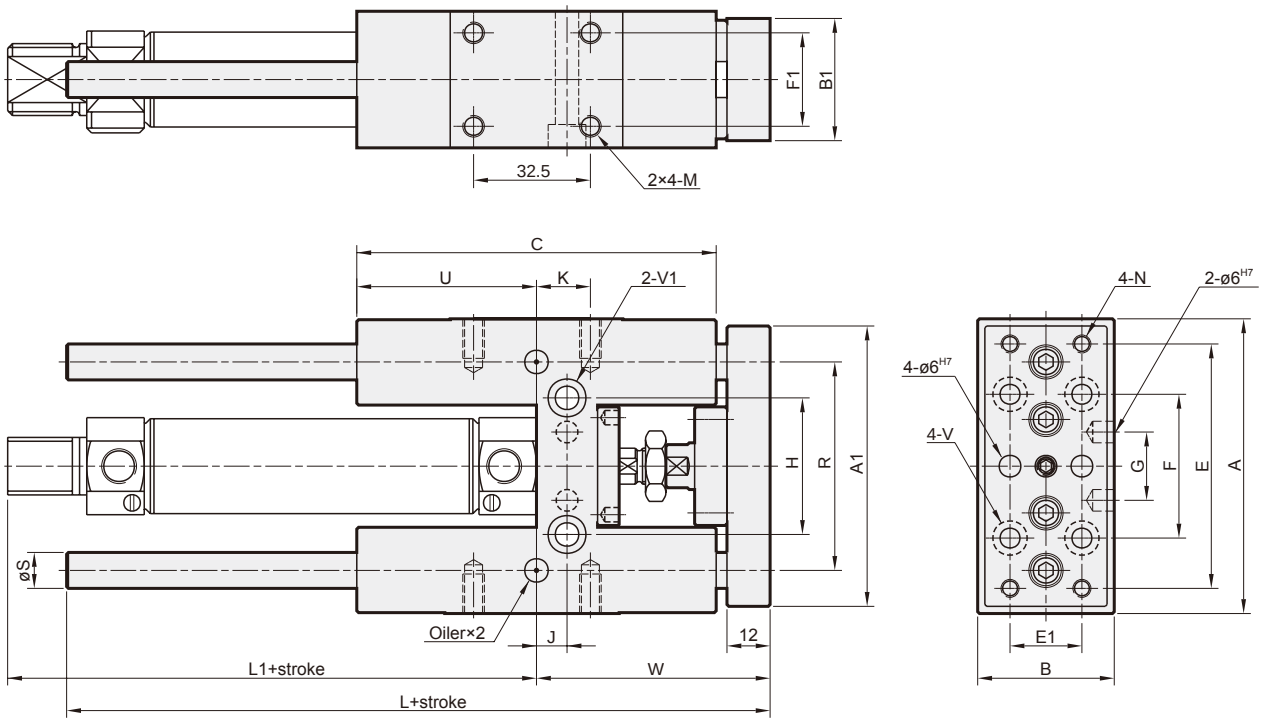




MGTB (Brass bush guide)

MGTU (Linear bearing guide)

ø20, ø25

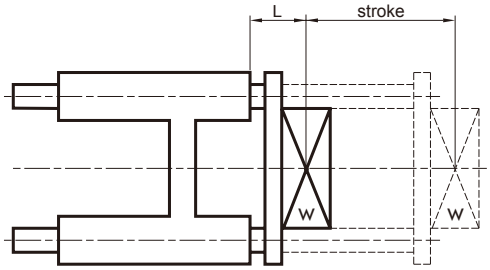


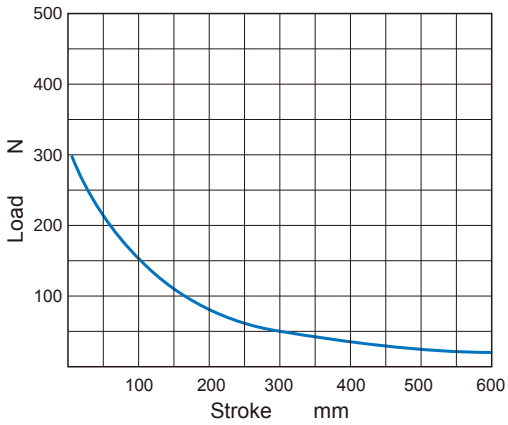
Code / Tube I.D.	A	A1	B	B1	C	E	E1	F	F1	G	H	J	K	L	L1	M	N	R	S	U	V	V1	W
20	82	78	38	34	100	68	20	40	26	19	38	8.5	15	135	88	M6,(D)11	M5×0.8 thru	58	10	50	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65
25	82	78	38	34	100	68	20	40	26	19	38	8.5	15	135	89	M6,(D)11	M5×0.8 thru	58	10	50	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65

Maximum allowable torque moment

Max. allowable load

MGTB / MGTU ø20, ø25



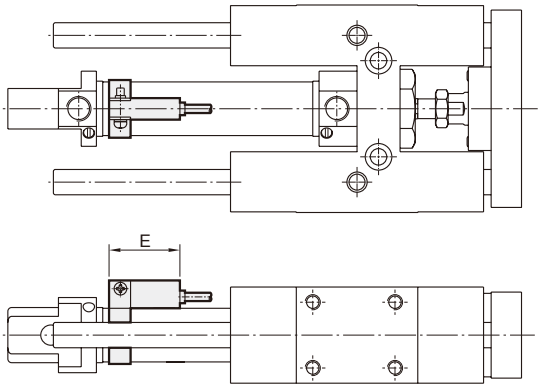


Installation of sensor switch ø20, ø25

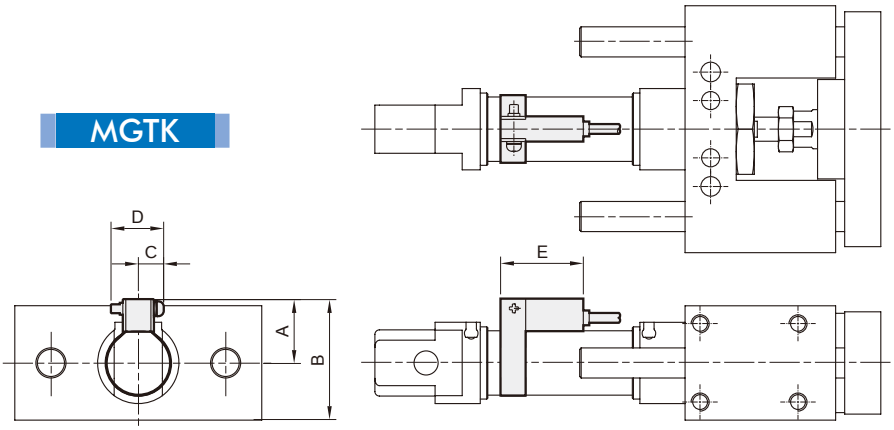
Sensor switch: RCM
Sensor switch band: BM**

Code / Tube I.D.	A	B	C	D	E
20	22	41	10	16	28
25	25	44	10	16	28

MGTB
MGTU



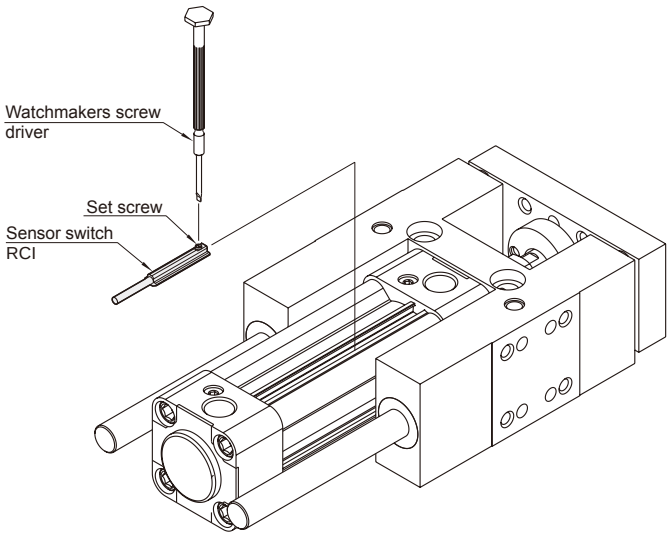
MGTK



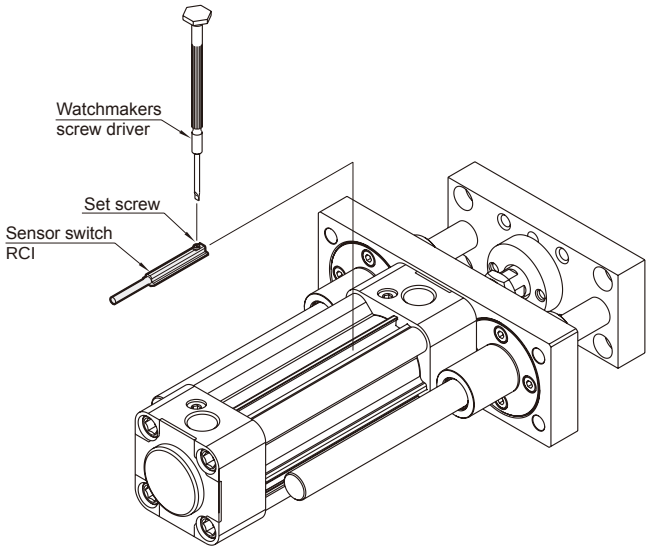
Installation of sensor switch ø32~ø63

Sensor switch: RCI

MGTB MGTU

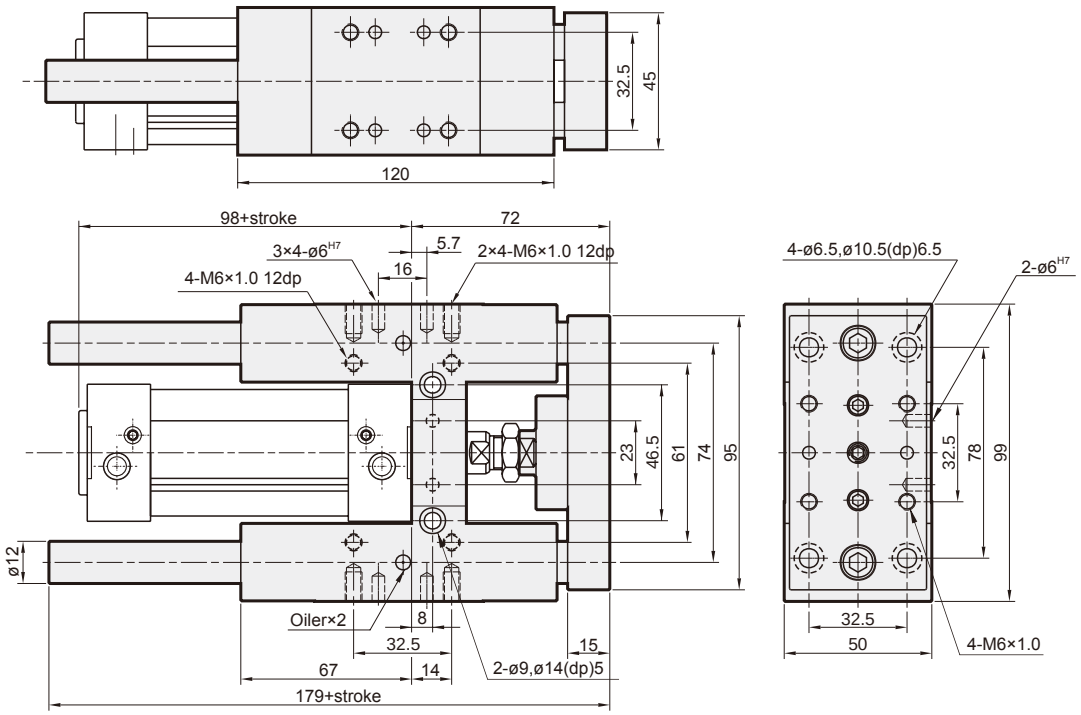


MGTX



MGTB (Brass bush guide)
ø32

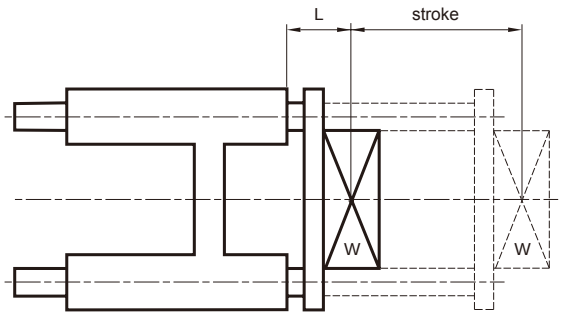
MGTU (Linear bearing guide)
ø32

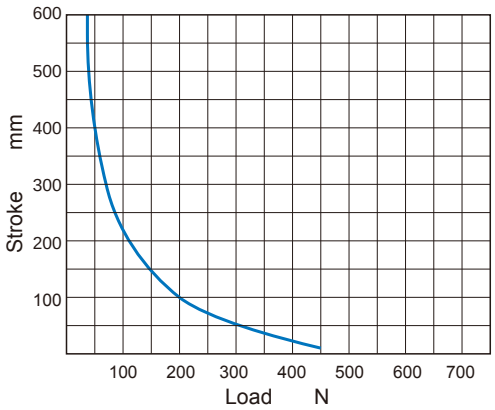


Maximum allowable torque moment

Max. allowable load

MGTB / MGTU ø32

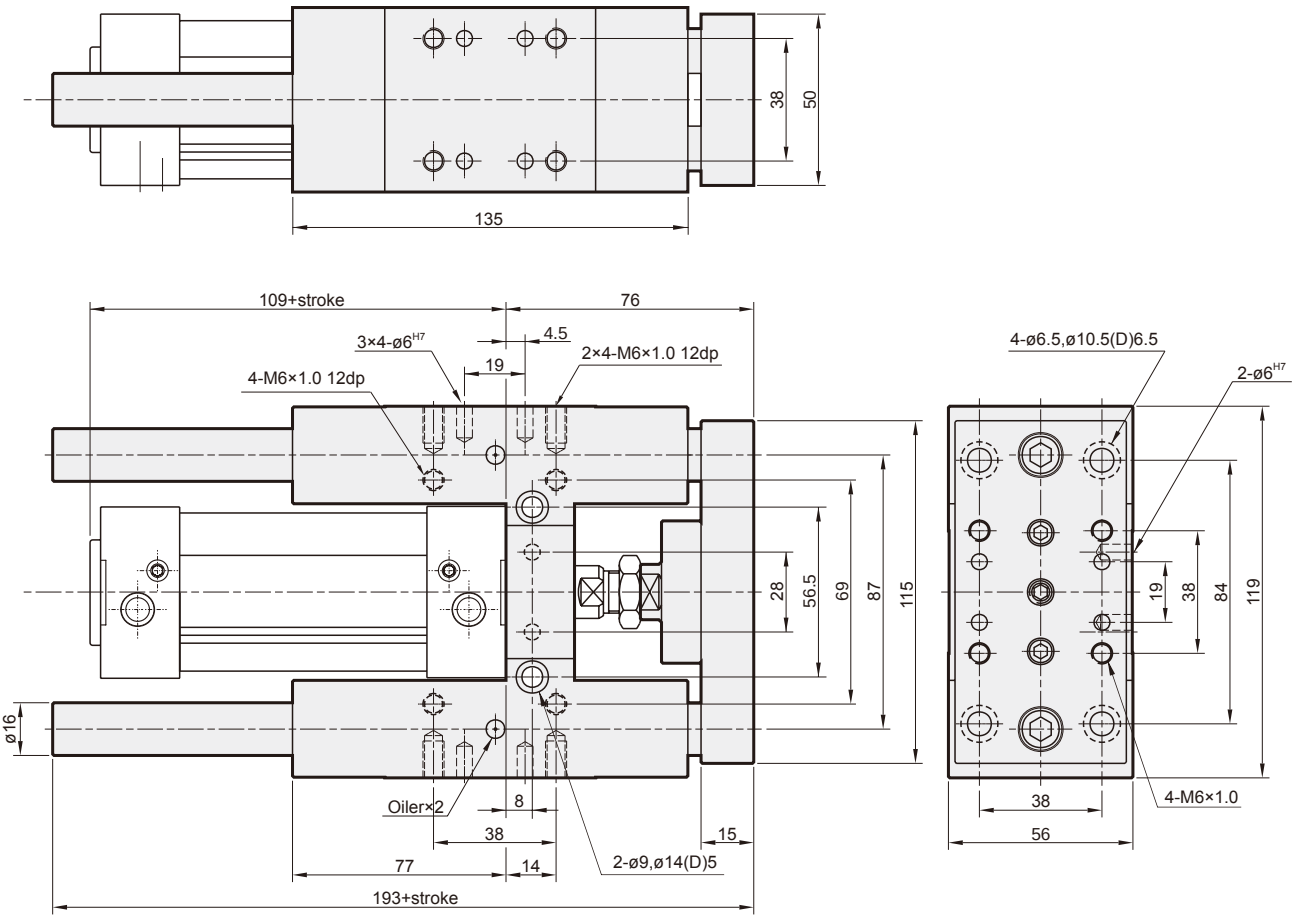




MGTB (Brass bush guide)

MGTU (Linear bearing guide)

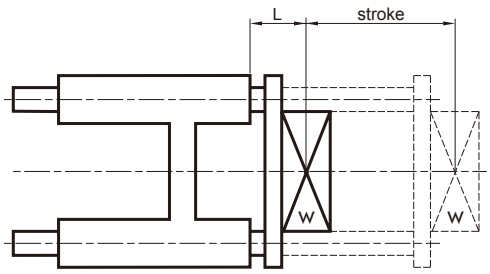
ø40

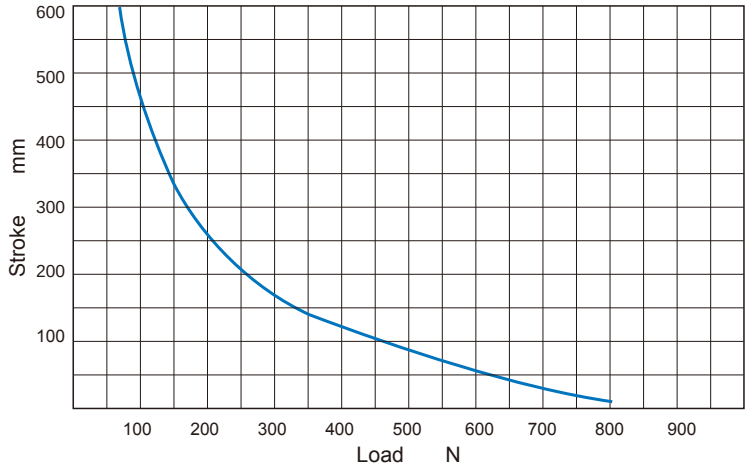


Maximum allowable torque moment

Max. allowable load

MGTB / MGTU ø40

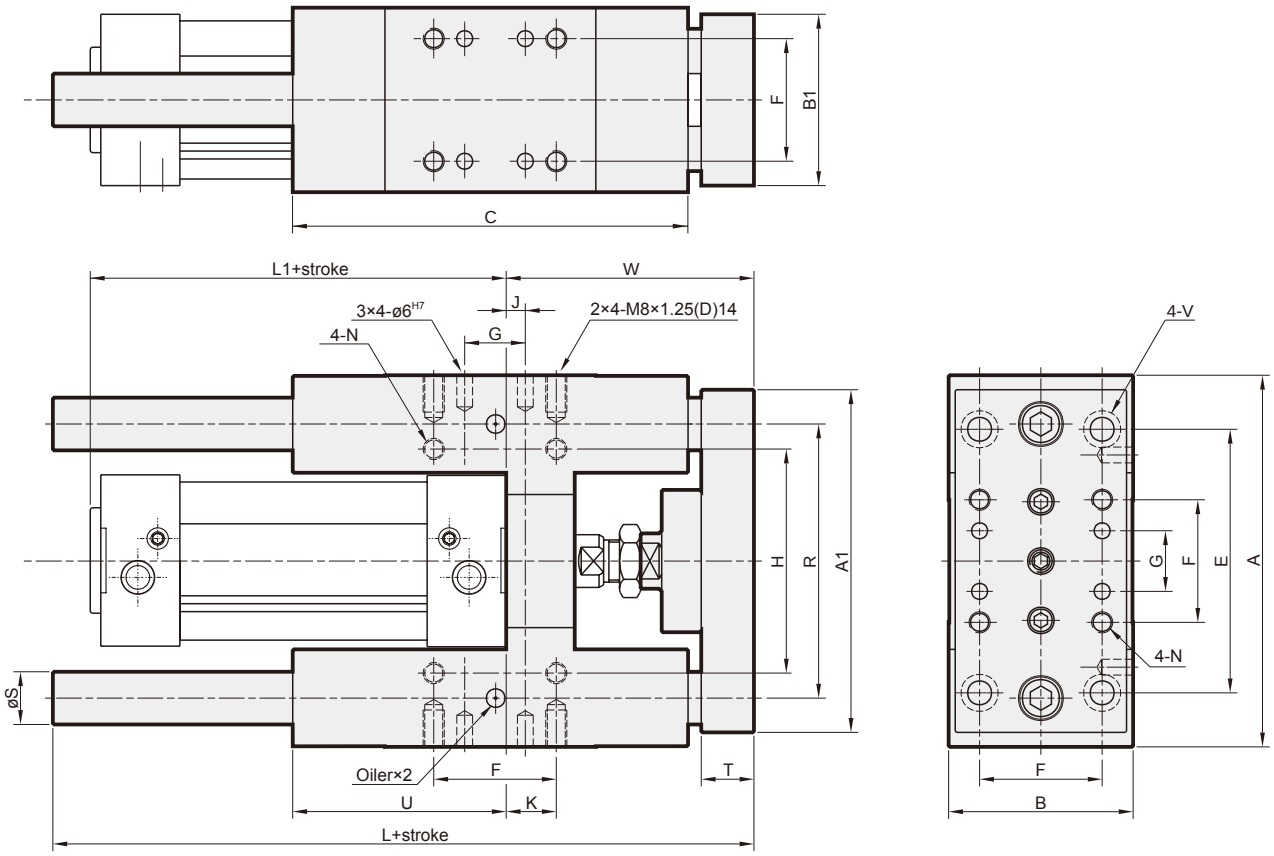




MGTB (Brass bush guide)

MGTU (Linear bearing guide)

ø50, ø63

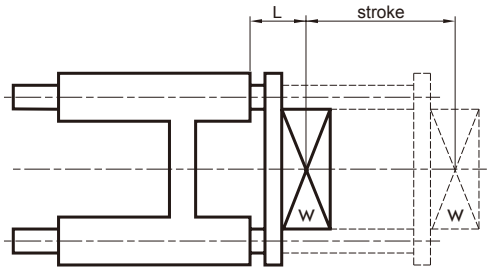


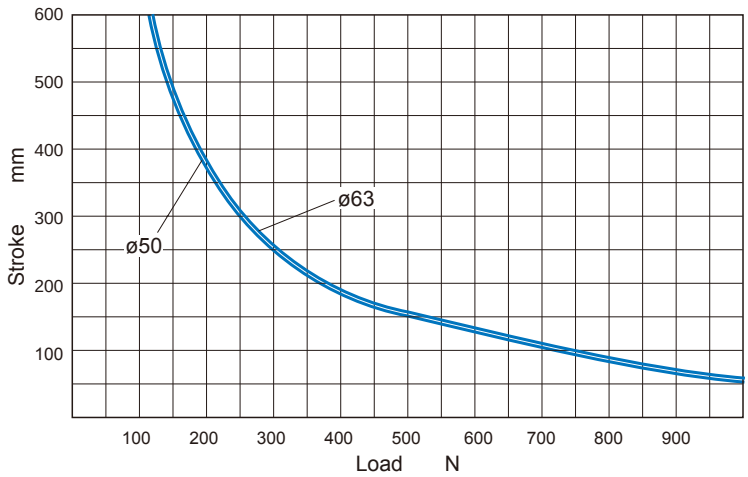
Code / Tube I.D.	A	A1	B	B1	C	E	F	G	H	J	K	L	L1	N	R	S	T	U	V	W
50	141	135	70	65	150	100	46.5	23	85	7.5	19	216	110	M8x1.25 thru	104	20	20	81	ø9, ø14(D)8.5	94
63	156	150	80	75	150	105	56.5	28	100	5	19	230	125	M8x1.25 thru	119	20	20	96	ø9, ø14(D)8.5	94

Maximum allowable torque moment

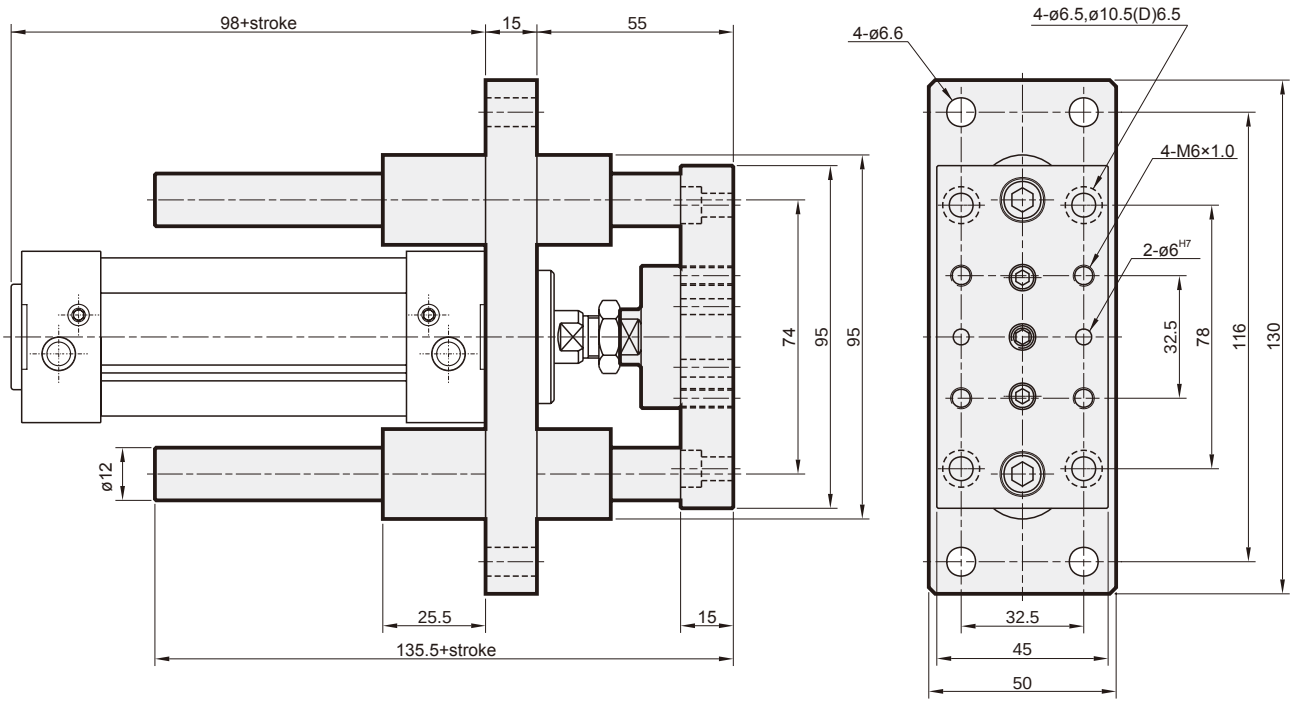
Max. allowable load

MGTB / MGTU ø50, ø63





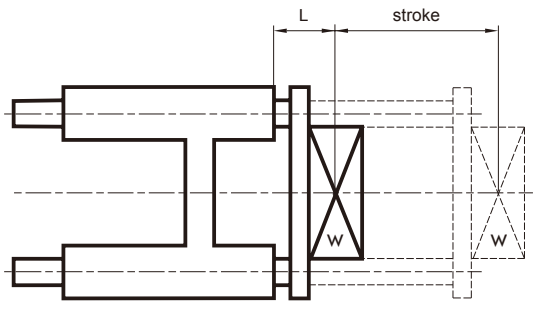
MGTX (Flange type)
ø32

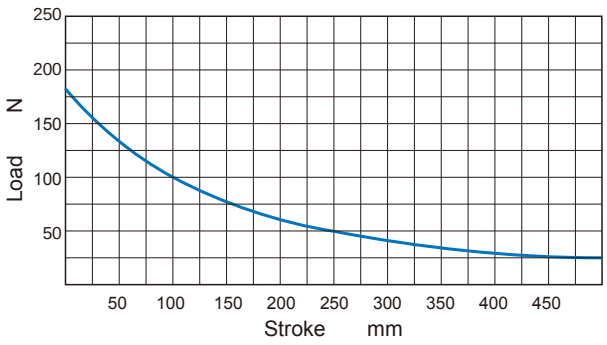


Maximum allowable torque moment

Max. allowable load

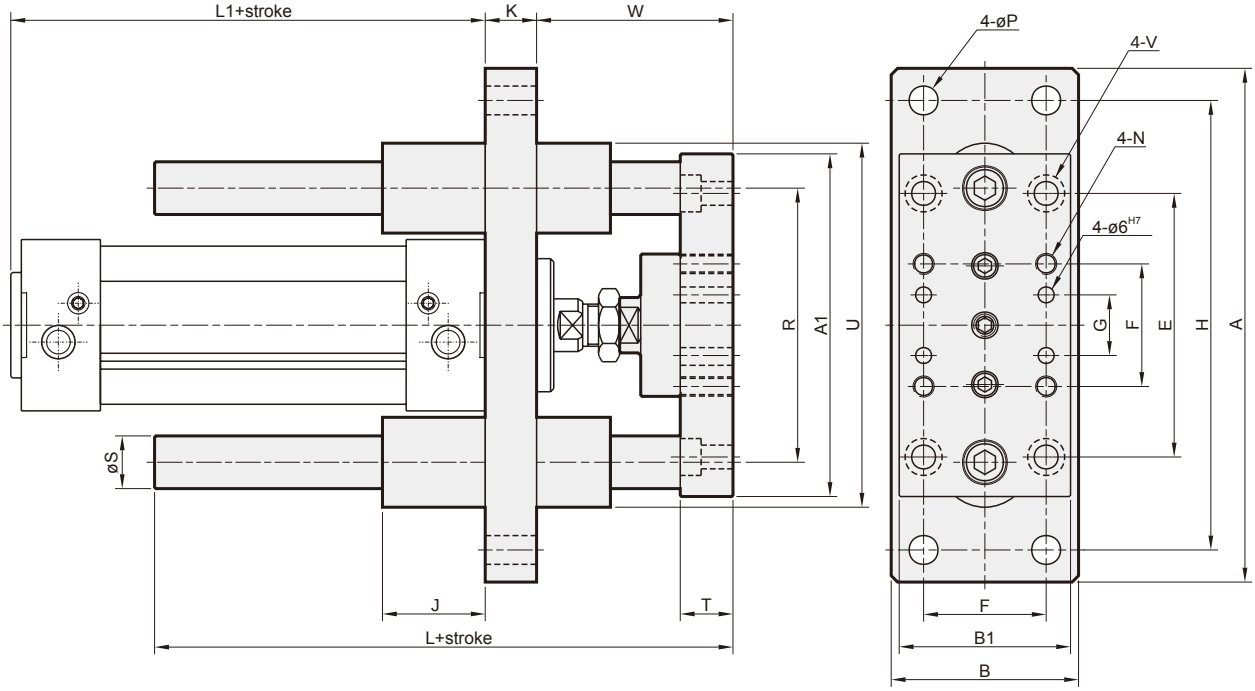
MGTX ø32





MGTX (Flange type)

ø40~ø63

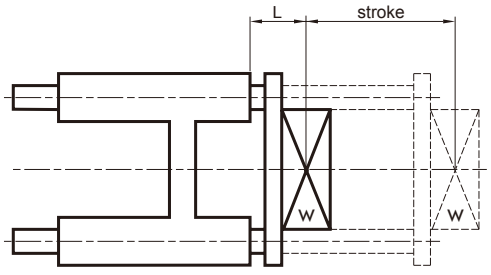


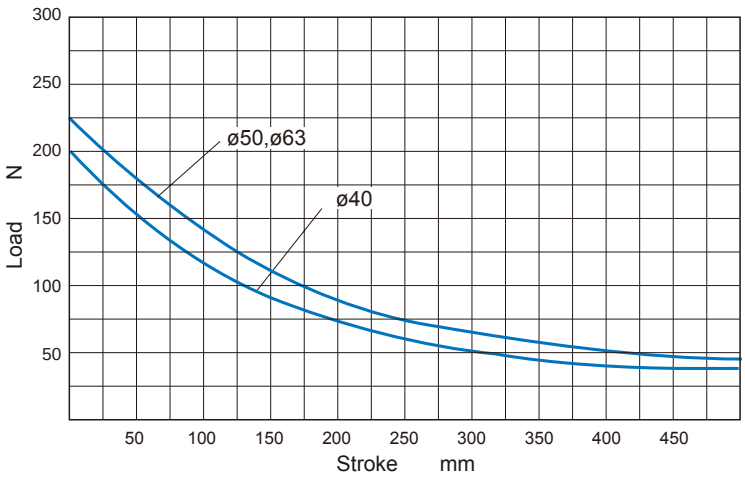
Code / Tube I.D.	A	A1	B	B1	E	F	G	H	J	K	L	L1	N	P	R	S	T	U	V	W
40	160	115	55	50	84	38	19	140	32	15	148	109	M6×1.0 thru	ø9	87	16	15	115	ø6.5, ø10.5(D)6.5	61
50	180	135	70	65	100	46.5	23	160	36	20	170	110	M8×1.25 thru	ø9	104	20	20	136	ø9, ø14(D)8.5	74
63	195	150	80	75	105	56.5	28	175	36	20	170	125	M8×1.25 thru	ø9	119	20	20	151	ø9, ø14(D)8.5	74

Maximum allowable torque moment

Max. allowable load

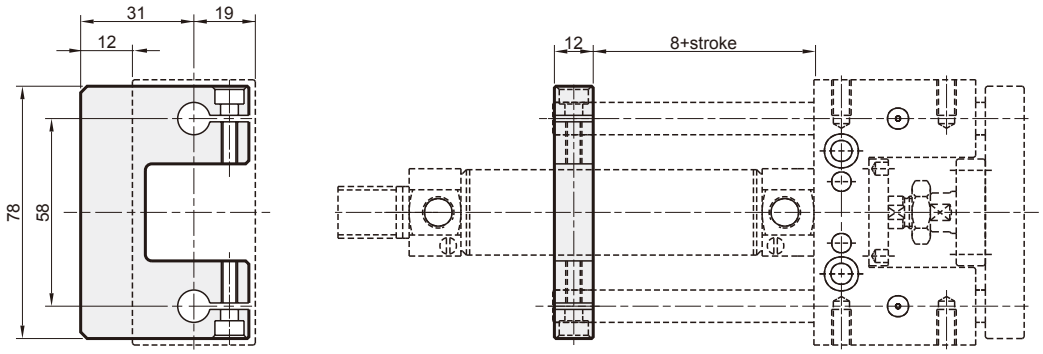
MGTX ø40~ø63





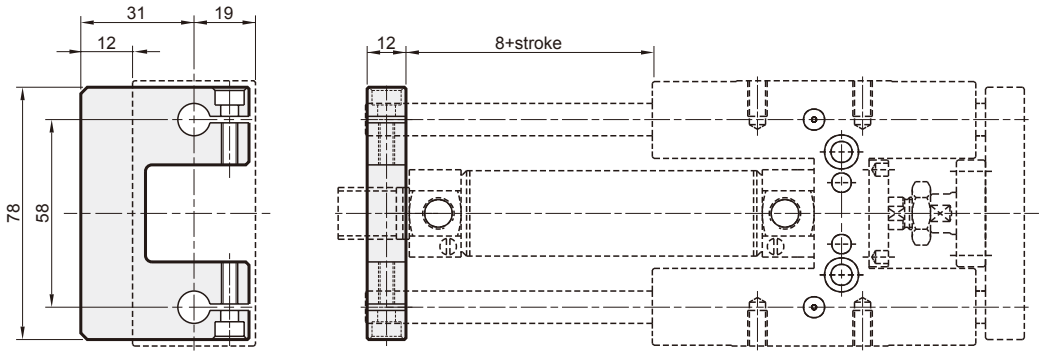
MGTK

ø20, ø25



MGTB
MGTU

ø20, ø25



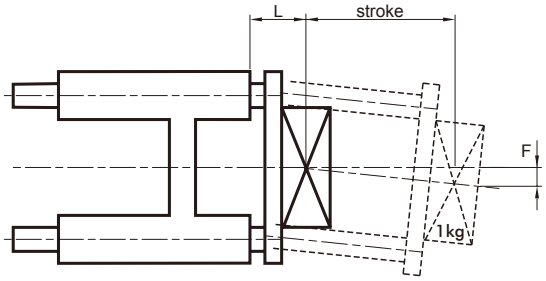
Building material: aluminum alloy
2 Clamps screws are included in the supply

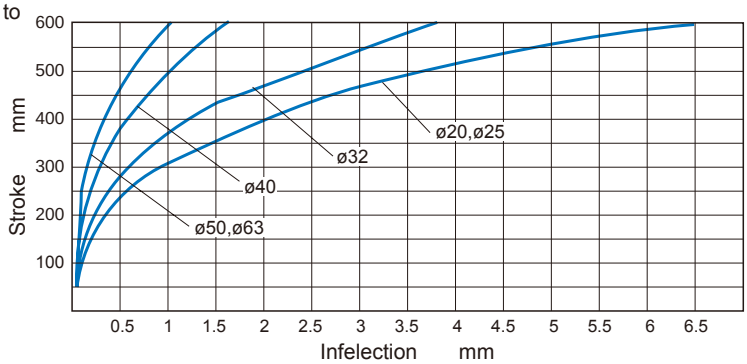
Maximum allowable torque moment

Max. allowable load

MGTB / MGTU

Inflection of guide stems is due to their weight summed to the load of 1Kg.related to the stroke.



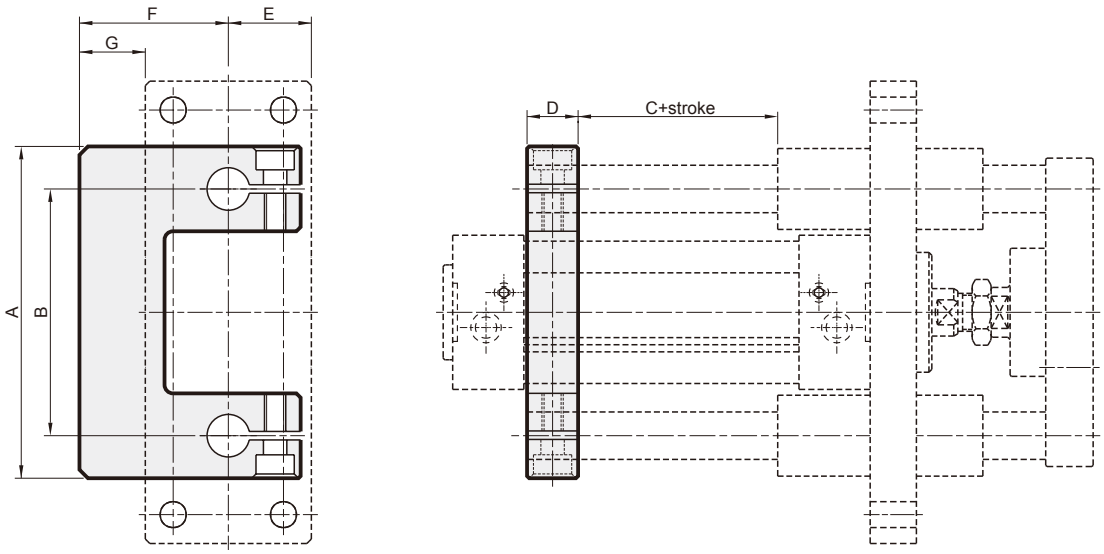


Weight

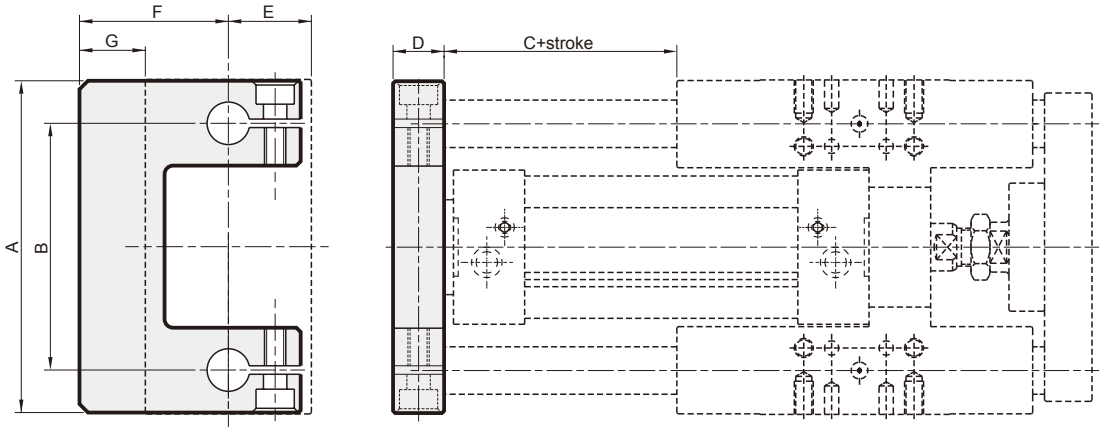
Unit: kg

Tube I.D.	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm
	MGTK (Oilless bush guide)		MGTB (Brass bush guide)		MGTU (Linear bushing guide)	
20	0.690	0.050	1.090	0.050	0.967	0.050
25	0.716	0.058	1.137	0.058	1.015	0.058

MGTX ø32~ø63



MGTB MGTU ø32~ø63



Building material: aluminum alloy
2 Clamps screws are included in the supply

Code / Tube I.D.	A	B	C	D	E	F	G
32	95	74	25	15	25	47	22
40	115	87	20	20	28	52.5	24.5
50	135	104	20	20	35	67.5	32.5
63	150	119	20	20	40	78	38

* MGTX ø40: E=27.5, G=25

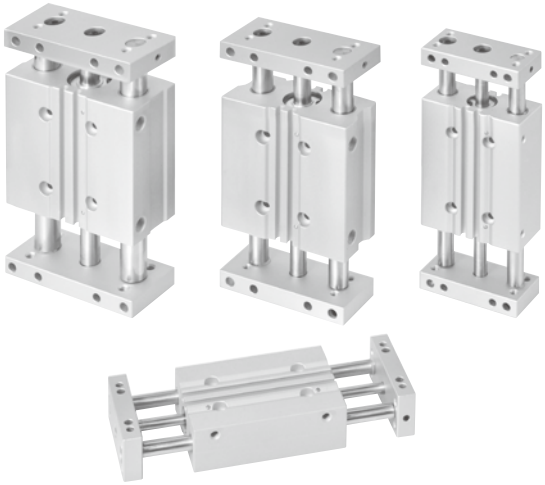
Weight

Unit: kg

Tube I.D.	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm
	MGTB (Brass bush guide)		MGTU (Linear bushing guide)		MGTX (Brass bush guide)	
32	2.060	0.100	1.918	0.100	1.274	0.100
40	3.423	0.159	3.113	0.159	2.082	0.159
50	5.584	0.240	5.162	0.240	3.440	0.240
63	6.816	0.250	6.390	0.250	4.221	0.250

MCGD series

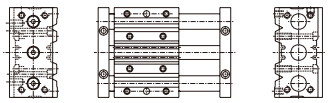
TWIN-GUIDE SLIDE CYLINDER



Features

- Can be used as plate slide type or body slide type.
- The air cylinder and guide share a compact design which enables the cylinder to work smoothly along its stroke.
- The cylinder is extremely rigid and strong.
- Flush fitting sensor available.
- Magnetic as standard.

Specification

Model	MCGD	
Model (Stop type view)		
Acting type	Double acting	
Tube I.D.(mm)	12,16	20,25,32
Port size	M5×0.8	Rc1/8
Medium	Air	
Operating pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Cushion	With rubber cushion pad	
Available speed range	50~500 mm/sec	
Lubrication	Not required	
Sensor switch (*)	RCE, RCE1, RDEP	

* RCE, RCE1, RDEP specification, please refer to page 8-11, 12,17.

Order example

MCGD — 03 — 12 — 50 — □

MODEL

TYPE OF BEARING

Code	Type of bearing
03	Slide bush
23	Linear bearing

TUBE I.D.

STROKE

PORT THREAD

Blank: M5×0.8
(for ø12,ø16)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø20~ø32)

Installation of sensor switch

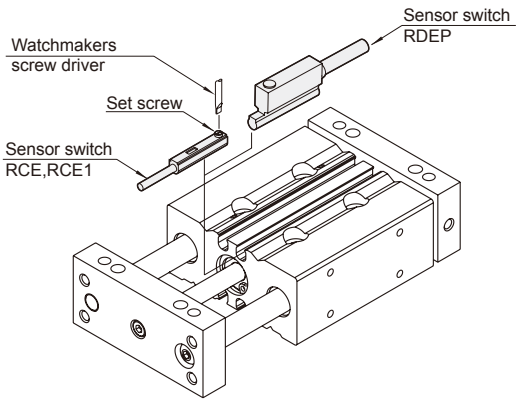
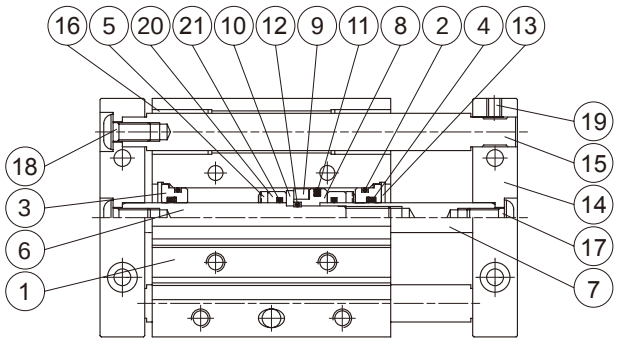


Table for standard stroke

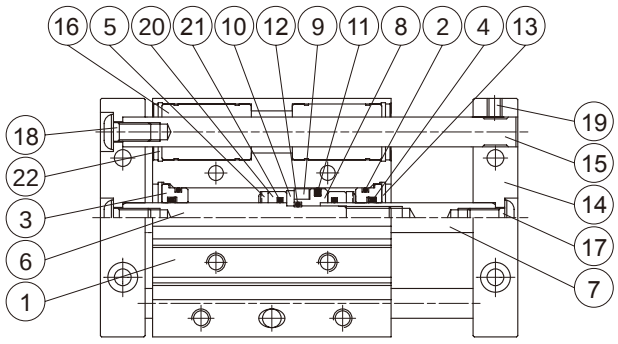
Series variety (Bearing type)	Tube I.D.	Stroke (mm)									
		30	50	75	100	125	150	175	200	250	300
MCGD-03 (Slide bush)	ø12	●	●	●	●						
	ø16	●	●	●	●	●	●				
	ø20	●	●	●	●	●	●				
	ø25	●	●	●	●	●	●				
	ø32	●	●	●	●	●	●	●	●	●	
MCGD-23 (Linear bearing)	ø12	●	●	●	●						
	ø16	●	●	●	●	●	●				
	ø20	●	●	●	●	●	●				
	ø25		●	●	●	●	●				
	ø32		●	●	●	●	●	●	●	●	

* Stroke out of specification is also available.
* Please consult us if stroke out of specification.

MCGD-03



MCGD-23



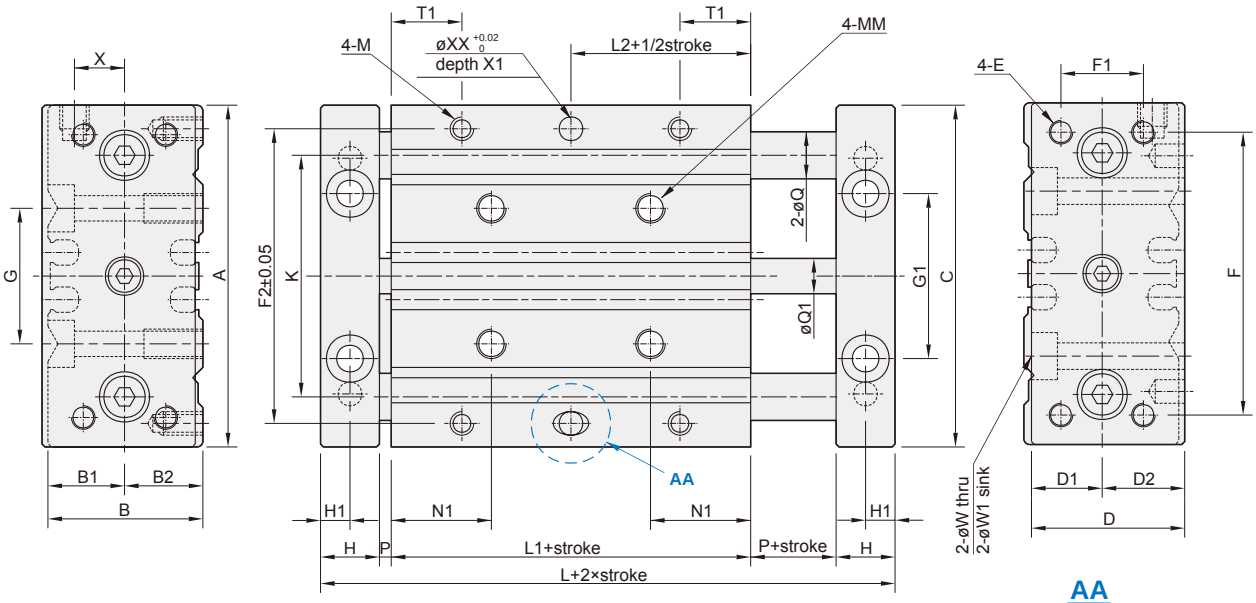
Material

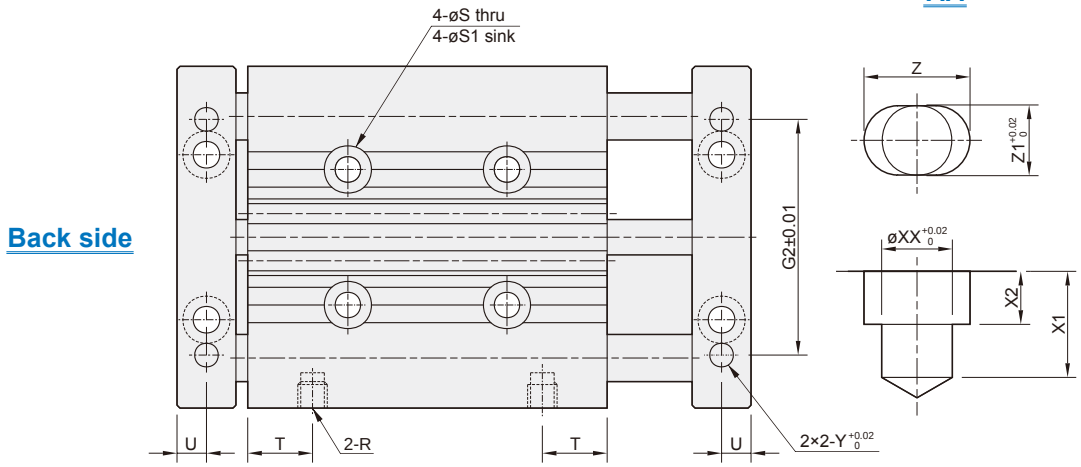
No.	Part name	Material	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy		1	
2	Cover ring	NBR		2	●
3	Rod cover	Aluminum alloy		2	
4	Rod packing	NBR		2	●
5	Cushion	NBR		2	●
6	Piston rod #1	Carbon steel		1	
7	Piston rod #2	Carbon steel		1	
8	Piston	Aluminum alloy		1	
9	Magnet ring	Magnet material		1	
10	Magnet ring holder	Stainless steel		1	
11	Piston packing	NBR		1	●
12	Piston gasket	NBR		1	●
13	Snap ring	Spring steel		2	
14	Plate	Aluminum alloy		2	
15	Guide rod	Carbon steel	for **03** type	2	
		Special steel	for **23** type	2	
16	Slide bush	Bearing alloy	for **03** type	4	
	Linear beraing	—	for **23** type	4	
17	Bolt for piston rod	Carbon steel		2	
18	Bolt for guide rod	Carbon steel		4	
19	Set screw	Carbon steel		2	
20	Spacer	Aluminum alloy		2	
21	O-ring	NBR		2	
22	Snap ring	Spring steel	for **23** type	4	

Order example of repair kits

Tube I.D.	Repair kits
ø12	**PS-MCGD-12**
ø16	**PS-MCGD-16**
ø20	**PS-MCGD-20**
ø25	**PS-MCGD-25**
ø32	**PS-MCGD-32**

MCGD-03/23





AA

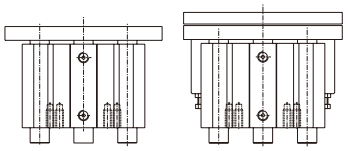
Code / Tube I.D.	A	B	B1	B2	C	D	D1	D2	E	F	F1	F2	G	G1	G2	H	H1	K	L	L1	L2	M	MM	N1	Q MCGD-03	Q MCGD-23	Q1	P	R
12	58	26	13	13	58	26	12	14	M4	48	14	50	23	28	40	10	5	41.5	55	31	15.5	M4×7dp	M5×10dp	17	ø8	ø6	ø6	2	M5
16	64	30	15	15	64	30	14	16	M5	52	16	54	24	32	50	12	6	46	62	34	17	M5×7dp	M5×10dp	17	ø10	ø8	ø8	2	M5
20	85	36	19	17	85	36	16	20	M5	60	18	64	28	37	70	12	6	55	66	38	19	M5×7dp	M6×12dp	20.5	ø12	ø10	ø10	2	Rc1/8
25	96	42	21	21	96	42	20	22	M6	70	26	76	34	44	84	12	6	65	67	39	19.5	M6×9dp	M6×12dp	19.5	ø16	ø13	ø12	2	Rc1/8
32	116	51	25	26	116	51	24	27	M8	96	30	100	42	56	76	14	7	80	68	36	18	M8×11dp	M8×16dp	20	ø20	ø16	ø16	2	Rc1/8

Code / Tube I.D.	S	S1	T	T1	U	W	W1	X	XX	X1	X2	Y	Z	Z1
12	ø4.3	ø8×4.5dp	11	12	5	ø4.5	ø8×4.5dp	8.5	ø4	6	3	ø4×5dp	6	4
16	ø4.3	ø8×4.5dp	11	13	6	ø4.5	ø8×4.5dp	10	ø5	6	3	ø5×5dp	7	5
20	ø5.2	ø9.5×5.5dp	13.5	14	6	ø5.5	ø9.5×5.5dp	11.5	ø6	8	4	ø6×8dp	8	6
25	ø5.2	ø9.5×5.5dp	11	12	6	ø5.5	ø9.5×5.5dp	13.5	ø6	8	4	ø6×8dp	8	6
32	ø6.8	ø11.5×6.5dp	11	16.5	7	ø6.6	ø11×6.5dp	16	ø8	12	6	ø8×12dp	10	8

Features

- Three guide rods equally spaced enable consistent movement even when uneven load is applied.
- Increases productivity on conveyor lines.
- When connected to a rotary actuator the unit can be used as an auto turn lifter.
- Magnetic as standard.

Specification

Model	MCG3	
Model (Stop type view)	 (Lift type) (Turntable type)	
Acting type	Double acting	
Tube I.D.(mm)	63	80
Port size	Rc1/4	Rc3/8
Standard stroke	30, 50, 75, 100 mm	
Medium	Air	
Operating pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Cushion	With rubber cushion pad	
Available speed range	50~500 mm/sec	
Lubrication	Not required	
Sensor switch (*)	RCB, RCE, RCE1, RDEP	

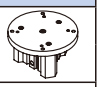
* RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17.

Order example

MCG3 — 63 — 50 — D — G

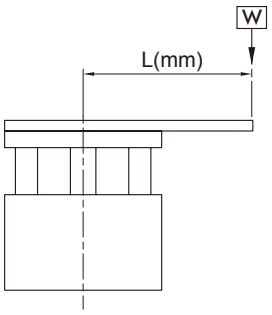
- MODEL
- TUBE I.D.
  - **63**
  - **80** (Only for circle table lift type)
- STROKE
  Stroke out of specification is also available.
- (*)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

* APPLICATION / TYPE OF BEARING

Code	Purpose / Type of bearing	Picture
D	Circle table lift / Slide bush	
B	Circle table lift / Linear bearing	
D90	Turntable / Angle 90°/ Slide bush	
B90	Turntable / Angle 90°/ Linear bearing	
D180	Turntable / Angle 180°/ Slide bush	
B180	Turntable / Angle 180°/ Linear bearing	
QD	Quad table lift / Slide bush	
QB	Quad table lift / Linear bearing	

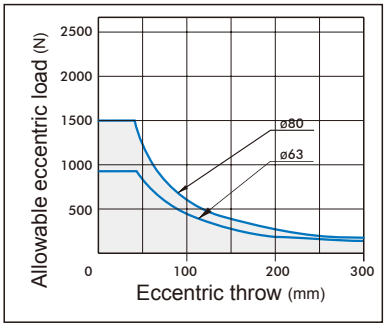
Allowable eccentric load

(at supply pressure 0.5MPa)

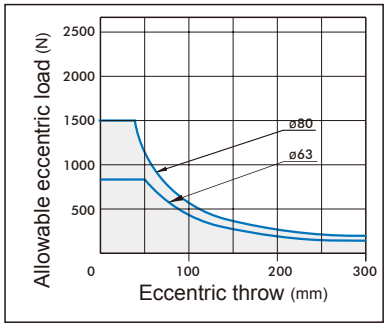


Shows the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

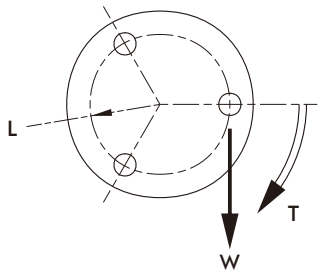
MCG3-D/D90/D180



MCG3-B/B90/B180



Allowable rotating torque

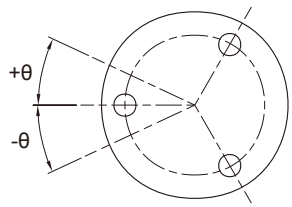


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

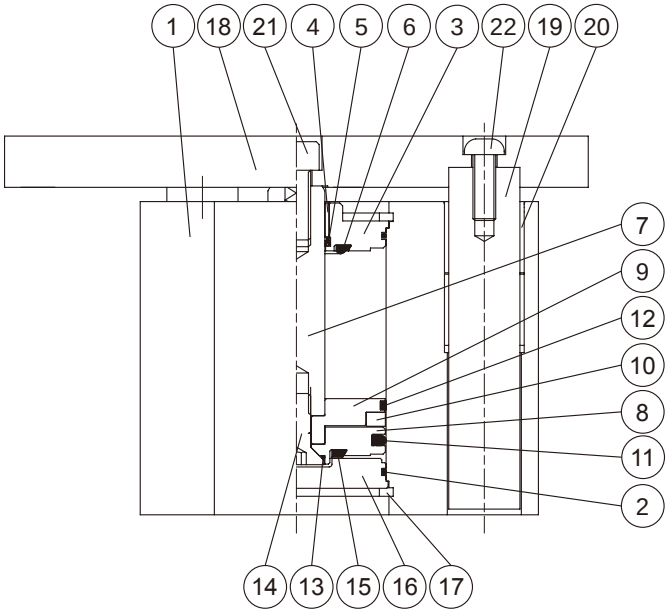
Tube I.D.	Bearing type	Stroke (mm)		
		30	50	100
ø63	Slide bush	13.2	12.7	7.6
	Linear bearing	13.5	12.7	8.8

Anti-roll accuracy



The values are the deflection angle against the piston rod.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø63	Slide bush	±0.07°
	Linear bearing	±0.03°



Material

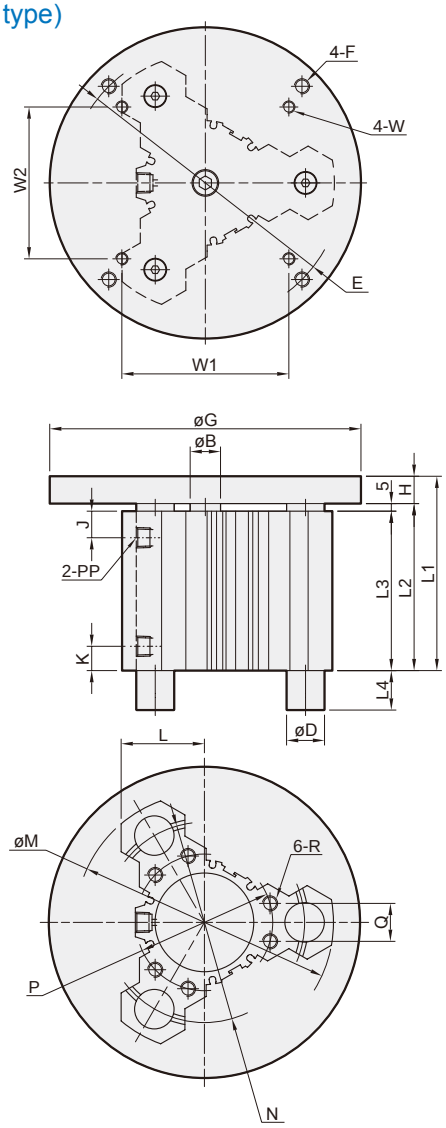
No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Cover ring	NBR	2	●
3	Rod cover	Aluminum alloy	1	
4	Rod bush	Bearing alloy	1	
5	Rod packing	NBR	1	●
6	Rod cushion	NBR	1	●
7	Piston rod	Carbon steel	1	
8	Piston	Aluminum alloy	1	
9	Piston for magnet ring	Aluminum alloy	1	
10	Magnet ring	Magnet material	1	
11	Piston packing	NBR	1	●
12	Wear ring	Teflon	1	
13	Piston gasket	NBR	1	●
14	Bolt for piston	Carbon steel	1	
15	Head cushion	NBR	1	●
16	End cover	Aluminum alloy	1	
17	Snap ring	Spring steel	2	
18	Plate	Carbon steel	1	
19	Guide rod	Carbon steel	3	
20	Guide rod bush	Bearing alloy	6	
21	Bolt for piston rod	Carbon steel	1	
22	Bolt for guide rod	Carbon steel	3	

Order example of repair kits

Tube I.D.	Repair kits
ø63	**PS-MCG3-63**
ø80	**PS-MCG3-80**

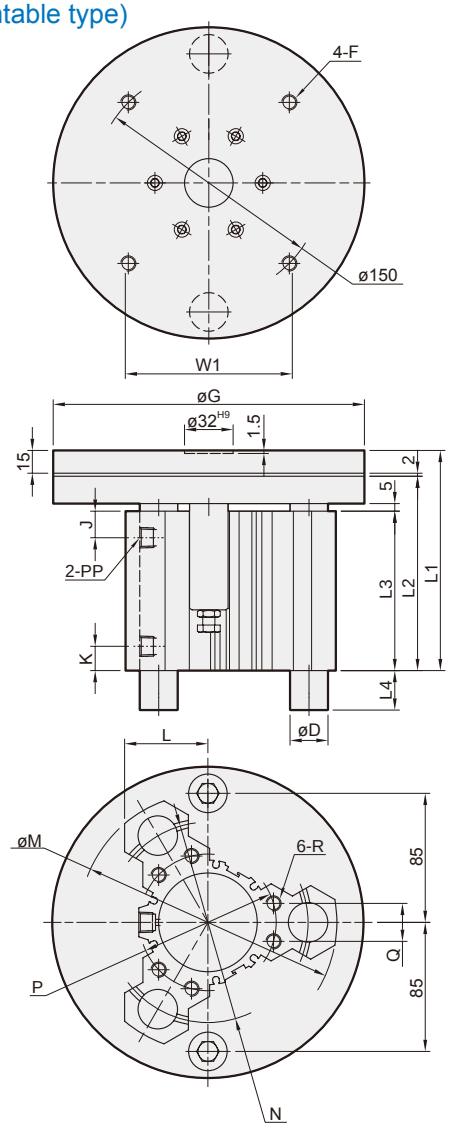
MCG3-D/B

(Lift type)



MCG3-D90/B90/D180/B180 for ø63

(Turntable type)



MCG3-D/B

Code / Tube I.D.	B	E	F	G	H	J	K	L	M	N	P	PP	Q	R	W	W1	W2
63	20	P.C.D180	M10×1.5	205	18	17.5	16	54.8	170	P.C.D132	P.C.D90	Rc1/4	25	M10×1.5×23depth	M8×1.25	110	100
80	25	P.C.D190	M10×1.5	220	18	22	22	61.2	190	P.C.D150	P.C.D106	Rc3/8	32	M10×1.5×23depth	–	–	–

Tube I.D.	L1				L2				L3			
	Stroke (mm)											
	30	50	75	100	30	50	75	100	30	50	75	100
63	108	128	153	178	90	110	135	160	85	105	130	155
80	118	138	163	188	100	120	145	170	95	115	140	165

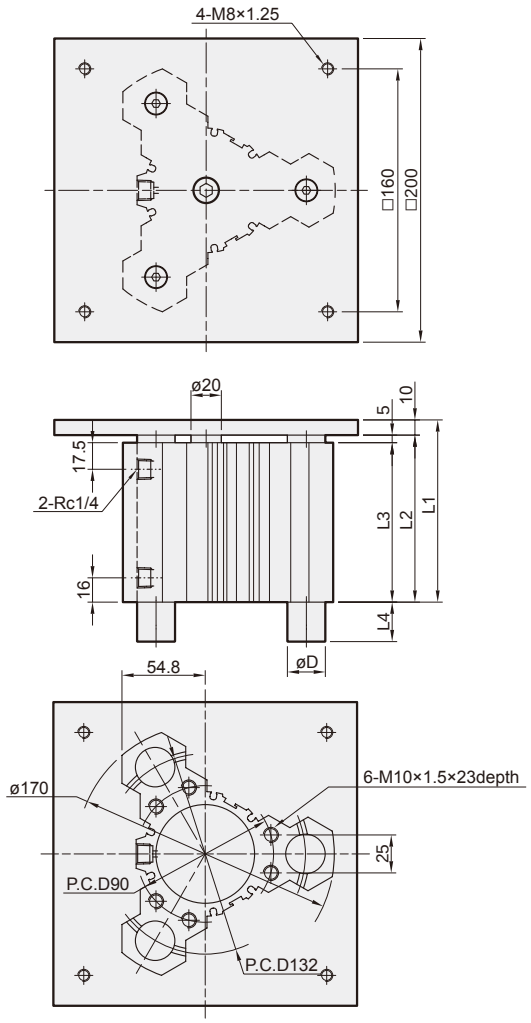
Tube I.D.	L4		øD	
	MCG3-D	MCG3-B	MCG3-D	MCG3-B
63	0	26	ø25	ø16
80	0	25	ø28	ø20

MCG3-D90/B90/D180/B180

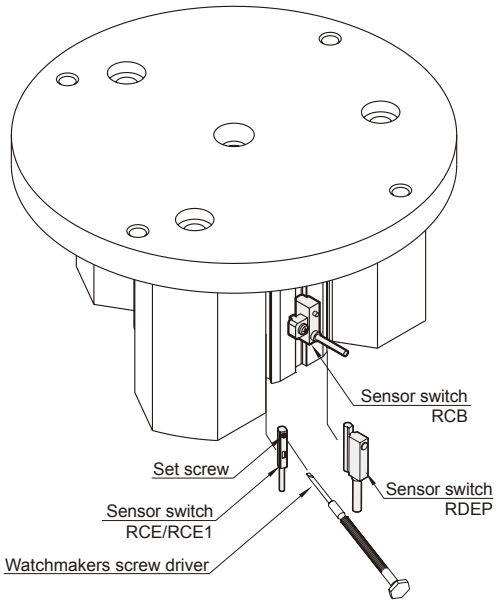
Tube I.D.	L1			L2			L3		
	Stroke (mm)								
	30	50	100	30	50	100	30	50	100
63	125	145	195	108	128	178	85	105	155

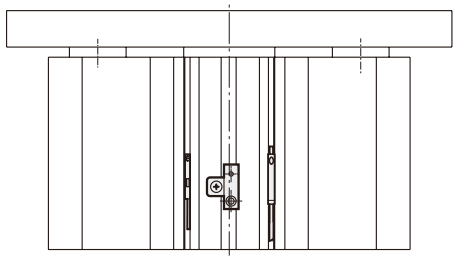
Tube I.D.	L4		øD	
	D90 / D180	B90 / B180	D90 / D180	B90 / B180
63	0	26	ø25	ø16

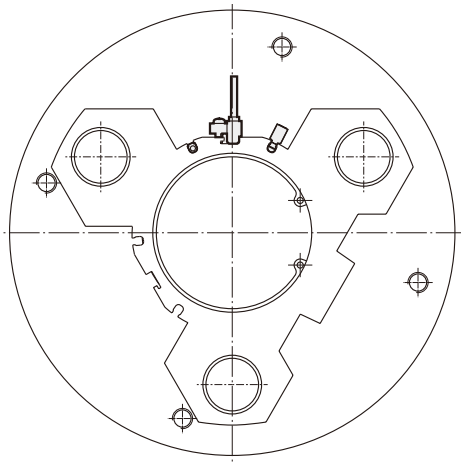
MCG3-QD/QB
(Lift type)



Installation of sensor switch







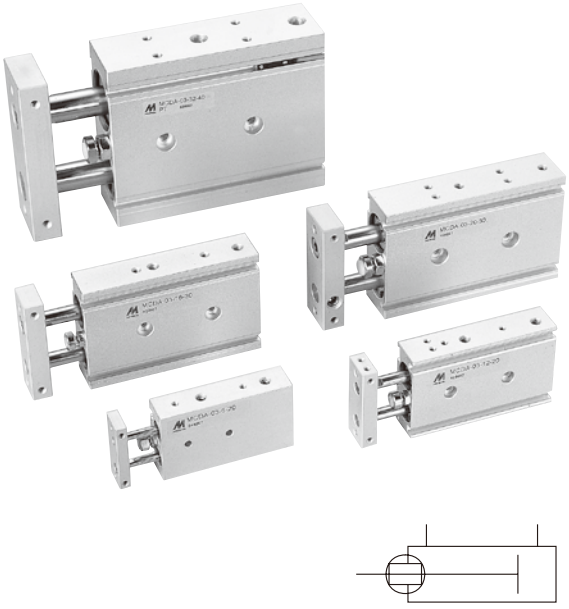
MCG3-QD/QB

Tube I.D.	Stroke (mm)	L1	L2	L3
63	**30**	100	90	85
	50	120	110	105
	75	145	135	130
	100	170	160	155

Tube I.D.	L4		øD	
	MCG3-QD	MCG3-QB	MCG3-QD	MCG3-QB
63	0	26	ø25	ø16

MCDA series

DUAL-ROD CYLINDER



Features

- Compact in width and length with precision guidance.
- High lateral loads can be applied on both slide and linear bearing unit.
- Magnetic as standard.

Specification

Model	MCDA					
Acting type	Double acting					
Tube I.D.(mm)	6	12	16	20	25	32
Port size	M5×0.8				Rc1/8	
Medium	Air					
Operating pressure range (MPa) Max.	0.7					
Operating pressure range (MPa) Min.	0.15	0.1		0.05		
Proof pressure	1 MPa					
Ambient temperature	-5~+60°C (No freezing)					
Cushion	With rubber cushion pad (both side)					
Available speed range	50~300	50~500 mm/sec				
Lubrication	Not required (If lubrication is used, apply turbine oil NO1 ISO VG32)					
Sensor switch (*1)	RCB(*2), RCE, RCE1, RDEP					

*1. RCB, RCE, RCE1, RDEP specification, please refer to page 8-9, 11, 12, 17.
*2. RCB only for tube I.D. 12~32.

Order example

MCDA — 03 — 12 — 50 — □

- MODEL
- TYPE OF BEARING
  - **03** Slide bush
  - **23** Linear bearing
- TUBE I.D.
- STROKE
- PORT THREAD
  - Blank: M5×0.8 (for ø6~ø20)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (for ø25, ø32)

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	10,20,30,40,50
ø12	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100, 110,120,125,150
ø16	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100, 110,120,125,150
ø20	10,15,20,25,30,35,40,45,50,60,70, 75,80,90,100,110,120,125,150,175,200
ø25	
ø32	

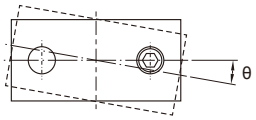
- Stroke out of specification is also available.
- Please consult us if stroke out of specification.
- It is possible to adjust length of basic stroke by 0~5mm.

Cylinder weight

Unit: g

Model	Basic weight **MCDA**	Stroke 5mm **MCDA**
Tube I.D.		
ø6	85.8	7.5
ø12	150	8
ø16	222	13
ø20	376	18
ø25	557	27
ø32	1105	42

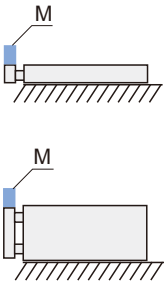
Anti-roll accuracy

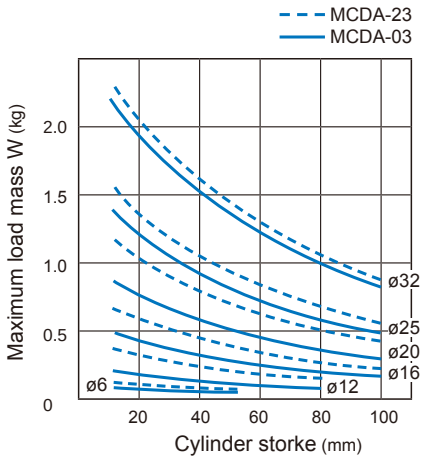


Code / Type	θ
MCDA-03	±0.1°
MCDA-23	±0.15°

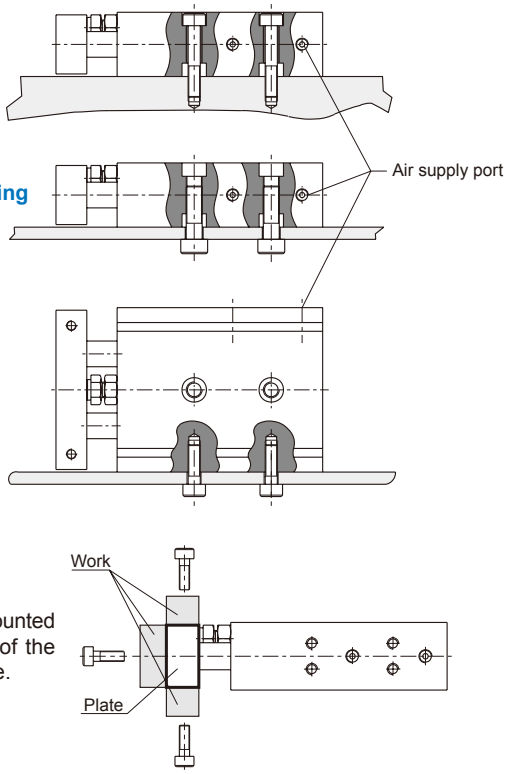
Maximum load mass

When the cylinder mounted as shown in the diagrams below, the maximum load mass W should not exceed the values illustrated in the graph.





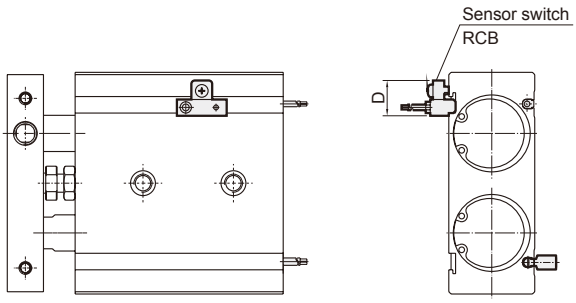
Mounting methods

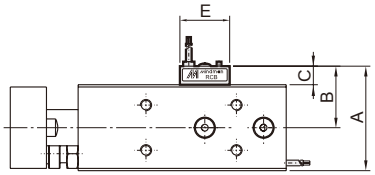


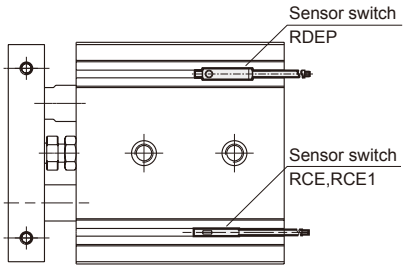
Work can be mounted on three faces of the rod square plate.

Installation of sensor switch

Sensor switch: RCB, RCE, RCE1, RDEP





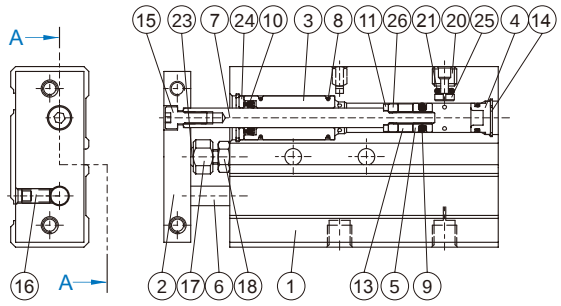


Code / Tube I.D.	A	B	C	D	E
12	26.5	17.5	8.5	16	22
16	28.5	18.5	8.5	16	22
20	33.5	21	8.5	16	22
25	38.5	23.5	8.5	16	22
32	46.5	27.5	8.5	16	22

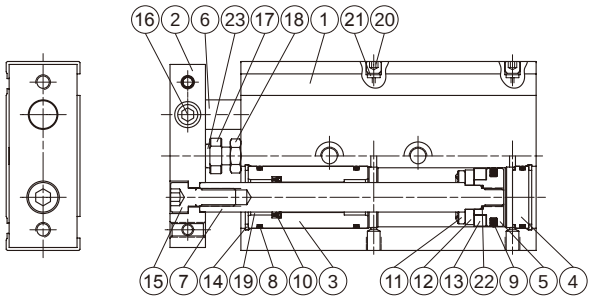
MCDA-03 Inside structure & Parts list

DUAL-ROD CYLINDER

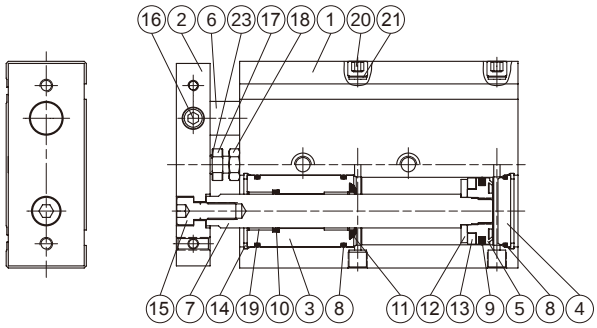
ø6



ø12~ø20



ø25, ø32



Material

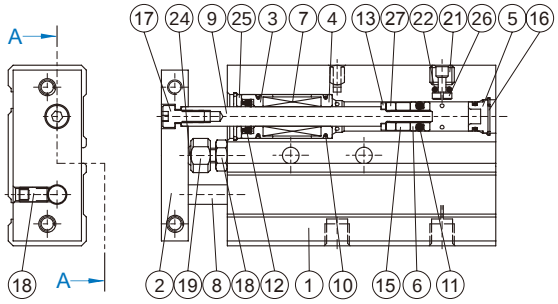
No.	Part name \ Tube I.D.	6	12	16	20	25	32	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy							1	
2	Plate	Aluminum alloy							1	
3	Rod cover	Aluminum alloy							2	
4	End cover	Aluminum alloy							2	
5	Piston	Aluminum alloy							2	
6	Piston rod #1	Stainless steel (*)							1	
7	Piston rod #2	Stainless steel (*)							1	
8	Cover ring	NBR							6	●
9	Piston packing	NBR							2	●
10	Rod packing	NBR							2	●
11	Rod cushion	NBR							2	●
12	Magnet holder	Stainless steel							2	
13	Magnet ring	Magnet material							2	
14	Snap ring	Spring steel							4	
15	Screw	Stainless steel							1	
16	Set screw	Stainless steel							1	
17	Cushion screw	Stainless steel							1	
18	Nut	Carbon steel							1	
19	Rod bush	Bearing alloy							4	
20	Plug (set screw)	Carbon steel							2	
21	Plug ring	NBR							2	●
22	O-ring	NBR						only ø20	2	●
23	Bumper	PU							1	
24	Rod cover washer	Stainless steel						only ø6	2	
25	Plug gasket	Stainless steel						only ø6	1	
26	Spaced ring	Aluminium						only ø6	2	

* Carbon steel

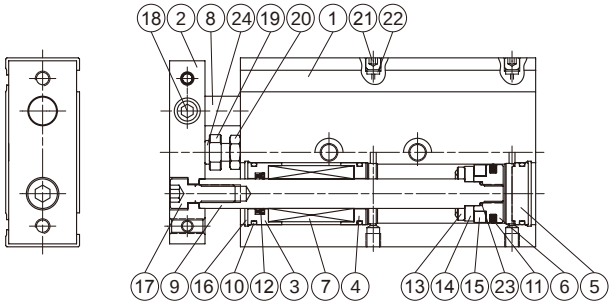
Order example of repair kits

Tube I.D.	Repair kits
ø6	**PS-MCDA-6**
ø12	**PS-MCDA-12**
ø16	**PS-MCDA-16**
ø20	**PS-MCDA-20**
ø25	**PS-MCDA-25**
ø32	**PS-MCDA-32**

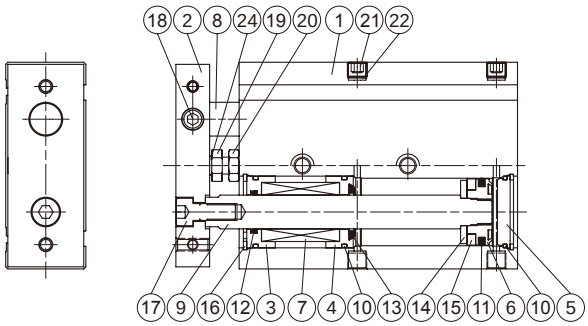
ø6



ø12~ø20



ø25, ø32

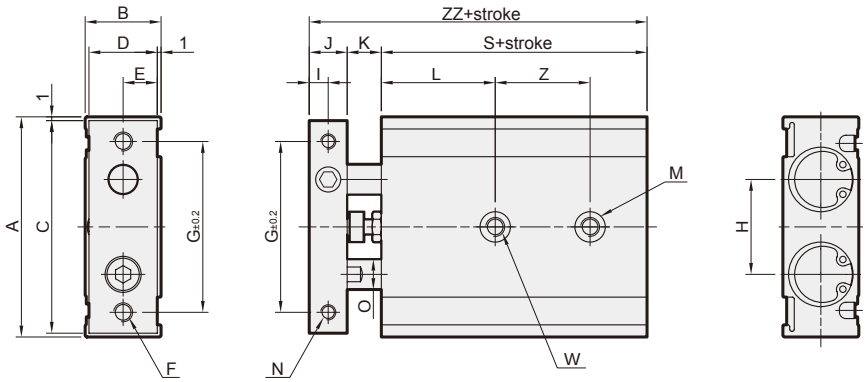


Material

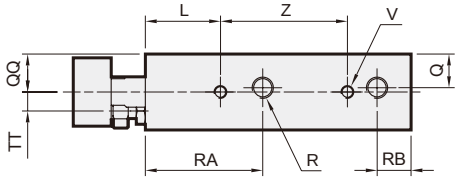
No.	Part name \ Tube I.D.	6	12	16	20	25	32	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy							1	
2	Plate	Aluminum alloy							1	
3	Rod cover #1	Aluminum alloy							2	
4	Rod cover #2	Aluminum alloy							2	
5	End cover	Aluminum alloy							2	
6	Piston	Aluminum alloy							2	
7	Slide bush	–							2	
8	Piston rod #1	Special steel							1	
9	Piston rod #2	Special steel							1	
10	Cover ring	NBR							6	●
11	Piston packing	NBR							2	●
12	Rod packing	NBR							2	●
13	Rod cushion	NBR							2	●
14	Magnet holder	Stainless steel							2	
15	Magnet ring	Magnet material							2	
16	Snap ring	Spring steel							4	
17	Screw	Stainless steel							1	
18	Set screw	Stainless steel							1	
19	Cushion screw	Stainless steel							1	
20	Nut	Carbon steel							1	
21	Plug(set screw)	Carbon steel							2	
22	Plug ring	NBR							2	●
23	O-ring	NBR						only ø20	2	●
24	Bumper	PU							1	
25	Rod cover washer	Stainless steel						only ø6	2	
26	Plug gasket	Stainless steel						only ø6	1	
27	Spaced ring	Aluminum						only ø6	2	

Order example of repair kits

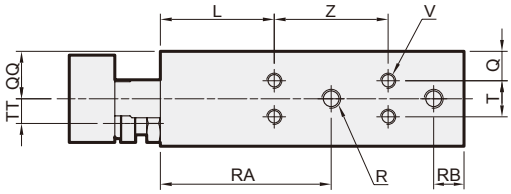
Tube I.D.	Repair kits
ø6	**PS-MCDA-6**
ø12	**PS-MCDA-12**
ø16	**PS-MCDA-16**
ø20	**PS-MCDA-20**
ø25	**PS-MCDA-25**
ø32	**PS-MCDA-32**



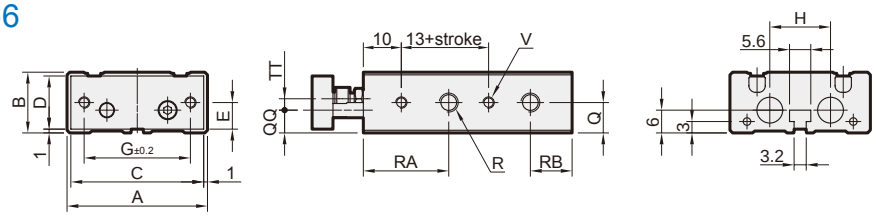
ø12, ø16



ø20~ø32



ø6

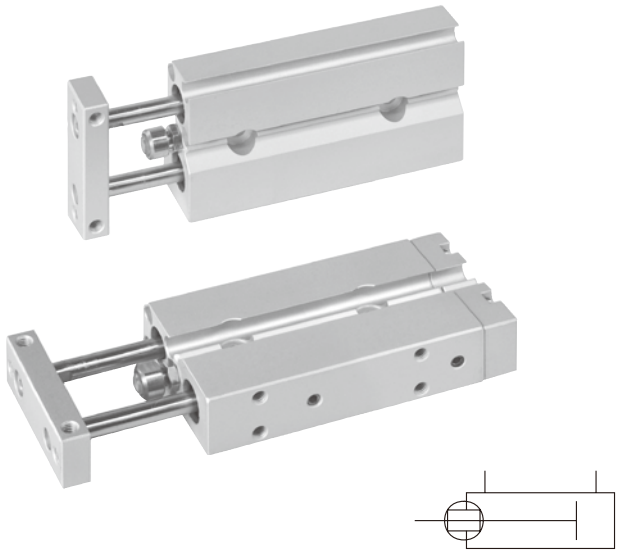


MCDA-03 / 23

Code / Tube I.D.	A	B	C	D	E	F (Thru)	G	H	I	J	K	L	M (Both side)	N (Both side)	O	Q	QQ	R (Both side)	RA	RB	S	T
6	37	16	35	14	7	2-M3×0.5	28	16	2.75	5.5	8	13	2-ø6.5×3.3dp *1	2-M3×0.5 thru	4	8	6	4-M5×0.8	22.5	11	45	–
12	46	18	44	16	8	2-M4×0.7	35	19	4	8	9	20	4-ø6.5×3.3dp	4-M3×0.5×5dp	6	9	10	4-M5×0.8	30	8	55	–
16	58	20	56	18	9	2-M5×0.8	45	25	5	10	9	30	4-ø8×4.4dp	4-M4×0.7×6dp	8	10	10	4-M5×0.8	38.5	8	60	–
20	64	25	62	23	11.5	2-M5×0.8	50	28	6	12	12	30	4-ø9.5×5.3dp	4-M4×0.7×6dp	10	7.75	12.5	4-M5×0.8	45	8	70	9.5
25	80	30	78	28	14	2-M6×1.0	60	35	6	12	12	30	4-ø11×6.3dp	4-M5×0.8×8dp	12	8.5	15	4-Rc1/8	46	9	72	13
32	98	38	96	36	18	2-M6×1.0	75	44	8	16	14	30	4-ø11×6.3dp	4-M5×0.8×8dp	16	9	19	4-Rc1/8	56	10	82	20

Code / Tube I.D.	TT	V (Both side)	W (Thru)	Z (Stroke) 10,15,20,25	30,35,40,45,50	60,70,75,80	90,100	110,120,125	150	175,200	ZZ
6	3	4-M3×0.5×4.5dp	2-ø3.4	10+1/2 stroke *2							58.5
12	3.5	4-M3×0.5×4.5dp	2-M4×0.7	30	40	50	60	70	80	–	72
16	5	4-M4×0.7×5dp	2-M5×0.8	25	35	45	55	65	75	–	79
20	6.5	8-M4×0.7×5.5dp	2-M6×1.0	30	40	60		80		100	94
25	9	8-M5×0.8×7.5dp	2-M8×1.25	30	40	60		80		100	96
32	11.5	8-M5×0.8×7.5dp	2-M8×1.25	40	50	70		90		110	112

*1. ø6- single side.
*2. ø6- stroke (10, 20, 30, 40, 50)



Features

- Compact in width and length with precision guidance.
- High lateral loads can be applied on both slide and linear bearing unit.
- Magnetic as standard.

Specification

Model		MCDJ	
Acting type		Double acting	
Tube I.D.(mm)		6	10
Port size		M3×0.5	M5×0.8
Medium		Air	
Operating pressure range	Max.	0.7 MPa	
	Min.	0.15 MPa	0.1 MPa
Proof pressure		1 MPa	
Ambient temperature		-5~+60°C (No freezing)	
Cushion		With rubber cushion pad (both side)	
Available speed range		50~500 mm/sec	
Lubrication		Not required (If lubrication is used, apply turbine oil NO1 ISO VG32)	
Sensor switch (*)		RDFE(V), RDGV	

* RDFE(V), RDGV, specification, please refer to page 8-18, 19.

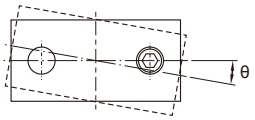
Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke
ø6	10,20,30,40,50	50
ø10	10,20,30,40,50	50

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.
- It is possible to adjust length of basic stroke by 0~5 mm.

Anti-roll accuracy

Code / Type	θ
MCDJ-03	±0.1°

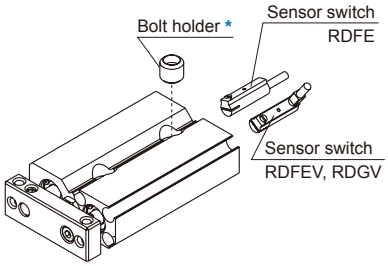


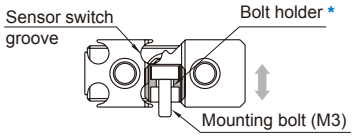
Order example

MCDJ — 03 — 6 — 50 — □

- MODEL
- TYPE OF BEARING **03**: Slide bush
- TUBE I.D.
- STROKE
- Blank: Standard piping **P**: Axial piping

Installation of sensor switch

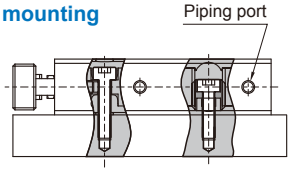




* Since the bolt holder is adjustable, the mounting bolt does not interfere with the sensor switch no matter what direction it is mounted from.
* Do not go beyond the body when adjusting the bolt holder.

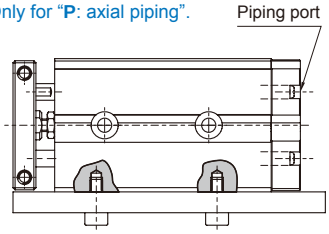
Mounting

Top mounting

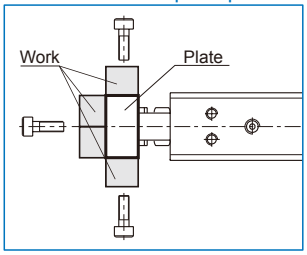


Side mounting

* Only for "**P**: axial piping".



Work can be mounted on three faces of the rod square plate.

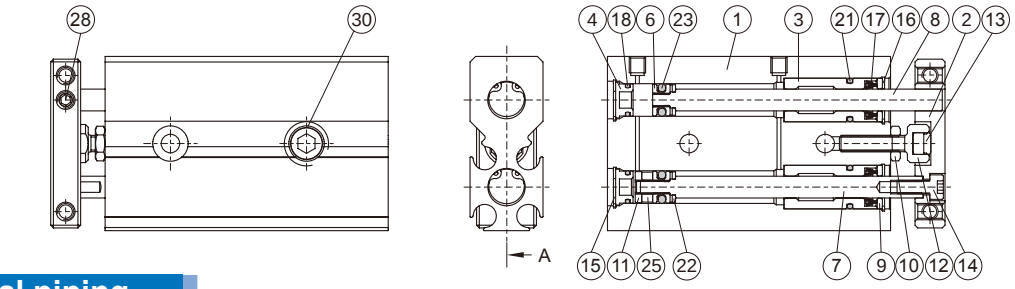


MCDJ-03 Inside structure & Parts list

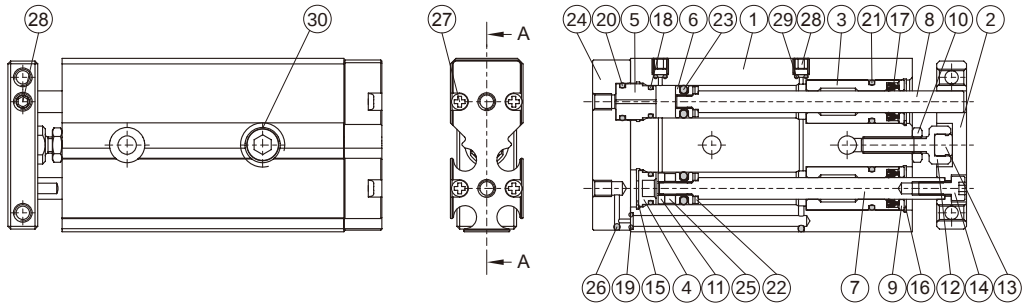
DUAL-ROD CYLINDER

mindman

Standrad piping



Axial piping



Material

No.	Tube I.D. / Part name	6	10	Standard piping Q'y	Standard piping Repair kits (inclusion)	Axial piping Q'y	Axial piping Repair kits (inclusion)
1	Body	Aluminum alloy		1		1	
2	Plate	Aluminum alloy		1		1	
3	Rod cover	Aluminum alloy		2		2	
4	End cover	Aluminum alloy		2		1	
5	End cover (Axial)	Aluminum alloy		–		1	
6	Piston	Stainless steel		2		2	
7	Piston rod #1	Stainless steel		1		1	
8	Piston rod #2	Stainless steel		1		1	
9	Rod cover washer	SUS	—	2		2	
10	Nut	Carbon steel		1		1	
11	Piston	Aluminum alloy		1		1	
12	Cushion screw	Stainless steel		1		1	
13	Bumper	PU		1		1	
14	Screw	Stainless steel		1		1	
15	Snap ring	Spring steel		2		1	
16	Snap ring	Spring steel		2		2	
17	Rod packing	NBR		2	●	2	●
18	O-ring	NBR		2	●	2	●
19	O-ring	NBR		–		1	●
20	O-ring	NBR		–		1	●
21	O-ring	NBR		2	●	2	●
22	Rod cushion	NBR		2	●	2	●
23	Piston packing	NBR		2	●	2	●
24	Port cover	Aluminum alloy		–		1	
25	Magnet ring	Magnet material		1		1	
26	Steel ball	Stainless steel		–		2	
27	Screw	Iron		–		4	
28	Bolt	Stainless steel		1		3	
29	O-ring	NBR		–		2	●
30	Bolt holder	Stainless steel		1		1	

Order example of repair kits

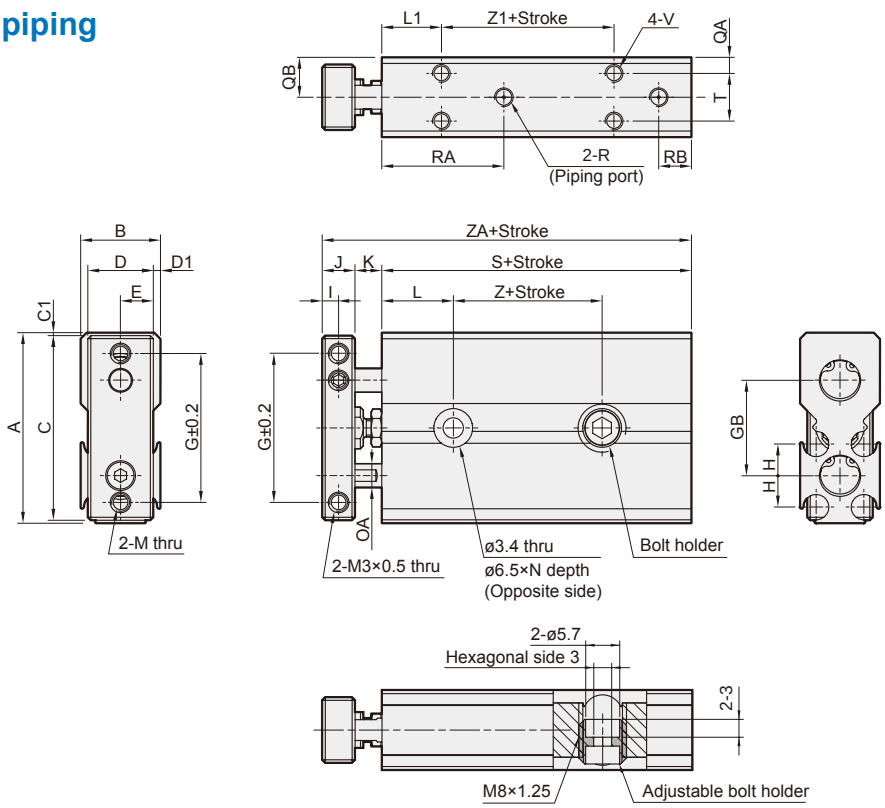
Piping type	Tube I.D.	Repair kits
Standard	ø6	**PS-MCDJ-6**
	ø10	**PS-MCDJ-10**
Axial	ø6	**PS-MCDJ-6-P**
	ø10	**PS-MCDJ-10-P**
Lubricant (10g)		**GR-A-010**

Cylinder weight

Unit: g

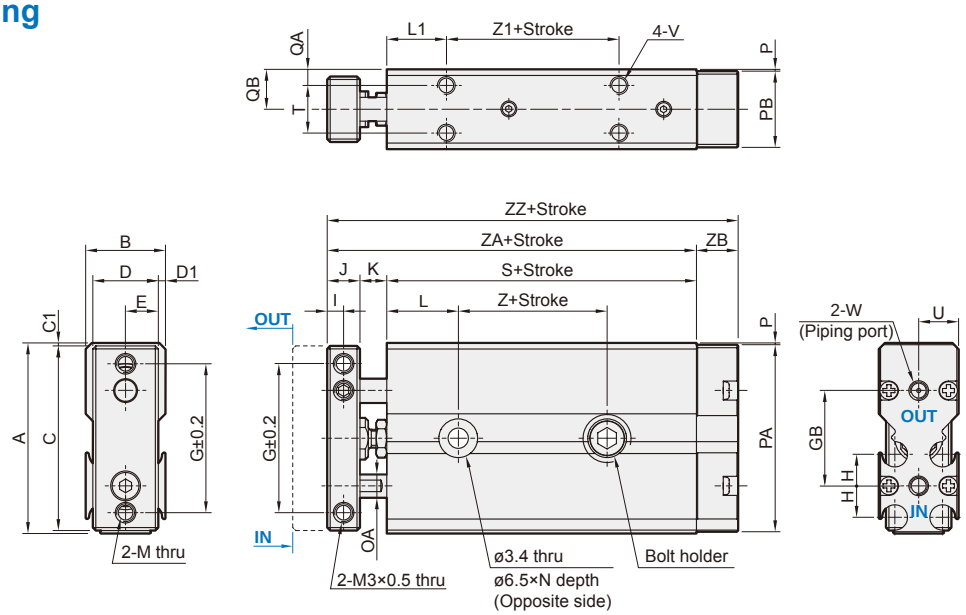
Piping type	Standard piping		Axial piping	
Tube I.D. / Stroke	ø6	ø10	ø6	ø10
10	45	97	51	109
20	54	111	61	124
30	64	125	71	137
40	74	139	80	152
50	84	154	90	166
75	—	188	—	201

Standrad piping



Axial piping

P



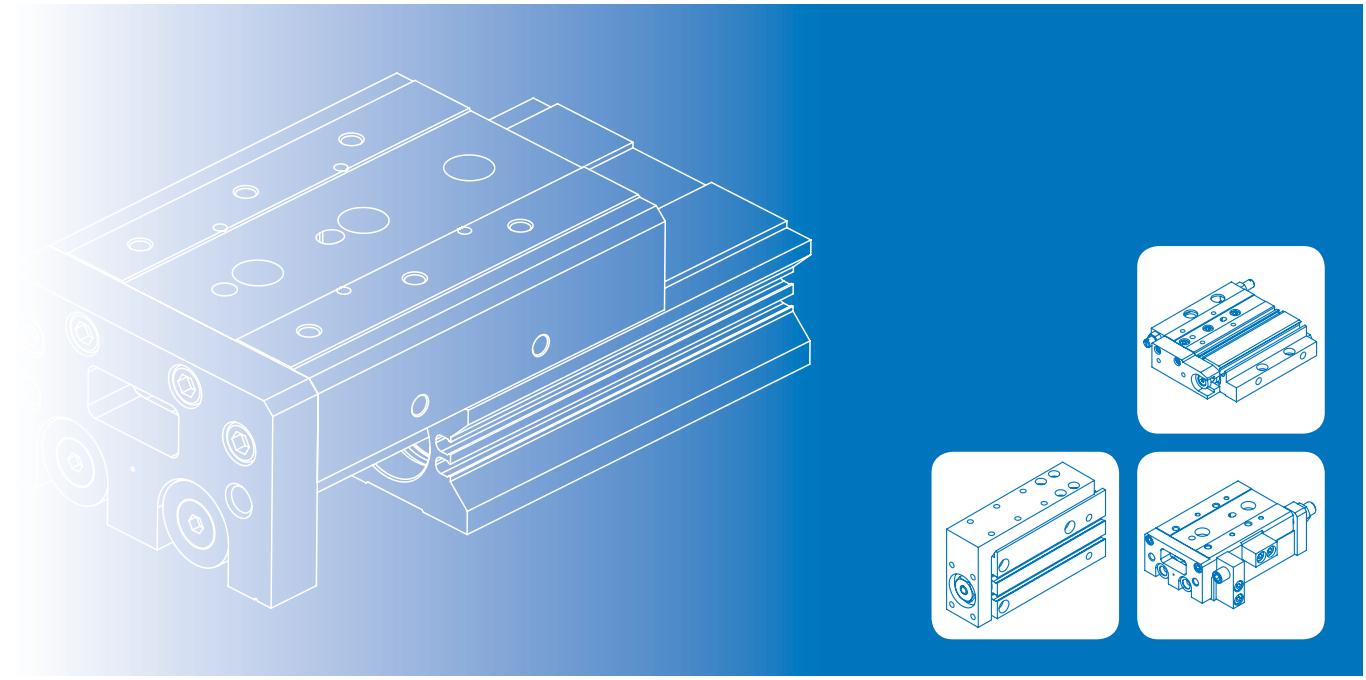
Code / Tube I.D.	A	B	C	C1	D	D1	E	G	GB	H	I	J	K	L	L1	M	N	OA	P	PA	PB	QA	QB	R	RA	RB
6	32	13.4	31	0.5	11	1.2	5.5	25	16	5.3	2.75	5.5	4.5	12	10	M3×0.5	5	ø4	0.3	31.4	12.8	2.7	6.7	M3×0.5×3 dp	20.5	5.5
10	42	15	40	1	13	1	6.5	33	20	8	4	8	3.5	16	16	M4×0.7	5.5	ø6	0.3	41.4	14.4	3.5	7.5	M5×0.8×4 dp	28.5	8

Code / Tube I.D.	S	T	U	V	W	Z	Z1	ZA	ZB	ZZ
6	32	8	6.7	M3×0.5×3.5 dp	M3×0.5×3 dp	5	9	42	7	49
10	44.5	8	7.5	M3×0.5×4.5 dp	M5×0.8×4 dp	8	12	56	8.5	64.5

MEMO

NOTE

TABLE



F Fast delivery

Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our MINDMAN website (www.mindman.com.tw) and click on the “Component Set Inventory” button.

Features

- High precision combination of cylinder and linear rail.
- Flush fitting sensor groove.
- Magnetic as standard.

Specification

Model	MCSS		
Acting type	Double acting		
Tube I.D. (mm)	6	8, 12, 16	20, 25
Port size	M3×0.5	M5×0.8	Rc1/8
Medium	Air		
Operating pressure range	0.15~0.7 MPa		
Proof pressure	1 MPa		
Ambient temperature	-5~+60°C (No freezing)		
Lubricator	Not required		
Available speed range	50~500 mm/sec		
Cushion	Rubber bumper (Standard) Shock absorber (Option)		
Sensor switch (*)	RCE, RCE1, RDEP		

* RCE, RCE1, RDEP specification, please refer to page 8-11, 12, 17.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø 20, 25	10, 20, 30, 40, 50, 75, 100, 125, 150

Order example

MCSS — 20 L — 50 — AS — X12 — □

- MODEL
- TUBE I.D.
  - Blank: Standard
  - **L**: Symmetric style
- STROKE
- STROKE ADJUSTER
  - Blank: Without adjuster
  - **AS**: Adjuster at extension end
  - **AT**: Adjuster at retraction end
  - **A**: Adjuster at both ends
  - **BS**: Absorber at extension end
  - **BT**: Absorber at retraction end
  - **B**: Absorber at both ends
  - **AB**: Adjuster at extension end+Absorber at retraction end
  - **BA**: Absorber at extension end+Adjuster at retraction end
- ADJUSTABLE RANGE
  - Blank: 5mm
  - **X11**: 15mm
  - **X12**: 25mm
  - (Only for stroke adjuster)
- PORT THREAD
  - Blank: M thread (for ø6~ø16)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (for ø20,ø25)

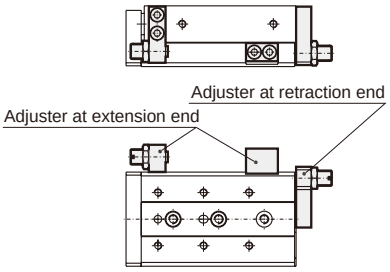
*__X12__ (adjustable range: 25mm) is not available for MCSS-6.
*__X11__ and __X12__ are not available for shock absorber type.
*Shock absorber is not available on series MCSS-6.

Stroke adjuster option

Stroke adjuster

- Adjustable stroke range: 0~5mm (Standard)

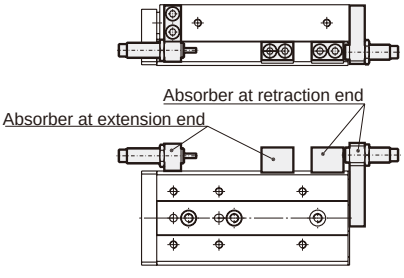
AS: Adjuster at extension end
AT: Adjuster at retraction end
A: Adjuster at both ends



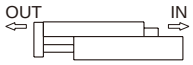
With shock absorber

- Enables adjustment of stroke.
- Absorbs the collision at stroke end and stops smoothly.

BS: Absorber at extension end
BT: Absorber at retraction end
B: Absorber at both ends

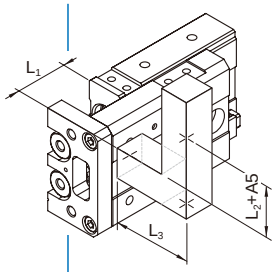


Theoretical force



Unit: N

Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)					
				0.2	0.3	0.4	0.5	0.6	0.7
6	3	OUT	57	11	17	23	29	34	40
		IN	42	8	13	17	21	25	29
8	4	OUT	101	20	30	40	51	61	71
		IN	75	15	23	30	38	45	53
12	6	OUT	226	45	68	90	113	136	158
		IN	170	34	51	68	85	102	119
16	8	OUT	402	80	121	161	201	241	281
		IN	302	60	91	121	151	181	211
20	10	OUT	628	126	188	251	314	377	400
		IN	471	94	141	188	236	283	330
25	12	OUT	982	196	295	393	491	589	687
		IN	756	151	227	302	378	454	529

Model selection steps	Formula / Data	Selection example
1. Operating conditions List the operating conditions considering the mounting position and workpiece configuration. Check that the load weight does not exceed the max. allowable load weight and that the average operating speed does not exceed the operating speed range.	• Model to be used. • Type of cushion. • Workpiece mounting position. • Average operating speed Va (mm/s) • Load mass W (kg): Fig 1, Table 2 • Overhang Ln(mm): Fig 2	 Cylinder: MCSS-6-10 Cushion: Rubber bumper Workpiece table mounting Mounting: Horizontal wall mounting Average operating speed: Va = 150 mm/s Load mass: W = 0.3 kg L_1 = 4mm L_2 = 4mm L_3 = 5mm
2. Kinetic energy Find the kinetic energy E (J) of the load. Find the allowable kinetic energy Ea (J). Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.	$E = \frac{1}{2} \cdot W \left(\frac{V}{1000}\right)^2$ Collision speed V = 1.4* • Va * Correction factor (Reference values) Ea = K • Emax Workpiece mounting coefficient K: Fig 3 Max. allowable kinetic energy Emax: Table 1 Kinetic energy (E) ≤ Allowable kinetic energy (Ea)	$E = \frac{1}{2} \cdot 0.3 \left(\frac{210}{1000}\right)^2 = 0.0066$ V = 1.4 • 150 = 210 Ea = 1 • 0.015 = 0.015 Can be used based on E = 0.0066 ≤ Ea = 0.015

(Continued)

Table 1: Max. allowable kinetic energy: Emax (J)

Tube I.D. (mm)	Allowable kinetic energy	
	Rubber bumper	Shock absorber
ø6	0.015	–
ø8	0.023	0.041
ø12	0.05	0.105
ø16	0.104	0.214
ø20	0.153	0.313
ø25	0.232	0.472

Fig 1: Load mass: W (kg)

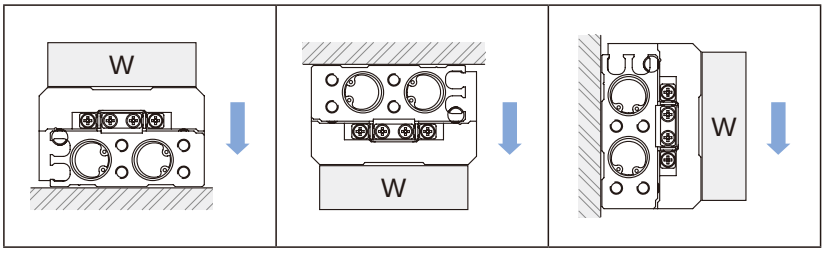


Table 2: Max. allowable load mass: Wmax (kg)

Tube I.D. (mm)	Max. allowable load mass
ø6	0.6
ø8	0.8
ø12	2
ø16	3.7
ø20	6
ø25	8.5

Fig 2: Overhang: Ln (mm), Correction value of moment center position distance: An (mm)

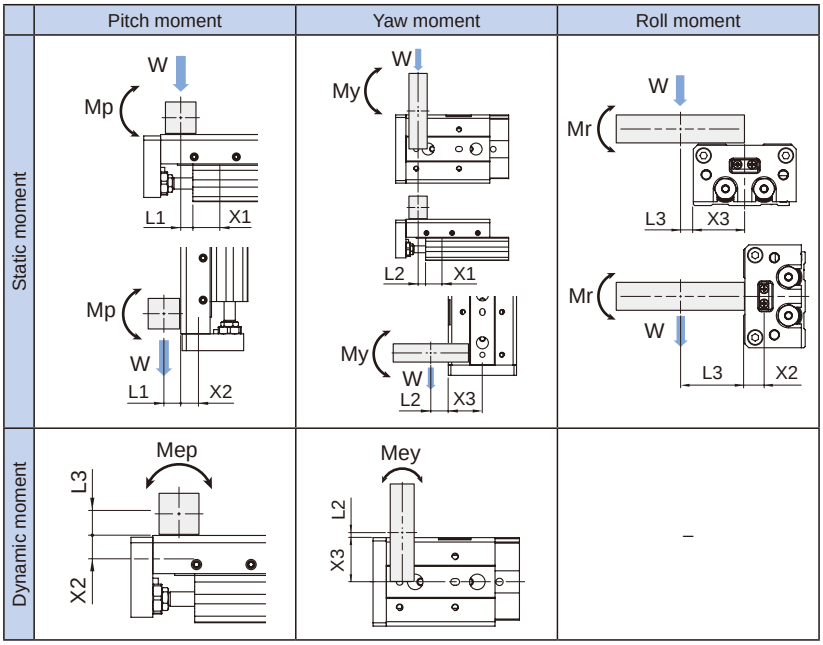
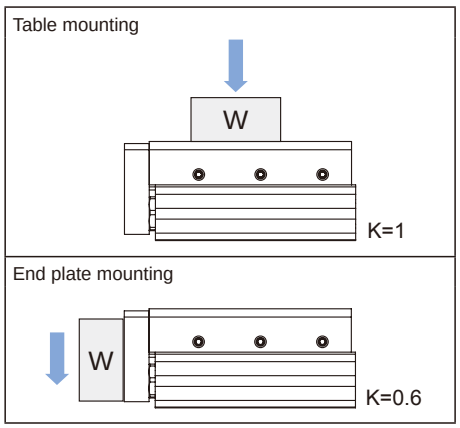


Fig 3: Workpiece mounting coefficient: K



Model selection steps	Formula / Data	Selection example
3. Load factor		
3-1 Load factor of load mass		
Find the allowable load mass Wa (kg). Note: There is no need to consider this load factor in the case of using perpendicularly in a vertical position. (Define $\alpha_1 = 0$.)	Wa = K • β • Wmax Workpiece mounting coefficient K: Fig 3 Allowable load mass coefficient β: Fig 4 Max. allowable load mass Wmax: Table 2	Wa = 1 • 1 • 0.6 = 0.6 K = 1 β = 1 Wmax = 0.6
Find the load factor of the load mass α_1.	α_1 = W/Wa	α_1 = 0.3/0.6 = 0.5
3-2 Load factor of static moment		Yawing / Rolling
Find the static moment M (N·m).	M = W • 9.8(Ln+Xn) / 1000 Correction value of moment center position distance Xn: Table 3	Yawing: Examine My. My = 0.3 • 9.8(4+14.5)/1000 = 0.05 X_1 = 14.5 Rolling: Examine Mr. Mr = 0.3 • 9.8(5+6)/1000 = 0.033 X_2 = 6
Find the allowable static moment Ma (N·m).	Ma = K • γ • Mmax Workpiece mounting coefficient K: Fig 3 Allow load mounting coefficient γ: Fig 4 Max. allowable moment Mmax: Table 4	May = 1 • 1 • 0.7 = 0.7 Mymax = 0.7 K = 1 γ = 1 Mar = 0.7 (Same value as May)
Find the load factor α_2 of the static moment.	α_2 = M/Ma	α_2 = 0.05/0.7 = 0.072 α'_2 = 0.033/0.7 = 0.047
3-3 Load factor of dynamic moment		Pitching
Find the dynamic moment Me (N·m).	Me = 1/3 • We • 9.8 $\frac{(Ln+Xn)}{1000}$ Correction equivalent to impact We = δ • W • V δ: Bumper coefficient With urethane bumper (Standard) = 4/100 With shock absorber = 1/100 Correction value of moment center position distance Xn: Table 3	Examine Mep. Mep = 1/3 • 2.52 • 9.8 • $\frac{(5+6)}{1000}$ = 0.09 We = 4/100 • 0.3 • 210 = 2.52 X_2 = 6 Meap = 1 • 1 • 0.7 = 0.7 K = 1 γ = 1 Mpmax = 0.7 α_3 = 0.09/0.7 = 0.128
Find the allowable dynamic moment Mea (N·m).	Mea = K • γ • Mmax Workpiece mounting coefficient K: Fig 3 Allowable mounting coefficient γ: Fig 4 Max. allowable moment Mmax: Table 4	Yawing Examine Mey. Mey = 1/3 • 2.52 • 9.8 • $\frac{(4+16)}{1000}$ = 0.165 We = 2.52 X_3 = 16 Meay = 0.7 (Same value as Meap)
Find the load factor α_3 of the dynamic moment.	α_3 = Me/Mea	α'_3 = 0.165/0.7 = 0.235
3-4 Sum of load factors		
Possible to use if the sum of the load factors does not exceed 1.	$\Sigma\alpha_n = \alpha_1 + \alpha_2 + \alpha_3 \leq 1$	$\Sigma\alpha_n = \alpha_1 + \alpha_2 + \alpha'_2 + \alpha_3 + \alpha'_3 \leq 1$ $\Sigma\alpha_n$ = 0.5 + 0.072 + 0.047 + 0.128 + 0.235 = 0.982 ≤ 1 Add it is possible to use.

Table 3: Correction value of moment center position distance: Xn (mm)

Tube I.D. (mm)	X1, Stroke (mm)									X2	X3
	10	20	30	40	50	75	100	125	150		
ø6	14.5	14.5	19	26.5	35.5	–	–	–	–	6	16
ø8	14.5	14.5	19	28.5	35.5	49	–	–	–	8	20
ø12	23.5	23.5	23.5	27.5	33	50.5	68.5	–	–	9.5	25
ø16	22.5	22.5	22.5	26.5	32	51.5	67.5	85	–	10.5	31
ø20	25	25	25	25	32.5	49.5	68.5	88.5	88.5	15.5	38
ø25	24	24	24	24	31.5	51.5	66.5	86.5	91.5	20.5	46

Table 4: Max. allowable moment: Mmax (N·m)

Tube I.D. (mm)	Stroke (mm)								
	10	20	30	40	50	75	100	125	150
ø6	0.7	1	1.1	1.1	1.1	–	–	–	–
ø8	2	2	2.6	3.5	3.9	3.9	–	–	–
ø12	3.9	3.9	3.9	5.5	6.8	9.6	9.6	–	–
ø16	9.8	9.8	9.8	9.8	12	21	30	30	–
ø20	16.4	16.4	16.4	16.4	24.2	31.4	45.5	45.5	45.5
ø25	26.5	26.5	26.5	26.5	37.8	49.8	62.2	62.2	62.2

Fig 3: Workpiece mounting coefficient: K

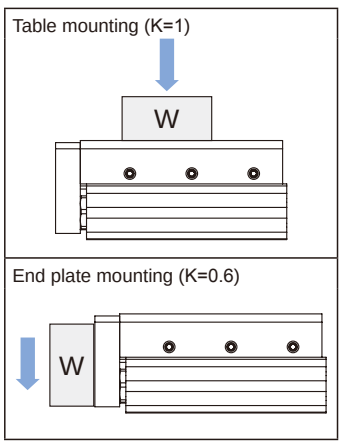
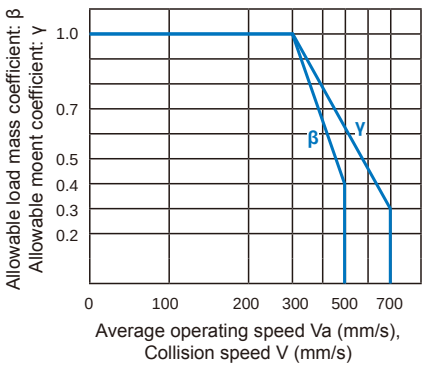


Fig.4: Allowable load mass coefficient: β
Allowable moment coefficient: γ

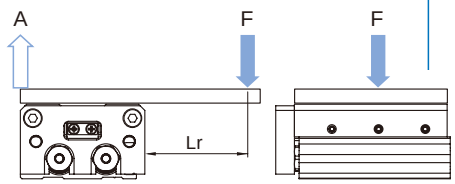


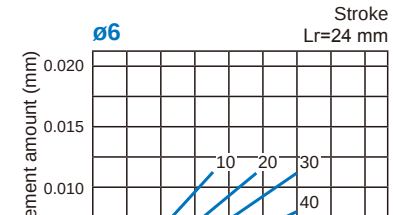
γ note: Use the average operating speed when calculating static moment. Use the collision speed when calculating dynamic moment.

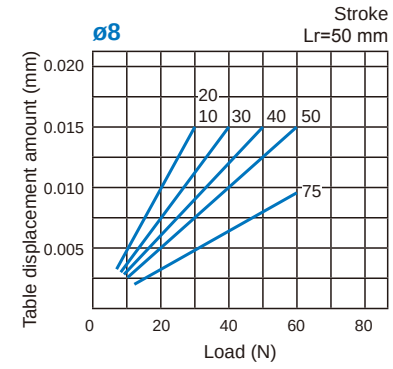
Table deflection (Reference values)

Table displacement due to roll moment load

Table displacement of section A when loads are applied to the section F with theslide table retracted.







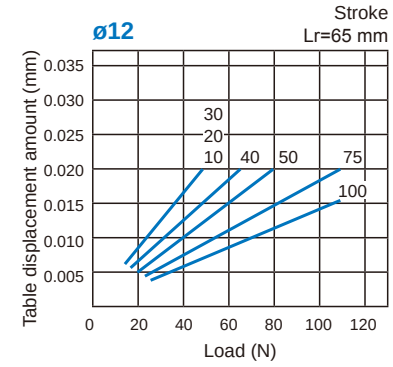
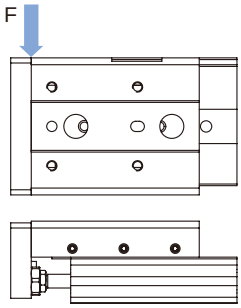
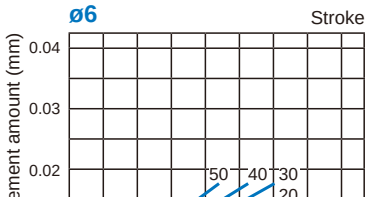
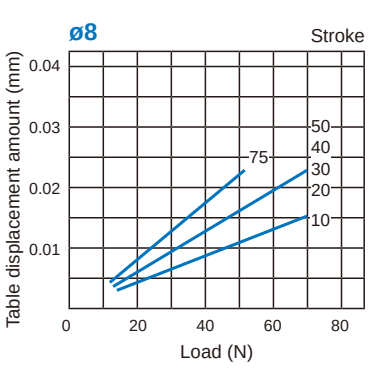


Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.







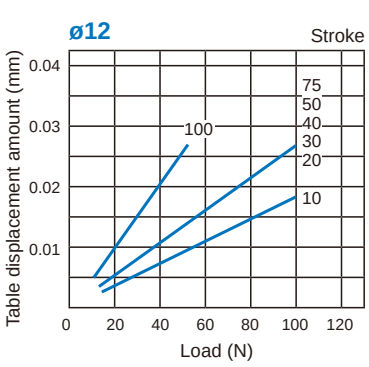
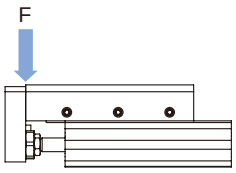
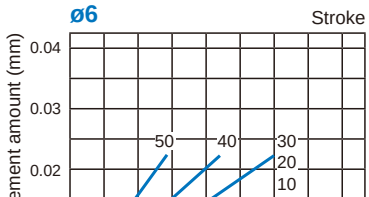
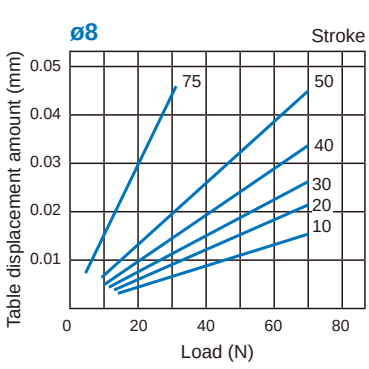


Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.







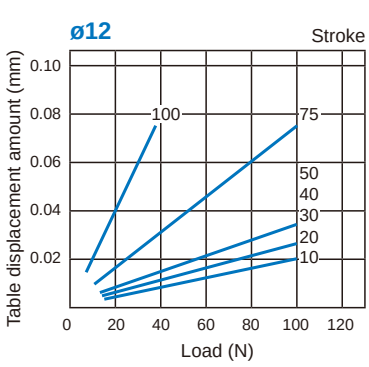
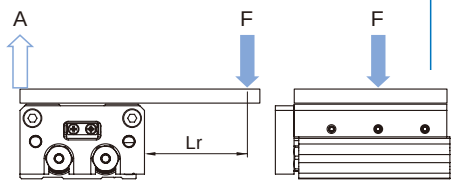
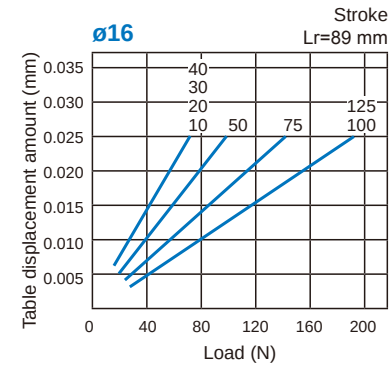


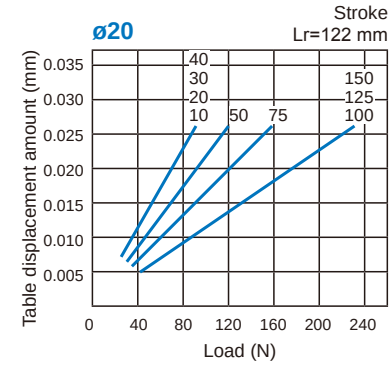
Table deflection (Reference values)

Table displacement due to roll moment load

Table displacement of section A when loads are applied to the section F with theslide table retracted.







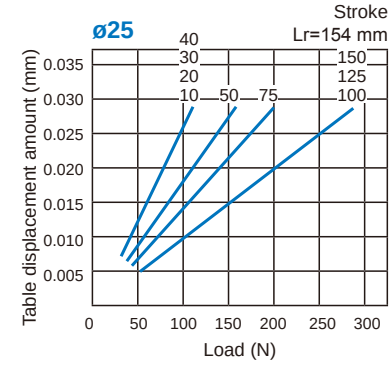
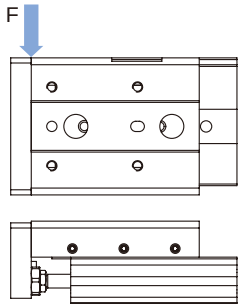
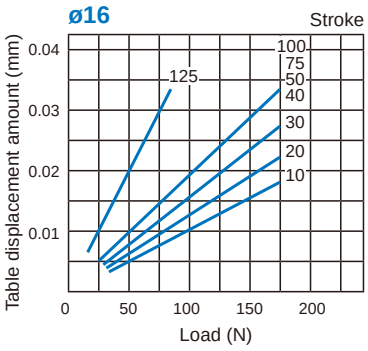
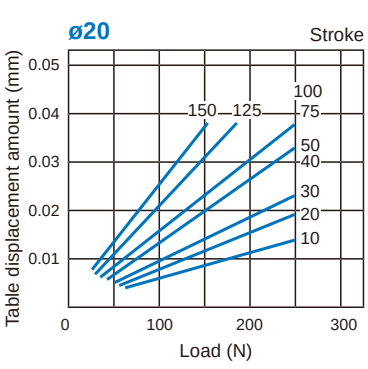


Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.







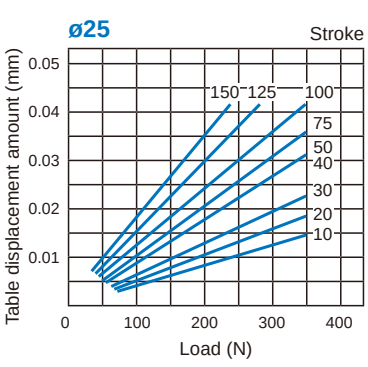
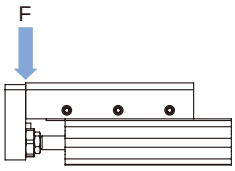
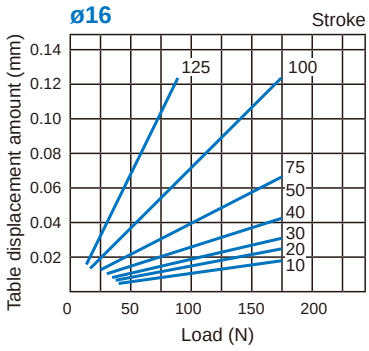
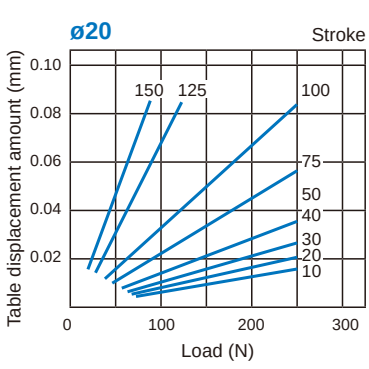


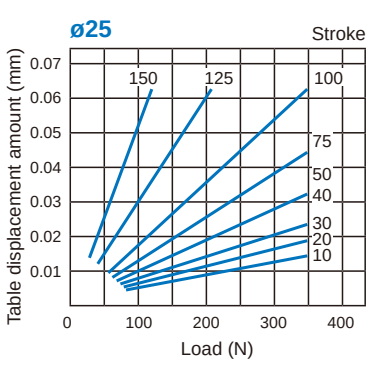
Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

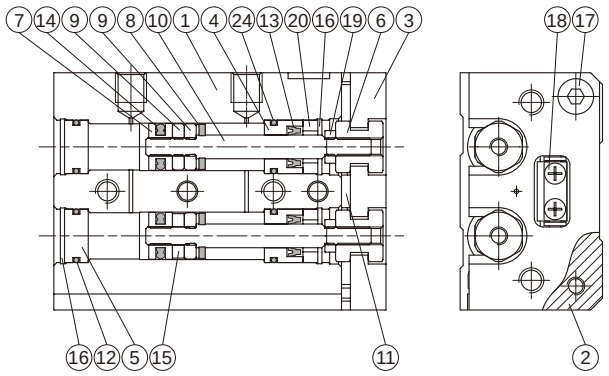




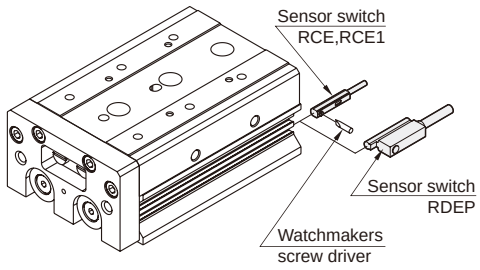




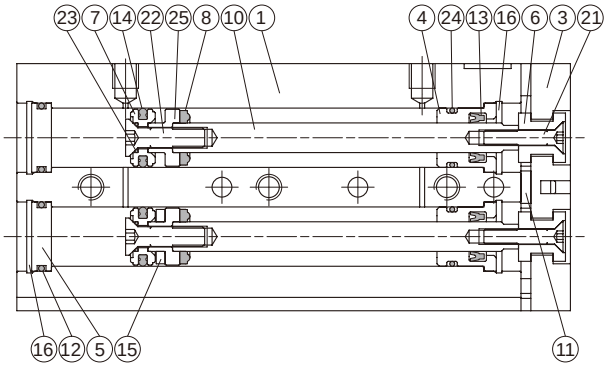
ø6, ø8



Installation of sensor switch



ø12~ø25



Order example of repair kits

Tube I.D.	Repair kits
ø6	**PS-MCSS-6**
ø8	**PS-MCSS-8**
ø12	**PS-MCSS-12**
ø16	**PS-MCSS-16**
ø20	**PS-MCSS-20**
ø25	**PS-MCSS-25**

Material

*1. Aluminum alloy *2. Stainless steel *3. Spring steel

No.	Part name \ Tube I.D.	6	8	12~25	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy			1	
2	Table	Aluminum alloy			1	
3	Plate	Aluminum alloy			1	
4	Rod cover	Aluminum alloy			2	
5	Head cover	Aluminum alloy			2	
6	Floating connector	Stainless steel			2	
7	Piston	Stainless steel		*1	2	
8	Cushion pad	NBR			2	●
9	Spacer ring	*1	*2	—	3	
10	Piston rod	Stainless steel			2	
11	End cushion	PU			1	●
12	Cover ring	NBR			2	●
13	Rod packing	NBR			2	●
14	Piston packing	NBR			2	●
15	Magnet ring	Magnet material			1	
16	Snap ring	*3	Stainless steel		4	
17	Bolt	Stainless steel			2 or 4	
18	Slide way	Bearing steel			1	
19	Nut	Stainless steel		—	2	

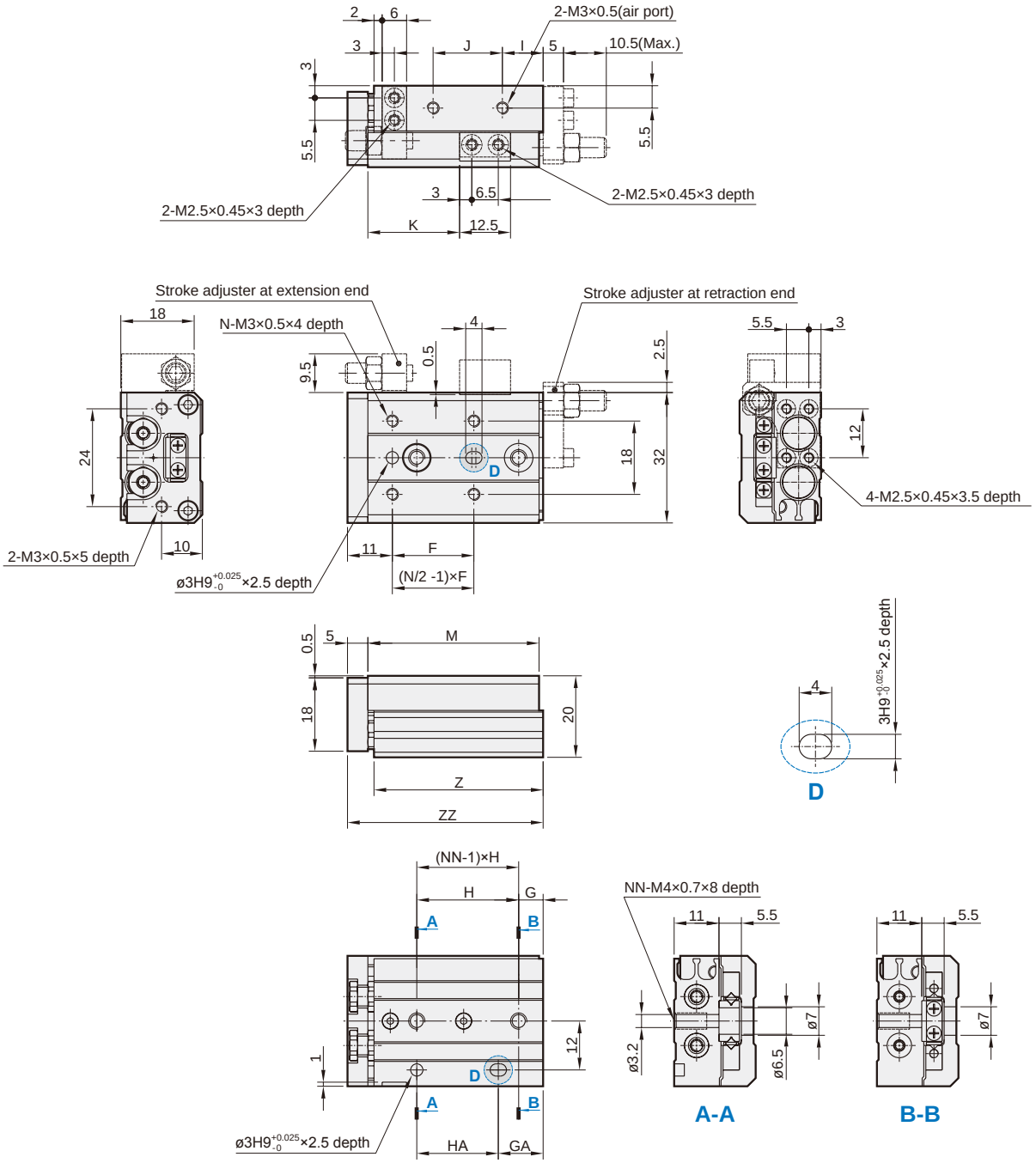
* Item 17. Tube I.D. ø6~16 (Q'y: 2pcs); Tube I.D. ø20, 25 (Q'y: 4pcs).

No.	Part name \ Tube I.D.	6	8	12~25	Q'y	Repair kits (inclusion)
20	Rod cover washer	Stainless steel		—	2	
21	Floating connector bolt	—		*2	2	
22	Piston screw	—		*2	2	
23	Piston gasket	—		NBR	2	●
24	Cover ring	NBR			2	●
25	Piston for magnet ring	—		*1	2	

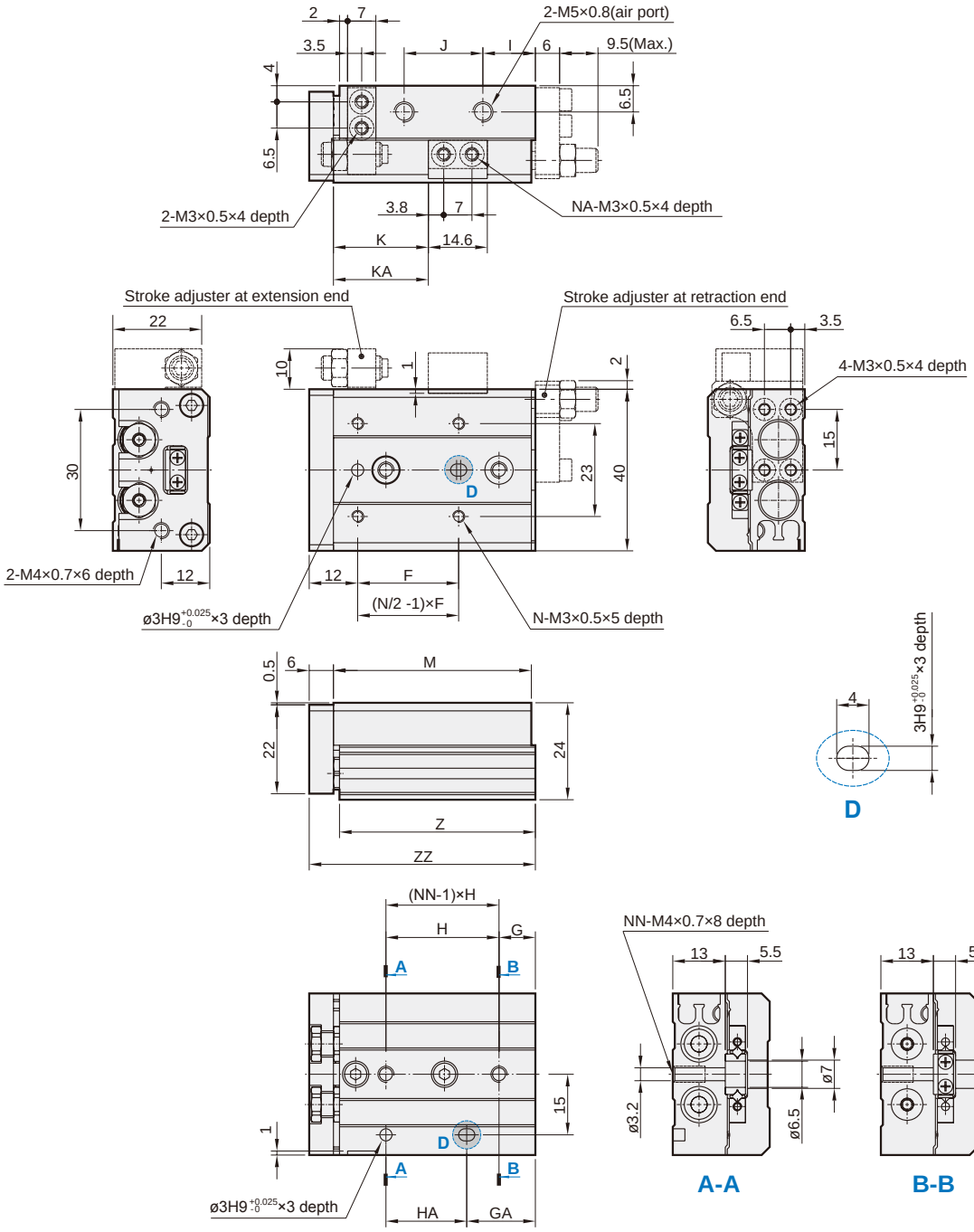
Cylinder weight

Unit: g

Stroke (mm)	Tube I.D.					
	ø6	ø8	ø12	ø16	ø20	ø25
10	89	155	360	576	1050	1636
20	110	166	362	604	1060	1650
30	122	201	369	602	1092	1673
40	161	246	425	674	1145	1797
50	199	281	529	762	1320	1989
75	–	394	722	1095	1815	2713
100	–	–	960	1410	2365	3260
125	–	–	–	1702	2880	4260
150	–	–	–	–	3368	4530

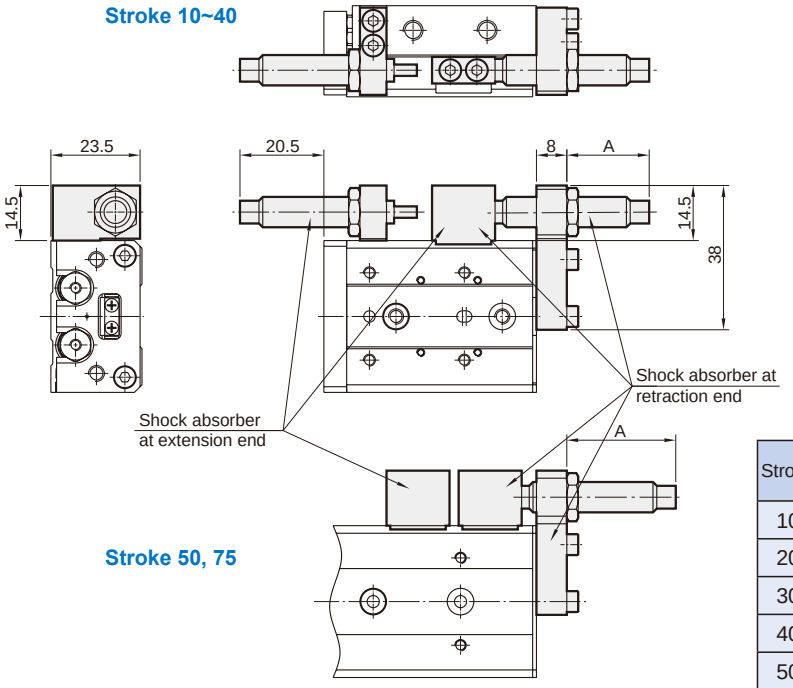


Code / Stroke	F	G	GA	H	HA	I	J	K	M	N	NN	Z	ZZ
10	20	6	11	25	20	10	17	22.5	42	4	2	41.5	48
20	30	6	21	35	20	10	27	32.5	52	4	2	51.5	58
30	20	11	31	20	20	7	40	42.5	62	6	3	61.5	68
40	28	13	43	30	30	19	50	52.5	84	6	3	83.5	90
50	38	17	41	24	48	25	60	62.5	100	6	4	99.5	106



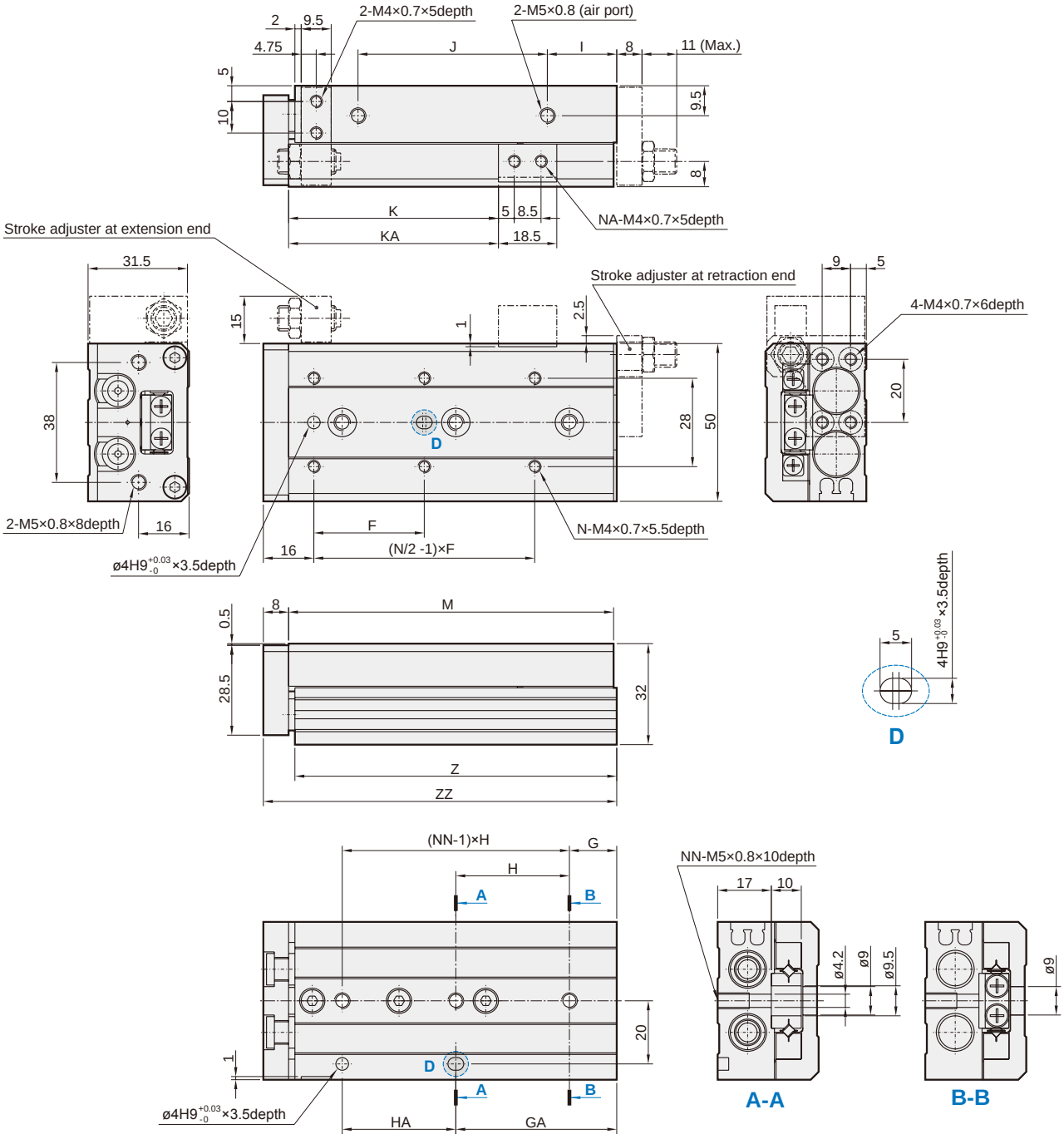
Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	9	17	28	20	13	19.5	23.5	-	49	4	2	2	48.5	56
20	25	12	12	30	30	8.5	29	33.5	-	54	4	2	2	53.5	61
30	40	13	33	20	20	9.5	39	43.5	-	65	4	2	3	64.5	72
40	50	15	43	28	28	10.5	56	53.5	-	83	4	2	3	82.5	90
50	38	20	43	23	46	24.5	60	63.5	82.5	101	6	4	4	100.5	108
75	50	27	83	28	56	38.5	96	88.5	132.5	151	6	4	5	150.5	158

ø8

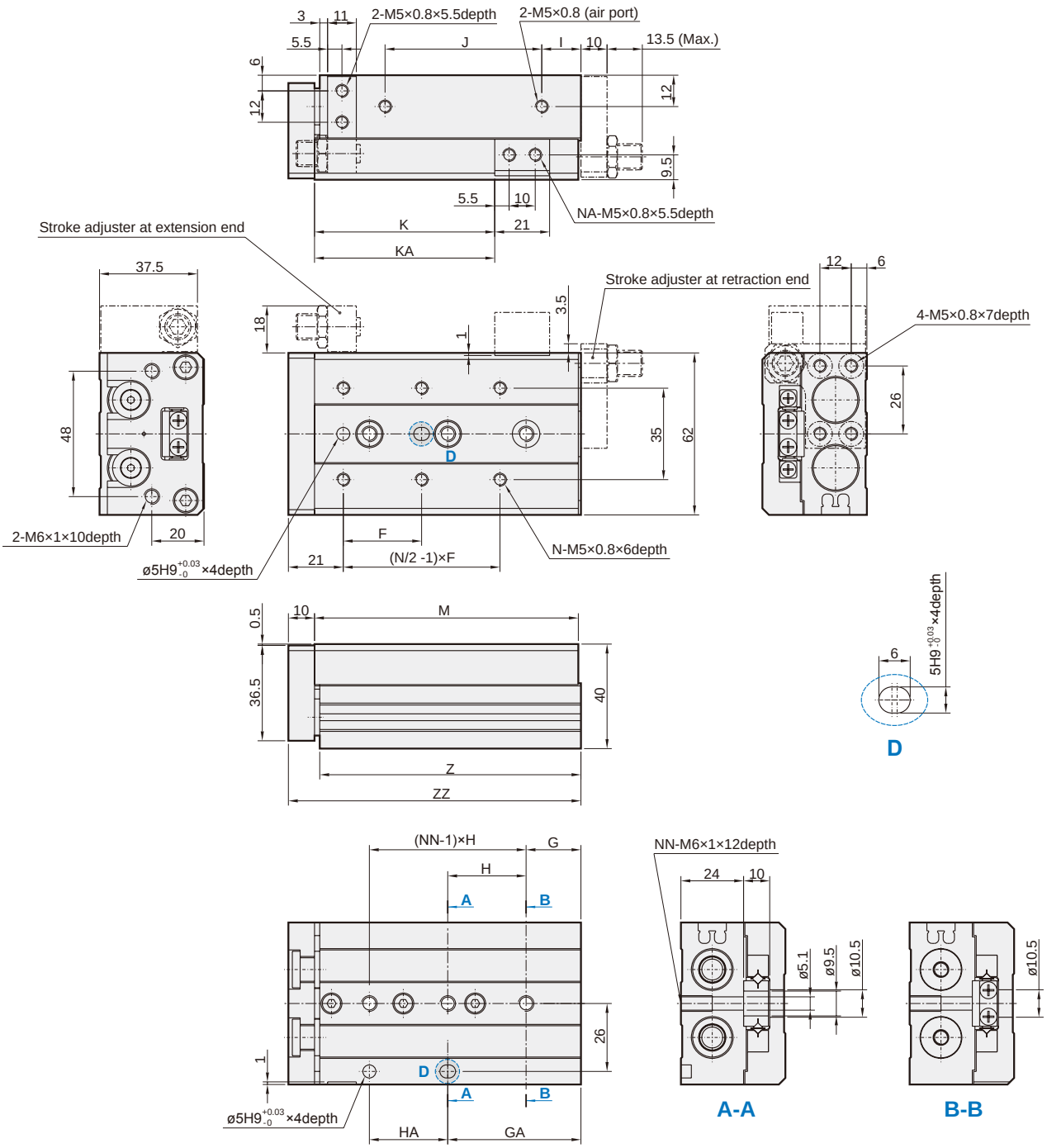


Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 21	11.5	20.1
20		16.1	25.1
30		15.1	24.1
40		7.1	16.1
50		18.1	27.1
75		18.1	27.1

* Other dimensions not indicated are the same as the basic style.

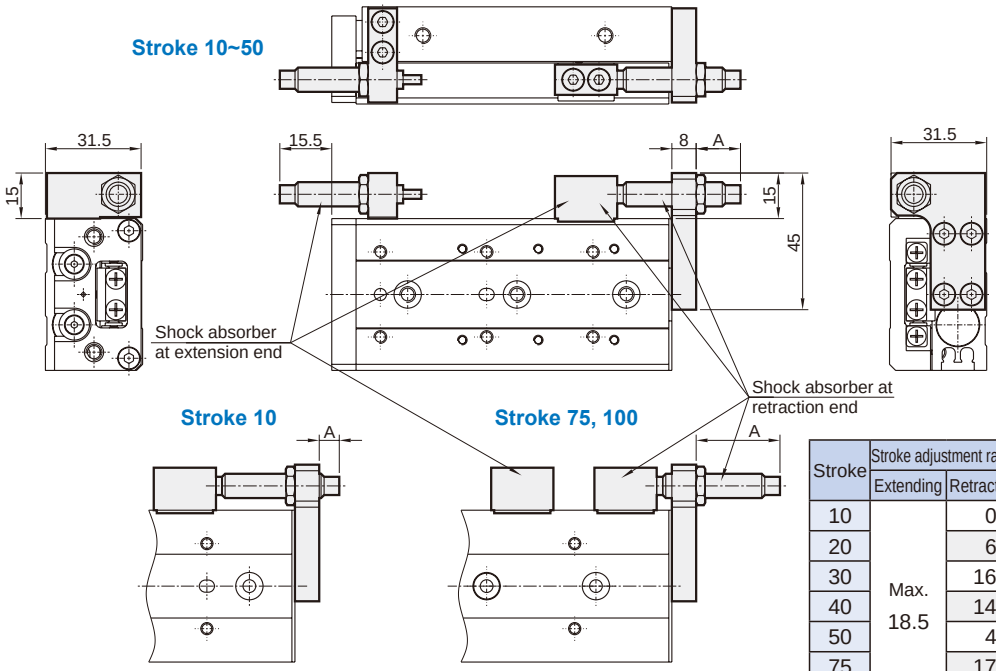


Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	15	15	40	40	10	40	26.5	-	71	4	2	2	70	80
20	35	15	15	40	40	10	40	36.5	-	71	4	2	2	70	80
30	35	15	15	40	40	10	40	46.5	-	71	4	2	2	70	80
40	50	17	42	25	25	10	52	56.5	-	83	4	2	3	82	92
50	35	15	51	36	36	22	60	66.5	-	103	6	2	3	102	112
75	55	25	61	36	72	43	85	91.5	125.5	149	6	4	4	148	158
100	65	35	111	38	76	52	130	116.5	179.5	203	6	4	5	202	212



Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	16	16	40	40	10	40	29	-	76	4	2	2	75	87
20	35	16	16	40	40	10	40	39	-	76	4	2	2	75	87
30	35	16	16	40	40	10	40	49	-	76	4	2	2	75	87
40	40	16	16	50	50	10	50	59	-	86	4	2	2	85	97
50	30	21	51	30	30	15	60	69	-	101	6	2	3	100	112
75	55	26	61	35	70	40	85	94	125	151	6	4	4	150	162
100	65	39	109	35	70	55	118	119	173	199	6	4	5	198	210
125	70	19	159	35	70	68	155	144	223	249	8	4	7	248	260

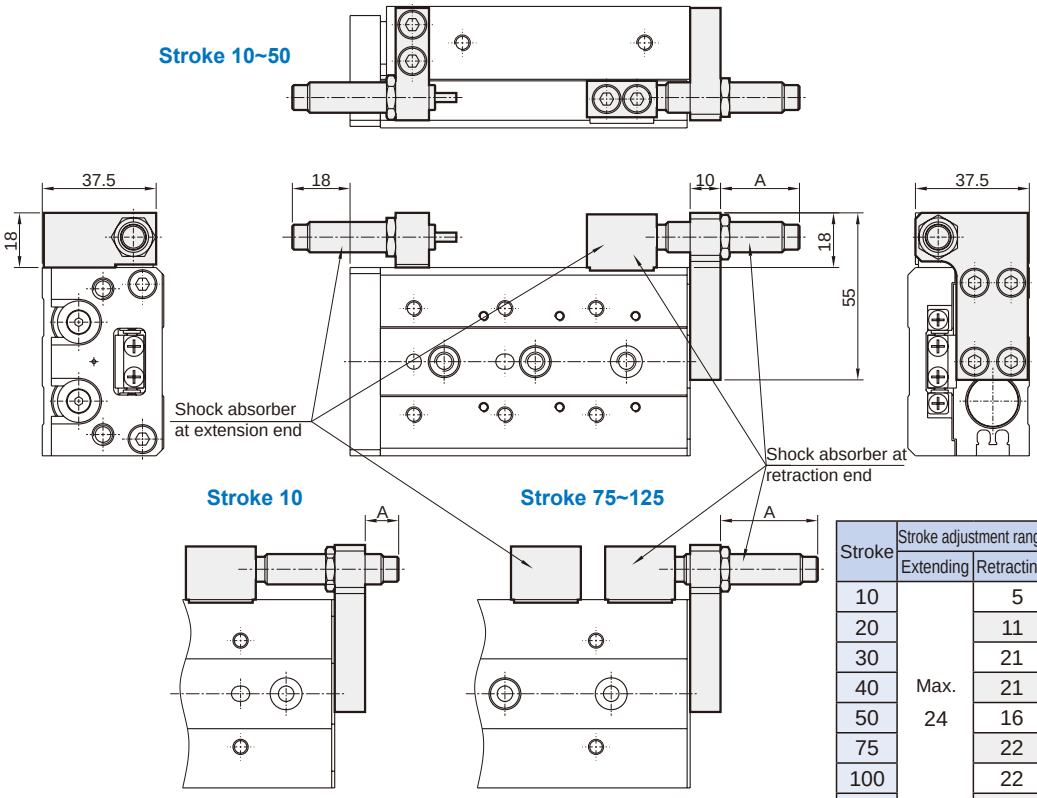
ø12



Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 18.5	0	5
20		6	15
30		16	25
40		14	23
50		4	13
75		17	26
100		17	26

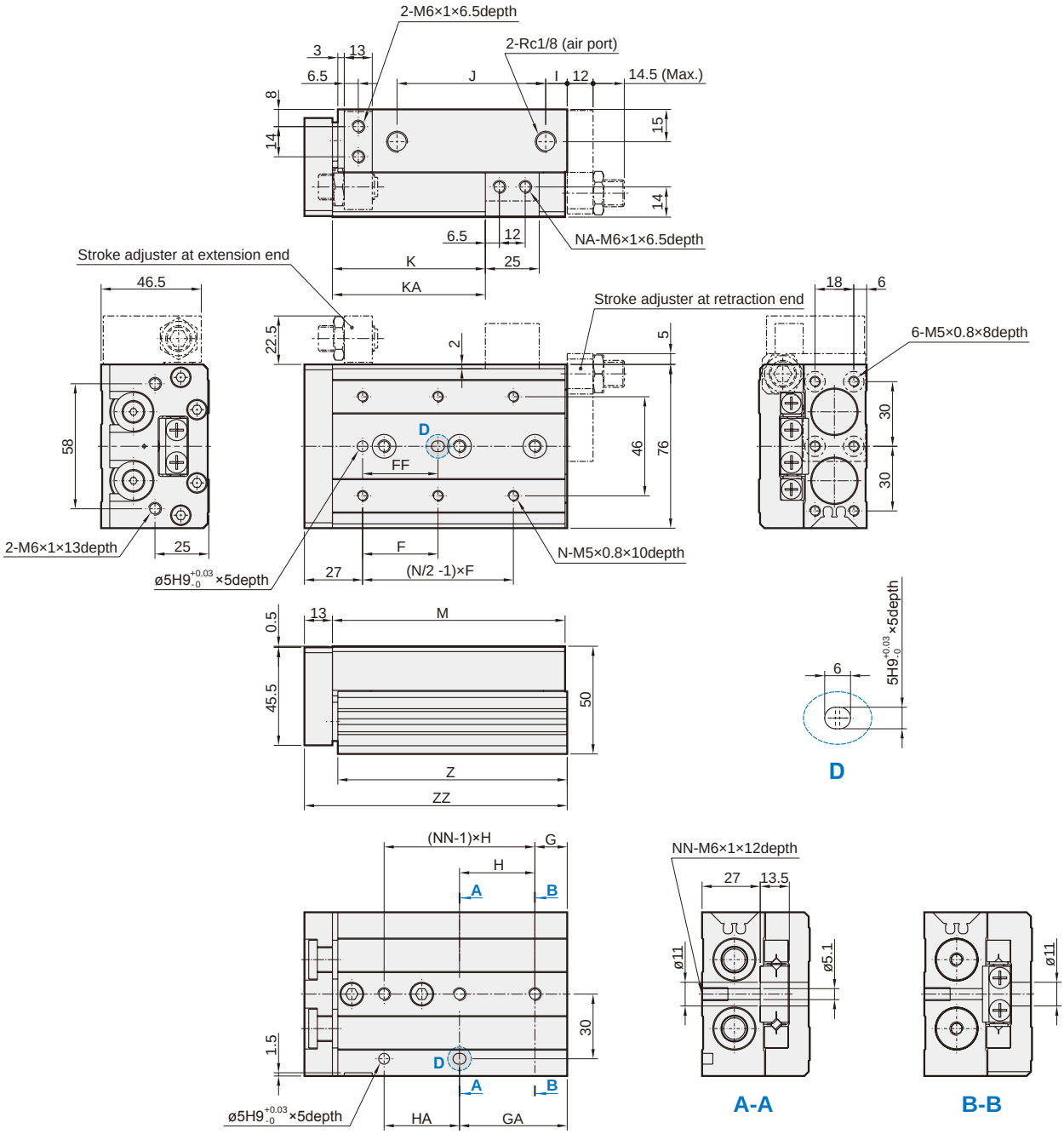
* Other dimensions not indicated are the same as the basic style.

ø16

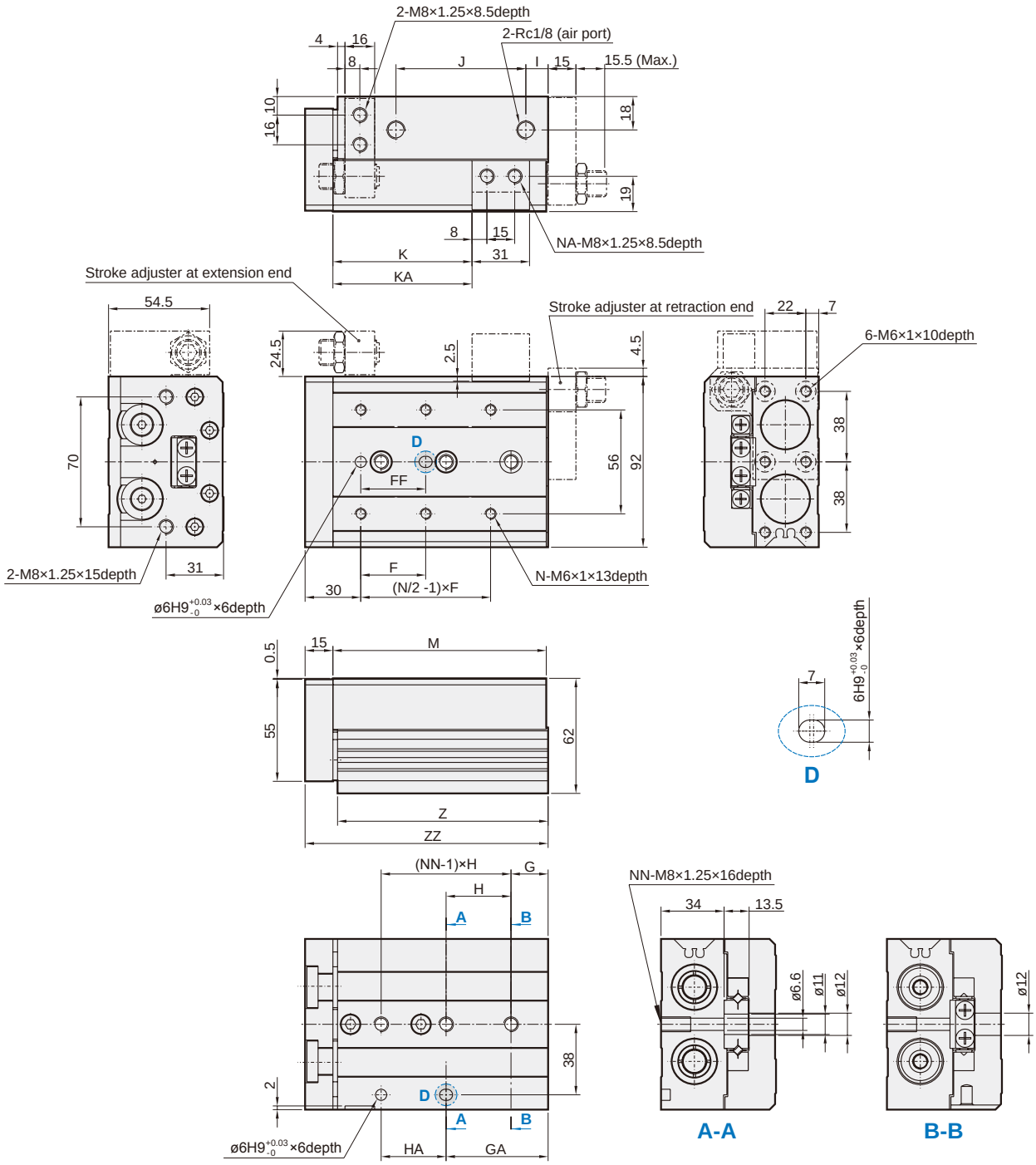


Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 24	5	10
20		11	20
30		21	30
40		21	30
50		16	25
75		22	31
100		22	31
125		22	31

* Other dimensions not indicated are the same as the basic style.

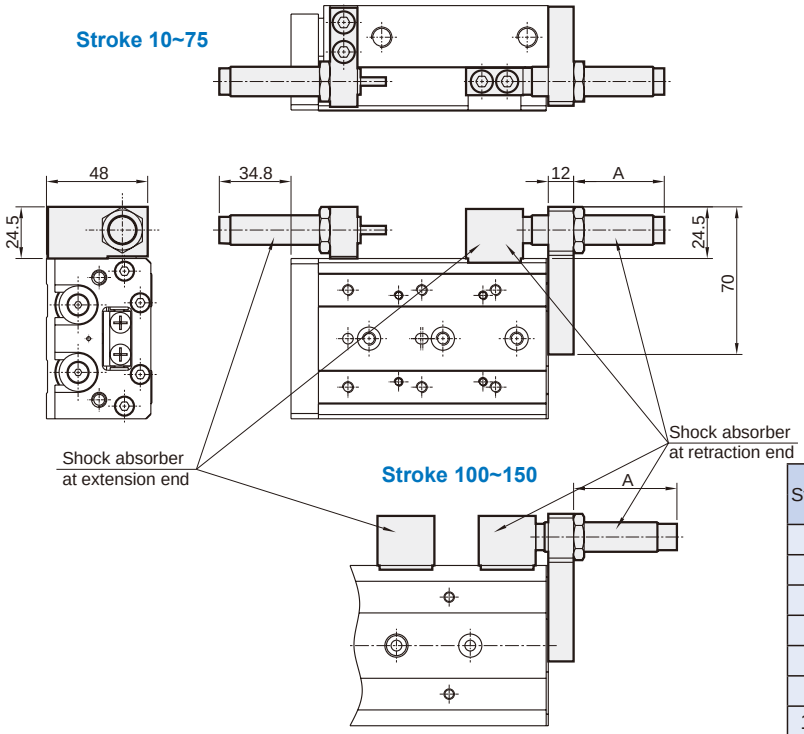


Code / Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	15	25	45	35	10	44	31	-	83	4	2	2	81.5	97
20	50	40	15	25	45	35	10	44	41	-	83	4	2	2	81.5	97
30	50	40	15	25	45	35	10	44	51	-	83	4	2	2	81.5	97
40	60	50	15	35	55	35	10	54	61	-	93	4	2	2	91.5	107
50	35	35	15	50	35	35	10	69	71	-	108	6	2	3	106.5	122
75	60	60	19	54	35	70	10	108	96	-	147	6	2	4	145.5	161
100	70	70	37	107	35	70	58	113	121	169	200	6	4	5	198.5	214
125	70	70	41	155	38	76	70	155	146	223	254	8	4	6	252.5	268
150	80	80	19	195	44	88	87	190	171	275	306	8	4	7	304.5	320



Code / Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	22	22	45	45	12	47	35	-	92	4	2	2	90.5	108
20	50	40	22	22	45	45	12	47	45	-	92	4	2	2	90.5	108
30	50	40	22	22	45	45	12	47	55	-	92	4	2	2	90.5	108
40	60	50	22	22	55	55	12	57	65	-	102	4	2	2	100.5	118
50	35	35	20	55	35	35	12	70	75	-	115	6	2	3	113.5	131
75	60	60	26	61	35	70	33	90	100	-	156	6	2	4	154.5	172
100	70	70	32	102	35	70	50	114	125	162	197	6	4	5	195.5	213
125	75	75	40	154	38	76	67	155	150	218	255	8	4	6	253.5	271
150	80	80	30	190	40	80	82	180	175	258	295	8	4	7	293.5	311

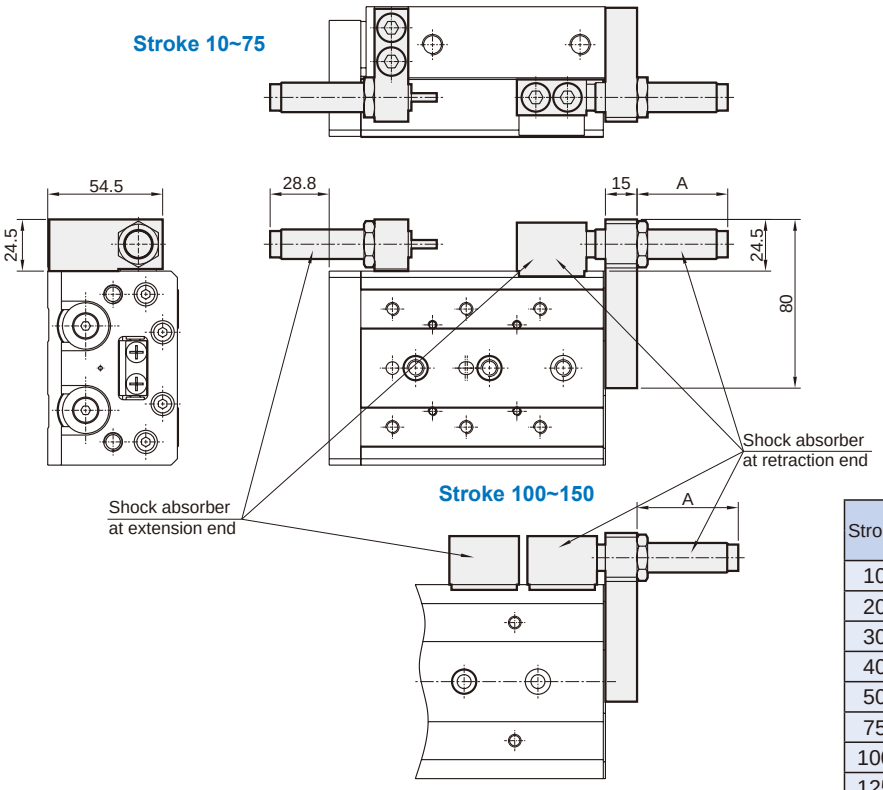
ø20



Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 40.3	15.8	28.8
20		25.8	38.8
30		35.8	48.8
40		35.8	48.8
50		30.8	43.8
75		16.8	29.8
100		36.8	49.8
125		36.8	49.8
150		36.8	49.8

* Other dimensions not indicated are the same as the basic style.

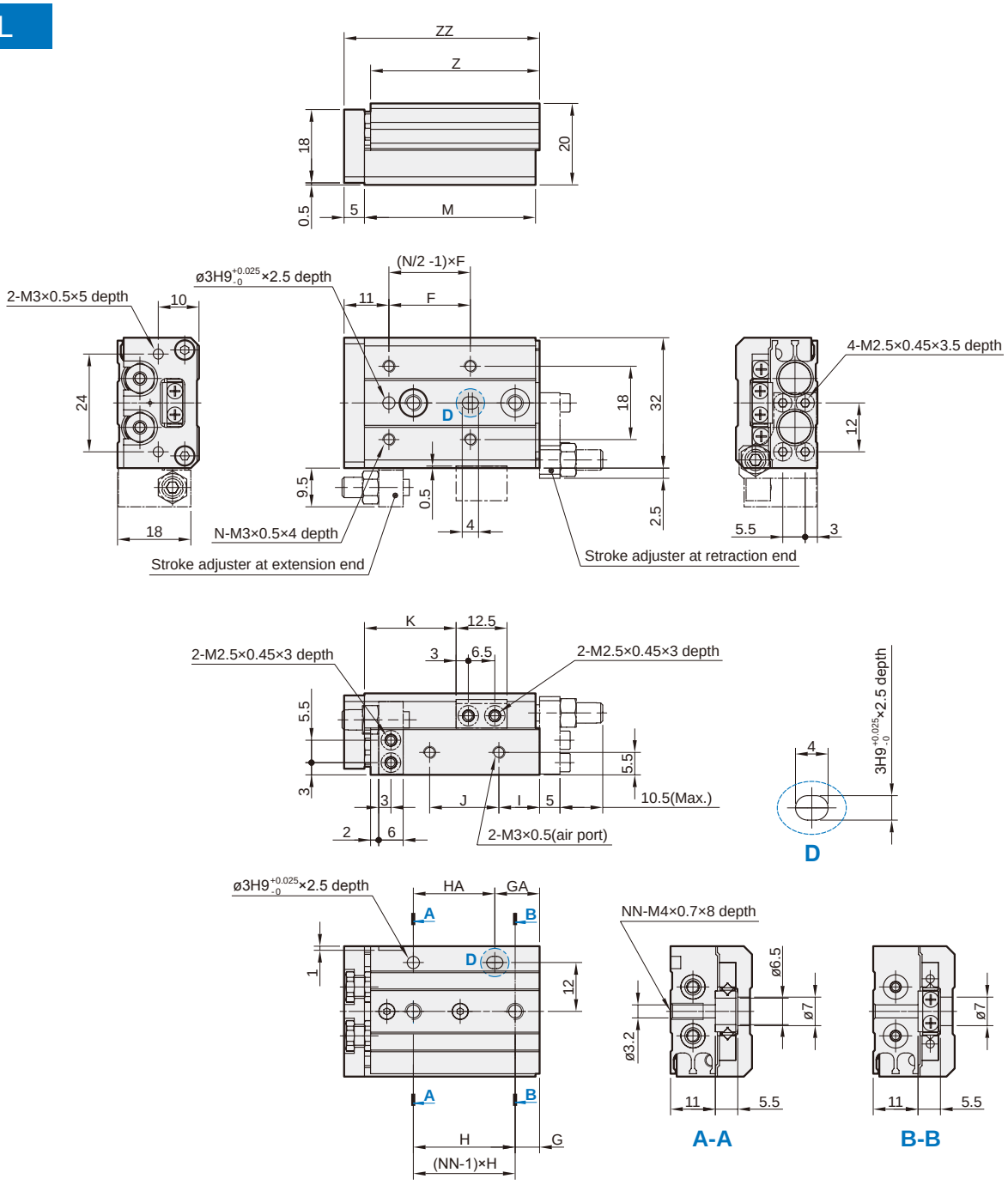
ø25



Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 36.3	12.8	26.8
20		22.8	36.8
30		32.8	46.8
40		32.8	46.8
50		29.8	43.8
75		13.8	27.8
100		34.8	48.8
125		32.8	46.8
150		32.8	46.8

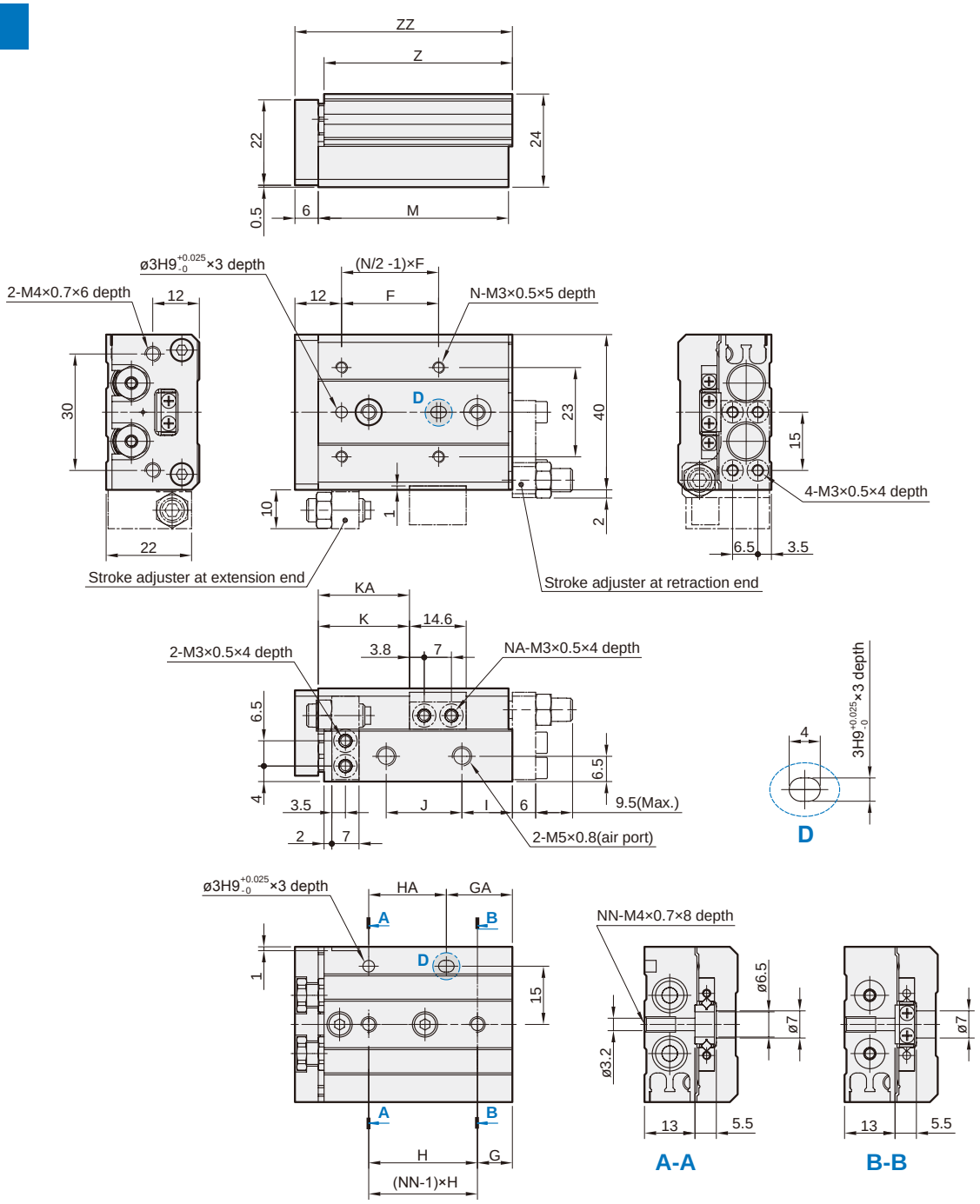
* Other dimensions not indicated are the same as the basic style.

L



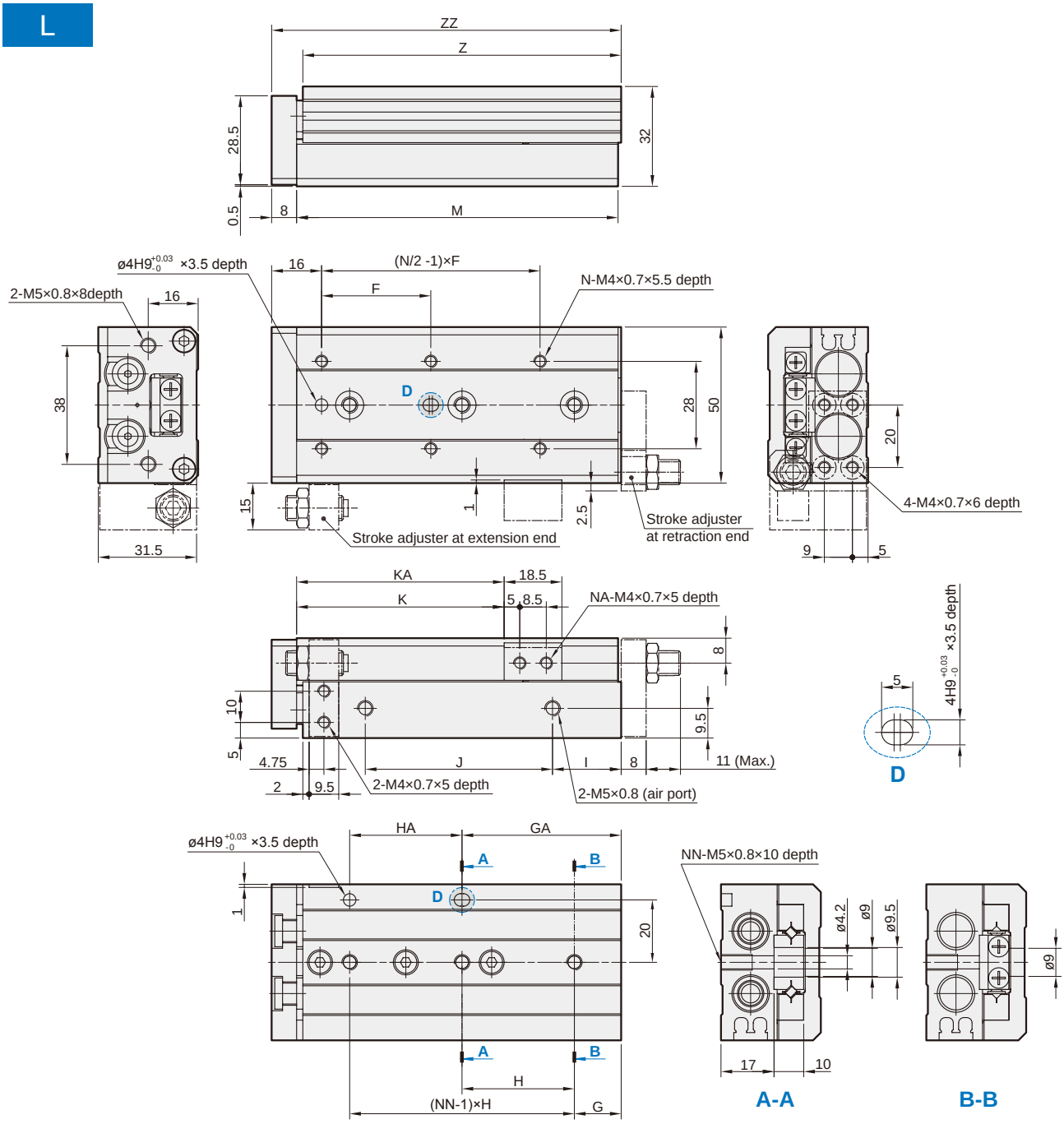
Code / Stroke	F	G	GA	H	HA	I	J	K	M	N	NN	Z	ZZ
10	20	6	11	25	20	10	17	22.5	42	4	2	41.5	48
20	30	6	21	35	20	10	27	32.5	52	4	2	51.5	58
30	20	11	31	20	20	7	40	42.5	62	6	3	61.5	68
40	28	13	43	30	30	19	50	52.5	84	6	3	83.5	90
50	38	17	41	24	48	25	60	62.5	100	6	4	99.5	106

L



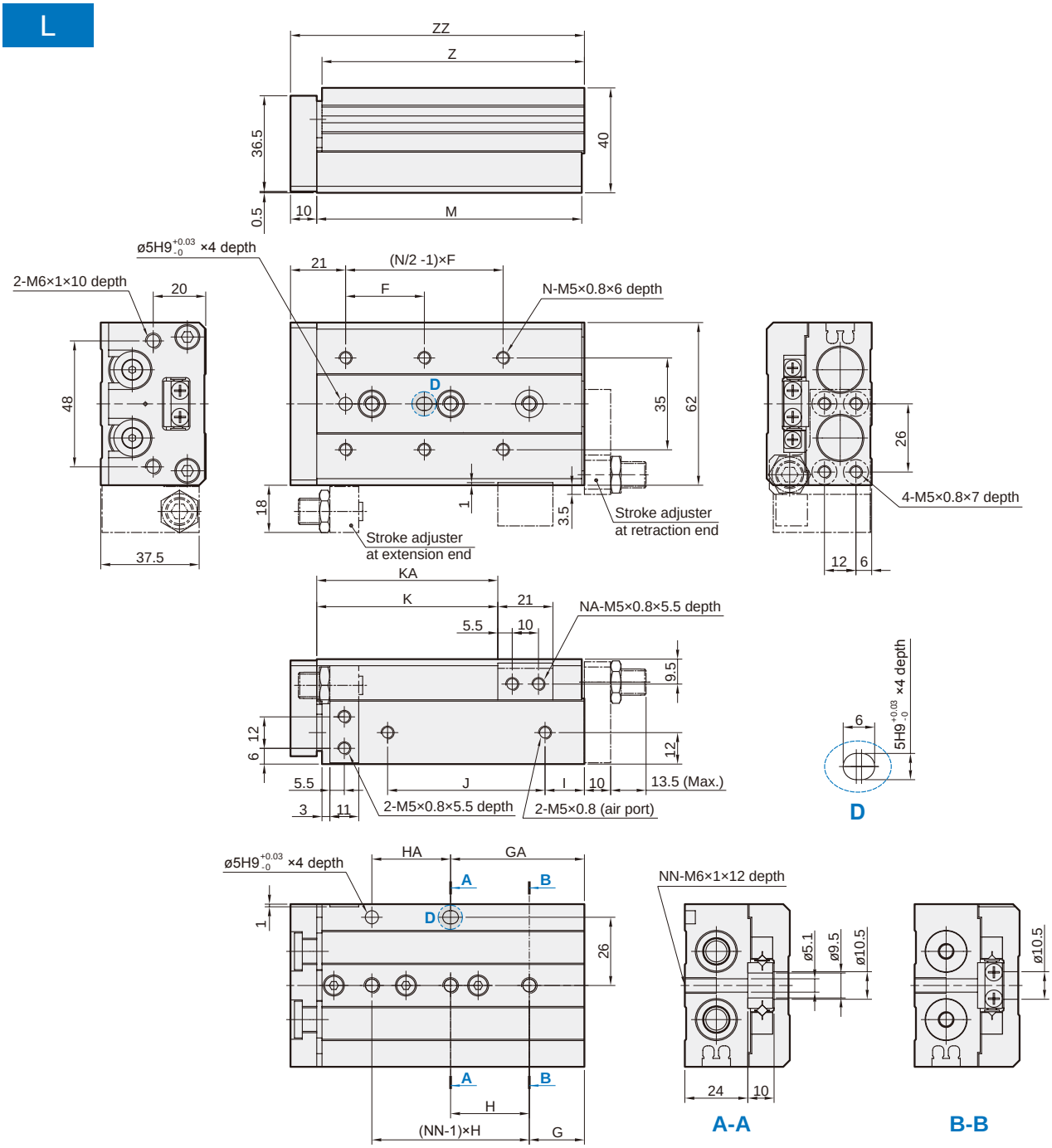
Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	9	17	28	20	13	19.5	23.5	–	49	4	2	2	48.5	56
20	25	12	12	30	30	8.5	29	33.5	–	54	4	2	2	53.5	61
30	40	13	33	20	20	9.5	39	43.5	–	65	4	2	3	64.5	72
40	50	15	43	28	28	10.5	56	53.5	–	83	4	2	3	82.5	90
50	38	20	43	23	46	24.5	60	63.5	82.5	101	6	4	4	100.5	108
75	50	27	83	28	56	38.5	96	88.5	132.5	151	6	4	5	150.5	158

L



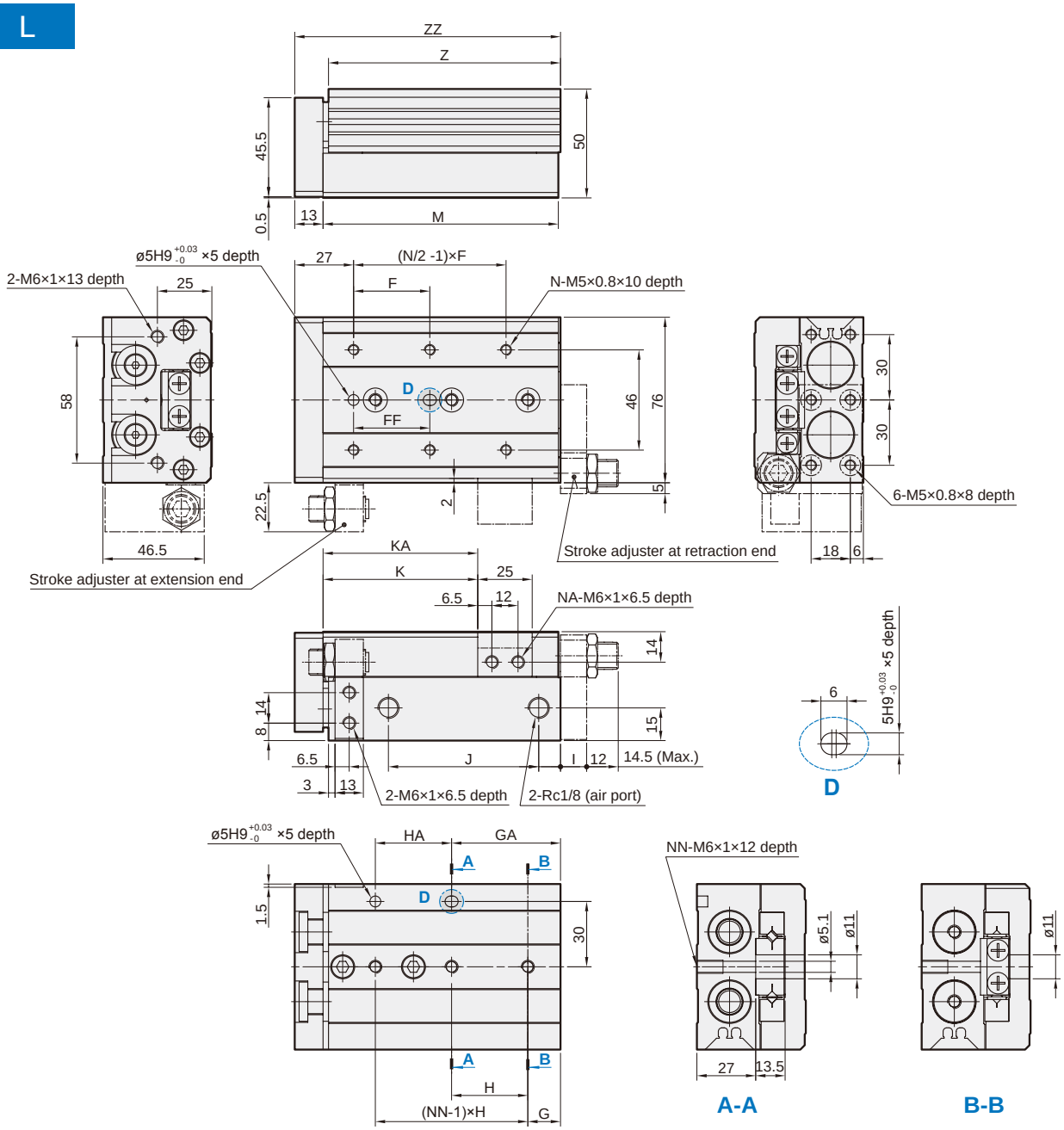
Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	15	15	40	40	10	40	26.5	–	71	4	2	2	70	80
20	35	15	15	40	40	10	40	36.5	–	71	4	2	2	70	80
30	35	15	15	40	40	10	40	46.5	–	71	4	2	2	70	80
40	50	17	42	25	25	10	52	56.5	–	83	4	2	3	82	92
50	35	15	51	36	36	22	60	66.5	–	103	6	2	3	102	112
75	55	25	61	36	72	43	85	91.5	125.5	149	6	4	4	148	158
100	65	35	111	38	76	52	130	116.5	179.5	203	6	4	5	202	212

L



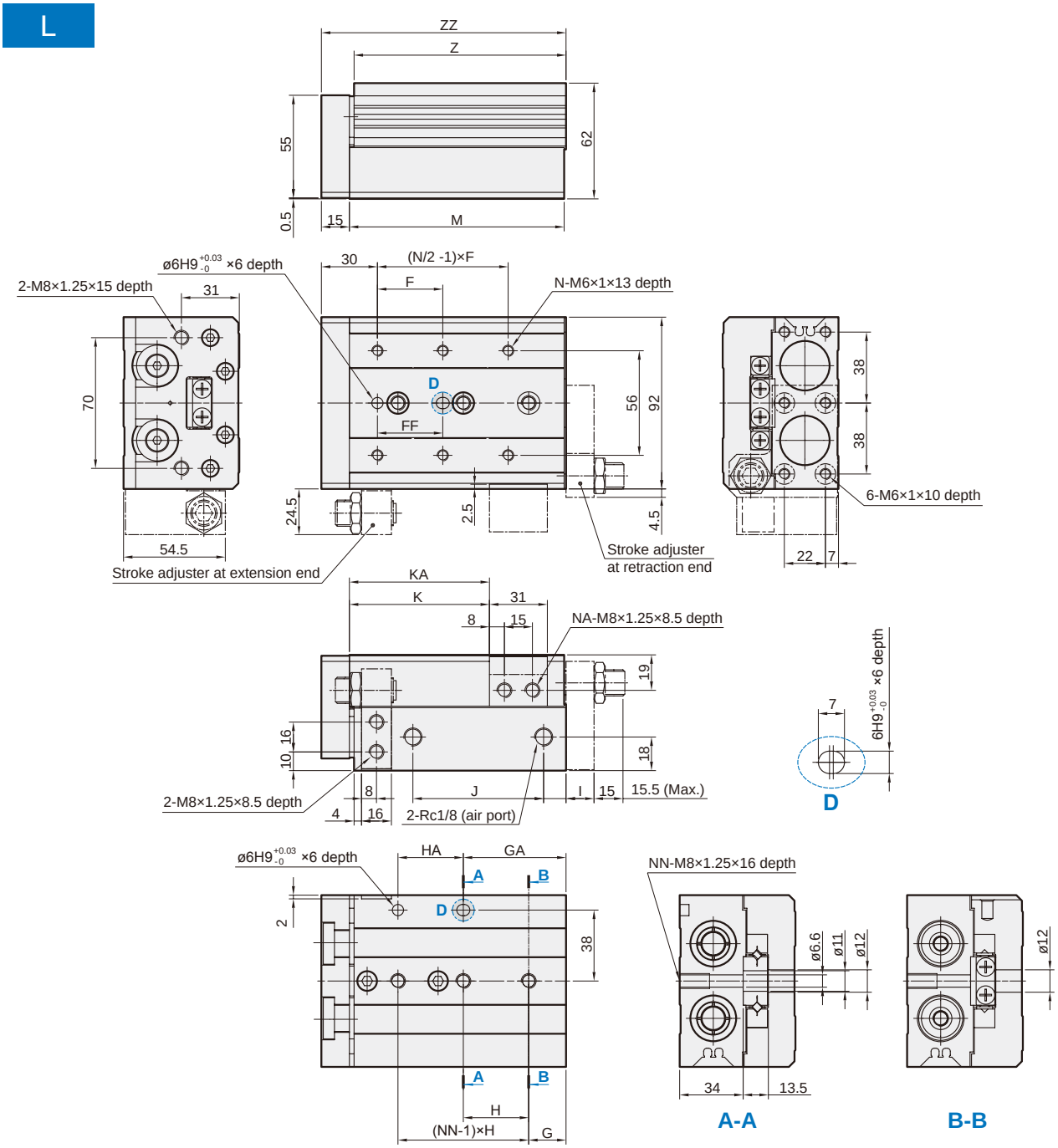
Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	16	16	40	40	10	40	29	–	76	4	2	2	75	87
20	35	16	16	40	40	10	40	39	–	76	4	2	2	75	87
30	35	16	16	40	40	10	40	49	–	76	4	2	2	75	87
40	40	16	16	50	50	10	50	59	–	86	4	2	2	85	97
50	30	21	51	30	30	15	60	69	–	101	6	2	3	100	112
75	55	26	61	35	70	40	85	94	125	151	6	4	4	150	162
100	65	39	109	35	70	55	118	119	173	199	6	4	5	198	210
125	70	19	159	35	70	68	155	144	223	249	8	4	7	248	260

L



Code / Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	15	25	45	35	10	44	31	–	83	4	2	2	81.5	97
20	50	40	15	25	45	35	10	44	41	–	83	4	2	2	81.5	97
30	50	40	15	25	45	35	10	44	51	–	83	4	2	2	81.5	97
40	60	50	15	35	55	35	10	54	61	–	93	4	2	2	91.5	107
50	35	35	15	50	35	35	10	69	71	–	108	6	2	3	106.5	122
75	60	60	19	54	35	70	10	108	96	–	147	6	2	4	145.5	161
100	70	70	37	107	35	70	58	113	121	169	200	6	4	5	198.5	214
125	70	70	41	155	38	76	70	155	146	223	254	8	4	6	252.5	268
150	80	80	19	195	44	88	87	190	171	275	306	8	4	7	304.5	320

L



Code / Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	22	22	45	45	12	47	35	–	92	4	2	2	90.5	108
20	50	40	22	22	45	45	12	47	45	–	92	4	2	2	90.5	108
30	50	40	22	22	45	45	12	47	55	–	92	4	2	2	90.5	108
40	60	50	22	22	55	55	12	57	65	–	102	4	2	2	100.5	118
50	35	35	20	55	35	35	12	70	75	–	115	6	2	3	113.5	131
75	60	60	26	61	35	70	33	90	100	–	156	6	2	4	154.5	172
100	70	70	32	102	35	70	50	114	125	162	197	6	4	5	195.5	213
125	75	75	40	154	38	76	67	155	150	218	255	8	4	6	253.5	271
150	80	80	30	190	40	80	82	180	175	258	295	8	4	7	293.5	311

Order example of stroke adjuster

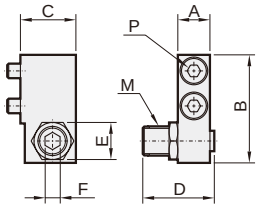
MCSS — 20 L — AS — X12

- MODEL
- TUBE I.D.
- Blank: Standard
  L: Symmetric style
- STROKE ADJUSTER
  AS: Adjuster at extension end
  AT: Adjuster at retraction end
  A: Adjuster at both ends
  A2: Adjusting bolt
- ADJUSTABLE RANGE
  Blank: 5mm
  X11: 15mm
  X12: 25mm

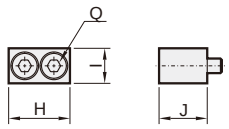
* **X12** (adjustable range: 25mm) is not available for MCSS-6.

AS Stroke adjuster at extension end

Mounted to body



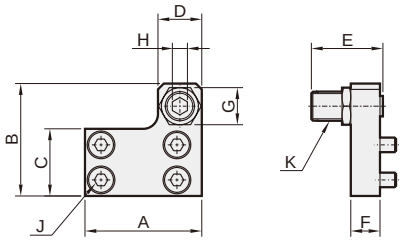
Mounted to table



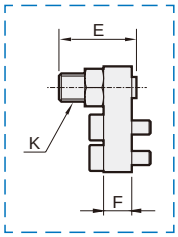
Tube I.D.	Order code	Adjustable stroke range (mm)	Mounted to body								Mounted to table			
			A	B	C	D	E	F	M	P*	H	I	J	Q*
6	MCSS-6-AS	5	6	17.8	10.5	16.5	7	2.5	M5×0.8	M2.5×10	12.5	6	8.5	M2.5×8
	MCSS-6-AS-X11	15				26.5								
8	MCSS-8-AS	5	7	21.5	11	16.5	8	3	M6×1	M3×10	14.6	7	10	M3×10
	MCSS-8-AS-X11	15				26.5								
	MCSS-8-AS-X12	25				36.5								
12	MCSS-12-AS	5	9.5	31	16	20	11	4	M8×1	M4×16	18.5	10	13	M4×12
	MCSS-12-AS-X11	15				30								
	MCSS-12-AS-X12	25				40								
16	MCSS-16-AS	5	11	37	19	24.5	14	5	M10×1	M5×16	21	12	16.5	M5×16
	MCSS-16-AS-X11	15				34.5								
	MCSS-16-AS-X12	25				44.5								
20	MCSS-20-AS	5	13	45.5	24	27.5	17	6	M12×1.25	M6×20	25	13	21	M6×20
	MCSS-20-AS-X11	15				37.5								
	MCSS-20-AS-X12	25				47.5								
25	MCSS-25-AS	5	16	53.5	26.5	32.5	19	6	M14×1.5	M8×25	31	17	25.5	M8×25
	MCSS-25-AS-X11	15				42.5								
	MCSS-25-AS-X12	25				52.5								

* Size of hexagon socket head cap screws.

AT Stroke adjuster at retraction end



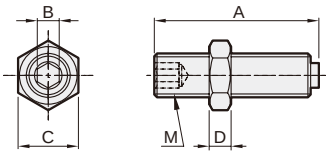
* MCSS-6, 8



Tube I.D.	Order code	Adjustable stroke range (mm)	A	B	C	D	E	F	G	H	J*	K
6	MCSS-6-AT	5	21	19	10.5	8	16.5	5	7	2.5	M2.5×8	M5×0.8
	MCSS-6-AT-X11	15					26.5					
8	MCSS-8-AT	5	25	22.5	12.5	9	16.5	6	8	3	M3×10	M6×1
	MCSS-8-AT-X11	15					26.5					
	MCSS-8-AT-X12	25					36.5					
12	MCSS-12-AT	5	32	31	18.5	13	20	8	12	4	M4×8	M8×1
	MCSS-12-AT-X11	15					30					
	MCSS-12-AT-X12	25					40					
16	MCSS-16-AT	5	40	38.5	23	15	24.5	10	14	5	M5×10	M10×1
	MCSS-16-AT-X11	15					34.5					
	MCSS-16-AT-X12	25					44.5					
20	MCSS-20-AT	5	50	48	29	21	27.5	12	17	6	M5×12	M12×1.25
	MCSS-20-AT-X11	15					37.5					
	MCSS-20-AT-X12	25					47.5					
25	MCSS-25-AT	5	60	58	35	23	32.5	15	19	6	M6×16	M14×1.5
	MCSS-25-AT-X11	15					42.5					
	MCSS-25-AT-X12	25					52.5					

* Size of hexagon socket head cap screws.

A2 Adjusting bolt



Tube I.D.	Order code	Adjustable stroke range (mm)	A	B	C	D	M
6	**MCSS-6-A2**	5	16.5	2.5	7	4	M5×0.8
	MCSS-6-A2-X11	15	26.5				
8	**MCSS-8-A2**	5	16.5	3	8	4	M6×1
	MCSS-8-A2-X11	15	26.5				
	MCSS-8-A2-X12	25	36.5				
12	**MCSS-12-A2**	5	20	4	11	4	M8×1
	MCSS-12-A2-X11	15	30				
	MCSS-12-A2-X12	25	40				
16	**MCSS-16-A2**	5	24.5	5	14	4	M10×1
	MCSS-16-A2-X11	15	34.5				
	MCSS-16-A2-X12	25	44.5				
20	**MCSS-20-A2**	5	27.5	6	17	5	M12×1.25
	MCSS-20-A2-X11	15	37.5				
	MCSS-20-A2-X12	25	47.5				
25	**MCSS-25-A2**	5	32.5	6	19	6	M14×1.5
	MCSS-25-A2-X11	15	42.5				
	MCSS-25-A2-X12	25	52.5				

Order example of absorber

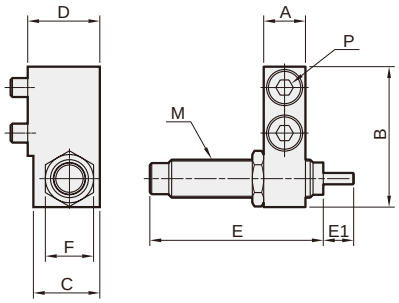
MCSS — 20 L — B — S11

- MODEL
- TUBE I.D.
- Blank: Standard **L**: Symmetric style
- ABSORBER
  - **BS**: Absorber at extension end
  - **BT**: Absorber at retraction end
  - **B**: Absorber at both ends
  - * Shock absorber is not available on series MCSS-6.
- APPLICABLE RANGE (Only for absorber code B)

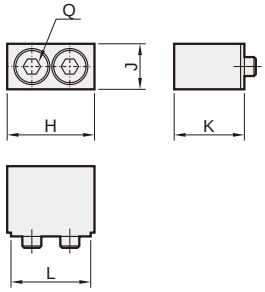
Tube I.D.	Stroke	
	Blank: Mounted to table × 1	**S11**: Mounted to table × 2
8	10~40	50,75
12	10~50	75,100
16	10~50	75~125
20	10~75	100~150
25	10~75	100~150

BS Stroke adjuster at extension end

Mounted to body



Mounted to table

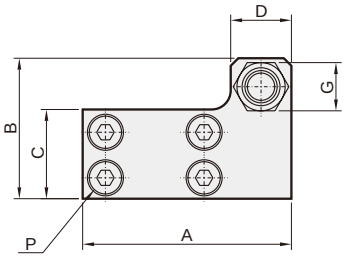


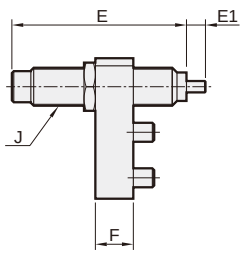
Tube I.D.	Order code	Mounted to body										Mounted to table				
		A	B	C	D	E	E1	F	M		P*	H	J	K	L	Q*
8	**MCSS-8-BS**	7	23	14	15.5	38.5	6	11	M8×1	MDSC-0806-3-N	M3×16	16.6	7	15.5	14.6	M3×16
12	**MCSS-12-BS**	9.5	31	14.5	16	38.5	6	11	M8×1	MDSC-0806-3-N	M4×16	20.5	10	15	18.5	M4×12
16	**MCSS-16-BS**	11	37	17.5	19	45.5	8	12.7	M10×1	MDSC-1008-3-N	M5×16	23	12	18.5	21	M5×16
20	**MCSS-20-BS**	13	45.5	23.5	26	67.5	12	19	M14×1.5	MDSC-1412-3-N	M6×25	27	13	25.5	25	M6×25
25	**MCSS-25-BS**	16	53.5	23.5	26.5	67.5	12	19	M14×1.5	MDSC-1412-3-N	M8×25	33	17	25.5	31	M8×25

* Size of hexagon socket head cap screws.

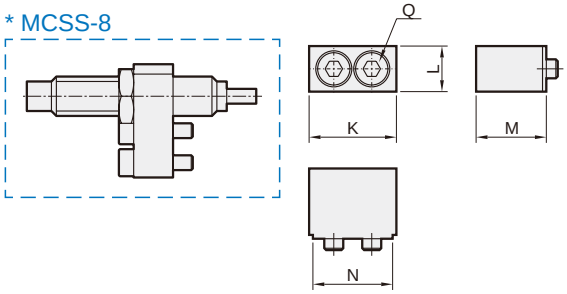
BT Stroke adjuster at retraction end

Mounted to body





Mounted to table



Tube I.D.	Order code	Mounted to body											Mounted to table				
		A	B	C	D	E	E1	F	G	J		P*	K	L	M	N	Q*
8	**MCSS-8-BT**	38	23	12.5	14	38.5	6	8	12	M8×1	MDSC-0806-3-N	M3×12	16.6	7	15.5	14.6	M3×16
12	**MCSS-12-BT**	45	31	18	14	38.5	6	8	11	M8×1	MDSC-0806-3-N	M4×8	20.5	10	15	18.5	M4×12
16	**MCSS-16-BT**	55	37	23.5	16	45.5	8	10	12.7	M10×1	MDSC-1008-3-N	M5×10	23	12	18.5	21	M5×16
20	**MCSS-20-BT**	70	47	29	23	67.5	12	12	19	M14×1.5	MDSC-1412-3-N	M5×12	27	13	25.5	25	M6×25
25	**MCSS-25-BT**	80	54	35	23	67.5	12	15	19	M14×1.5	MDSC-1412-3-N	M6×16	33	17	25.5	31	M8×25

* Size of hexagon socket head cap screws.

Features

- High precision combination of cylinder and linear rail.
- Flush fitting sensor groove.
- Magnetic as standard.

Specification

Model	MCSQ	
Acting type	Double acting	
Tube I.D. (mm)	6	8
Port size	M3×0.5	M5×0.8
Medium	Air	
Operating pressure range	0.15~0.7 MPa	
Proof pressure	1 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Lubricator	Not required	
Available speed range	50~500 mm/sec	
Cushion	Rubber bumper (Standard) Shock absorber (Option)	
Sensor switch (*)	RCE, RCE1, RDEP	

* RCE, RCE1, RDEP specification, please refer to page 8-11, 12, 17.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75

* Produce after received your orders.

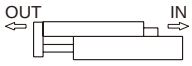
Order example

MCSQ — 8L — 50 — AS — X12

- MODEL
- TUBE I.D.
  - Blank: Standard
  - **L**: Symmetric style
- STROKE
- STROKE ADJUSTER
  - Blank: Without adjuster
  - **AS**: Adjuster at extension end
  - **AT**: Adjuster at retraction end
  - **A**: Adjuster at both ends
  - **BS**: Absorber at extension end
  - **BT**: Absorber at retraction end
  - **B**: Absorber at both ends
  - **AB**: Adjuster at extension end+Absorber at retraction end
  - **BA**: Absorber at extension end+Adjuster at retraction end
- ADJUSTABLE RANGE (Only for stroke adjuster)
  - Blank: 5mm
  - **X11**: 15mm
  - **X12**: 25mm

*X12 (adjustable range: 25mm) is not available for MCSQ-6.
*X11 and X12 are not available for shock absorber type.
*Shock absorber is not available on series MCSQ-6.
*Use the same stroke adjuster with MCSS, specification please refer to 5-19.

Theoretical force



Unit: N

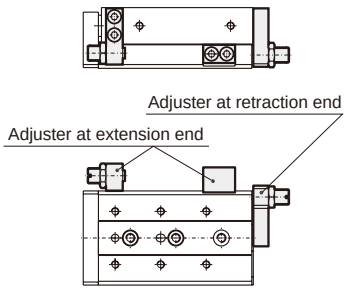
Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)					
				0.2	0.3	0.4	0.5	0.6	0.7
6	3	OUT	57	11	17	23	29	34	40
		IN	42	8	13	17	21	25	29
8	4	OUT	101	20	30	40	51	61	71
		IN	75	15	23	30	38	45	53

Stroke adjuster option

Stroke adjuster

- Adjustable stroke range: 0~5mm (Standard)

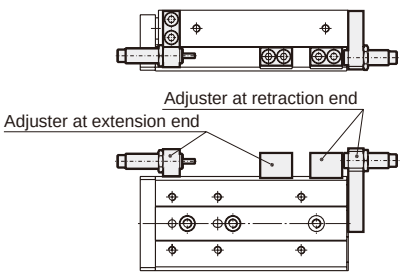
AS: Adjuster at extension end
AT: Adjuster at retraction end
A: Adjuster at both ends



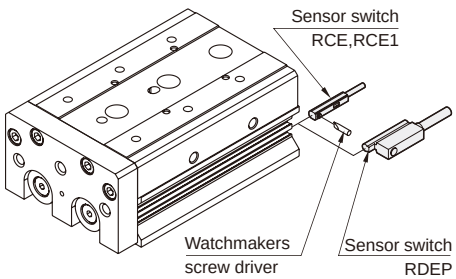
With shock absorber

- Enables adjustment of stroke.
- Absorbs the collision at stroke end and stops smoothly.

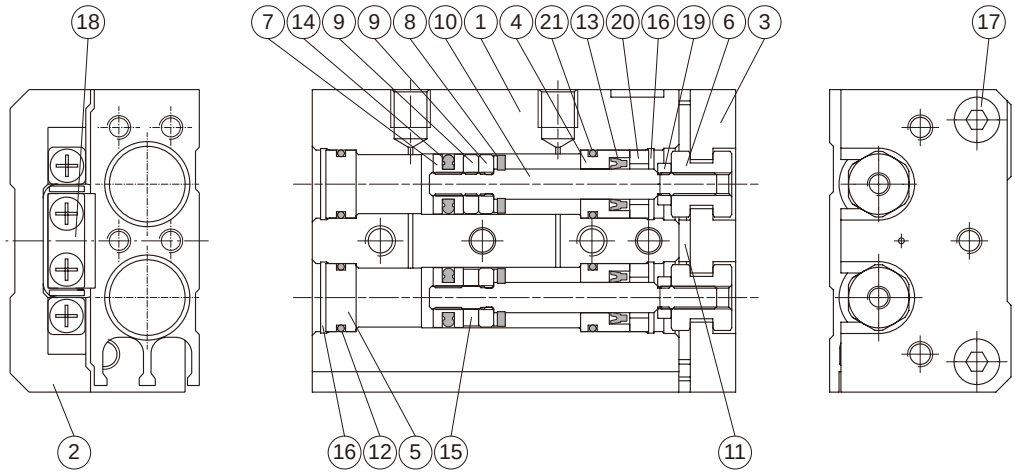
BS: Absorber at extension end
BT: Absorber at retraction end
B: Absorber at both ends



Installation of sensor switch



ø6, ø8



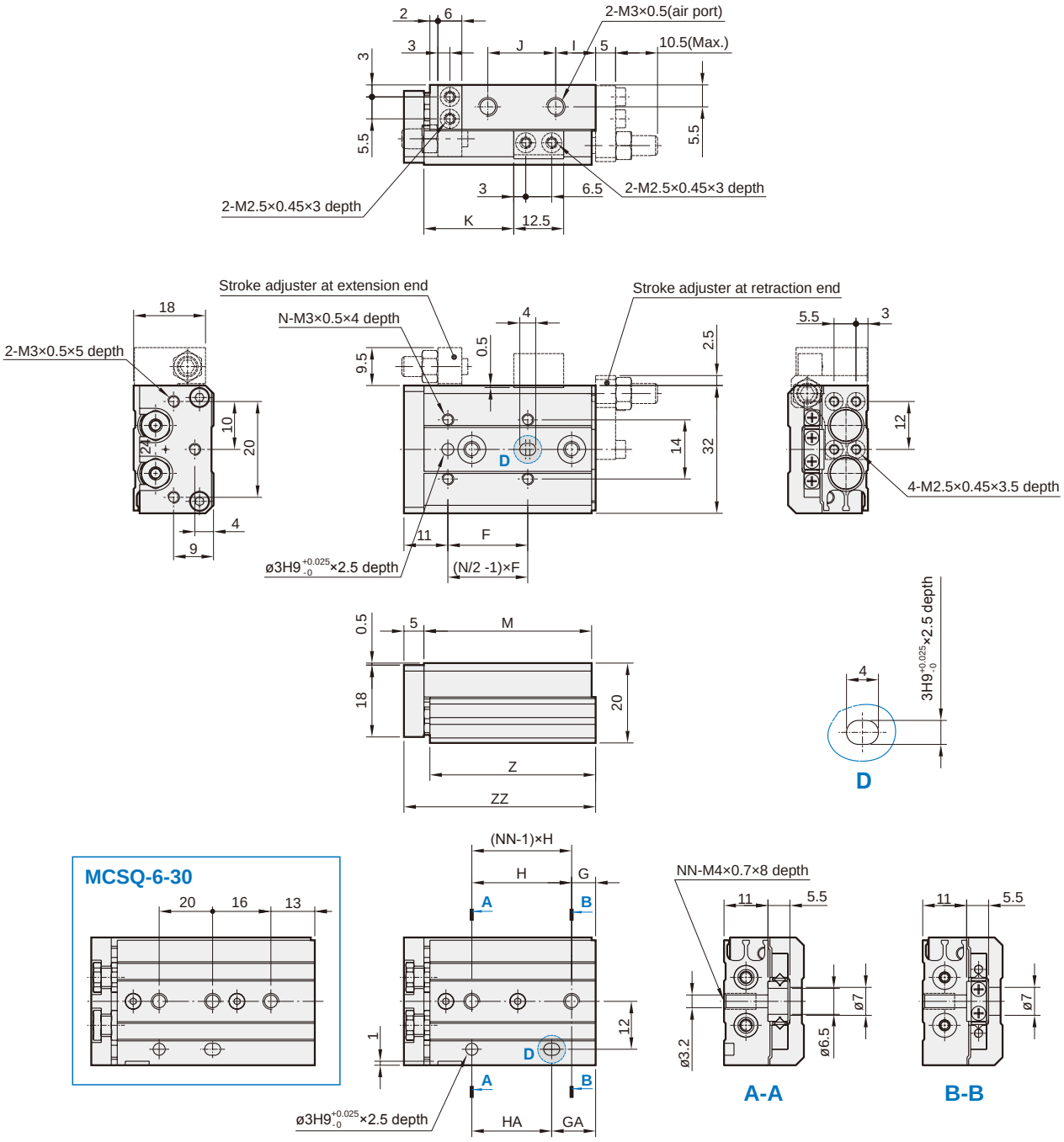
Material

No.	Tube I.D. / Part name	6	8	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy		1	
2	Table	Aluminum alloy		1	
3	Plate	Aluminum alloy		1	
4	Rod cover	Aluminum alloy		2	
5	Head cover	Aluminum alloy		2	
6	Floating connector	Stainless steel		2	
7	Piston	Stainless steel		2	
8	Cushion pad	NBR		2	●
9	Spacer ring	Stainless steel	Aluminum alloy	3	
10	Piston rod	Stainless steel		2	
11	End cushion	PU		1	●
12	Cover ring	NBR		2	●
13	Rod packing	NBR		2	●
14	Piston packing	NBR		*	●
15	Magnet ring	Magnet material		1	
16	Snap ring	Spring steel	Stainless steel	4	
17	Bolt	Stainless steel		2	
18	Slide way	Bearing steel		1	
19	Nut	Copper		2	
20	Rod cover washer	Stainless steel		2	
21	Cover ring	NBR		2	

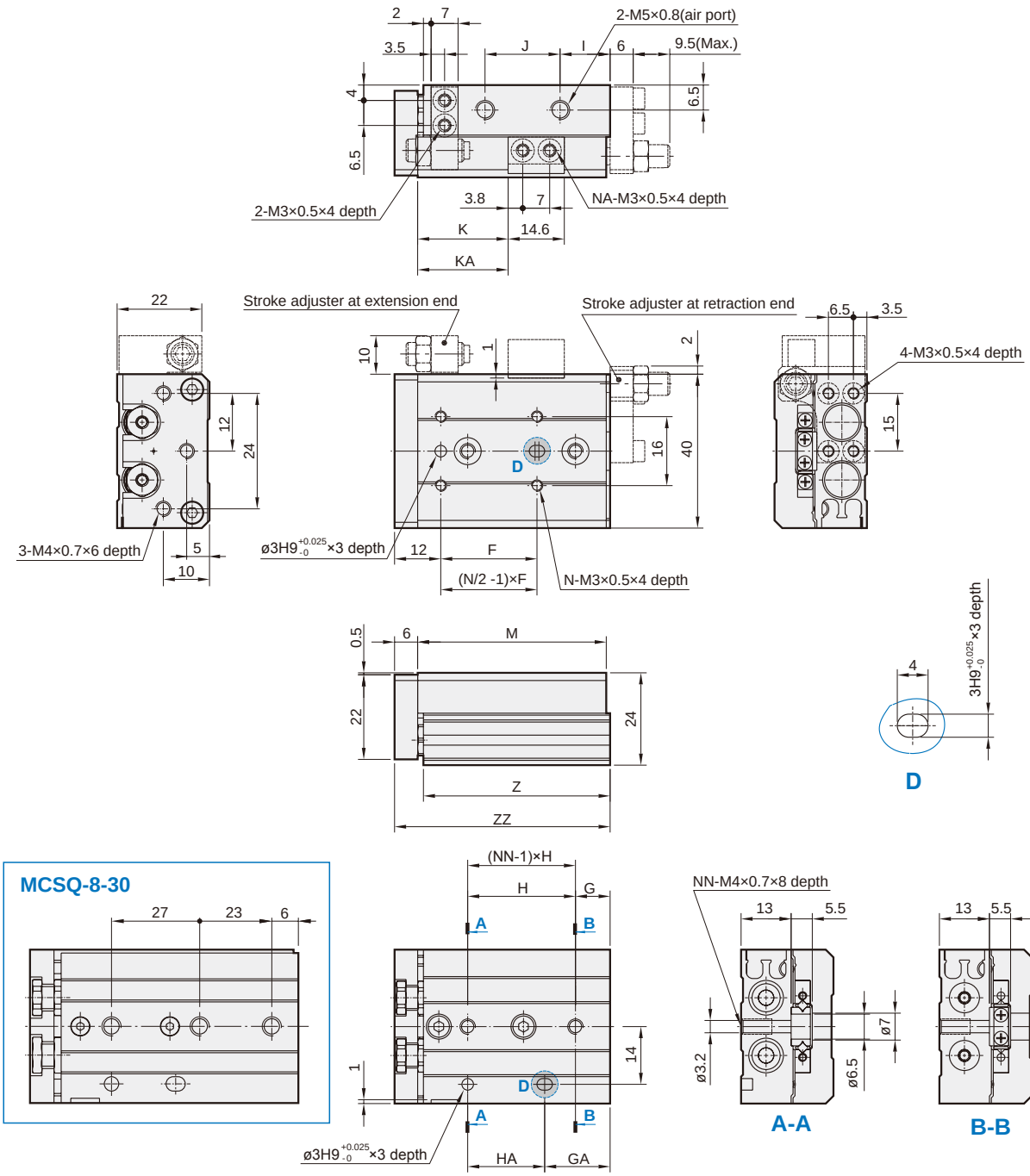
* Q'y: ø6=2, ø8=4

Order example of repair kits

Tube I.D.	Repair kits
ø6	**PS-MCSQ-6**
ø8	**PS-MCSQ-8**

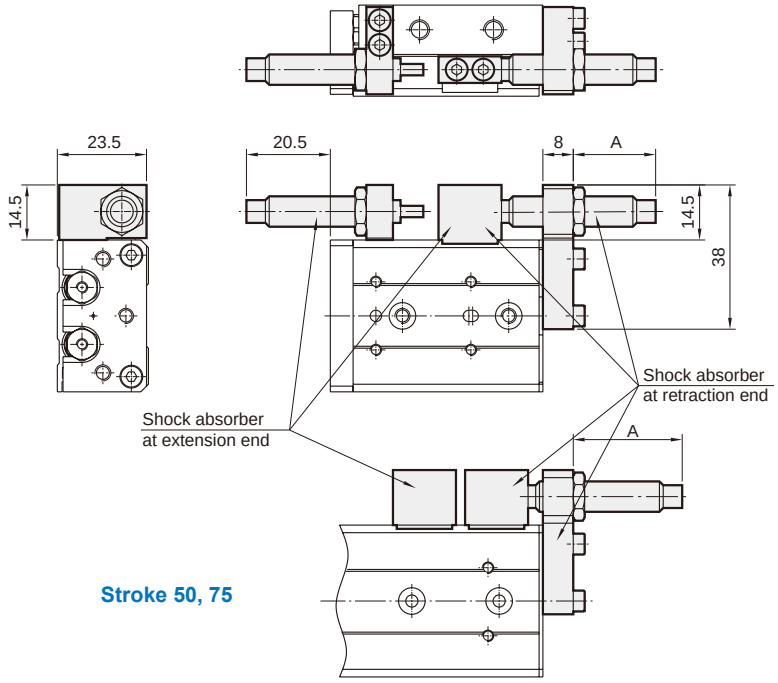


Code / Stroke	F	G	GA	H	HA	I	J	K	M	N	NN	Z	ZZ
10	22	6	13	23	16	9	17	21.5	42	4	2	41.5	48
20	25	13	13	26	26	9	27	31.5	52	4	2	51.5	58
30	21	–	29	–	20	9	37	41.5	62	6	3	61.5	68
40	26	11	39	28	28	16	48	51.5	80	6	3	79.5	86
50	27	21	49	28	28	9	65	61.5	90	6	3	89.5	96



Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	7	13	25	19	11	17	23.5	–	46	4	2	2	45.5	53
20	25	14	14	28	28	10	28	33.5	–	56	4	2	2	55.5	63
30	26	–	29	–	27	12	40	43.5	–	70	6	2	3	69.5	77
40	32	8	39	31	31	14	52	53.5	–	84	6	2	3	83.5	91
50	46	8	37	29	58	13	78	63.5	82.5	109	6	4	4	108.5	116
75	50	31	61	30	60	12	105	88.5	112.5	135	6	4	4	134.5	142

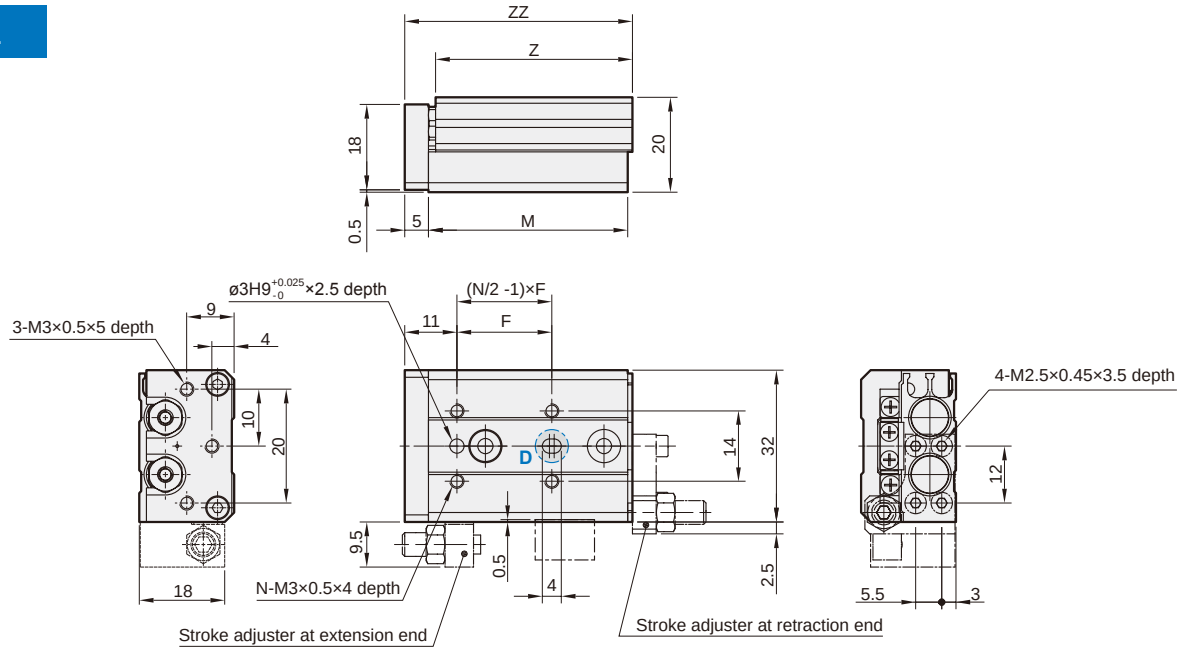
ø8

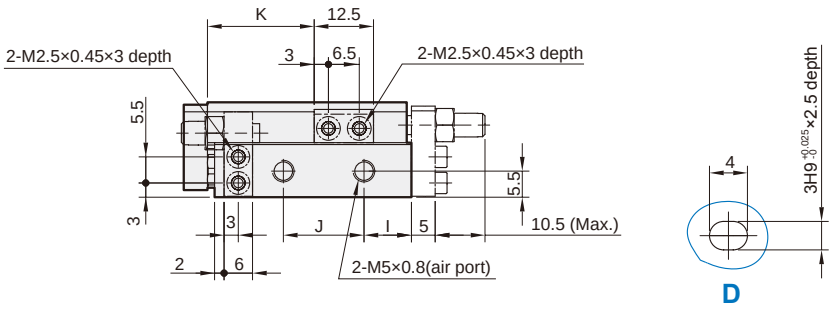


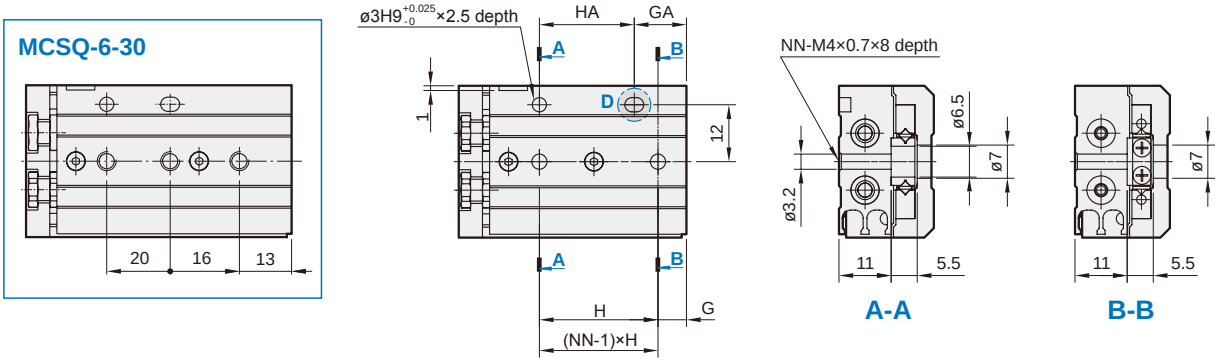
Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 21	13.9	22.9
20		13.9	22.9
30		9.9	18.9
40		5.9	14.9
50		9.9	18.9
75		13.9	22.9

* Other dimensions not indicated are the same as the basic style.

L

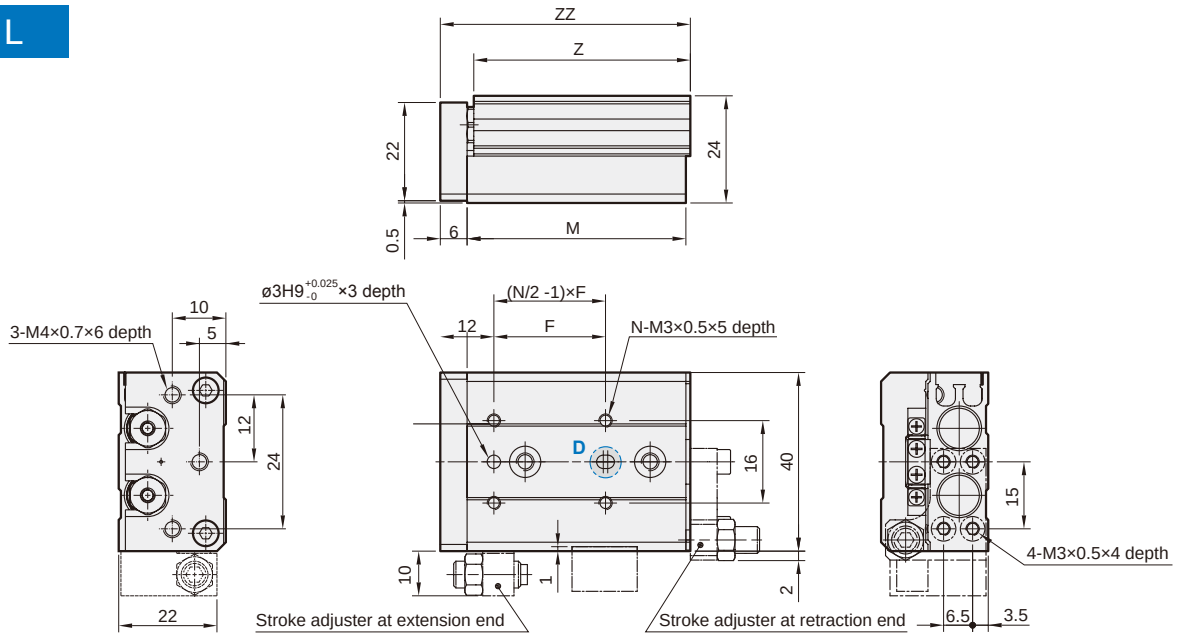


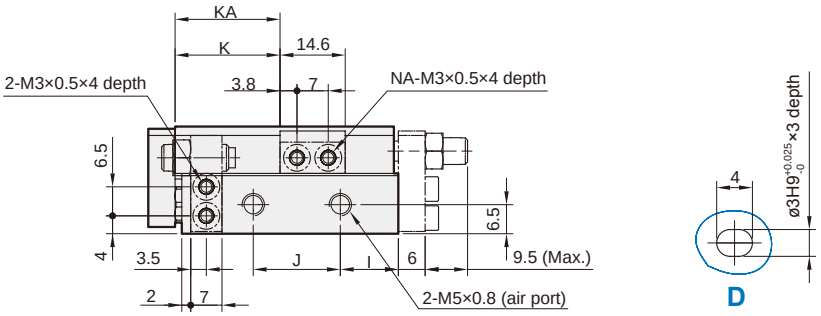




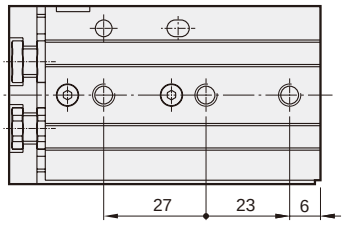
Code / Stroke	F	G	GA	H	HA	I	J	K	M	N	NN	Z	ZZ
10	22	6	13	23	16	9	17	21.5	42	4	2	41.5	48
20	25	13	13	26	26	9	27	31.5	52	4	2	51.5	58
30	21	–	29	–	20	9	37	41.5	62	6	3	61.5	68
40	26	11	39	28	28	16	48	51.5	80	6	3	79.5	86
50	27	21	49	28	28	9	65	61.5	90	6	3	89.5	96

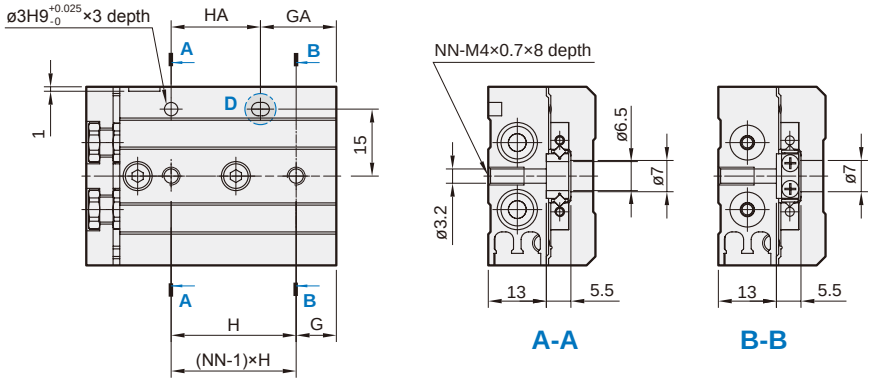
L





MCSQ-8-30

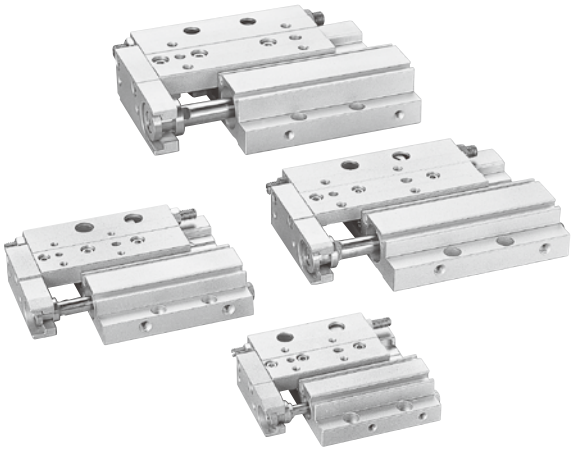




Code / Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	7	13	25	19	11	17	23.5	–	46	4	2	2	45.5	53
20	25	14	14	28	28	10	28	33.5	–	56	4	2	2	55.5	63
30	26	–	29	–	27	12	40	43.5	–	70	6	2	3	69.5	77
40	32	8	39	31	31	14	52	53.5	–	84	6	2	3	83.5	91
50	46	8	37	29	58	13	78	63.5	82.5	109	6	4	4	108.5	116
75	50	31	61	30	60	12	105	88.5	112.5	135	6	4	4	134.5	142

MCSF series

LOW PROFILE SLIDE CYLINDER



Features

- Parallel mounting of guide to cylinder gives slim compact unit.
- Flush fitting sensor groove.
- Magnetic as standard.

Specification

Model	MCSF	
Acting type	Double acting	
Tube I.D. (mm)	8	12, 16, 20
Port size	M3×0.5	M5×0.8
Medium	Air	
Operating pressure range	0.15~0.7 MPa	
Proof pressure	1 MPa	
Ambient temperature	-10~+60°C (No freezing)	
Available speed range	50~500 mm/sec	
Lubricator	Not required	
Cushion	Rubber bumper	
Stroke length tolerance	$^{+1.0}_{0}$	
Stroke adjuster range	Extend 5mm / Retract 5mm	
Sensor switch (*)	RCE, RCE1	

* RCE, RCE1 specification, please refer to page 8-11, 12.

Table for standard stroke

Tube I.D.	Stroke (mm)
ø8	10, 20, 30
ø12	20, 30, 50
ø16	30, 50, 75
ø20	30, 50, 75, 100

* Produce after received your orders.

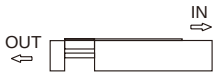
Order example

MCSF — 12 — 50 — X11

- MCSF — MODEL
- 12 — TUBE I.D.
- 50 — STROKE
- X11 — STROKE ADJUSTABLE
  - Blank: 5mm
  - **X11**: 15mm
  - **X12**: 25mm

* **X12** (adjustable range 25mm) is not available in series **MCSF-8 / MCSF-12**.

Theoretical force



Unit: N

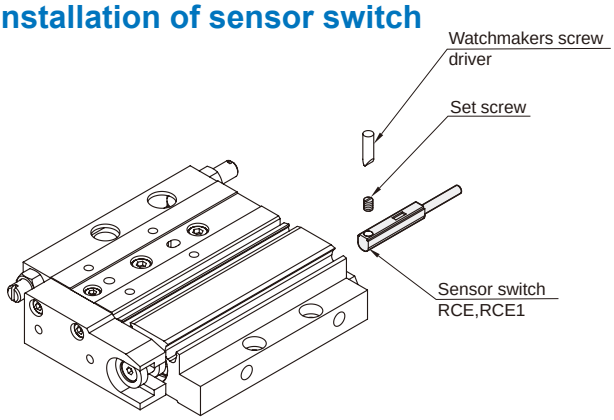
Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)					
				0.2	0.3	0.4	0.5	0.6	0.7
8	4	OUT	50	10	15	20	25	30	35
		IN	38	8	11	15	19	23	27
12	6	OUT	113	23	34	45	57	68	79
		IN	85	17	26	34	43	51	60
16	8	OUT	201	40	60	80	101	121	141
		IN	151	30	45	60	76	91	106
20	10	OUT	314	63	94	126	157	188	220
		IN	236	47	71	94	118	142	165

Cylinder weight

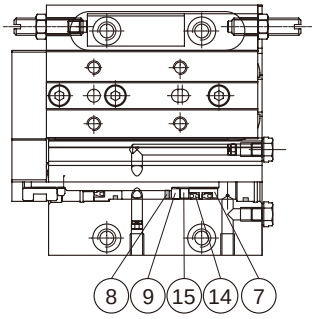
Unit: g

Stroke (mm)	Tube I.D.			
	ø8	ø12	ø16	ø20
10	125	–	–	–
20	132	212	–	–
30	171	248	372	608
50	–	357	522	775
75	–	–	696	1,053
100	–	–	–	1,351

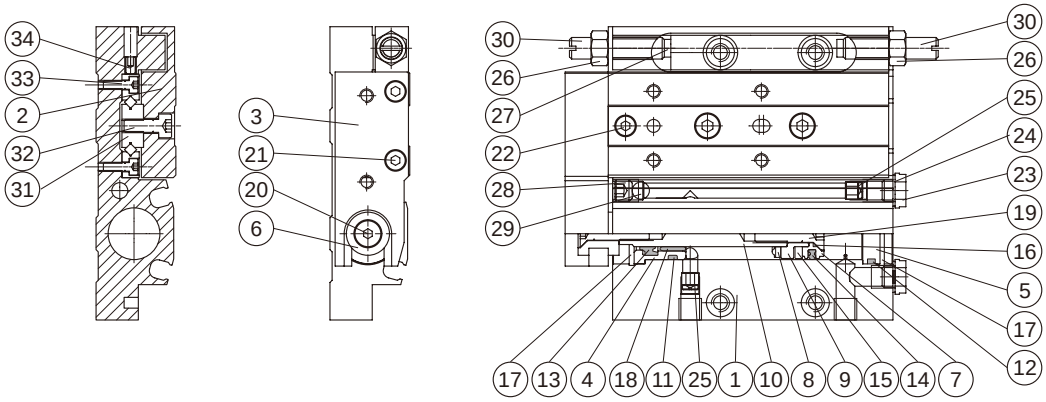
Installation of sensor switch



ø8



ø12, ø16, ø20



Material

No.	Tube I.D. / Part name	8	12~20	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy		1	
2	Table	Aluminum alloy		1	
3	Plate	Aluminum alloy		1	
4	Rod cover	Aluminum alloy		1	
5	Head cover	Aluminum alloy		1	
6	Floating connector	Stainless steel		1	
7	Piston	*2	*1	1	
8	Cushion pad	NBR		1	●
9	Piston	*2	*1	1	
10	Piston rod	Stainless steel		1	
11	Cover ring	NBR		1	●
12	Cover ring	NBR		1	●
13	Rod packing	NBR		1	●
14	Piston packing	NBR		1 or 2	●
15	Magnet ring	Magnet material		1	
16	Gasket	—	NBR	1	●
17	Stop ring	Stainless steel		2	
18	Rod bush	—	Bearing alloy	1	
19	Piston bolt	—	*2	1	
20	Floating connector bolt	—	*2	1	
21	Bolt	Stainless steel		2	

* Item 14. Tube I.D. ø8 (Q'y: 2pcs); Tube I.D. ø12~20 (Q'y: 1pc).

No.	Tube I.D. / Part name	8	12~20	Q'y	Repair kits (inclusion)
22	Bolt	Stainless steel		1	
23	Plug	Copper		2	
24	Plug gasket	POM		2	
25	Orifice	Stainless steel		2	
26	Nut	Copper/Stainless steel		2	
27	End cushion	PU		2	●
28	Plug	—	*2	1	
29	Ball	—	*2	1	
30	Adjuster bolt	Copper/Stainless steel		2	
31	Slide way	Bearing steel		1	
32	Bolt	Stainless steel		*3	
33	Bolt	Stainless steel		*3	
34	Bolt	Stainless steel		*3	

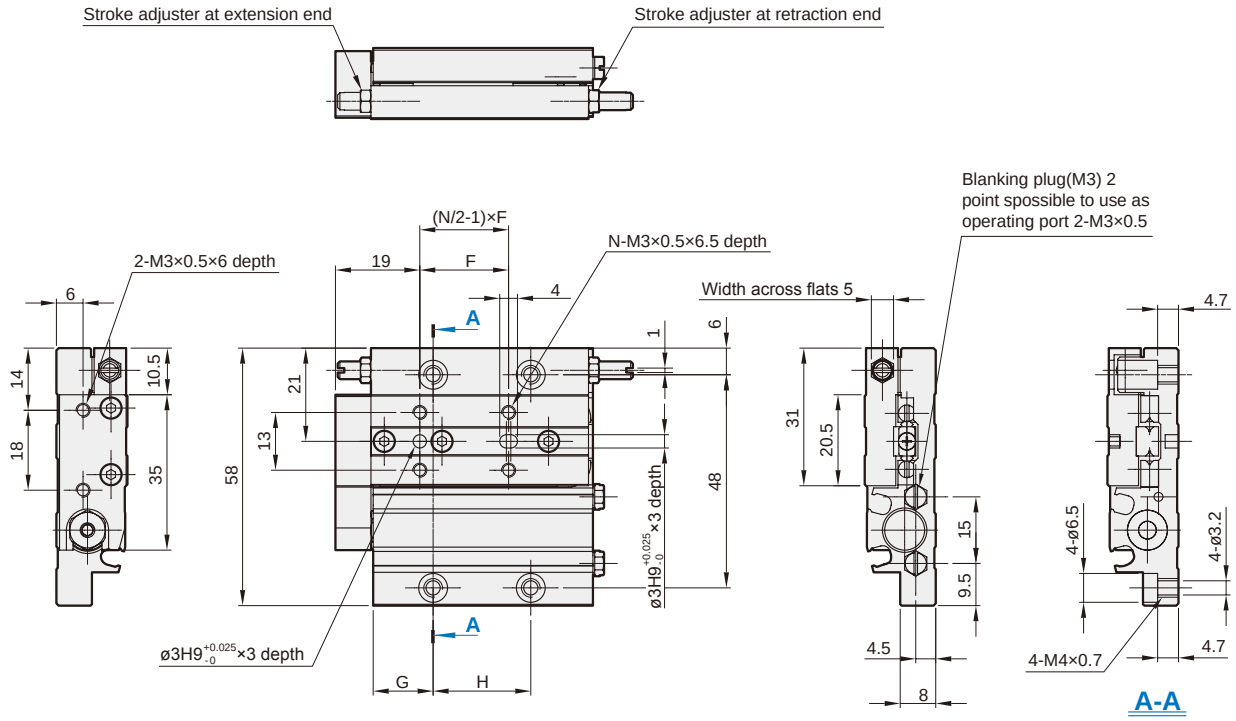
*1. Aluminum alloy
*2. Stainless steel
*3. Quantity varies depending on the stroke length.

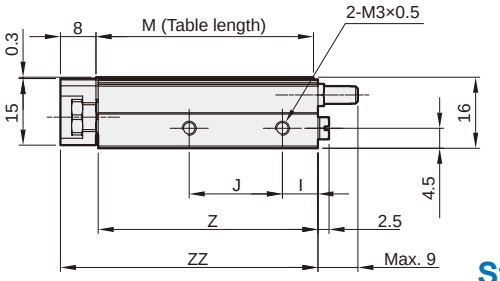
Order example of repair kits

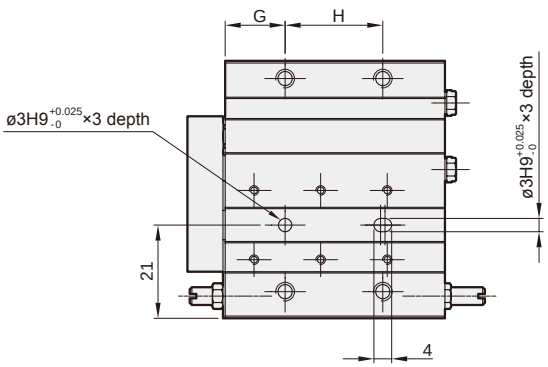
Tube I.D.	Repair kits
ø8	**PS-MCSF-8**
ø12	**PS-MCSF-12**
ø16	**PS-MCSF-16**
ø20	**PS-MCSF-20**

MCSF Dimensions ø8

LOW PROFILE SLIDE CYLINDER

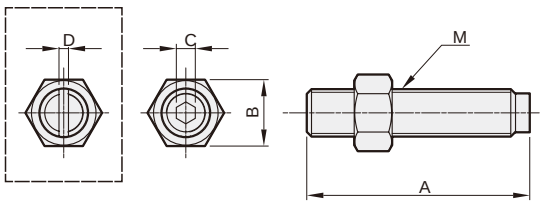




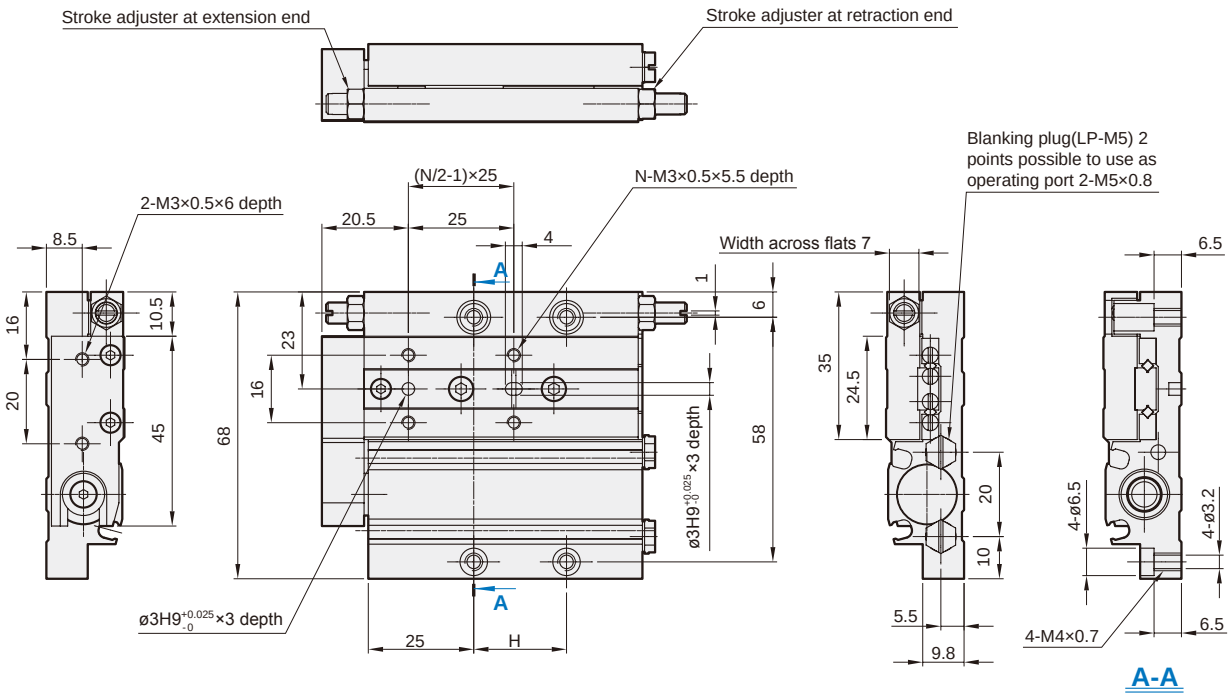


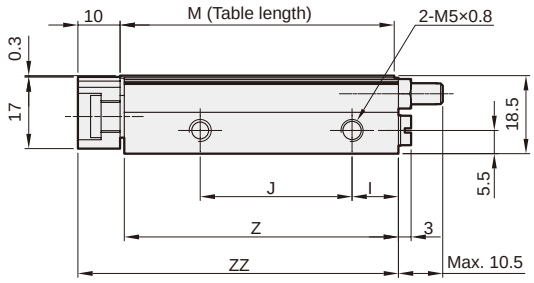
Code / Stroke	F	G	H	I	J	M	N	Z	ZZ
10	20	13.5	22	8	21	49	4	49.5	58
20	26	14.5	26	6.5	28	54	4	54.5	63
30	26	14.5	40	8	41	69	6	69.5	78

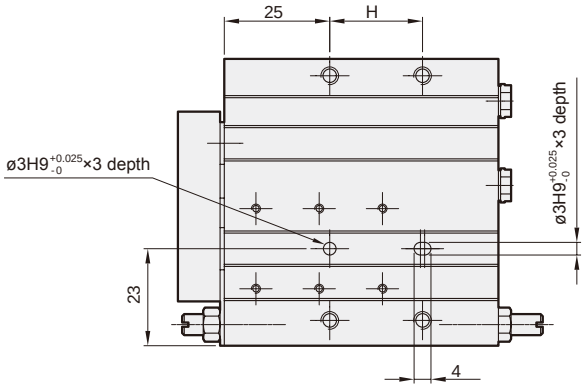
Stroke adjuster bolt ø8~ø20



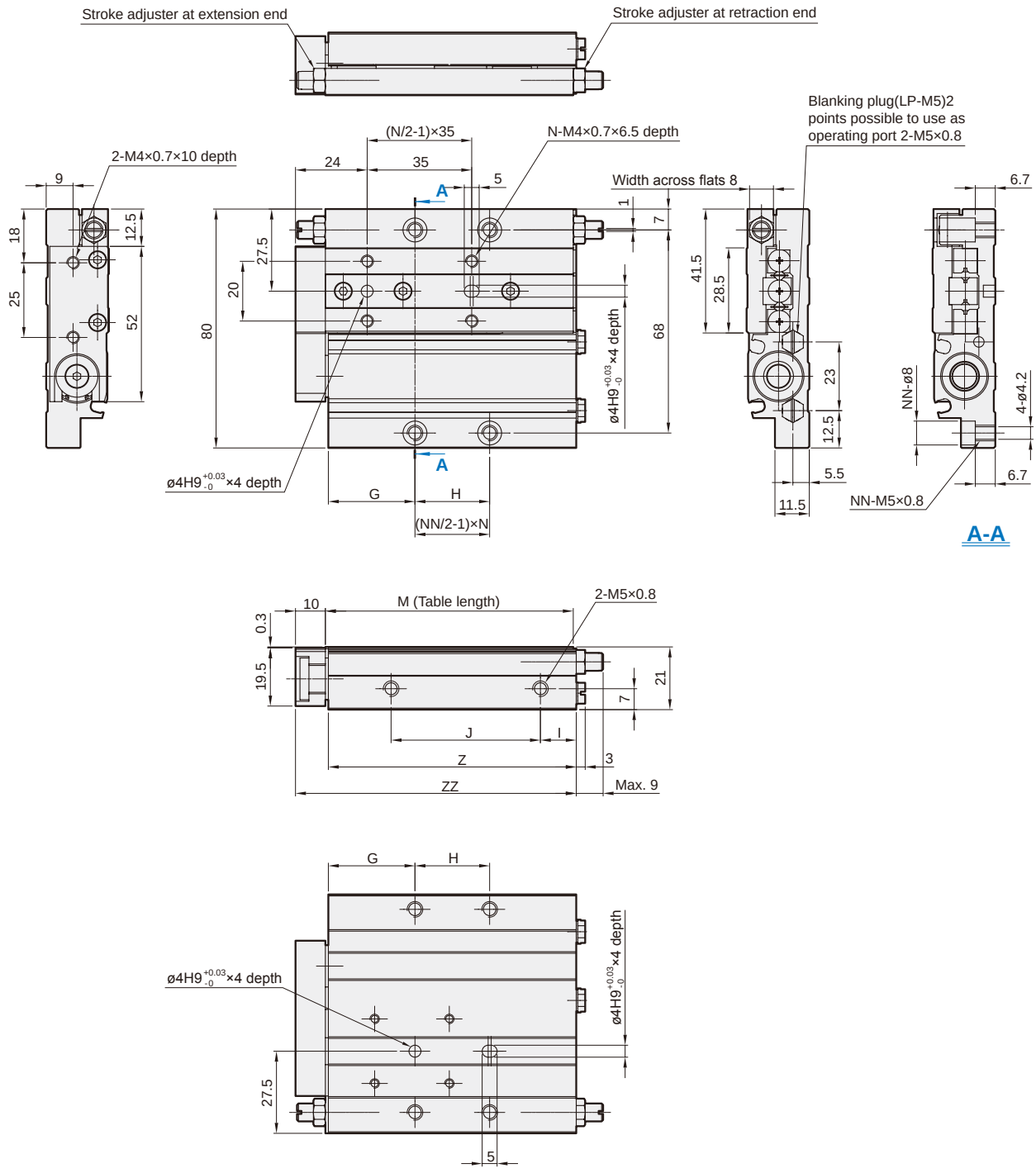
Tube I.D.	Order code	Adjustable stroke range (mm)	A	B	C	D	M
8	MCSF-8	5	17	5	—	1	M4×0.7
	MCSF-8-X11	15	27				
12	MCSF-12	5	23.5	7	—	1	M5×0.8
	MCSF-12-X11	15	33.5				
16	MCSF-16	5	26.5	8	3	—	M6×1
	MCSF-16-X11	15	36.5				
	MCSF-16-X12	25	46.5		—	1	
20	MCSF-20	5	30	11	4	—	M8×1
	MCSF-20-X11	15	40				
	MCSF-20-X12	25	50		—	1.5	



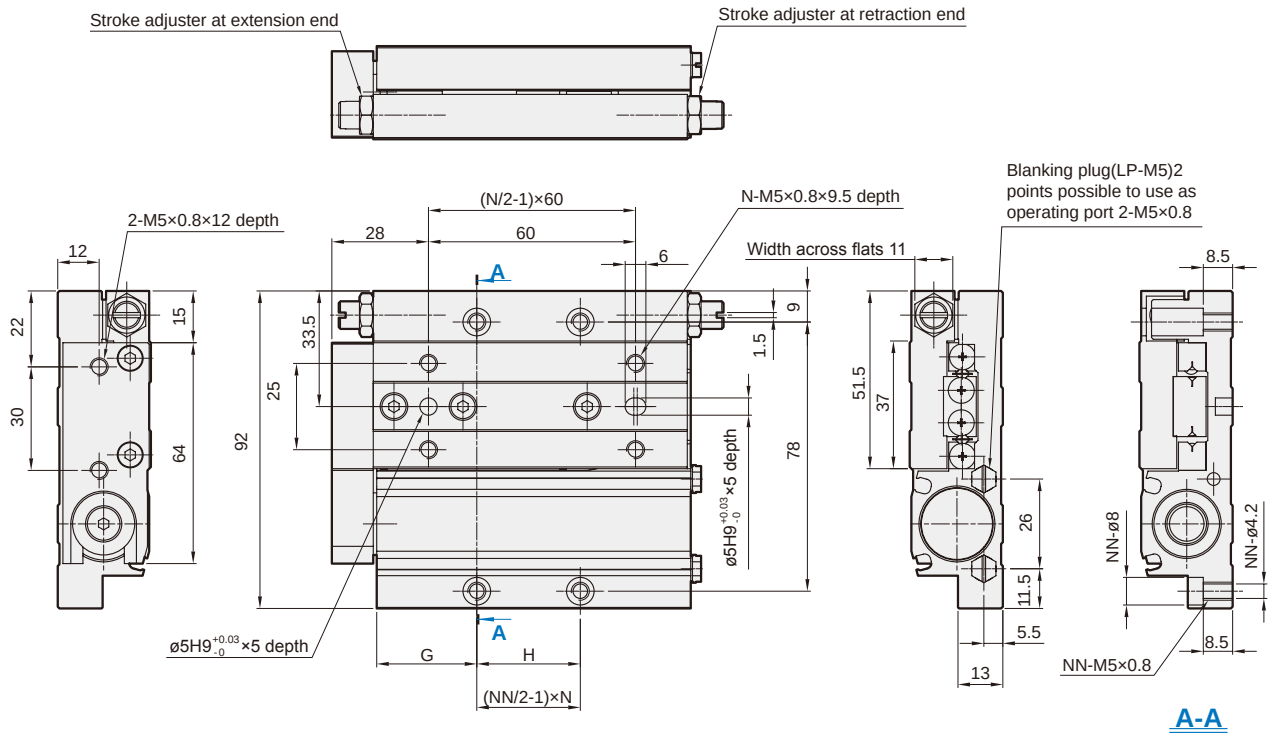


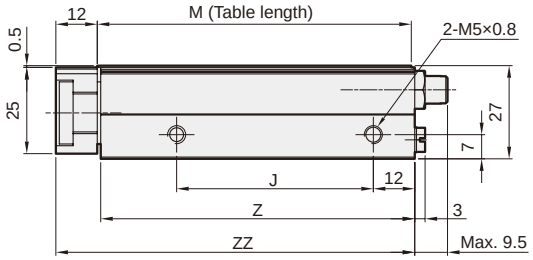


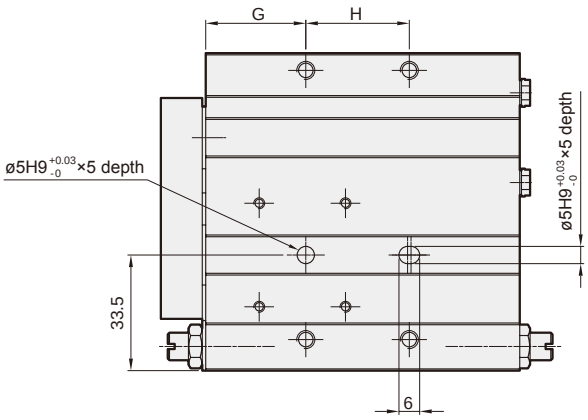
Code / Stroke	H	I	J	M	N	Z	ZZ
20	22	11	36	65	4	65	76
30	30	12	45	75	4	75	86
50	65	13	80	111	6	111	122



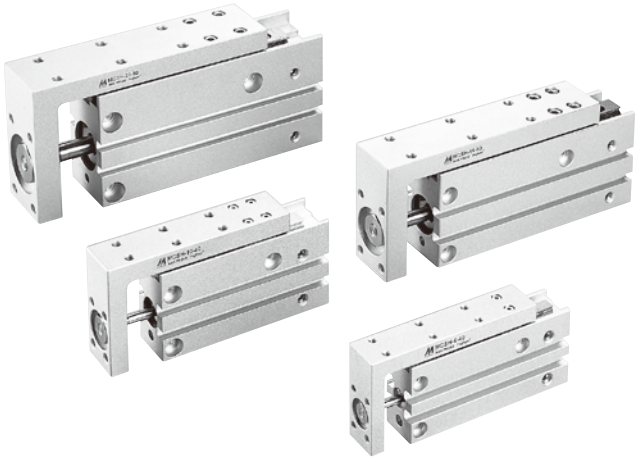
Code / Stroke	G	H	I	J	M	N	NN	Z	ZZ
30	29	25	12	50	83	4	4	83	94
50	29	55	12	80	113	6	4	113	124
75	39	45	13	125	159	6	6	159	170







Code / Stroke	G	H	J	M	N	NN	Z	ZZ
30	29	30	57	91	4	4	91	104
50	36	45	77	113	4	4	113	126
75	40	45	125	162	6	6	162	175
100	59	60	175	211	6	6	211	224



Features

- Compact precision cylinder.
- Cylinder can take high lateral loads and is also non rotating.
- Cylinder can be mounted in 3 or 4 positions.
- Magnetic as standard.

Specification

Model	MCSH			
Acting type	Double acting			
Tube I.D. (mm)	6	10	16	20
Guide rail width (mm)	5	7	9	12
Port size	M5×0.8			
Medium	Air			
Min. operating pressure	0.12 MPa	0.06 MPa		0.05 MPa
Max. operating pressure	0.7 MPa			
Proof pressure	1.07 MPa			
Ambient temperature	-10~+60°C (No freezing)			
Operating speed range	50~500 mm/sec			
Allowable kinetic energy J (kgf · cm)	0.125	0.25	0.5	1.0
Lubricator	Not required			
Cushion	Rubber bumper			
Stroke length tolerance	$^{+1.0}_{0}$			
Sensor switch (*)	RCE, RCE1, RDEP			

* RCE, RCE1, RDEP specification, please refer to page 8-11, 12, 17.

Order example

MCSH — 10 — 60

MODEL TUBE I.D. STROKE

Cylinder weight

Unit: g

Stroke (mm)	Tube I.D.			
	ø6	ø10	ø16	ø20
5	62	117	216	437
10	67	125	227	455
15	76	140	247	486
20	81	148	258	505
25	91	162	279	542
30	96	170	290	560
40	111	192	323	597
50	125	215	353	656
60	140	238	386	700

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6, 10, 16, 20	5, 10, 15, 20, 25, 30, 40, 50, 60

Allowable moment

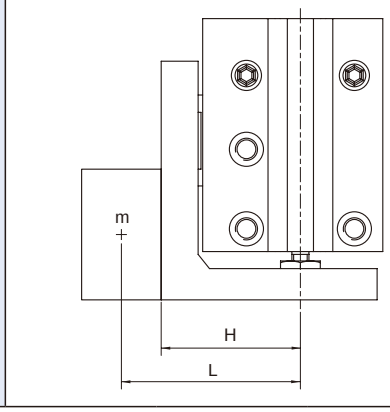
Tube I.D. (mm)	Allowable moment (N.m)		
	Roll moment load	Yaw moment load	Pitch moment load
	Mr	My	Mp
ø6	0.53	0.35	0.42
ø10	1.23	0.73	0.86
ø16	2.47	1.43	1.69
ø20	4.94	2.47	2.82

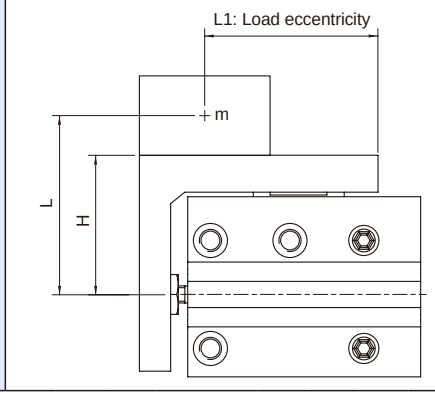
Theoretical force

Unit: N

Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)		
				0.3	0.5	0.7
6	3	OUT	28.3	8.49	14.2	19.8
		IN	21.2	6.36	10.6	14.8
10	4	OUT	78.5	23.6	39.3	55.0
		IN	66.0	19.8	33.0	46.2
16	6	OUT	201.0	60.3	101.0	141.0
		IN	172.0	51.6	86.0	121.0
20	8	OUT	314.0	94.2	157.0	220.0
		IN	264.0	79.2	132.0	185.0

Selection conditions

Selection fig	a1	a2	a3
Max. speed (mm)	Up to 100	Up to 300	Up to 500
Vertical Mounting direction			

Selection fig	b1	b2	b3	b4	b5	b6	b7	b8	b9
Load eccentricity L1 (mm)	50	100	200	50	100	200	50	100	200
Max. speed (mm)	Up to 100			Up to 300			Up to 500		
Horizontal Mounting direction									

Tube I.D.	ø6	ø10	ø16	ø20
H dimension (mm)	24.5	30.5	34.5	41.5

Selection example

- **Vertical mounting**

  Maximum speed: 300 mm/s
  Overhang L: 20 mm
  Load mass m: 0.2 kg

1. Refer to Graph a2 based on vertical mounting and a speed of 300 mm/s.
2. In Graph a2, find the intersection of a 20 mm overhang L and load mass m of 0.2 kg, which results in a determination of ø16.

- **Horizontal Mounting**

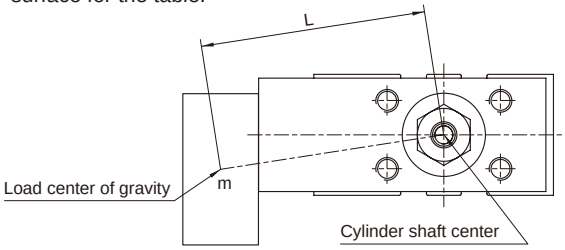
  Maximum speed: 300 mm/s
  Load eccentricity L1: 50 mm
  Overhang L: 60 mm
  Load mass m: 0.1 kg

1. Refer to Graph b4 based on horizontal mounting, a speed of 300 mm/s and load eccentricity L1 of 50 mm.
2. In Graph b4, find the intersection of a 60 mm overhang L and load mass m of 0.1 kg, which results in a determination of ø20.

- L: Overhang (the distance from the cylinder shaft center to the load center of gravity)

  The direction of L can also be a diagonal direction. (Refer to the drawing below)

- H: Distance from the cylinder center axis to the mounting surface for the table.



Vertical mounting (fig a1 ~ a3)

fig **a1** Max. speed 100 mm/s or less

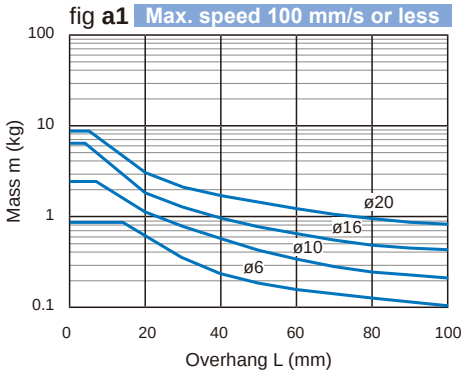


fig **a2** Max. speed 300 mm/s or less

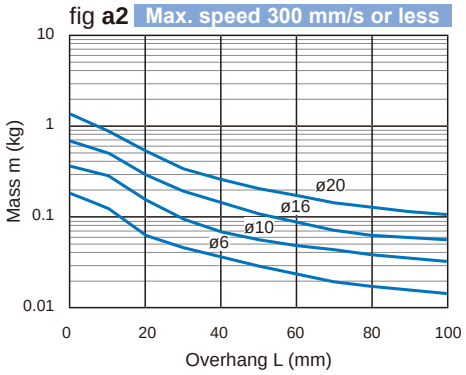
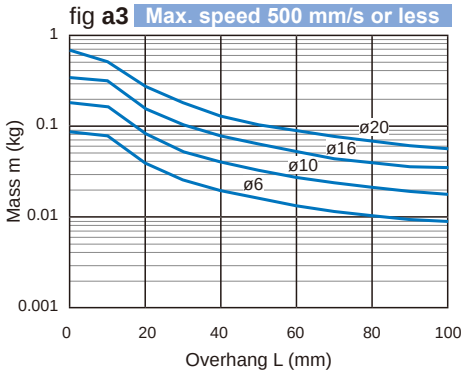


fig **a3** Max. speed 500 mm/s or less



Horizontal mounting (fig b1 ~ b9)

Max. speed 100 mm/s or less	Max. speed 300 mm/s or less	Max. speed 500 mm/s or less

fig **b1** (Load eccentricity 50 mm)

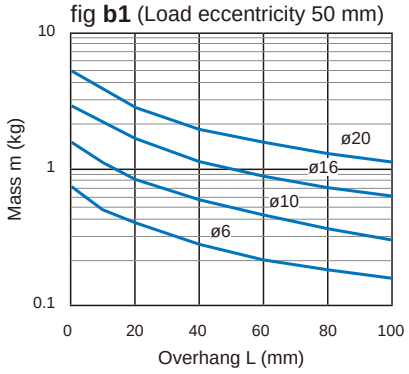


fig **b4** (Load eccentricity 50 mm)

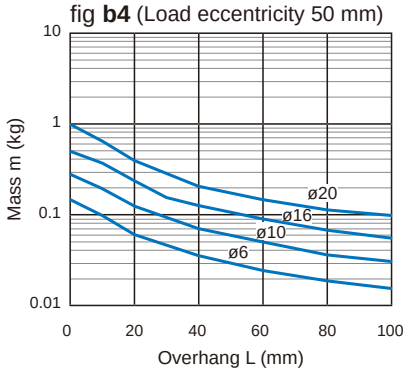


fig **b7** (Load eccentricity 50 mm)

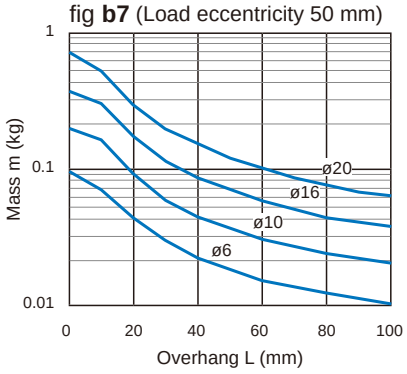


fig **b2** (Load eccentricity 100 mm)

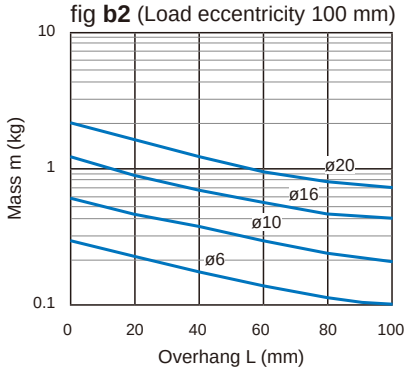


fig **b5** (Load eccentricity 100 mm)

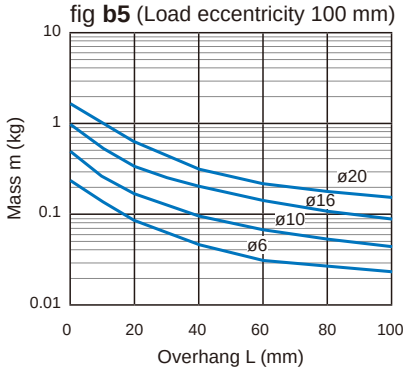


fig **b8** (Load eccentricity 100 mm)

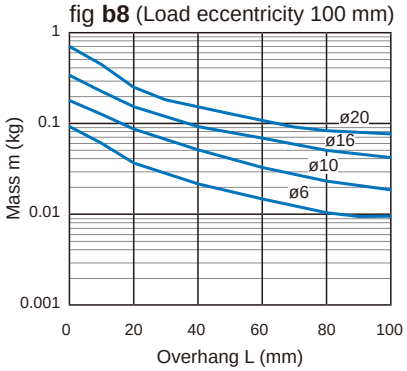


fig **b3** (Load eccentricity 200 mm)

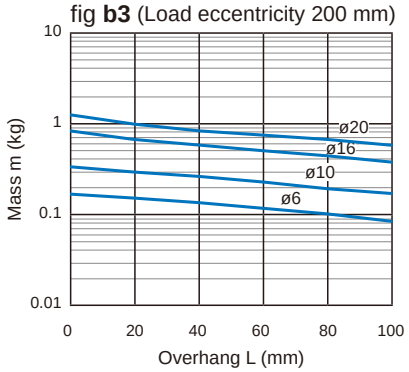


fig **b6** (Load eccentricity 200 mm)

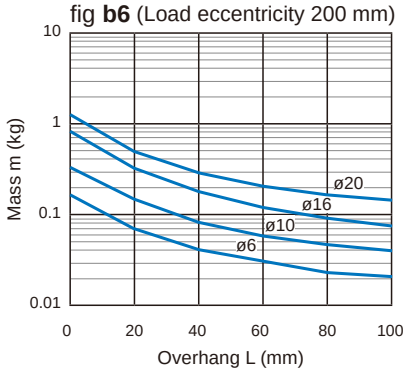


fig **b9** (Load eccentricity 200 mm)

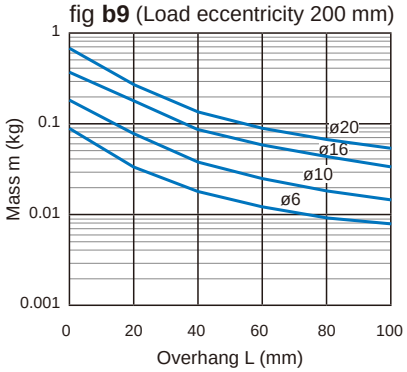
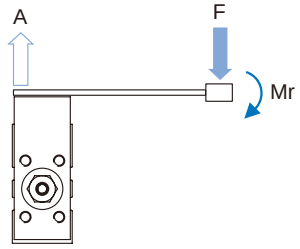
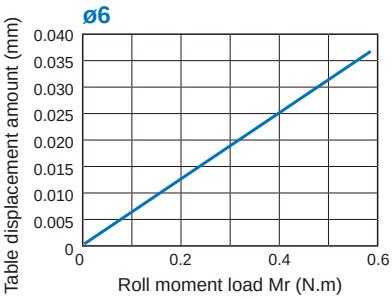


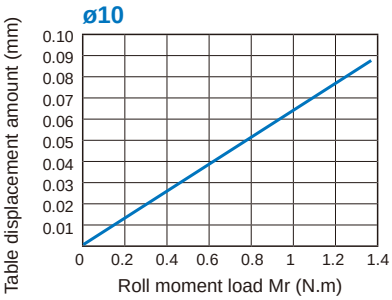
Table deflection (Reference values)

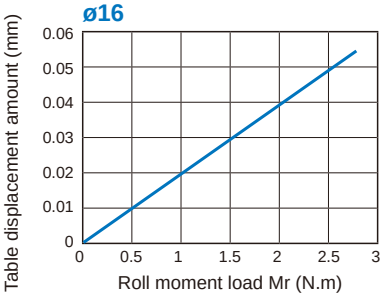
Table displacement due to roll moment load

Table displacement of section A when loads are applied to the section F with theslide table retracted.









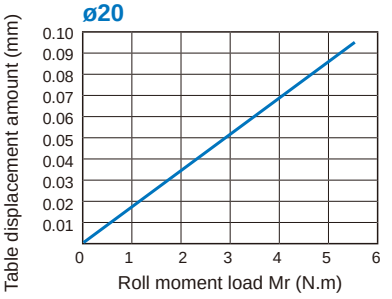
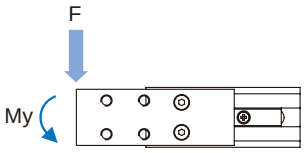
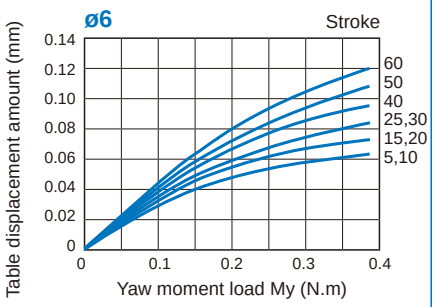
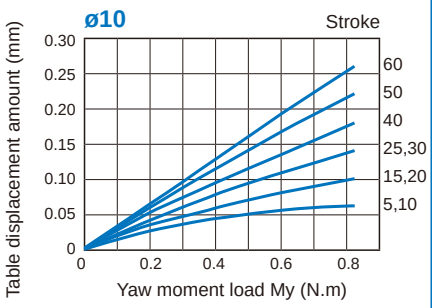


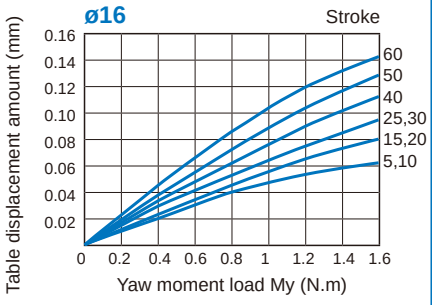
Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.









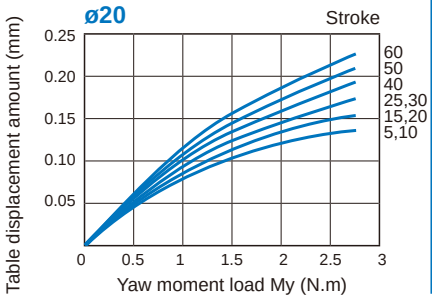
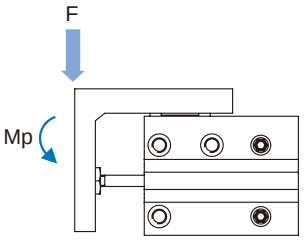
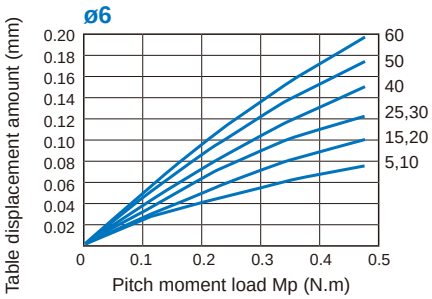
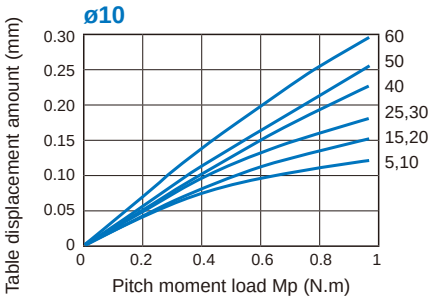


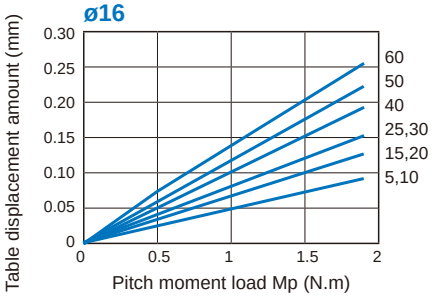
Table displacement due to pitch moment load

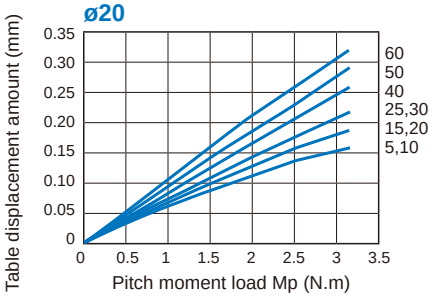
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



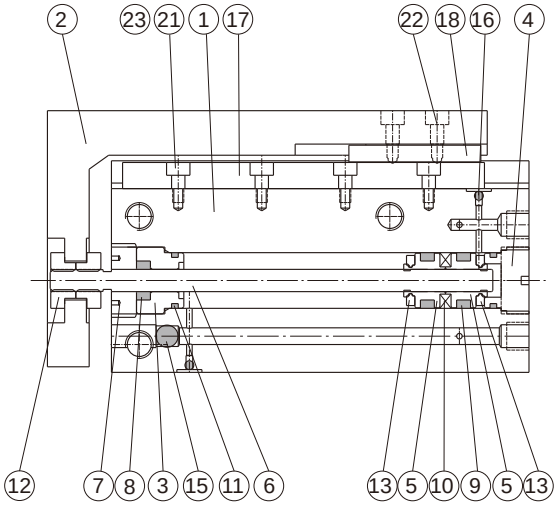




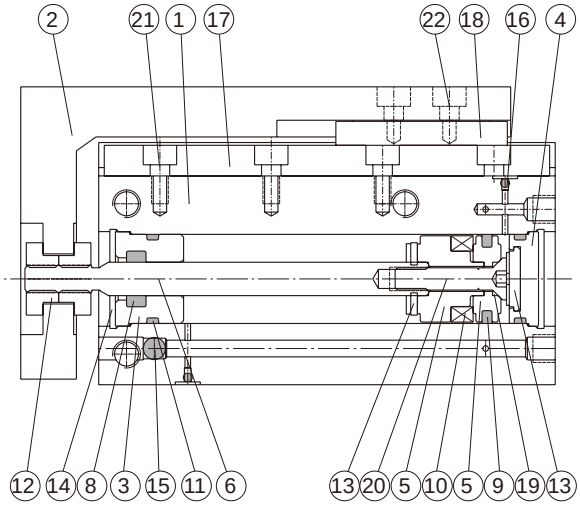




ø6, ø10



ø16, ø20



Material

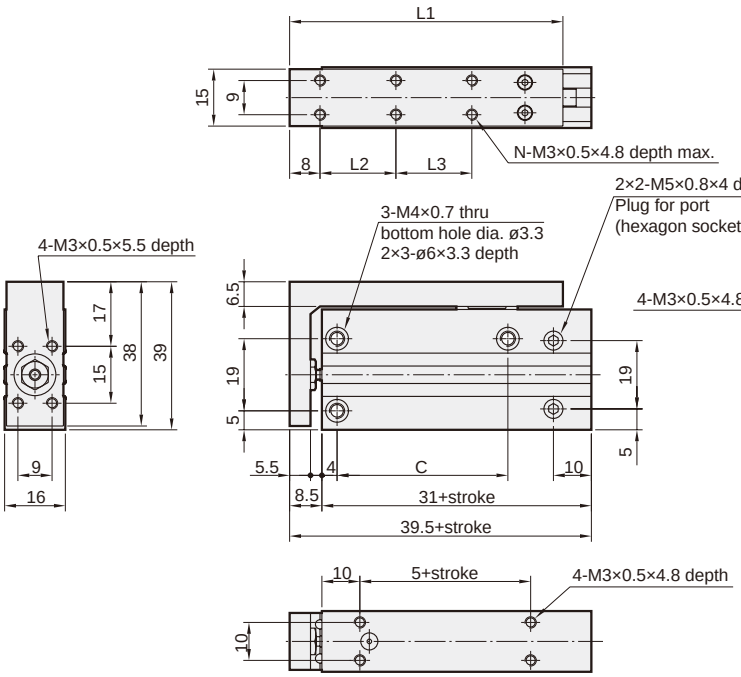
No.	Tube I.D. / Part name	6	10	16	20	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy					1	
2	Table	Aluminum alloy					1	
3	Rod cover	Brass	Aluminum alloy				1	
4	Head cover	Aluminum alloy					1	
5	Piston	Aluminum alloy					2	
6	Piston rod	Stainless steel					1	
7	Rod cover locker	*1		–			1	
8	Rod packing	NBR					1	●
9	Piston packing	NBR				Tube I.D.ø6,ø10 ×2, ø16,ø20 ×1	1 or 2	●
10	Magnet ring	Magnet material					1	
11	Cover ring	NBR					2	●
12	Rod front nut	Brass					2	
13	Cushion packing	NBR					2	●
14	C type snap ring for hole	–		Spring steel			2	
15	Steel ball A	Stainless steel					1	
16	Steel ball B	Stainless steel					2	
17	Linear guide	Stainless steel					1	
18	Guide seat	Stainless steel					1	
19	Piston gasket	–		NBR			1	●
20	Piston bolt	–		*1			1	
21	Hexagon socket head cap screw A	Stainless steel				Tube I.D.ø10~20 (*3)	2~5	
22	Hexagon socket head cap screw B	*2	Stainless steel			Tube I.D.ø6 ×2, ø10~20×4	2 or 4	
23	Round head Phillips screw	Stainless steel				Only for tube I.D.ø6 (*3)	2~5	
24	Plug gasket	NBR					4	●

*1. Stainless steel *2. Carbon steel
*3. Quantity varies depending on the stroke length.

Order example of repair kits

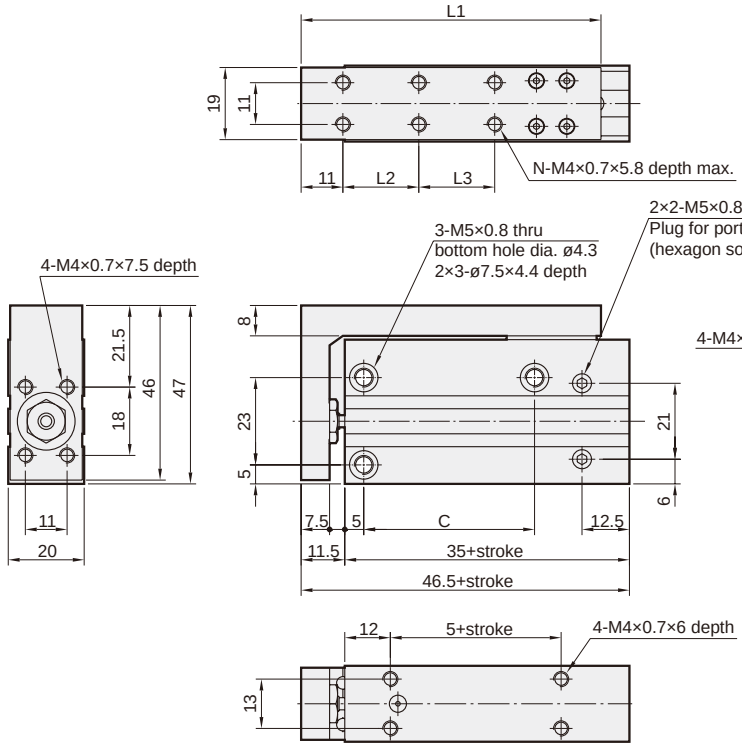
Tube I.D.	Repair kits
ø6	**PS-MCSH-6**
ø10	**PS-MCSH-10**
ø16	**PS-MCSH-16**
ø20	**PS-MCSH-20**

ø6



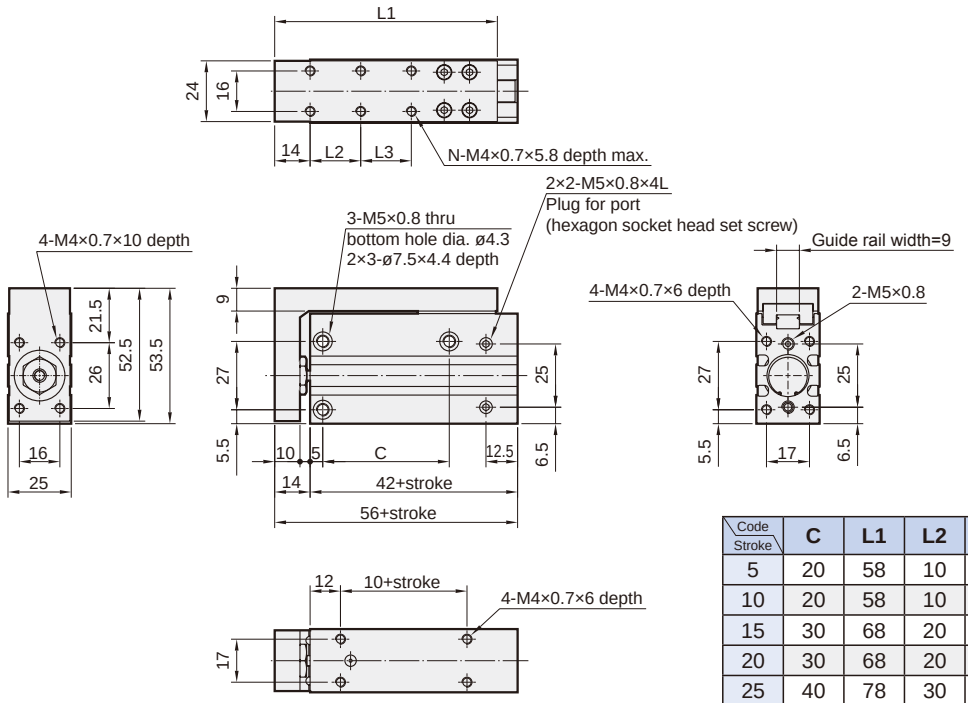
Code / Stroke	C	L1	L2	L3	N
5	14	42	10	–	4
10	14	42	10	–	4
15	24	52	20	–	4
20	24	52	20	–	4
25	30	62	30	–	4
30	30	62	30	–	4
40	45	72	20	20	6
50	55	82	25	25	6
60	60	92	30	30	6

ø10



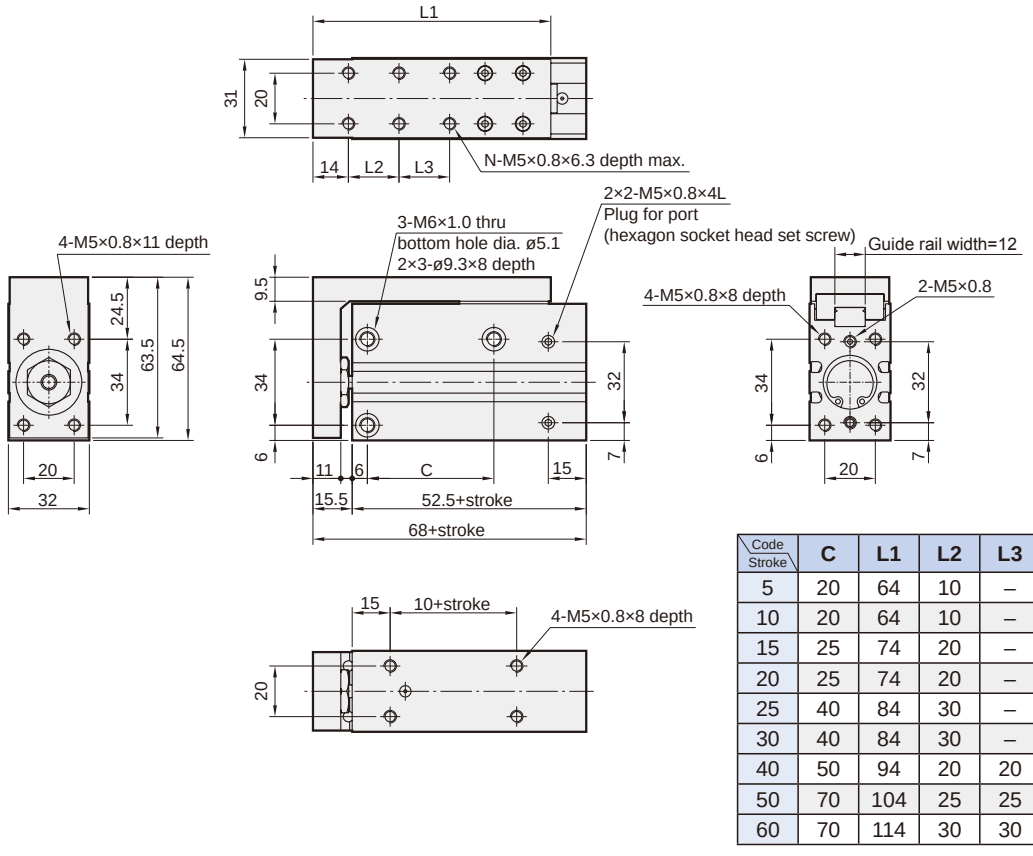
Code / Stroke	C	L1	L2	L3	N
5	14	49	10	–	4
10	14	49	10	–	4
15	24	59	20	–	4
20	24	59	20	–	4
25	30	69	30	–	4
30	30	69	30	–	4
40	45	79	20	20	6
50	55	89	25	25	6
60	60	99	30	30	6

ø16



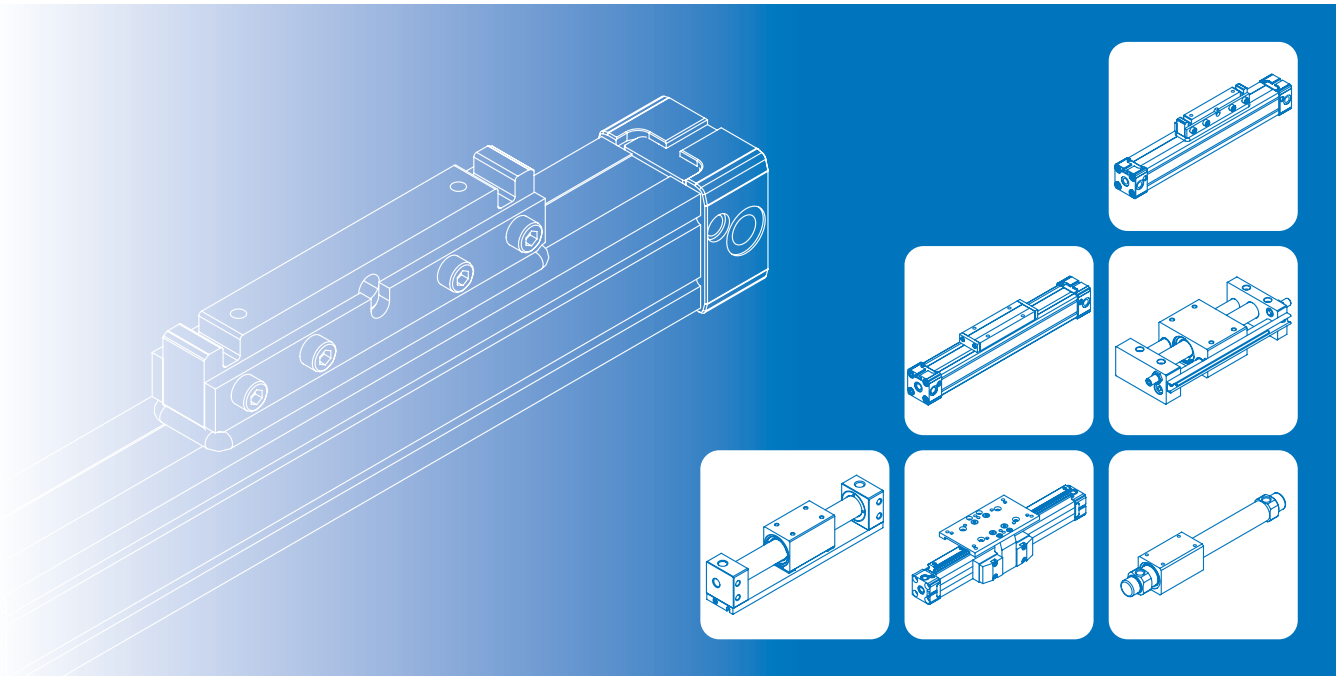
Code / Stroke	C	L1	L2	L3	N
5	20	58	10	–	4
10	20	58	10	–	4
15	30	68	20	–	4
20	30	68	20	–	4
25	40	78	30	–	4
30	40	78	30	–	4
40	50	88	20	20	6
50	60	98	25	25	6
60	60	108	30	30	6

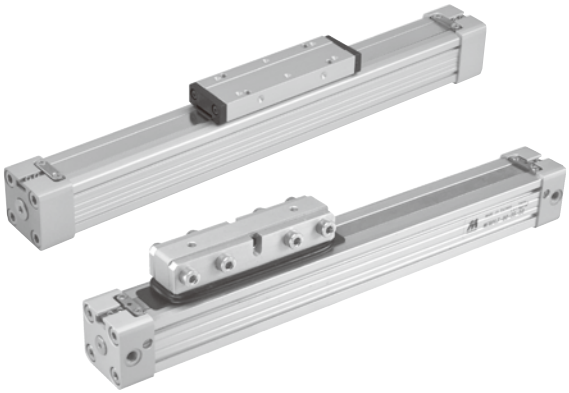
ø20



Code / Stroke	C	L1	L2	L3	N
5	20	64	10	–	4
10	20	64	10	–	4
15	25	74	20	–	4
20	25	74	20	–	4
25	40	84	30	–	4
30	40	84	30	–	4
40	50	94	20	20	6
50	70	104	25	25	6
60	70	114	30	30	6

RODLESS CYLINDER





Specification

Model	MCRPL			MCRPLF			
Acting type	Double acting			Double acting			
Tube I.D.(mm)	16	25	32,40	16	25	32,40,50	63
Port size	M5	G1/8	G1/4	M5	G1/8	G1/4	G3/8
No. of port	3						
Medium	Air						
Operating pressure range	0.1~0.78 MPa						
Stroke range (*1) ø16	100~3300 mm						
Stroke range (*1) ø25~63	100~5600 mm						
Ambient Temperature	-10°C~+80°C (No freezing)						
Lubrication	With or without lubrication						
Cushion	With adjustable cushion at both ends						
Sensor Switch	RCAL (Please refer to page 6-9)						
Sensor Switch Holder	HPL						

*1. Minimum stroke unit 1mm.
*2. The tube isn't airtight, so the cylinder is allowed little leakage.
Before the cylinder is sale, it has passed the standard of leakage test.

Features

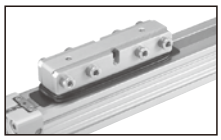
- Equal forces on both ends of the piston.
- High cantilever and direct loads can be taken on piston.
- Multi ported endcaps as standard.
- Self guiding.
- High temperature seals available as a standard option.
- Many mounting options available.
- 50% space saving when compared to conventional cylinders.
- Reed switches available.
- Magnetic as standard.
- Simple construction enables rapid servicing of cylinder
- Slow speed grease available as option to enable very slow and smooth piston movement.

Order example

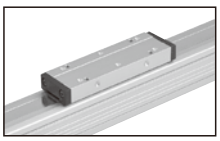
MCRPL — 90V — 25 — 0850 — S — PL 24/2

Model

MCRPL



MCRPLF



Type

90	Standard type
98	Long piston type * Only for MCRPL

Piston seals

—	NBR (for piston speeds V < 1 m/s)
V	VITON (for piston speeds V ≥ 1m/s)

Tube I.D.

16
25
32
40
50
63 — for MCRPLF

Stroke

0100~5600 mm (4 codes)

Grease lubrication

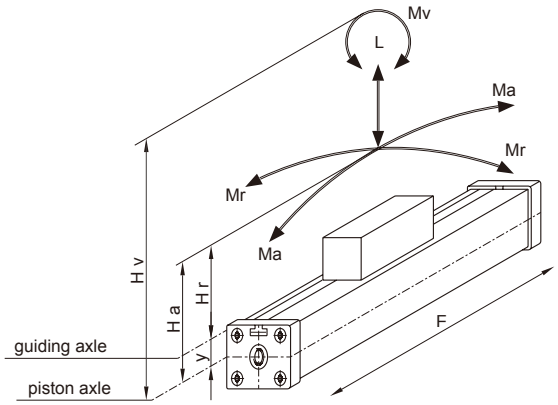
—	Standard
S	Slow motion grease *

* NBR piston seals: V ≤ 0.1 m/s
VITON piston seals: V ≤ 0.2 m/s

Accessory

* Please refer to 6-7 page code.

Forces & Moments



Formulas
Ma = F × Ha
Mr = F × Hr
Mv = F × Hv

MCRPL

Cylinder		Effect force (N) at 6 bar	Cushion (mm)	Max. allowed load (N)	Max. allowed bending moment (Nm)		Max. allowed torque (Nm)
ø	y	F	S	L	Ma axial	Mr radial	Mv central
16	9	110	15	120	4	0.3	0.5
16L	9	110	15	120	5	0.4	0.6
25	14	250	21	300	15	1.0	3.0
25L	14	250	21	300	20	1.5	6.0
32	18	420	26	450	30	2.0	4.5
32L	18	420	26	450	60	3.5	10.0
40	23	640	32	750	60	4.0	8.0
40L	23	640	32	750	130	7.0	20.0

- 16L~40L: cylinder with long piston for heavy bending, torque moments and vertical movement.
- The figures above are max. values based on light shock free duty and speed of V ≤ .2m/s. Max. pressure 6 bar.
- An exceeding of the values in dynamic operations, even for short moments, has to be avoided.
- Attention: Resulting forces could lead to extreme exceeding of the values. In case of undefinable situations the above max. values have to be reduced by 10~-20%.

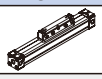
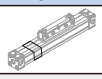
MCRPLF

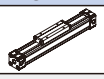
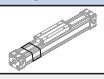
Cylinder		Effect force (N) at 6 bar	Cushion (mm)	Max. allowed load (N)	Max. allowed bending moment (Nm)		Max. allowed torque (Nm)
ø	y	F	S	L	Ma axial	Mr radial	Mv central
16	9	110	15	120	4	0.3	0.5
25	14	250	21	300	15	1	3.0
32	18	420	26	450	30	2	4.5
40	23	640	32	750	60	4	8.0
50	28	1000	32	1200	115	7	15.0
63	36	1550	40	1650	200	8	24.0

- The figures above are max. values based on light shock free duty and speed of V ≤ 0.45m/s. Max. pressure 6 bar.
- An exceeding of the values in dynamic operations, even for short moments, has to be avoided.
- Attention: Resulting forces could lead to extreme exceeding of the values. In case of undefined situations the above max. values have to be reduced by 10~20%.

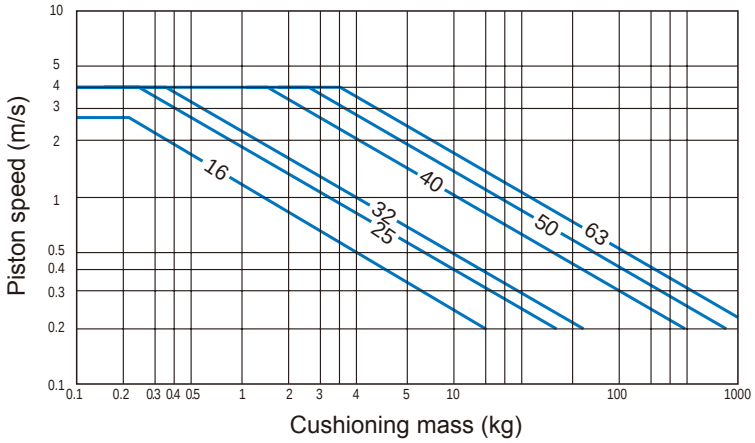
Cylinder weight

Unit: g

Model	Basic weight **MCRPL**	Stroke 100 mm **MCRPL**
Tube I.D.		
ø16	240	92
ø25	760	294
ø32	1,670	379
ø40	2,760	594

Model	Basic weight **MCRPLF**	Stroke 100 mm **MCRPLF**
Tube I.D.		
ø16	230	92
ø25	710	294
ø32	1,150	379
ø40	2,700	594
ø50	4,000	648
ø63	7,360	1,182

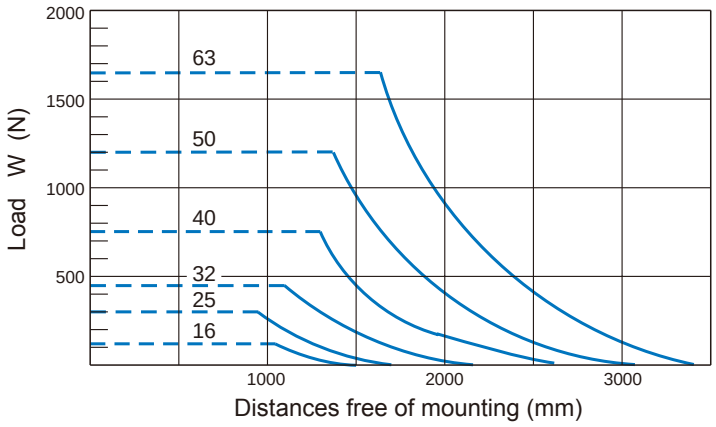
Cushioning diagram



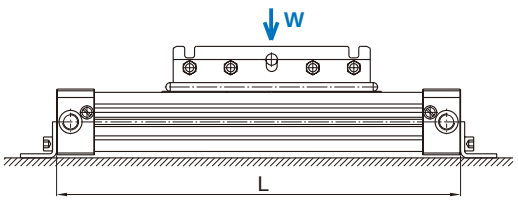
Pay attention to the following points

- If the limits above are exceeded additional shock absorbers are necessary.
- For piston speeds of more than ≥ 1m/s viton seals are recommended.
- For piston speeds ≤ 0.1m/s (NBR), ≤ 0.2m/s (VITON) slow speed lubrication is necessary see at sperpart kids.
- Maximum seal life will be achieved when piston speeds do not exceed 1m/s.

Positioning of cylinder mountings



Deflection 1 mm



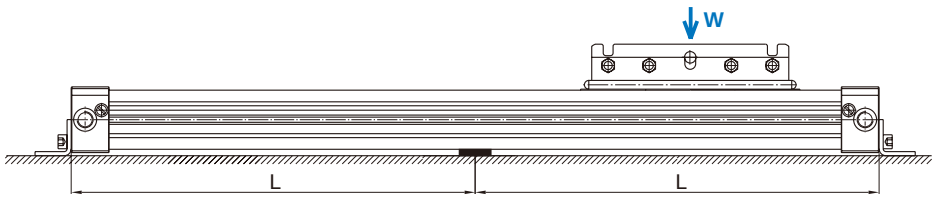
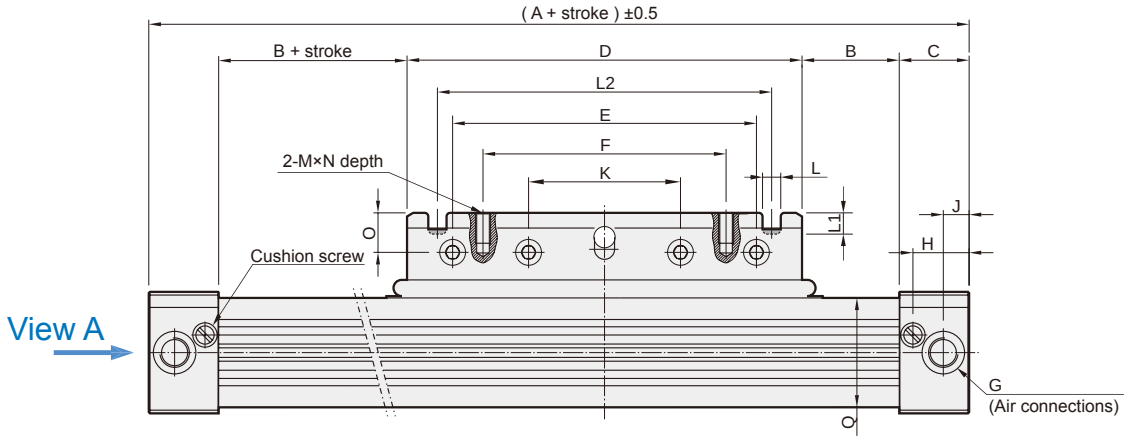
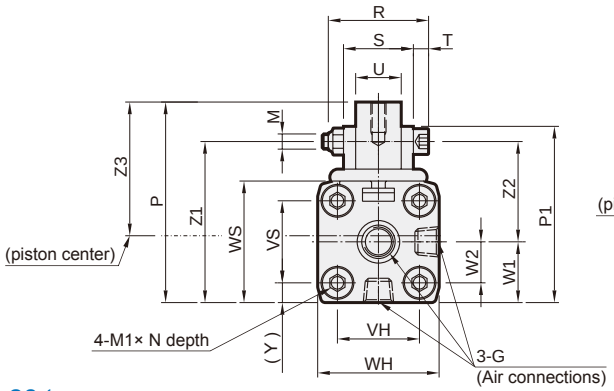


Diagram information

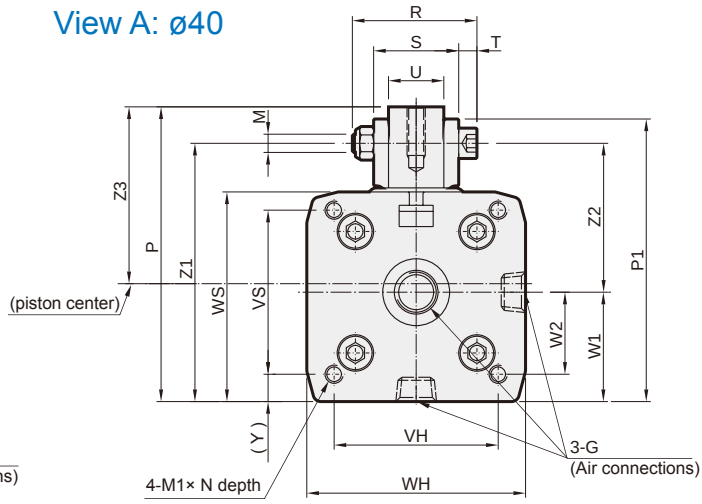
- Calculated deflections without support of 0.5-1 mm allow exceeding of the approved limits.
- Calculated deflections without support of > 1-max.1.5 mm require reduction of approved limits.



View A: ø16~32



View A: ø40



90 type

Code / Tube I.D.	A	B	C	D	E	F	G	H	J	K	L	L1	L2	M	M1	N	O	P	P1
16	130	12	15	76	64	48	M5	12	5.5	32	--	--	--	M4	M3	7	6	43.5	42.3
25	200	17	23	120	100	80	G1/8	18.5	8.5	50	6	7	100	M5	M5	11	13	66	58
32	250	23	27	150	110	90	G1/4	22	10.5	55	6	7	130	M6	M6	14	12	86	82
40	300	45	30	150	110	90	G1/4	24	15	55	6	7	130	M6	M6	15	12	97	93

Code / Tube I.D.	Q	R	S	T	U	VH	VS	WH	WS	W1	W2	Y	Z1	Z2	Z3
16	25×24.5	27	18	4	10	18	18	27	27	13.5	9	4.5	37.5	24	28.8
25	36×36	35	23	5	15	27	27	40	40	20	13.5	6.5	53	33	38.8
32	48×52	41	27	6	18	36	40	52	56	30	22	8	74	44	53.5
40	58×58	41	28	6	18	54	54	72	69	36	27	9	85	49	58.2

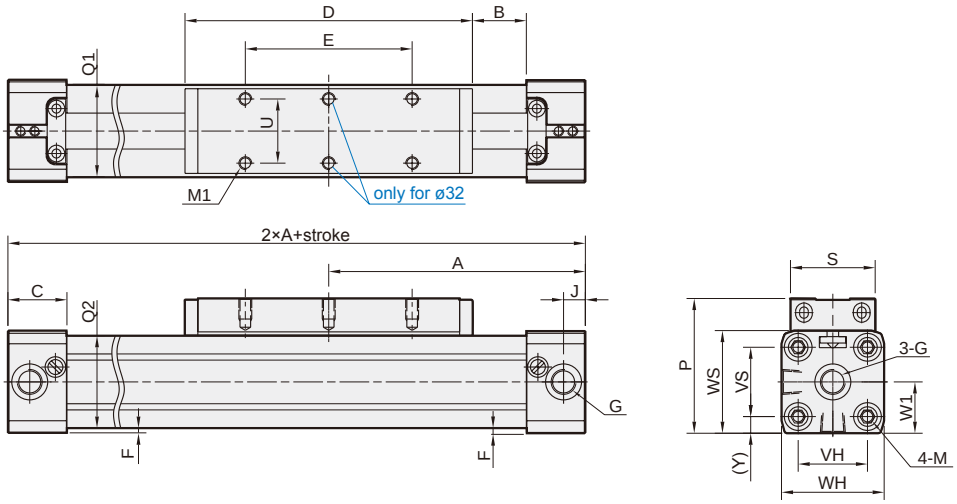
98 type

Code / Tube I.D.	A	B	C	D	E	F	G	H	J	K	L	L1	L2	M	M1	N	O	P	P1
16L	180	37	15	76	64	48	M5	12	5.5	32	--	--	--	M4	M3	7	6	43.5	42.3
25L	300	67	23	120	100	80	G1/8	18.5	8.5	50	6	7	100	M5	M5	11	13	66	58
32L	400	23	27	300	240	180	G1/4	22	10.5	120	--	--	--	M6	M6	14	12	86	82
40L	500	70	30	300	240	180	G1/4	24	15	120	--	--	--	M6	M6	15	12	97	93

Code / Tube I.D.	Q	R	S	T	U	VH	VS	WH	WS	W1	W2	Y	Z1	Z2	Z3
16L	25×24.5	27	18	4	10	18	18	27	27	13.5	9	4.5	37.5	24	28.8
25L	36×36	35	23	5	15	27	27	40	40	20	13.5	6.5	53	33	38.8
32L	48×52	41	27	6	18	36	40	52	56	30	22	8	74	44	53.5
40L	58×58	41	28	6	18	54	54	72	69	36	27	9	85	49	58.2

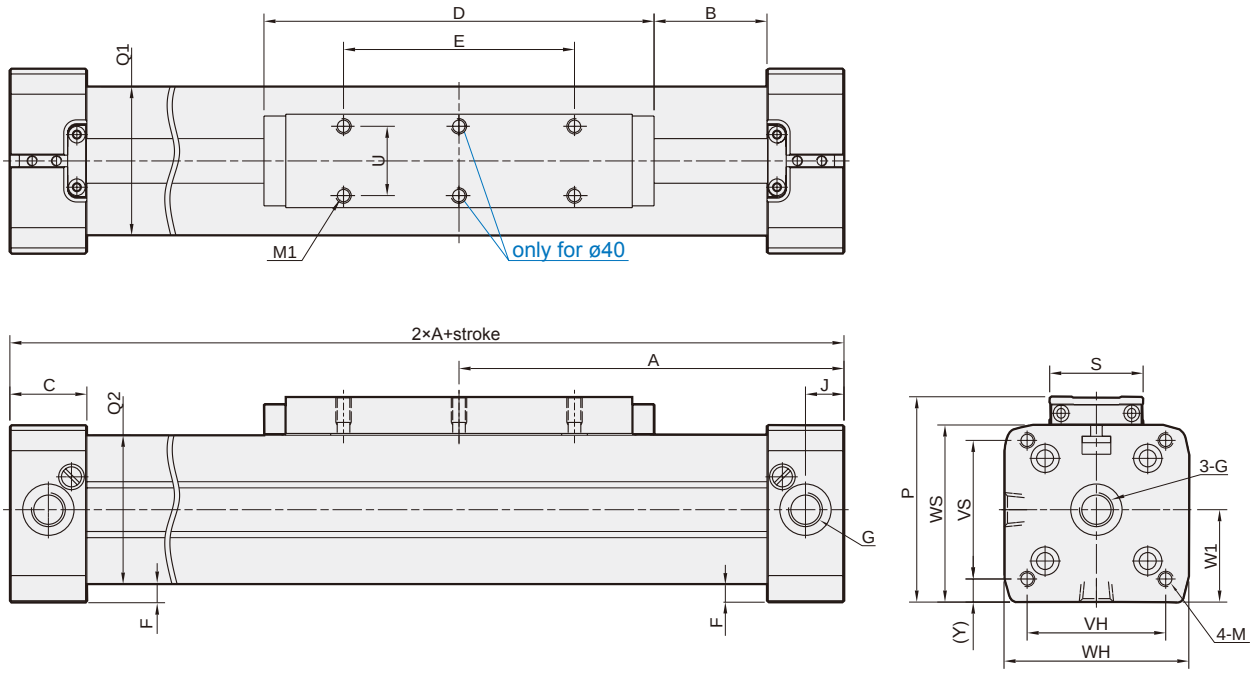
- 16L~40L: Cylinder with long piston for heavy bending and torque moments.

ø16~ø32



Code / Tube I.D.	A	B	C	D	E	F	G	J	M	M1	P	Q1×Q2	S	U	VH	VS	WH	WS	W1	Y
16	65	15.5	15	69	36	1	M5	5.5	M3×7depth	4-M4×7depth	36.5	25×24.5	22	16.5	18	18	27	27	13.5	4.5
25	100	21.5	23	112	65	2	G1/8	8.5	M5×12depth	4-M5×8depth	52.5	36×36	33	25	27	27	40	40	20	6.5
32	125	22.0	27	152	90	2	G1/4	10.5	M6×15depth	6-M6×8depth	66.5	48×52	36	27	36	40	52	56	30	8

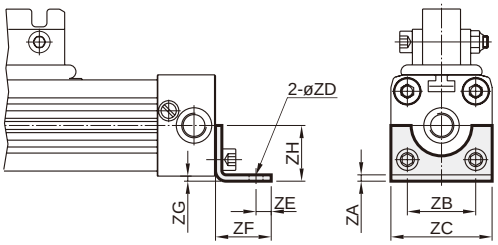
ø40~ø63



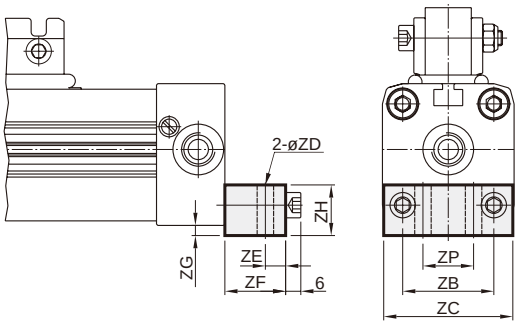
Code / Tube I.D.	A	B	C	D	E	F	G	J	M	M1	P	Q1×Q2	S	U	VH	VS	WH	WS	W1	Y
40	150	44	30	152	90	7	G1/4	15	M6×15depth	6-M6×10depth	80	58×58	36.4	27	54	54	72	69	36	9
50	175	42	33	200	110	0.5	G1/4	11.7	M6×15depth	4-M6×10depth	89	76×77	56	27	70	70	80	80	43.6	4
63	215	47.5	50	235	155	1.5	G3/8	25	M8×17depth	4-M8×14depth	123	102×102	50	36	78	78	106	106	62.5	14.5

End cover bracket (foot) for MCRPL / MCPRLF

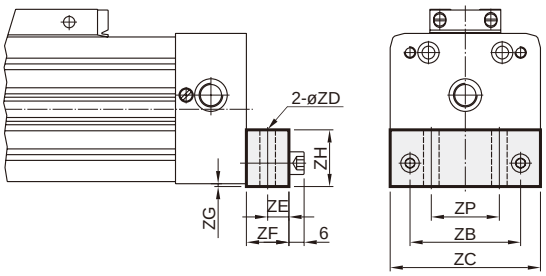
ø16, ø25
Material: Carbon steel



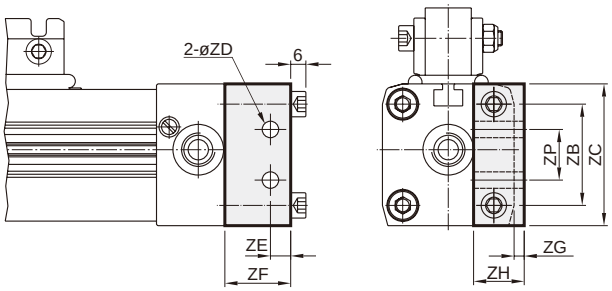
ø32, ø40
Material: Aluminum alloy



ø50, ø63
Material: Aluminum alloy



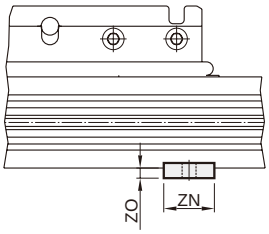
ø32*
Material: Aluminum alloy

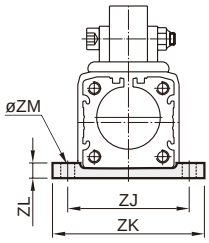


Code / Tube I.D.	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZP	Weight (g)	Order number
16	1.6	18	26	3.6	4	14	1.5	12.5	–	16	**PL 24/1**
25	2.5	27	40	5.5	6	22	2.5	18	–	55	**PL 24/2**
32	–	36	51	6.5	8	24	4	20	20	153	**PL 24/3**
32*	–	40	56	6.5	8	26	4	20	20	177	**PL 24/3.1**
40	–	54	71	9	11.5	24	2	20	30	198	**PL 24/4**
50	–	70	80	9	12.5	25	2	25	45	283	**PL 24/5**
63	–	78	106	11	15	30	2	40	48	715	**PL 24/6**

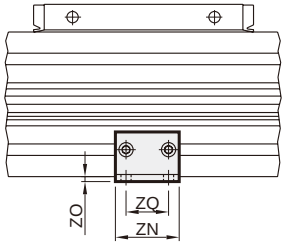
Mid section support for MCRPL / MCPRLF

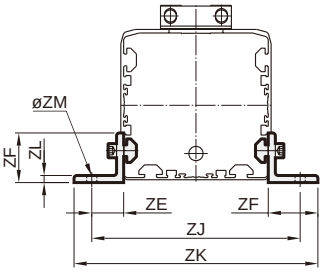
ø16, ø25
Material: Aluminum alloy



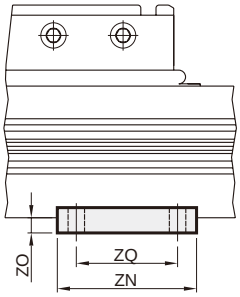


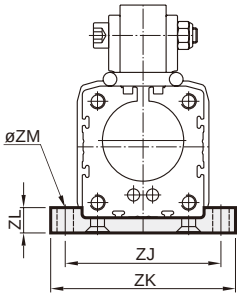
ø50, ø63
Material: Aluminum alloy





ø32, ø40
Material: Aluminum alloy



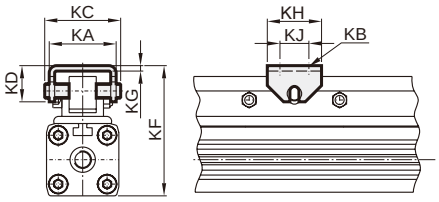


Code / Tube I.D.	ZE	ZF	ZJ	ZK	ZL	ZM	ZN	ZO	ZQ	Weight (g)	Order number
16	--	--	38	50	6	5.5	20	3	--	10	**PL 25/1**
25	--	--	48	60	6	5.5	20	4	--	12	**PL 25/2**
32	--	--	61	73	10	6.5	55	6	40	86	**PL 25/3**
40	--	--	70	85	10	6.5	60	(7.2)	45	119	**PL 25/4**
50	22.0	35	120	146	4.8	6.6	45	0.5	30	112	**PL 25/5**
63	22.5	35	147	172	4.8	6.6	45	3.5	30	121	**PL 25/6**

( ) Reference

Articulated carrier
The material of articulated carrier and pin: Carbon steel

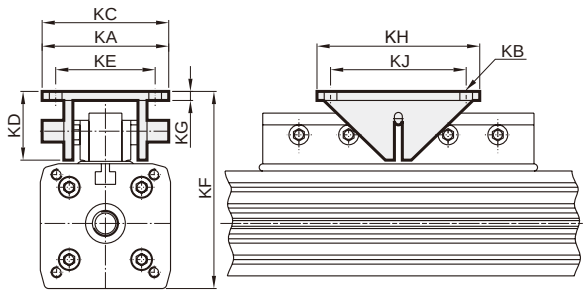
MCRPL ø16, ø25



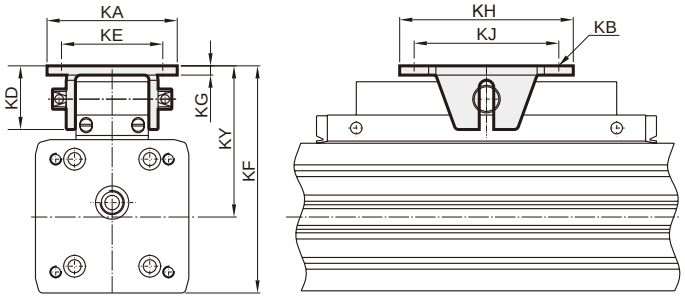
Code / Tube I.D.	KA	KB	KC	KD	KE	KF**	KG	KH	KJ	KY**	Weight (g)	Order number
MCRPL-16	25	4.5	28	13	–	47-50	2	20	10	33	36	**PL 225/1**
MCRPL-25	37	5.5	42	20	–	72-75	3	30	16	50	114	**PL 225/2**
MCRPL-32	70	6.5	70	38	55	91-100	5	90	75	102.3	450	**PL 225/3**
MCRPL-40	70	6.5	70	38	55	111-120	5	90	75	102	–	**PL 225/3**
MCRPLF-50	90	9	–	43.7	70	136-151	6.4	120	100	93-108	–	**PL 225/5**
MCRPLF-63	90	9	–	43.7	70	152	6.4	120	100	99	–	**PL 225/6**

** KF / KY dimension are variable within the length of the slot of the load friction.

MCRPL ø32, ø40



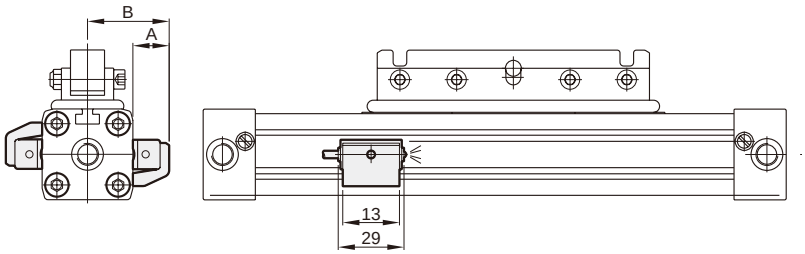
MCRPLF ø50, ø63



Sensor switch

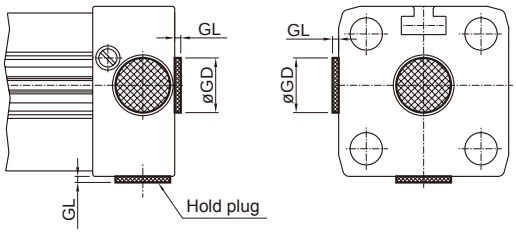
Specification

Model	RCAL
Switch type	Reed switch
Contracts	Normal open
Voltage range	DC/AC 5~240V
Current range	100 mA max.
Switch range	10W max.
Shock resistance	30 G
Voltage drop	2.5V max.
Response time	Max. 1ms
Temperature	-10~70°C
Lead wire	ø4, 2C, PVC
Lead wire length	2 m
Indicator lamp	LED lights up when ON
Enclosure classification	IP 67 (NEMA 6)
Indicator	Green LED



Code / Tube I.D.	A	B	Switch holder
16	16	29.5	HPL
25	15.5	35.5	
32	15.5	41.5	
40	10.5	46.5	
50	16.5	56	
63	15.5	68.5	

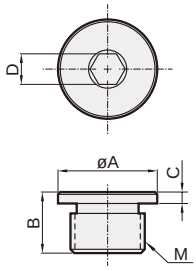
Hold plug



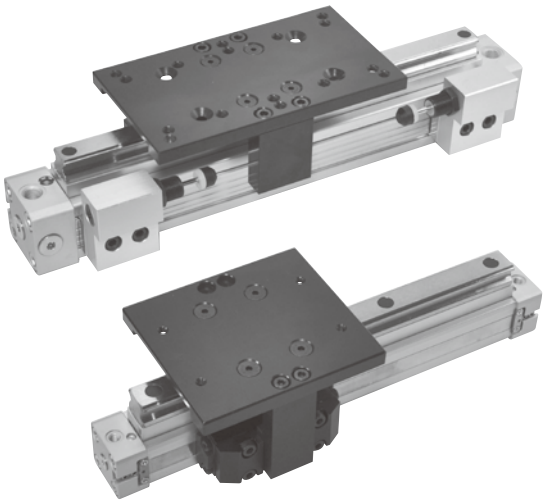
Code / Tube I.D.	GL	GD
16	0.7	7.5
25	1.0	13
32	0.7	18
40	0.7	18
50	0.8	18

Note. The dimension of end cap which lock hold plug.

Hold plug



Code / Tube I.D.	A	B	C	D	E
16	7.5	5.3	1.3	2	M5×0.8
25	13	8	1.5	4	G 1/8
32~50	18	10	1.5	4	G 1/4



Features

- 50% space saving when compared to conventional cylinders.
- End caps with 3 air connections and adjustable cushioning.
- Load strength is higher than MCRPLF series (about 4 Multiple).
- Magnetic as standard.

Specification

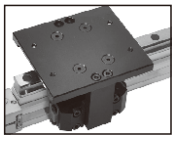
Model	MCRPLK			
Acting type	Double acting			
Tube I.D.(mm)	16	25	32	40
Port size	M5	G1/8	G1/4	G1/4
No. of port	3			
Medium	Air			
Operating pressure range	0.1~0.78 MPa			
Ambient temperature	-10°C ~ +80°C (No freezing)			
Lubrication	With or without lubrication			
Cushion	With adjustable cushion at both ends			
Stroke range (*1)	ø16: 100~3300 mm			
	ø25~40: 100~3600 mm			
Sensor switch	RCAL (Please refer to page 6-9)			
Sensor switch Holder	HPL			

* 1. Minimum stroke unit 1mm.
* 2. The tube isn't airtight, so the cylinder is allowed little leakage.
Before the cylinder is sale, it has passed the standard of leakage test.

Order example

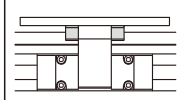
MCRPLK — D — 25 — 0850 — L V S — 24/2

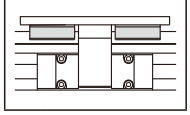
Model
MCRPLK



Slider

—	Single slider
D	Dual slider





* D-type is not suitable for ø16.

Tube I.D.

16
25
32
40

Stroke

0100~3600 mm (4 codes)

Absorber (*1)

—	Without absorber
L	Light
M	Medium
H	Powerful

Piston seals

—	NBR (for piston speeds V < 1 m/s)
V	VITON (for piston speeds V ≥ 1m/s)

Grease lubrication

—	Standard
S	Slow motion grease *

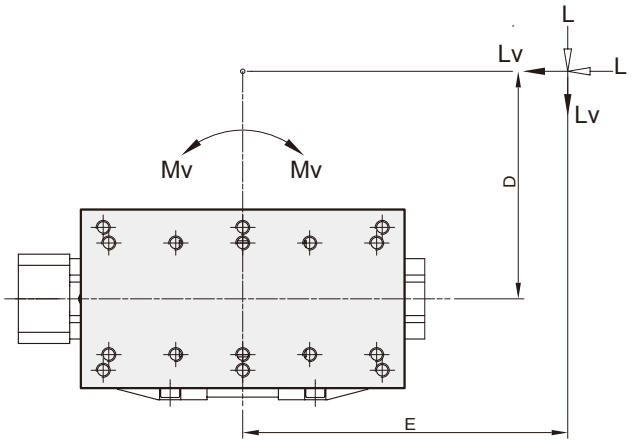
* NBR piston seals: V ≤ 0.1 m/s
VITON piston seals: V ≤ 0.2 m/s

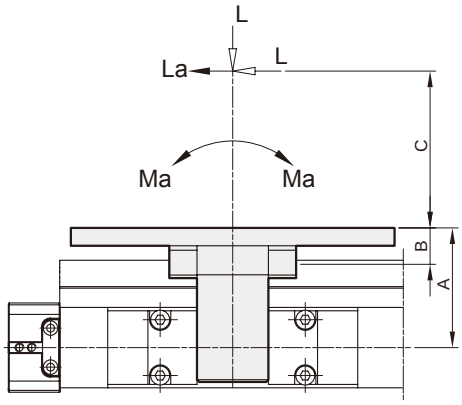
Accessory
* Please refer to 6-13 page code.

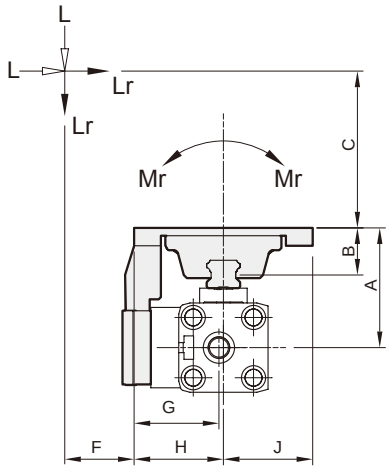
*1. Shock absorber

Model	Shock absorber			
	Model	L	M	H
MCRPLK-16	MAC-1005-	1	2	3
MCRPLK-25	MAC-1210-	1	2	3
MCRPLK-32	MAC-1412-	1	2	3
MCRPLK-40	MAC-1412-	1	2	3

* Please refer to 8-33 page code.







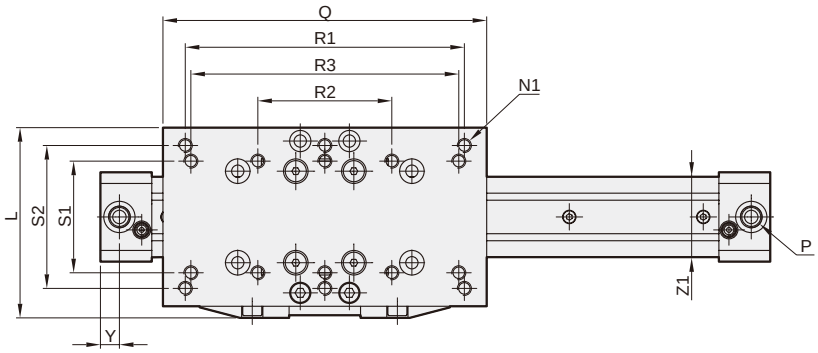
Forces and moments

Tube I.D. / Code			16	25	32	40
Effect forces F		(N)	110	250	420	640
Cushioning		(mm)	15	21	26	32
A		(mm)	48.2	53.2	64	69
B		(mm)	21	21	24.4	24.4
C / D / E / F		(mm)	Dimensions according			
G		(mm)	38	38	55	54.5
H		(mm)	40	40	57.5	57.5
J		(mm)	40	40	57.5	57.5
Single slider	Load forces	L(N)	500	1500	2950	3960
	Moment forces	La, Lr, Lv (N)	500	1500	2950	3960
	Axial moments	Ma (Nm)	4	40	61	115
	Radial moments	Mr (Nm)	6	14	30	52
	Torsion moments	Mv (Nm)	11	40	62	70
Dual slider	Load forces	L (N)	—	1550	3020	4030
	Moment forces	La, Lr, Lv (N)	—	1550	3020	4030
	Axial moments	Ma (Nm)	—	85	85	130
	Radial moments	Mr (Nm)	—	20	45	65
	Torsion moments	Mv (Nm)	—	80	90	100

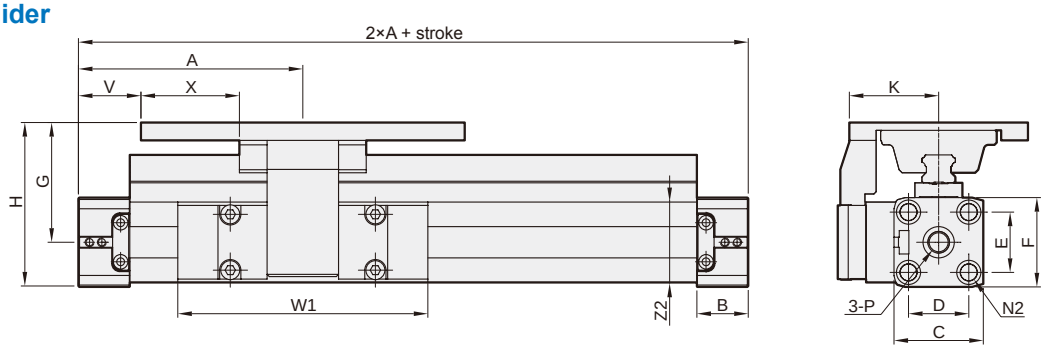
1. The above mentioned moments (Ma max, Mr max, Mv max.) are related to the guide rail center. The load force (L) is the summary of all single forces related to the common center of the mass. The center of the mass can be placed inside or outside the surface area of the carriage.
2. Normally the carriage would experience a dynamic load, which has to be considered with the calculation of needed piston force (F) and capacity of the ball guided system.

Use the following calculation formula:

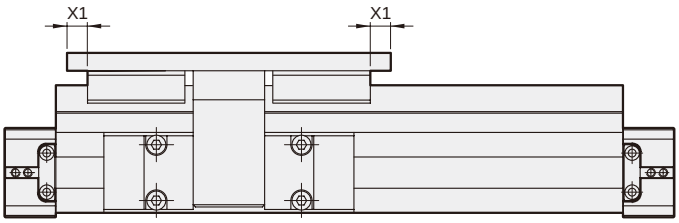
$$\frac{Ma}{Ma\ max.} + \frac{Mr}{Mr\ max.} + \frac{Mv}{Mv\ max.} + \frac{L}{L\ max.} \leq 1$$



Single slider

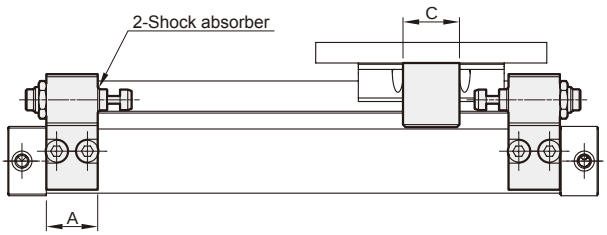


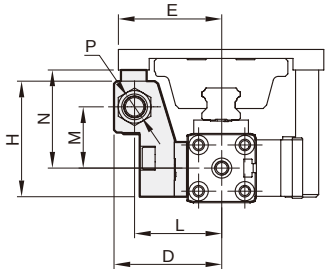
Dual slider



Code / Tube I.D.	A	B	C	D	E	F	G	H	K	L	N1	N2	P	Q	R1	R2
16	65	15	27	18	18	27	48.2	61.7	40	80	M4×0.7 thru	M3×0.5×7 dp	M5	90	–	–
25	100	23	40	27	27	40	53.2	73.2	40	85	M6×1.0 thru	M5×0.8×12 dp	G1/8	145	125	60
32	125	27	56	40	36	52	64	90.0	57.5	115	M8×1.25×12.5 dp	M6×1.0×15 dp	G1/4	190	164	–
40	150	30	69	54	54	72	69	105.0	57.5	115	M8×1.25×12.5 dp	M6×1.0×15 dp	G1/4	190	164	–

Code / Tube I.D.	R3	S1	S2	V	W1	X	X1	Y	Z1×Z2
16	70	36	–	20	69	16.5	–	5.5	25×24.5
25	120	50	64	28	112	44.0	13.5	8.5	36×36
32	–	–	96	30	152	64.3	16.8	10.5	48×52
40	–	–	96	55	152	64.3	16.8	16.0	58×58

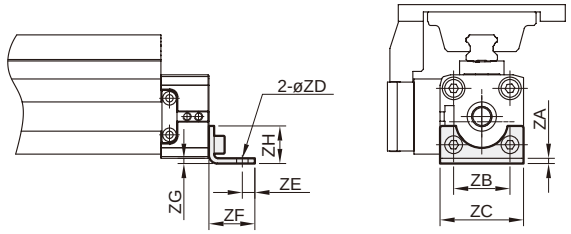




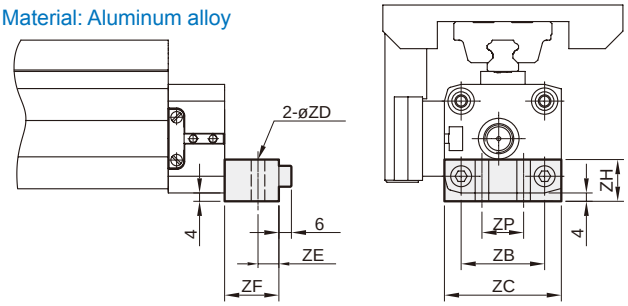
Code / Tube I.D.	A	C	D	E	H	L	M	N	P
16	20	22	42	40	45	34	23.8	38.2	M10×1.0
25	35	32	44.7	40	45	33.7	24.35	43.7	M12×1.0
32,40	40	60	54.7	57.5	45	43.7	26.35	41.11	M14×1.5

End cover bracket (foot)

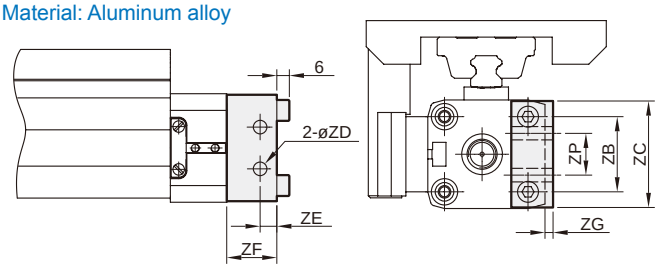
ø16, ø25
Material: Carbon steel



ø32*
Material: Aluminum alloy



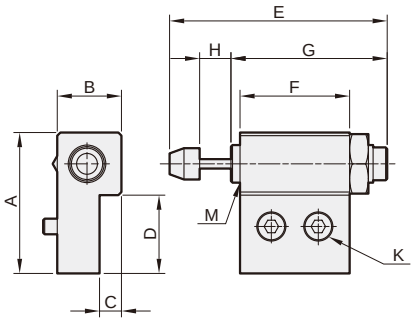
ø32, ø40
Material: Aluminum alloy



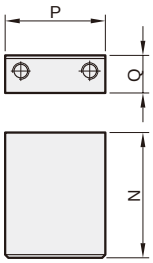
Code / Tube I.D.	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZP	Order number
16	1.6	18	26	3.6	4	14	1.5	12.5	--	**PL 24/1**
25	2.5	27	40	5.5	6	22	2.5	18	--	**PL 24/2**
32	--	36	51	6.5	8	24	4	20	20	**PL 24/3**
32*	–	40	56	6.5	8	26	4	20	20	**PL 24/3.1**
40	–	54	71	9	11.5	24	2	20	30	**PL 24/4**

Absorber group

Body fixed group
Material: Aluminum alloy



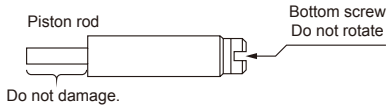
Stop block
Material: Aluminum alloy



With shock absorber

❶ **Do not rotate the screw set on bottom of shock absorber.**
This is not the screw for adjusting. If this screw is rotated, it may cause oil leakage.

❷ **Do not scratch the exposed portion of the piston rod.**
Decrease in life or malfunction may result.



❸ **Shock absorber is considered a consumable component. When energy absorption is decreased, replace it.**

Code / Tube I.D.	Body fixed group										Stop block		
	A	B	C	D	E	F	G	H	K	M	N	P	Q
16	45	23.5	10	25	41.2	20	31.7	5	M5×12L	M10×1.0	25	22	10
25	45	20.5	7	25	69.5	35	49.9	10	M5×12L	M12×1.0	40	32	12
32, 40	45	20.5	7	25	98.7	40	76	12	M5×12L	M14×1.5	40	60	20

Model	Shock absorber			
	Model	L	M	H
MCRPLK-16	MAC1005-	1	2	3
MCRPLK-25	MAC1210-	1	2	3
MCRPLK-32	MAC1412-	1	2	3
MCRPLK-40	MAC1412-	1	2	3

Features

- High resistance to wear.
- Ability to take high loads & moments in all directions.
- Low weight.
- Ability to take shock loadings and vibrations against blows and vibrations.

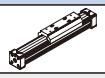
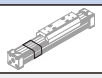
Specification

Model	MCRPLS			
Acting type	Double acting			
Tube I.D. (mm)	32	40	50	63
Port size	G1/4			G3/8
No. of port	3			
Medium	Air			
Operating pressure range	0.05~0.8 MPa			
Stroke range	100~5700 mm (*1)			
Ambient temperature	-10~+80°C (No freezing)			
Lubrication	With or without lubrication			
Cushion	With adjustable cushion at both ends			
Sensor switch	RCAL (Please refer to page 6-9)			
Sensor switch holder	HPL			

*1. In increments of 1mm, long strokes on request.
*2. The tube isn't airtight, so the cylinder is allowed the leakage.
Before the cylinder is sale, it has passed the standard of leakage test.

Cylinder weight

Unit: g

Model	Basic weight **MCRPLS**	Stroke 100 mm **MCRPLS**
Tube I.D.		
ø32	2,160	379
ø40	3,880	594
ø50	5,400	648
ø63	10,840	1,182

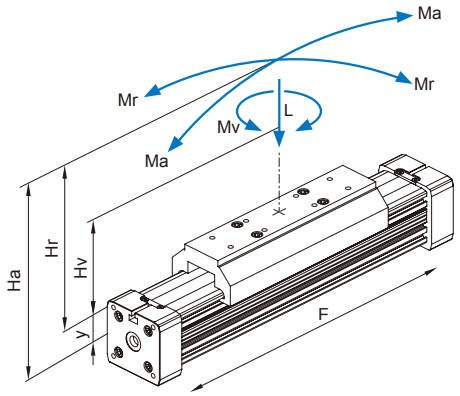
Order example

MCRPLS — 90 V — 32 — 0850 — S — PL 24/2

Model	Type	Piston seals	Tube I.D.	Stroke	Grease lubrication	Accessory
	90 Standard type	— NBR (for piston speeds V<1 m/s) **V** VITON (for piston speeds V ≥ 1 m/s)	**32** **40** **50** **63**	**0100~5700** mm (4 code)	— Standard grease (*1) **S** Slow motion grease (*2)	* Refer to 6-7 page code. Use the same accessory with **MCRPL***.

*1. NBR piston seals: 0.2 m/s ≤ V < 1 m/s
VITON piston seals: 1 m/s ≤ V
*2. NBR piston seals: V < 0.2 m/s
VITON piston seals: V < 0.2 m/s

Forces and moments



Formulas

Ma = F × Ha
Mr = F × Hr
Mv = F × Hv

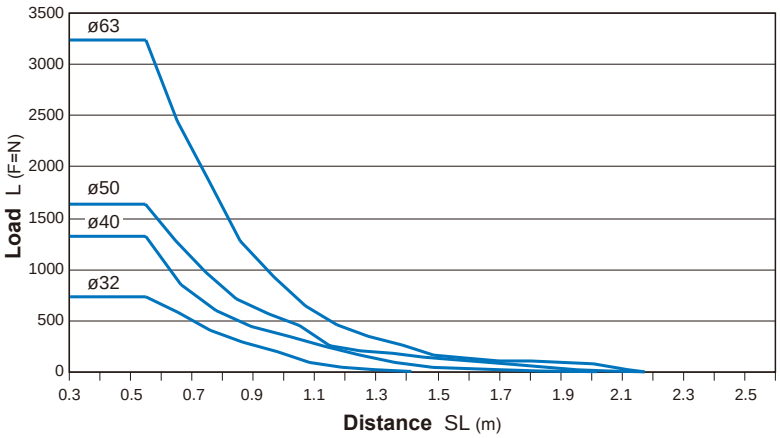
Cylinder ø	Effect force (N) 0.6 MPa	La,Lr,Lv max (N)	Ma max.(Nm)	Mr max.(Nm)	Mv max.(Nm)
32	420	495	35	10	35
40	640	825	75	20	75
50	1000	1320	170	58	170
63	1550	1815	305	95	305

- The above mentioned moments (Ma max, Mr max, Mv max.) are related to the guide rail center. The load force (L) is the summary of all single forces related to the common center of the mass. The center of the mass can be placed inside or outside the surface area of the carriage.
- Normally the carriage would experience a dynamic load, which has to be considered with the calculation of needed piston force (F) and capacity of the guided system. Use the following calculation formular.

$$\frac{Ma}{Ma\ max.} + \frac{Mr}{Mr\ max.} + \frac{Mv}{Mv\ max.} + \frac{L}{L\ max.} \leq 1$$

Deflection diagram

- Max. distance (SL) in m ─ for ø32~63mm



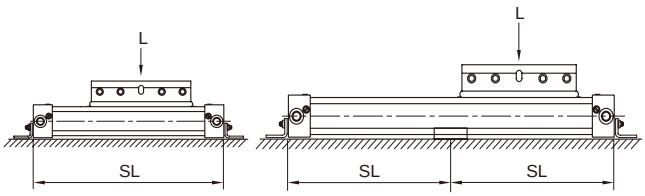
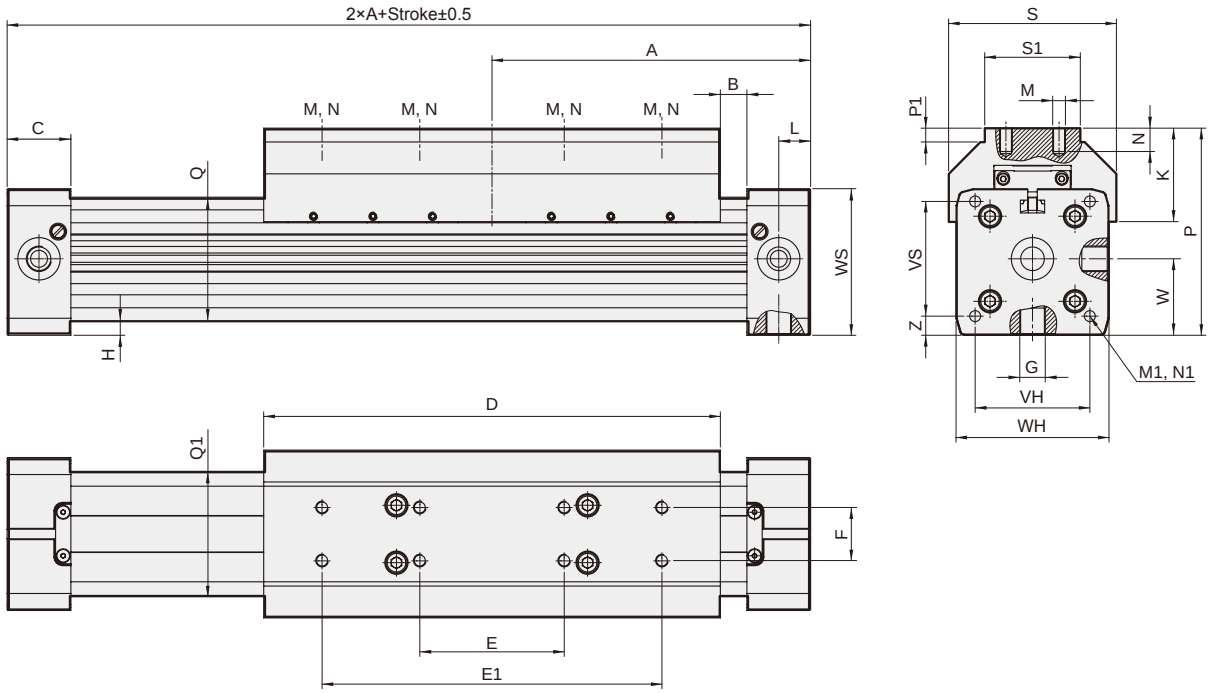


Diagram information

- Calculated deflections without support of 0.5~1 mm allow exceeding of supporting distance.
- Calculated deflections without support of 1 mm ~ max. 1.5 mm require reduction of the supporting distance.



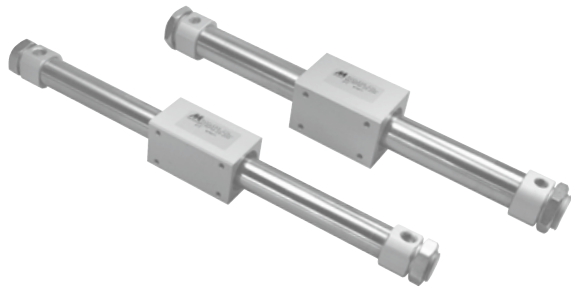
Code / Tube I.D.	A	B	C	D	E	E1	F	G	H	K	L	M	N	M1	N1
32	125	22.0	27	152	60	120	25	1/4	2.0	42.5	10.5	M5	10	M6	14
40	150	12.5	30	215	68	160	25	1/4	7.0	44.0	15.0	M8	10	M6	17
50	175	17.5	33	250	84	190	25	1/4	0.5	48.5	11.7	M8	10	M6	18
63	215	5.0	50	320	120	240	25	3/8	1.5	56.0	25.0	M8	14	M8	18

Code / Tube I.D.	P	P1	Q×Q1	S	S1	VH	VS	W	WH	WS	Z
32	81.5	6.5	52×51	66	40	36	40	30.0	52	56	8.0
40	97.5	6.5	58.5×59	79	45	54	54	36.0	72	69	9.0
50	110.0	6.5	77×78	92	50	70	70	43.5	80	80	4.0
63	137.0	5.0	102×102	116	50	78	78	62.5	106	106	14.5

MCRPM series

MAGNETICALLY COUPLED **RODLESS CYLINDER**

mindman



Features

- 50% space saving.
- Magnetic transit design. Magnetic force transits the movement with piston side magnet and slider magnet.
- Stainless tube, light weighted and durable.
- All series are without switch types.

Specification

Model	MCRPM					
Acting type	Double acting					
Tube I.D. (mm)	10	15	20	25	32	40
Port size	M5×0.8		Rc1/8			Rc1/4
Medium	Air					
Max. operating pressure	0.7 MPa					
Min. operating pressure	0.18 MPa					
Proof pressure	1 MPa					
Ambient temperature	+5°C ~+60°C					
Lubricator	Without lubrication					
Available speed range	Standard grease: 100~500 mm/sec					
	Slow motion grease: 50~100 mm/sec (*)					
Holding force (N)	53.9	137	231	363	588	922

* Between the speed range limit the actuator stroke must not exceed to 2m/minute.

Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke	
		Pad	Air
ø10	100 ~ 500	500	–
ø15		900	900
ø20	100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1500	1000
ø25		2000	1000
ø32, 40		2000	900

* Minimum stroke unit 1mm.

Order example

MCRPM — 20 — 100 — A S — □

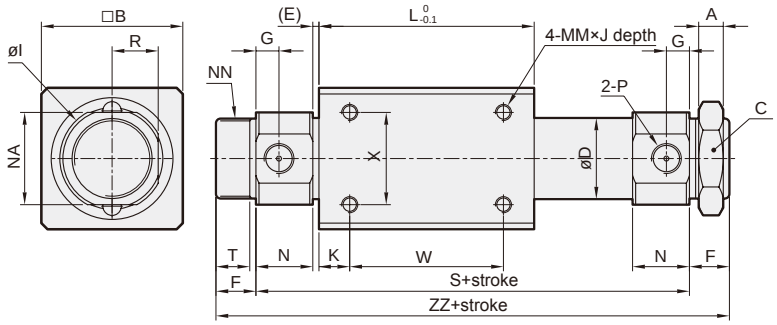
- MODEL
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable)
  A: Cushion air (Adjustable) (for ø15~ø40)
- GREASE LUBRICATION
  Blank: Standard
  S: Slow motion grease
- PORT THREAD
  Blank: M5×0.8 (for ø10, ø15)
  Blank: Rc thread
  G: G thread
  NPT: NPT thread (for ø20~ø40)

Cylinder weight

Unit: g

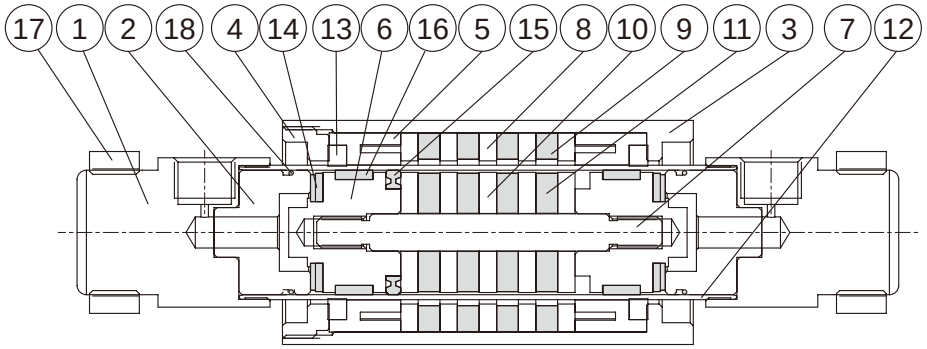
Model	Basic weight **MCRPM**	Stroke 100 mm **MCRPM**
Tube I.D.		
ø10	92	27
ø15	232	32
ø20	413	43
ø25	657	46
ø32	1,177	66
ø40	1,996	83

Dimensions

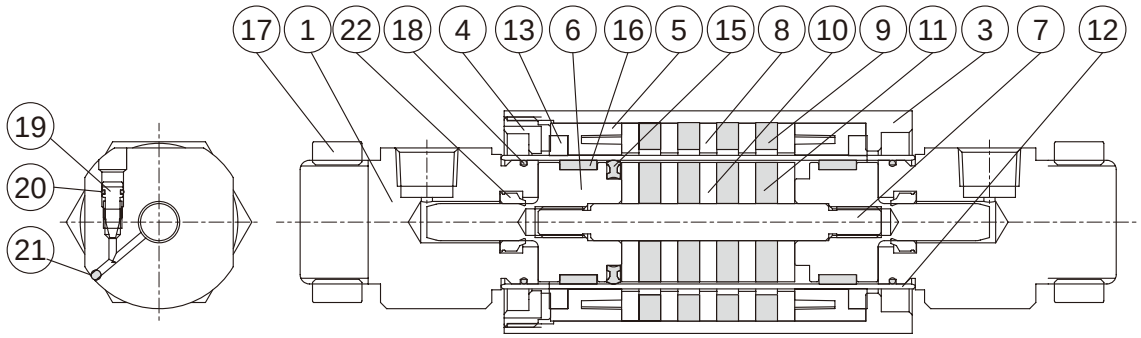


Code / Tube I.D.	A	B	C	D	E	F	G	I	J	K	L	MM	N	NA	NN	R	S	T	W	X	ZZ	P
10	4	25	14	12	1.5	9	5	16	4.5	4	38	M3×0.5	11	14	M10×1.0	7	63	7.5	30	16	81	M5×0.8
15	4	35	14	16.6	2	10	5.5	22	5	11	57	M4×0.7	11	20	M10×1.0	10	83	8.5	35	19	103	M5×0.8
20	8	36	26	21.6	2	13	7.5	28	6	8	66	M4×0.7	18	24	M20×1.5	12	106	10.5	50	25	132	Rc1/8
25	8	46	32	26.4	2	13	7.5	34	8	10	70	M5×0.8	18.5	30	M26×1.5	15	111	10.5	50	30	137	Rc1/8
32	8	60	32	33.6	2	16	8	40	8	15	80	M6×1.0	20	36	M26×1.5	18	124	14	50	40	156	Rc1/8
40	10	70	41	41.6	3	16	11	50	10	16	92	M6×1.0	26	46	M32×2.0	23	150	13	60	40	182	Rc1/4

Cushion pad Unadjustable



Cushion air Adjustable



Material

No.	Cushion Air	Cushion Pad	Part name	Material	Note
1	●	●	Cover	Aluminum alloy	Anodized
2		●	End collar	Aluminum alloy	*1
3	●	●	Slider body	Aluminum alloy	Anodized
4	●	●	Body cover	Aluminum alloy	Anodized
5	●	●	Body wear ring	POM	
6	●	●	Piston	Aluminum alloy	
7	●	●	Shaft	Stainless steel	
8	●	●	Slider side yoke	Carbon steel	Ni plated
9	●	●	Slider side magnet	Magnet material	Ni plated
10	●	●	Piston side yoke	Carbon steel	Ni plated
11	●	●	Piston side magnet	Magnet material	Ni plated

*1. ø10, ø15 without end collar.

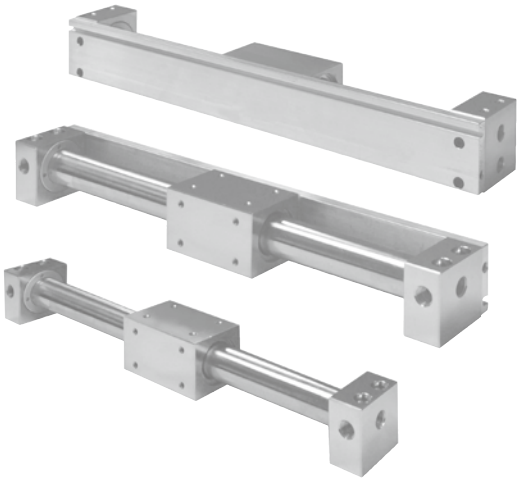
No.	Cushion Air	Cushion Pad	Part name	Material	Note
12	●	●	Tube	Stainless steel	
13	●	●	Lub-retainer	Special resin	
14		●	Cushion	NBR	
15	●	●	Piston seal	NBR	
16	●	●	Wear ring	POM	
17	●	●	Cover nut	Carbon steel	Ni plated
18	●	●	O ring	NBR	
19	●		Needle valve	*2	
20	●		O ring	NBR	
21	●		Steel ball	Stainless steel	
22	●		Cushion	NBR	

*2. Material: ø15,ø20,ø25 Stainless steel;
ø32,ø40 Carbon steel.

MCRPMD series

MAGNETICALLY COUPLED **RODLESS CYLINDER**

mindman



Features

- 50 % space saving.
- Magnetic transit design. Magnetic force transits the movement with piston side magnet and slider magnet.
- Stainless tube, light weighted and durable.

Specification

Model	MCRPMD				
Acting type	Double acting				
Tube I.D. (mm)	10	15	20	25	32
Port size	M5×0.8		Rc1/8		
Medium	Air				
Max. operating pressure	0.7 MPa				
Min. operating pressure	0.18 MPa				
Proof pressure	1 MPa				
Ambient temperature	+5°C ~ +60°C				
Lubricator	Without lubrication				
Available speed range	Standard grease: 100~500 mm/sec				
	Slow motion grease: 60~100 mm/sec (*1)				
Holding force	53.9 N	137 N	231 N	363 N	588 N
Sensor switch (*2)	RDFE	RCE, RCE1			

*1. Between the speed range limit the actuator stroke must not exceed to 2m/minute.
*2. RCE, RCE1, RDFE specifications, please refer to page 8-11, 12, 18.
*3. Input air-port needs at speed control valves to control speed.

Table for standard stroke

Type	Tube I.D.	Stroke (mm)	Max. stroke
Standard **G** type	ø10	100, 150, 200, 250, 300, 400, 500	500
	ø15		700
	ø20 ø25 ø32	100, 150, 200, 250, 300, 350, 400 450, 500, 600, 700, 800	1000
N type	ø10	100, 150, 200, 250, 300, 400, 500	500
	ø15		1000
	ø20	100, 150, 200, 250, 300, 350, 400	1500
	ø32	450, 500, 600, 700, 800	2000

* Minimum stroke unit 1mm.

Order example

MCRPMD — G — 20 — 100 — A S — G

MODEL

TYPE

Code		Port location	Magnets & switch rail
Blank		Standard	○
N		Standard	×
G		Centralized piping	○

TUBE I.D.

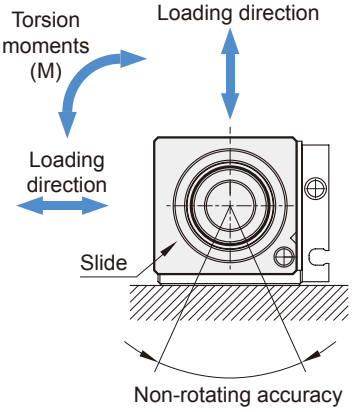
STROKE

GREASE LUBRICATION
Blank: Standard
S: Slow motion grease

Blank: Cushion pad (Unadjustable)
A: Cushion air (Adjustable)
(Only for ø15~ø32 and standard piping)

PORT THREAD
Blank: M5×0.8
(for ø10, 15)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø20~ø32)

Maximum allowable directly load



Tube I.D.	Max. allowable load (kg)	Non-rotating accuracy	Max. torsion moments	Non-rotating accuracy Allowable stroke
ø10	0.4	5°	0.05 N.m	100 mm
ø15	0.9	5°	0.18 N.m	200 mm
ø20	1.1	4°	0.23 N.m	300 mm
ø25	1.1	4°	0.40 N.m	300 mm
ø32	1.5	4°	0.12 N.m	400 mm

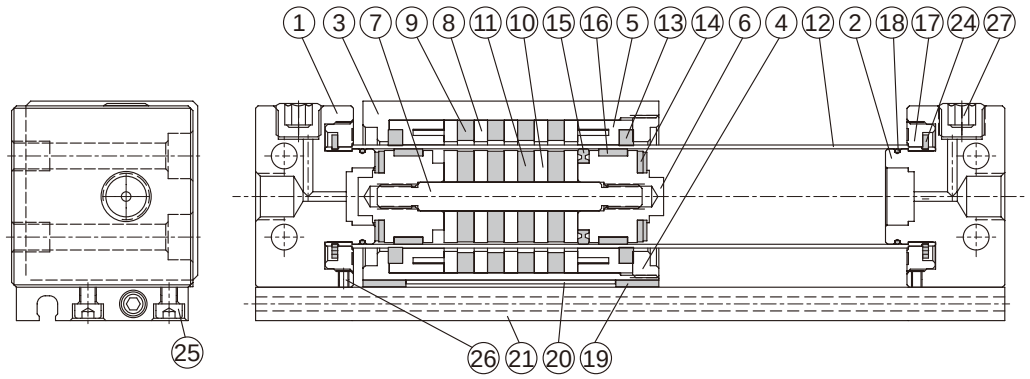
* Non-rotating angle accuracy will be reduced by distortion due to longer stroke and switch rail.

Cylinder weight

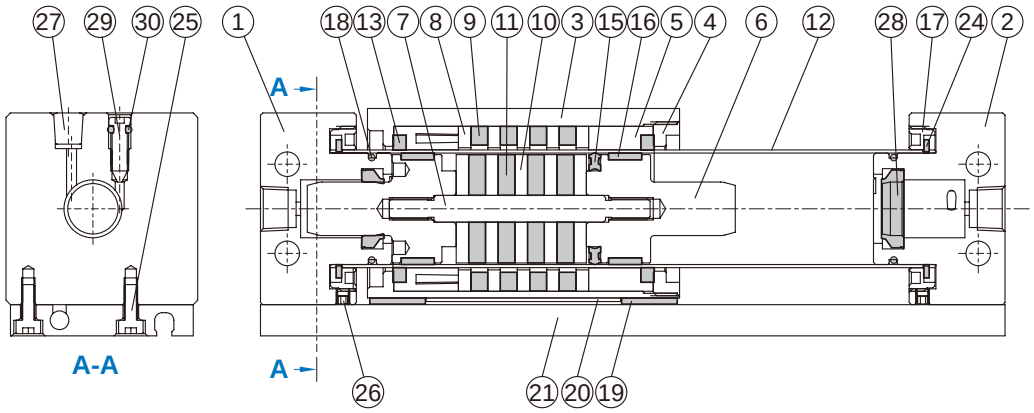
Unit: g

Model	Basic weight **MCRPMD**	Stroke 100 mm **MCRPMD**
Tube I.D.		
ø10	163	67
ø15	302	80
ø20	520	102
ø25	712	115
ø32	1235	150

Cushion pad Unadjustable



Cushion air Adjustable

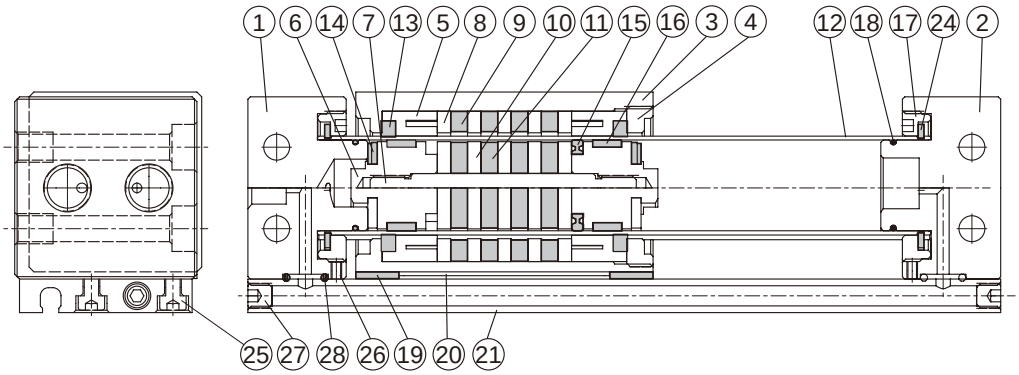


Material

No.	Part name	Material
1	Cover A	Aluminum alloy
2	Cover B	Aluminum alloy
3	Slider body	Aluminum alloy
4	Body cover	Aluminum alloy
5	Body wear ring	POM
6	Piston	Aluminum alloy
7	Shaft	Stainless steel
8	Slider side yoke	Carbon steel
9	Slider side magnet	Magnet material
10	Piston side yoke	Carbon steel
11	Piston side magnet	Magnet material
12	Tube	Stainless steel
13	Lub-retainer	Special resin
14	Cushion	NBR
15	Piston seal	NBR

No.	Part name	Material
16	Wear ring	POM
17	Tube fixed nut	Aluminum alloy
18	O-ring	NBR
19	Wear ring	POM
20	Magnetic shielding plate	Carbon steel
21	Switch rail	Aluminum alloy
22	Magnet	Magnet material
23	Spring	Stainless steel
24	Snap ring	Spring steel
25	Bolt	SCM
26	Screw	SCM
27	Seal screw	Carbon steel
28	Cushion packing	NBR
29	Needle valve	Stainless steel
30	Needle valve packing	NBR

Centralized piping

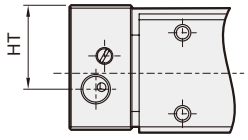


Material

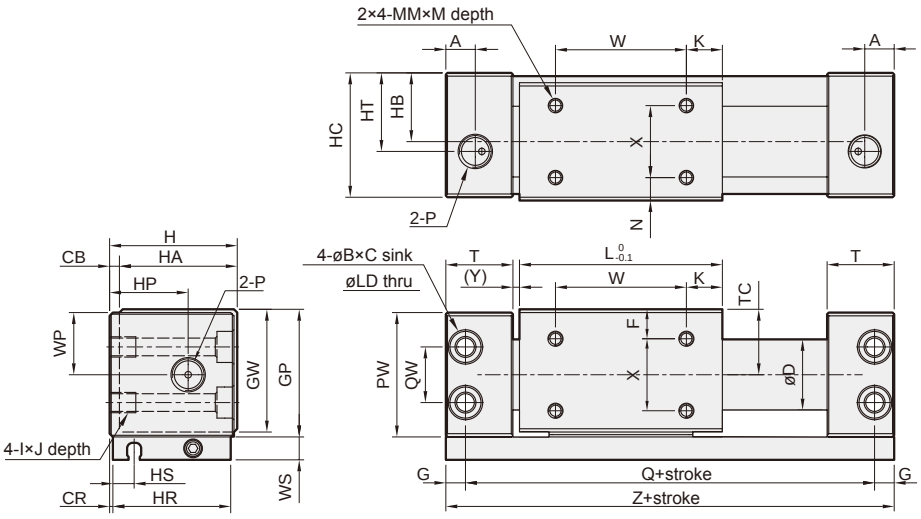
No.	Part name	Material
1	Cover A	Aluminum alloy
2	Cover B	Aluminum alloy
3	Slider body	Aluminum alloy
4	Body cover	Aluminum alloy
5	Body wear ring	POM
6	Piston	Aluminum alloy
7	Shaft	Stainless steel
8	Slider side yoke	Carbon steel
9	Slider side magnet	Magnet material
10	Piston side yoke	Carbon steel
11	Piston side magnet	Magnet material
12	Tube	Stainless steel
13	Lub-retainer	Special resin
14	Cushion	NBR
15	Piston seal	NBR
16	Wear ring	POM
17	Tube fixed nut	Aluminum alloy
18	O-ring	NBR
19	Wear ring	POM
20	Magnetic shielding plate	Carbon steel
21	Switch rail	Aluminum alloy
22	Magnet	Magnet material
23	Spring	Stainless steel
24	Snap ring	Spring steel
25	Bolt	SCM
26	Screw	SCM
27	Screw	SCM
28	O-ring	NBR

Both sides piping

Adjustable cushion



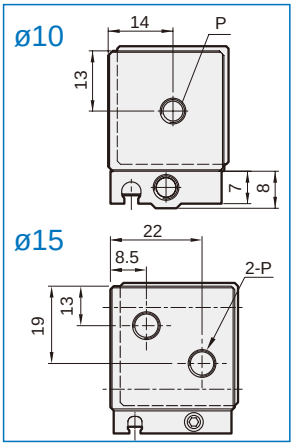
Code / Tube I.D	HT
15	10
20	24
25	29
32	35

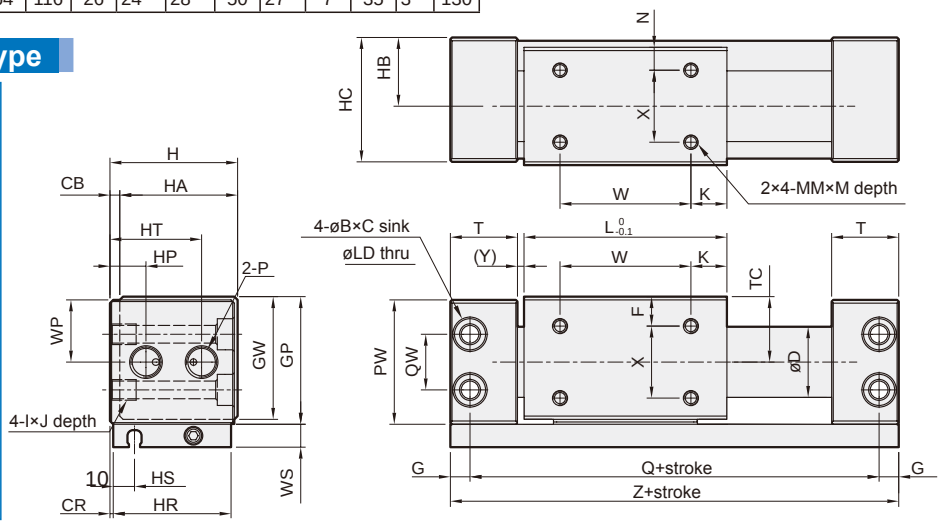


Code / Tube I.D	A	B	C	CB	CR	D	F	G	GP	GW	H	HA	HB	HC	HP	HR	HS	HT	I	J	K	L	LD	M
10	8.5	6.5	3.2	2	0.5	12	6.5	4	27	25.5	26	24	13	25	14	24	4.5	14	M4×0.7	6	9	38	3.3	4.5
15	9.5	8	4.2	2	0.5	16.6	8	5	33	31.5	32	30	17	31	17	30	4.9	17	M5×0.8	7	14	53	4.3	5
20	9	9.5	5.2	3	1	21.6	9	6	39	37.5	39	36	21	38	24	36	6.5	24	M6×1.0	8	11	62	5.4	5
25	9	9.5	5.2	3	1	26.4	8.5	6	44	42.5	44	41	23.5	43	23.5	41	6.5	23.5	M6×1.0	8	15	70	5.4	6
32	10.5	11	6.5	3	1.5	33.6	10.5	7	55	53.5	55	52	29	54	29	51	6	29	M8×1.25	10	13	76	6.8	7

Code / Tube I.D	MM	N	P	PW	Q	QW	T	TC	W	WP	WS	X	Y	Z
10	M3×0.5	4.5	M5×0.8	26	68	14	17.5	14	20	13	7	15	1.5	76
15	M4×0.7	6	M5×0.8	32	84	18	19	17	25	16	7	18	1.5	94
20	M4×0.7	7	Rc1/8	38	95	17	20.5	20	40	19	7	22	2	107
25	M5×0.8	6.5	Rc1/8	43	105	20	21.5	22.5	40	21.5	7	28	2	117
32	M6×1.0	8.5	Rc1/8	54	116	26	24	28	50	27	7	35	3	130

Centralized piping type





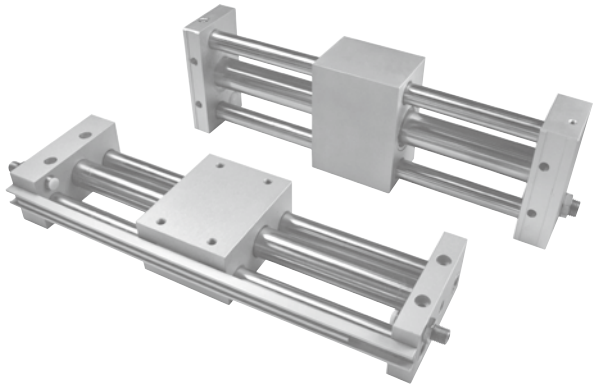
Code / Tube I.D	B	C	CB	CR	D	F	G	GP	GW	H	HA	HB	HC	HP	HR	HS	HT	I	J	K	L	LD	M
10	6.5	3.2	2	0.5	12	6.5	4	27	25.5	26	24	14	25	—	24	4.5	—	M4×0.7	6	9	38	3.3	4.5
15	8	4.2	2	0.5	16.6	8	5	33	31.5	32	30	17	31	—	30	4.9	—	M5×0.8	7	14	53	4.3	5
20	9.5	5.2	3	1	21.6	9	6	39	37.5	39	36	21	38	24	36	6.5	24	M6×1.0	8	11	62	5.4	5
25	9.5	5.2	3	1	26.4	8.5	6	44	42.5	44	41	23.5	43	23.5	41	6.5	23.5	M6×1.0	8	15	70	5.4	6
32	11	6.5	3	1.5	33.6	10.5	7	55	53.5	55	52	29	54	20	51	6	40	M8×1.25	10	13	76	6.8	7

Code / Tube I.D	MM	N	P	PW	Q	QW	T	TC	W	WP	WS	X	Y	Z
10	M3×0.5	4.5	M5×0.8	26	68	14	17.5	14	20	—	7	15	1.5	76
15	M4×0.7	6	M5×0.8	32	84	18	19	17	25	—	7	18	1.5	94
20	M4×0.7	7	Rc1/8	38	95	17	20.5	20	40	19	7	22	2	107
25	M5×0.8	6.5	Rc1/8	43	105	20	21.5	22.5	40	21.5	7	28	2	117
32	M6×1.0	8.5	Rc1/8	54	116	26	24	28	50	27	7	35	3	130

MCRPMS series

MAGNETICALLY COUPLED **RODLESS CYLINDER**

mindman



Features

- 50% space saving, centralized piping ease of mounting.
- Magnetic transit design. Magnetic force transits the movement with piston side magnet and slider magnet.
- Stainless tube, light weighted and durable.
- The overall design of the cylinder and guide rods, can direct bear loads.

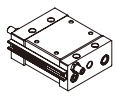
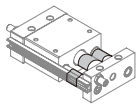
Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke
ø10	50, 100, 150, 200, 250, 300	500
ø15	50, 100, 150, 200, 250, 300, 350, 400, 450, 500	750
ø20	100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1000
ø25		1500
ø32		

* Minimum stroke unit 1mm.

Cylinder weight

Unit: g

Tube I.D.	Basic weight **MCRPMS**		Stroke 100 mm **MCRPMS**	
ø10		407		169
ø15		770		222
ø20		1360		342
ø25		1730		346
ø32		2980		520

Specification

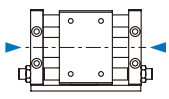
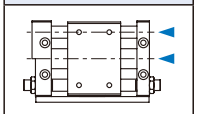
Model	MCRPMS				
Acting type	Double acting				
Tube I.D. (mm)	10	15	20	25	32
Port size	M5×0.8		Rc1/8		
Medium	Air				
Operating pressure range	0.2~0.7 MPa				
Proof pressure	1 MPa				
Ambient temperature	+5° ~ +60°C				
Lubricator	Without lubrication				
Available speed range	Standard grease: 150~400 mm/sec				
	Slow motion grease: 80~150 mm/sec(*2)				
Holding force	53.9 N	137 N	231 N	363 N	588N
Shock absorbers (*3)	MDSC-0806-3-N		MAC-1007-SN	MAC-1412-SN	MAC-2015-SN
Sensor switch	RCD (Please refer to page 8-10)				

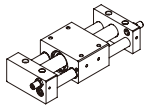
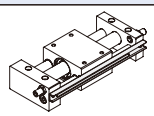
*1. Input air-port needs at speed control valves to control speed.
*2. Between the speed range limit the actuator stroke must not exceed to 2m/minute.
*3. Standard: bumper bolt, Option: shock absorber (speci. please refer to page 8-23, 33.)

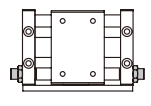
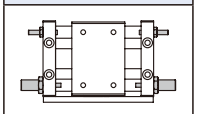
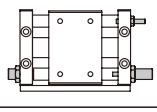
Order example

MCRPMS — G — 10 — 100M — B S — G

MODEL | TUBE I.D. | STROKE

PORT LOCATION
Blank: Bilateral piping

G: Centralized piping


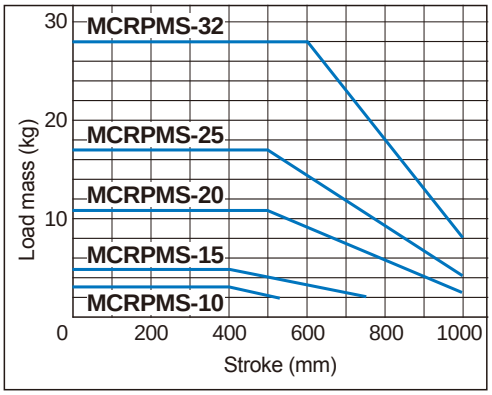
MAGNET
Blank: Without magnet

M: With magnet


CUSHION
Blank: Bumper bolt

B: Shock absorber

C: Shock absorber + Bumper bolt


PORT THREAD
Blank: M5×0.8
(Only for ø10, 15)
Blank: Rc thread
G: G thread
NPT: NPT thread
(Only for ø20~32)

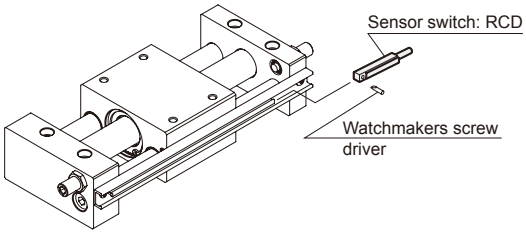
GREASE LUBRICATION
Blank: Standard
S: Slow motion grease

Maximum load mass

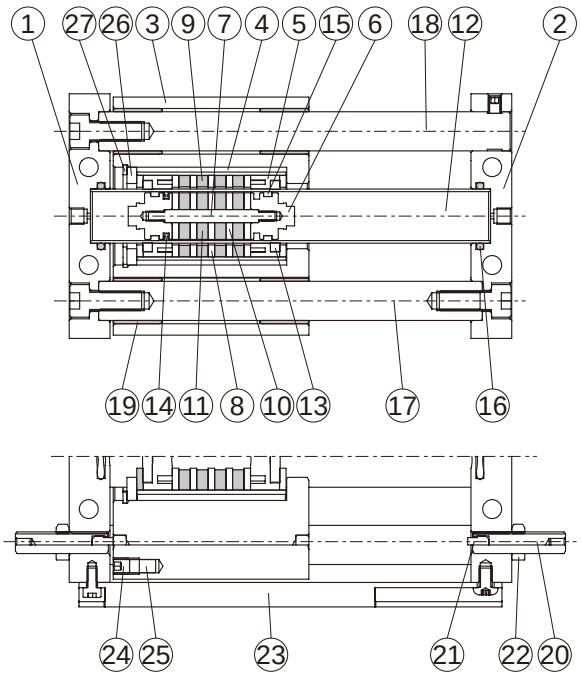


* Maximum load mass when horizontal mounting.

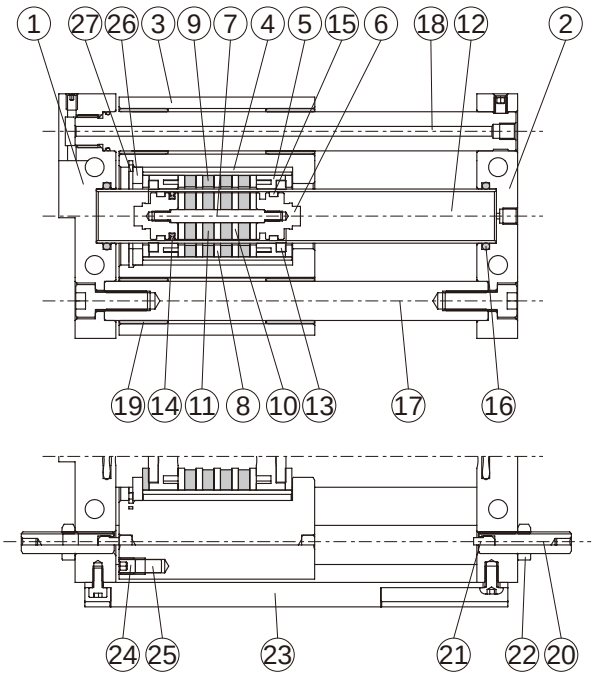
Installation of sensor switch



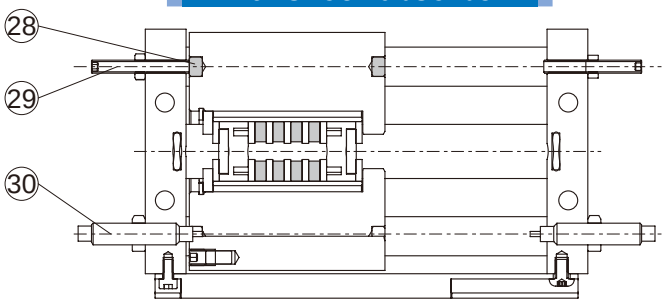
Bilateral piping



Centralized piping



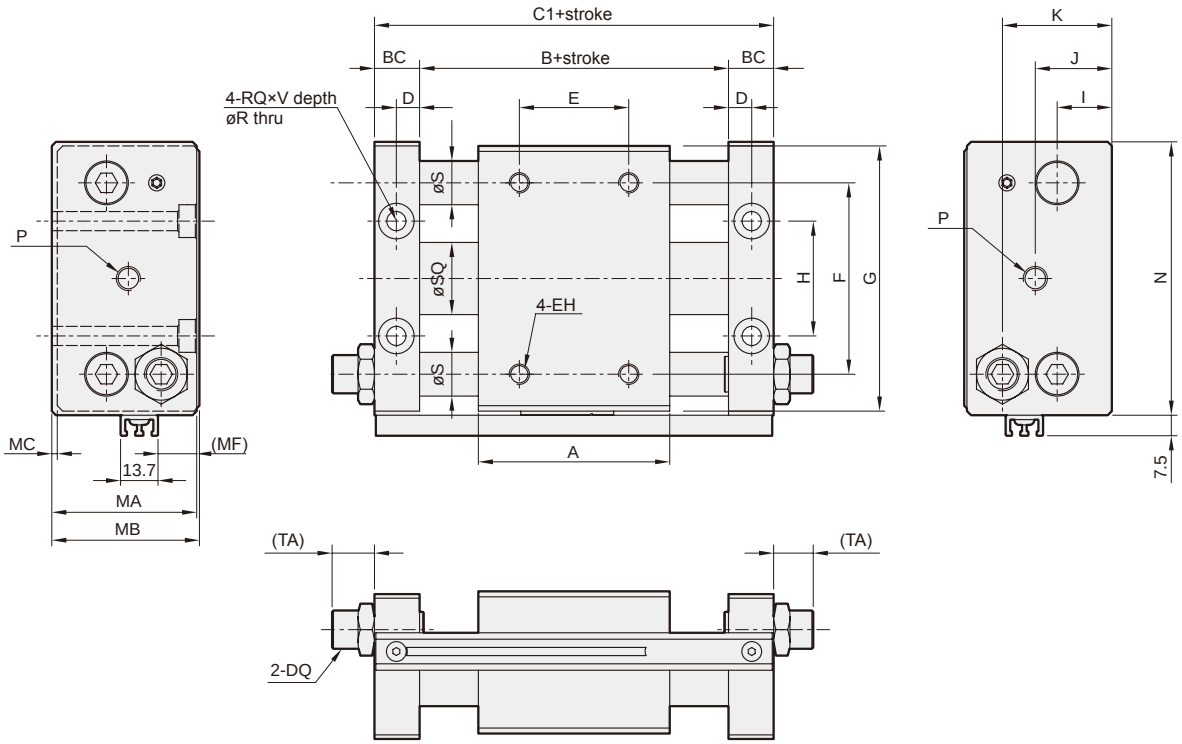
With shock absorber



Material

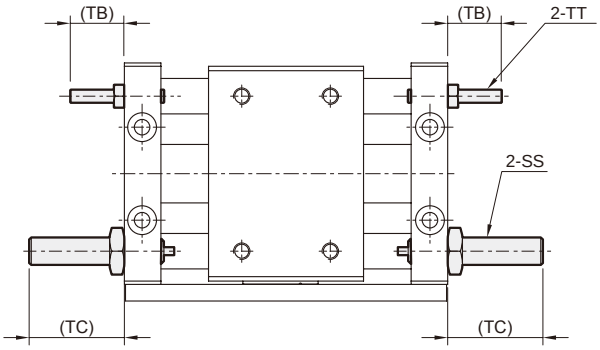
No.	Part name	Material	Note
1	Plate A	Aluminum alloy	Anodized
2	Plate B	Aluminum alloy	Anodized
3	Slider body	Aluminum alloy	Anodized
4	External slider tube	Aluminum alloy	
5	Body wear ring	POM	
6	Piston	Aluminum alloy	
7	Shaft	Stainless steel	
8	Slider side yoke	Carbon steel	
9	Slider side magnet	Magnet material	
10	Piston side yoke	Carbon steel	
11	Piston side magnet	Magnet material	
12	Tube	Stainless steel	
13	Lub-retainer	Special resin	
14	Piston seal	NBR	
15	Wear ring	POM	

No.	Part name	Material	Note
16	O-ring	NBR	
17	Guide shaft A	Carbon steel	
18	Guide shaft B	Carbon steel	
19	Bush	Copper	
20	Adjusting bolt	Carbon steel	
21	Cushion	PU	
22	Bolt	Carbon steel	
23	Switch rail	Aluminum alloy	for with magnet
24	Hex socket screws	Stainless steel	for with magnet
25	Magnet	Magnet material	for with magnet
26	Washer	Aluminum alloy	Anodized
27	Snap ring	Spring steel	
28	Cushion block	PU	for with shock absorber
29	Adjustment bolt	Carbon steel	for with shock absorber
30	Shock absorber	Composite material	for with shock absorber



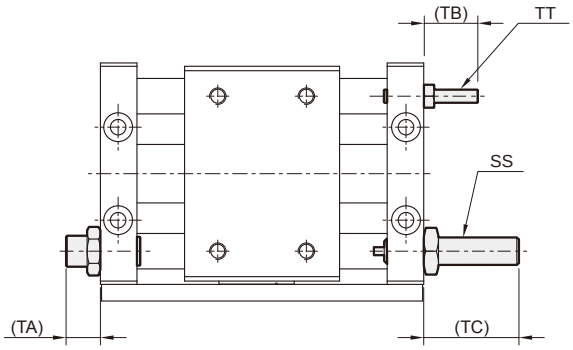
MCRPMS-*-B

With shock absorber



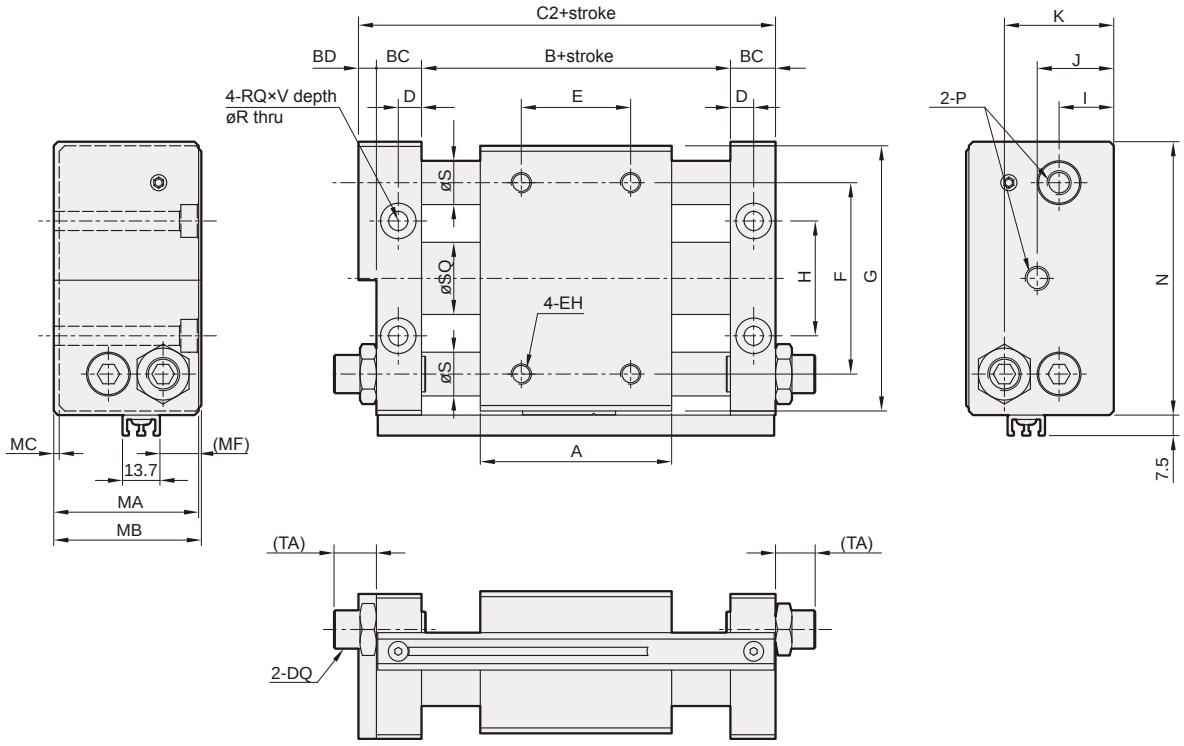
MCRPMS-*-C

With shock absorber + Adjustment bolt



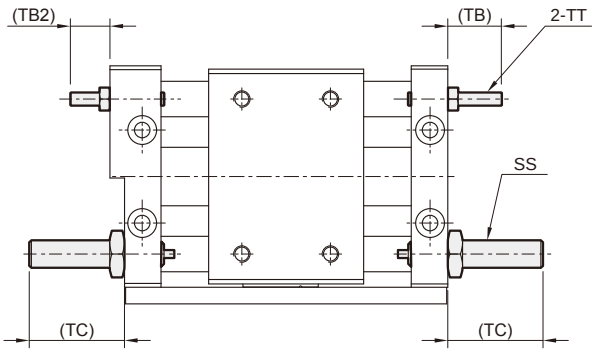
Code / Tube I.D.	A	B	BC	C1	D	DQ	E	EH	F	G	H	I	J	K	MA	MB	MC
10	45	47	12.5	72	6.5	M8×1.0	25	M4×0.7×6 depth	38	58	24	13.5	17	26	33	34	2.5
15	60	62	12.5	87	6.5	M8×1.0	30	M5×0.8×8 depth	50	73	30	15	20.5	29	39	40	2
20	70	73	16.5	106	8.5	M10×1.0	40	M6×1.0×10 depth	70	87	38	19	24	36	45	46	2
25	70	73	16.5	106	8.5	M14×1.5	40	M6×1.0×10 depth	70	96	42	21.5	27.5	40.5	53	54	2
32	85	91	18.5	128	9.5	M20×1.5	40	M8×1.25×12 depth	75	116	50	26	33	50	64	66	2

Code / Tube I.D.	MF	N	P	R	RQ	S	SQ	SS	TA	TB	TC	TT	V
10	4.2	60	M5×0.8	4.5	8	10	12	MDSC-0806-3-N	16.5	16.5	25	M4×0.7	4.4
15	6.1	75	M5×0.8	5.8	9.5	12	16.6	MDSC-0806-3-N	16.5	16.5	25	M4×0.7	5.5
20	8	89	Rc1/8	5.5	9.5	16	21.6	MAC-1007-SN	16.5	22	29	M6×1.0	5.5
25	13	98	Rc1/8	7	12	16	26.4	MAC-1412-SN	14.5	22	49	M6×1.0	6.5
32	18	118	Rc1/8	9	14	20	33.6	MAC-2015-SN	12	23.5	51.5	M8×1.25	8.6



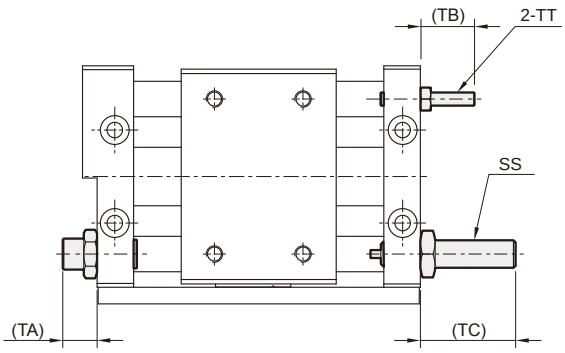
MCRPMS-G-*-B

With shock absorber



MCRPMS-G-*-C

With shock absorber + Adjustment bolt



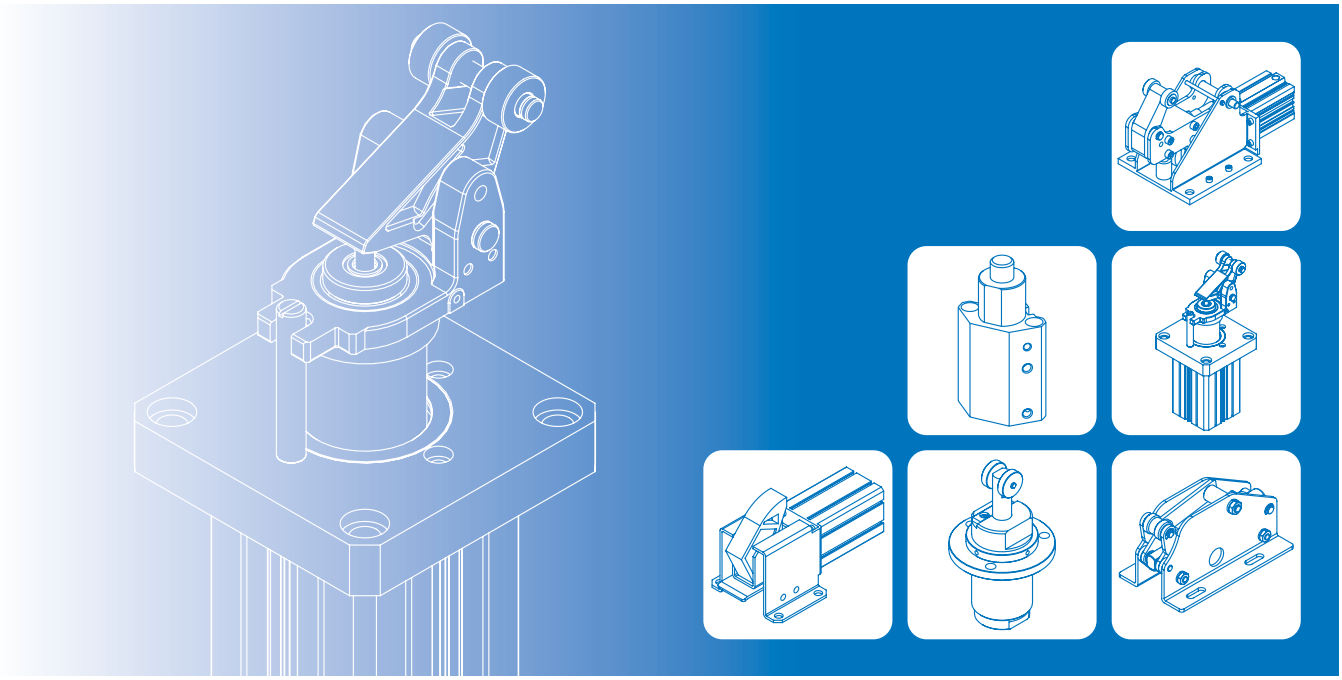
Code / Tube I.D.	A	B	BC	BD	C2	D	DQ	E	EH	F	G	H	I	J	K	MA	MB	MC
10	45	47	12.5	4	76	6.5	M8×1.0	25	M4×0.7×6 depth	38	58	24	13.5	17	26	33	34	2.5
15	60	62	12.5	5	92	6.5	M8×1.0	30	M5×0.8×8 depth	50	73	30	15	20.5	29	39	40	2
20	70	73	16.5	5	111	8.5	M10×1.0	40	M6×1.0×10 depth	70	87	38	19	24	36	45	46	2
25	70	73	16.5	5	111	8.5	M14×1.5	40	M6×1.0×10 depth	70	96	42	21.5	27.5	40.5	53	54	2
32	85	91	18.5	6	134	9.5	M20×1.5	40	M8×1.25×12 depth	75	116	50	26	33	50	64	66	2

Code / Tube I.D.	MF	N	P	R	RQ	S	SQ	SS	TA	TB	TB2	TC	TT	V
10	4.2	60	M5×0.8	4.5	8	10	12	MDSC-0806-3-N	16.5	16.5	12.5	25	M4×0.7	4.4
15	6.1	75	M5×0.8	5.8	9.5	12	16.6	MDSC-0806-3-N	16.5	16.5	11.5	25	M4×0.7	5.5
20	8	89	Rc1/8	5.5	9.5	16	21.6	MAC-1007-SN	16.5	22	22	29	M6×1.0	5.5
25	13	98	Rc1/8	7	12	16	26.4	MAC-1412-SN	14.5	22	22	49	M6×1.0	6.5
32	18	118	Rc1/8	9	14	20	33.6	MAC-2015-SN	12	23.5	17.5	51.5	M8×1.25	8.6

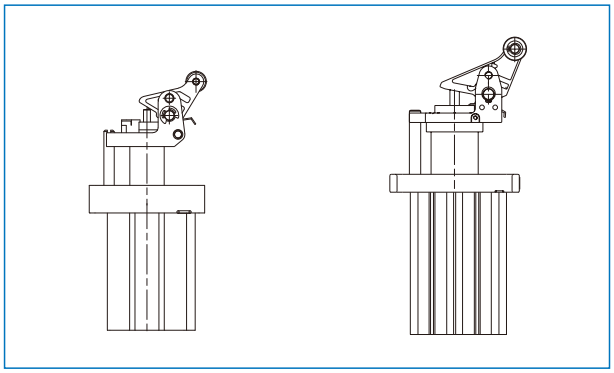
MEMO

NOTE

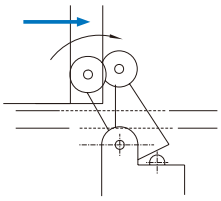
STOPPER CYLINDER



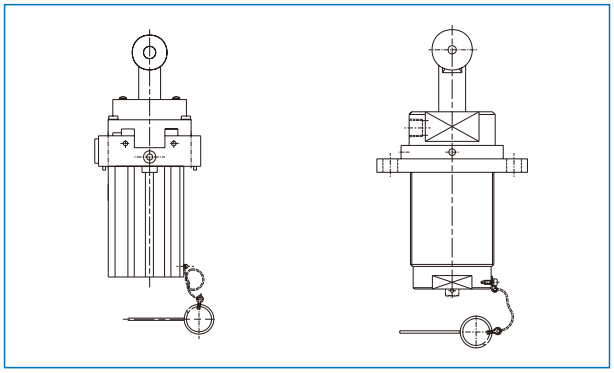
Shockless stopper cylinder



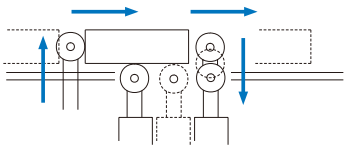
The built-in shock absorber softly catches and stops the work carrier.The strength of absorber can be easily adjusted, which makes the cylinder work in the best condition, conforming to the speed of the conveyor line and the weight of the work carrier.



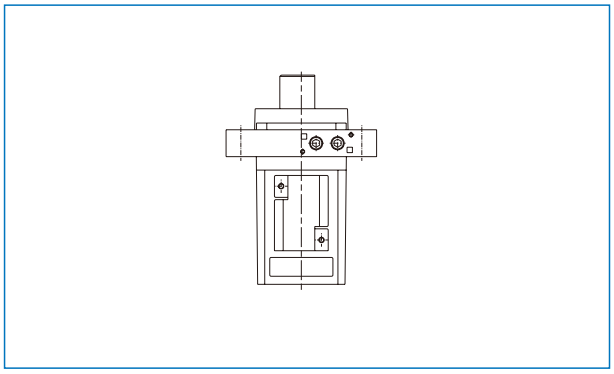
Stopper cylinder with roller



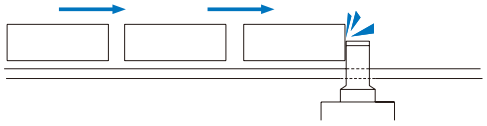
The top rollers with the built-in spring return in touch with the bottom of the work carrier. Automatically returns up to the original position as the work carrier pass by, and immediately works as a stopper for the next work carrier. Therefore the timing carriers does not need to be taken.



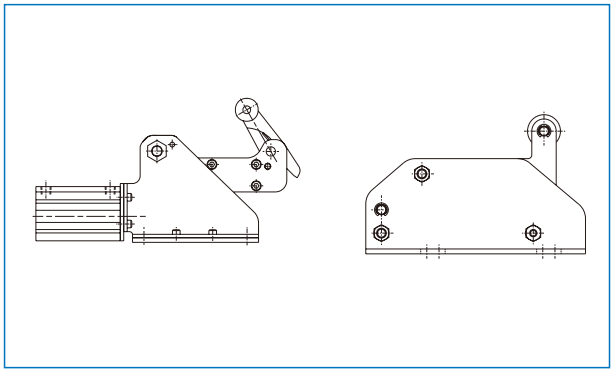
Direct stopper cylinder



Rod and cylinder are designed for toughness against the large side load. Also suitable for the relatively slowmoving conveyor line with the heavy work carriers.



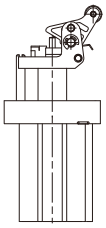
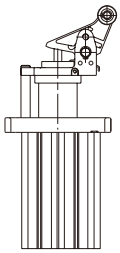
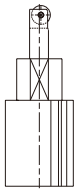
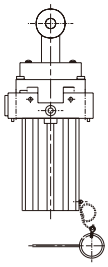
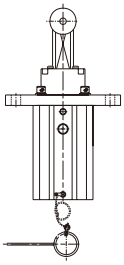
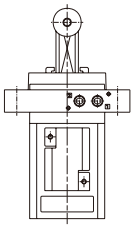
Horizontal stopper cylinder

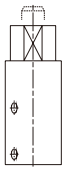
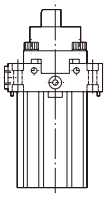
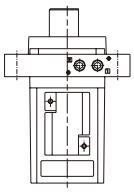
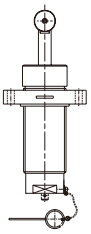
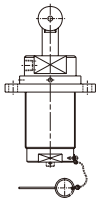
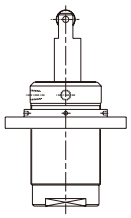


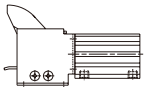
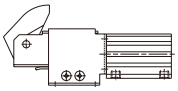
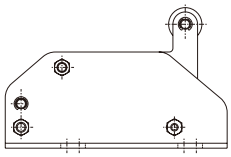
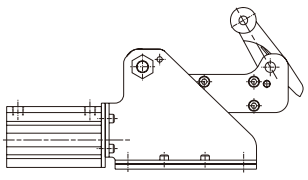
Horizontal stopper cylinder of lower height for conveying the heavy work carriers. Suitable as a stopper cylinder for accumulating line, ageing line, and mulit-stage conveyor line. Softly stops the work carriers of heavy weight and high speed.

Pallet Control Cylinder

STOPPER CYLINDER

Model	**MSB*** series							
	MSBE				**MSBR**			
Operation type	Double acting with spring				Double acting	Single acting (Spring extended)		
	Shockless stopper				Stopper with roller			
Standard stroke	ø32-20	ø50-30	ø63-30	ø80-40	ø20-20	ø32-20	ø40-30	ø50-30
Magnet	With magnet	With magnet	With magnet	With magnet	With magnet	With magnet	Without magnet (*)	Without magnet (*)
Diagram								

Model	**MSB*** series			**MSAR** (Mindman website)		
	MSBS					
Operation type	Double acting			Single acting (Spring extended)		
	Direct stopper			Stopper with roller		
Standard stroke	ø20-10	ø32-20	ø50-30	ø32-30	ø50-30	ø80-30
Magnet	With magnet	With magnet	With magnet	Without magnet (*)	Without magnet (*)	Without magnet (*)
Diagram						

Model	**MSL*** series				
	MSLP-P	**MSLP-CP**	**MSLL**		**MSLD**
Operation type	Double acting		Double acting (Spring extended)		Double acting with spring
	Direct stopper		Stopper with roller		Shockless stopper
Standard stroke	ø32-40		ø25-30	ø40-30	ø50-50
Magnet	With magnet		Without magnet (*)	With magnet	With magnet
Diagram					

* Magnetic type can not be offered.

Specification

Model	MSBE			
Tube I.D. (mm)	ø32	ø50	ø63	ø80
Stroke (mm)	20	30	30	40
Medium	Air			
Operating pressure range	0.2~1 MPa			
Proof pressure	1.5 MPa			
Maximum operating limits (Weight / Impact speed)	22 kg 20 m/min	400 kg 10 m/min	480 kg 13 m/min	800 kg 15 m/min
Ambient temperature	-5~+60°C (No freezing)			
Lubrication	Not required			
Cushion — External stopper	Adjustable shock absorber			
Cushion — Internal cylinder	NBR cushion pad			
Sensor switch	RDFE(V) (Please refer to page 8-18)			
Weight	550 g	1930 g	3410 g	6340 g

Order example

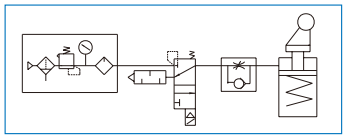
MSBE — 50 — 30 — D — L — S — G

- MODEL
- TUBE I.D. (mm): 50
- STROKE (mm): 30
- STYLE: **D**: Double acting; **S**: Single acting
- LEVER LOCK: Blank: Without; **L**: Lever lock mechanism
- ROLLER MATERIAL: Blank: POM; **S**: Steel
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

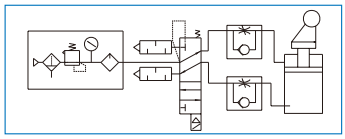
Type of cylinder		Operation type	Standard stroke	Magnet	Sensor switch
MSBE		Shockless stopper (Double acting with spring)	ø32-20	○	RDFE(V)
			ø50-30	○	
			ø63-30	○	
			ø80-40	○	

Piping diagram

Single acting



Double acting



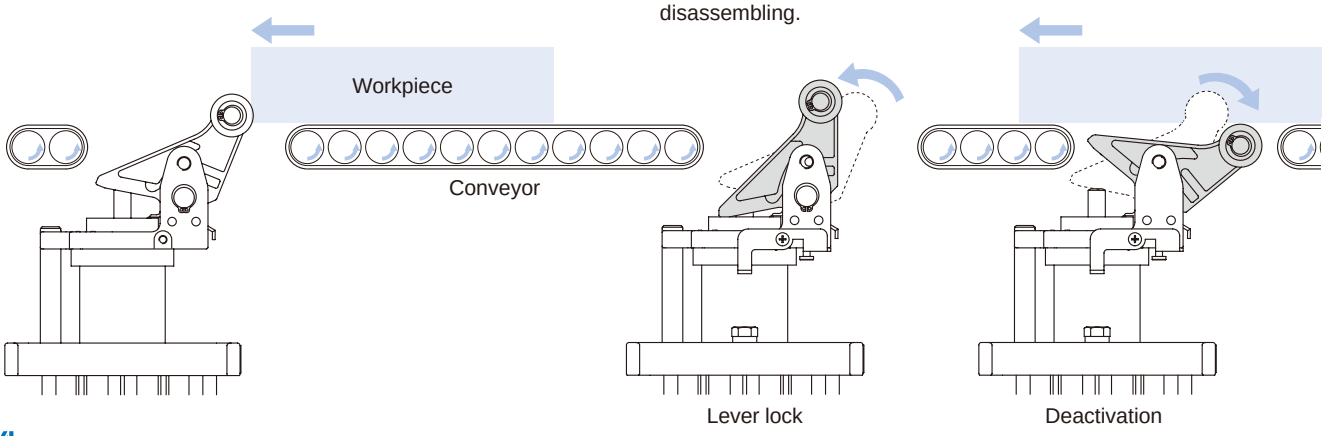
Intended use

Stopping transported material.

Lever lock & Deactivation mechanism

Lever lock mechanism prevents the light-weight workpiece from moving back by the force of shock absorber after damping.

Deactivation mechanism can deactivate the cylinder without any disassembling.



Pallet control stopper type

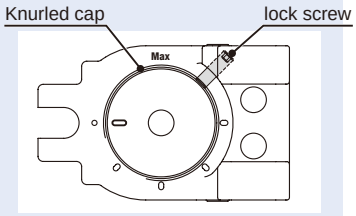
Thread (×2)
For inductive proximity sensor.

Guide rod
For protection against rotation.

Knurled cap

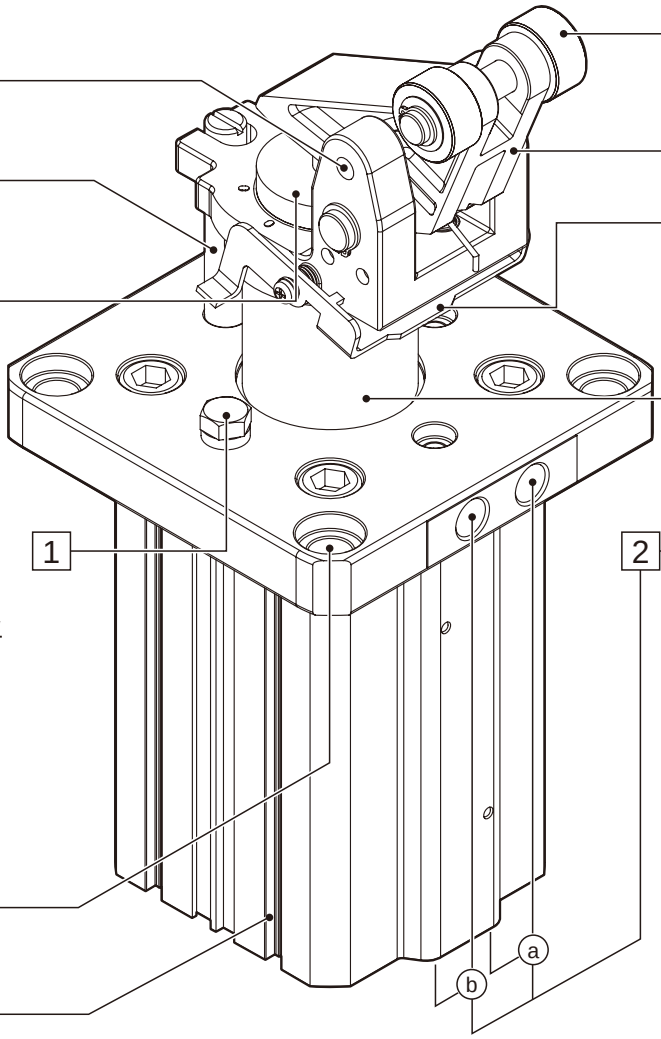
Step 1
Turn knurled cap until the desired cushioning is reached.
- Max mark:
  Cushion becomes harder.
- 0 mark:
  Cushion becomes softer.

Step 2
Tighten lock screw.
Tightening torque: 2 N.m



Through hole (×4)
For mounting.

Sensor switch groove (×6)



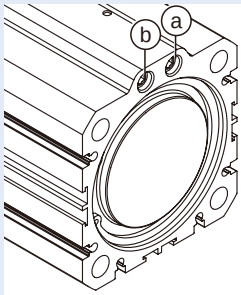
Stop roller (×2)

Roller toggle lever

Lever lock (Optional)
For activating / deactivating lever position locking mechanism.

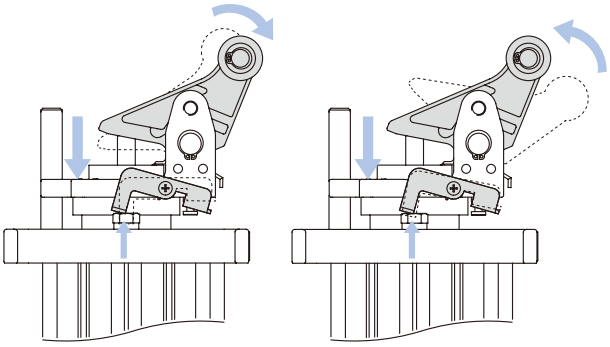
Piston rod

Supply port (×2)
ⓐ Extending
ⓑ Retracting



1 Accessories of lever lock

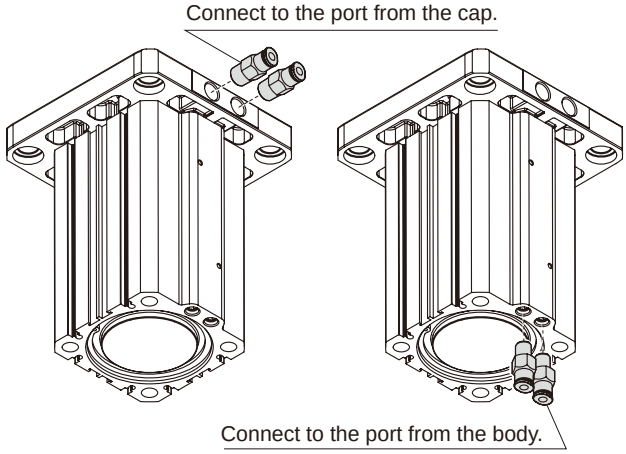
The lever locking / deactivation mechanism of **MSBE*-L*** can be unlocked/reactivated by return the piston rod.



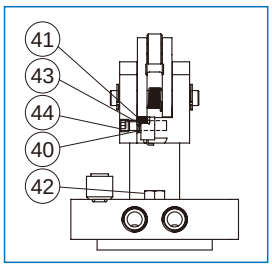
Unlocking locked lever　　Unlocking free-pass

2 Port installation

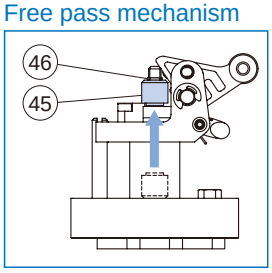
Select one set of port between the top one on the front cap and the one at the bottom.

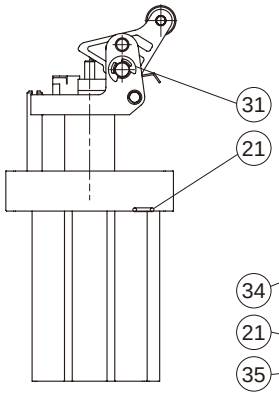


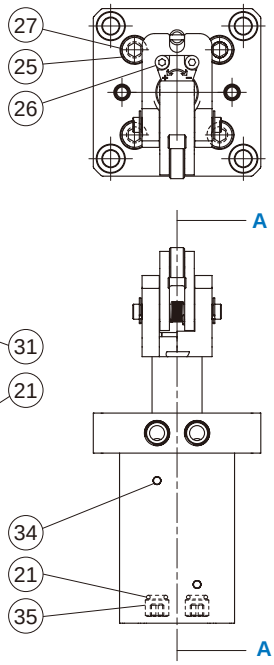
L: Level lock mechanism



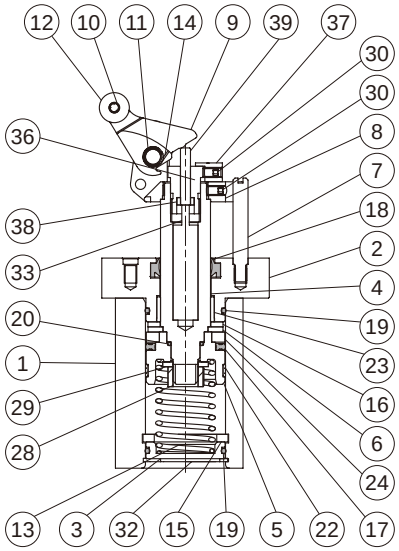
Free pass mechanism







A-A



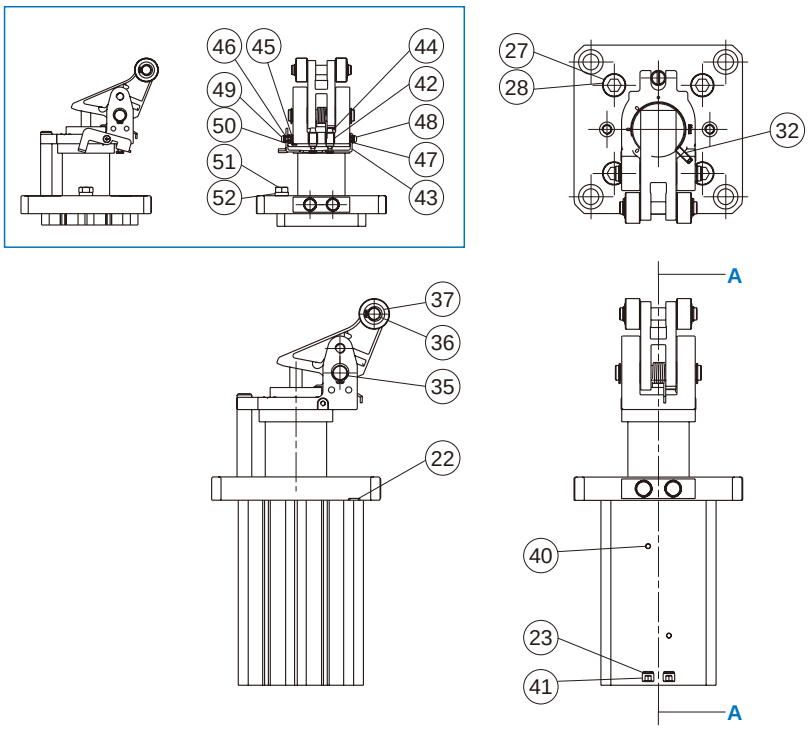
Material

No.	Part name	Material	Q'y
1	Body	Aluminum	1
2	Cover	Aluminum	1
3	Cover	Aluminum	1
4	Piston rod	Steel	1
5	Piston	Aluminum	1
6	Magnet holder	Aluminum	1
7	Guide rod	Steel	1
8	Lever holder	Steel	1
9	Lever	Steel	1
10	Roller pin	Steel	1
11	Lever pin	Steel	1
12	Roller	POM	1
		Alloy steel *1	1
13	Piston spring	Steel	1
14	Lever spring	Steel	1
15	Cushion pad	NBR	1
16	Rod cushion pad	NBR	1
17	Piston seal	NBR	1
18	Seal	NBR	1
19	O-ring	NBR	2
20	O-ring	NBR	1
21	O-ring	NBR	4
22	Wear ring	NBR	1
23	Rod bush	NBR	1

No.	Part name	Material	Q'y
24	Magnet ring	Magnet	1
25	Hexagon bolt	Steel	4
26	Hexagon nut	Steel	2
27	Washer	Steel	4
28	Hexagon nut	Steel	1
29	Spring washer	Steel	1
30	Hexagon screw	Steel	2
31	Stop ring	Steel	2
32		Steel	1
33	Shock absorber	Steel	1
34	Ball	Steel	2
35	Plug	Alloy steel	2
36	Adjustable cap	Stainless steel	1
37	Damper lock	Stainless steel	1
38	Locating ring	Aluminum	1
39	Pin	Steel	1
40	Lever lock	Steel	1
41	Lock spring	Steel	1
42	Hexagon screw	Stainless steel	1
43	Pin	Steel	1
44	Hexagon screw	Steel	1
45	Locating pin	Aluminum	1
46	O-ring	NBR	1

*1. S type.

L: Level lock mechanism

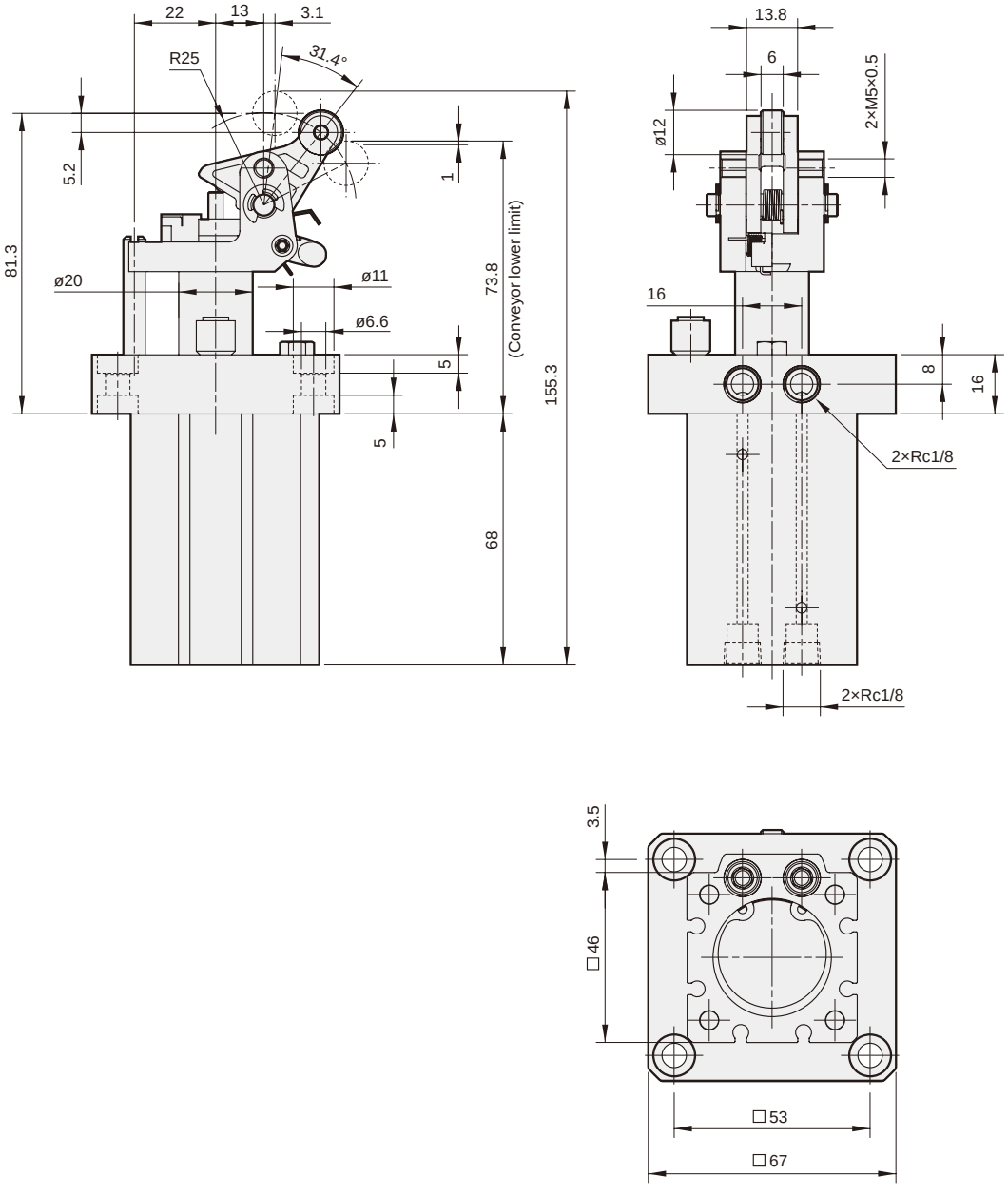


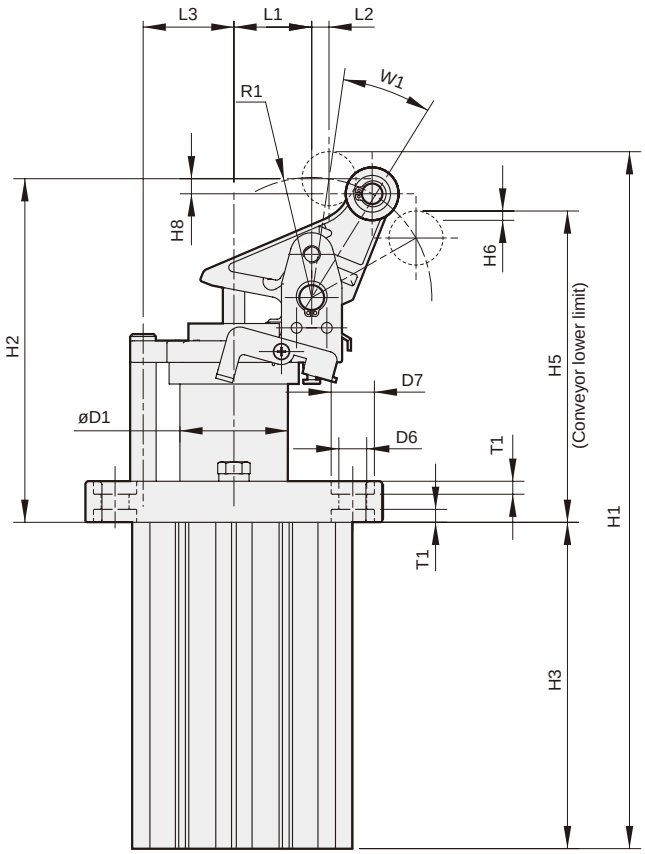
Material

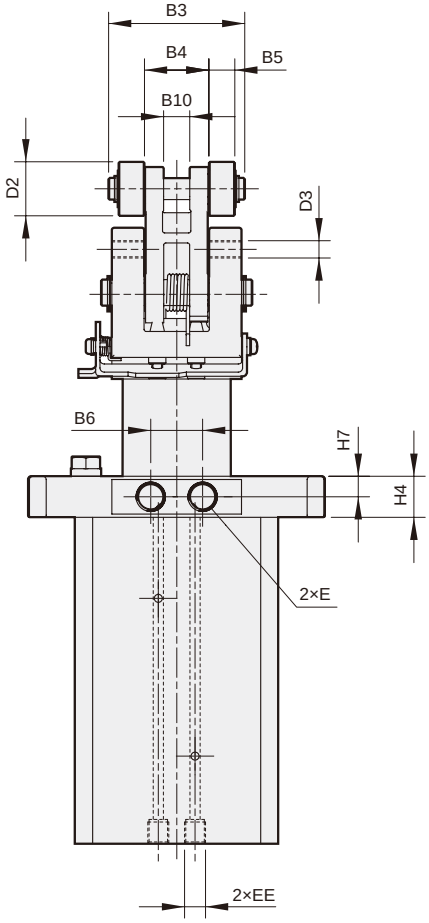
No.	Part name	Material	Q'y / Tube I.D.		
			50	63	80
1	Body	Aluminum	1		
2	Cover	Aluminum	1		
3	Cover	Aluminum	1		
4	Piston rod	Steel	1		
5	Piston	Aluminum	1		
6	Magnet holder	Aluminum	1		
7	Guide rod	Steel	1		
8	Lever holder	Steel	1		
9	Lever	Steel	1		
10	Roller pin	Steel	1		
11	Lever pin	Steel	1		
12	Roller	POM	2		
		Alloy steel *1	2		
13	Piston spring	Steel	1		
14	Lever spring	Steel	1		
15	Cushion pad	NBR	1		
16	Rod cushion pad	NBR	1		
17	Piston seal	NBR	1		
18	Seal	NBR	1		
19	O-ring	NBR	1		
20	O-ring	NBR	1		
21	O-ring	NBR	1		
22	O-ring	NBR	2		
23	O-ring	NBR	2		
24	Wearing	Teflon	1		
25	Washer	POM	1		

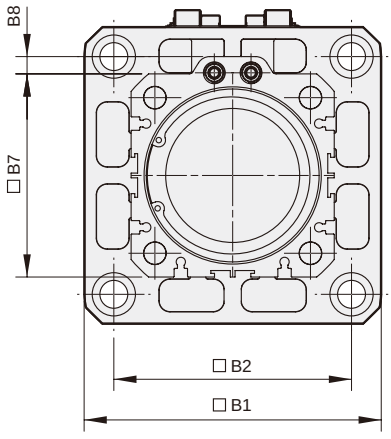
No.	Part name	Material	Q'y / Tube I.D.		
			50	63	80
26	Magnet ring	Magnet	1		
27	Hexagon bolt	Steel	4		
28	Washer	Steel	4		
29	Hexagon nut	Steel	1		
30	Spring washer	Steel	1		
31	Hexagon screw	Steel	1		
32	Hexagon screw	Steel	1		
33	Hexagon screw	Steel	–	1	
34	Stop ring	Steel	1		
35	Stop ring	Steel	2		
36	Stop ring	Steel	2		
37	Roller washer	Steel	2		
38	Spring pin	Steel	–	1	
39	Shock absorber	Steel	1		
40	Ball	Steel	2		
41	Plug	Steel	2		
42	Bush	POM	2		
43	Lever lock	Steel	1		
44	Pin	Steel	2		
45	Spring	Steel	1		
46	Coller	Steel	1		
47	Coller #2	Steel	1		
48	Screw	Steel	1		
49	Screw	Steel	1		
50	Spring washer	Steel	1		
51	Hexagon screw	Steel	1		
52	Washer	Steel	1		

*1. S type.


22
13
3.1
R25
31.4°
5.2
81.3
ø20
ø11
ø6.6
1
73.8
(Conveyor lower limit)
155.3
5
5
68
13.8
6
2×M5×0.5
ø12
16
8
16
2×Rc1/8
2×Rc1/8
3.5
□46
□53
□67







Code / Tubr I.D	B1	B2	B3	B4	B5	B6	B7	B8	B10
50	93	73	43	20	8	17	62	8	8
63	114	90	54	25	10	24	75	7	10
80	138	110	63	30	12	24	94	8	12

Code / Tubr I.D	D1	D2	D3	D6	D7	E	EE	H1	H2	H3	H4	H5	H6	H7	H8	L1	L2	L3	R1	T1	W1
50	32	2-ø20	2-M8×1	9	14	Rc1/8	Rc1/8	218.8	117.8	91	17.5	105.3	2.76	8.75	5.7	23	6.3	26	38.5	5	23.5°
63	40	2-ø20	2-M8×1	11	18	Rc1/4	Rc1/8	251	134.0	107	25	123.7	6.23	12.5	4.8	29	6	34	44.4	6	20.3°
80	50	2-ø25	2-M8×1	13	20	Rc1/4	Rc1/8	322.5	159.0	151	19	144.1	4.31	9.5	7	36	8	42	55.6	6	23.5°

MSBR / MSBS series

STOPPER CYLINDER

Specification

Model	MSBR / MSBS	
Medium	Air	
Operating pressure range	0.2~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Lubrication	Not required	
Cushion	With rubber cushion pad	
Sensor switch (*)	RCA for ø50	RCB, RCE, RCE1, RDEP
Sensor switch holder	HS	–

* RCA, RCB, RCE, RCE1, RDEP specifications, please refer to page 8-7, 9, 11, 12, 17.

Order example

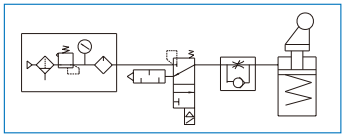
MSBR – 40 – 30 – G

- MODEL
- TUBE I.D.
- STROKE
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

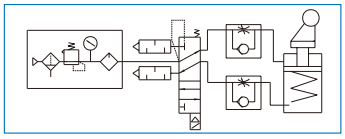
Type of cylinder		Operation type	Standard stroke	Magnet	Sensor switch	Weight
MSBR		Stopper with roller (Double acting)	ø20-20	○	RCB	250 g
		Stopper with roller (Single acting-Spring extended)	ø32-20	○	RCE,RCE1,RDEP	740 g
			ø40-30	×	–	1400 g
			ø50-30	×	–	1800 g
MSBS		Direct stopper (Double acting)	ø20-10	○	RCB	192 g
			ø32-20	○	RCE,RCE1,RDEP	720 g
			ø50-30	○	RCA	1850 g

Piping diagram

Single acting

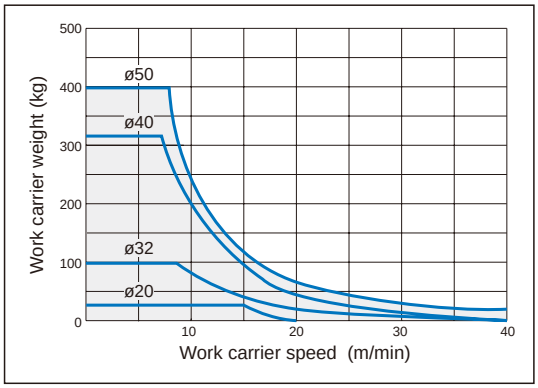


Double acting



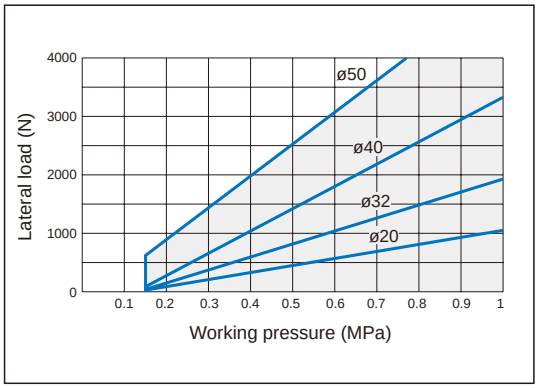
MSBR

Capacity



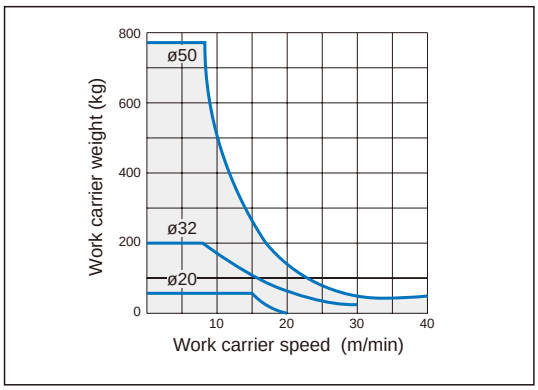
MSBR

Normal lateral load



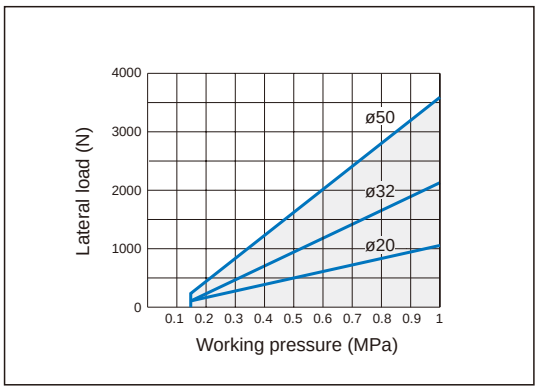
MSBS

Capacity

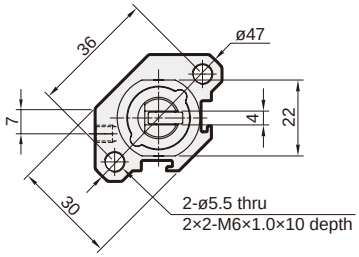


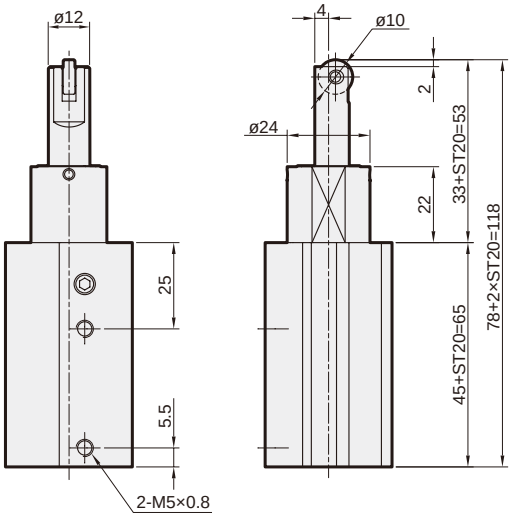
MSBS

Normal lateral load

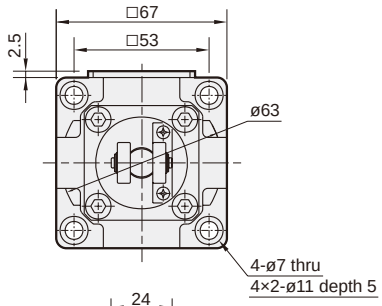


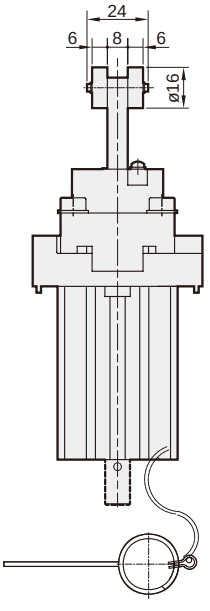
MSBR ø20-20

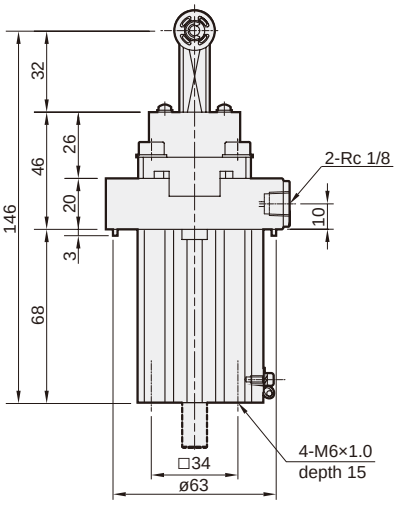




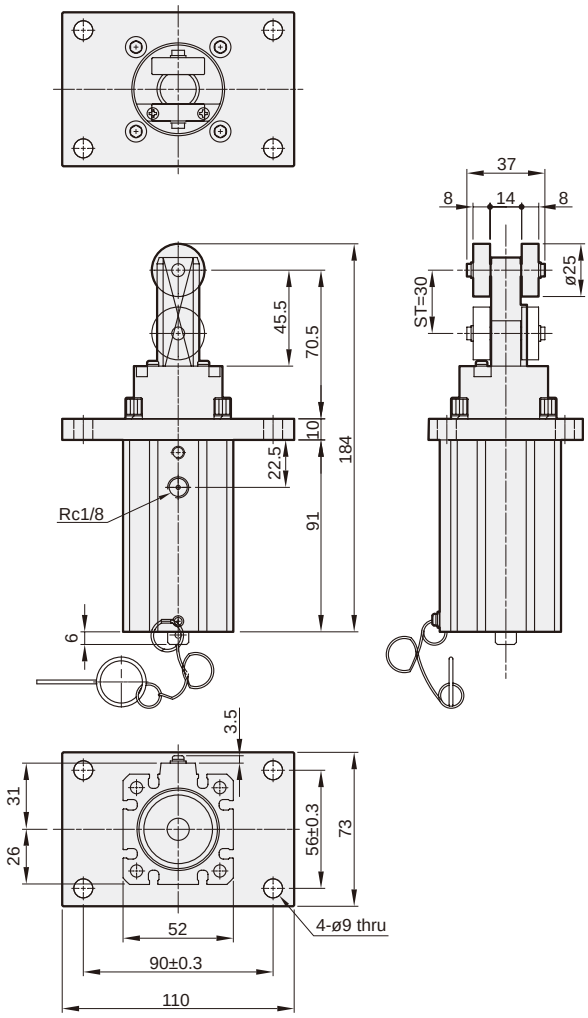
MSBR ø32-20



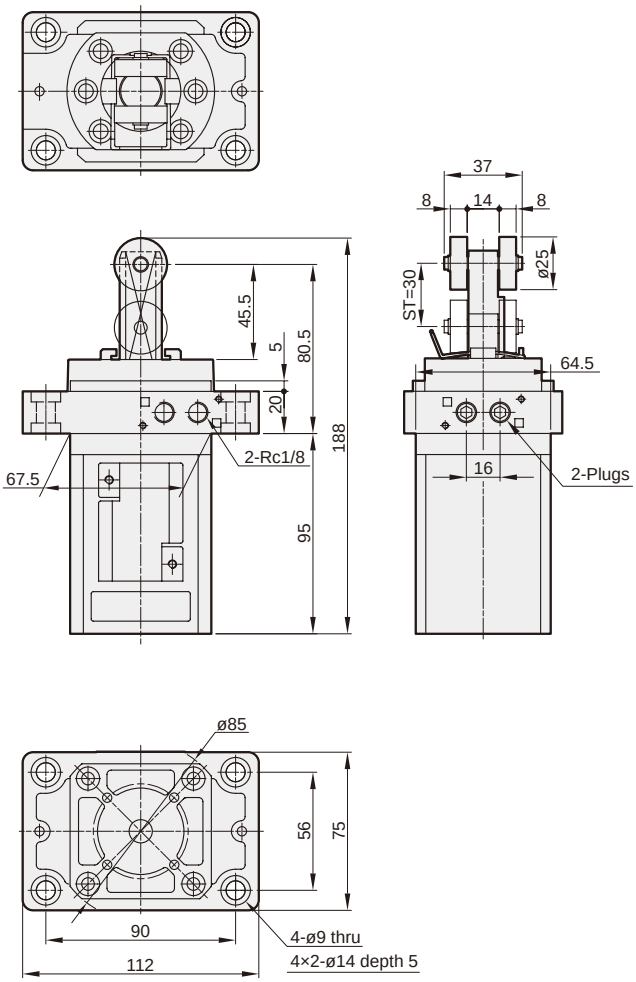




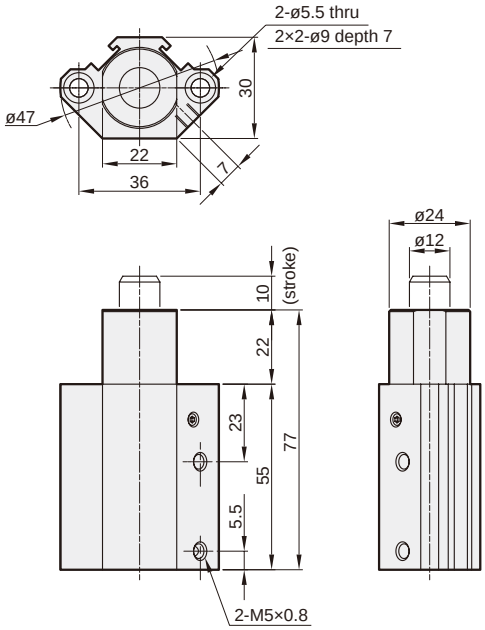
MSBR ø40-30



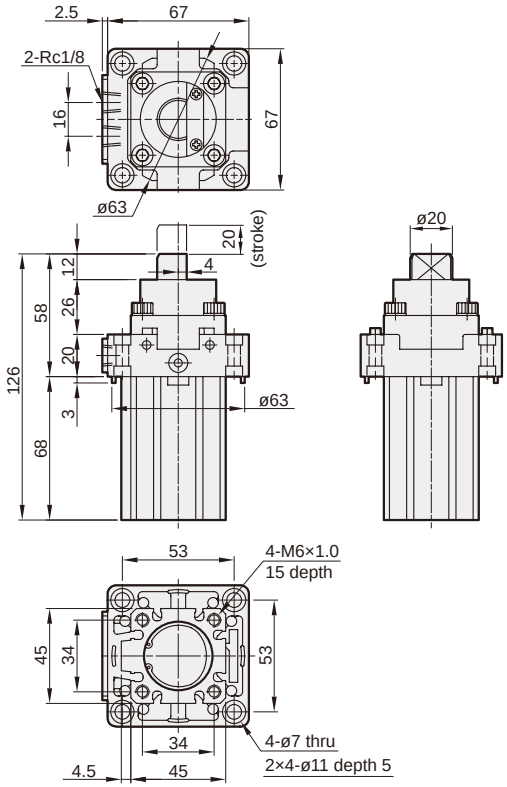
MSBR ø50-30



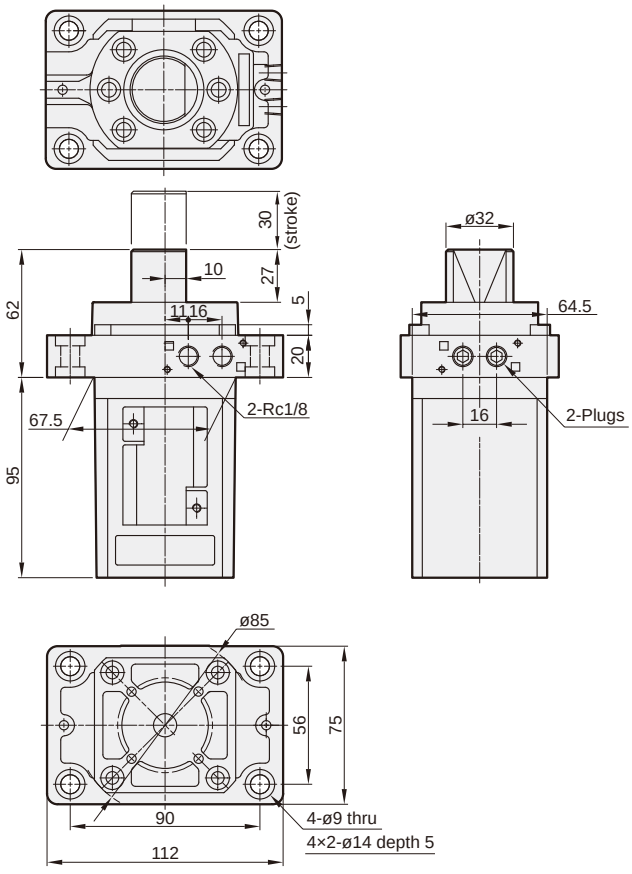
MSBS ø20-10

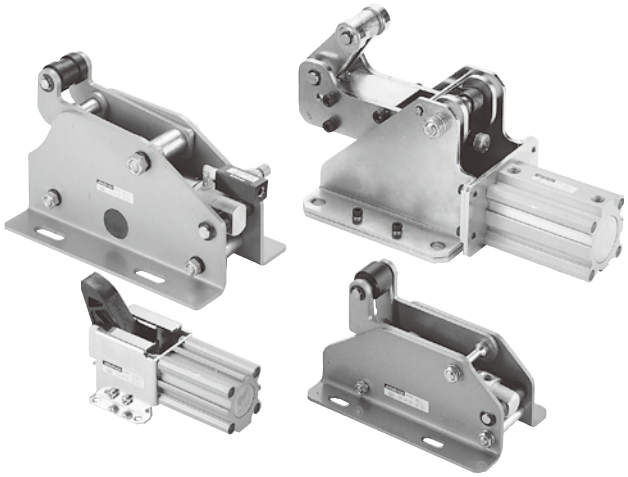


MSBS ø32-20



MSBS ø50-30





Specification

Model	MSL*
Medium	Air
Operating pressure range	0.2~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)
Lubrication	Not required
Cushion	With rubber cushion pad

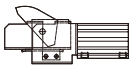
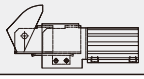
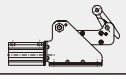
Model	Magnet	Sensor switch (*)	Weight
MSLP-P-ø32-40	○	RCE, RCE1, RDEP	840 g
MSLP-CP-ø32-40	○	RCE, RCE1, RDEP	840 g
MSLL-ø25-30	×	—	1850 g
MSLL-ø40-30	○	RCM (Band BM40)	4550 g
MSLD-ø50-50	○	RCB,RCE,RCE1,RDEP	8750 g

* RCB, RCE, RCE1, RCM, RDEP specifications, please refer to page 8-9, 11, 12, 15, 17.

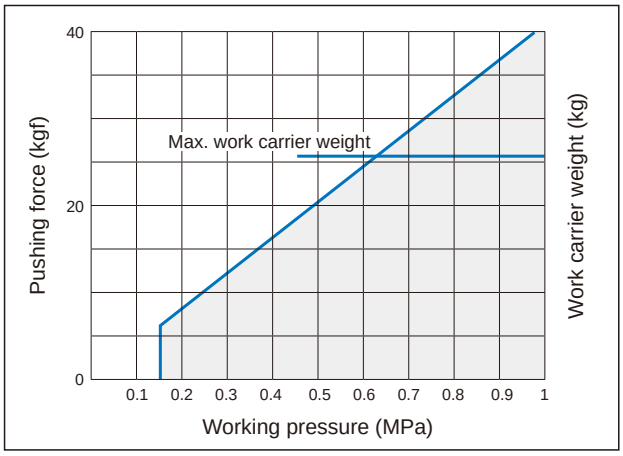
Order example

MSLL — 25 — 30 — G

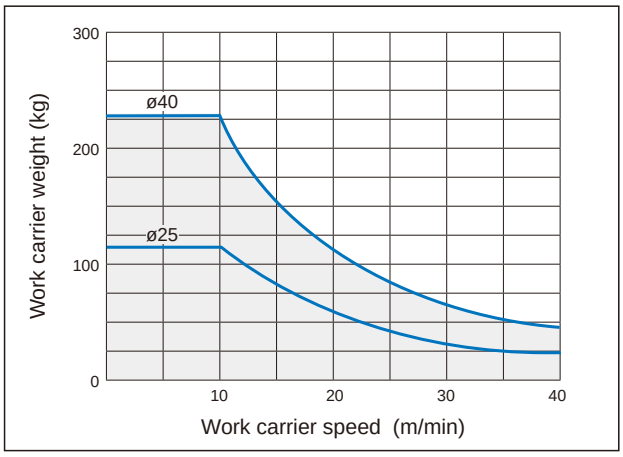
- MODEL
- TUBE I.D. (mm)
- STROKE (mm)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Type of cylinder		Operation type
MSLP-P		Double acting Extend type
MSLP-CP		Double acting Return type
MSLL		Double acting without spring Stopper with roller
		Double acting with spring Stopper with roller (Option)
MSLD		Double acting with spring Shockless stopper

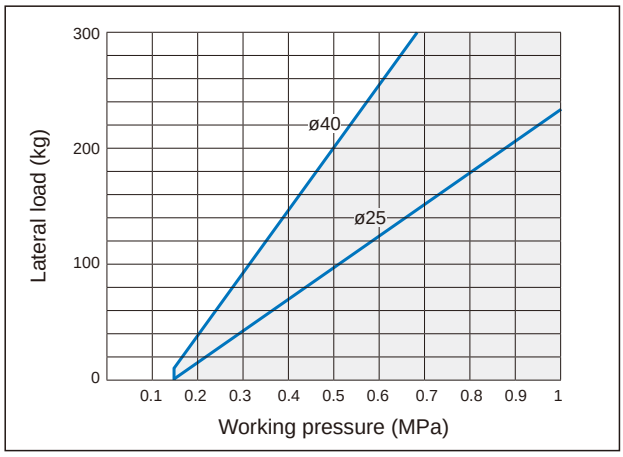
MSLP-* ø32
Capacity



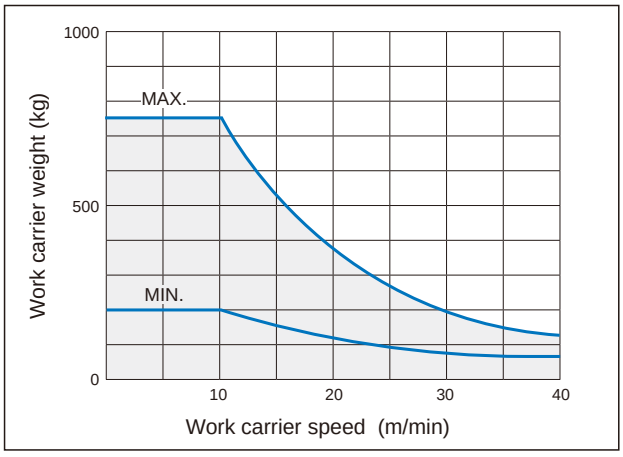
MSLL ø25, ø40
Capacity



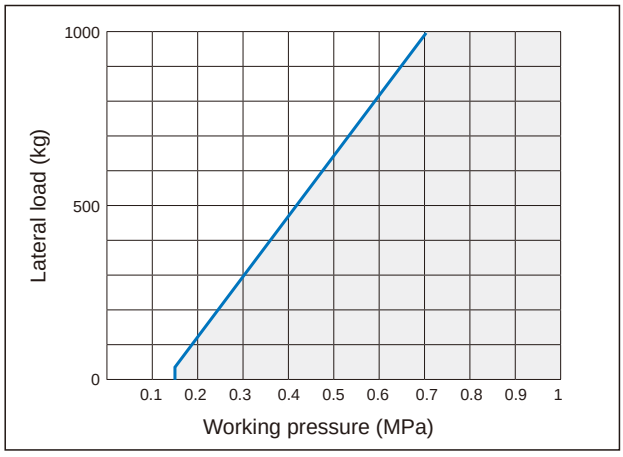
MSLL ø25, ø40
Normal lateral load



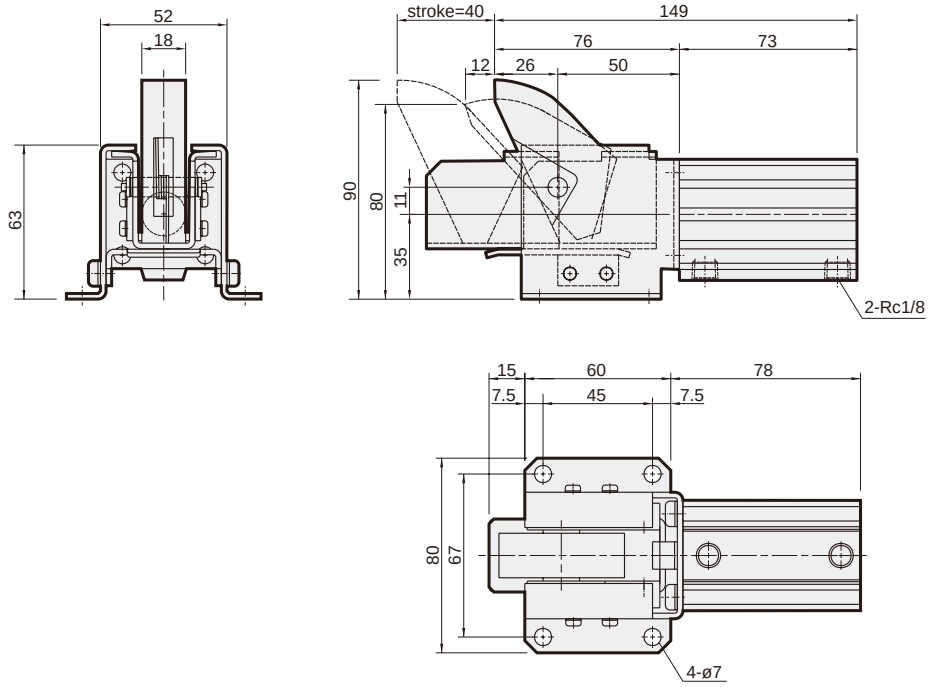
MSLD ø50
Capacity



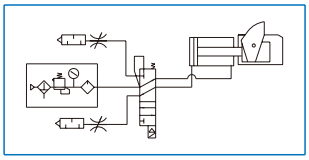
MSLD ø50
Normal lateral load



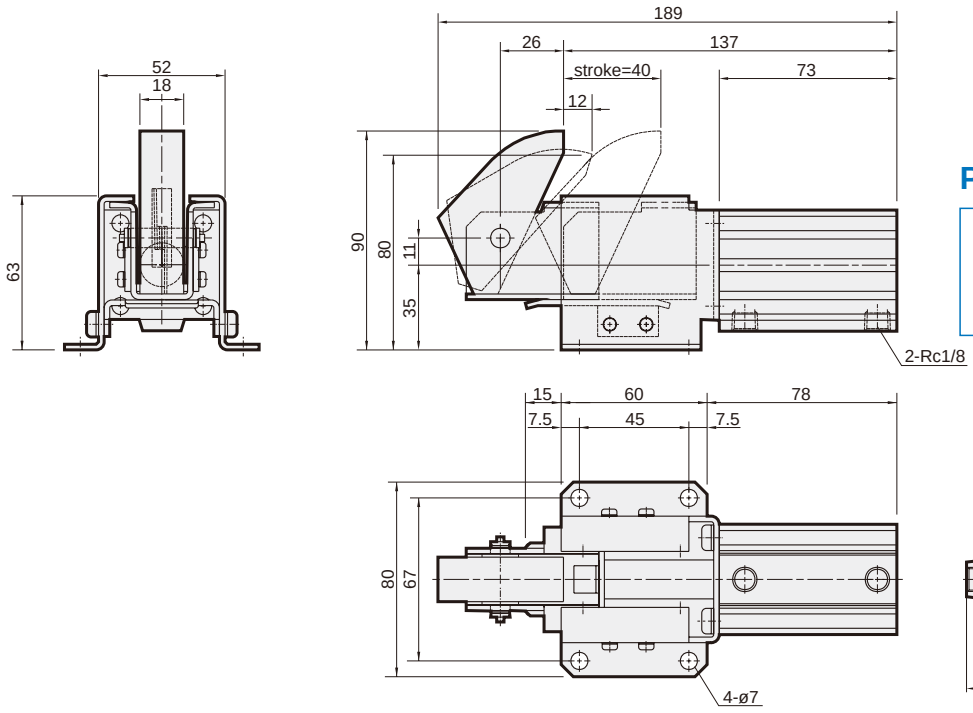
MSLP-P ø32-40



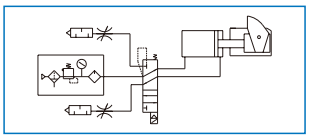
Piping diagram



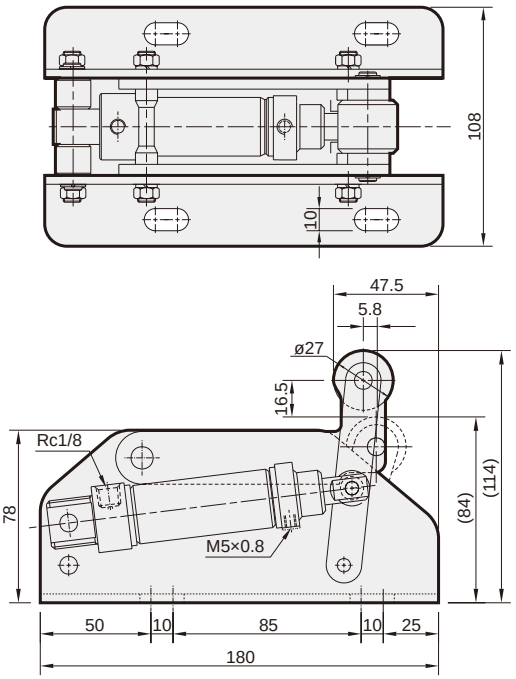
MSLP-CP ø32-40



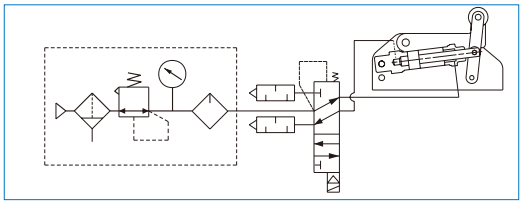
Piping diagram



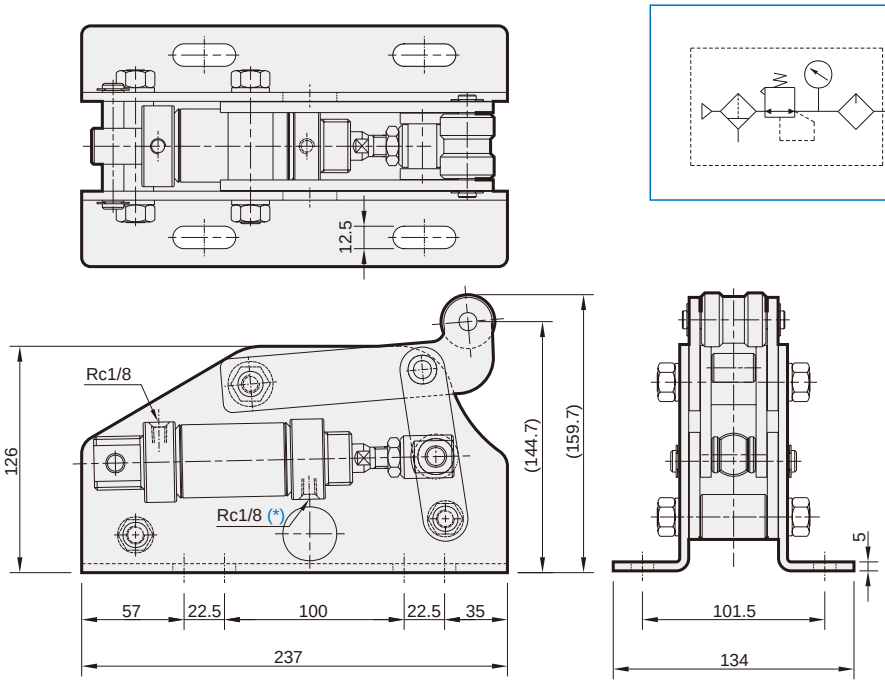
MSLL ø25-30



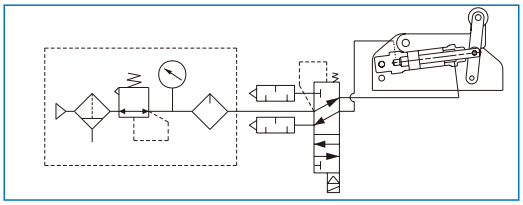
Piping diagram



MSLL ø40-30

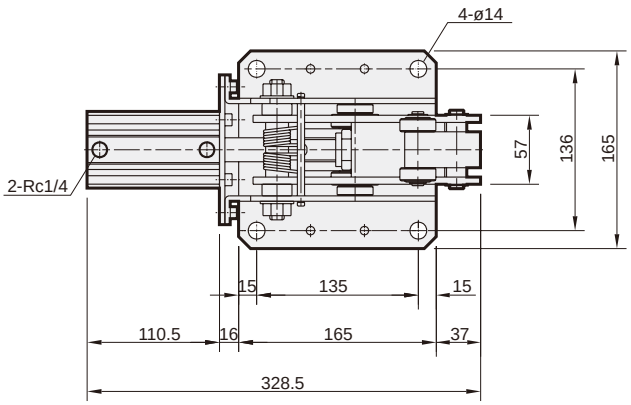


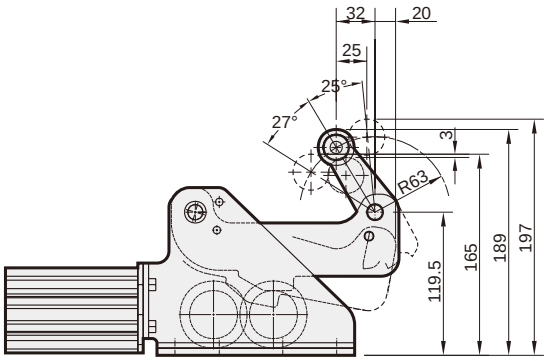
Piping diagram

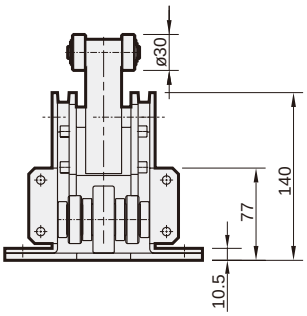


*M5×0.8
Double acting with spring Stopper with roller (Option)

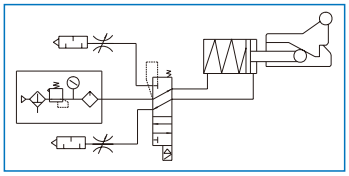
MSLD ø50-50





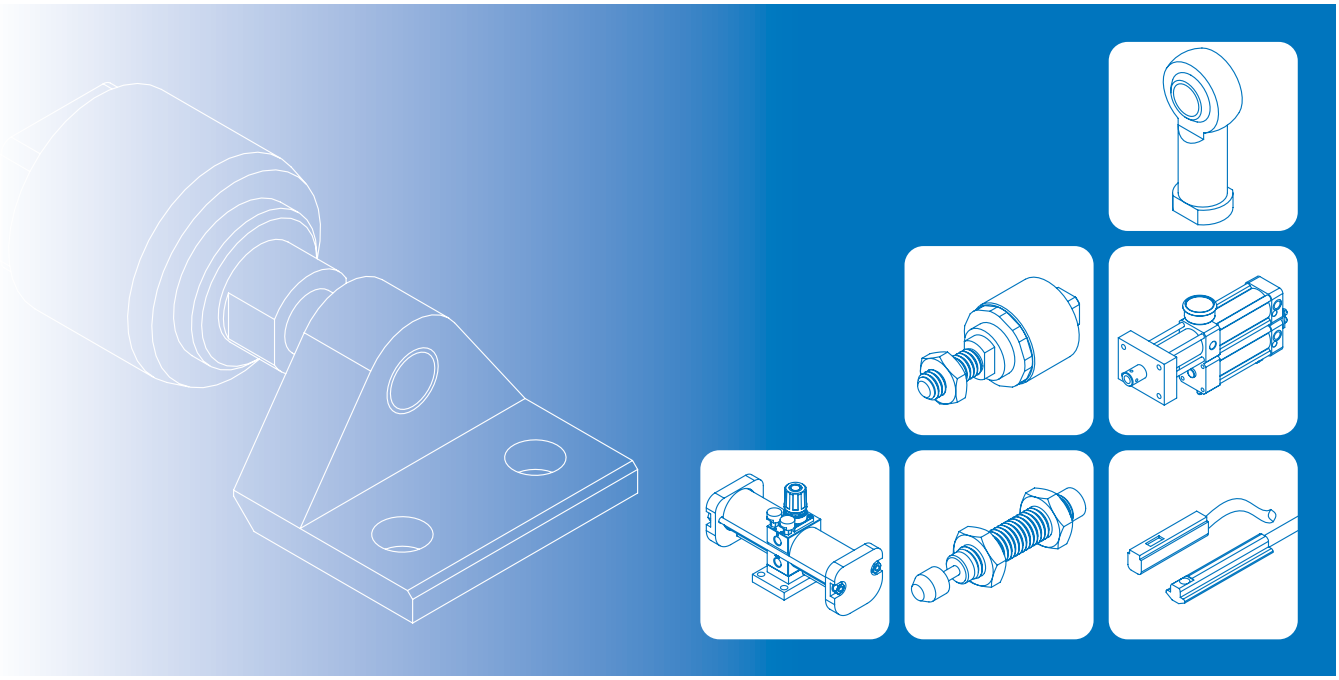


Piping diagram



* Roller is made of rolled steel.

AUXILIARY EQUIPMENT



Features

- Can be used in many applications.
- Strong simple construction designed for repetitive high usage.
- Wide range available.
- Simple structure, high rigidity.
- Reduce the requirement of concentricity between the cylinder and the other connected component.

Cautions

- Do not use on universal joint.
- Do not disassemble.
- Lubricant required.
- Usage temperature +5~60°C
- Do not use the end of the thread of the connecting rod.

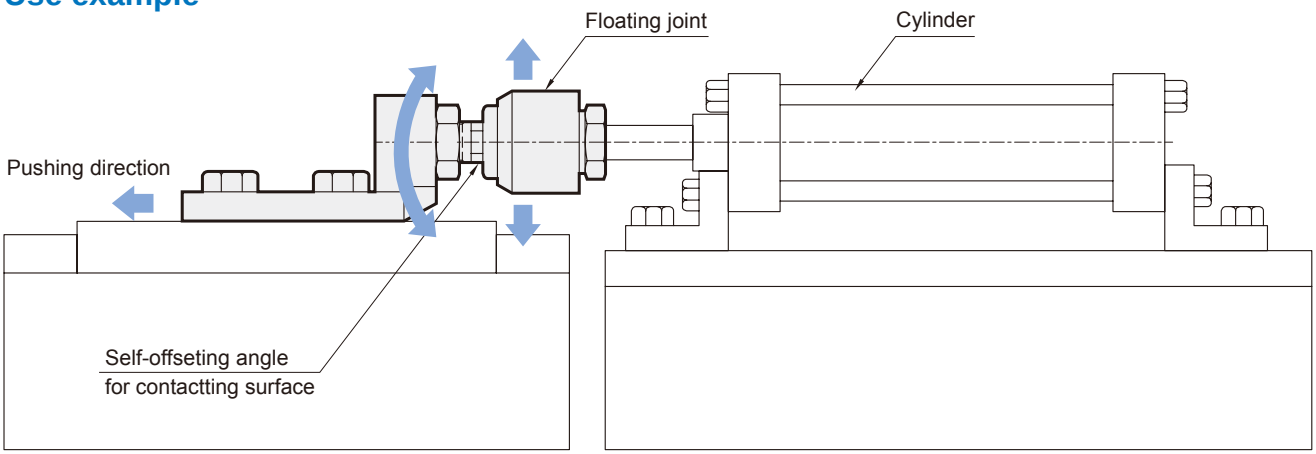
Order example

MFC — 1012 T — M12×1.5

* Thread size **M**.

- MODEL
- THREAD SIZE
- TYPE
  - **T**: Standard type
  - **S**: Short type
  - **F**: FAC type (for T type)
  - **L**: LB type (for S type)

Use example

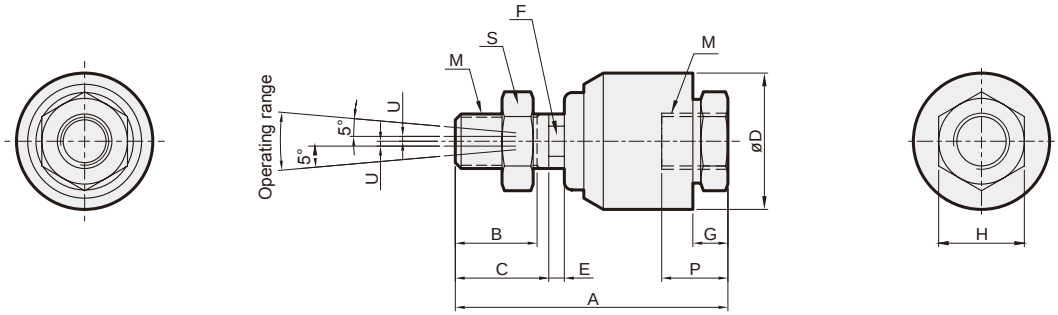


MFC Dimensions

STANDARD CYLINDER FLOATING JOINT

mindman

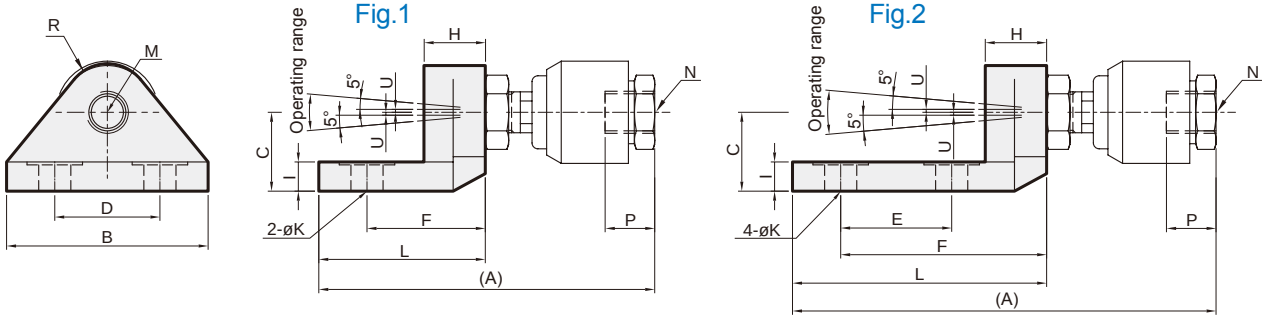
T



Model	Applicable cyl. dia. (mm)	A		B		C	øD	E	F	G	H	M	P		S	Permissible U deviation	Rot. angle	Permissible pressure	Maximum operating tension and compression force (N)	Weight (g)
		DIM.	TOL.	DIM.	TOL.								DIM.	TOL.						
MFC-1003T	6	24.5	±0.5	7	±0.5	8	12	2	⬡3	3.5	8	M3×0.5	7	±0.5	M3×0.5×H2.5×B6	0.5	±5°	0.7MPa (max.) Pneumatic	19	10
MFC-1004T	8	26		8		9	12	2	□4	4	8	M4×0.7	7		M4×0.7×H3.5×B8				54	10
MFC-1005T	10,15	38	±1.0	14	±1.0	15	18	3	□5	5	10	M5×0.8	8.5	±1.0	M5×0.8×H4×B8				123	20
MFC-1006T	15	38		14		15	18	3	□6	5	10	M6×1.0	8.5		M6×1.0×H5×B10				123	20
MFC-1008T	20	50		18		20	24	4	□8	7	13	M8×1.25	12		M8×1.25×H6×B13			3.5MPa (max.) Pneumatic / Hydraulic	1100	90
MFC-1010T	25,30	61		20		22	26	5	□10	8	17	M10×1.25/1.5	14		M10×1.25/1.5×H6×B17	0.75			2500	110
MFC-1012T	40	58		20		22	28	5	□12	8	17	M12×1.25/1.5/1.75	12		M12×1.25/1.5/1.75×H7×B19				4400	110
MFC-1014T	40	70		21		24	35	7	□14	9	22	M14×1.5	17		M14×1.5×H8×B22	1			6000	250
MFC-1016T	50,63	90	±2.0	26	±2.0	28	45	9	□18	13.5	27	M16×1.5	23	±2.0	M16×1.5×H8×B23	1.25			11000	500
MFC-1018T	50,63	90		26		28	45	9	□18	13.5	27	M18×1.5	23		M18×1.5×H8×B24				11000	500
MFC-1020T	80	103		30		32	50	8	□22	16	32	M20×1.5	27		M20×1.5×H8.5×B30	2			18000	720
MFC-1022T	80	103		30		32	50	8	□22	16	32	M22×1.5	27		M22×1.5×H10×B32				18000	720
MFC-1024T	100	123		38		38	61	12	□26	19	41	M24×1.5	33		M24×1.5×H11×B35.5	2.5			28000	1300
MFC-1026T	100	123		38		38	61	12	□26	19	41	M26×1.5	33		M26×1.5×H11×B35				28000	1300
MFC-1027T	125	154		56		58	63.5	19	□29	20	41	M27×2.0	33		M27×2.0×H10×B50				28000	1620
MFC-1030T	125,140	154		56		58	63.5	19	□29	20	41	M30×1.5/2.0/3.5	33		M30×1.5/2.0/3.5×H10×B46	3			54000	1610
MFC-1036T	140,160	184		69		70	75	20	□35	23	50	M36×1.5/2.0	42		M36×1.5/2.0×H10×B50	4			71000	2820
MFC-1039T	140,160	184		69		70	75	20	□35	23	50	M39×1.5	42		M39×1.5×H10×B50				71000	2820
MFC-1040T	160	194		74		74	85	15	□43	25	69	M40×1.5/2.0	40		M40×1.5/2.0×H12×B65	5			71000	4300
MFC-1045T	160	194		74		74	85	15	□43	25	69	M45×1.5/2.0	40		M45×1.5/2.0×H12×B65				71000	4300
MFC-1050T	160	210		70		70	105	16	□53	35	85	M50×2.0	55		M50×2.0×H13×B65	6			80000	6980

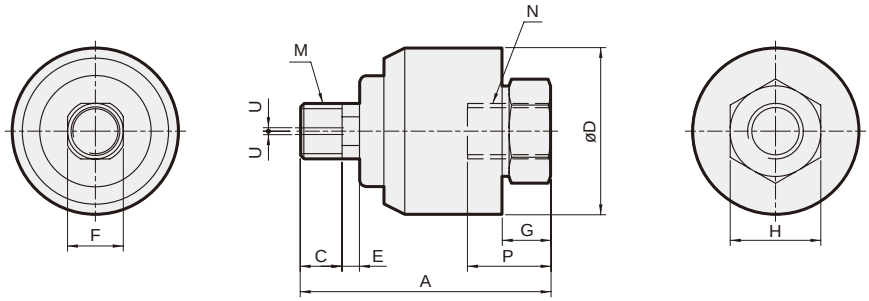
L

With **T** type floating joints.



Model	A	B	C	D	E	F	H	I	K	L	R	M	N	P		Illustration fig no.	Permissible U deviation	Rot. angle	Weight (g)
														DIM.	TOL.				
MFC-1008L	68	44	15	26	–	19	11	4	9	29	9	M8×1.25	M8×1.25	12	±1.0	Fig.1	0.5	±0.5°	150
MFC-1010L	84	44	19	26	–	24	12	5	9	35	10	M10×1.25/1.5	M10×1.25/1.5	14			0.75		200
MFC-1012L	81	44	19	26	–	24	12	5	9	35	10	M12×1.25/1.5/1.75	M12×1.25/1.5/1.75	12					200
MFC-1014L	114	69	22	36	–	40.5	21	10	14	56	15	M14×1.5	M14×1.5	17			1		600
MFC-1016L	163	61	28	32	32	76	32	15	11	90	17	M18×1.5	M16×1.5	23	±2.0	Fig.2	1.25		1150
MFC-1018L	163	61	28	32	32	76	32	15	11	90	17	M18×1.5	M18×1.5	23					1150
MFC-1020L	193	68	35	36	36	89	40	20	14	109	21	M22×1.5	M20×1.5	27			2		1900
MFC-1022L	193	68	35	36	36	89	40	20	14	109	21	M22×1.5	M22×1.5	27					1900
MFC-1024L	214	69	42	36	36	95	45	20	14	113	21	M26×1.5	M24×1.5	33			2.5		2800
MFC-1026L	214	69	42	36	36	95	45	20	14	113	21	M26×1.5	M26×1.5	33					2800

S



Model	Applicable cyl. dia. (mm)	A		C		øD	E	F	G	H	M	P		N	Permissible U deviation	Rot. angle	Maximum operating tension and compression force (N)	Weight (g)
		DIM.	TOL.	DIM.	TOL.							DIM.	TOL.					
MFC-1008S	20	36	±1.0	6	±1.0	24	4	□8	6.5	13	M8×1.0/1.25	12	±1.0	M8×1.0/1.25	0.5	±0.5°	1100	60
MFC-1010S	25,30	48		9		26	5	□10	8	17	M10×1.25/1.5	14		M10×1.25/1.5	0.75		2500	97
MFC-1012S	40	46		9		28	5	□12	8	17	M12×1.25/1.5	12		M12×1.25/1.5			4400	100
MFC-1014S	40	59		11		35	7	□14	9	22	M14×1.5	17		M14×1.5	1		6000	220
MFC-1016S	50,63	77	±2.0	13	±2.0	45	9	□18	13	27	M18×1.5	23	±2.0	M16×1.5	1.25		11000	480
MFC-1018S	50,63	77		13		45	9	□18	13	27	M18×1.5	23		M18×1.5			11000	480
MFC-1020S	80	90		18		50	10	□22	16	32	M20×1.5	27		M20×1.5	2		18000	660
MFC-1022S	80	90		18		50	10	□22	16	32	M20×1.5	27		M22×1.5			18000	660
MFC-1024S	100	107		20		60	12	□26	19	41	M26×1.5	33		M24×1.5	2.5		28000	1190
MFC-1026S	100	107		20		60	12	□26	19	41	M26×1.5	33		M26×1.5			28000	1180
MFC-1027S	125	117		20		63.5	19	□29	20	41	M30×1.5	33		M27×2.0			28000	1380
MFC-1030S	125,140	117		20		63.5	19	□29	20	41	M30×1.5/2.0/3.5	33		M30×1.5/2.0/3.5			36000	1420
MFC-1036S	140,160	133		25		75	20	□35	22	50	M36×1.5/2.0	40		M36×1.5/2.0	3		55000	2800
MFC-1045S	140,160	147		29		85	15	□43	24.5	69	M45×2.0	39		M45×1.5/2.0			55000	–

F

With **S** type floating joints.

Fig.1

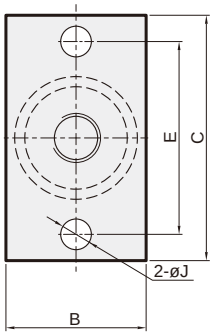
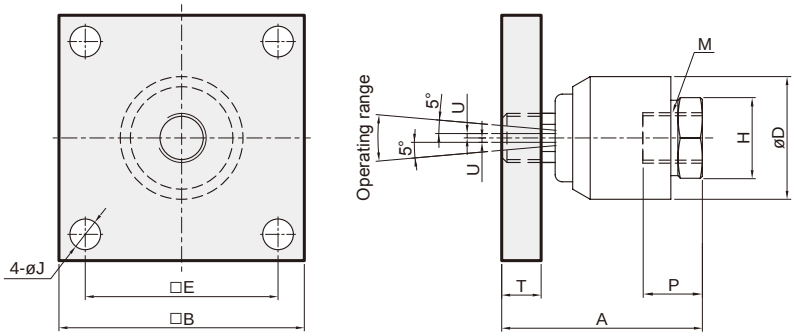
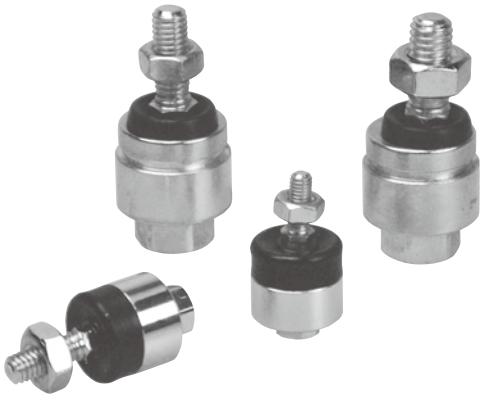


Fig.2



Model	A		B	C	øD	E	H	J	T	M	P		Illustration fig no.	Permissible U deviation	Rot. angle	Permissible pressure	Weight (g)
	DIM.	TOL.									DIM.	TOL.					
MFC-1008F	36	±1.0	25	52	24	40	13	6.6	6	M8×1.0/1.25	12	±1.0	Fig.1	0.5	±0.5°	3.5MPa (max.) Pneumatic / Hydraulic	130
MFC-1010F	48		32	56	26	44	17	6.6	9	M10×1.25/1.5	14			0.75			235
MFC-1012F	46		32	56	28	44	17	6.6	9	M12×1.25/1.5	12						240
MFC-1014F	59		38	80	35	60	22	11	11.6	M14×1.5	17			1			510
MFC-1016F	77	±2.0	74	–	45	45	27	11	15	M16×1.5	23	±2.0	Fig.2	1.25			1120
MFC-1018F	77		74	–	45	45	27	11	15	M18×1.5	23						1120
MFC-1020F	90		100	–	50	62	32	14	21	M20×1.5	27			2			2280
MFC-1022F	90		100	–	50	62	32	14	21	M22×1.5	27						2280
MFC-1024F	107		100	–	60	70	41	14	21	M24×1.5	33			2.5			2870
MFC-1026F	107		100	–	60	70	41	14	21	M26×1.5	33						2870
MFC-1027F	117		100	–	63.5	70	41	14	21	M27×2.0	33						3070
MFC-1030F	117		100	–	63.5	70	41	14	21	M30×1.5/2.0/3.5	33						3070
MFC-1036F	133		130	–	75	95	50	16	25	M36×1.5/2.0	40			3			5790
MFC-1045F	147		160	–	85	–	69	16	22	M45×2.0	39						–



Features

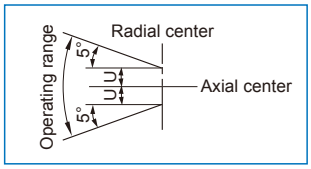
- The minor error connects between two shafts can be removed.
- The machining accuracy can be neglected.
- The shaft alignment's time for the error tolerance connects between two shafts can be finished and installed easily, even the newcomer can do also.
- The abnormal noise can be prohibited.
- Small in dimension but can be loaded high tension & compression.
- Long time for the machine parts and the packing in the cylinder or the rod sealing's damage can be prohibited, reduced the producing's cost.
- The compression's decrease can be prohibited.

Order example

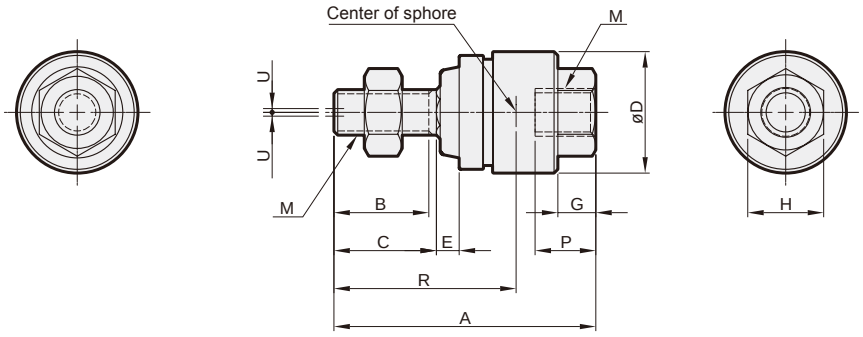
MFCS – 1004 T

- MFCS – MODEL
- 1004 – THREAD SIZE
- T – TYPE
  T: Standard type

Operating range



T



Model	Cyl. dia	M	A	B	C	D	E	F	G	H	R	P	Permissible U deviation	Max. operating tension and compression force (N)	Weight	Rot. angle
MFCS-1003T	6	M3×0.5	23	7	8	12	2	3.8	3	5.5	15.5	6	0.5	19	5.5 g	±5°
MFCS-1004T	8	M4×0.7	26	9	10	12	2	4	4	6	18.5	7	0.5	54	10 g	
MFCS-1005T	10, 15	M5×0.8	34.5	12.5	13.5	16	3	6	5	10	24	8	0.5	123	20 g	
MFCS-1006T	16	M6×1.0	34.5	12.5	13.5	16	3	6	5	10	24	8	0.5	123	23 g	
MFCS-1008T	20	M8×1.25	46	20	21	21	5	7.8	5	13	31	7.5	0.5	1100	47 g	
MFCS-1010T	25, 32	M10×1.25	49.5	19.5	19.5	24	5	8	7	17	35.5	11	0.5	2500	72 g	

* Permissible pressure range: pneumatic pressure must below 1 MPa.

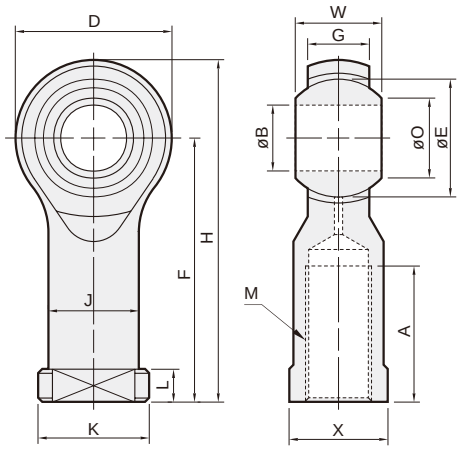
Features

- Wide range available.
- Grease nipple as standard.

Order example

PHS 25 — M24×1.5

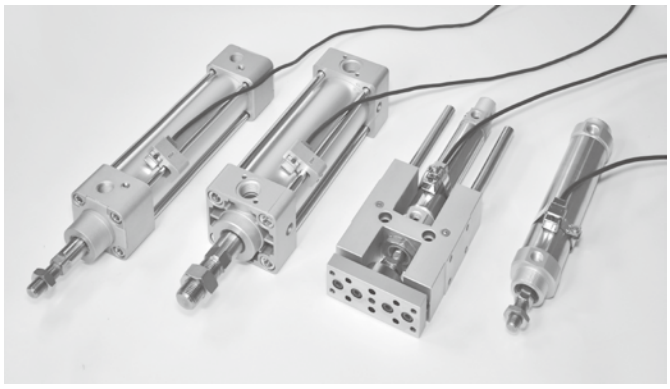
MODEL　　THREAD SIZE



Model	Main dimensions (mm)														Static fracture minimal radial load (kgf)	Dynamic eff. load (kgf)		Weight (g)
	A	B	D	E	F	G	H	J	K	L	M	O	W	X		Radial	Axial	
PHS 5-M5×0.8	14	5	16	11.11	27	7	35	9	12	4	M5×0.8	7.71	8	9	930	620	230	18
PHS 6-M6×1.0	14	6	18	12.7	30	7	39	10	13	5	M6×1.0	8.96	9	11	1040	690	270	26
PHS 8-M8×1.25	17	8	22	15.875	36	9	47	12.5	16	5	M8×1.25	10.4	12	14	1490	990	430	45
PHS 10EC-M10×1.25	21	10	26	19.05	43	11	56	15	19	6.5	M10×1.25	12.92	14	17	2010	1340	630	76
PHS 12EC-M12×1.25	24	12	30	22.225	50	12	65	17.5	22	6.5	M12×1.25	15.43	16	19	2470	1650	800	114
PHS 14EC-M14×1.5	27	14	34	25.4	57	14	74	20	25	8	M14×1.5	16.86	19	22	3130	2090	1070	158
PHS 16EC-M16×1.5	33	16	38	28.575	64	15	83	22	27	8	M16×1.5	19.39	21	22	3700	2470	1290	200
PHS 18-M18×1.5	36	18	42	31.75	71	17	92	25	31	10	M18×1.5	21.89	23	27	4490	2990	1620	288
PHS 20-M20×1.5	40	20	46	34.925	77	18	100	27.5	37	10	M20×1.5	24.38	25	32	5180	3460	1890	372
PHS 22-M22×1.5	43	22	50	38.1	84	20	109	30	37	12	M22×1.5	25.84	28	32	6100	4070	2290	475
PHS 25-M24×1.5	48	25	56	42.862	94	22	122	33.5	42	12	M24×1.5	29.6	31	36	7420	4950	2830	673
PHS 28-M27×2.0	53	28	67	47.625	110	26	143.5	40	50	15	M27×2.0	32.30	35	41	8870	5210	3240	875
PHS 30-M30×2.0	56	30	67	50.8	110	26	143.5	40	50	15	M30×2.0	34.81	37	41	11000	7370	3960	1050

RCA series

SENSOR SWITCH



Order example

* Special order is available.

RCA — □

MODEL
RCA: Reed switch
RDA: Non-contact
RNA: NPN
RNAE: NPN
RPA: PNP
RPAE: PNP

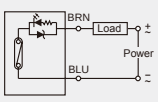
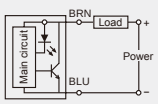
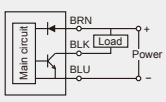
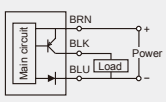
WIRE LENGTH
Blank: L=2000mm
1M: L=1000mm
QD: M8, 3 Pin connector
EQD: M8, 3 Pin connector

Switch holder / band

HV1

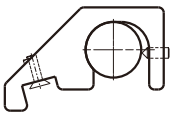
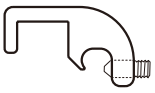
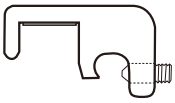
SWITCH HOLDER
HA*: for MCQA, MCQV
HV*: for MCQA, MCQV, MCQV2, MCQV3, MCQV2L, MCBQV, MCBQV2, MCBQV3, MCQN
HS*: for MSB*-ø50
BGA*: for MCKG*
PN-A*: for MCKA
PM*: for MCQA, MCQV

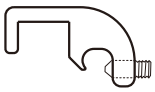
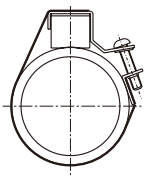
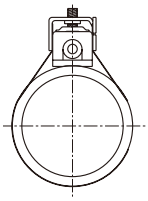
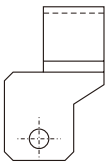
Specification

Model	RCA	RDA	RNA	RNAE	RPA	RPAE
Wiring method	2 wire		3 wire			
Switching logic	SPST N.O.	Solid state output, normally open				
Switch type	Reed switch	Non-contact	NPN current sinking		PNP current sourcing	
Operating voltage	5~240V DC/AC	5~30V DC				
Switching current	100mA max.	50mA max.	200mA max.			
Switching rating (*1)	10W max.	1.5W max.	6W max.			
Current consumption	—		15 mA@24V DC max.	6 mA@24V DC max.	15 mA@24V DC max.	6 mA@24V DC max.
Voltage drop	3.5V max.	3.7V max.	1.5V max.	0.5max.	1.5V max.	0.5max.
Leakage current	—	0.1mA(40uA) max.	0.01mA max.			
Indicator	Green LED	Red LED			Green LED	
Cable	ø4, 2C, PVC		ø4, 3C, PVC			
Temperature range	-10~+70°C (No freezing)					
Shock (*2)	30G	50G				
Vibration (*3)	9G					
Enclosure classification	IEC 60529 IP67					
Protection circuit (*4)	1	3,4	2,3,4	3,4	2,3,4	3,4
Weight	46 g (2m cable)					
Connect diagram						

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to page 10-3~4.

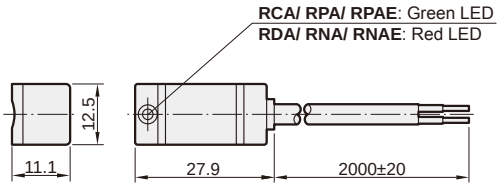
Assembling style

Cylinder type	MCQA					MCQV2 / MCBQV2			MCQV			MCQV3/ MCBQV3
Mounting clamps	Hold					Hold						Hold
Order	HV2	HV4	PM14	PM16	HA5	HV1	HV2	HV3	HV4	PM16	HA5V	HV2
Cylinder tube I.D.	40,50,63	80,100	125	150	200	32,40	50,63	80,100	125	160	200	63
Pictures	HA*  HV*  PM* 											

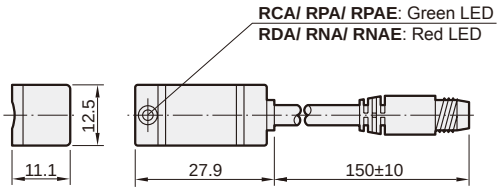
Cylinder type	MCBQV	MCQV2L		MCQN			MCKG*		MCKA	MSB* ø50
Mounting clamps	Hold	Hold		Hold			Band		Band	Hold
Order	HV4	HV2	HV3	HV1	HV2	HV3	BGA50	BGA63	PN-A40	HS
Cylinder tube I.D.	125	63	80	40	50,63	80,100	50	63	40	50
Pictures	HV* 									

Dimension

RCA/ RDA/ RNA/ RNAE/ RPA/ RPAE

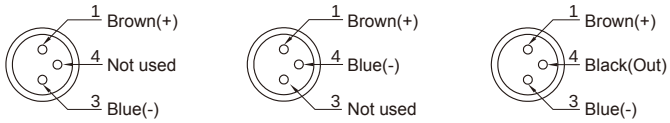


RCA-QD/ RDA-QD/ RNA-QD/ RNAE-QD/ RPA-QD/ RPAE-QD



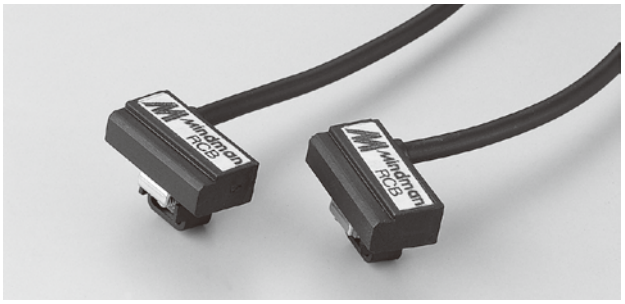
Wiring of the QD

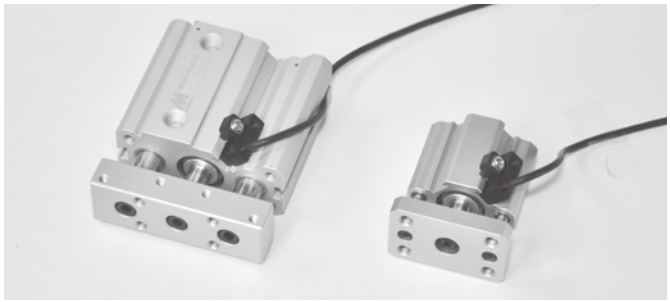
- 2 wire QD wiring
- 2 wire EQD wiring
- 3 wire QD wiring



RCB series

SENSOR SWITCH





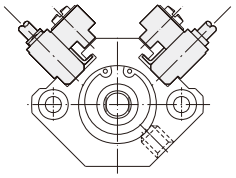
Order example

RCB – □

MODEL
RCB: Reed switch
RDB: Non-contact
RNB: NPN
RNBE: NPN
RPB: PNP
RPBE: PNP

WIRE LENGTH
Blank: L=2000mm
1M: L=1000mm
QD: M8, 3 Pin connector
EQD: M8, 3 Pin connector
* Special order is available.

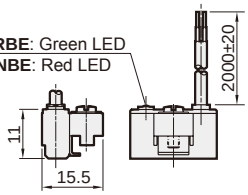
Assembling style

Cylinder type	Mounting clamp
MCJA, MCJQ, MCJQ2, MCGA, MCGJ, MCG3 MCDA, MCRA, MCKB, MSB*, MSLD	

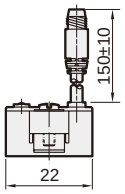
Dimension

Standard lead wire

RDB/ RPB/ PRBE: Green LED
RCB/ RNB/ RNBE: Red LED

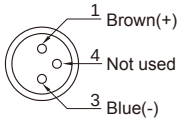


QD connector

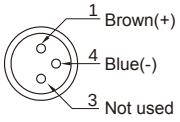


Wiring of the QD

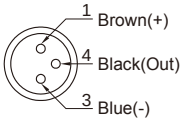
● 2 wire
QD wiring



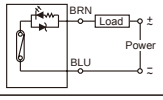
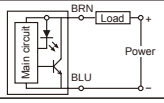
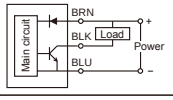
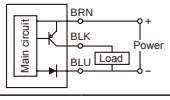
● 2 wire
EQD wiring



● 3 wire
QD wiring



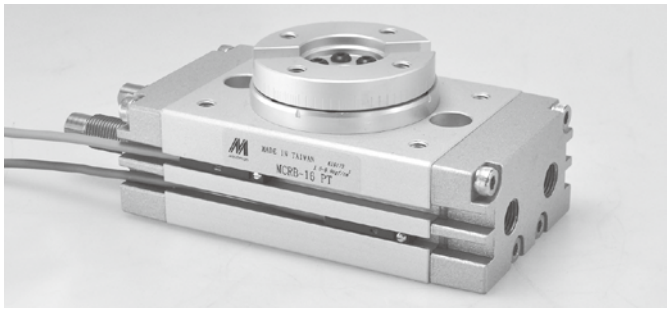
Specification

Model	RCB	RDB	RNB	RNBE	RPB	RPBE
Wiring method	2 wire		3 wire			
Switching logic	SPST normally open	Solid state output, normally open				
Switch Type	Reed switch	Non-contact	NPN current sinking		PNP current sourcing	
Operating voltage	5~240V DC/AC	5~30V DC				
Switching current	100mA max.	50mA max.	200mA max.			
Switching rating(*1)	10W max.	1.5W max.	6W max.			
Current consumption	–		22 mA@24V DC max.	6 mA@24V DC max.	20 mA@24V DC max.	6 mA@24V DC max.
Voltage drop	3.5V max.	3.7V max.	0.5V max.			
Leakage current	–	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED	Green LED	Red LED		Green LED	
Cable	ø3.3, 2C, PVC		ø3.3, 3C, PVC			
Temperature range	–10~+70°C (No freezing)					
Shock (*2)	30G	50G				
Vibration (*3)	9G					
Enclosure classification	IEC 60529 IP67					
Protection circuit (*4)	1	3,4				
Weight	33 g (2m cable)					
Connect diagram						

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to the page 10-3~4.

RCD series

SENSOR SWITCH



Order example

RCD – □

MODEL

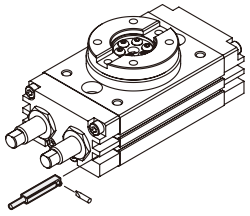
RCD: Reed switch
RDD: Non-contact
RND: NPN
RNDE: NPN
RPD: PNP
RPDE: PNP

WIRE LENGTH

Blank: L=2000mm
1M: L=1000mm
QD: M8, 3 Pin connector
EQD: M8, 3 Pin connector

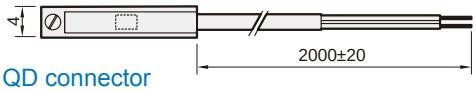
* Special order is available.

Assembling style

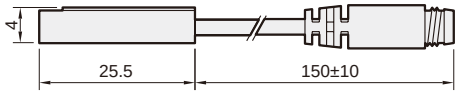
Cylinder type	Mounting clamp
MCRPMS, MCRB	

Dimension

Standard lead wire

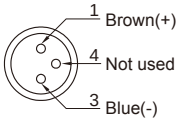


QD connector

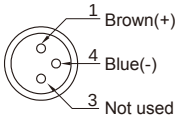


Wiring of the QD

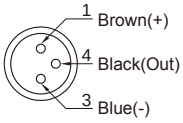
● 2 wire
QD wiring



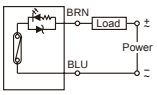
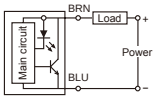
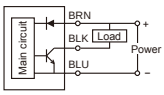
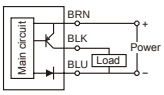
● 2 wire
EQD wiring



● 3 wire
QD wiring



Specification

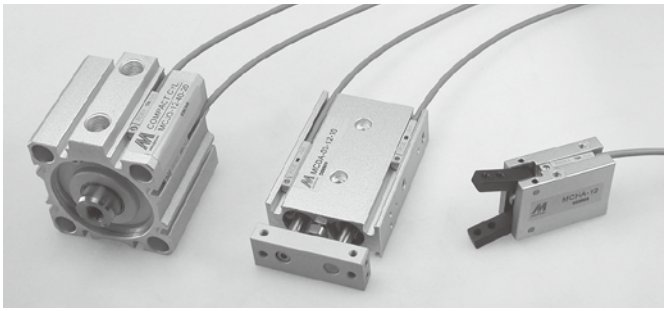
Model	RCD	RDD	RND	RNDE	RPD	RPDE
Wiring method	2 wire		3 wire			
Switching logic	SPST normally open	Solid state output, normally open				
Switch Type	Reed switch	Non-contact	NPN current sinking		PNP current sourcing	
Operating voltage	5~120V DC/AC	5~30V DC				
Switching current	100mA max.	50mA max.	200mA max.			
Contact rating (*1)	10W max.	1.5W max.	6W max.			
Current consumption	–		8 mA@24V DC Max	6 mA@24V DC Max	8 mA@24V DC Max	6 mA@24V DC Max
Voltage drop	3.5V max.	3.7V max.	1V@200mA Max	0.5V@200mA Max	1V@200mA Max	0.5V@200mA Max
Leakage current	–	0.1mA(40uA) Max	0.01mA Max			
Indicator	Red LED				Green LED	
Cable	ø2.8, 2C, PUR		ø2.8, 3C, PUR			
Temperature range	–10~+70°C (No freezing)					
Shock (*2)	30G	50G				
Vibration (*3)	9 G					
Enclosure classification	IEC 60529 IP67					
Protection circuit (*4)	1	3, 4	2, 3, 4	3, 4	2, 3, 4	3, 4
Weight	20 g (2m cable)					
Connect diagram						

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to page 10-3~4.

RCE series

SENSOR SWITCH

mindman



Order example

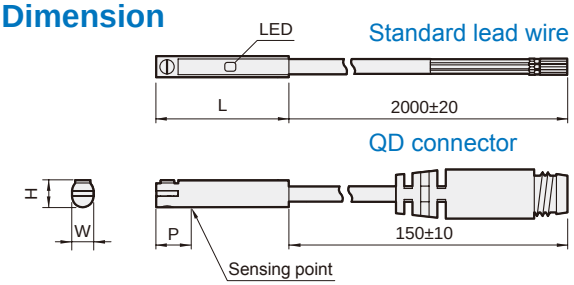
* Special order is available.

RCE — □

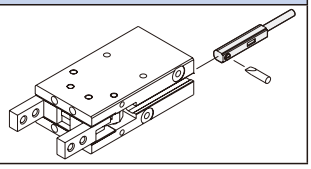
MODEL
RCE: Reed Switch
RDE: Non-contact
RDE-D: Non-contact, two indicators
RNE: NPN
RNEE: NPN
RPE: PNP
RPEE: PNP

WIRE LENGTH
Blank: L=2000mm
1M: L=1000mm
QD: M8, 3 Pin connector
EQD: M8, 3 Pin connector

Dimension



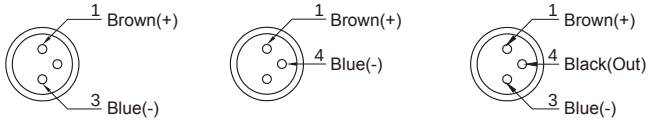
Assembling style

Cylinder type	Mounting clamp
MCJA, MCJQ, MCKJQ, MCFA, MCGB, MCGS, MCGD, MCGJ, MCG3, MCDA, MCSH, MCSS, MCSQ, MCSF, MCRPMD, MCRA, MCKB, MCKC, MCHA, MCHB, MCHC, MSB*, MSL*	

* **RDE** not applicable to **MCDA-12**, **MCSS-6/8**, **MCSQ**.

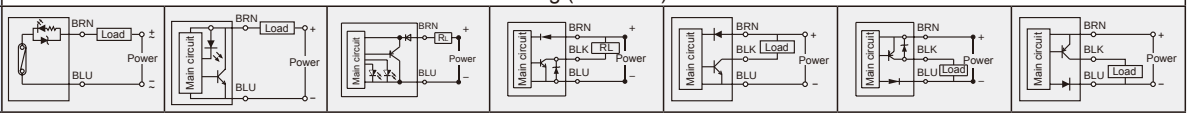
Wiring of the QD

● 2 wire QD wiring ● 2 wire EQD wiring ● 3 wire QD wiring



Code / Model	H	L	P	W
RCE	5	24	12	4
RDE, RDE-D	5	24	6	4
RNE, RPE	4.65	22	6	4.1
RNEE, RPEE	5	24	6	4

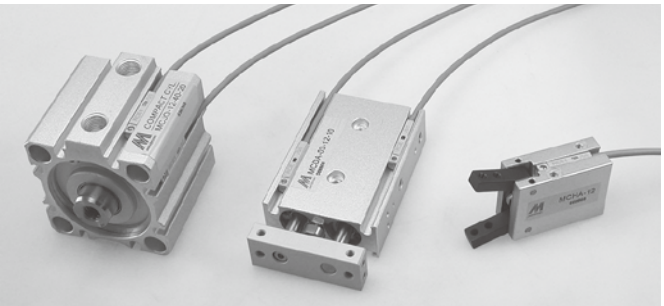
Specification

Model	RCE	RDE	RDE-D	RNE	RNEE	RPE	RPEE
Wiring method	2 wire			3 wire			
Switching logic	SPST normally open			Solid state output, normally open			
Switch Type	Reed switch	Non-contact		NPN current sinking		PNP current sourcing	
Operating voltage	5~220V DC/AC	10~28V DC		5~30V DC			
Switching current	50mA max.	50mA max.	80mA max.	50mA max.	200mA max.	50mA max.	200mA max.
Switching rating(*1)	10W max.	1.5W max.	2W max.	1.5W max.	6W max.	1.5W max.	6W max.
Current consumption	—			10 mA@24V DC max.	6 mA@24V DC max.	12 mA@24V DC max.	6 mA@24V DC max.
Voltage drop	3.5V max.		4V max.	0.5V max.	0.5V @200mA max.	1.5V max.	0.5V @200mA max.
Leakage current	—	0.1mA max.	1mA max.	0.01mA max.			
Indicator (LED)	Red		Red/Green	Red		Green	
Cable	ø2.8,2C,PUR	ø2.8,2C,PUR		ø3, 3C, PU			
Temperature range	-10~+70°C (No freezing)						
Shock (*2)	30G	50G					
Vibration (*3)	9G						
Enclosure classification	IEC 60529 IP67						
Protection circuit (*4)	1	3,4	2,3,4	3,4			
Weight	20 g (2m cable)						
Connect diagram							

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to the page 10-3~4.

RCE1 series

SENSOR SWITCH



Order example

* Special order is available.

RCE1 – □

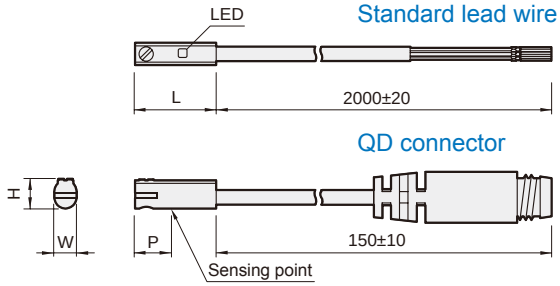
MODEL

RCE1: Reed Switch
RDE1E: Non-contact
RNE1E: NPN
RPE1E: PNP

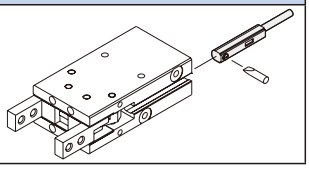
WIRE LENGTH

Blank: L=2000mm
1M: L=1000mm
QD: M8, 3 Pin connector
EQD: M8, 3 Pin connector

Dimension



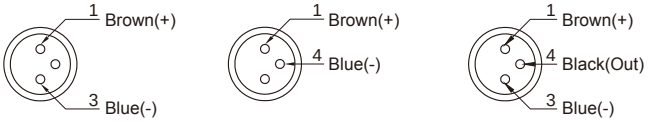
Assembling style

Cylinder type	Mounting clamp
MCJA, MCJQ, MCKJQ, MCFA, MCGB, MCGS, MCGD, MCGJ, MCG3, MCDA, MCSH, MCSS, MCSQ, MCSF, MCRPMD, MCRA, MCKB, MCKC, MCHA, MCHB, MCHC, MSB*, MSL*	

* **RNE1E** not applicable to **MCDA-12**.

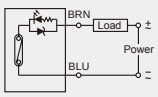
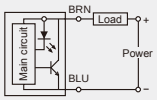
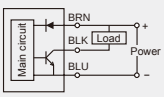
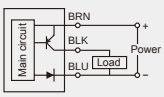
Wiring of the QD

● 2 wire QD wiring ● 2 wire EQD wiring ● 3 wire QD wiring

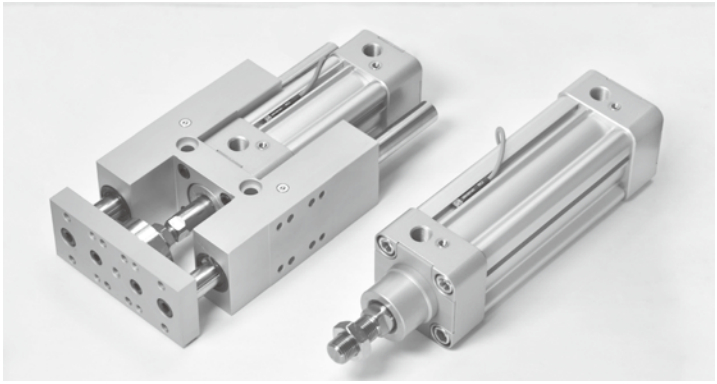


Code / Model	H	L	P	W
RCE1	4.65	22.0	12	4.1
RDE1E	5	14.2	6	4
RNE1E	5	14.2	6	4
RPE1E	5	14.2	6	4

Specification

Model	RCE1	RDE1E	RNE1E	RPE1E
Wiring method	2 wire		3 wire	
Switching logic	Solid state output, normally open			
Switch Type	Reed switch	Non-contact	NPN current sinking	PNP current sourcing
Operating voltage	5~120V DC/AC	5~30V DC		
Switching current	100mA max.	50mA max.	80mA max.	
Switching rating(*1)	10W max.	1.5W max.	2.2W max.	
Current consumption	—		10 mA@24V DC max.	
Voltage drop	3.5V max.		0.5V@50mA max.	
Leakage current	—	0.1mA(40uA) max.	0.01mA max.	
Indicator (LED)	Red			
Cable	ø2.8,2C,PU	ø2.6,2C,PVC	ø2.6,3C,PVC	
Temperature range	-10~+70°C (No freezing)			
Shock (*2)	30G	50G		
Vibration (*3)	9G			
Enclosure classification	IEC 60529 IP67			
Protection circuit (*4)	1	3,4		
Weight	20 g (2m cable)			
Connect diagram				

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to the page 10-3~4.



Order example

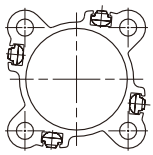
RCI — N — □

MODEL
- **RCI**: Reed Switch
- **RCI-N**: Reed Switch (NPN)
- **RCI-P**: Reed Switch (PNP)
- **RNI**: NPN
- **RPI**: PNP

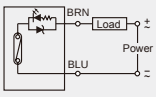
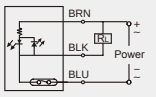
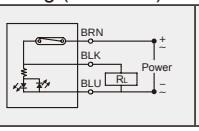
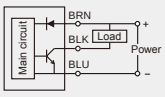
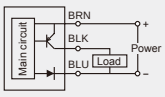
WIRE LENGTH
- Blank: L=2000mm
- **1M**: L=1000mm
- **QD**: M8, 3 Pin connector
- **EQD**: M8, 3 Pin connect

* Special order is available.

Assembling style

Cylinder type	Mounting clamp
MCQI2, MCQI3, MCKQI2, MCBQI2, MCBQI3, MCJI, MCGI, MGTB, MGTU, MGTX, METB	

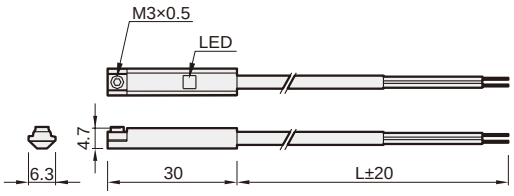
Specification

Model	RCI	RCI-N	RCI-P	RNI	RPI
Wiring	2 wire	3 wire		3 wire	
Switching logic	Normal open				
Switch Type	Reed switch			NPN current sinking	PNP current sourcing
Voltage range	5~240V DC/AC	10~30V DC		10~30V DC	
Current range	100mA max.	500mA max.		200mA max.	
Contact rating (*1)	10W max.			6W max.	
Current consumption	—	5 mA@24V DC max.		20 mA@24V DC max.	
Voltage drop	3.5V max.	0.1V@100mA max.		1.5V max.	
Leakage current	—	—	—	0.05mA max.	
Indicator	Red LED	Yellow LED		Red LED	Yellow LED
Cable	ø3,2C,PUR	ø3,3C,PUR		ø3,3C,PUR	
Temperature	-10~+70°C (No freezing)				
Shock (*2)	30G			50G	
Vibration (*3)	9G				
Protection classification	IEC 60529 IP67				
Protection circuit (*4)	1			2,3,4	
Weight	23 g (2m cable)				
Connect diagram					

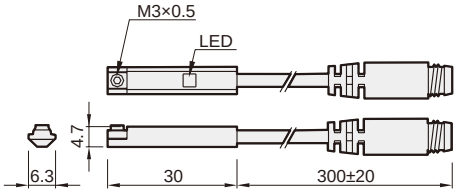
*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to page 10-3~4 .

Dimension

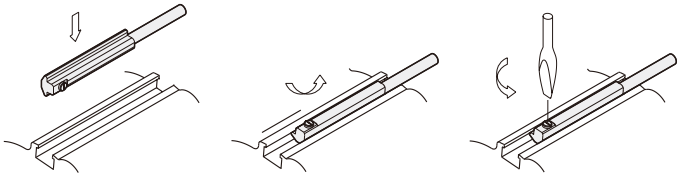
RCI-*/RNI/RPI



RCI-*-QD/RNI-QD/RPI-QD

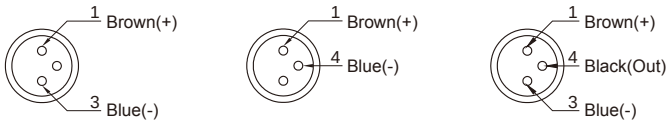


Mounting



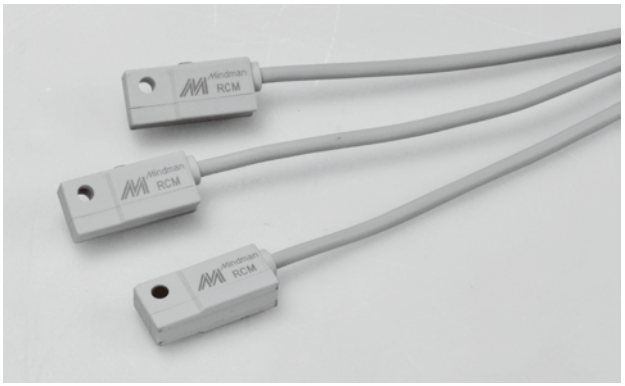
Wiring of the QD

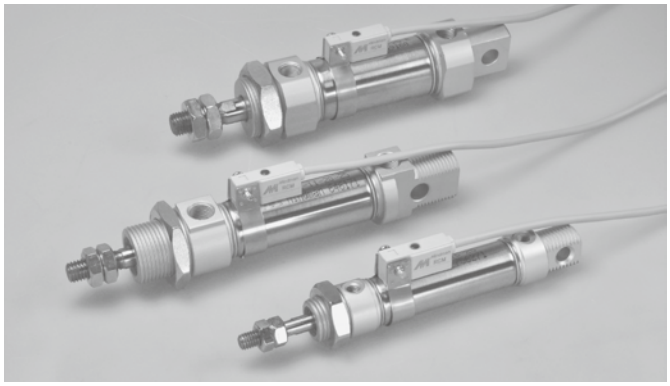
- 2 wire QD wiring
- 2 wire EQD wiring
- 3 wire QD wiring



RCM series

SENSOR SWITCH





Order example

* Special order is available.

RCM – BM16 – □

MODEL
RCM: Reed switch
RDM: Non-contact
RNM: NPN
RNME: NPN
RPM: PNP
RPME: PNP

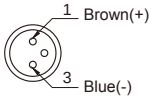
SWITCH BAND
BM
BMG

TUBE I.D.
6, 10, 16, 20, 25, 32, 40, 50, 63, 80, 100

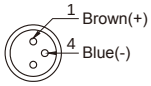
WIRE LENGTH
Blank: L=2000mm
1M: L=1000mm
QD: M8, 3 Pin connector
EQD: M8, 3 Pin connector

Wiring of the QD

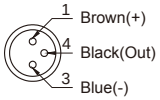
● 2 wire QD wiring



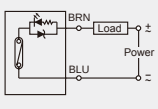
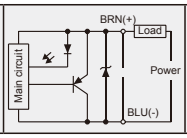
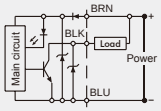
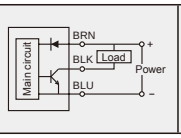
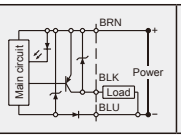
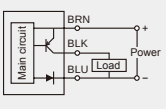
● 2 wire EQD wiring



● 3 wire QD wiring

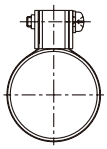


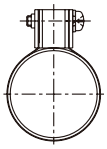
Specification

Model	RCM	RDM	RNM	RNME	RPM	RPME
Wiring method	2 wire		3 wire			
Switching logic	SPST N.O.	Solid state output, normally open				
Switch Type	Reed switch	Non-contact	NPN current sinking		PNP current sourcing	
Operating voltage	5~240V DC/AC	10~30V DC	5~28V DC	5~30V DC	5~28V DC	5~30V DC
Switching current	100mA max.	50mA max.	50mA max.	200mA max.	50mA max.	200mA max.
Switching rating (*1)	10W max.	1.5W max.	1.5W max.	6W max.	1.5W max.	6W max.
Current consumption	—		10 mA@24V DC max.	6 mA@24V DC max.	10 mA@24V DC max.	6 mA@24V DC max.
Voltage drop	3.5V max.	3.7V max.	1.5V max.	0.5V max.	1.5V max.	0.5V max.
Leakage current	—	0.1mA max.	0.01mA max.			
Indicator	Red LED				Green LED	
Cable	ø3.3, 2C, PVC		ø3.3, 3C, PVC			
Temperature range	-10~+70°C (No freezing)					
Shock (*2)	30G	50G				
Vibration (*3)	9G					
Enclosure classification	IEC 60529 IP67					
Protection circuit (*4)	1	3,4				
Weight	33 g (2m cable)					
Connect diagram						

* 1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
* 2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
* 3. Double amplitude 1.5mm/10Hz~55Hz~10Hz(Sweep 1min)/X.Y.Z. 3 directions/1 hour each time.
* 4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression.
* 5. Caution for safety please refer to page 10-3~4.

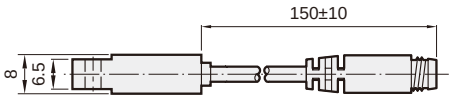
Assembling style

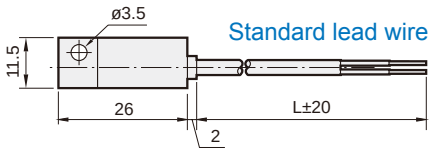
Picture	Model / Band & Tube I.D.		MCMA	MCMB MCKMB	MCMBR*	MCMBL	MCMI	MCMIS	MCKMI	MCMJ	MCBMI MGT*	MSLL
	BM6	6								●		
	BM8	8					●					
	BM10	10					●	●		●		
	BM12	12					●	●				
	BM16	16	●				●	●	●	●		
	BM20	20	●	●	●		●	●	●		●	
	BM25	25	●	●	●		●	●	●		●	
	BM32	32	●	●	●	●						
	BM40	40	●	●	●	●						●

Picture	Model / Band & Tube I.D.		MCCG	MCCN	MCCH
	BMG20	20	●	●	
	BMG25	25	●	●	
	BMG32	32	●	●	●
	BMG40	40	●	●	
	BMG50	50	●	●	
	BMG63	63	●	●	
	BMG80	80	●		
	BMG100	100	●		

Dimension

QD connector

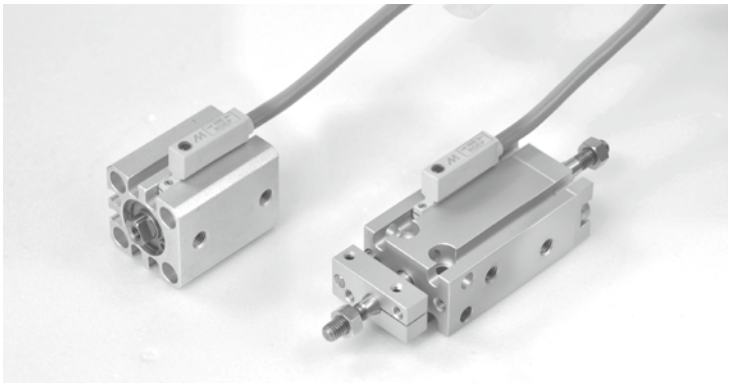




RDEP series

SENSOR SWITCH

mindman



Application environment

- **RDEP** can be applied in the strong magnetic field environment such as automotive manufacturing or areas near welding machine.
- When **RDEP** detects the magnetic AC field (50 or 60Hz) it will keep the status of output and will not be effected.

Order example

RDEP — □

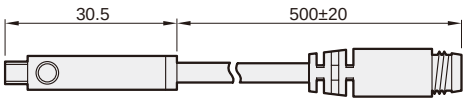
MODEL

WIRE LENGTH

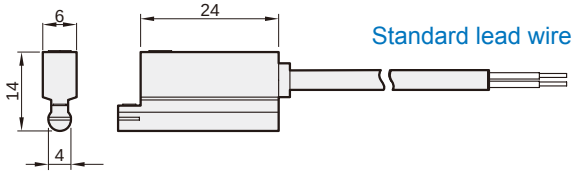
Blank: 3000mm
QD: M12, 4 Pin connector

Dimension

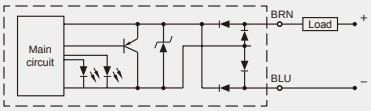
QD connector



Standard lead wire



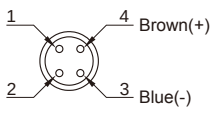
Specification

Model	RDEP
Wiring method	2 wire
Switching logic	Solid state output, normally open
Switch type	Current sourcing
Operating voltage	10~28V DC
Switching current	5~50mA max.
Switching rating (*1)	1.5W max.
Current consumption	—
Voltage drop	5V max.
Leakage current	1mA max.
Indicator (Sensing range)	Red LED: Unstable; Green LED: Stable
Cable	ø4.8, 2C, PVC
Temperature range	-10°C~+60°C (No freezing)
Shock (*2)	50G
Vibration (*3)	9G
Enclosure classification	IEC 60529 IP67
Protection circuit (*4)	3, 4
Weight	100 g (3m cable)
Connect diagram	

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to page 10-3~4 .

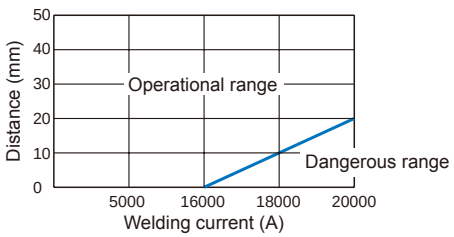
Wiring of the QD

- 2 wire

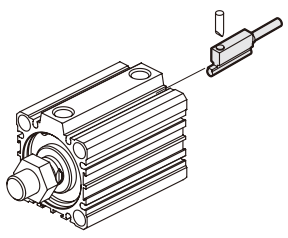


Weld-field immune

The operational distance can be 0mm between sensor and welding gun (welding conductor or cable) when the welding current less than 16000A.



Assembling style

Cylinder type	Mounting clamp
MCJA, MCJQ, MCKJQ, MCFA, MCGB, MCGS, MCGD, MCGJ, MCG3, MCDA, MCSS, MCSH, MCSQ, MCRA, MCKB, MCKC, MSB*, MSL*	

RDFE series

SENSOR SWITCH

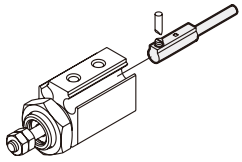
Order example

* Special order is available.

RDFE V — □

MODEL	AUTO SWITCH TYPE	WIRE LENGTH
RDFE: Non-contact **RNFE**: NPN **RPFE**: PNP	Blank: Straight cable **V**: Angle cable	Blank: L=2000mm **1M**: L=1000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector

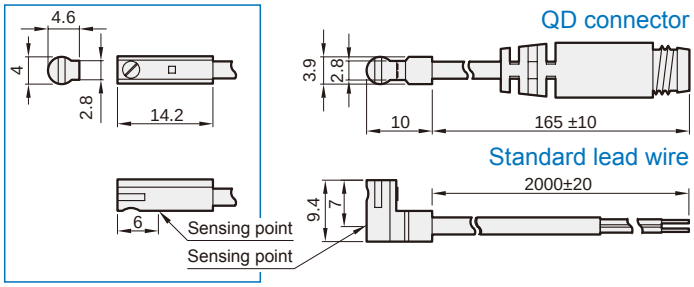
Assembling style

Cylinder type	Mounting clamp
MAM*, MCJU, MCFB, MCMJP, MCDJ, MSBE, MCRJ-S, MCRQ, MCRQ-S, MCHC-6, MCHD, MCHH, MCHU, MCHS, MCHX, MCHG2, MCHJ, MCHY, MEQI	

Dimension

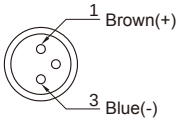
Straight cable

Angle cable

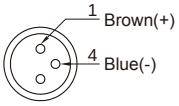


Wiring of the QD

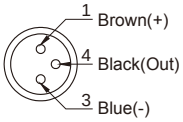
• 2 wire QD wiring



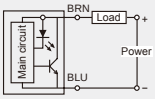
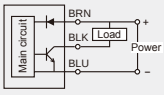
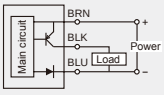
• 2 wire EQD wiring



• 3 wire QD wiring



Specification

Model	RDFE / RDFEV	RNFE	RNFEV	RPFE	RPFEV
Wiring method	2 wire	3 wire			
Switching logic	Solid state output, Normally open				
Switch Type	Non-contact	NPN current sinking		PNP current sourcing	
Operating voltage	5~30V DC	5~30V DC		5~30V DC	
Switching current	50mA max.	50mA max.	80mA max.	50mA max.	80mA max.
Contact rating(*1)	1.5W max.	1.5W max.	2.2W max.	1.5W max.	2.2W max.
Current consumption	—	10mA @24V DC max.	6mA @24V DC max.	10mA @24V DC max.	6mA @24V DC max.
Voltage drop	3.5V max.	0.5V @ 50mA max.			
Leakage current	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED				
Cable	ø2.6, 2C, PVC	ø2.6, 3C, PVC			
Temperature range	–10~+70°C (No freezing)				
Shock (*2)	50G				
Vibration (*3)	9G				
Enclosure classification	IEC 60529 IP67				
Protection circuit (*4)	3, 4				
Weight	12.8 g (1m cable) / 23.8 g (2m cable)				
Connect diagram					

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to page 10-3~4.

Order example

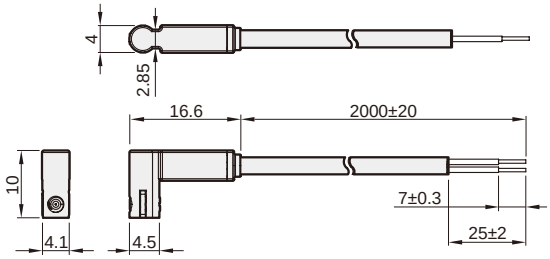
RDGV — □

- SWITCH TYPE
  - **D**: Non-contact
  - **N**: NPN
  - **P**: PNP
- AUTO SWITCH TYPE
  - **V**: Angle cable
- WIRE LENGTH
  - Blank: L=2000mm
  - **1M**: L=1000mm
  - **QD**: M8, 3 Pin connector
  - **EQD**: M8, 3 Pin conncetor

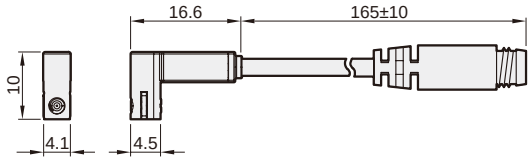
* Special order is available.

Dimension

RDGV / RNGV / RPGV



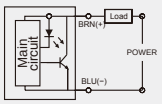
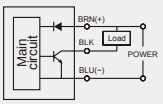
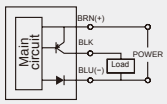
RDGV-QD / RNGV-QD / RPGV-QD



Wiring of the QD

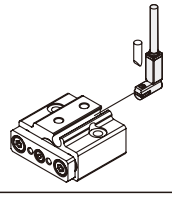
- 2 wire QD wiring
  - 1 Brown(+)
  - 3 Blue(-)
- 2 wire EQD wiring
  - 1 Brown(+)
  - 4 Blue(-)
- 3 wire QD wiring
  - 1 Brown(+)
  - 4 Black(Out)
  - 3 Blue(-)

Specification

Model	RDGV	RNGV	RPGV
Wiring method	2 wire	3 wire	
Switching logic	Solid state output, Normally open		
Switch type	Non-contact	NPN current sinking	PNP current sourcing
Operating voltage	10~28V DC	5~28V DC	
Switching current	4~20mA max.	50mA max.	
Contact rating (*1)	0.6W max.	1.5W max.	
Current consumption	—	10mA @24V DC max.	
Voltage drop	3.5V max.	0.5V @ 50mA max.	
Leakage current	0.8mA max.	0.01mA max.	
Indicator	Red LED		
Cable	ø2.6, 2C, PVC	ø2.6, 3C, PVC	
Temperature range	-10°C~+70°C (No freezing)		
Shock (*2)	50G		
Vibration (*3)	9G		
Enclosure classification	IEC 60529 IP67		
Protection circuit (*4)	4	3, 4	
Weight	23 g (2m cable)		
Connect diagram			

* 1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
* 2. Sin wave / X.Y.Z. 3 Directions / 3 Times each direction / 11ms each time.
* 3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) /X.Y.Z. 3 Directions / 1 Hour each time.
* 4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression.
* 5. Caution for safety please refer to page 10-3~4.

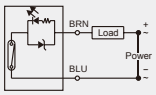
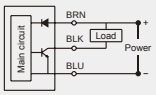
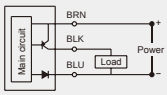
Assembling style

Cylinder type	Mounting clamp
MCJU, MCFB, MCMJP, MCGS, MCDJ, MCHJ-50	

LN01A series

SENSOR SWITCH

Specification

Model	LN0*A	LN0*A-N	LN0*A-P
Wiring method	2 wire	3 wire	
Switching logic	Normally open	Solid state output, normally open	
Switch Type	Reed switch	NPN current sinking	PNP current sourcing
Operating voltage	5~240V DC/AC	10~30V DC	
Switching current	100mA max.	200mA max.	
Switching rating(*1)	10W max.	6W max.	
Current consumption	—	OFF:7mA(24V) ON:20mA(24V) max.	
Voltage drop	3V max.	0.5V@200mA max.	
Indicator	Red LED		Green LED
Cable	ø3.3, 2C, PVC	ø3.3, 3C, PVC	
Temperature range	-10~+70°C (No freezing)		
Enclosure classification	IEC 60529 IP67		
Protection circuit (*2)	1	3, 4	
Symbol			

*1. Warning: Never exceed rating (watt=voltage×amperage).
*2. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression.
*3. Caution for safety please refer to page 10-3~4.

Order example

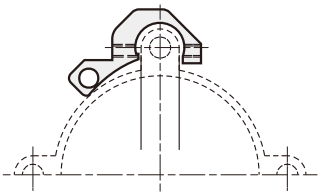
LN01A — P — □

MODEL
- LN01A
- LN02A
- LN03A

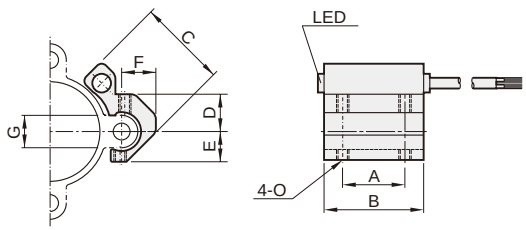
SWITCH TYPE
Blank: Reed switch
N: NPN
P: PNP

Blank: Lead wire
QD: Connector

Assembling style

Cylinder type	MHBS / MHBD		
Order	LN02A	LN03A	
Intensified pressure ratio	078*	110*	250*
Mounting clamp			

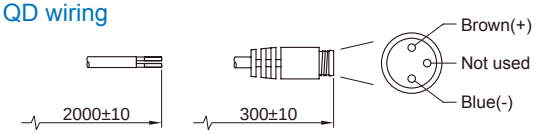
Dimension



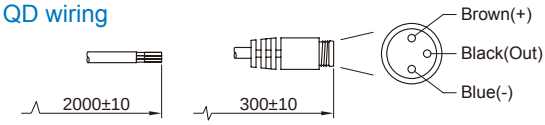
Model	A	B	C	D	E	F	G	O
LN01A	20	32	28.5	12	9.8	11	10.5	M4
LN02A	20	32	37.5	15	13.5	12	13.5	M4
LN03A	20	32	56	18	15	14	17	M4

Wiring of the QD

- 2 wire QD wiring



- 3 wire QD wiring

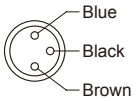
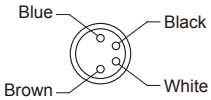


M83*/ M84* series

CABLE WITH **CONNECTOR** / M8 (MALE)

mindman

Specification

Model	M83R / M83RL		M84R / M84RL	
Female pin out				
Number of contacts	3		4	
Rated voltage	60V DC/AC			
Rated current	3A			
Contact material	Gold plated brass			
Contact bearer material	PA			
Housing material	PP			
Housing color	Black			
Cable material	ø4.5, PVC	ø4.5, PUR	ø4.5, PVC	ø4.5, PUR
Cable color	Gray	Black	Gray	Black
Temperature	-20°C~+80°C (No freezing)			
Cable conductor	24AWG			
Protection class	IEC60529 IP 67			

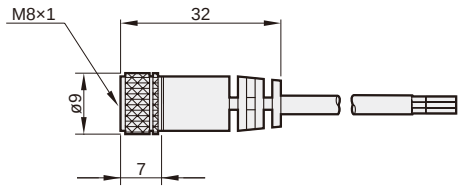
Order example

M83R – PVC – □

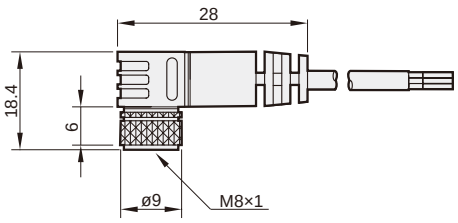
- MODEL
  - **M83**: M8, 3 Pin
  - **M84**: M8, 4 Pin
- CONNECTOR
  - **R**: Straight cable socket
  - **RL**: Angle cable socket
- CABLE MATERIAL
  - **PVC**: ø4.5 PVC cable
  - **PUR**: ø4.5 PUR cable
- CABLE LENGTH
  - Blank: 2000 mm
  - **5M**: 5000 mm

Dimension

● Straight cable socket (**R**)



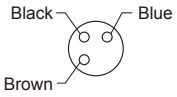
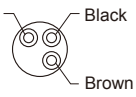
● Angle cable socket (**RL**)



M83R-F series

CABLE WITH **CONNECTOR** / M8 (MALE) – M8 (FEMALE)

Specification

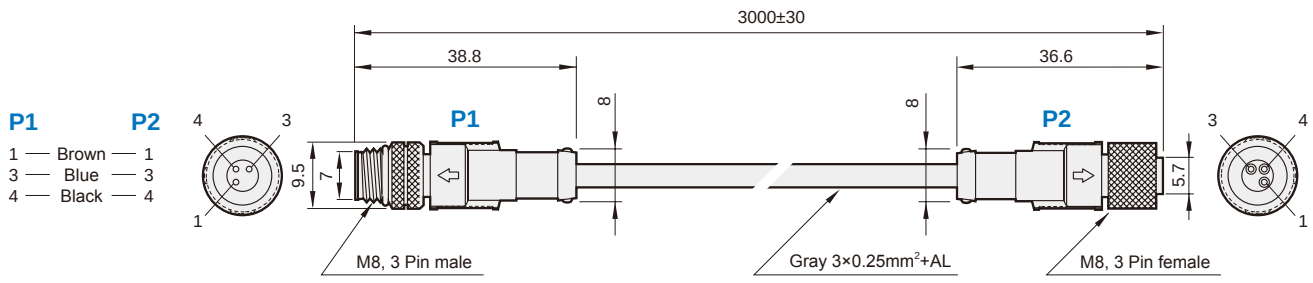
Model	M83R-F	
Male / Female pin out		
Number of contacts	3	3
Rated voltage	125V DC/AC	
Rated current	3A	
Contact material	Brass (Au plating)	
Contact bearer material	PVC	
Housing color	Gray	
Cable material	ø3.5, PVC	
Cable color	Gray	
Temperature	-20°C~+60°C (No freezing)	
Cable conductor	0.25mm^2 / 24AWG	
Protection class of contact	IP 67	

Order example

M83R — F — PVC — 3M

- MODEL — **M83**: M8, 3 Pin
- CONNECTOR — **R**: Straight cable socket
- **F**: M8 (male) – M8 (female)
- CABLE MATERIAL — **PVC**: ø3.5 PVC cable
- CABLE LENGTH — **3M**: 3000 mm

Dimension



MDSC / MDFC series

SHOCK ABSORBER

Hydraulic industrial shock absorbers

Select the correct shock absorber and it will reduce shock vibration and noise. It will improve efficiency and extend machine life.

The function of shock absorber is to convert the kinetic energy of the moving object into heat and dissipate it into the atmosphere. It can stop a moving object smoothly and quietly before heavy impact occurs.

In order to save cost solid buffers such as polyurethane and rubber are often used. These cause noise and transient shock. The use of shock absorbers alleviates this resulting in both increased reliability and production. Additionally the noise reduction means they are environmentally friendly.

MDSC series: Non-adjustable shock absorbers.
Surface treatment: nickel plated: MDSC-0806, MDSC-1008, MDSC-1210; others are black anodized.

MDFC series: Adjustable shock absorbers.

Operating principles of shock absorbers

Shock Absorber's main structure to combine with body, rod, bearing, inner tube, piston, fluid, spring. On impact the piston rod moves into the shock absorber and the hydraulic fluid is push into accumulator to produce resistant force, the pressure in the inner tube remains constant throughout the entire impact stroke. Shock Absorbers providing a linear deceleration and brings the impacting object to stop smoothly and quietly. At the end of the impact stroke, the return spring pushes the piston to its original position for next cycle

Order example

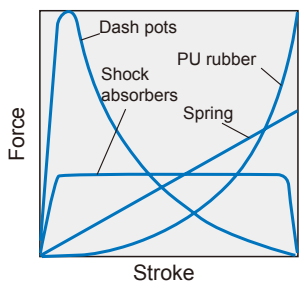
MDSC – 1415 – 1 – □ – M14×1.5

- MDSC: Non-adjustable / MDFC: Adjustable
- TUBE O.D. (mm)
- STROKE (mm)
- Select damping constant from graph
  - 1: Hight impact speed
  - 2: Medium impact speed
  - 3: Low impact speed
- Blank: With impact head / N: Without impact head
- THREAD

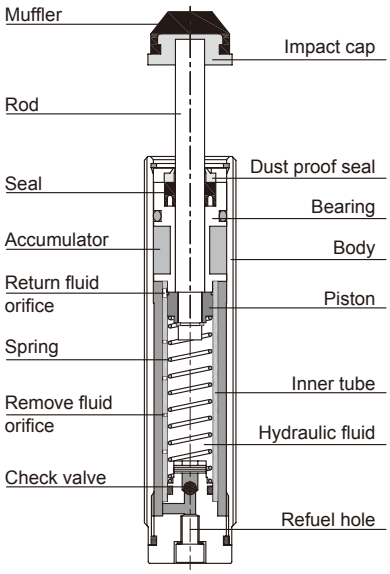
Comparison of shock absorbing of dash pots, PU rubbers, springs and shock absorbers

The springs and PU Rubbers are widespread to use in earlier period, but due to provide non-linear deceleration and to result in strong resistance, all the kinetic energy of moving objects is not absorption and produce counter pressure, this is in low efficiency.

If linear deceleration is necessary for a moving object. Mindman Shock Absorber is your best choice.

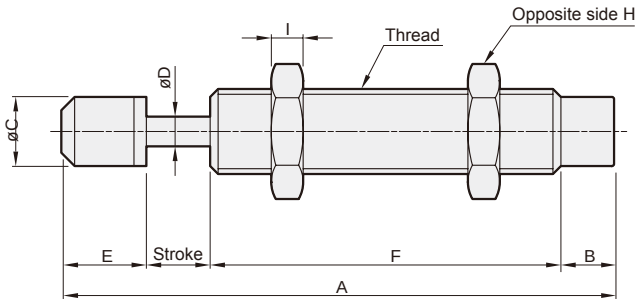


Main structures

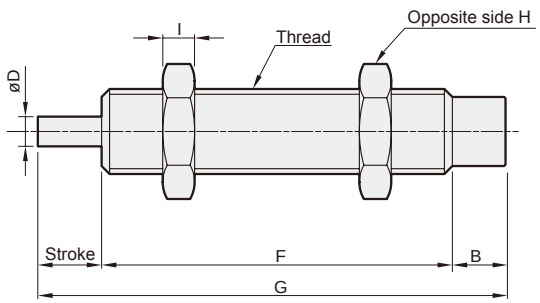


Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Effective max. weight (kg)	Max. impact speed (m/s)	Max. Nm per hour (Nm)	Operating temp. (°C)
MDSC-0806-1	6	1.8	0.9 ~ 5.6	2.0	2,400	-10~+70 (No freezing)
MDSC-0806-2	6	1.8	2.5 ~ 10	1.2	2,400	-10~+70 (No freezing)
MDSC-0806-3	6	1.8	5.6 ~ 22.5	0.8	2,400	-10~+70 (No freezing)
MDSC-1008-1	8	3.2	0.9 ~ 4.4	2.6	5,760	-10~+70 (No freezing)
MDSC-1008-2	8	3.2	2.8 ~ 10	1.5	5,760	-10~+70 (No freezing)
MDSC-1008-3	8	3.2	10 ~ 40	0.8	5,760	-10~+70 (No freezing)
MDSC-1210-1	10	6	1.8 ~ 12	2.6	10,800	-10~+70 (No freezing)
MDSC-1210-2	10	6	5.3 ~ 18.7	1.5	10,800	-10~+70 (No freezing)
MDSC-1210-3	10	6	12 ~ 75	0.8	10,800	-10~+70 (No freezing)
MDSC-1412-1	12	16	4.7 ~ 32	2.6	28,800	-10~+70 (No freezing)
MDSC-1412-2	12	16	14 ~ 50	1.5	28,800	-10~+70 (No freezing)
MDSC-1412-3	12	16	56 ~ 200	0.8	28,800	-10~+70 (No freezing)
MDSC-1415-1	15	20	5.9 ~ 27.8	2.6	36,000	-10~+70 (No freezing)
MDSC-1415-2	15	20	17.8 ~ 62.5	1.5	36,000	-10~+70 (No freezing)
MDSC-1415-3	15	20	62.5 ~ 250	0.8	36,000	-10~+70 (No freezing)
MDSC-1425-1	25	28	4.6 ~ 25	3.5	58,800	-10~+70 (No freezing)
MDSC-1425-2	25	28	14 ~ 87.5	2.0	58,800	-10~+70 (No freezing)
MDSC-1425-3	25	28	25 ~ 350	1.5	58,800	-10~+70 (No freezing)



N type

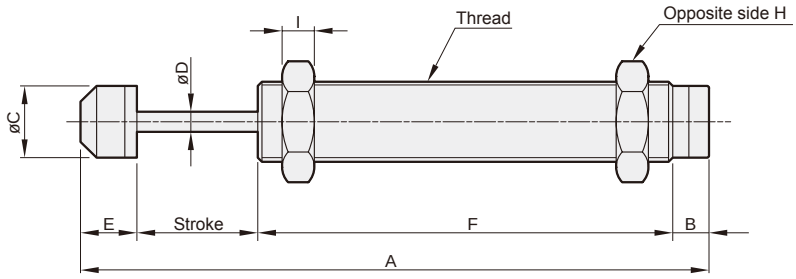


Dimensions

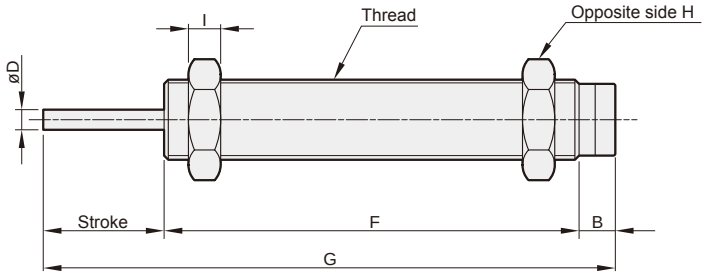
Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	Weight (g)
MDSC-0806	M8×1.0	6	53	5	6.5	2.8	8.5	33.5	—	11	3	12
MDSC-0806-N	M8×1.0	6	—	5	—	2.8	—	33.5	44.5	11	3	11
MDSC-1008	M10×1.0	8	62	5	8.5	3	8.5	40.5	—	12.7	3	20
MDSC-1008-N	M10×1.0	8	–	5	—	3	—	40.5	53.5	12.7	3	19
MDSC-1210	M12×1.0	10	72	4.5	10.5	3	9.5	48	—	14	4	36
MDSC-1210-N	M12×1.0	10	—	4.5	—	3	—	48	62.5	14	4	34
MDSC-1412	M14×1.5	12	92.7	8	12.2	3.5	13.4	59.3	—	19	6	66
MDSC-1412-N	M14×1.5	12	—	8	—	3.5	—	59.3	79.3	19	6	63
MDSC-1415	M14×1.0/1.5	15	103.4	8	12.2	3.5	13.4	67	—	19	6	79
MDSC-1415-N	M14×1.0/1.5	15	—	8	—	3.5	—	67	90	19	6	76
MDSC-1425	M14×1.0/1.5	25	133.4	8	12.2	3.5	13.4	87	—	19	6	90
MDSC-1425-N	M14×1.0/1.5	25	—	8	—	3.5	—	87	120	19	6	86

Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Effective max. weight (kg)	Max. impact speed (m/s)	Max. Nm per hour (Nm)	Operating temp. (°C)
MDSC-2020-1	20	35	6.8 ~ 27	3.2	42,000	-10~+70 (No freezing)
MDSC-2020-2	20	35	17.5 ~ 70	2.0	42,000	-10~+70 (No freezing)
MDSC-2020-3	20	35	48.6 ~ 777	1.2	42,000	-10~+70 (No freezing)
MDSC-2030-1	30	46	9 ~ 36	3.2	55,200	-10~+70 (No freezing)
MDSC-2030-2	30	46	23 ~ 92	2.0	55,200	-10~+70 (No freezing)
MDSC-2030-3	30	46	64 ~ 575	1.2	55,200	-10~+70 (No freezing)
MDSC-2050-1	50	62	10.1 ~ 124	3.5	63,240	-10~+70 (No freezing)
MDSC-2050-2	50	62	18.3 ~ 253	2.6	63,240	-10~+70 (No freezing)
MDSC-2050-3	50	62	55 ~ 496	1.5	63,240	-10~+70 (No freezing)



N type



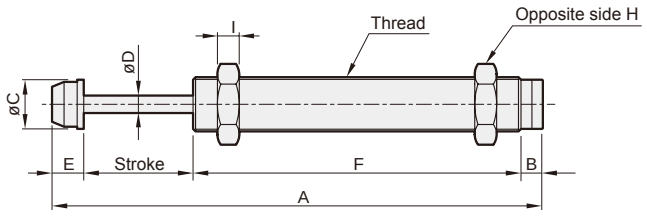
Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	Weight (g)
MDSC-2020	M20×1.5	20	130	9	17.8	5	16	85	—	26	8	200
MDSC-2020-N	M20×1.5	20	—	9	—	5	—	85	114	26	8	196
MDSC-2030	M20×1.5	30	158	9	17.8	5	16	103	—	26	8	221
MDSC-2050	M20×1.5	50	222.5	9	17.8	5	16	147.5	—	26	8	293

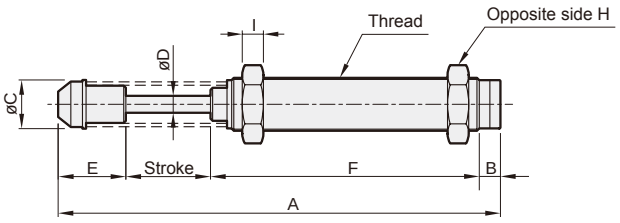
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Effective max. weight (kg)	Max. impact speed (m/s)	Max. Nm per hour (Nm)	Operating temp. (°C)
MDSC-2525-1	25	78	15 ~ 69	3.2	70,200	-10~+70 (No freezing)
MDSC-2525-2	25	78	39 ~ 433	2.0	70,200	-10~+70 (No freezing)
MDSC-2525-3	25	78	108 ~ 1733	1.2	70,200	-10~+70 (No freezing)
MDSC-2540-1	40	122	20 ~ 108	3.5	87,840	-10~+70 (No freezing)
MDSC-2540-2	40	122	50 ~ 381	2.2	87,840	-10~+70 (No freezing)
MDSC-2540-3	40	122	244 ~ 1991	1.0	87,840	-10~+70 (No freezing)
MDSC-2550-1	50	140	20 ~ 124	3.7	100,800	-10~+70 (No freezing)
MDSC-2550-2	50	140	48 ~ 438	2.4	100,800	-10~+70 (No freezing)
MDSC-2550-3	50	140	194 ~ 2286	1.2	100,800	-10~+70 (No freezing)
MDSC-2580-1	80	198	24.7 ~ 99	4	118,800	-10~+70 (No freezing)
MDSC-2580-2	80	198	44 ~ 396	3.0	118,800	-10~+70 (No freezing)
MDSC-2580-3	80	198	176 ~ 1584	1.5	118,800	-10~+70 (No freezing)
MDSC-2725-1	25	78	15 ~ 69	3.2	70,200	-10~+70 (No freezing)
MDSC-2725-2	25	78	39 ~ 433	2.0	70,200	-10~+70 (No freezing)
MDSC-2725-3	25	78	108 ~ 1733	1.2	70,200	-10~+70 (No freezing)
MDSC-3660-1	60	260	57 ~ 231	3.0	124,800	-10~+70 (No freezing)
MDSC-3660-2	60	260	130 ~ 813	2.0	124,800	-10~+70 (No freezing)
MDSC-3660-3	60	260	520 ~ 3250	1.0	124,800	-10~+70 (No freezing)

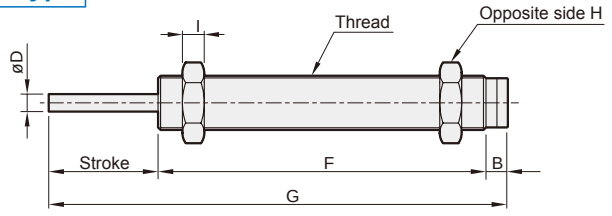
MDSC-2525
MDSC-2550
MDSC-2725



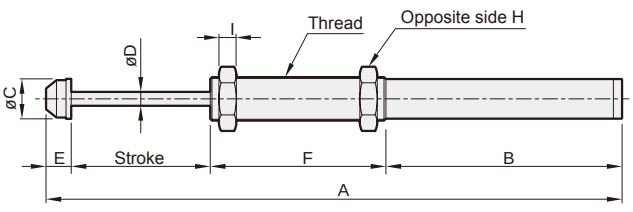
MDSC-2540
MDSC-3660



N type



MDSC-2580

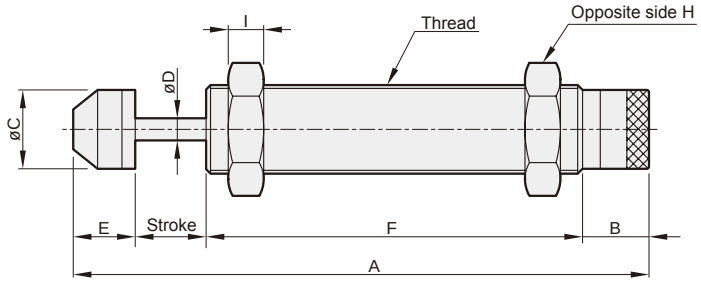


Dimensions

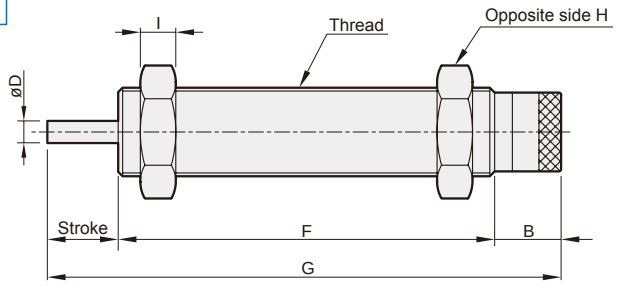
Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	Weight (g)
MDSC-2525	M25×1.5/2.0	25	152.6	10	23	8	16.6	101	–	32	10	341
MDSC-2525-N	M25×1.5/2.0	25	–	10	–	8	–	101	136	32	10	336
MDSC-2540	M25×1.5/2.0	40	211	10	23	8	34	127	–	32	10	430
MDSC-2550	M25×1.5/2.0	50	226.6	10	23	8	16.6	150	–	32	10	430
MDSC-2580	M25×1.5/2.0	80	333.6	137	23	8	16.6	100	–	32	10	578
MDSC-2725	M27×3.0/1.5	25	152.6	10	23	8	14.5	101	–	32	10	335
MDSC-2725-N	M27×3.0/1.5	25	–	10	–	8	–	101	136	32	10	330
MDSC-3660	M36/1.5	60	247	11	36	10	22.5	153.5	–	46	15	1074

Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Effective max. weight (kg)	Max. impact speed (m/s)	Max. Nm per hour (Nm)	Operating temp. (°C)
MDFC-1410	10	15	2.9 ~ 120	3.2	27,000	-10~+70 (No freezing)
MDFC-2016	16	28	5.4 ~ 224	3.2	33,600	-10~+70 (No freezing)
MDFC-2020	20	35	6.8 ~ 280	3.2	42,000	-10~+70 (No freezing)
MDFC-2525	25	78	15 ~ 624	3.2	70,200	-10~+70 (No freezing)
MDFC-2550	50	140	27 ~ 1,120	3.2	100,800	-10~+70 (No freezing)
MDFC-2725	25	78	15 ~ 624	3.2	70,200	-10~+70 (No freezing)



N type



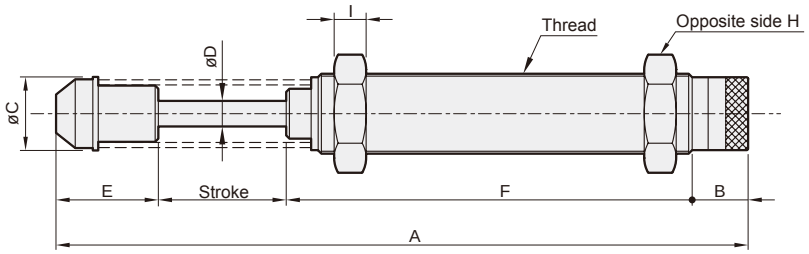
Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	H	I	Weight (g)
MDFC-1410	M14×1.0 / 1.5	10	101.9	11.5	12.2	3.5	13.4	67	19	6	81
MDFC-1410-N	M14×1.0 / 1.5	10	88.5	11.5	—	3.5	—	67	19	6	78
MDFC-2016	M20×1.5	16	132	15	17.8	5	16	85	26	8	218
MDFC-2016-N	M20×1.5	16	116	15	—	5	—	85	26	8	214
MDFC-2020	M20×1.5	20	136	15	17.8	5	16	85	26	8	219
MDFC-2020-N	M20×1.5	20	120	15	—	5	—	85	26	8	215
MDFC-2525	M25×1.5 / 2.0	25	158.1	15.5	23	8	16.6	101	32	10	361
MDFC-2525-N	M25×1.5 / 2.0	25	141.5	15.5	—	8	—	101	32	10	356
MDFC-2550	M25×1.5 / 2.0	50	232.1	15.5	23	8	16.6	150	32	10	470
MDFC-2725	M27×1.5 / 3.0	25	158.1	15.5	23	8	16.6	101	32	6.5	355
MDFC-2725-N	M27×1.5 / 3.0	25	141.5	15.5	—	8	—	101	32	6.5	350

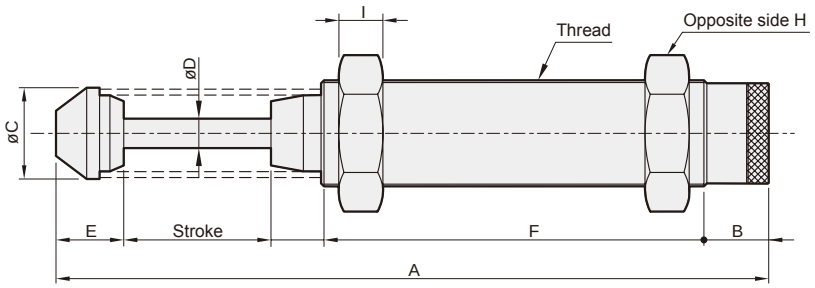
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Effective max. weight (kg)	Max. impact speed (m/s)	Max. Nm per hour (Nm)	Operating temp. (°C)
MDFC-2540	40	122	23.8 ~ 976	3.2	87,840	-10~+70 (No freezing)
MDFC-3625	25	110	21 ~ 880	3.2	52,800	-10~+70 (No freezing)
MDFC-3650	50	220	43 ~ 1,760	3.2	105,600	-10~+70 (No freezing)

MDFC-2540



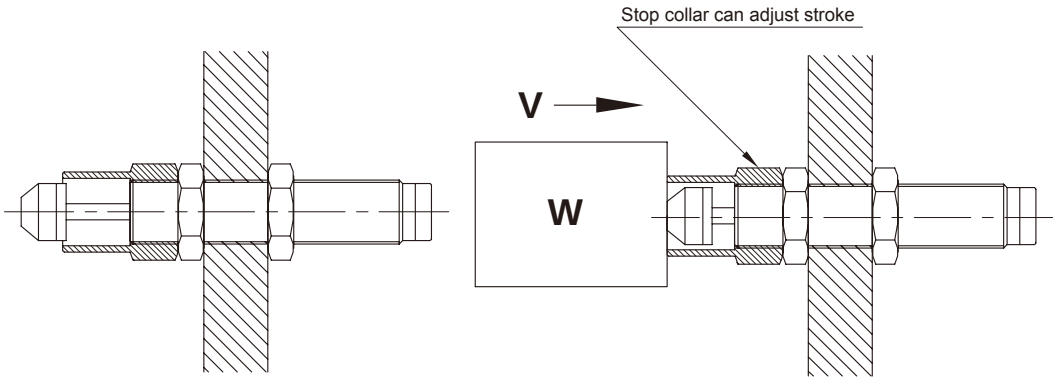
MDFC-3625
MDFC-3650



Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	Weight (g)
MDFC-2540	M25×1.5/2.0	40	216.5	15.5	23	8	34	127	–	32	10	460
MDFC-3625	M36×1.5	25	186	18	36	10	22.5	106.5	14	46	15	974
MDFC-3650	M36×1.5	50	248	18	36	10	22.5	138	19.5	46	15	1144

Installation of stop collar and nut



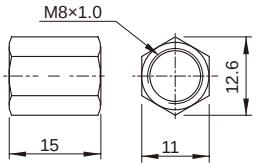
Before Impact

After Impact

Accessories

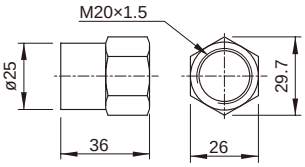
STC-08

Match
MDSC-0806



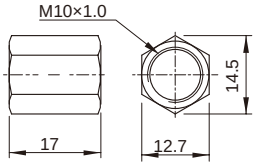
STC-20

Match
MDSC-2020
MDSC-2050
MDFC-2016
MDFC-2020



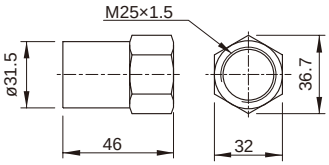
STC-10

Match
MDSC-1008



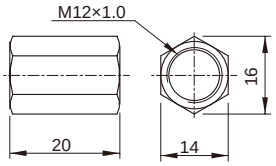
STC-25

Match
MDSC-2525
MDFC-2525



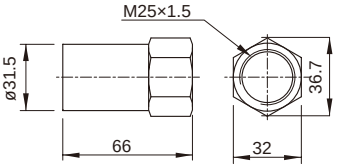
STC-12

Match
MDSC-1210



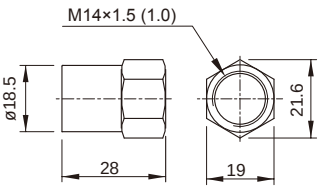
STC-25L

Match
MDSC-2540
MDSC-2550
MDSC-2580
MDFC-2540
MDFC-2550



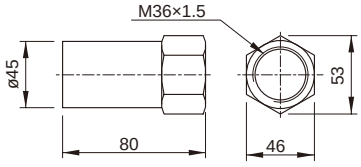
STC-14

Match
MDSC-1412
MDSC-1415
MDFC-1410



STC-36

Match
MDSC-3660
MDFC-3625
MDFC-3650



Four parameters are required to precisely determine the dimension of shock absorbers

- Mass to be decelerated m (kg)
- Impact velocity v (m/s)
- Propelling or driving force F (N)
- Number of impact cycles per hour C (/hr)

Some useful calculation formulas

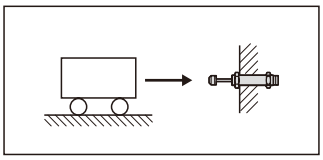
- Kinetic energy: $E_K = mv^2/2$
- Drive energy: $E_D = F \times S$
- Free fall velocity: $v = \sqrt{2g \times h}$
- Pneumatic or hydraulic cylinder driving forces.
  $F = 0.00785\ Pd^2$
- Maximum shock force (approximate).
  $Fm = 1.2\ E_T/S$
- Propelling force generated by electric motors.
  $F = 3000\ kW/v$
- Total energy absorbed per hour.
  $E_{TC} = E_T \times C$

Symbols	Unit	Description
μ		Coefficient of friction
α	(rad)	Angle of incline
θ	(rad)	Side load angle
ω	(rad/s)	Angular velocity
A	(m)	Width
B	(m)	Thickness
C	(/hr)	Impact cycles per hour
d	(mm)	Cylinder bore diameter
E_D	(Nm)	Drive energy per cycle
E_K	(Nm)	Kinetic energy per cycle
E_T	(Nm)	Total energy per cycle
E_{TC}	(Nm)	Total energy per hour
F	(N)	Propelling force
F_m	(N)	Maximum shock force
g	(m/s^2)	Acceleration due to gravity (9.81 m/s)
h	(m)	Height
HM		Arresting torque factor for motors (normally 2.5)
kW	(kW)	Electric motor power
m	(kg)	Mass to be decelerated
M_e	(kg)	Effective mass
P	(bar)	Operation pressure
R	(m)	Radius
R_s	(m)	Shock absorber mounting distance from rotation center
S	(m)	Stroke
T	(Nm)	Driving torque
t	(s)	Deceleration time
v	(m/s)	Velocity of impact mass
v_s	(m/s)	Impact velocity at shock absorber

Example 1. Horizontal impact

Application data

m = 300 kg
v = 1.0 m/s
S = 0.05 m
C = 300 /hr



Formulas and calculation

$$E_K = \frac{mv^2}{2} = \frac{300 \times 1.0^2}{2} = 150\ Nm$$

$$E_T = E_K = 150\ Nm$$

$$E_{TC} = E_T \times C = 150 \times 300 = 45000\ Nm/hr$$

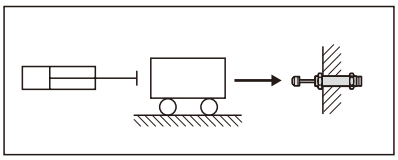
$$M_e = \frac{2E_T}{V^2} = \frac{2 \times 1.5}{1.0^2} = 300\ kg$$

Choose from calculation: MDFC-3650 is adequate.

Example 2. Horizontal impact with propelling force

Application data

m = 50 kg
v = 1.0 m/s
S = 0.04 m
F = 1000 N
C = 500 /hr



Formulas and calculation

$$E_K = \frac{mv^2}{2} = \frac{50 \times 1.0^2}{2} = 25\ Nm$$

$$E_D = F \times S = 1000 \times 0.04 = 40\ Nm$$

$$E_T = E_K + E_D = 25+40 = 65\ Nm$$

$$E_{TC} = E_T \times C = 65 \times 500 = 32500\ Nm/hr$$

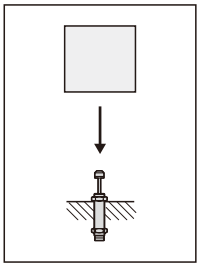
$$M_e = \frac{2E_T}{V^2} = \frac{2 \times 65}{1.0^2} = 130\ kg$$

Choose from calculation: MDFC-2540 is adequate.

Example 3. Free fall impact

Application data

m = 30 kg
h = 0.5 m
S = 0.08 m
C = 300 /hr



Formulas and calculation

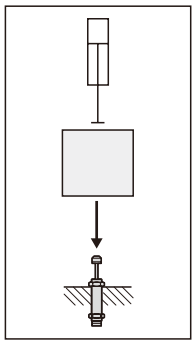
v	$= \sqrt{2g \times h}$	$= \sqrt{2 \times 9.81 \times 0.5}$		$= 3.1$ m/sec
E_K	$= mg \times h$	$= 30 \times 9.81 \times 0.5$		$= 147$ Nm
E_D	$= mg \times s$	$= 30 \times 9.81 \times 0.08$		$= 23.5$ Nm
E_T	$= E_K + E_D$	$= 147 + 23.5$		$= 170.5$ Nm
E_{TC}	$= E_T \times C$	$= 170.5 \times 300$		$= 51150$ Nm/hr
M_e	$= \frac{2E_T}{V^2}$	$= \frac{2 \times 170.5}{3.1^2}$		$= 35.5$ kg

Choose from calculation: MDSC-2580-1 is adequate.

Example 4. Free fall impact with propelling

Application data

m = 40 kg
h = 0.3 m
S = 0.025 m
P = 5 bar
d = 50 mm
C = 200 /hr
v = 1.0 m/sec



Formulas and calculation

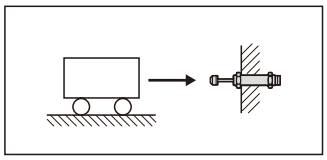
E_K	$= \frac{mv^2}{2}$	$= \frac{40 \times 1.0^2}{2}$		$= 20$ Nm
E_D	$= F \times S$	$= (mg + 0.0785Pd^2) \times S$		
		$= (40 \times 9.81 + 0.0785 \times 5 \times 50^2) \times 0.025$		$= 34.3$ Nm
E_T	$= E_K + E_D$	$= 20 + 34.3$		$= 54.3$ Nm
E_{TC}	$= E_T \times C$	$= 54.3 \times 200$		$= 10860$ Nm/hr
M_e	$= \frac{2E_T}{V^2}$	$= \frac{2 \times 54.3}{1.0^2}$		$= 108.6$ kg

Choose from calculation: MDFC-2525 is adequate.

Example 5. Horizontal impact with motor driving

Application data

m = 50 kg
v = 1.5 m/s
W = 2 kW
HM = 2.5
S = 0.06 m
C = 100 /hr



$\frac{300 \times 1.0^2}{2}$

Formulas and calculation

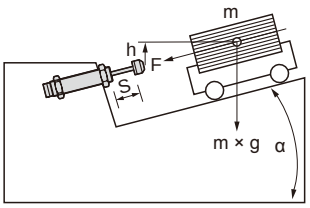
E_K	$= \frac{mv^2}{2}$	$= \frac{300 \times 1.0^2}{2}$		$= 150$ Nm
E_D	$= F \times S$	$= \frac{kW \times HM}{v} \times S$	$= \frac{2000 \times 2.5}{1.5} \times 0.06$	$= 200$ Nm
E_T	$= E_K + E_D$	$= 56.25 + 200$		$= 256.25$ Nm
E_{TC}	$= E_T \times C$	$= 256.25 \times 100$		$= 25625$ Nm/hr
M_e	$= \frac{2E_T}{V^2}$	$= \frac{2 \times 256.25}{1.5^2}$		$= 227$ kg

Choose from calculation: MDSC-3660-2 is adequate.

Example 6. Inclined impact

Application data

m = 30 kg
h = 0.25 m
S = 0.04 m
α = 30°
C = 250 /hr



Formulas and calculation

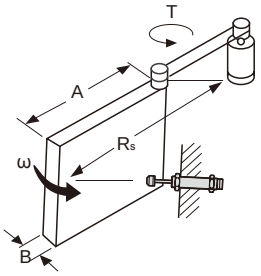
v	$= \sqrt{2g \times h}$	$= \sqrt{2 \times 9.81 \times 0.5}$		$= 2.2$ m/sec
E_K	$= \frac{mv^2}{2}$	$= \frac{30 \times 2.2^2}{2}$		$= 72.6$ Nm
E_D	$= F \times S$	$= m \times g \times S \times \sin\alpha$		
		$= 30 \times 9.81 \times 0.04 \times \sin 30° = 5.9$ Nm		
E_T	$= E_K + E_D$	$= 72.6 + 5.9$		$= 78.5$ Nm
E_{TC}	$= E_T \times C$	$= 78.5 \times 250$		$= 19625$ Nm/hr
M_e	$= \frac{2E_T}{V^2}$	$= \frac{2 \times 78.5}{2.2^2}$		$= 32$ kg

Choose from calculation: MDSC-2540-1 is adequate.

Example 7. Horizontal rotating door

Application data

m = 20 kg
ω = 2.0 rad/s
T = 20 Nm
R_S= 0.8 m
A = 1.0 m
B = 0.05 m
S = 0.016 m
C = 100 /hr



Formulas and calculation

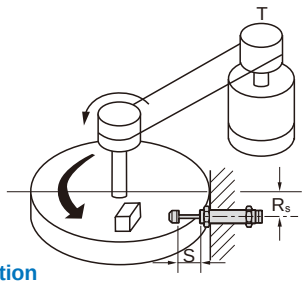
I	=	$\frac{m(4A^2+B^2)}{12}$	=	$\frac{20(4 \times 1.0^2+0.05^2)}{12}$	= 6.67 kg•m^2
E_K	=	$\frac{I\omega^2}{2}$	=	$\frac{6.67 \times 2.0^2}{2}$	= 13.34 Nm
θ	=	$\frac{s}{R_S}$	=	$\frac{0.04}{0.8}$	= 0.05 rad
E_D	=	T × θ	=	20 × 0.05	= 1.0 Nm
E_T	=	E_K+E_D	=	13.34+1.0	= 14.34 Nm
E_{TC}	=	E_T × C	=	14.34 × 100	= 1434 Nm/hr
v	=	ω × R_S	=	2.0 × 0.8	= 1.6 m/s
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 14.34}{1.6^2}$	= 11.20 kg

Choose from calculation: MDFC-2016 is adequate.

Example 8. Rotary index table with propelling force

Application data

m = 200 kg
ω = 1.0 rad/s
T = 100 Nm
R = 0.5 m
R_S= 0.4 m
S = 0.04 m
C = 100 /hr



Formulas and calculation

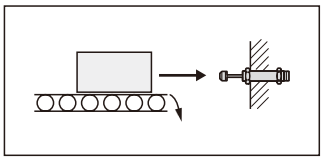
I	=	$\frac{mR^2}{2}$	=	$\frac{200 \times 0.5^2}{2}$	= 25 kg•m^2
E_K	=	$\frac{I\omega^2}{2}$	=	$\frac{25 \times 1.0^2}{2}$	= 12.5 Nm
θ	=	$\frac{s}{R_S}$	=	$\frac{0.04}{0.4}$	= 0.1 rad
E_D	=	T × θ	=	100 × 0.1	= 10 Nm
E_T	=	E_K+E_D	=	12.5+10	= 22.5 Nm
E_{TC}	=	E_T × C	=	22.5 × 50	= 1125 Nm/hr
v	=	ω × R_S	=	1.0 × 0.4	= 0.4 m/s
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 22.5}{0.4^2}$	= 281 kg

Choose from calculation: MDFC-2540 is adequate.

Example 9. Horizontal mass on driven rollers

Application data

m = 150 kg
v = 0.5 m/s
μ = 0.25
S = 0.02 m
C = 120 /hr



Formulas and calculation

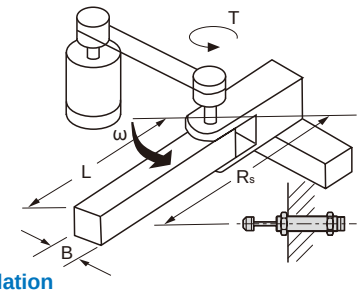
E_K	=	$\frac{mv^2}{2}$	=	$\frac{150 \times 0.5^2}{2}$	= 18.75 Nm
E_D	=	F × S = mgμ × S = 150 × 9.81 × 0.25 × 0.02 = 7.35 Nm			
E_T	=	E_K+E_D =		18.73+7.35	= 26.1 Nm
E_{TC}	=	E_T × C =		26.1 × 120	= 3132 Nm/hr
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 26.1}{0.5^2}$	= 208.8 kg

Choose from calculation: MDSC-2020-3 is adequate.

Example 10. Rotating beam with driving force

Application data

m = 40 kg
A = 0.5 m
B = 0.05 m
ω = 2.0 rad/s
T = 10 Nm
R_S= 0.4 m
S = 0.05 m
C = 50 /hr



Formulas and calculation

I	=	$\frac{m(4A^2+B^2)}{12}$	=	$\frac{40(4 \times 0.5^2+0.05^2)}{12}$	= 3.34 kg•m^2
E_K	=	$\frac{I\omega^2}{2}$	=	$\frac{3.34 \times 2.0^2}{2}$	= 6.7 Nm
θ	=	$\frac{s}{R_S}$	=	$\frac{0.05}{0.4}$	= 0.125 rad
E_D	=	T × θ	=	10 × 0.125	= 1.25 Nm
E_T	=	E_K+E_D	=	6.7+1.25	= 8 Nm
E_{TC}	=	E_T × C	=	8 × 50	= 400 Nm/hr
v	=	ω × R_S	=	2.0 × 0.4	= 0.8 m/s
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 8}{0.8^2}$	= 25 kg

Choose from calculation: MDFC-2050 is adequate.

MAC / MAD series

SHOCK ABSORBERS

Order example

MAC — 0806 — 1 — □

- MAC: **MAD**: Adjustable; **MAC**: Self-compensated; **MACD**: Dual-side buffering
- 0806: TUBE O.D. (mm) 08; STROKE (mm) 06
- 1: Select damping constant from graph
  - **1**: High impact speed
  - **2**: Medium impact speed
  - **3**: Low impact speed
  - **S**: MAC-S series
  - **K**: MAC-K series
- □: Blank: With impact head; **N**: Without impact head

Why do we need shock absorbers?

The simplest method to increase productivity is to raise machine operation speed. It often accompanies with excessive vibration and noise, damage to machines and products and decreasing in machine life. Most important of all, safety has to be sacrificed to a certain degree because of large shock forces generated.

MINDMAN shock absorbers are developed to provide linear deceleration and therefore solve these problems. They can stop or change direction of moving objects smoothly and quietly without any compromising in safety. MINDMAN shock absorbers are ideal for energy absorption and are being used whenever shock forces occur.

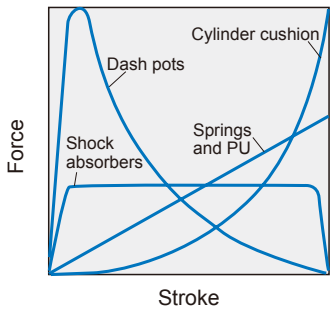
The advantages of using shock absorbers include

1. To increase production rate.
2. To extend machine life.
3. To simplify equipment design.
4. To reduce maintenance cost.
5. To reduce vibration and noise levels.

Comparison of shock absorbing of dash pots, rubber materials springs, cylinder cushion and shock absorbers

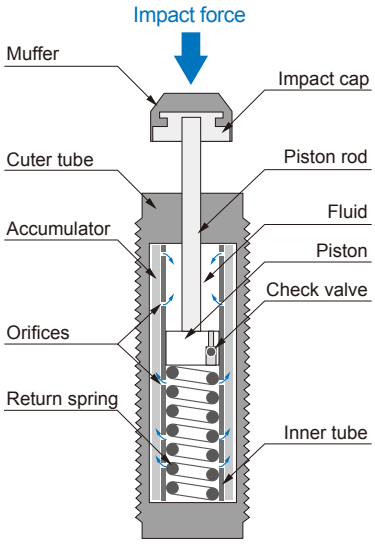
In case of MINDMAN shock absorbers compared with other buffering devices, such as spring, dash pots, air buffers, or rubber materials, resistant forces are different from one another. Only MINDMAN shock absorbers can stop a moving object smoothly and quietly from the beginning to the end of impact stroke. Figure 1 shows a scheme of comparing shock forces generated by different cushioning materials. Through special design of fluid metering system, MINDMAN shock absorbers can provide a constant resistant force or linear deceleration throughout the entire impact stroke, all the kinetic energy of the moving object is converted into heat and dissipated into the air.

Springs, air buffers and rubber materials only dissipate a small portion of the kinetic energy and store the remaining in elastic energy form. Therefore, large resistant forces and rebounding forces are inevitable near the end of the impact stroke. Without a delicate metering system, a dash pot will produce a large peak force at the beginning of the impact stroke.



Operating principles of shock absorbers

All series of MINDMAN shock absorbers are of such construction as shown in the following drawing. On impact the piston rod moves into the shock absorber and the hydraulic fluid is pushes into accumulator to produce resistant force. Owing to special spacing and sizing of orifices, the pressure in the inner tube remains constant throughout the entire impact stroke. By providing a linear deceleration, a MINDMAN shock absorber brings the impacting object to stop smoothly and quiet. At the end of the impact stroke, the return spring pushes the piston to its original piston for next cycle.



Construction of a shock absorber

Considerations for selecting shock a absorbers

1. Moving direction. (in horizontal, free fall or rotary motion)
2. Total weight of impacting object.
3. Propelling force. (pneumatic / hydraulic cylinder, motor etc.)
4. Impact Velocity.
5. Number of impact per hour.
6. Applicable quantity of shock absorbers in impacting direction.

Functions of hydraulic shock absorbers

1. Eliminating vibration and absorbing striking energy in a short time.
2. Reducing operating noise and offering a quiet working environment.
3. Accelerating machine operation and elevating production capacity.
4. Extending machine life time and reducing after sale service.
5. Improving quailty of products.

Applications

Robots for plastic injection moulding machine, pick and place robots, feeding equipment, screen print machines, conveyors, air cylinders, vibration conveyor systems, rolling doors, medical equipment, foundry industries, rodless cylinders, package machines, machine tools, rubber/ plastic machines, woodworking machines, aircraft industries, military equipment, education researches and automotive transfer lines.

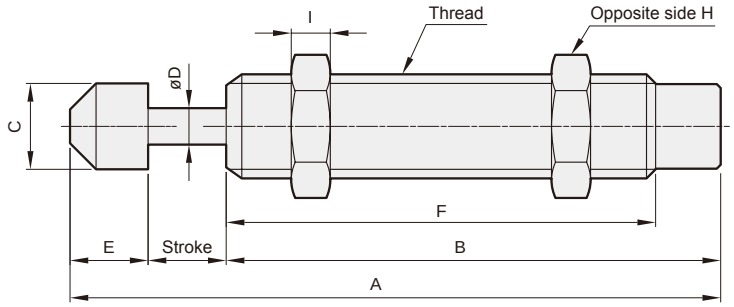
* Customer's own specification is welcome.
* The specifications are subject to change without advance notice.

MAC series
Mini type - M8, M10, M12

Our miniature shock absorbers MAC Series- M8, M10, M12 provide great effect for shock impact and come to stop smoothly and are Ideal for light loads.

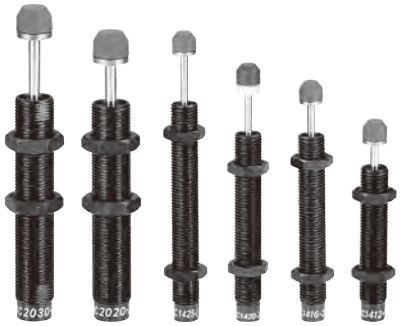
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MAC-0806-1	6	2	8800	0.5	2.0	○	○	-10~+80	SC-08
MAC-0806-2	6	2	8800	2	1.0	○	○	-10~+80	SC-08
MAC-0806-3	6	2	8800	6	0.5	○	○	-10~+80	SC-08
MAC-1005-1	5	3	10800	1	3.0	○	○	-10~+80	SC-10
MAC-1005-2	5	3	10800	3	1.5	○	○	-10~+80	SC-10
MAC-1005-3	5	3	10800	7	0.8	○	○	-10~+80	SC-10
MAC-1008-1	8	4	15200	2	3.0	○	○	-10~+80	SC-10
MAC-1008-2	8	4	15200	4	1.5	○	○	-10~+80	SC-10
MAC-1008-3	8	4	15200	9	0.8	○	○	-10~+80	SC-10
MAC-1210-1	10	5	17640	5	3.0	○	○	-10~+80	SC-12
MAC-1210-2	10	5	17640	10	1.5	○	○	-10~+80	SC-12
MAC-1210-3	10	5	17640	30	0.8	○	○	-10~+80	SC-12



Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	H	I	Weight (g)
MAC-0806-1	M8×1.0/0.75	6	50	38	6.6	3	6	33	11	3	11
MAC-0806-2	M8×1.0/0.75	6	50	38	6.6	3	6	33	11	3	11
MAC-0806-3	M8×1.0	6	50	38	6.6	3	6	33	11	3	11
MAC-1005-1	M10×1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3	14
MAC-1005-2	M10×1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3	14
MAC-1005-3	M10×1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3	14
MAC-1008-1	M10×1.0	8	57	43	8.6	3	6	38	12.7	3	20
MAC-1008-2	M10×1.0	8	57	43	8.6	3	6	38	12.7	3	20
MAC-1008-3	M10×1.0	8	57	43	8.6	3	6	38	12.7	3	20
MAC-1210-1	M12×1.0	10	69.5	50	10.3	3	9.5	45.5	14	4	31.5
MAC-1210-2	M12×1.0	10	69.5	50	10.3	3	9.5	45.5	14	4	31.5
MAC-1210-3	M12×1.0	10	69.5	50	10.3	3	9.5	45.5	14	4	31.5



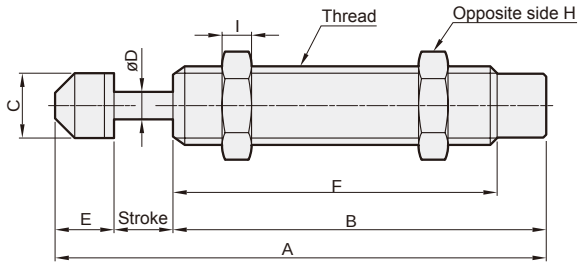
MAC series

Porous fixed type - M14, M20

MAC series is of fixed structure. Through special design and experimented oil hole and arrange method, linear deceleration on the object in motion is achieved. From high speed light load to low speed heavy load, appropriate energy can be absorbed without any adjustment. After the load is removed, reset spring will push the axie center to its original location. For MAC series, it has three models of high speed, medium speed and low speed to satisfy your different needs.

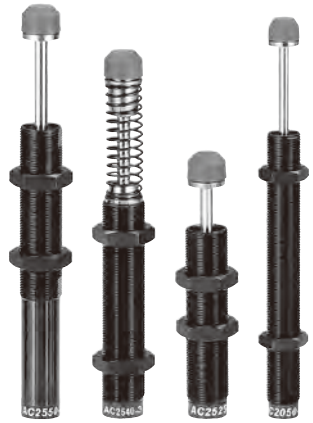
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MAC-1412-1	12	15	30000	8	3.0	○	○	-10~+80	SC-14
MAC-1412-2	12	15	30000	50	1.5	○	○	-10~+80	SC-14
MAC-1412-3	12	15	30000	100	0.8	○	○	-10~+80	SC-14
MAC-1416-1	16	20	35000	10	3.0	○	○	-10~+80	SC-14
MAC-1416-2	16	20	35000	70	1.5	○	○	-10~+80	SC-14
MAC-1416-3	16	20	35000	150	0.8	○	○	-10~+80	SC-14
MAC-1420-1	20	20	35000	10	3.0	○	○	-10~+80	SC-14
MAC-1420-2	20	20	35000	70	1.5	○	○	-10~+80	SC-14
MAC-1420-3	20	20	35000	150	0.8	○	○	-10~+80	SC-14
MAC-1425-1	25	28	37000	20	3.0	○	○	-10~+80	SC-14
MAC-1425-2	25	28	37000	150	1.5	○	○	-10~+80	SC-14
MAC-1425-3	25	28	37000	250	0.8	○	○	-10~+80	SC-14
MAC-2020-1	20	40	40000	30	3.5	○	○	-10~+80	SC-20
MAC-2020-2	20	40	40000	200	2.0	○	○	-10~+80	SC-20
MAC-2020-3	20	40	40000	700	1.0	○	○	-10~+80	SC-20
MAC-2030-1	30	50	48000	30	3.5	○	○	-10~+80	SC-20
MAC-2030-2	30	50	48000	200	2.0	○	○	-10~+80	SC-20
MAC-2030-3	30	50	48000	700	1.0	○	○	-10~+80	SC-20



Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	H	I	Weight (g)
MAC-1412-1	M14×1.0/1.5	12	99.2	76	12	4	11.2	67	19	5	80
MAC-1412-2	M14×1.0/1.5	12	99.2	76	12	4	11.2	67	19	5	80
MAC-1412-3	M14×1.0/1.5	12	99.2	76	12	4	11.2	67	19	5	80
MAC-1416-1	M14×1.0/1.5	16	122.2	95	12	4	11.2	86	19	5	85
MAC-1416-2	M14×1.0/1.5	16	122.2	95	12	4	11.2	86	19	5	85
MAC-1416-3	M14×1.0/1.5	16	122.2	95	12	4	11.2	86	19	5	85
MAC-1420-1	M14×1.5	20	126.2	95	12	4	11.2	86	19	5	95
MAC-1420-2	M14×1.5	20	126.2	95	12	4	11.2	86	19	5	95
MAC-1420-3	M14×1.5	20	126.2	95	12	4	11.2	86	19	5	95
MAC-1425-1	M14×1.0/1.5	25	146.2	110	12	4	11.2	101	19	5	105
MAC-1425-2	M14×1.0/1.5	25	146.2	110	12	4	11.2	101	19	5	105
MAC-1425-3	M14×1.0/1.5	25	146.2	110	12	4	11.2	101	19	5	105
MAC-2020-1	M20×1.5/2.0	20	145.3	110	17.8	6	15.3	101	26	7	215
MAC-2020-2	M20×1.5	20	145.3	110	17.8	6	15.3	101	26	7	215
MAC-2020-3	M20×1.5	20	145.3	110	17.8	6	15.3	101	26	7	215
MAC-2030-1	M20×1.5/2.0	30	158.3	113	17.8	6	15.3	104	26	7	220
MAC-2030-2	M20×1.5/2.0	30	158.3	113	17.8	6	15.3	104	26	7	220
MAC-2030-3	M20×1.5	30	158.3	113	17.8	6	15.3	104	26	7	220



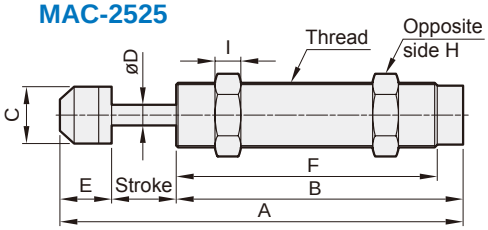
MAC series
Porous fixed type - M20, M25

Model M20, M25 are applicable for high impact and high effectiveness.

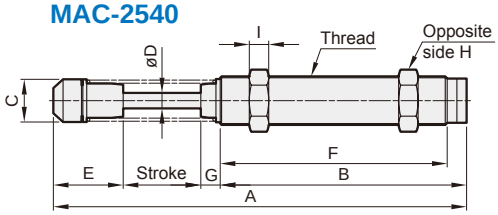
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MAC-2050-1	50	60	60000	60	3.5	○	○	-10~+80	SC-20
MAC-2050-2	50	60	60000	400	2.0	○	○	-10~+80	SC-20
MAC-2050-3	50	60	60000	1200	1.0	○	○	-10~+80	SC-20
MAC-2525-1	25	80	54000	200	4.0	○	○	-10~+80	SC-25
MAC-2525-2	25	80	54000	800	2.5	○	○	-10~+80	SC-25
MAC-2525-3	25	80	54000	1500	1.0	○	○	-10~+80	SC-25
MAC-2540-1	40	120	75000	300	4.0	—	○	-10~+80	SC-25
MAC-2540-2	40	120	75000	1200	2.5	—	○	-10~+80	SC-25
MAC-2540-3	40	120	75000	2000	1.0	—	○	-10~+80	SC-25
MAC-2550-1	50	135	90000	200	4.0	○	○	-10~+80	SC-25
MAC-2550-2	50	135	90000	900	2.5	○	○	-10~+80	SC-25
MAC-2550-3	50	135	90000	1680	1.0	○	○	-10~+80	SC-25
MAC-2580-1	80	150	120000	150	4.0	○	○	-10~+80	SC-25
MAC-2580-2	80	150	120000	600	2.5	○	○	-10~+80	SC-25
MAC-2580-3	80	150	120000	1200	1.0	○	○	-10~+80	SC-25

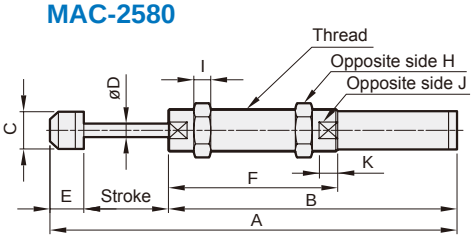
MAC-2050
MAC-2525



MAC-2540



MAC-2550
MAC-2580



Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	K	Weight (g)
MAC-2050-1	M20×1.5/2.0	50	232.8	167	17.8	6	15.8	158	—	26	7	—	—	300
MAC-2050-2	M20×1.5	50	232.8	167	17.8	6	15.8	158	—	26	7	—	—	300
MAC-2050-3	M20×1.5	50	232.8	167	17.8	6	15.8	158	—	26	7	—	—	300
MAC-2525-1	M25×1.5/2.0	25	155	111	22	8	19	101	—	32	9	—	—	330
MAC-2525-2	M25×1.5/2.0	25	155	111	22	8	19	101	—	32	9	—	—	330
MAC-2525-3	M25×1.5/2.0	25	155	111	22	8	19	101	—	32	9	—	—	330
MAC-2540-1	M25×1.5/2.0	40	214	127	22	8	37	117	10	32	9	—	—	430
MAC-2540-2	M25×1.5/2.0	40	214	127	22	8	37	117	10	32	9	—	—	430
MAC-2540-3	M25×1.5/2.0	40	214	127	22	8	37	117	10	32	9	—	—	430
MAC-2550-1	M25×1.5/2.0	50	239.5	170.5	22	8	19	100	—	32	9	22.8	11	435
MAC-2550-2	M25×1.5/2.0	50	239.5	170.5	22	8	19	100	—	32	9	22.8	11	435
MAC-2550-3	M25×1.5/2.0	50	239.5	170.5	22	8	19	100	—	32	9	22.8	11	435
MAC-2580-1	M25×1.5/2.0	80	336	237	22	8	19	100	—	32	9	22.8	11	535
MAC-2580-2	M25×1.5/2.0	80	336	237	22	8	19	100	—	32	9	22.8	11	535
MAC-2580-3	M25×1.5/2.0	80	336	237	22	8	19	100	—	32	9	22.8	11	535

MAC series

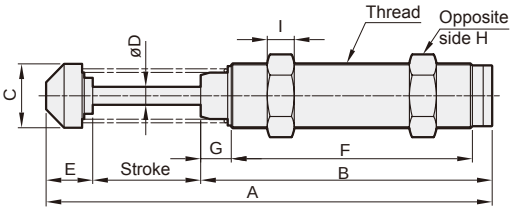
Porous fixed type - M36

MAC series is self-compensating, and ideal for energy absorption in high speed, medium speed and low speed impact. MAC series can stop moving objects smoothly and quietly.

Specification

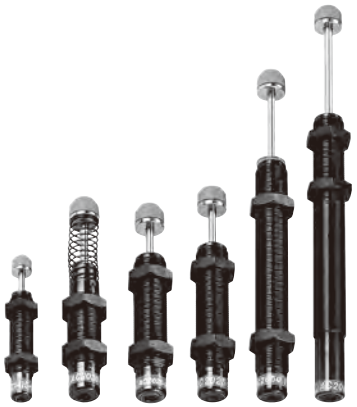
Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MAC-3660-1	60	250	120000	400	4.0	—	○	-10~+80	SC-36
MAC-3660-2	60	250	120000	1500	2.5	—	○	-10~+80	SC-36
MAC-3660-3	60	250	120000	2400	1.0	—	○	-10~+80	SC-36

MAC-3660



Dimensions

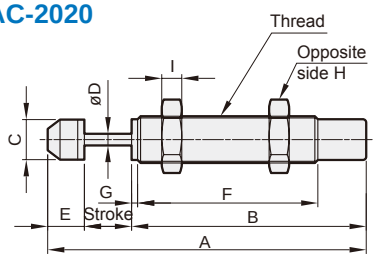
Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	Weight (g)
MAC-3660-1	M36×1.5	60	248	162	35.5	10	26	134	17	46	15	1030
MAC-3660-2	M36×1.5	60	248	162	35.5	10	26	134	17	46	15	1030
MAC-3660-3	M36×1.5	60	248	162	35.5	10	26	134	17	46	15	1030



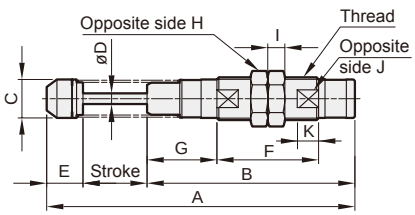
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MAC-1415-6K	15	9.8	35280	30	1.0	—	○	-10~+80	SC-14
MAC-1415-7K	15	9.8	35280	15	1.5	—	○	-10~+80	SC-14
MAC-2020-2K	20	36	22000	27	2.0	—	○	-10~+80	SC-20
MAC-2030-5K	30	44	26460	60	1.2	—	○	-10~+80	SC-20
MAC-2030-6K	30	44	26460	30	1.7	—	○	-10~+80	SC-20
MAC-2030-7K	30	44	26460	15	2.4	—	○	-10~+80	SC-20
MAC-2030-8K	30	44	26460	8	2.8	—	○	-10~+80	SC-20
MAC-2030-16K	30	44	26460	5	4.2	—	○	-10~+80	SC-20
MAC-2030-18K	30	44	26460	3	6.0	—	○	-10~+80	SC-20
MAC-2050-10K	50	59	35280	30	2.0	—	○	-10~+80	SC-20
MAC-2050-11K	50	59	35280	30	2.0	—	○	-10~+80	SC-20
MAC-2050-12K	50	59	35280	15	2.8	—	○	-10~+80	SC-20
MAC-2050-13K	50	59	35280	8	3.8	—	○	-10~+80	SC-20
MAC-2050-16K	50	59	35280	5	5.0	—	○	-10~+80	SC-20
MAC-2050-17K	50	59	35280	3	6.8	—	○	-10~+80	SC-20

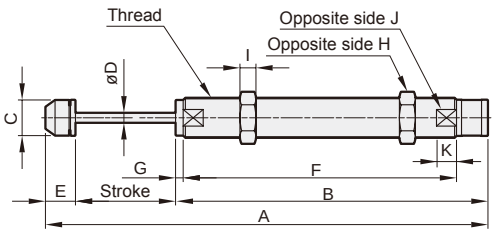
MAC-1415
MAC-2020



MAC-2030



MAC-2050



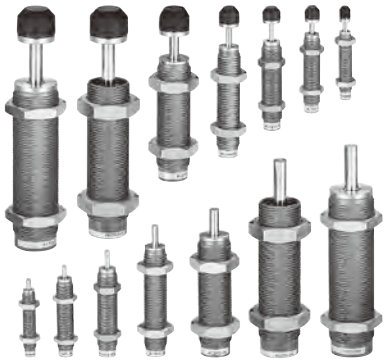
MAC-K series

Porous fixed type

MAC-K series can effectively absorb the vibration and noise generated from high motion and can turn the kinetic energy into thermal energy and release it into the air. Therefore, in each action, it can stop the object stably can effectively. When our shock absorber is selected, disadvantage caused by bad shock absorber can be effectively solved, consequently, the machine efficiency can be enhanced, the production capacity can be increased, and the usage lifetime of the machine can be lengthened. MAC-K and MACD are all appropriate for high speed impact sites, the ends of long stroke moving device, and most of them are used for robot arms.

Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	K	Weight (g)
MAC-1415-6K	M14×1.5	15	95.6	69.4	12	4	11.2	52.7	2	19	5	—	—	80
MAC-1415-7K	M14×1.0/1.5	15	95.6	69.4	12	4	11.2	52.7	2	19	5	—	—	80
MAC-2020-2K	M20×1.5	20	128.8	93	17.8	5	15.8	74.5	3.8	26	7	—	—	170
MAC-2030-5K	M20×1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	185
MAC-2030-6K	M20×1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	185
MAC-2030-7K	M20×1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	185
MAC-2030-8K	M20×1.5	30	133.7	86	17.8	5	17.7	48	21	26	7	18.2	10	185
MAC-2030-16K	M20×1.5	30	146.5	97.8	17.8	5	18	48	32.8	26	7	18.2	10	205
MAC-2030-18K	M20×1.5	30	146.5	97.8	17.8	5	18	48	32.8	26	7	18.2	10	205
MAC-2050-10K	M20×1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	250
MAC-2050-11K	M20×1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	250
MAC-2050-12K	M20×1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	250
MAC-2050-13K	M20×1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	250
MAC-2050-16K	M20×1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	250
MAC-2050-17K	M20×1.5	50	221.8	156	17.8	5	15.8	136.5	4	26	7	18.2	10	250



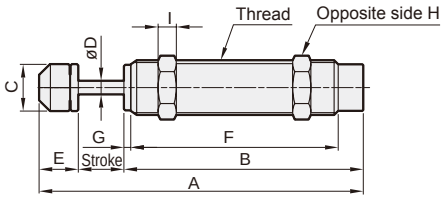
Specification

Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MAC-0806-S	6	3	7000	6	0.3~2.5	○	○	-10~+80	SC-08
MAC-1007-S	7	6	12400	12	0.3~3.5	○	○	-10~+80	SC-10
MAC-1210-S	10	12	22500	22	0.3~4.0	○	○	-10~+80	SC-12
MAC-1412-S	12	20	33000	40	0.3~5.0	○	○	-10~+80	SC-14
MAC-2015-S	15	59	38000	120	0.3~5.0	○	○	-10~+80	SC-20
MAC-2525-S	25	80	60000	180	0.3~5.0	○	○	-10~+80	SC-25
MAC-2725-S	25	147	72000	270	0.3~5.0	○	○	-10~+80	SC-27

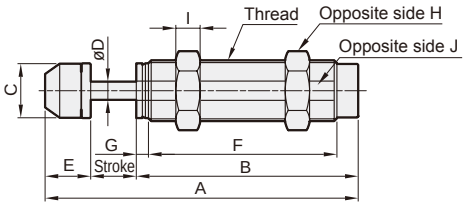
MAC-S series

MAC-S series, as compared to MAC series, has smaller installation length, higher usage frequency, larger energy absorption, more secure product structure, and higher safety. It is applicable to equipment of compact size or of small space, and there is straight slot or milled edge to facilitate the installation.

MAC-0806-S
MAC-1007-S
MAC-1210-S

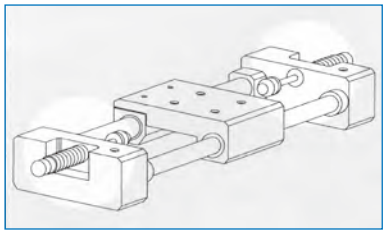


MAC-1412-S
MAC-2015-S
MAC-2525-S
MAC-2725-S

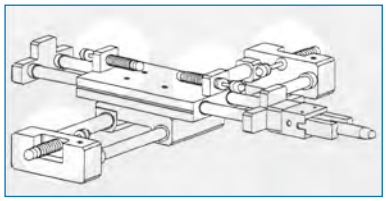


Application example

Slide unit cylinder



Slide unit



Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	Weight (g)
MAC-0806-S	M8×1.0	6	55.2	40.6	6.6	2.9	8.6	33.6	2	11	3	—	17
MAC-1007-S	M10×1.0	7	62.6	47	8.6	3	8.6	39	3	12.7	3	—	28
MAC-1210-S	M12×1.0	10	71.3	52.5	10.3	3	8.8	44	3	14	4	—	32
MAC-1412-S	M14×1.5	12	90.2	67	12	4	11.2	58	4	19	5	12.1	70
MAC-2015-S	M20×1.5	15	103.3	73	17.8	6	15.3	62	4	26	7	18	160
MAC-2525-S	M25×1.5	25	136	92	22	8	19	82	—	32	9	23	295
MAC-2725-S	M27×1.5	25	143	99	22	8	19	86	5	32	6	25	375

Specification

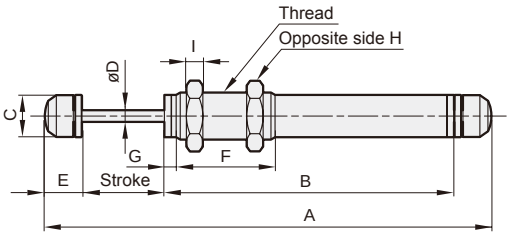
Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)
MACD-2030-1	30	45	55000	40	3.5	—	○	-10~+80	SC-20
MACD-2030-2	30	45	55000	80	2.0	—	○	-10~+80	SC-20
MACD-2030-3	30	45	55000	450	1.0	—	○	-10~+80	SC-20
MACD-2035-1	35	52	63000	40	3.5	—	○	-10~+80	SC-20
MACD-2035-2	35	52	63000	200	2.0	—	○	-10~+80	SC-20
MACD-2035-3	35	52	63000	450	1.0	—	○	-10~+80	SC-20
MACD-2050-1	50	60	68000	60	3.5	—	○	-10~+80	SC-20
MACD-2050-2	50	60	68000	210	2.0	—	○	-10~+80	SC-20
MACD-2050-3	50	60	68000	480	1.0	—	○	-10~+80	SC-20

MACD series

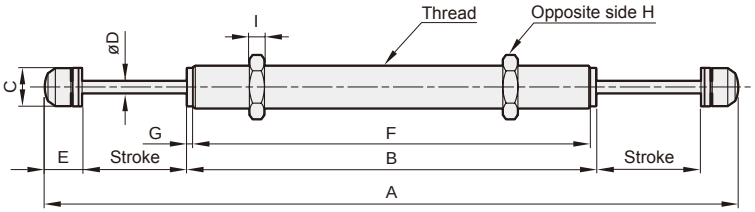
Double cushion

MACD series has adopted dual-buffering structure, and different buffering effects are installed at both ends. It is applicable to high speed site and commonly used for robot arm. It can reduce the noise and vibration of the equipment to increase greatly the operation speed of the robot arm.

MACD-2035
MACD-2030



MACD-2050



Dimensions

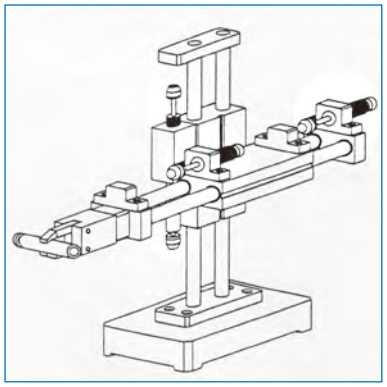
Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	Weight (g)
MACD-2030-1	M20×1.5	30	184.6	123	17.8	6	15.8	44	3	26	7	320
MACD-2030-2	M20×1.5	30	184.6	123	17.8	6	15.8	44	3	26	7	320
MACD-2030-3	M20×1.5	30	184.6	123	17.8	6	15.8	44	3	26	7	320
MACD-2035-1	M20×1.5	35	224.6	123	17.8	5	15.8	42	5	26	7	350
MACD-2035-2	M20×1.5	35	224.6	123	17.8	5	15.8	42	5	26	7	350
MACD-2035-3	M20×1.5	35	224.6	123	17.8	5	15.8	42	5	26	7	350
MACD-2050-1	M20×1.5	50	276.6	145	17.8	6	15.8	134	3	26	7	470
MACD-2050-2	M20×1.5	50	276.6	145	17.8	6	15.8	134	3	26	7	470
MACD-2050-3	M20×1.5	50	276.6	145	17.8	6	15.8	134	3	26	7	470

Specification

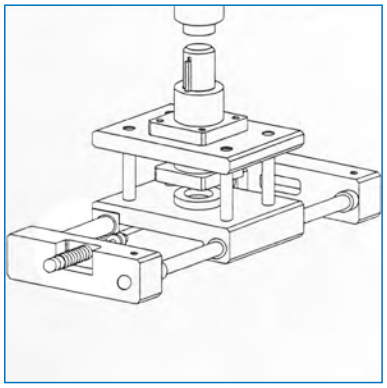
Model	Stroke (mm)	Max. Nm per cycle (Nm)	Max. Nm per hour (Nm)	Max. effective mass (kg)	Max. impact speed (m/s)	Without impact head	With impact head	Operating temp. (°C) (No freezing)	Stop collar (SC)	Flange (F)
MAD-1410	10	20	25000	80	3.0	○	○	-10~+80	SC-14	—
MAD-1415	15	24	26000	100	3.0	○	○	-10~+80	SC-14	—
MAD-1425	25	28	27500	140	3.0	○	○	-10~+80	SC-14	—
MAD-1612	12	22	27500	130	3.0	○	○	-10~+80	—	—
MAD-2016	16	28	27500	200	3.0	○	○	-10~+80	SC-20	—
MAD-2020	20	34	29000	298	3.5	○	○	-10~+80	SC-20	—
MAD-2025	25	39	30000	312	3.5	○	○	-10~+80	SC-20	—
MAD-2050	50	69	52000	420	3.5	○	○	-10~+80	SC-20	—
MAD-2525	25	85	54000	400	3.5	○	○	-10~+80	SC-25	—
MAD-2530	30	95	60000	480	3.5	○	○	-10~+80	SC-25	—
MAD-2540	40	100	80000	700	3.5	×	○	-10~+80	SC-25	—
MAD-2550	50	120	90000	720	4.0	○	○	-10~+80	SC-25	—
MAD-2580	80	150	120000	800	4.0	○	○	-10~+80	SC-25	—
MAD-2725	25	85	54000	400	3.5	○	○	-10~+80	SC-27	—
MAD-3625	25	150	81000	1400	3.0	×	○	-10~+80	SC-36	F36
MAD-3650	50	300	100000	2400	3.0	×	○	-10~+80	SC-36	F36
MAD-4225	25	260	125000	3000	3.5	×	○	-10~+80	—	F42
MAD-4250	50	500	150000	4000	4.5	×	○	-10~+80	—	F42
MAD-4275	75	750	180000	6000	4.5	×	○	-10~+80	—	F42
MAD-64050	50	1200	150500	12727	1.5	×	○	-10~+80	—	F64
MAD-64100	100	2400	200000	18181	1.5	×	○	-10~+80	—	F64
MAD-64150	150	3600	250000	23636	1.5	×	○	-10~+80	—	F64

Application example

Pick and place robot



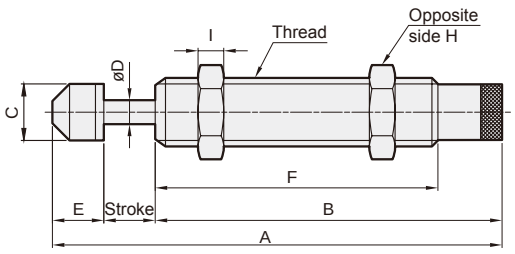
Press feed



MAD series

Adjustable

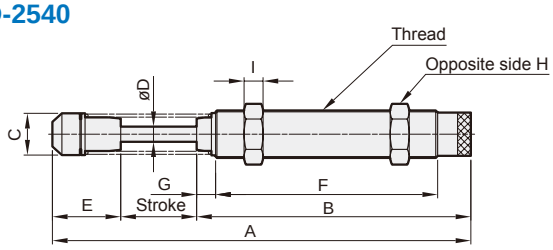
MAD series is of adjustable structure. When facing with different loads and different impact speeds, the adjustment knobs can be adjusted to appropriate scale to absorb perfectly the energy generated by the object. As compared to MAC series MAD series has higher energy absorption and wider applicable scope.



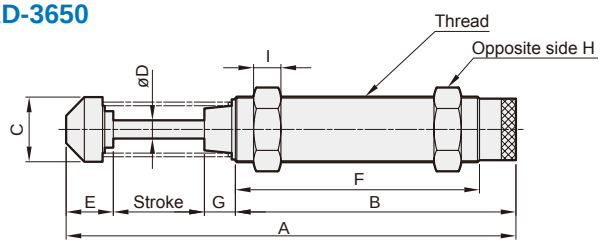
Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	H	I	J	K	Weight (g)
MAD-1410	M14×1.0/1.5	10	109.7	88.5	12	4	11.2	72.5	19	5	—	—	90
MAD-1415	M14×1.0/1.5	15	128.2	102	12	4	11.2	86	19	5	—	—	120
MAD-1425	M14×1.0/1.5	25	153.2	117	12	4	11.2	101	19	5	—	—	194
MAD-1612	M16×1.0/1.5	12	99.7	76.5	14	4	11.2	54.9	19	6	—	—	200
MAD-2016	M20×1.5/2.0	16	148.3	117	17.8	6	15.3	101	26	7	—	—	230
MAD-2020	M20×1.5	20	152.3	117	17.8	6	15.3	101	26	7	—	—	235
MAD-2025	M20×1.5	25	157.3	117	17.8	6	15.3	101	26	7	—	—	240
MAD-2050	M20×1.5	50	239.3	174	17.8	6	15.3	158	26	7	—	—	330
MAD-2525	M25×1.5/2.0	25	162.5	118.5	22	8	19	101	32	9	—	—	350
MAD-2530	M25×1.5/2.0	30	167.5	118.5	22	8	19	101	32	9	—	—	365
MAD-2725	M27×1.5/3.0	25	162.5	118.5	22	8	19	101	32	9	—	—	403

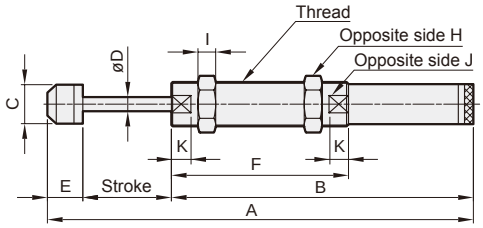
MAD-2540



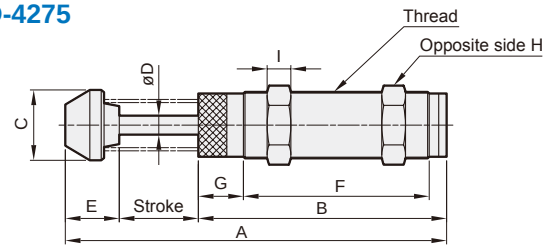
MAD-3625
MAD-3650



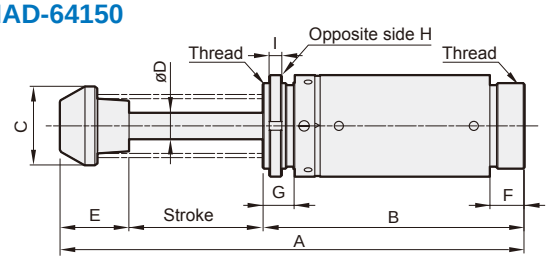
MAD-2550
MAD-2580



MAD-4225
MAD-4250
MAD-4275



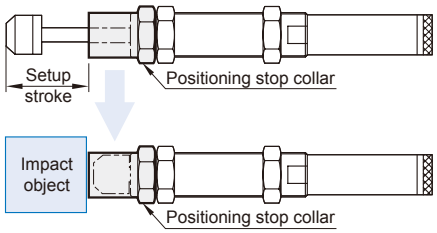
MAD-64050
MAD-64100
MAD-64150



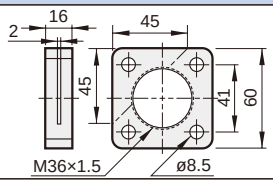
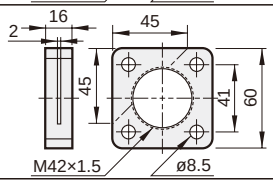
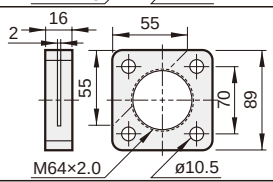
Dimensions

Model	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	K	Weight (g)
MAD-2540	M25×1.5/2.0	40	221.5	144.5	22	8	37	117	10	32	9	–	–	455
MAD-2550	M25×1.5/2.0	50	247	178	22	8	19	100	–	32	9	22.8	11	455
MAD-2580	M25×1.5/2.0	80	343.5	244.5	22	8	19	100	–	32	9	22.8	11	585
MAD-3625	M36×1.5	25	184	133	35.5	10	26	103	10	46	15	–	–	955
MAD-3650	M36×1.5	50	247	171	35.5	10	26	134	17	46	15	–	–	1100
MAD-4225	M42×1.5	25	186.5	127.5	44.5	12	34	88	28.5	50	15	–	–	1280
MAD-4250	M42×1.5	50	241	157	44.5	12	34	117.5	28.5	50	15	–	–	1490
MAD-4275	M42×1.5	75	301.5	187.5	44.5	12	39	148	28.5	50	15	–	–	1710
MAD-64050	M64×2.0	50	247.8	146	59	20	51.8	26	24	76.2	9.4	–	–	4115
MAD-64100	M64×2.0	100	347.8	196	59	20	51.8	26	24	76.2	9.4	–	–	5280
MAD-64150	M64×2.0	150	467.8	256	59	20	61.8	26	24	76.2	9.4	–	–	6785

How to set stop collar



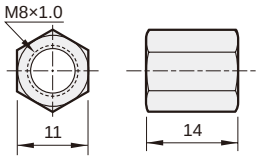
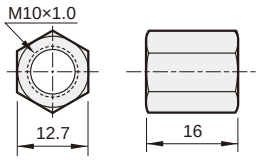
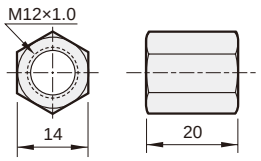
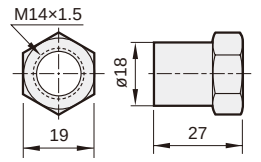
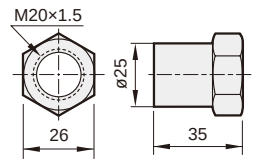
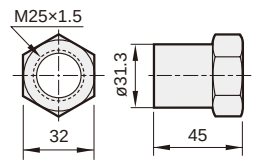
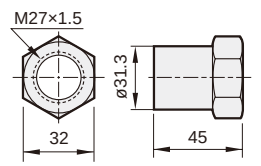
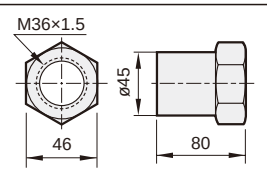
Flanges - F series

Model	Dimensions	Applicable for shock absorber model	Weight (g)
F36		MAC-3660 MAD-3625 MAD-3650	282
F42		MAD-4225 MAD-4250 MAD-4275	236
F64		MAD-64050 MAD-64100 MAD-64150	540

SC series – stop collars

Shock absorbers stop collars are available from M8×1.0 to M36×1.5 and suitable for shock absorbers with or Without impact head. They also can be used for adjusting and fixing position.

Optional accessories

Model	Dimensions	Applicable for shock absorber model
SC-08		MAC-0806
SC-10		MAC-1005 MAC-1007
SC-12		MAC-1210 MAD-1210
SC-14		MAC-1412 MAD-1410 MAC-1415 MAD-1415 MAC-1416 MAD-1425 MAC-1420 MAC-1425
SC-20		MAC-2015 MAD-2020 MAC-2020 MAD-2025 MAC-2025 MAD-2050 MAC-2030 MACD-2030 MAC-2050 MACD-2035 MAC-2065 MACD-2050
SC-25		MAC-2525 MAD-2525 MAC-2540 MAD-2530 MAC-2550 MAD-2540 MAD-2550 MAD-2580
SC-27		MAC-2725 MAD-2725
SC-36		MAC-3660 MAD-3625 MAD-3650

Four parameters are required to precisely determine the dimension of shock absorbers

- Mass to be decelerated m (kg)
- Impact velocity v (m/s)
- Propelling or driving force F (N)
- Number of impact cycles per hour C (/hr)

Some useful calculation formulas

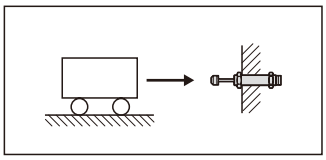
- Kinetic energy: $E_K = mv^2/2$
- Drive energy: $E_D = F \times S$
- Free fall velocity: $v = \sqrt{2g \times h}$
- Pneumatic or hydraulic cylinder driving forces.
  $F = 0.00785\ Pd^2$
- Maximum shock force (approximate).
  $Fm = 1.2\ E_T/S$
- Propelling force generated by electric motors.
  $F = 3000\ kW/v$
- Total energy absorbed per hour.
  $E_{TC} = E_T \times C$

Symbols	Unit	Description
μ		Coefficient of friction
α	(rad)	Angle of incline
θ	(rad)	Side load angle
ω	(rad/s)	Angular velocity
A	(m)	Width
B	(m)	Thickness
C	(/hr)	Impact cycles per hour
d	(mm)	Cylinder bore diameter
E_D	(Nm)	Drive energy per cycle
E_K	(Nm)	Kinetic energy per cycle
E_T	(Nm)	Total energy per cycle
E_{TC}	(Nm)	Total energy per hour
F	(N)	Propelling force
F_m	(N)	Maximum shock force
g	(m/s^2)	Acceleration due to gravity (9.81 m/s)
h	(m)	Height
HM		Arresting torque factor for motors (normally 2.5)
kW	(kW)	Electric motor power
m	(kg)	Mass to be decelerated
M_e	(kg)	Effective mass
P	(bar)	Operation pressure
R	(m)	Radius
R_s	(m)	Shock absorber mounting distance from rotation center
S	(m)	Stroke
T	(Nm)	Driving torque
t	(s)	Deceleration time
v	(m/s)	Velocity of impact mass
v_s	(m/s)	Impact velocity at shock absorber

Example 1. Horizontal impact

Application data

m = 300 kg
v = 1.0 m/s
S = 0.05 m
C = 300 /hr



Formulas and calculation

$$E_K = \frac{mv^2}{2} = \frac{300 \times 1.0^2}{2} = 150\ Nm$$

$$E_T = E_K = 150\ Nm$$

$$E_{TC} = E_T \times C = 150 \times 300 = 45000\ Nm/hr$$

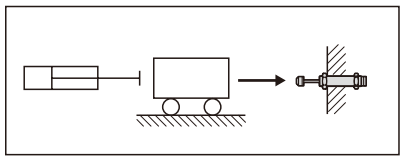
$$M_e = \frac{2E_T}{V^2} = \frac{2 \times 1.5}{1.0^2} = 300\ kg$$

Choose from calculation: MAD-3650 is adequate.

Example 2. Horizontal impact with propelling force

Application data

m = 300 kg
v = 1.2 m/s
S = 0.05 m
P = 40 N/cm^2
F = 1000 N
C = 500 /hr



Formulas and calculation

$$E_K = \frac{mv^2}{2} = \frac{300 \times 1.0^2}{2} = 216\ Nm$$

$$E_D = F \times S = 0.00785\ Pd^2 \times S$$

$$= 0.00785 \times 40 \times 100^2 \times 0.05 = 157\ Nm$$

$$E_T = E_K + E_D = 216+157 = 373\ Nm$$

$$E_{TC} = E_T \times C = 373 \times 300 = 111900\ Nm/hr$$

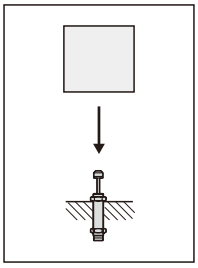
$$M_e = \frac{2E_T}{V^2} = \frac{2 \times 373}{1.2^2} = 518\ kg$$

Choose from calculation: MAD-4250 is adequate.

Example 3. Free fall impact

Application data

m = 40 kg
h = 0.4 m
S = 0.06 m
C = 200 /hr



Formulas and calculation

$v = \sqrt{2g \times h} = \sqrt{2 \times 9.81 \times 0.4} = 2.8$ m/sec

$E_K = \frac{mv^2}{2} = \frac{40 \times 2.8^2}{2} = 157$ Nm

$E_D = F \times S = 40 \times 9.81 \times 0.06 = 23.5$ Nm

$E_T = E_K + E_D = 157 + 23.5 = 180.5$ Nm

$E_{TC} = E_T \times C = 180.5 \times 200 = 36100$ Nm/hr

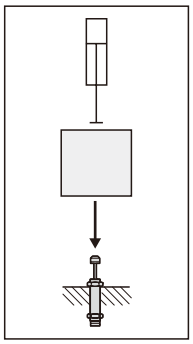
$M_e = \frac{2E_T}{V^2} = \frac{2 \times 180.5}{2.8^2} = 46$ kg

Choose from calculation: MAC-3660-1 is adequate.

Example 4. Free fall impact with propelling

Application data

m = 40 kg
h = 0.3 m
S = 0.025 m
P = 5 bar
d = 50 mm
C = 200 /hr
v = 1.0 m/sec



Formulas and calculation

$E_K = \frac{mv^2}{2} = \frac{40 \times 1.0^2}{2} = 20$ Nm

$E_D = F \times S = (mg+0.0785Pd^2) \times S$
$= (40 \times 9.81+0.0785 \times 5 \times 50^2) \times 0.025 = 34.3$ Nm

$E_T = E_K+E_D = 20+34.3 = 54.3$ Nm

$E_{TC} = E_T \times C = 54.3 \times 200 = 10860$ Nm/hr

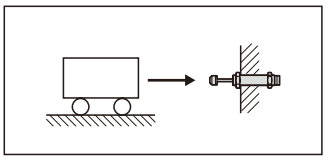
$M_e = \frac{2E_T}{V^2} = \frac{2 \times 54.3}{1.0^2} = 108.6$ kg

Choose from calculation: MAD-2525 is adequate.

Example 5. Horizontal impact with motor driving

Application data

m = 400 kg
v = 1.0 m/s
W = 1.5 kW
HM = 2.5
S = 0.075 m
C = 60 /hr



Formulas and calculation

$E_K = \frac{mv^2}{2} = \frac{300 \times 1.0^2}{2} = 150$ Nm

$E_D = F \times S = \frac{kW \times HM}{v} \times S = \frac{1500 \times 2.5}{1.0} \times 0.075 = 281$ Nm

$E_T = E_K+E_D = 200 + 281 = 481$ Nm

$E_{TC} = E_T \times C = 481 \times 60 = 25860$ Nm/hr

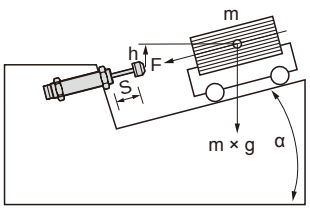
$M_e = \frac{2E_T}{V^2} = \frac{2 \times 481}{1.0^2} = 962$ kg

Choose from calculation: MAD-4275 is adequate.

Example 6. Inclined impact

Application data

m = 150 kg
h = 0.3 m
S = 0.075 m
α = 30°
C = 200 /hr



Formulas and calculation

$v = \sqrt{2g \times h} = \sqrt{2 \times 9.81 \times 0.3} = 2.43$ m/sec

$E_K = \frac{mv^2}{2} = \frac{150 \times 2.43^2}{2} = 443$ Nm

$E_D = F \times S = m \times g \times S \times \sin\alpha$
$= 50 \times 9.81 \times 0.075 \times \sin30° = 55.2$ Nm

$E_T = E_K+E_D = 433+55.2 = 498.2$ Nm

$E_{TC} = E_T \times C = 498.2 \times 200 = 99640$ Nm/hr

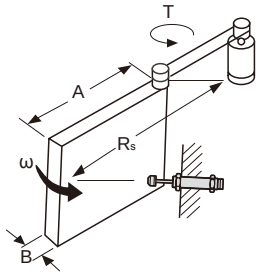
$M_e = \frac{2E_T}{V^2} = \frac{2 \times 498.2}{2.43^2} = 168.7$ kg

Choose from calculation: MAD-4275 is adequate.

Example 7. Horizontal rotating door

Application data

m = 20 kg
ω = 2.0 rad/s
T = 20 Nm
R_S= 0.8 m
A = 1.0 m
B = 0.05 m
S = 0.016 m
C = 100 /hr



Formulas and calculation

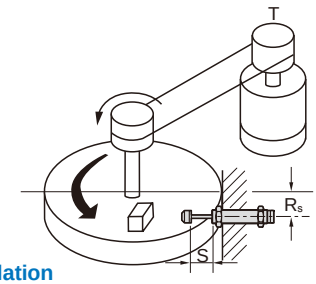
I	=	$\frac{m(4A^2+B^2)}{12}$	=	$\frac{20(4 \times 1.0^2+0.05^2)}{12}$	=	6.67 kg.m^2
E_K	=	$\frac{I\omega^2}{2}$	=	$\frac{6.67 \times 2.0^2}{2}$	=	13.34 Nm
θ	=	$\frac{s}{R_S}$	=	$\frac{0.04}{0.8}$	=	0.05 rad
E_D	=	T × θ	=	20 × 0.05	=	1.0 Nm
E_T	=	E_K+E_D	=	13.34+1.0	=	14.34 Nm
E_{TC}	=	E_T × C	=	14.34 × 100	=	1434 Nm/hr
v	=	ω × R_S	=	2.0 × 0.8	=	1.6 m/s
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 14.34}{1.6^2}$	=	11.20 kg

Choose from calculation: MAD-2016 is adequate.

Example 8. Rotary index table with propelling force

Application data

m = 200 kg
ω = 1.0 rad/s
T = 100 Nm
R = 0.5 m
R_S= 0.4 m
S = 0.04 m
C = 100 /hr



Formulas and calculation

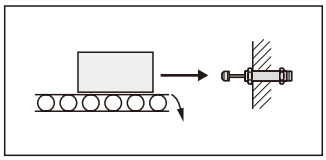
I	=	$\frac{mR^2}{2}$	=	$\frac{200 \times 0.5^2}{2}$	=	25 kg.m^2
E_K	=	$\frac{I\omega^2}{2}$	=	$\frac{25 \times 1.0^2}{2}$	=	12.5 Nm
θ	=	$\frac{s}{R_S}$	=	$\frac{0.04}{0.4}$	=	0.1 rad
E_D	=	T × θ	=	100 × 0.1	=	10 Nm
E_T	=	E_K+E_D	=	12.5+10	=	22.5 Nm
E_{TC}	=	E_T × C	=	22.5 × 50	=	1125 Nm/hr
v	=	ω × R_S	=	1.0 × 0.4	=	0.4 m/s
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 22.5}{0.4^2}$	=	281 kg

Choose from calculation: MAD-2540 is adequate.

Example 9. Horizontal mass on driven rollers

Application data

m = 150 kg
v = 0.5 m/s
μ = 0.25
S = 0.02 m
C = 120 /hr



Formulas and calculation

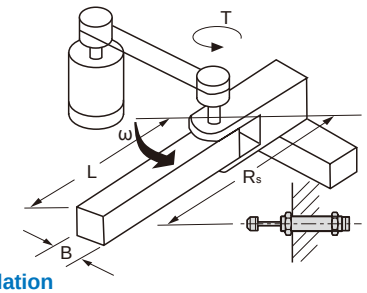
E_K	=	$\frac{mv^2}{2}$	=	$\frac{150 \times 0.5^2}{2}$	=	18.75 Nm
E_D	=	F × S = mgμ × S = 150 × 9.81 × 0.25 × 0.02 = 7.35 Nm				
E_T	=	E_K+E_D =		18.73+7.35	=	26.1 Nm
E_{TC}	=	E_T × C =		26.1 × 120	=	3132 Nm/hr
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 26.1}{0.5^2}$	=	208.8 kg

Choose from calculation: MAC-2020-3 is adequate.

Example 10. Rotating beam with driving force

Application data

m = 40 kg
A = 0.5 m
B = 0.05 m
ω = 2.0 rad/s
T = 10 Nm
R_S= 0.4 m
S = 0.05 m
C = 50 /hr



Formulas and calculation

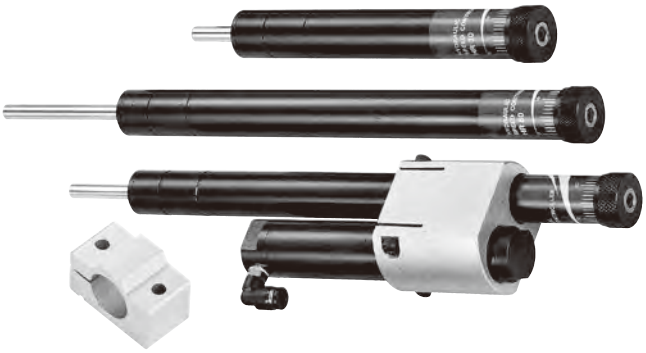
I	=	$\frac{m(4A^2+B^2)}{12}$	=	$\frac{40(4 \times 0.5^2+0.05^2)}{12}$	=	3.34 kg.m^2
E_K	=	$\frac{I\omega^2}{2}$	=	$\frac{3.34 \times 2.0^2}{2}$	=	6.7 Nm
θ	=	$\frac{s}{R_S}$	=	$\frac{0.05}{0.4}$	=	0.125 rad
E_D	=	T × θ	=	10 × 0.125	=	1.25 Nm
E_T	=	E_K+E_D	=	6.7+1.25	=	8 Nm
E_{TC}	=	E_T × C	=	8 × 50	=	400 Nm/hr
v	=	ω × R_S	=	2.0 × 0.4	=	0.8 m/s
M_e	=	$\frac{2E_T}{V^2}$	=	$\frac{2 \times 8.05}{0.8^2}$	=	25 kg

Choose from calculation: MAD-1416-2 is adequate.

MHR series

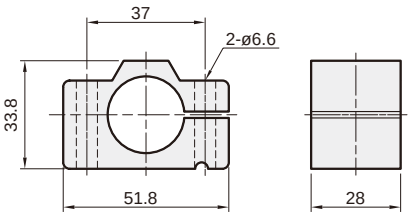
HYDRAULIC SPEED CONTROLLER

- Used extensively for providing smooth consistent feed speed on machine tools.
- Construction incorporates double seal enabling unit to be used in dirty and dusty environments.
- Fully adjustable speeds can be quickly and simply selected.
- Compact size, ideal for use on robots, drills, conveyors, cut off machines and woodworking equipment.
- Can be used in conjunction with Pneumatic air cylinder in order to provide consistent movement.



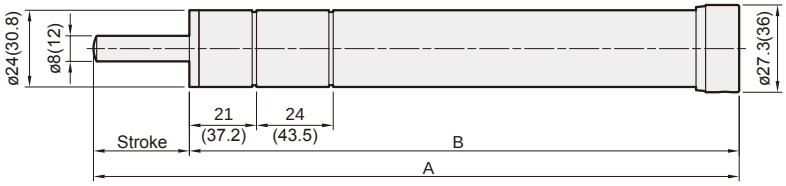
Specification

Order no.	Max. stroke (mm)	A	B	Operating temperature (°C)	Max. load (kgf)	Weight (g)
MHR-15	15 mm	152	137	0-60	15~350	470
MHR-30	30 mm	202	172	0-60	15~350	495
MHR-60	60 mm	282.5	222.5	0-60	15~350	615
MHR-80	80 mm	350	270	0-60	15~350	690
MHR-100	100 mm	396	296	0-60	15~350	765
MHR-3160	60 mm	331	271	0-60	30~420	1000
MHRT-60	60 mm	317	258	0-60	15~350	1555
MHRT-100	100 mm	389.5	289.5	0-60	15~350	1635

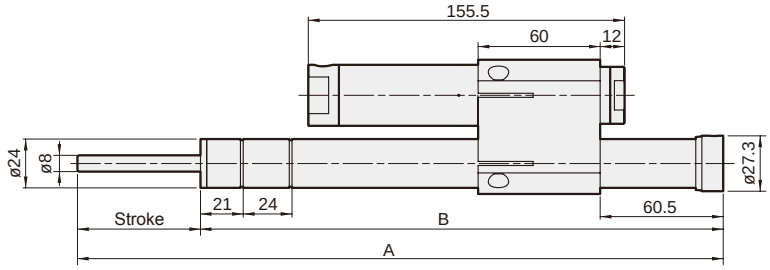


MHR

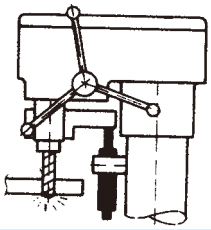
*(MHR3160)

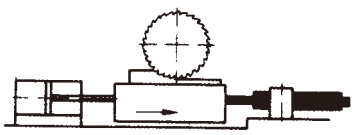


MHRT

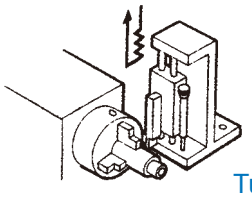


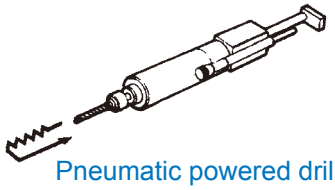
Application example

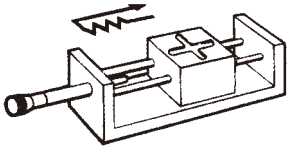

Drilling


Disk sawing


Horizontal drilling


Turning


Pneumatic powered drilling

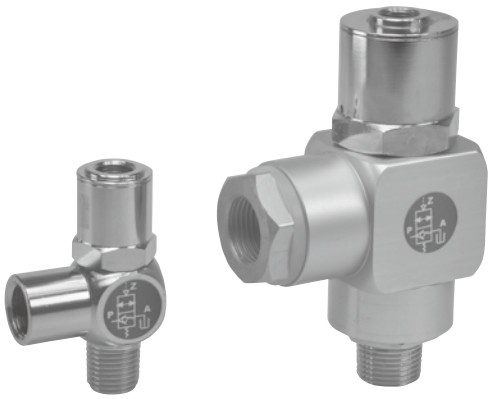

Linear motion slide

Features

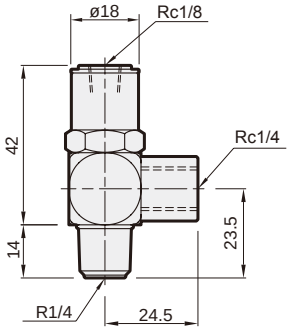
- Maintains pressure in event of air failure.
- Prevents leakage in an air system.
- Enable accurate holding of work-piece.

Specification

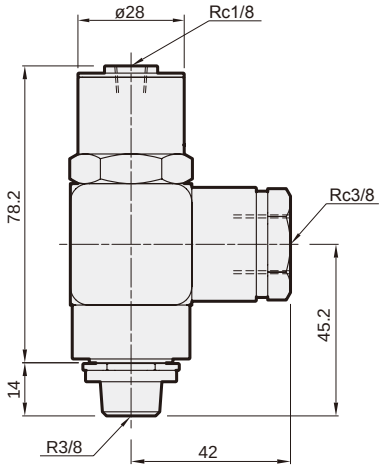
Order no.	Pressure (MPa)	Operation temperature (°C)	Orifice (mm^2)	Operation time (times/ min)	Weight (g)
MPC-02	0.05~0.95	-10~70 (No freezing)	24	60	100
MPC-04	0.05~0.95	-10~70 (No freezing)	79	40	340



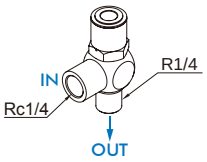
MPC-02



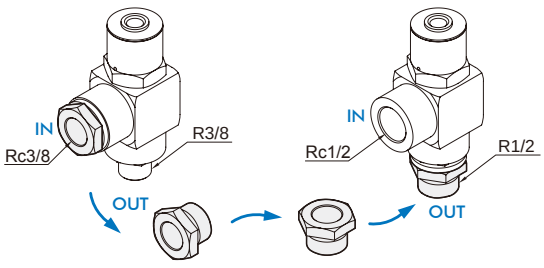
MPC-04

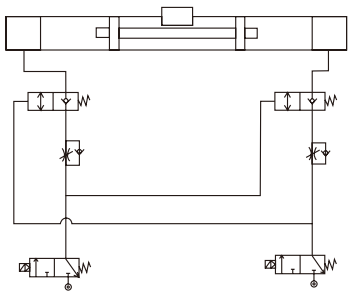


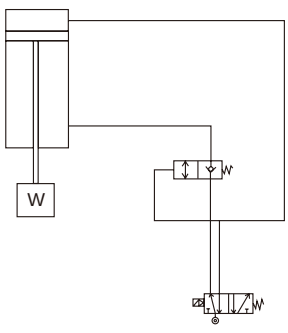
MPC-02

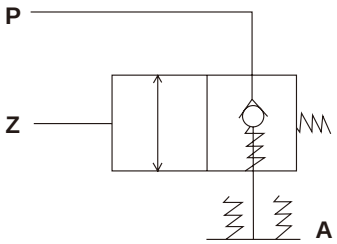


MPC-04



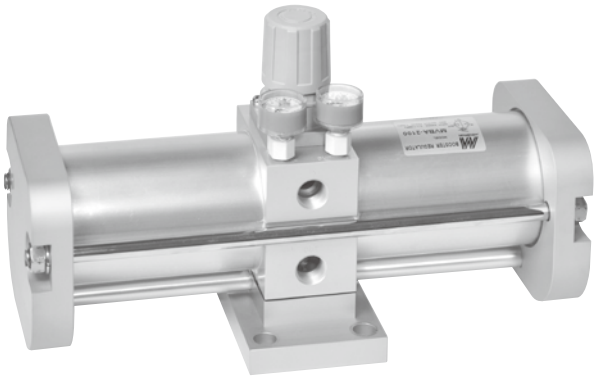






MVBA-2100 series

BOOSTER REGULATOR



Order example

MVBA — 2100 — S — □

- MODEL
- SILENCER
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Features

- Increase factory air pressure by up to twice as much.
- Air-only operation requires no power supply, reduces heat generation, and allows easy installation.

Specification

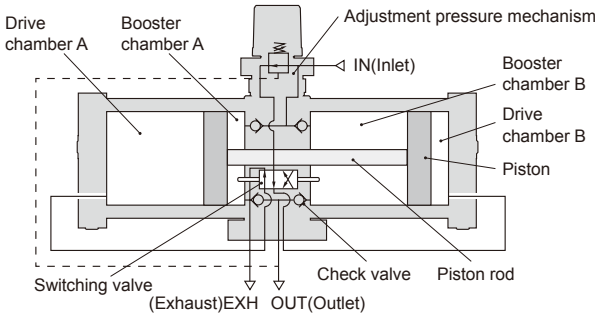
Model	MVBA-2100
Port size	Rc3/8
Medium	Air
Pressure increase rate	Twice
Operating pressure range	0.2~1 MPa
Supply pressure range	0.1~1 MPa
Proof pressure	1.5 MPa
Max. flow rate (*)	1000 ℓ/min
Ambient temperature	+2~+50°C
Installation	Horizontal
Lubrication	Grease (Non-lube)
Attachment	Pressure gauge (PG-25)
Option	Silencer (MSLT-03)
Weight	3900 g

* Max. flow rate at In=Out=0.5 MPa.

Caution

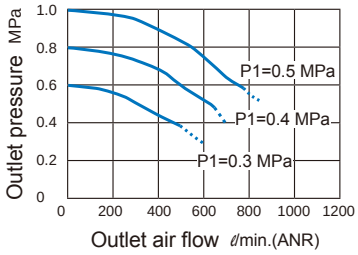
- If the outlet capacity is undersized, pulsation may occur.
- Make sure to install a mist separator at the inlet side of the booster regulator.
- The booster regulator has a sliding part inside, and it generates dust. Also, install a cleaning device such as an air filter or a mist separator on the outlet side as necessary.
- Provide a dedicated pipe to release the exhaust air from each booster regulator. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.
- Depending on the necessity, install a silencer on the exhaust port of the booster regulator to reduce the exhaustion sound.
- Allow the sufficient space for maintenance and inspection.

Working Principle



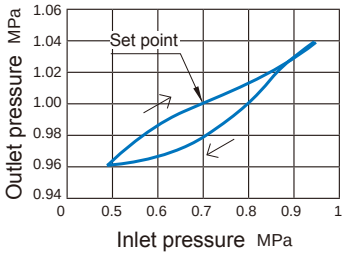
- The IN(Inlet) air passes through the check valve to booster chamber A and B. Meanwhile, air is supplied to drive chamber B via the governor and the switching valve. Then, the air pressure from drive chamber B and booster chamber A are applied to the piston, boosting the air in booster chamber B. As the piston travels, the boosted air is pushed via the check valve to the OUT(Outlet) side. When the piston reaches the switching valve to touch, so that drive chamber B is in the exhaust state and drive chamber A is in the supply state respectively. Then, the piston reverses its movement, this time, the pressures from booster chamber B and drive chamber A boosts the air in booster chamber A and sends it to the OUT side.
- The process described above is repeated to continuously supply highly pressurized air from the IN to the OUT side. The governor establishes the outlet pressure by handle operation and pressure adjustment in the drive chamber by feeding back the outlet pressure.

Flow features

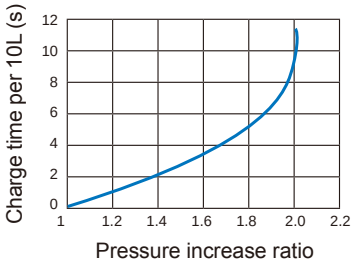


Pressure characteristics

Supply pressure 0.7 MPa
Primary pressure 1 MPa
Flow rate: 20L/min



Charge characteristics

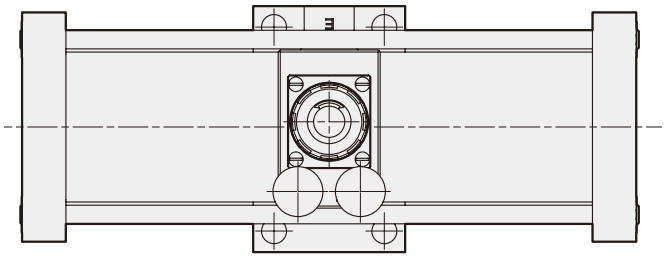


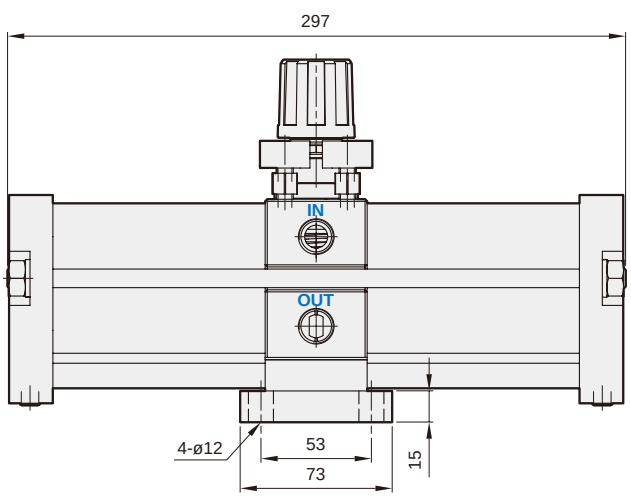
* When filling tank with air, where Primary side air pressure P_0, air pressure in tank before filling P_1, air pressure after filling P_2, boosting ratio before filling $K_1=P_1/P_0$ and after filling $K_2=P_2/P_0$. Find K_1 and K_2 at first, then read filling time t_1 and t_2 according to graph where boosting ratio K_1, K_2, Finally filling time for tank capacity Q is obtained with

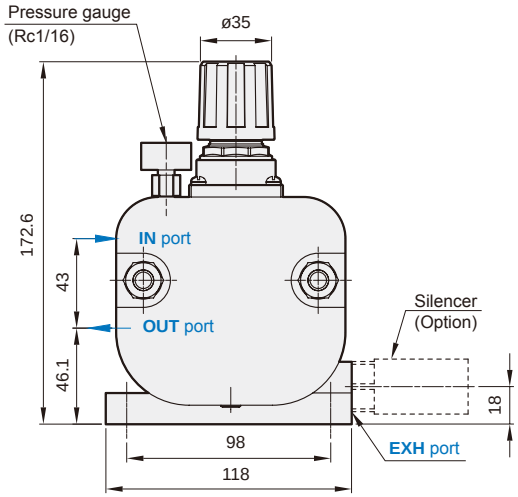
$$T = \frac{Q}{10}(t_2 - t_1).$$

(Each characteristics are just reference, but not assured conditions)

Dimensions







MVBAT series

BOOSTER REGULATOR WITH AIR TANK

Features

- Increase factory air pressure by up to twice as much.
- Air-only operation requires no power supply, reduces heat generation, and allows easy installation.

Specification

Model	MVBAT10	MVBAT20
Port size	Rc3/8	
Medium	Air	
Pressure increase rate	Twice	
Operating pressure range	0.2~1 MPa	
Supply pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Max. flow rate (*)	1000 ℓ/min	
Ambient temperature	+2~+50°C	
Installation	Horizontal	
Lubrication	Grease (Non-lube)	
Attachment	Pressure gauge (PG-25)	
Option	Air units (MAFRF401AD-10A), Silencer (MSLT-03), Drain valve	
Weight	12 kg	20 kg

* Max. flow rate at In=Out=0.5 MPa.

Order example

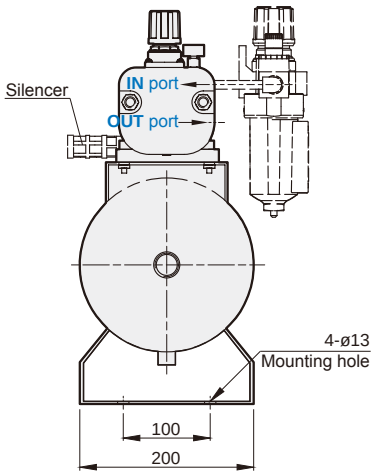
MVBAT10 — □ — G

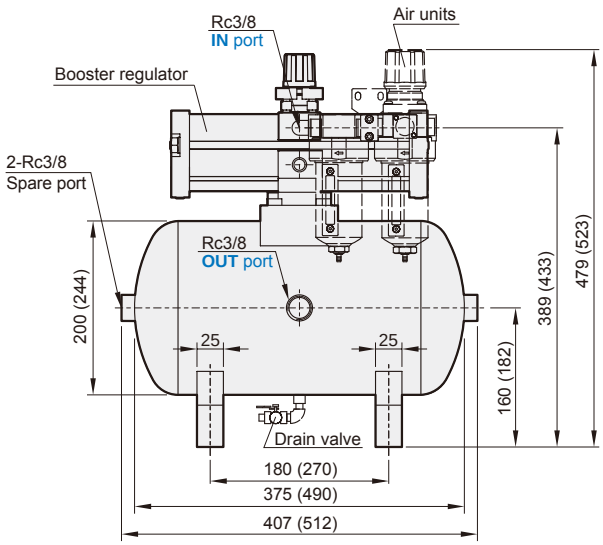
- MODEL
- TANK INTERNAL CAPACITY
  - **10**: 10L
  - **20**: 20L
- OPTION
  - **A**: Air units
  - **S**: Silencer
  - **V**: Drain valve
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Caution

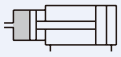
- If the outlet capacity is undersized, pulsation may occur.
- Make sure to install a mist separator (0.3μm) at the inlet side of the booster regulator.
- The booster regulator has a sliding part inside, and it generates dust. Also, install a cleaning device such as an air filter or a mist separator on the outlet side as necessary.
- Provide a dedicated pipe to release the exhaust air from each booster regulator. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.
- Depending on the necessity, install a silencer on the exhaust port of the booster regulator to reduce the exhaustion sound.
- Allow the sufficient space for maintenance and inspection.

Dimensions ( ) for MVBAT20





MHBS	Single pressure type
MHBD	Dual pressure type

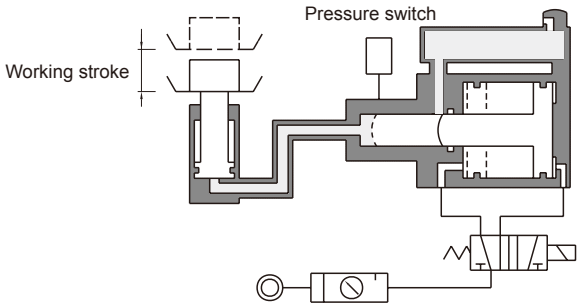


Features

- Generates high pressure by use of high pressure hydraulic fluid.
- Universal design enables unit to be used in a wide variety of applications.
- Ideal for providing the motive force for marking, punching, shearing, straightening, embossing and welding.

Single pressure booster

Optimum for high output,short stroke cylinder.



Specification

Model	Single pressure type			Dual pressure type		
	MHBS-078	MHBS-110	MHBS-250	MHBD-078	MHBD-110	MHBD-250
Intensified pressure ratio	7.8	11	25	7.8	11	25
Generated hydraulic pressure (MPa)	5.3	7.6	17.2	5.3	7.6	17.2
Discharging volume (cc)	50	120	120	50	120	120
Ambient temperature	+5~+60 °C					
Operating pressure range	0.2~0.7 MPa					
Driving fluid	Hydraulic work oil viscosity					
Mounting form	Side foot type					
Sensor switch (*)	LN02A	LN03A		LN02A	LN03A	

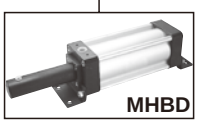
* LN**A specification, please refer to page 8-20.

Order example

MHBD — 110

MODEL

INTENSIFIED PRESSURE RATIO
078: 7.8
110: 11
250: 25



The method of calculation (Booster consumption)

$$A = (D)^2 \times \frac{\pi}{4} \text{ mm}^2$$

$$P2 = R \times P$$

$$F = A \times P2 = \_\_\_ \text{ N}$$

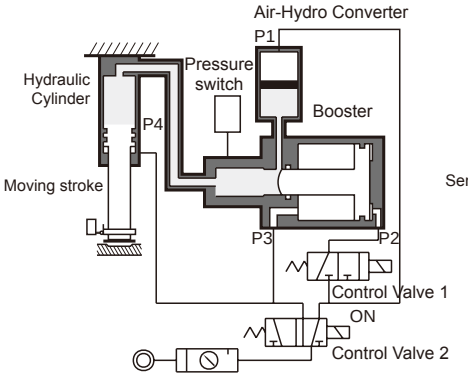
A:	Piston area	(mm^2)
D:	Piston I.D.	(mm)
F:	Cylinders force	(N)
P:	Air pressure	(MPa)
P2:	Intensified pressure	(MPa)
R:	Intensified pressure ratio	

Dual pressure booster

Points in usage

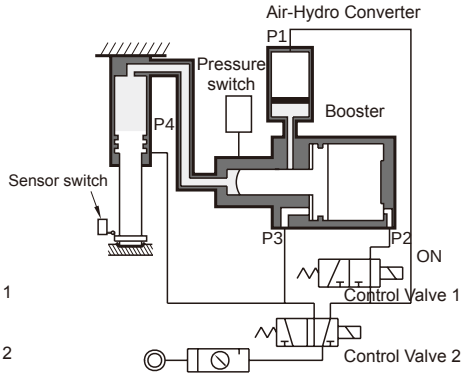
- The booster must be levelled.
- Standard booster are designed for use with petroleum base hydraulic oil.
- The booster must be higher than the work cylinder.
- Frequency of use should be 6 times/min or lower.

1. Quick traverse



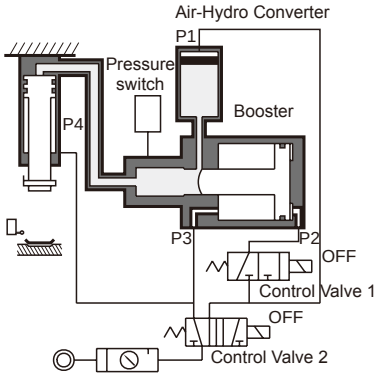
When the air is charged from the port P1, the oil in the tank will forward the hydraulic cylinder quickly. The pressure is the same as the air pressure, but the inflow of oil is large in volume.

2. Intensified feeding



When the air is charged from the port P2, a ram will advance. the highly pressured fluid will come in to the hydraulic cylinder which will be forwarded by large thrust.

3. Swift reverse



When the air is send into port P4 and P3. the hydraulic cylinder is swiftly reversed. and at the same time the ram goes back.

Compressed air consumption

l / cycle

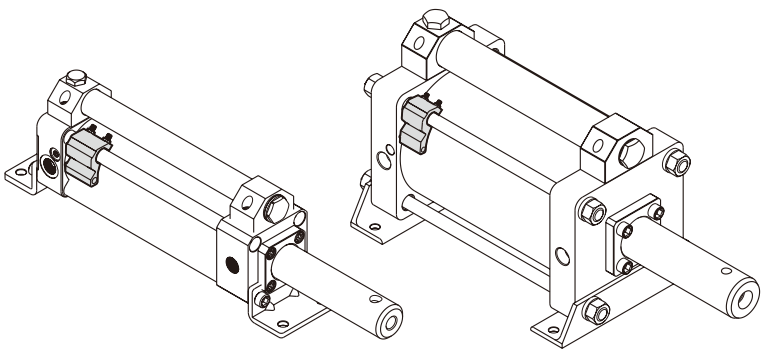
Boosters	Operating pressure (MPa)					
	0.2	0.3	0.4	0.5	0.6	0.7
MHBS-078	2.40	3.19	3.98	4.78	5.56	6.36
MHBD-078	2.40	3.19	3.98	4.78	5.56	6.36
MHBS-110	7.58	10.07	12.57	15.07	17.57	20.06
MHBD-110	7.58	10.07	12.57	15.07	17.57	20.06
MHBS-250	18.09	24.06	30.02	35.99	41.95	47.92
MHBD-250	18.09	24.06	30.02	35.99	41.95	47.92

How to order the seal kit

Model	Code
MHBS-078	MHBSSK-078
MHBD-078	MHBDSK-078
MHBS-110	MHBSSK-110
MHBD-110	MHBDSK-110
MHBS-250	MHBSSK-250
MHBD-250	MHBDSK-250

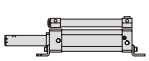
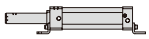
Installation of sensor switch

Model	Sensor switch
MHBS(D)-078	LN02A
MHBS(D)-110	LN03A
MHBS(D)-250	LN03A

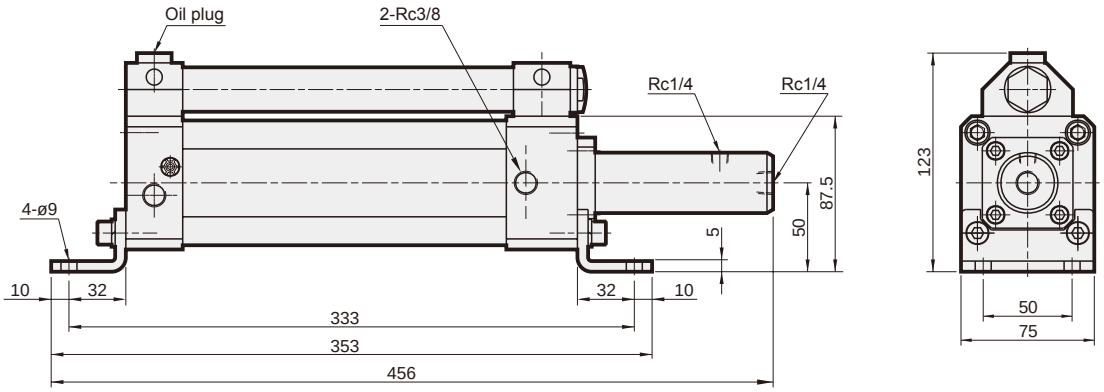


Booster weight

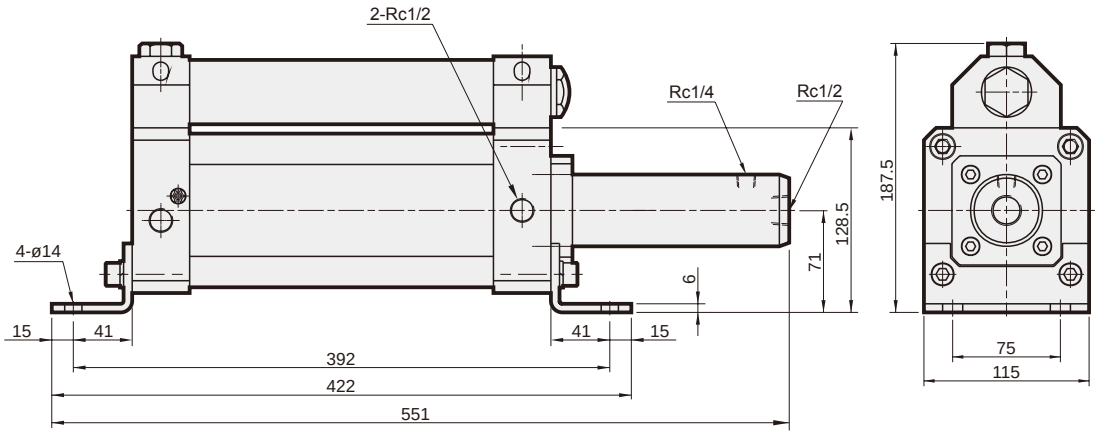
Unit: kg

Type	MHBS	MHBD
		
078	3.4	3.1
110	10.1	9.1
250	20.0	18.0

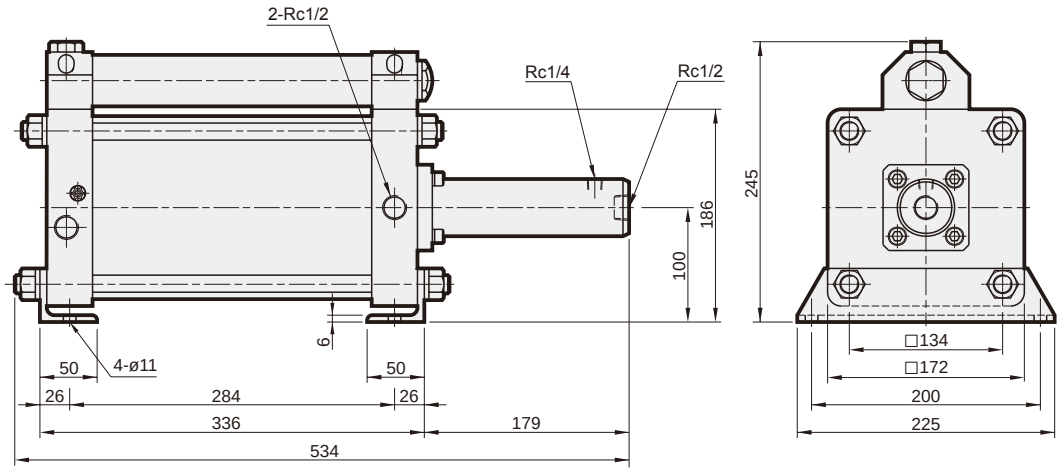
MHBS-078



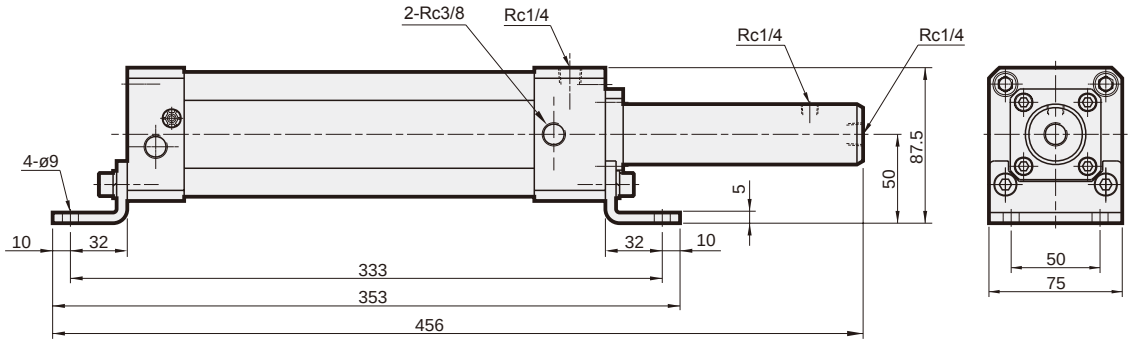
MHBS-110



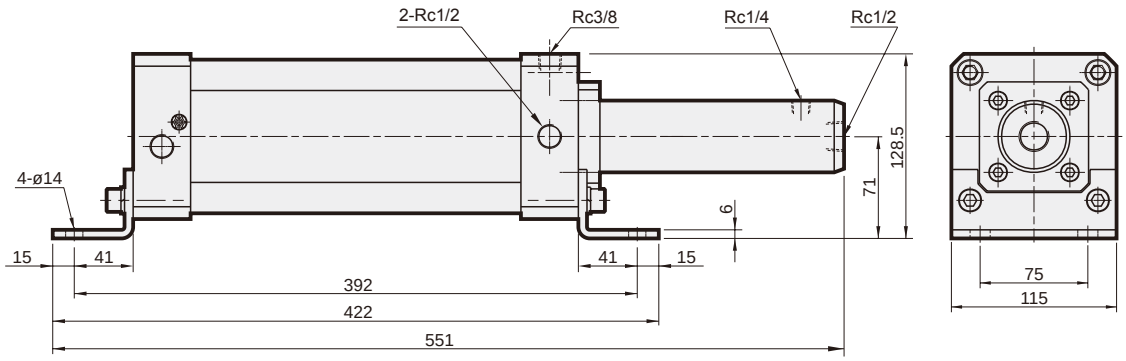
MHBS-250



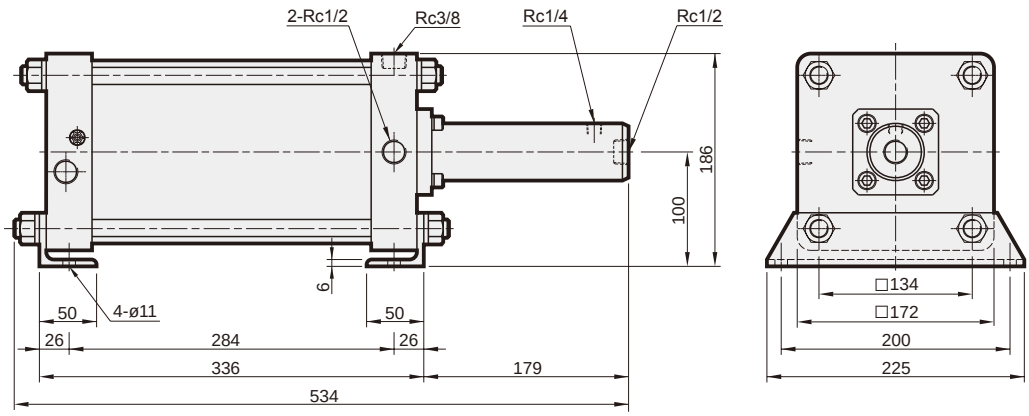
MHBD-078

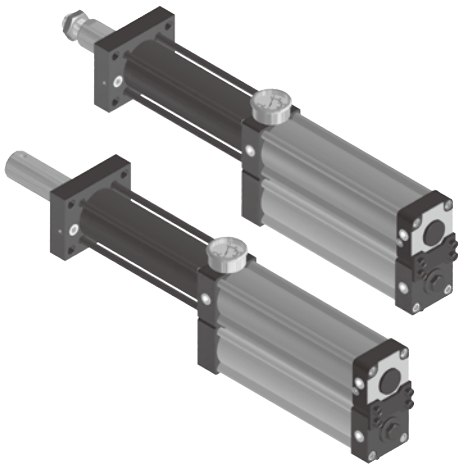


MHBD-110



MHBD-250





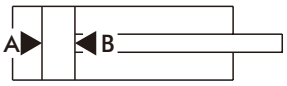
MHPD	Female thread in rod end type	
MHPD-Z	Male thread in rod end type	

Features

- Hydro-pneumatic solution provides high power in confined space.
- Simple construction make these units ideal in many applications where previously hydraulics were the only option.
- Quiet in operation.
- Only requires a pneumatic valve to make the system operate.
- Wide range of working strokes and output forces available.

Specification

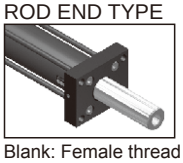
Model	MHPD
Pressure boost model	1T, 3T, 5T, 8T, 10T
Total stroke (mm)	50, 75, 100, 150, 200
Working stroke (mm)	5, 10, 15, 20
Medium	Filtered air with or without lubrication
Operating pressure range	0.3 ~ 0.8 MPa
Ambient temperature	-10~+60 °C (No freezing)



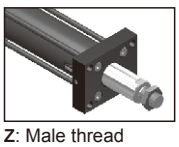
Order example

MHPD — 3T × 100 — 10 — Z

- MODEL
- THRUST MODEL: **1T**, **3T**, **5T**, **8T**, **10T**
- TOTAL STROKE: **50**: 50mm, **75**: 75mm, **100**: 100mm, **150**: 150mm, **200**: 200mm
- WORKING STROKE: **5**: 5mm, **10**: 10mm, **15**: 15mm, **20**: 20mm
- ROD END TYPE



Blank: Female thread



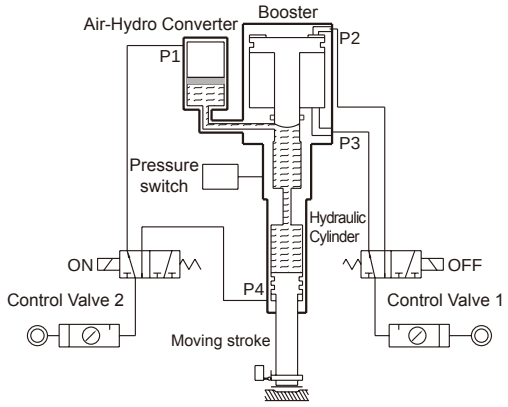
Z: Male thread

Power cylinders theoretic force

Unit: N

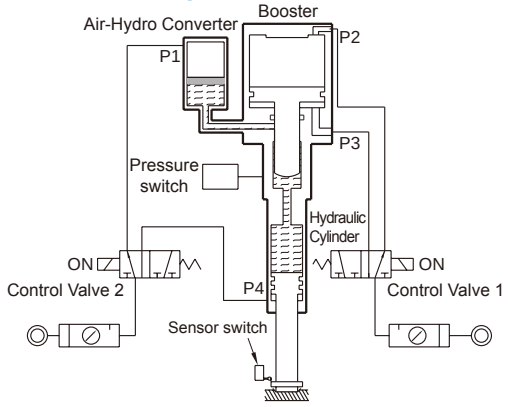
Thrust model			1T	3T	5T	8T	10T
Tube I.D. (mm)			ø50	ø70	ø80	ø100	ø125
Rod (mm)			ø30	ø40	ø50	ø60	ø70
Operating pressure (MPa)	0.3	A	7,216	18,473	30,054	46,959	67,630
		B	377	778	919	1,508	2,527
	0.4	A	9,621	24,630	40,072	62,612	90,174
		B	503	1,037	1,225	2,011	3,369
	0.5	A	12,026	30,788	50,090	78,265	112,717
		B	628	1,296	1,532	2,513	4,212
	0.6	A	14,432	36,945	60,108	93,918	135,261
		B	754	1,555	1,838	3,016	5,054
	0.7	A	16,837	43,103	70,126	109,571	157,804
		B	880	1,814	2,144	3,519	5,896
	0.8	A	19,242	49,260	80,143	125,224	180,347
		B	1,005	2,073	2,450	4,021	6,739

1. Quick traverse



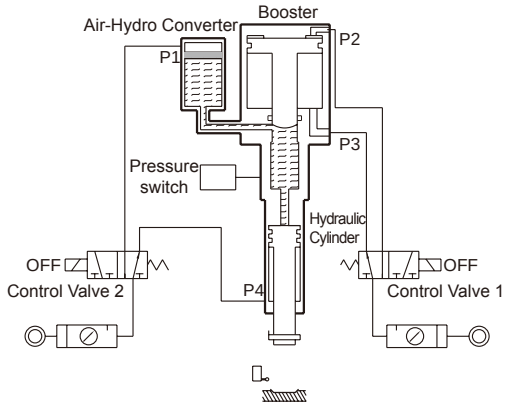
When the air is charged from the port P1, the oil in the tank will forward the hydraulic cylinder quickly. The pressure is the same as the air pressure, but the inflow of oil is large in volume.

2. Intensified feeding



When the air is charged from the port P2, a ram will advance. the highly pressured fluid will come in to the hydraulic cylinder which will be forwarded by large thrust.

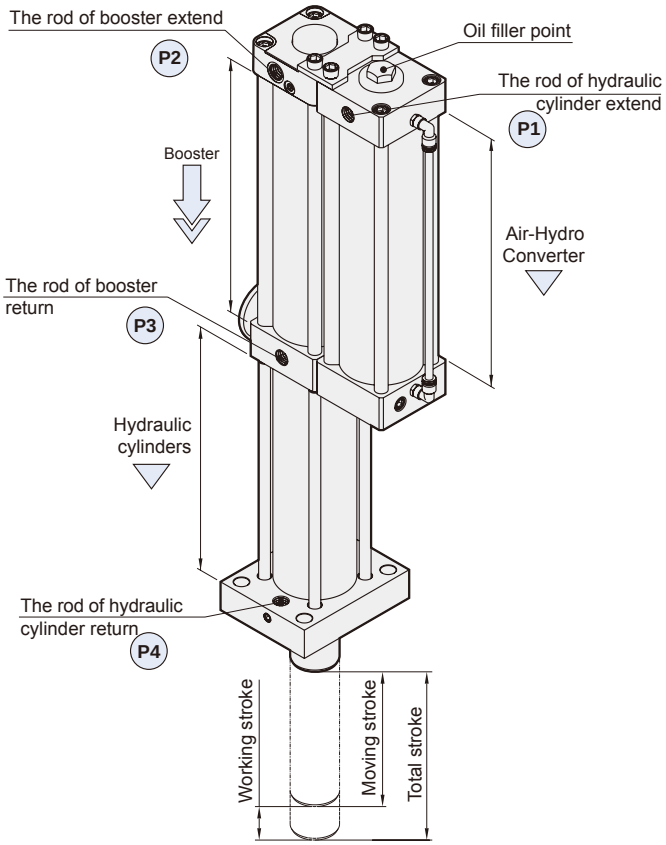
3. Swift reverse



When the air is send into port P4 and P3. the hydraulic cylinder is swiftly reversed. and at the same time the ram goes back.

Points in usage

- The booster must be levelled. The booster must be higher than the work cylinder.
- Standard booster are designed for use with petroleum base hydraulic oil.
- Before working, the rod of booster and hydraulic must return.
- Frequency of use should be 20 times/min or lower.



Power Cylinders bore and stroke

Type		Working stroke (mm)				
Thrust model / Total stroke		1T	3T	5T	8T	10T
MHPD	50mm	⑤⑩⑮	⑤⑩	⑤⑩	⑤⑩	⑤⑩⑮
	75mm	⑤⑩⑮⑳	❺⑩⑮	⑤⑩⑮	⑤⑩⑮	❺⑩⑮
	100mm	❺⑩⑮⑳	❺⑩⑮	❺⑩⑮	❺⑩⑮	❺⑩⑮
	125mm	❺⑩⑮⑳	❿⑮	❺⑩⑮	⑩⑮	⑩⑮⑳
	150mm	❿⑮⑳	❿⑮⑳	⑩⑮⑳	⑩⑮⑳	❿⑮⑳
	200mm	❿⑮⑳	❿⑮⑳	❿⑮⑳	❿⑮⑳	❿⑮⑳
MHPD-Z	50mm	⑤⑩⑮	⑤⑩	⑤⑩⑮	⑤⑩⑮	⑤⑩⑮
	75mm	⑤⑩⑮⑳	❺⑩⑮	⑤⑩⑮	⑤⑩⑮	❺⑩⑮⑳
	100mm	❺⑩⑮⑳	❺⑩⑮⑳	❺⑩⑮	❺⑩⑮⑳	❺⑩⑮⑳
	125mm	❺⑩⑮⑳	❿⑮⑳	❺⑩⑮⑳	⑩⑮⑳	⑩⑮⑳
	150mm	❿⑮⑳	❿⑮⑳	⑩⑮⑳	⑩⑮⑳	❿⑮⑳
	200mm	❿⑮⑳	❿⑮⑳	❿⑮⑳	❿⑮⑳	❿⑮⑳

Note. ⑤ = Working stroke 5mm, ⑩ = Working stroke 10mm;
⑮ = Working stroke 15mm, ⑳ = Working stroke 20mm;
Short stroke: ⑤⑩⑮⑳, Long stroke: ❺❿⓯⓴

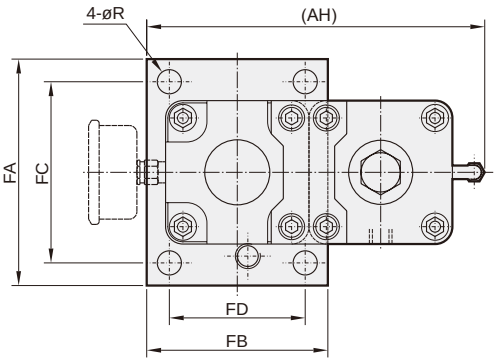
MHPD / MHPD-Z

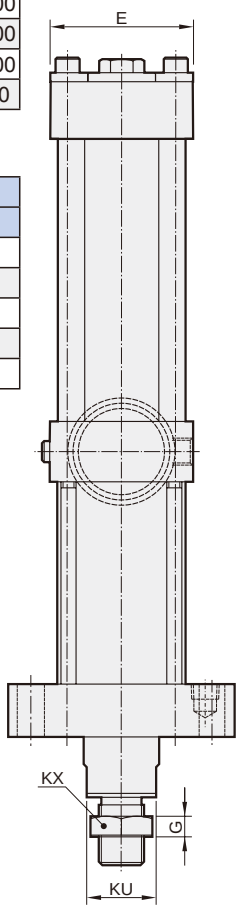
Standard stroke (Short stroke)

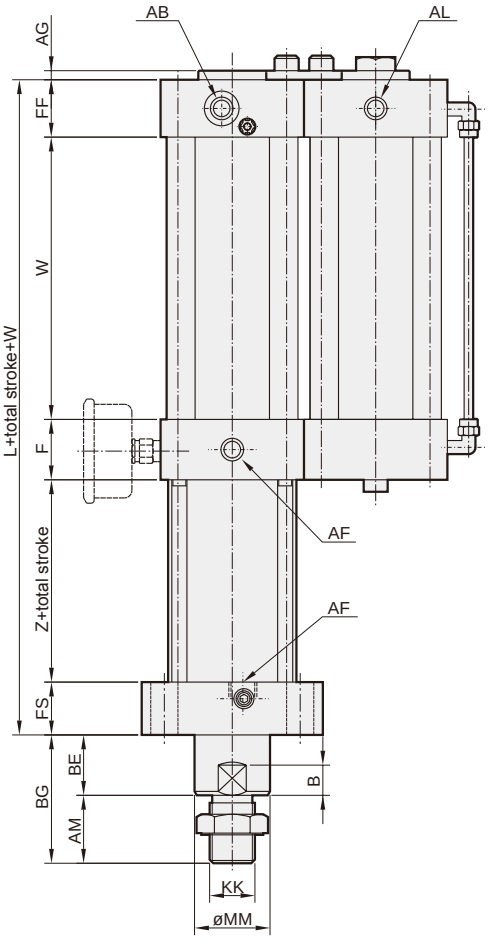
Type	Working stroke			
	5	10	15	20
1T	50~75	50~125	50~150	75~200
3T	50	50~100	75~150	150~200
5T	50~75	50~150	75~200	150~200
8T	50~75	50~150	75~200	150~200
10T	50	50~125	50~200	125~200
1T-Z	50~75	50~125	50~150	50~200
3T-Z	50	50~100	75~150	100~200
5T-Z	50~75	50~150	50~200	125~200
8T-Z	50~75	50~150	50~200	100~200
10T-Z	50	50~125	50~200	75~200

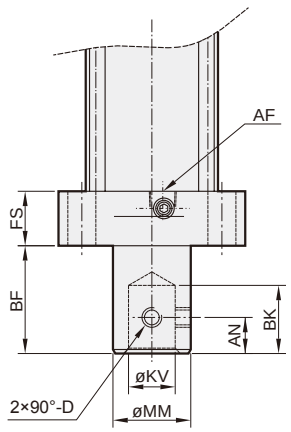
Working stroke

Type	W			
	5	10	15	20
1T	108	146	184	222
3T	126	187	248	309
5T	135	199	263	327
8T	150	214	278	342
10T	148	212	276	340









Female thread

Code / Type	AB	AF	AG	AH	AL	AM	AN	B	BE	BF	BG	BK	D	E	F
1T	G3/8	G3/8	5	187	G3/8	35	12	12	25	40	60	28	M6×1.0	75	40
3T	G3/8	G3/8	6	227	G3/8	45	15	20	40	50	85	35	M6×1.0	95	40
5T	G1/2	G1/2	6	262	G1/2	60	20	20	40	60	100	40	M10×1.5	115	40
8T	G1/2	G1/2	6	315	G1/2	70	25	20	50	70	120	60	M10×1.5	140	45
10T	G3/4	G3/4	6	381	G3/4	80	30	27	60	85	140	50	M10×1.5	174	55

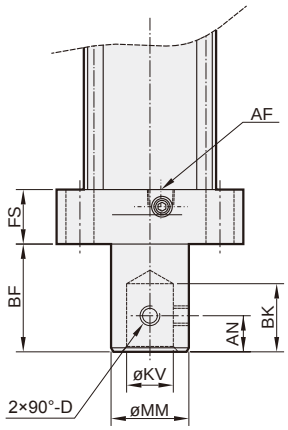
Code / Type	FA	FB	FC	FD	FF	FS	G	KK	KU	KV	KX	L	MM	R	Z
1T	130	100	100	70	32	35	11	M22×1.5	27	16	32	167	30	11	60
3T	150	120	120	90	38	35	13	M30×1.5	36	20	41	187	40	16	74
5T	185	130	155	100	40	45	15	M40×2.0	46	25	57	199	50	17	74
8T	230	160	190	120	45	45	15	M48×2.0	55	30	65	218	60	22	83
10T	270	190	220	140	55	50	20	M56×2.0	65	40	80	243	70	26	83

MHPD / MHPD-Z

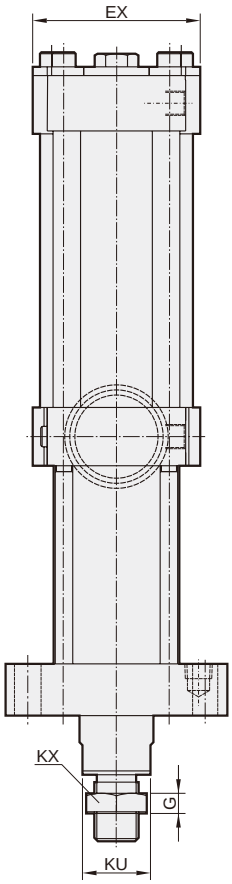
Standard stroke (Long stroke)

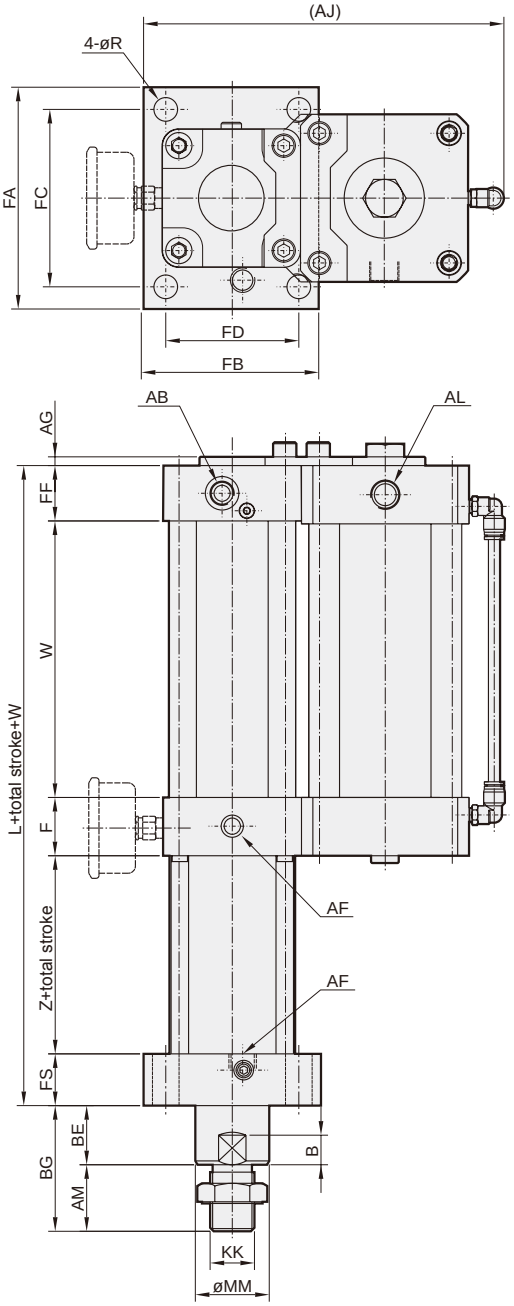
Type	Working stroke		
	5	10	15
1T	80~125	130~200	155~200
3T	55~100	105~200	155~200
5T	80~125	155~200	–
8T	80~100	155~200	–
10T	75~100	130~200	–
1T-Z	80~125	130~200	155~200
3T-Z	55~100	105~200	155~200
5T-Z	80~125	155~200	–
8T-Z	80~100	155~200	–
10T-Z	55~100	130~200	–

Type	W		
	5	10	15
1T	108	146	184
3T	126	187	248
5T	135	199	263
8T	150	214	278
10T	148	212	276



Female thread





Code / Type	AB	AF	AG	AJ	AL	AM	AN	B	BE	BF	BG	BK	D	EX	F
1T	G3/8	G3/8	5	207	G3/8	35	12	12	25	40	60	28	M6×1.0	95	40
3T	G3/8	G3/8	6	247	G3/8	45	15	20	40	50	85	35	M6×1.0	115	40
5T	G1/2	G1/2	6	287	G1/2	60	20	20	40	60	100	40	M10×1.5	140	40
8T	G1/2	G1/2	6	341	G1/2	70	25	20	50	70	120	60	M10×1.5	174	45
10T	G3/4	G3/4	6	411	G3/4	80	30	27	60	85	140	50	M10×1.5	204	55

Code / Type	FA	FB	FC	FD	FF	FS	G	KK	KU	KV	KX	L	MM	R	Z
1T	130	100	100	70	32	35	11	M22×1.5	27	16	32	167	30	11	60
3T	150	120	120	90	38	35	13	M30×1.5	36	20	41	187	40	16	74
5T	185	130	155	100	40	45	15	M40×2.0	46	25	57	199	50	17	74
8T	230	160	190	120	45	45	15	M48×2.0	55	30	65	218	60	22	83
10T	270	190	220	140	55	50	20	M56×2.0	65	40	80	243	70	26	83

Product Code List

ALL SERIES (Vol.1~3)

mindman

Model no.	Description	Vol.	Page
A			
ACT-3**	8A-3/2 mechanical valve	1	3-40
ACT-4**	5/2 mechanical valve	1	3-40
E			
E001	0.01u filter element	1	4-59
E03	0.3u filter element	1	4-59
E5	5u filter element	1	4-59
E20	20u filter element	1	4-59
E40	40u filter element	1	4-59
EPA	6A-3/2 mechanical valve	1	3-40
F			
FMRF300	auto drain valves	1	4-58
J			
JSC	speed controller	1	7-18
L			
LN01A	sensor switch	2	8-20
LN01G	sensor switch	3	5-15
LN01P	sensor switch	3	5-16
LN02A	sensor switch	2	8-20
LN02P	sensor switch	3	5-16
LN03A	sensor switch	2	8-20
LN03P	sensor switch	3	5-16
LN32H	sensor switch	3	5-17
LN40R	sensor switch	3	5-18
LN65	sensor switch	3	5-19
M			
M124C-MA	connector	1	6-18
M124C-MD	connector	1	6-18
M124R-FA	cable with connector	1	6-15
M124R-MD	cable with connector	1	6-16
M124R-RJD	cable with connector	1	6-16
M125R-WB	cable with connector	1	6-14
M83C-M	connector	1	6-17
M83R-F	cable with connector	1	6-13
	cable with connector	2	8-22
	cable with connector	3	5-21
M83*	cable with connector	2	8-21
	cable with connector	3	5-20
M84*	cable with connector	2	8-21
	cable with connector	3	5-20
MA			
MAC	shock absorber	2	8-33
MACP200	F.R.L. unit	1	4-11
MACP200L	F.R.L. unit	1	4-11
MACP302	F.R.L. unit	1	4-13
MACP401	F.R.L. unit	1	4-16
MACP403	F.R.L. unit	1	4-19
MACP501	F.R.L. unit	1	4-21
MACT200	F.R.L. unit	1	4-23
MACT200L	F.R.L. unit	1	4-23
MACT302	F.R.L. unit	1	4-25
MACT401	F.R.L. unit	1	4-27
MACT403	F.R.L. unit	1	4-29
MACT501	F.R.L. unit	1	4-31
MAD	shock absorber	2	8-33

Model no.	Description	Vol.	Page
MAD401	drain trap	1	4-54
MAD401H	drain trap	1	4-55
MAD500	drain trap	1	4-56
MAD501	drain trap	1	4-57
MADV400	auto drain trap	1	4-58
MAER200	electro pneumatic regulator	1	4-83
MAF200	filter	1	4-45
MAF200L	filter	1	4-45
MAF302	filter	1	4-46
MAF302D/M	mist / micro mist filter	1	4-103
MAF401	filter	1	4-48
MAF401A/D/M	air / mist / micro mist filter	1	4-105
MAF403	filter	1	4-49
MAF501	filter	1	4-50
MAF501D/M	mist / micro mist filter	1	4-110
MAF900	filter	1	4-52
MAF901	filter	1	4-53
MAFF401AD/DM	mist / micro mist filter	1	4-107
MAFR100	F.R. unit	1	4-33
MAFR200	F.R. unit	1	4-34
MAFR200L	F.R. unit	1	4-34
MAFR302	F.R. unit	1	4-36
MAFR401	F.R. unit	1	4-39
MAFR403	F.R. unit	1	4-41
MAFR501	F.R. unit	1	4-43
MAFRF401	F.R. unit	1	4-108
MAHR200	pressure reducing valve	1	4-78
MAIR100	precision regulator	1	4-90
MAIR200	precision regulator	1	4-92
MAIR300	precision regulator	1	4-94
MAL200	L. unit	1	4-96
MAL200L	L. unit	1	4-96
MAL302	L. unit	1	4-97
MAL401	L. unit	1	4-98
MAL403	L. unit	1	4-99
MAL501	L. unit	1	4-100
MAL900	L. unit	1	4-101
MAMG	water separator	1	4-116
MAMB	precision filter	1	4-118
MAMD	precision filter	1	4-120
MAMM	precision filter	1	4-122
MAMF	precision filter	1	4-124
MAR100	R. unit	1	4-64
MAR200	R. unit	1	4-65
MAR201	R. unit	1	4-67
MAR300LK	hand-held regulator	1	4-79
MAR302	R. unit	1	4-69
MAR401	R. unit	1	4-71
MAR403	R. unit	1	4-73
MAR501	R. unit	1	4-75
MAR900	R. unit	1	4-76
MAR901	R. unit	1	4-77
MAS	swing clamping cylinder	3	2-14
MASD	swing clamping cylinder	3	2-14
MATFR401	F.R. unit	1	4-109

Product Code List

ALL SERIES (Vol.1~3)

mindman

Model no.	Description	Vol.	Page
MATS	swing clamping cylinder	3	2-14
MATSD	swing clamping cylinder	3	2-14
MAVS	soft start-up valve	1	4-128
MB			
MBD-**-T	digital condensation removal timer	1	4-134
MBS	2/2 solenoid valve	1	2-5
MBS-**-T	digital condensation removal timer	1	4-134
MC			
MCB	locking unit	2	1-81
MCBMI	rod locking cylinder	2	1-77
MCBQI2	rod locking cylinder	2	1-77
MCBQI3	rod locking cylinder	2	1-77
MCBQV	rod locking cylinder	2	1-77
MCBQV2	rod locking cylinder	2	1-77
MCBQV3	rod locking cylinder	2	1-77
MCCG	round cylinder	2	3-83
MCCH	high speed cylinder	2	3-99
MCCN	round cylinder	2	3-92
MCDA	dual-rod cylinder	2	4-53
MCDJ	dual-rod cylinder	2	4-58
MCFA	multi mount cylinder	2	2-68
MCFB	multi mount cylinder	2	2-74
MCG3	triple-guide cylinder	2	4-48
MCGA	twin-guide cylinder	2	4-3
MCGD	twin-guide slide cylinder	2	4-45
MCGI	compact twin-guide cylinder	2	4-26
MCGJ	twin-guide cylinder	2	4-29
MCGS	twin-guide cylinder	2	4-12
MCHA	30° angular gripper	3	3-64
MCHB	parallel gripper (2 finger)	3	3-3
MCHC	parallel gripper (2 finger)	3	3-8
MCHD	parallel gripper (2 finger)	3	3-22
MCHG2	parallel gripper (3 finger)	3	3-52
MCHH	parallel gripper (2 finger)	3	3-31
MCHJ	parallel gripper (3 finger)	3	3-58
MCHS	parallel gripper (2 finger)	3	3-38
MCHU	parallel gripper (2 finger)	3	3-35
MCHX	parallel gripper (2 finger)	3	3-47
MCHY	180° angular gripper	3	3-68
MCJA	compact cylinder	2	2-2
MCJI	ISO-21287 compact cylinder	2	2-52
MCJQ	compact cylinder	2	2-20
MCJQ2	compact cylinder	2	2-49
MCJU	plate oval cylinder	2	2-62
MCKB	lever clamp cylinder	3	2-23
MCKC	pneumatic-swing clamp cylinder	3	2-2
MCKD	power clamp cylinder	3	2-17
MCKJQ	no-rotation compact cylinder	2	2-44
MCKMB	no-rotation mini cylinder	2	3-27
MCKMI	ISO-6432 miniature cylinder	2	3-59
MCKQI2	ISO-VDMA standard cylinder	2	1-75
MCMA	miniature cylinder	2	3-3
MCMB	miniature cylinder	2	3-15
MCMBL	end lock cylinder	2	3-30
MCMBR	miniature cylinder	2	3-35
MCMI	ISO-6432 miniature cylinder	2	3-40

Model no.	Description	Vol.	Page
MCMIS	ISO-6432 miniature cylinder (SUS)	2	3-52
MCMJ	pen cylinder	2	3-62
MCMJ1	pen cylinder	2	3-75
MCMJP	pen cylinder	2	3-76
MCMJPB	pen cylinder	2	3-81
MCMJPS	pen cylinder	2	3-81
MCQA	standard cylinder	2	1-2
MCQA-AH	air / oil converter	2	1-21
MCQI2	ISO-VDMA standard profile cylinder	2	1-58
MCQI3	ISO-VDMA standard profile cylinder	2	1-69
MCQN	standard cylinder	2	1-24
MCQV	ISO-VDMA standard cylinder	2	1-30
MCQV2	ISO-VDMA standard cylinder	2	1-30
MCQV2L	end lock cylinder	2	1-54
MCQV3	ISO-VDMA standard cylinder	2	1-48
MCRA	rotary actuator	3	1-4
MCRC	rotary actuator	3	1-11
MCRJ-S	mini-rotary actuator	3	1-8
MCRQ	rotary actuator	3	1-14
MCRQ-S	rotary actuator	3	1-21
MCRPL	rodless cylinder	2	6-2
MCRPLF	rodless cylinder	2	6-2
MCRPLK	rodless cylinder with linear guide	2	6-10
MCRPLS	rodless cylinder	2	6-14
MCRPM	magnetically coupled rodless cylinder	2	6-17
MCRPMD	magnetically coupled rodless cylinder	2	6-19
MCRPMS	magnetically coupled rodless cylinder	2	6-23
MCS	2/2 solenoid valve	1	2-6
MCS-**-T	digital condensation removal timer	1	4-134
MCSF	low profile slide cylinder	2	5-33
MCSH	compact slide cylinder	2	5-39
MCSQ	slide cylinder	2	5-26
MCSS	slide cylinder	2	5-2
MD			
MDFC	shock absorbers	2	8-23
MDHB	hydraulic cylinder	3	6-2
MDHD	hydraulic cylinder	3	6-2
MDHN	hydraulic cylinder	3	6-2
MDMB	hydraulic cylinder (with magnet)	3	6-2
MDMD	hydraulic cylinder (with magnet)	3	6-2
MDMN	hydraulic cylinder (with magnet)	3	6-2
MDOA	hydraulic with piston sensing cylinder	3	6-44
MDOC	hydraulic with piston sensing cylinder	3	6-44
MDOD	hydraulic with piston sensing cylinder	3	6-44
MDON	hydraulic with piston sensing cylinder	3	6-44
MDS	high oil pressure swing clamping cylinder	3	6-66
MDSC	shock absorbers	2	8-23
MDT	high oil pressure swing clamping cylinder	3	6-66
ME			
MEAT	slider electric cylinder-belt driven	3	4-2
MECP	electric cylinder driver	3	4-108
MECQ1	electric cylinder driver	3	4-106
MEF300	exhaust cleaner	1	6-2
MEHC2-16	electric girpper	3	4-102
MEHC2-25	electric girpper	3	4-102
MEQG-5	rod type eectric actuator	3	4-78

Product Code List

ALL SERIES (Vol.1~3)

mindman

Model no.	Description	Vol.	Page
MEQG-8	rod type eectric actuator	3	4-82
MEQI-50	ISO-15552 standard electric actuator	3	4-86
ME			
MEQI-63	ISO-15552 standard electric actuator	3	4-86
MESH2-16	miniature electric cylinder	3	4-99
MESH2-20	miniature electric cylinder	3	4-99
MESS2-16	miniature electric cylinder	3	4-96
MESS2-25	miniature electric cylinder	3	4-96
METB	slider electric cylinder-belt driven	3	4-23
METFB-25	slider electric cylinder-belt driven	3	4-5
METFB-32	slider electric cylinder-belt driven	3	4-11
METFB-40	slider electric cylinder-belt driven	3	4-17
METG-4	slider electric cylinder-ball screw drive	3	4-42
METG-5	slider electric cylinder-ball screw drive	3	4-46
METG-8	slider electric cylinder-ball screw drive	3	4-50
METS-22	slider electric cylinder-ball screw drive	3	4-67
METS2-10	slider electric cylinder-ball screw drive	3	4-54
METS2-14	slider electric cylinder-ball screw drive	3	4-58
METS2-17	slider electric cylinder-ball screw drive	3	4-63
MF			
MF01	digital flow sensor	1	5-42
MFC	floating connector	2	8-2
MFCS	floating connector	2	8-5
MFP01	digital flow and pressure sensor	1	5-45
MFS	high oil pressure swing clamping cylinder	3	6-66
MFT	high oil pressure swing clamping cylinder	3	6-66
MG			
MGD	2/2 solenoid valve	1	2-7
MGTB	twin-guide cylinder	2	4-33
MGTK	twin-guide cylinder	2	4-33
MGTU	twin-guide cylinder	2	4-33
MGTX	twin-guide cylinder	2	4-33
MH			
MHBS	boosters	2	8-52
MHBD	boosters	2	8-52
MHCB	compact hydraulic cylinder	3	6-15
MHCBF	manifold type hydraulic cylinder	3	6-35
MHCB-M	compact hydraulic with piston sensing cylinder	3	6-32
MHCBR	manifold type hydraulic cylinder	3	6-35
MHCBS	manifold type hydraulic cylinder	3	6-35
MHCK	hydraulic lever-type cylinder	3	6-54
MHCQ	compact hydraulic cylinder	3	6-15
MHPSC	no contact transfer	1	6-29
MHPD	power cylinder	2	8-56
MHR	hydraulic speed controller	2	8-47
MHS	hydraulic swing clamping cylinder	3	6-63
MHSD	hydraulic swing clamping cylinder	3	6-63
MHTS	hydraulic swing clamping cylinder	3	6-63
MHTSD	hydraulic swing clamping cylinder	3	6-63
MJ			
MJBV	check valve	1	6-4
MJC	jet cooler	1	6-24
MJF	high efficiency compressed air filter	1	4-132
MJL	high efficiency compressed air filter	1	4-132
MN			
MNS*	stainless fitting	1	6-21

Model no.	Description	Vol.	Page
MP			
MP*	coupler	1	6-23
MP1	pneumatic pressure switch	1	5-6
MP10	pneumatic pressure switch	1	5-8
MP30	high precision digital pressure switch	1	5-11
MP41	high precision digital pressure switch	1	5-13
MP43	high precision digital pressure switch	1	5-19
MP45	high precision digital pressure switch	1	5-22
MP47	high precision digital pressure switch	1	5-26
MP50	high precision digital pressure switch	1	5-30
MP70	high precision digital pressure switch	1	5-34
MPC	pilot check valve	2	8-48
MPG-60	digital pressure gauge	1	5-39
MPS	pneumatic pressure switch	1	5-38
MR			
MRPH	hydraulic rotary actuator	3	6-51
MRTF	rotary cylinder	3	1-25
MRTH	rotary cylinder	3	1-25
MS			
MS*	coupler	1	6-22
MSBE	stopper cyliner	2	7-4
MSBR	stopper cyliner	2	7-10
MSBS	stopper cyliner	2	7-10
MSC100	flow control valve	1	6-6
MSC200	flow control valve	1	6-7
MSC300	flow control valve	1	6-7
MSC500	flow control valve	1	6-8
MSC600	flow control valve	1	6-8
MSL	brass silencer	1	6-4
MSLC	silencer throttle valve	1	6-5
MSLC2	silencer throttle valve	1	6-4
MSLD	stopper cylinder	2	7-15
MSLE	plastic silencer	1	6-3
MSLL	stopper cylinder	2	7-15
MSLP	stopper cylinder	2	7-15
MSP	hydraulic work support	3	6-70
MSR	plastic silencer	1	6-2
MT			
MTAD	pneumatic-swing clamp cylinder	3	2-6
MTAS	pneumatic-swing clamp cylinder	3	2-6
MTC	threaded-body cylinder	3	6-69
MTHD	hydraulic-clamp cylinder	3	6-56
MTHS	hydraulic-clamp cylinder	3	6-56
MU			
MUSC	2/2 solenoid valve	1	2-8
MUST	3/2 solenoid valve	1	2-9
MUT	3/2 solenoid valve	1	2-10
MV			
MVAA-150	M5-5/2 pilot valve	1	3-2
MVAA-180	6A-3/2, 5/2 pilot valve	1	3-4
MVAA-220	8A-3/2, 5/2, 5/3 pilot valve	1	3-7
MVAA-260	8A-5/2, 5/3 pilot valve	1	3-11
MVAA-300	10A-3/2, 5/2, 5/3 pilot valve	1	3-14
MVAA-460	15A-3/2, 5/2, 5/3 pilot valve	1	3-18
MVAS	shuttle valve	1	6-11
MVB-100	multi connector system	1	1-92

Product Code List

ALL SERIES (Vol.1～3)

mindman

Model no.	Description	Vol.	Page
MVB1-100	multi connector system	1	1-95
MVB-156	multi connector system	1	1-98
MVBA-2100	booster regulator	2	8-49
MVBAT	booster regulator with air tank	2	8-51
MVDA-80	2/2, 3/2 solenoid valve	1	1-84
MVDA-120	2/2, 3/2 solenoid valve	1	1-86
MVDC-220	6A-3/2 pilot valve	1	1-88
MVE-100	Fieldbus system	1	1-103
MVE-156	Fieldbus system	1	1-109
MVDY-100	3/2 pilot valve	1	1-90
MVFA	foot pedal valve	1	3-74
MVHA-2*	hand valve	1	3-51
MVHA-3*	hand valve	1	3-51
MVHA-31*	hand valve	1	3-53
MVHA-4*	hand valve	1	3-52
MVHA-41*	hand lever valve	1	3-54
MVHB-220	hand lever valve	1	3-57
MVHB-260	hand lever valve	1	3-58
MVHB-300	hand lever valve	1	3-60
MVHB-500	hand lever valve	1	3-62
MVHC-200	rotary hand valve	1	3-65
MVHC-300	rotary hand valve	1	3-65
MVHC-400	rotary hand valve	1	3-65
MVHD-220	3/2, 5/2 hand lever valve	1	3-64
MVHF-2P-NC	2/2 hand valve	1	3-47
MVHF-3P-NC	3/2 hand valve	1	3-47
MVHF-3P-NO	3/2 hand valve	1	3-47
MVHF-3V	3/2 hand valve	1	3-48
MVHF-5P	5/2 hand valve	1	3-49
MVHF-5V	5/2 hand valve	1	3-48
MVHF-AP*	miniature pilot actuator	1	3-49
MVHF-LB	mounting bracket	1	3-50
MVHF-PB*	manual push button	1	3-50
MVHR	on-off valve	1	3-71
MVHS	hand slide valve	1	3-68
MVHT	shutoff valve	1	3-69
MVMA-260	8A-5/2 mechanical valve	1	3-22
MVMA-300	10A-5/2 mechanical valve	1	3-23
MVMB-220-3*	8A-3/2 mechanical valve	1	3-25
MVMB-220-4*	8A-5/2 mechanical valve	1	3-28
MVMB-250-2*,3**	8A-3/2 mechanical valve	1	3-31
MVMB-300-4*	10A-5/2 mechanical valve	1	3-34
MVMC-210-3**	6A, 8A-3/2 mechanical valve	1	3-37
MVQE	quick exhaust valve	1	6-9
MVSC-220	6A, 8A-3/2, 5/2, 5/3 solenoid valve	1	1-5
MVSC-260	8A-5/2, 5/3 solenoid valve	1	1-10
MVSC-300	10A-3/2, 5/2, 5/3 solenoid valve	1	1-13
MVSC-460	15A-3/2, 5/2, 5/3 solenoid valve	1	1-23
MVSC1-150	M5-5/2 solenoid valve	1	1-17
MVSC1-180	6A-3/2, 5/2, 5/3 solenoid valve	1	1-24
MVSC1-220	6A, 8A-3/2, 5/2, 5/3 solenoid valve	1	1-28
MVSE-260	8A-5/2, 5/3 solenoid valve	1	1-34
MVSE-300	10A-5/2, 5/3 solenoid valve	1	1-37
MVSE-500	15A-5/2 solenoid valve	1	1-40
MVSE-510	15A-5/2 solenoid valve	1	1-42
MVSE-600	20A, 25A-5/2 solenoid valve	1	1-44

Model no.	Description	Vol.	Page
MVSI-260	ISO-1 solenoid valve	1	1-46
MVSI-450	ISO-1 solenoid valve	1	1-48
MVSI-510	ISO-3 solenoid valve	1	1-53
MVSN-220	NAMUR solenoid valve	1	1-55
MVSN-300	NAMUR solenoid valve	1	1-57
MVSP-156	5/2, 5/3 solenoid valve	1	1-60
MVSP-188	5/2, 5/3 solenoid valve	1	1-65
MVSY-100	M3-5/2, 5/3 solenoid valve	1	1-69
MVSY-156	6A-5/2, 5/3 solenoid valve	1	1-73
MVSY-188	8A-5/2, 5/3 solenoid valve	1	1-79
MVVA	vacuum generator	1	6-27
MW			
MWC	filter for turbine type	1	4-60
P			
PB	tube fitting	1	7-10
PC	tube fitting	1	7-5
PD	tube fitting	1	7-11
PE	tube fitting	1	7-9
PG	tube fitting	1	7-6
PG	pressure gauge	1	5-41
PH	tube fitting	1	7-12
PHS	female rod ends	2	8-6
PL	tube fitting	1	7-7
PLL	tube fitting	1	7-8
PU	tube fitting	1	7-6
PV	tube fitting	1	7-9
PW	tube fitting	1	7-14
PX	tube fitting	1	7-13
PY	tube fitting	1	7-14
R			
RCA	sensor switch	2	8-7
	sensor switch	3	5-2
RCB	sensor switch	2	8-9
	sensor switch	3	5-4
RCD	sensor switch	2	8-10
	sensor switch	3	5-5
RCE	sensor switch	2	8-11
	sensor switch	3	5-6
RCE1	sensor switch	2	8-12
	sensor switch	3	5-7
RCE1E	sensor switch	2	8-12
	sensor switch	3	5-7
RCI	sensor switch	2	8-13
	sensor switch	3	5-8
RCM	sensor switch	2	8-15
RDA	sensor switch	2	8-7
	sensor switch	3	5-2
RDB	sensor switch	2	8-9
	sensor switch	3	5-4
RDD	sensor switch	2	8-10
	sensor switch	3	5-5
RDE	sensor switch	2	8-11
	sensor switch	3	5-6
RDEP	sensor switch	2	8-17
	sensor switch	3	5-10
RDFE	sensor switch	1	6-12

Product Code List

ALL SERIES (Vol.1~3)

mindman

Model no.	Description	Vol.	Page
R			
RDFE	sensor switch	2	8-18
	sensor switch	3	5-11
RDFEV	sensor switch	1	6-12
	sensor switch	2	8-18
	sensor switch	3	5-11
RDGV	sensor switch	2	8-19
	sensor switch	3	5-12
RDM	sensor switch	2	8-15
RDP8	proximity sensor	3	5-13
RNA	sensor switch	2	8-7
	sensor switch	3	5-2
RNAE	sensor switch	2	8-7
	sensor switch	3	5-2
RNB	sensor switch	2	8-9
	sensor switch	3	5-4
RNBE	sensor switch	2	8-9
	sensor switch	3	5-4
RND	sensor switch	2	8-10
	sensor switch	3	5-5
RNDE	sensor switch	2	8-10
	sensor switch	3	5-5
RNE	sensor switch	2	8-11
	sensor switch	3	5-6
RNE1E	sensor switch	2	8-12
	sensor switch	3	5-7
RNEE	sensor switch	2	2-11
	sensor switch	3	5-6
RNFE	sensor switch	1	6-12
	sensor switch	2	8-18
	sensor switch	3	5-11
RNFEV	sensor switch	1	6-12
	sensor switch	2	8-18
	sensor switch	3	5-11
RNGV	sensor switch	2	8-19
	sensor switch	3	5-12
RNI	sensor switch	2	8-13
	sensor switch	3	5-8
RNKD	sensor switch	3	5-14
RNM	sensor switch	2	8-15
RNME	sensor switch	2	8-15
RPA	sensor switch	2	8-7
	sensor switch	3	5-2
RPAE	sensor switch	2	8-7
	sensor switch	3	5-2
RPB	sensor switch	2	8-9
	sensor switch	3	5-4
RPBE	sensor switch	2	8-9
	sensor switch	3	5-4
RPD	sensor switch	2	8-10
	sensor switch	3	5-5
RPDE	sensor switch	2	8-10
	sensor switch	3	5-5
RPE	sensor switch	2	8-11
	sensor switch	3	5-6
RPE1E	sensor switch	2	8-12
	sensor switch	3	5-7
RPEE	sensor switch	2	8-11
	sensor switch	3	5-6
RPFE	sensor switch	1	6-12
	sensor switch	2	8-18
RPFE	sensor switch	3	5-11
RPFEV	sensor switch	1	6-12
	sensor switch	2	8-18
	sensor switch	3	5-11
RPGV	sensor switch	2	8-19
	sensor switch	3	5-12
RPI	sensor switch	2	8-13
	sensor switch	3	5-8
RPKD	sensor switch	3	5-14
RPM	sensor switch	2	8-15
RPME	sensor switch	2	8-15
U			
UM*	PU tube	1	6-19
UML*	PU tube - coiling tube	1	6-20

Caution for safety

⚠ PLEASE READ **BEFORE USING**

Before selecting model and servicing of the product, read throughly this CAUTIONS for SAFETY for the proper usage.

- The following cautions are for the purpose of preventing your personnel from suffering injury, by following the proper usage of the products.
- Items are classified in three categories, DANGER, WARNING, and CAUTION. All items are crucial for the safety and need to be followed without exception.

DANGER ⚠	Obviously dangerous, which may cause death or serious injury of personnel, and damage or destruction of property.
WARNING ⚠	Not immediately subject to danger, however not avoiding the displayed danger when mishandling the product may cause death or serious injury of personnel and damage or destruction of property.
CAUTION ⚠	Not immediately subject to danger, however not avoiding the displayed danger when mishandling the product may cause injury of personnel and damage or destruction of property.

For the correct handling, please read the instruction manual before installing and servicing of the product.

⚠ DANGER

(Applies to all products on the catalogue)

❶ Do not use any of our products for the purpose of maintenance and care of human life or body.

❷ Do not use any product in the condition or the environment other than stipulated in the specification or where the hazardous stuff exists.

❸ When installing a product, refer to the instruction manual for mounting style and fix securely (including the work carrier). Otherwise products may topple, fall, and operates out of control causing the injury of personnel.

❹ Disassembling and reassembling of products should be made by the personnel who has enough knowledge and experience.

❺ Depressurize products before disassembling or reassembling.

❻ Do not remodel the products.

⚠ WARNING

(Applies to all products on the catalogue)

❶ When servicing, keep within the working pressure range and voltage.

❷ At a place where water or oil drops and where is much dust, cover the equipment. Otherwise damage and trouble will be caused.

❸ Do not operate if the fluid or atmosphere contains the substance which may cause corrosion. Otherwise damage and trouble will be caused.

❹ Do not touch the terminal part or switches, etc. when the product is energized. It may cause the inaccurate operation and the electric shock from the short circuit and the circuit trouble.

❺ Do not stand on, use as a footing, or put things on the product. You may miss your step and fall, and the falling product may cause the injury of personnel. Also the product may get damaged causing the inaccurate operation and hazardous moves out of control.

(Pneumatic Actuator)

❶ When starting operation, pay the full attention to the cylinder's moving direction.

❷ Do not put hands where the cylinder moves.

❸ Please use a speed control valve to adjust the piston speed within the limited value in our catalogue.

❹ The value of dividing operation time into cylinder stroke is the average speed rather than max speed.

The max. speed of cushion pad type cylinders occur at the end of the stroke.

The max. speed of air cushion type cylinders occur at the start poiont of cusioning structure.

❺ The max. speed of cylinders usually uses the value of average speed times 1.4~1.5.

❻ When the load on cylinder is large, we suggest to use ourter shock absorber - even the max speed is within the limited value.

❼ Cords such as the sensor switch's lead wire should not be damaged. Damaging, forcing, twisting tugging, winding, putting on a heavy object, and pinching will cause fire, electric shock abnormal operation by short circuit or circuit error.

(Pneumatic Valve. Pneumatic Accessories. Sensor Switch)

❶ Cords such as the pressure switch's lead wire, solenoid valve's power supply cord should not be damaged. Damaging, forcing, twisting, tugging, winding, putting heavy object on, and pinching will cause fire, electric shock, abnormal operation by short circuit or circuit error.

❷ Do not use filter or lubricator without a case guard.

❸ For filter and lubricator, do not use a flawed or stained case.

Caution for safety

PLEASE READ **BEFORE USING**

CAUTION

(Applies to all products on the catalogue)

❶ If necessary, use protection glove, protection glasses, and safety shoes to secure the safety when operating products.

❷ For the easy maintenance, enough space around the product should be provided.

❸ When mounting, flush inside throughly to remove chips from piping, and seal tape, rust and dusts, in order to prevent troubles such as air leak.

❹ When screwing in the fittings, fasten with the tie torque of proper size to the connection size.

❺ Use clean air. Equip an air filter near the equipment to remove drain, dusts and etc. Periodically remove drain from the filter.

❻ Spindle oil and machine oil must not be used for lubrication, or the swelled packings will cause operation troubles.

❼ Operation below the temperature 5°C must be paid the full attention since it may cause the freezing of drain.

❽ Magnetic products such as disk card, tape, and tester must be kept away from the magnet-equipped cylinder and solenoid valve's solenoid part.

❾ When the product is no longer available for operation or needed, discard in a proper way as an industrial waste.

❿ Do not throw the product into fire. The product may explode or the toxic gas may be generated.

(Pneumatic Actuator)

❶ Products should be mounted on the plane face. Mounting on the warped face causes poor accuracy, air leak and troubles.

❷ Flaw or dent on the mounting part of the cylinder may make the uneven face.

❸ The chafing parts of piston rod and guide rod must be free from flaw or dent. Otherwise packings got damaged and air will leak.

❹ When the cylinder draws, be careful not to put yourself between the cylinder and the link bar at the top (Twin guide cylinder).

❺ Products do not need lubrication since they are initially lubricated. For lubrication, use turbine oil first class (ISO VG32) or the equivalent.

❻ Sensor switch which senses the cylinder position must not be operated in the magnetically disturbed area. It will react to the magnetism and the sensing accuracy will be disturbed.

❼ If the two switch-equipped cylinders are mounted close in parallel, a switch may react to the another cylinder's moving magnet, and effects on the sensing accuracy.

❽ Avoid the load over the switch 's allowable maximum load.

(Pneumatic Valve. Pneumatic Accessories. Sensor Switch)

❶ Flaw or dent on the mounting part of the cylinder may make the uneven face.

❷ Do not use solenoid valve, pressure switch, flow switch, on foot switch in the environment where the large electric current or the strong magnetism exist.

❸ As for solenoid valve, check in the instruction manual whether the lubrication is needed. If needed, use turbine oil first class ISO VG32 on the equivalent.

❹ In the case of double solenoid valve, do not energize both solenoids.

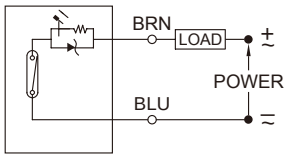
❺ Avoid the load over the switch's allowable maximum load.

Technical information

⚠ WARNING

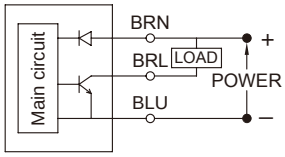
(Do not exceed specification, permanent damage to the sensor may occur.)

❶ For reed switch type sensors, polarity must also be observed for the proper functioning of LED. Connect the brown wire in series with load positive (+) and the blue wire to negative (—) of power source. If the polarity is reversed, reed switch remains functional but LED will remain in "OFF" state.

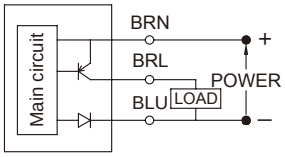


❷ For solid-state type sensors , polarity must also be observed . Connect brown wire to the positive (+) and the blue to the negative (—) of DC power source. The black wire must connect to the load only. If the black wire is accidentally connected to the power source, permanent damage to the sensor may occur.

(NPN Output)

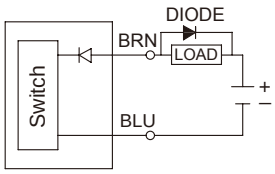


(PNP Output)

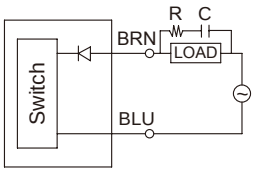


❸ An external protection circuit may be required if the reed switch is used with inductive load, such as relay or solenoid . For DC inductive load, attach an external diode parallel to the load and use R-C circuit parallel with AC inductive load as illustrated below.

DC Power

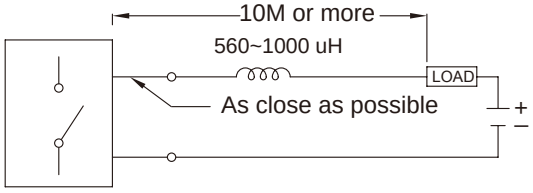


AC Power



R: 2.7KΩ
C: 0.1uf/600V

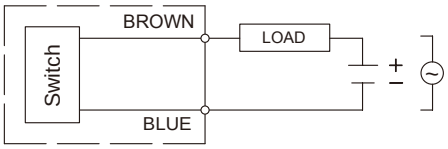
❹ Keep sensors away form stray magnetic field to prevent malfunctions.
❺ When using reed switch with capacitive load or if the lead wire length exceed 10-meter, an inductor must be installed in series with the sensor to prevent damage (Sticking effect).



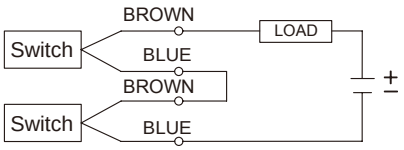
Connection method

2 wire S.W. connection

▶ General connection

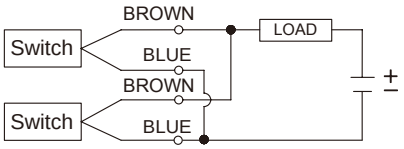


▶ Series connection (AND)



❶ When connecting 2-wire switches in series (AND), don't exceed more than two switches due to the internal voltage drop (Typical V drop=2.5~4V per switch). Excessive Voltage drop will cause non-operation of the load.

▶ Parallel connection (OR)

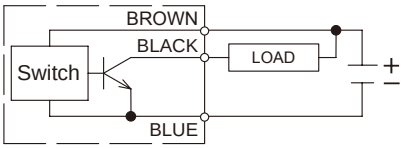


❶ When connecting non-contact 2-wire switches in parallel (OR),leakage current will increase and cause improper load operation.
❷ When connecting 2-wire reed switches in parallel(OR), possible concurrent operation will cause dim LED illumination due to lower current distribution.

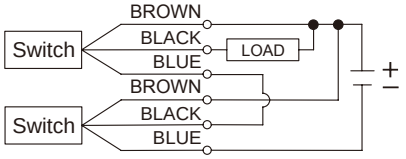
---

3 wire NPN connection

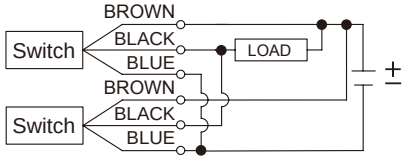
▶ General connection



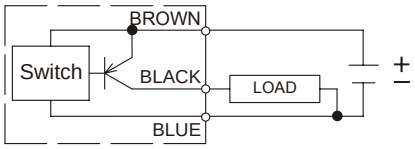
▶ Series connection (AND)

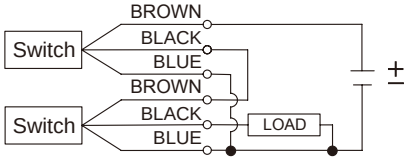


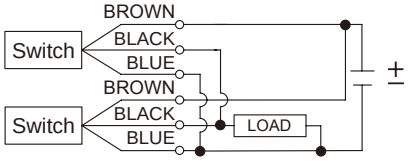
▶ Parallel connection (OR)



3 wire PNP connection







The specifications are subject to change without advence notice.

CAT. NO.: MD2006-E2

MINDMAN INDUSTRIAL CO., LTD.

www.mindman.com.tw mindman@mindman.com.tw

OVERSEAS DEPARTMENT

No.106, Sec. 3, Chengde Rd., Datong District, Taipei City 103, Taiwan

T 886-2-25914100

F 886-2-25957633 · 886-2-25975522

OFFICE

No.106, Sec. 3, Chengde Rd., Datong District, Taipei City 103, Taiwan

T 886-2-25913001 · 886-2-25976201

F 886-2-25912822 · 886-2-25981879