

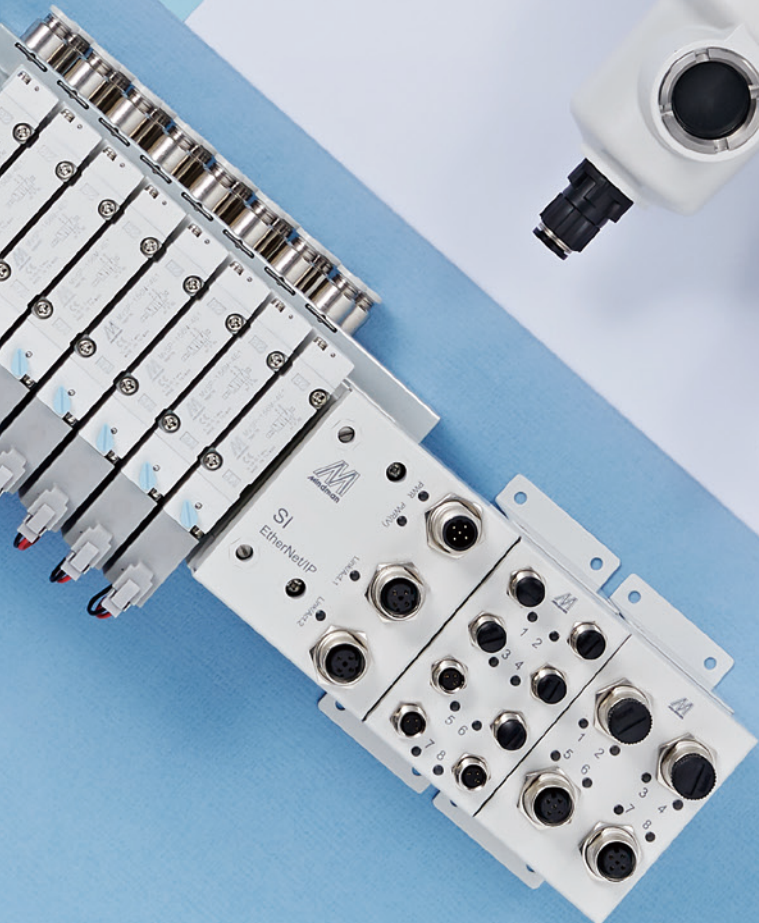
PRODUCT

2020 2021

C A T A L O G U E

1

VALVE
AIR UNIT
TUBE
FITTING



 Mindman

MINDMAN. SMART AUTOMATION

<p>Core Business : Manufacture and sale for varieties of high quality automation components.</p>	 <p>QUALITY POLICY Quality advancement & Exceeding customers' demands</p>	<p>No.1 Quantity supplied of pneumatic components in Taiwan.</p>	 <p>SALES NETWORK 97 Countries</p>
 <p>PRESIDENT CHING-CHENG HUANG</p>	<p>1979 FOUNDED</p>	<p>MANUFACTURE BASE IN TAINAN CITY, TAIWAN</p>	<p>HEADQUARTERS IN TAIPEI CITY, TAIWAN</p>
 <p>CAPITAL USD 12,558,000</p>	 <p>EMPLOYEES 750 People</p>	 <p>PLANT SIZE 90,000 m²</p>	

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.

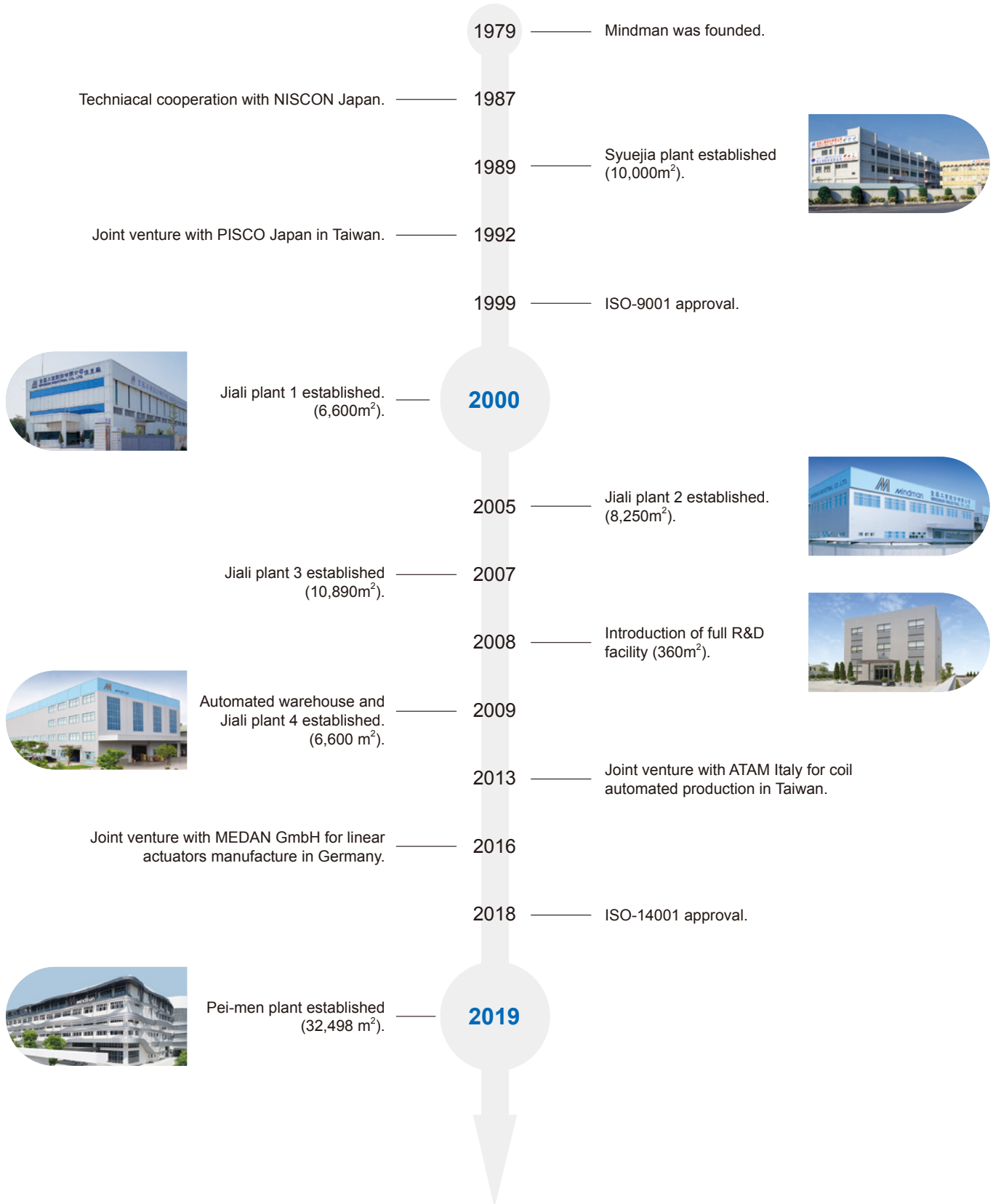
To keep quality high during the whole production process, we implement the strict quality control standard. We thoroughly control the process via standard operation procedure (SOP), statistical process control system (SPC) and total productive management (TPM). Most important of all, Mindman commits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



<p>ISO 9001 Quality</p> 
<p>ISO 14001 Environmental protection</p> 
<p>OHSAS 18001 Health and safety</p> 







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

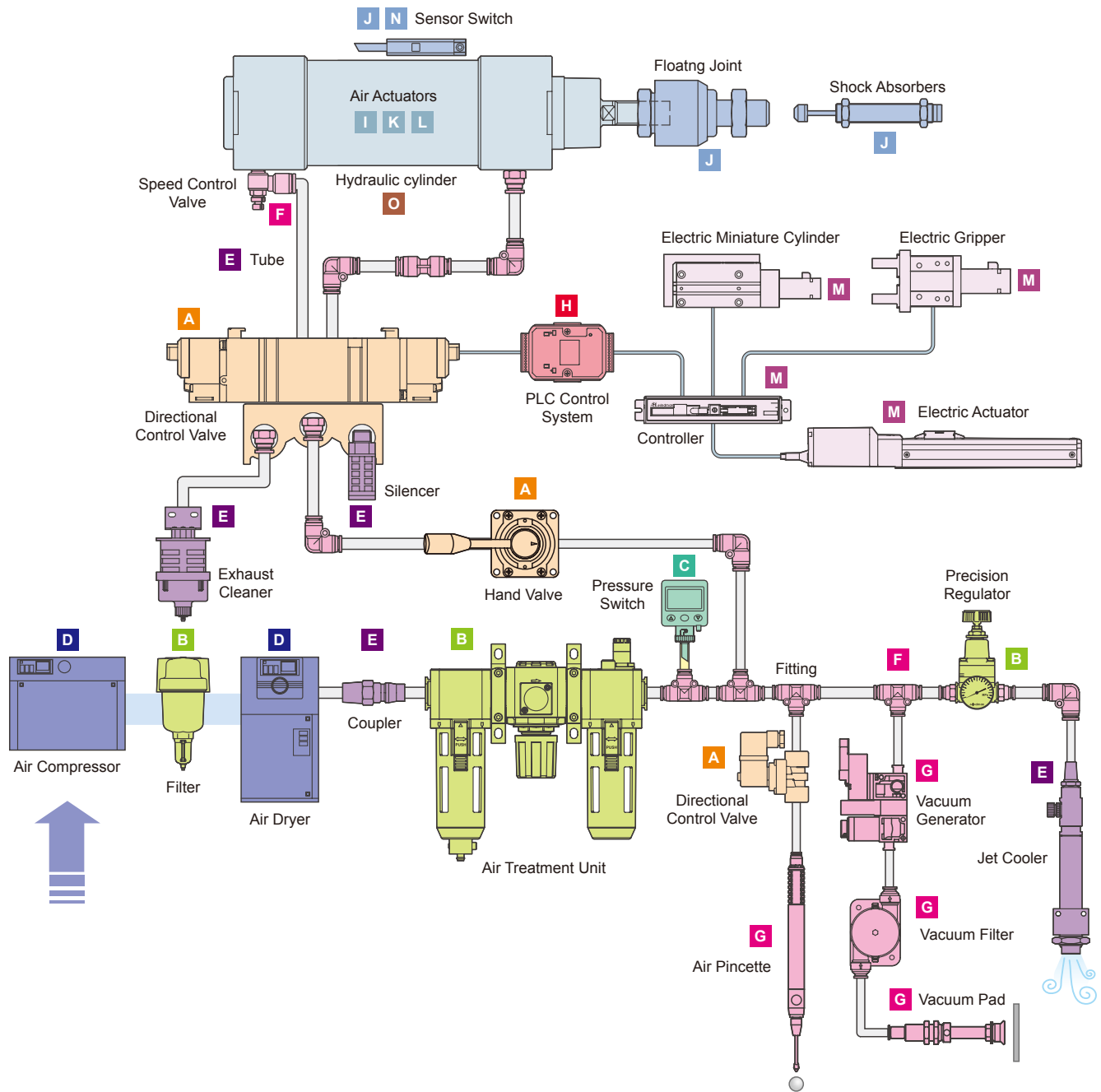


MEDAN GmbH

- 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



Vol. 1

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- G** PISCO products.....(Mindman website)
- H** PLC.....(Mindman website)

Vol. 2

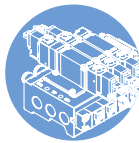
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1 SOLENOID VALVE



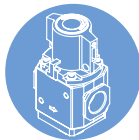
3 Port / 5 Port	1-2
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2 PROCESS VALVE



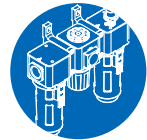
2 Port / 3 Port	2-5
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3 PILOT / MECHANICAL VALVE



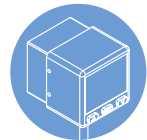
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4 AIR UNITS



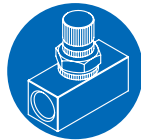
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6 OTHER AUXILIARY EQUIPMENT



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7 PISCO PRODUCTS



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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

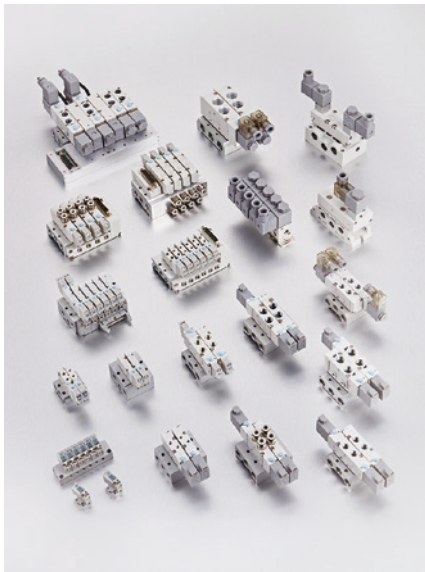


Mindman built an independent team to conquer the process obstacle and design the optimized process. Our department of advanced process provides a continuous improvement of manufacturing via the analysis of daily data collection which helps to minimize the waste of time and maximize the productivity of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



1 SOLENOID VALVE

3 Port / 5 Port

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Multi Connector System

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Fieldbus System

MVE New	1-101
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2 PROCESS VALVE

2 Port / 3 Port

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3 PILOT / MECHANICAL VALVE

Pilot Valve

MVAA	3-2
------	-----

Mechanical Valve

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Hand Valve

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Shutoff Valve

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Foot Pedal Valve

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4 AIR UNITS

F.R.L. Unit	
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5 PRESSURE SWITCH

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7 PISCO PRODUCTS

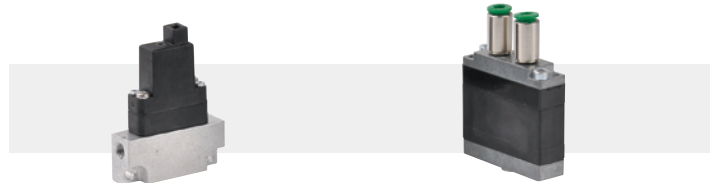
Tube Fitting	
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PU / PG	7-6
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6 OTHER AUXILIARY EQUIPMENT

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MS* / MP*	6-22 / 6-23
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Solenoid Valve

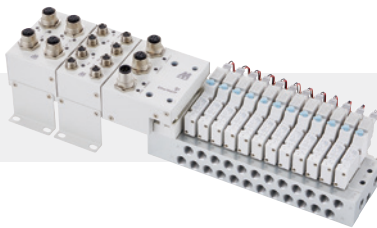


MVDA-80 series
Direct acting type

P. 1-84

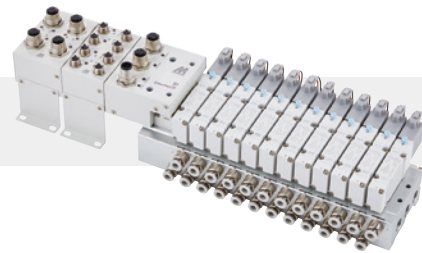
MVDA-120 series
Direct acting type

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MVE-100 series
Fieldbus system

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MVE-156 series
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Auxiliary Equipment



M83C-M
series

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M124C-MA
series

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M124C-MD
series

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- ◀ Connector
- ▼ Cable with Connector



M83R-F
series

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M125R-WB
series

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M124R-FA
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M124R-RJD
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M124R-MD
series

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Air Treatment Unit



MAHR200 series

High pressure regulator

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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



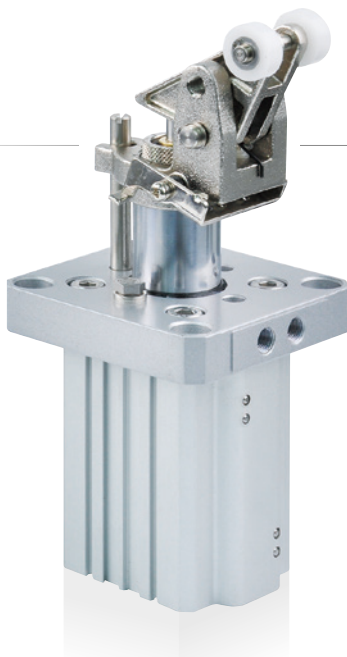
MF01 series

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MFP01 series

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MSBE series

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- ◀ 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



MCKD series

Powerful clamp

P. 2-17

◀ Clamp Cylinder

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

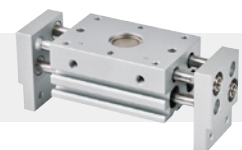
P. 3-8



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

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METG-8 series

P. 4-50

METS2-10 series

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METS2-14 series

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METS2-17 series

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▶ Rod Type Electric Actuator (Without motor)



MEQG-5 series

P. 4-78

MEQG-8 series

P. 4-82

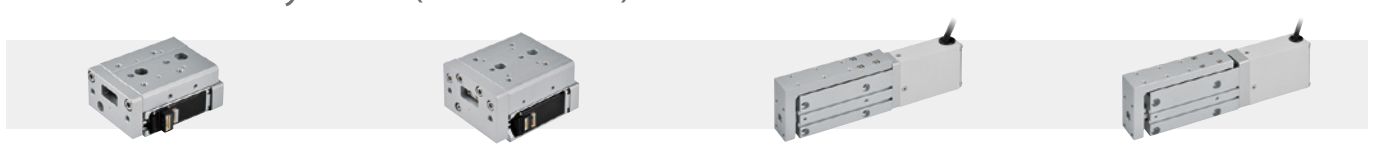
MEQI-50 series

P. 4-86

MEQI-63 series

P. 4-86

▶ Mini. Electric Cylinder (With motor)



MESS2-16 series

P. 4-96

MESS2-25 series

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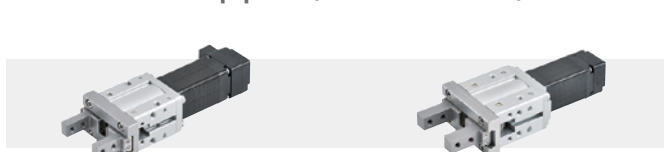
MESH2-16 series

P. 4-99

MESH2-20 series

P. 4-99

▶ Electric Gripper (With motor)



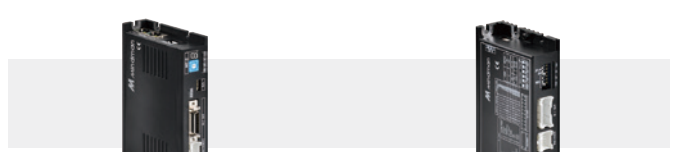
MEHC2-16 series

P. 4-102

MEHC2-25 series

P. 4-102

▼ Controller



MECQ1 series

P. 4-106

▼ Driver

MECP series

P. 4-108



Mindman Website



www.mindman.com.tw

Mobile Phone / Tablet or iPad / Computer

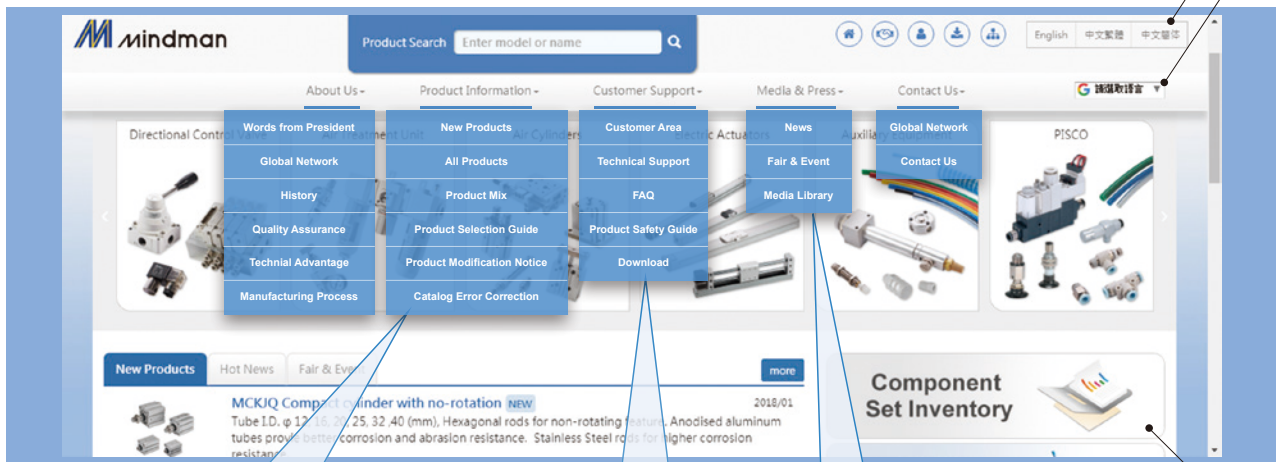
New Features

Google Translate

Plug-in provides a simple way to translate

Language option

English / Chinese (Traditional) / Chinese (Simplified)



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



Component Set Inventory

Fast delivery items with up to date stock status.

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



New Feature

About Us

Technical Advantage

Manufacturing Process

Customer Support

Customer Area

- ▶ Stock check
- ▶ Training
- ▶ Promotion Activity

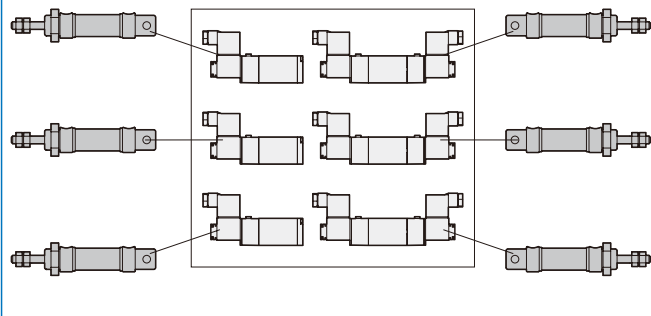
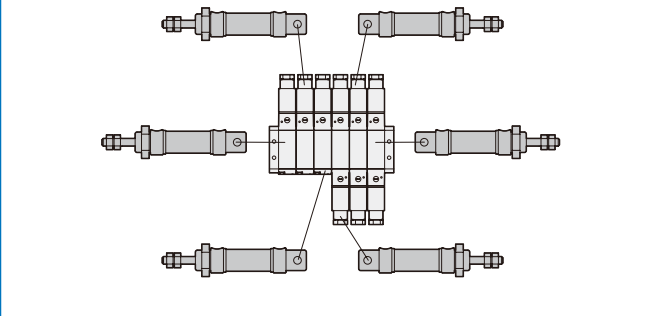
Pressure conversion chart

Pa	kPa	MPa	bar	mbar	kgf/cm ²	cmH ² O	mmH ² O	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

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	0.1667	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

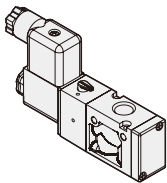
Intergrated connection system offers improvements on facilities

Facilities with traditional connection system	Facilities applied with intergrated connection system
<ul style="list-style-type: none"> • Longer distance from the controlling valve to the operating unit. • Slower response time. • More air consumption. • Complicated connection arrangements. • Mass electric wiring and connections to controlling valves task. • Higher cost to run the facilities. • Higher pressure drop. 	<ul style="list-style-type: none"> • Shorter distance from the controlling valve to the operating unit. • Quicker response time. • Less air consumption. • Simple connection arrangements. • Moderate electric wiring connections task. • Lower cost to run the facilities. • Lower pressure drop.
	

SOLENOID VALVE

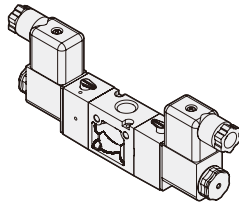
3E1

3 way / Single solenoid



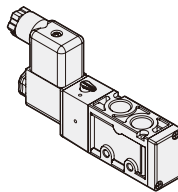
3E2

3 way / Double solenoid



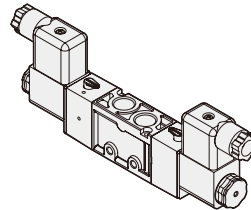
4E1

4 way / Single solenoid



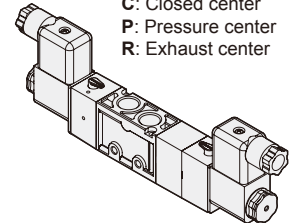
4E2

4 way / Double solenoid

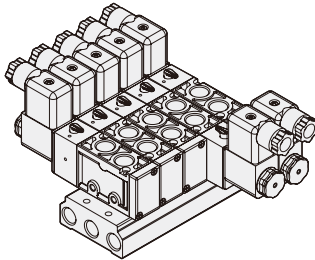


4E2C.P.R

4 way / Double solenoid
C: Closed center
P: Pressure center
R: Exhaust center

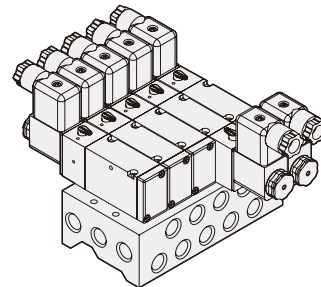


Body ported type

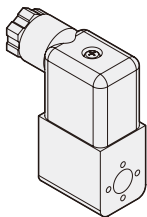


M

Manifold type

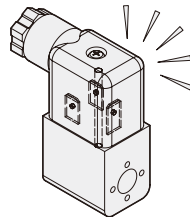


DIN connector



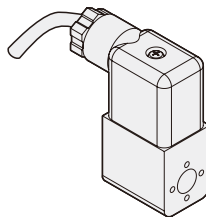
L

LED indicator



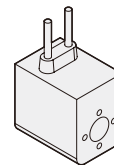
E

Explosion protection



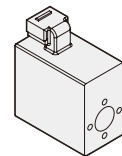
W

Lead wire



H

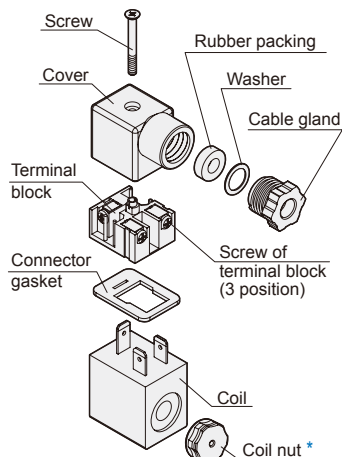
Horizontal connector
 With LED indicator



DIN connector

- Suitable cables: $\varnothing 6\sim\varnothing 9$
 Max. conductor size: 1.5 mm^2
- Recommended tightening torque
 Screw: 0.5 Nm
 Screw of terminal block: 0.5 Nm

- Max. tightening torque of coil nut (*)
 as shown in the table below.



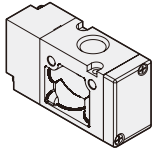
Model	Spec.	Max. tightening torque (Nm)
MVSC-220	M8	0.5
MVSC-260	M8	0.5
MVSC-300	M8	0.5
MVSC-460	M8	0.5
MVSE-260	M8	0.5
MVSE-300	M8	0.5
MVSE-500	M8	0.5
MVSE-510	G1/4	0.6
MVSE-600	G1/4	0.6

Model	Spec.	Max. tightening torque (Nm)
MVSI-260	M8	0.5
MVSI-450	M8	0.5
MVSI-510	G1/4	0.6
MVSN-220	M8	0.5
MVSN-300	M8	0.5
MVDC-220	M8	0.5

PILOT VALVE

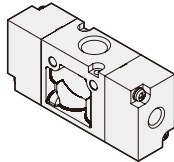
3A1

3/2 Single pilot



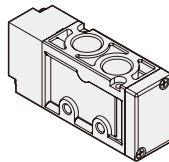
3A2

3/2 Double pilot



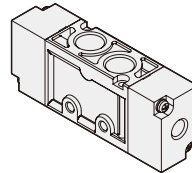
4A1

5/2 Single pilot



4A2

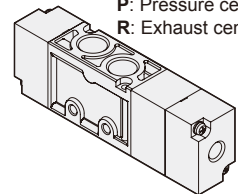
5/2 Double pilot



4A2(C.P.R)

5/3 Double pilot

C: Closed center
P: Pressure center
R: Exhaust center



MECHANICAL VALVE

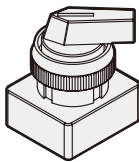
EB

Latching palm button



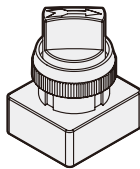
LB

Extended twist button



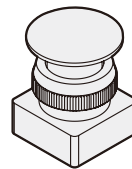
TB

Twist button



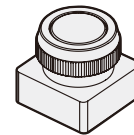
PB

Mushroom palm button



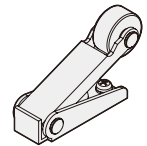
PP

Push button



R1

Roller lever



Order example



4 WAY, 3 WAY SOLENOID VALVE

mindman

Order example of valve

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

MVSC – 150 M – 4 E2 C – NC – 25A (Continued)

Model	Body width	Ported type	Way	Coil	Exhaust position	Type	Bore size	
MVSC	80	– Body ported type	2 2 way (2 port)	E1 Single solenoid	C Closed center	NC Normally closed	– Rc1/4	
MVSC1	100	C4 Body ported with tube fitting	3 3 way (3 port)	E2 Double solenoid	P Pressure center	NO Normally open	6A Rc1/8, G1/8	
MVSE	120	C6 Body ported with tube fitting			R Exhaust center		8A Rc1/4, G1/4	
MVSI	150	C8 Body ported with tube fitting	4 4 way (5 port)		D Differential		20A Rc3/4	
MVSN	156	M Manifold type					25A Rc1	
MVSP	180	* Quick connector attached, for dimension ø4, ø6, ø8mm.						
MVSY	188							
MVDA	220							
MVDC	260							
MVDY	300							
	450							
	460							
	500							
	510							
	600							

– AC110 – L – LP – A – M2 – G

Voltage	Connector type	Pilot	Flow capacity	Symbol of assembly	Port thread
AC220 V(50/60)Hz	– DIN connector	LP External pilot	– Large flow capacity	B1 Assembly (Base+Valve) 	– Rc thread
AC110 V(50/60)Hz	L DIN connector with LED indicator	Wire length			M□ 2,3...manifold number assembly (Manifold+Valve)	G G thread
DC24 V	E Explosion protection	– 500mm	A Standard flow capacity	NPT NPT thread	
DC12 V	W Lead wire	1 1000mm	* DC24V only for standard flow capacity.		
DC6 V	H Horizontal connector with LED indicator	2 2000mm			
KK DC24V/DC5V	Plug type		3 3000mm		
DC24 V	LJ Plug on side (*1) 	Wire			
	LR Plug on side (*2) 	C Without driver board			
	SR Plug on top (*2) 	S With driver board			

* Code 1) M: Mindman
Code 2) V: Valve
Code 3) S: Solenoid valve
Code 4) D: Direct acting
Code 4) C: Series

* 180 standard body width = 18 mm

*1. Connector with flying leads JPC type.

*2. Connector with flying leads RMH type. (Original)

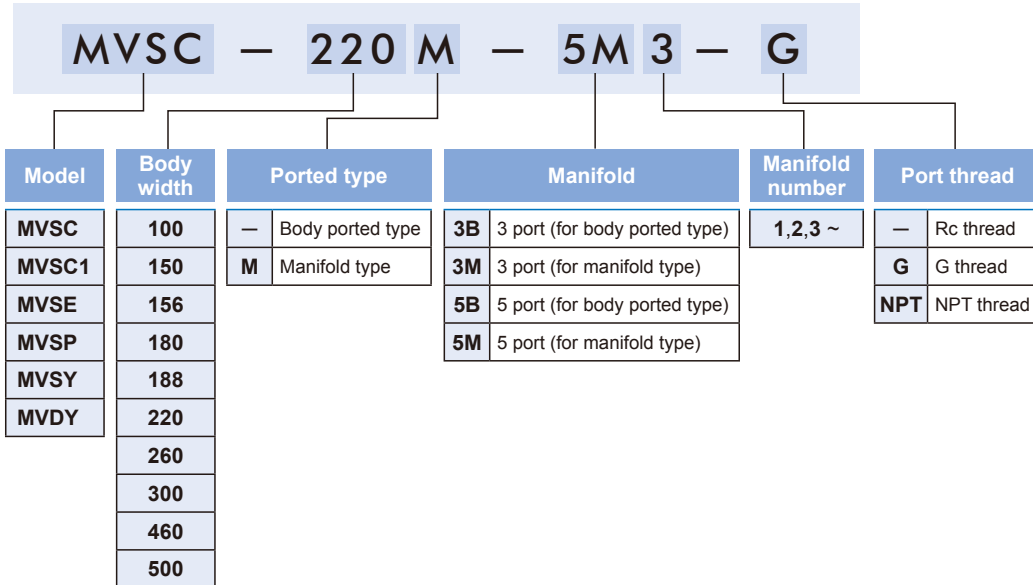
Order example

4 WAY, 3 WAY SOLENOID VALVE

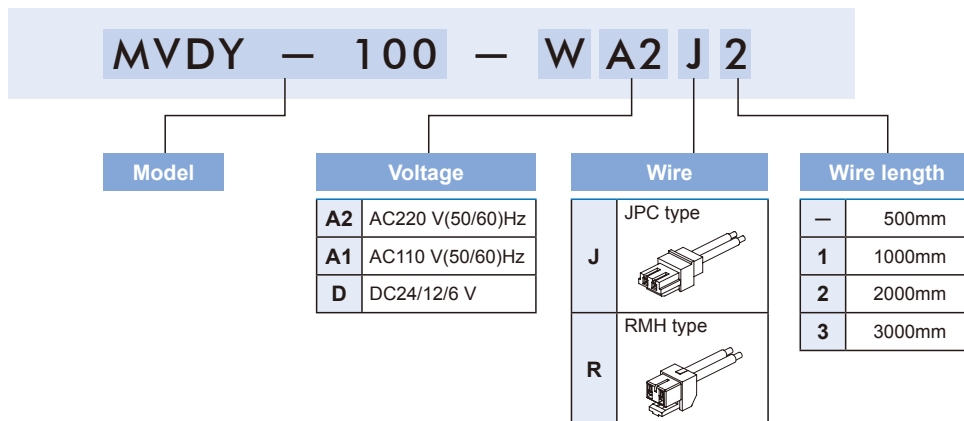


Order example of manifold

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



Order example of wire



Order example

PROCESS / PILOT VALVE



Order example of process valve

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

MBS - 03 - 2 - N - 2 - D - F - M - AC110

Model	Code	Fig.	Seal mat'l	Coil	Plug	Conn.	Manual	Voltage
MBS	03 1/8	1, 2, 3, 4, 5, 6, 7, 8, 9	N NBR	2 #2	- DIN	- Screwed	- Without	AC220 V(50/60)Hz
MCS	06 1/4		J EPDM	3 Bigger	O None	F Flanged	M With	AC110 V(50/60)Hz
MGD	08 1/4		V VITON	4 #4	D LED	* Only for MGD		DC24 V
MUSC	10 3/8		T TEFLON	5 Bigger	G 1/2" NPT	* Only for MGD		
MUST	15 1/2		R RUBY	2E Explosion-proof	Y 2 wires			
MUT	20 3/4		Z FFKM	3E				
	25 1							
	32 1 1/4							
	40 1 1/2							
	45 1 1/2							
	50 2							

Order example of pilot valve

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

MVAA - 150 M - 4 A2 C - NC - G

Model	Body width	Ported type	Way	Pilot	Exhaust position	Type	Port thread
MVAA	150	- Body ported type	3 3 way (3 port)	A1 Single pilot	C Closed center	NC Normally closed	- Rc thread
	180	M Manifold type	4 4 way (5 port)	A2 Double pilot	P Pressure center	NO Normally open	G G thread
	220				R Exhaust center		NPT NPT thread
	260	* Code 1) M: Mindman Code 2) V: Valve Code 3) A: Pneumatic Code 4) A: Series			* Only for 4E2 type.		
	300	* 150 standard body width = 15 mm				* Only for 3E1 type.	
	460						

Order example of manual / mech. operator

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

MVHA - 34T

Model	Operator type
MVHA	34T Fingertip operator
	34C Cam operator
	34CW One-way cam operator
	34B Ball operator
	34A Air pilot operator

Order example

MECHANICAL / HAND VALVE

Order example of mechanical valve

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

MVMA – 300 – 6A – 4 EB – 25 R – G

Model	Body width	Bore size	Way	Button type	Button size	Button color	Port thread
MVMA	210	6A Rc1/8	3 3 way (3 port)	B1 Body (without button)	22 ø22	– B1	– Rc thread
MVMB	220	8A Rc1/4	4 4 way (5 port)	EB Latching palm button	25 ø25	R: Red EB	G G thread
MVMC	250			LB Extended twist button	30 ø30	G: Green	NPT NPT thread
	260			TB Twist button		B: Black LB, TB	
	300			PB Mushroom palm button		R: Red	
				PP Push button		G: Green PB, PP	
				R1 Roller lever		B: Black	

* Code 1) M: Mindman
 Code 2) V: Valve
 Code 3) M: Mechanical
 Code 4) A: Series
 * 300 standard body width = 30 mm

Order example of hand / shutoff / foot pedal valve

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

MVHB – 220 V – 4 TV C – SP – M – * – G

Model	Body width	Piping	Way	Valve type	Spring return	Mounting	Port thread
MVHA	200	– Standard type	2 2 way (2 port)	– 5/2	Bore size	– Standard type	– Rc thread
MVHB	220	V Vertical type	3 3 way (3 port)	C Close center (5/3)	6A Rc1/8	M Panel mounting	G G thread
MVHC	260	Control model		P Pressure center (5/3)	8A Rc1/4	M Mounting nut	NPT NPT thread
MVHD	300	– Manual type	4 4 way (5 port)	R Exhaust center (5/3)	10A Rc3/8		Color
MVHS	302	S Solenoid type	2H 2 way (2 port)	Button type		15A Rc1/2	1 Silver
MVHT	400			V V toggle	20A Rc3/4	3 Cool gray	
MVHR	500		3H 3 way (3 port)	P Single push button	8A R1/4		
				PP Double push button	10A R3/8		
				Actuator type		15A R1/2	
				P Push-pull	20A R3/4		

* Code 1) M: Mindman
 Code 2) V: Valve
 Code 3) H: Hand
 Code 4) A: Series
 * 220 standard body width = 22 mm

Order example of hand valve

Model	
MVHF-2P-NC	Hand valve
MVHF-3P-NC	
MVHF-3P-NO	
MVHF-3V	
MVHF-5V	
MVHF-5P	Miniature pilot actuator
MVHF-AP3	
MVHF-AP6A	Mounting bracket
MVHF-LB	
MVHF-PB2	
MVHF-PB5	Valve actuators manual push button

*** DC24 – L – B**

Voltage	Coil	Bracket
AC220 V(50/60)Hz	– DIN connector	– Without
AC110 V(50/60)Hz	L DIN connector with LED indicator	B With bracket
DC24 V	E Explosion protection	

* Only for MVHR.

Order example

AIR UNIT

Order example of air unit

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

MACP 220 A - 6A - □ - 2K - D (Continued)

Model		Series	Filter element		Port size		Exterior color		Pressure range		Option	
MACP	F.R.L. unit	100	A	5 um	M5	M5	—	Black & silver	—	0.05~1 MPa	—	Standard type
MACT	F.R.L. unit	200	D	0.3 um	6A	1/8"	W	Gray & white	1K	0.05~0.1 MPa	C	External pressure gauge
MAFR	F.R. unit	200L	M	0.01 um	8A	1/4"			2K	0.05~0.2 MPa	D	Auto drain valve
MAF	Filter	201	AD	5 um + 0.3 um	10A	3/8"			3K	0.05~0.3 MPa	H	High pressure type
MAD	Auto drainer	300	DM	0.3 um + 0.01 um	15A	1/2"			4K	0.05~0.4 MPa	P	Pressure switch
MAR	Pressure reducing valve	302	* Only for air/ mist/ micro mist filter.									
MAHR		401			20A	3/4"			8K	0.05~0.8 MPa	N	Nylon bowl
MAER	Electro Pneumatic Regulator	403			25A	1"			1K	0.1 MPa	Auto drain valve	
MAIR		Precision regulator	500			40A	1 1/2"		5K	0.5 MPa	—	MADV400-WB (Male thread)
MAL	Lubricator	900			50A	2"		9K	0.9 MPa	D3	MADV400-WA (Female thread)	
MAFF	Air, mist, micromist filter	901										
MAFRF			25									
MATFR			35									
MAM*			45									
MAVS		Soft start-up valve	55									

- E1 - 5u - T8 S1 - G

Pressure switch		Filter element		By-pass bore size		Port thread	
E1	MP41P-022	5u	5 um	—	Standard type	—	Rc thread
E2	MP41P-022-QD	20u	20 um	B	C or T type bracket	G	G thread
E5	MP41P-042	40u	40 um	T8	T type bracket (1/4)	NPT	NPT thread
E6	MP41P-042-QD			T10	T type bracket (3/8)		

Signal input		Signal output		Pressure display unit	
1	Current DC4~20mA	1	Analog output DC1~5V	1	1MPa
2	Voltage DC0~10V	2	Switch output NPN	2	kgf/cm ²
3	Voltage DC0~5V	3	Switch output PNP	3	bar
40	Preset input	4	Analog output DC4~20mA (Source type)	4	psi
				5	kPa

* Only for MAER series.

Cable connector	
—	Without
S1	Straight 1m
S3	Straight 3m
L1	Right angle 1m
L3	Right angle 3m

* Only for MAER series.

Shutoff valve	
HT	MVHT-*~3H

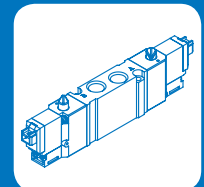
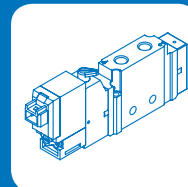
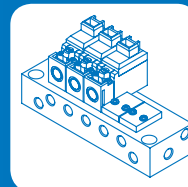
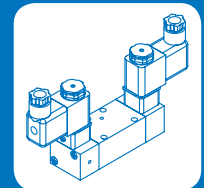
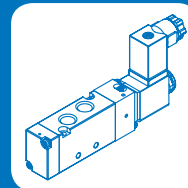
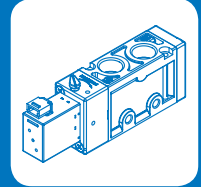
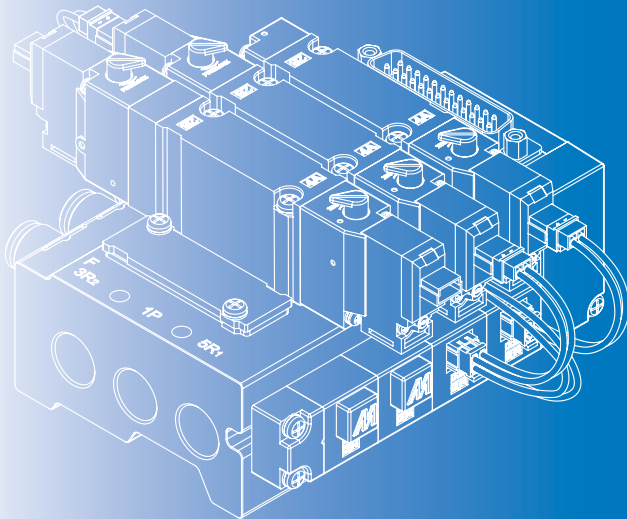
Material of filter element	
—	Plastic
S	Sintered bronze

Filter bowl mat'l	
—	Poly carbonate (PC)
M	Aluminum alloy
H	Aluminum alloy

Bracket	
—	Without
B1	L type
B2	Flat type

* Code 1) **M**: Mindman
 Code 2) **A**: Air unit
 Code 3) **C**: F.R.L. unit
 Code 3) **F**: F.R. unit
 Code 3) **D**: Drainer
 Code 3) **R**: Pressure reducing
 Code 3) **L**: Lubricator
 Code 3, 4) **IR**: Precision regulator

SOLENOID VALVE



	Selector Table	1-2
MVSC	Features	1-4
	MVSC-220.....	1-5
	MVSC-260.....	1-10
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	MVSC1-180	1-24
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	MVB-156	1-98
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	MVE-156 New	1-109
	BLOCKING PLATE	
MV*	MVS* / MVD*	1-112

MVS*/MVD* series

SOLENOID VALVE



Mindman

Model	Valve type						Body type			
	3/2		5/2		5/3			Body ported type		Manifold type
	Normally closed (NC)	Normally open (NC)	Single acting	Double acting	Closed center	Pressure center	Exhaust center			
MVSC-220	●	●		●	●	●	●	●	●	
MVSC-260				●	●	●	●	●		
MVSC-300	●	●		●	●	●	●	●		
MVSC-460	●	●		●	●	●	●	●		
MVSC1-150				●				●	●	
MVSC1-180	●	●		●	●	●	●	●		
MVSC1-220	●	●		●	●	●	●	●	●	
MVSE-260				●	●	●	●	●		
MVSE-300				●	●	●	●	●		
MVSE-500				●				●		
MVSE-510				●				●		
MVSE-600				●				●		
MVSI-260				●	●	●	●		●	
MVSI-450				●					●	
MVSI-510				●					●	
MVSN-220				●				●		
MVSN-300				●	●	●	●	●		
MVSP-156				●	●	●	●	●	●	
MVSP-188				●	●	●	●	●	●	
MVSY-100				●	●	●	●	●	●	
MVSY-156				●	●	●	●	●	●	
MVSY-188				●	●	●	●	●	●	
MVDA-80	●								●	
MVDA-120	●							●		
MVDC-220	●							●		
MVDY-100	●								●	

● 2/2, 3/2 way N.C..

MVS*/MVD* series

SOLENOID VALVE



A, B port size & effective oriufice mm ² (Cv factor)									Body width (mm)	Power consumption W (DC)	Working pressure range MPa ()	Page
M3	M5	1/8"	1/4"	3/8"	1/2"	3/4"	1"					
		18 (1.00)	18 (1.00)						22	2	0.2~0.8	1-5
			18 (1.00)						26	2	0.2~0.8	1-10
					35 (1.94)				30	2	0.2~0.8	1-13
						50 (2.78)			30	2	0.2~0.8	1-17
	38 (0.21)								15	0.95	0.15~0.8	1-22
		12 (0.67)							18	0.95	0.15~0.8	1-24
		18 (1.00)	18 (1.00)						22	0.95	0.2~0.8	1-28
			18 (1.00)						26	2	0.2~1.2	1-34
					35 (1.94)				30	2	0.2~1.2	1-37
						41 (2.28)			30	2	0.2~1.2	1-40
						65 (3.61)			68	10	0.2~0.7	1-42
							115 (6.39)	135 (7.5)	68	10	0.2~0.7	1-44
			22 (1.22)						35	2	0.2~0.7	1-46
			27 (1.5)						45	2	0.2~0.7	1-48
						65 (3.61)			68	10	0.2~0.7	1-53
			18 (1.00)						22	2	0.2~0.7	1-55
			35 (1.94)						30	2	0.2~0.8	1-57
		11 (0.61)							15	0.95	0.15~0.7	1-60
			15 (0.83)						18	0.95	0.15~0.7	1-65
	4.5 (0.25)								10	0.55	0.2~0.8	1-69
		11 (0.61)							15	0.55	0.15~0.7	1-73
			15 (0.83)						18	0.55	0.15~0.7	1-79
	0.612 (0.034)								8	0.5	0~0.8	1-84
	2.184 (0.121)								12	0.8	0~0.8	1-86
		0.8 (0.044)							22	2	0.01~0.7	1-88
	0.28 (0.016)								10	0.55	0~0.9	1-90

* The data is based on 5/2.

Product feature

Electric Connection

DIN terminal

DIN terminal with LED indicator

Explosion protection (ATEX Zone 2, 22)

- **Contact spring**
Contact spring makes wiring quick and easy. Also, it prevents wire damage.
- **Terminal material**
Material of terminal housing is PA6 which has good chemical resistance and weather resistance.
- **Manual override**
Drop-shaped manual override is easy for testing with one push or spin.
- **Applying SurTec 650**
Nonoxidizable for 336hrs under neutral salt spray test.
- **No leakage**
All products go through leakage test according to JIS regulation.
- **DISK seal and U-packing (HNBR)**
High wear resistance, wide working temperature - 35 ~ +150°C , excellent sealability.
- **Coil**
Low power consumption, DC24V power 2W
- **Plunger material**
Resulfurized stainless steel with 17% chromium and 1.5% silicon. Provide a very low coercive magnetic field and a very high permeability.

Insulation class	Coil	F class/ 155°C
	Copper wire	H class/ 180°C

Product specification

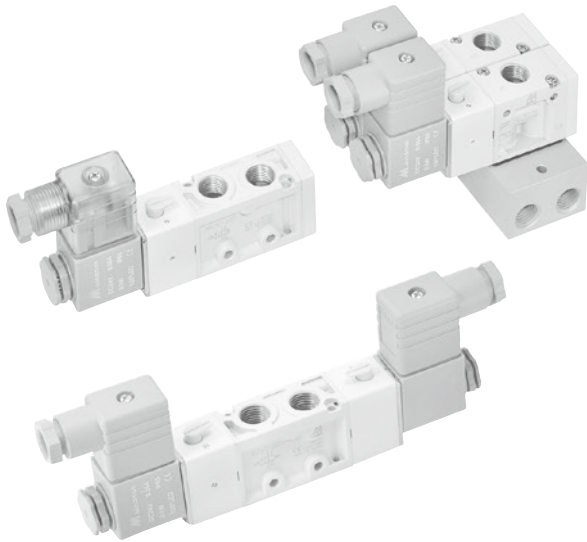
Effective orifice	18 mm ²
Max. operating perssure	0.8 MPa (8 kgf/cm ²)
Ambient temperature	-5 ~ +50°C (No freezing)
Lifetime	50 million cycles under normal service condition

MVSC-220 series

SOLENOID VALVE



mindman



Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	8A		6A, 8A		
Port size	Rc1/4		Rc1/8, Rc1/4		
No. of port	3		5		
No. of position	2		2	3	
Medium	Air				
Operating pressure range	0.2~0.8 MPa			0.3~0.8 MPa	
Operating pressure (LP)	0~0.8 MPa				
External pilot pressure (LP)	0.2~0.8 MPa			0.3~0.8 MPa	
Proof pressure	1 MPa				
Effective orifice	18 mm ²			16 mm ²	
Response time	30 ms			40 ms	
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V (50/60)Hz, DC24V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W				
Available voltage range	±10%				
Insulation class	F class				
Weight	181 g	294 g	198 g	313 g	352 g

Order example of valve

MVSC – 220M – 4E2C – NC – □ – AC110 – L – LP – G

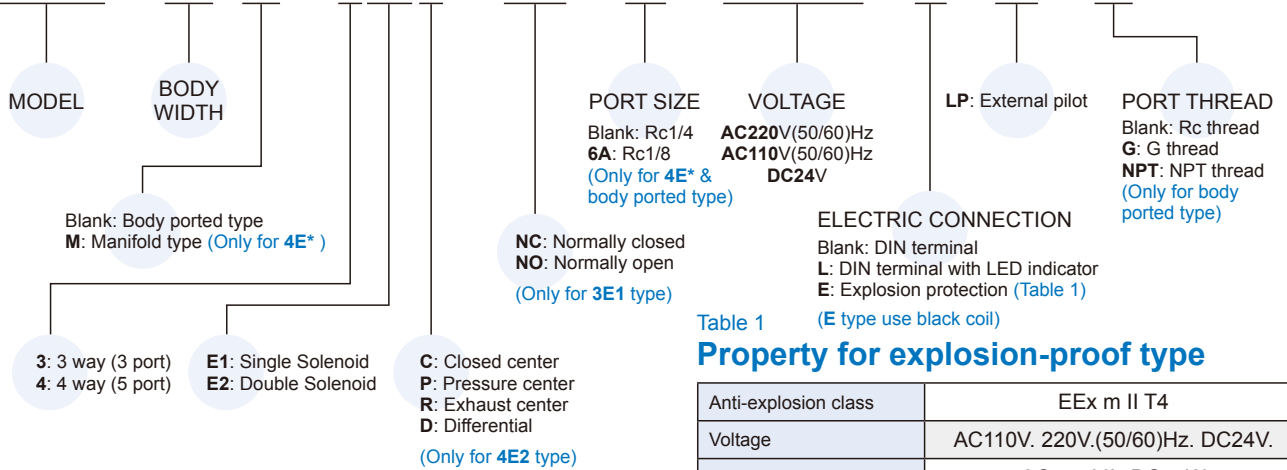


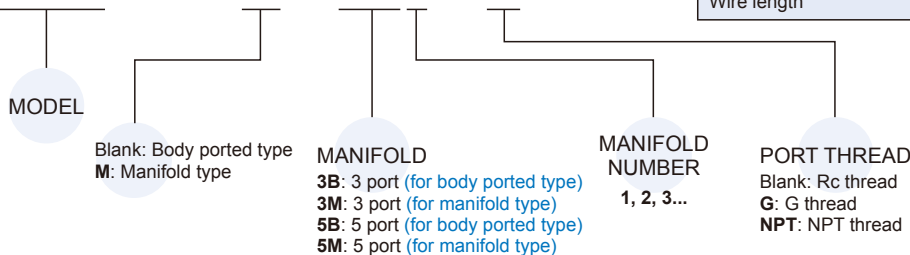
Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of manifold

MVSC – 220M – 5M3 – G

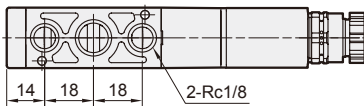
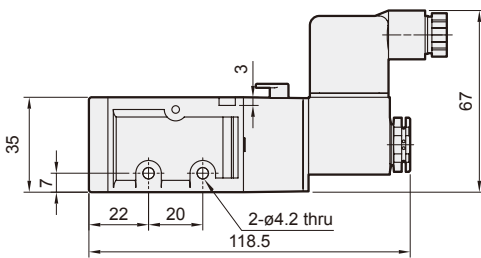
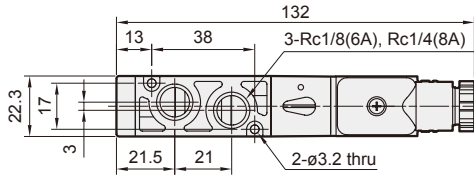
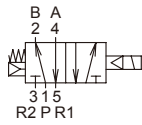


MVSC-220 Dimensions

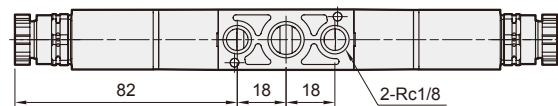
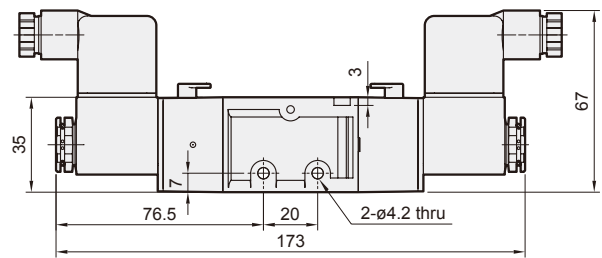
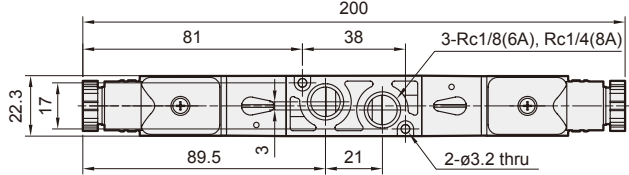
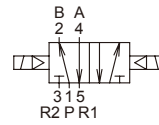
SOLENOID VALVE



MVSC-220-4E1



MVSC-220-4E2

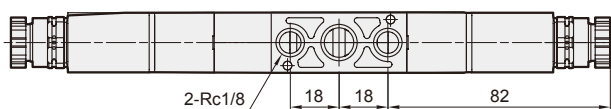
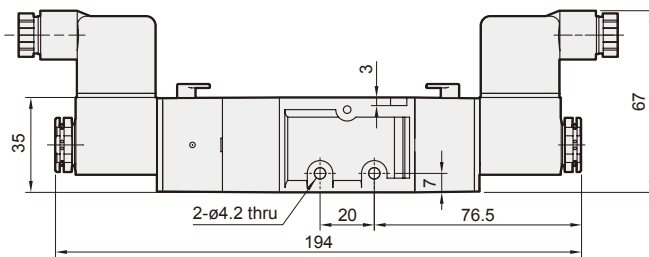
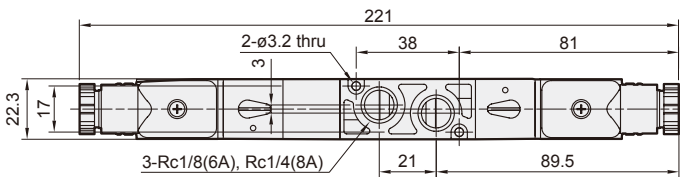
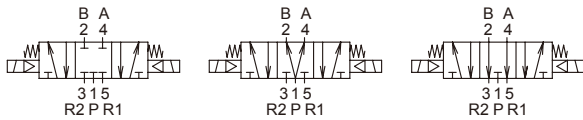


MVSC-220-4E2C.PR

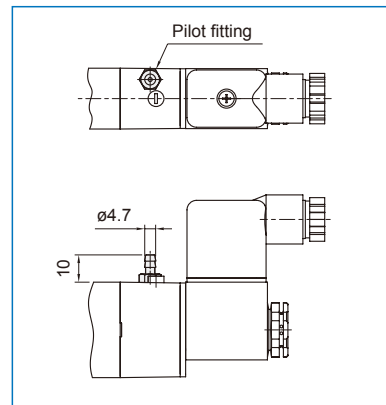
MVSC-220-4E2C

MVSC-220-4E2P

MVSC-220-4E2R

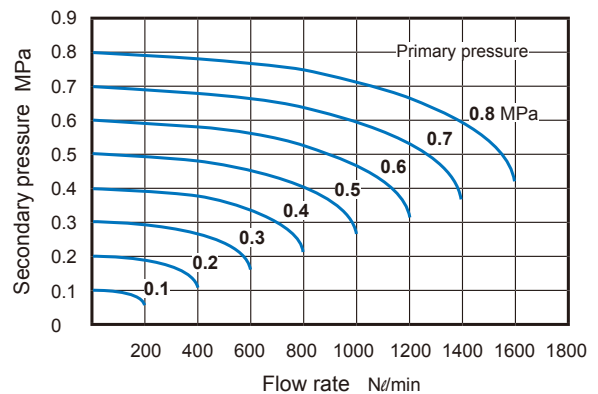


LP



Flow features

MVSC-220-3E1/3E2/4E1/4E2

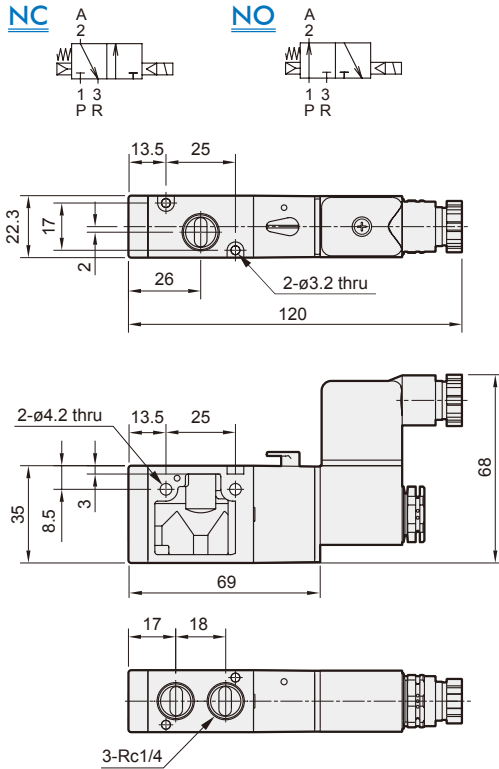


MVSC-220 Dimensions

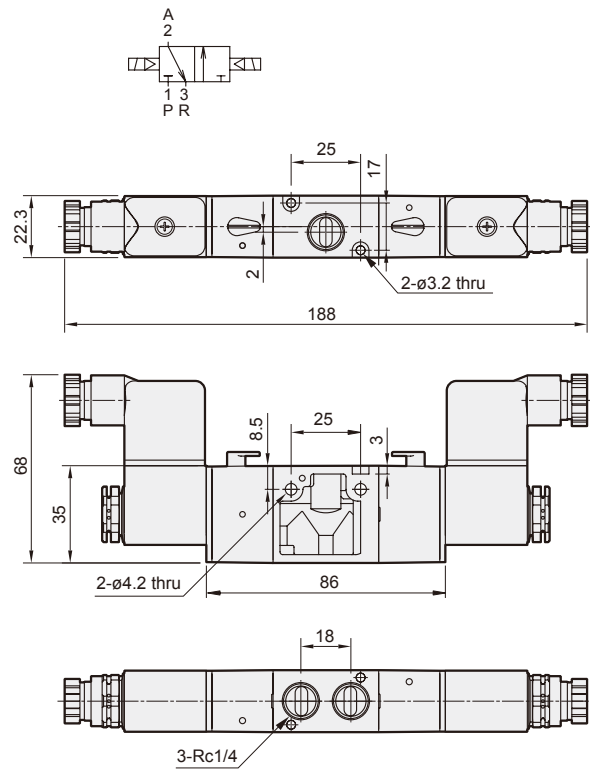
SOLENOID VALVE



MVSC-220-3E1-NC/NO



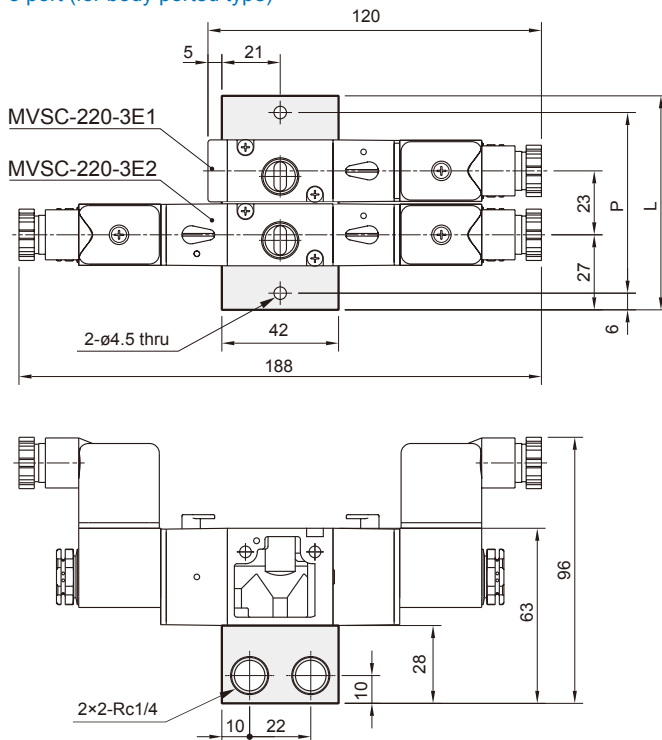
MVSC-220-3E2



Manifold of solenoid valve

MVSC-220-3B*

3 port (for body ported type)



No. of stations	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

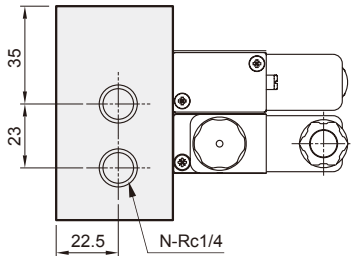
MVSC-220 Manifold

SOLENOID VALVE

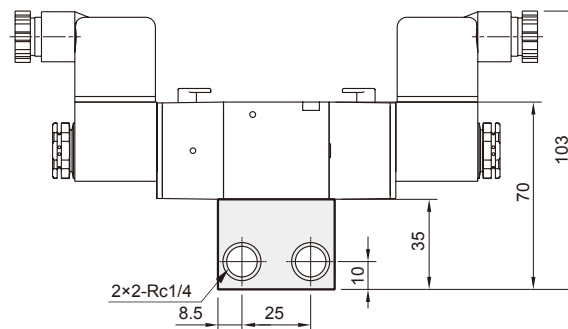
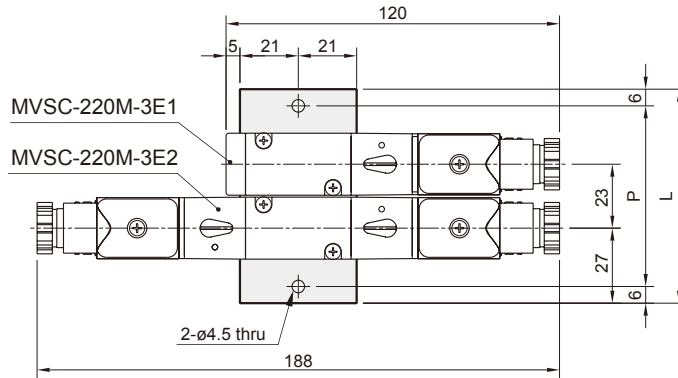


MVSC-220M-3M*

3 port (for manifold type)

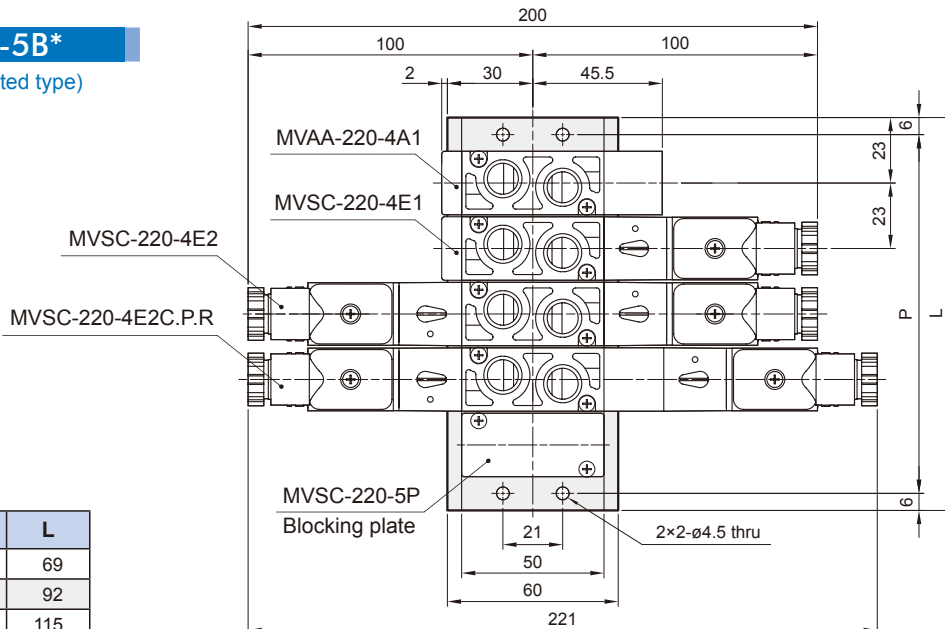


No. of stations (N)	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

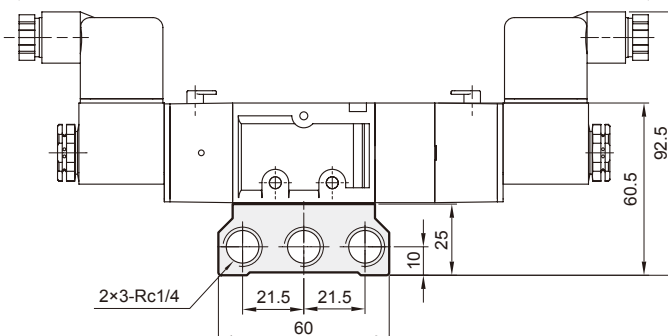


MVSC-220-5B*

5 port (for body ported type)



No. of stations	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253



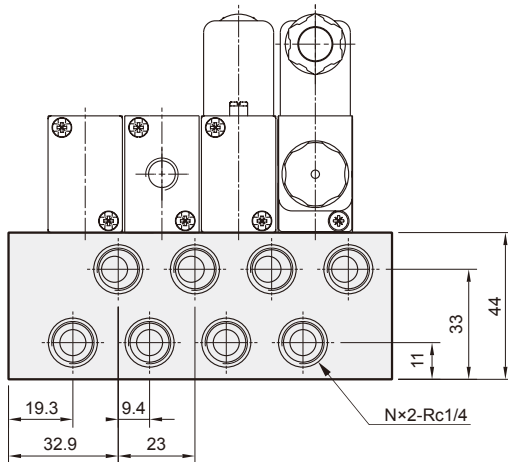
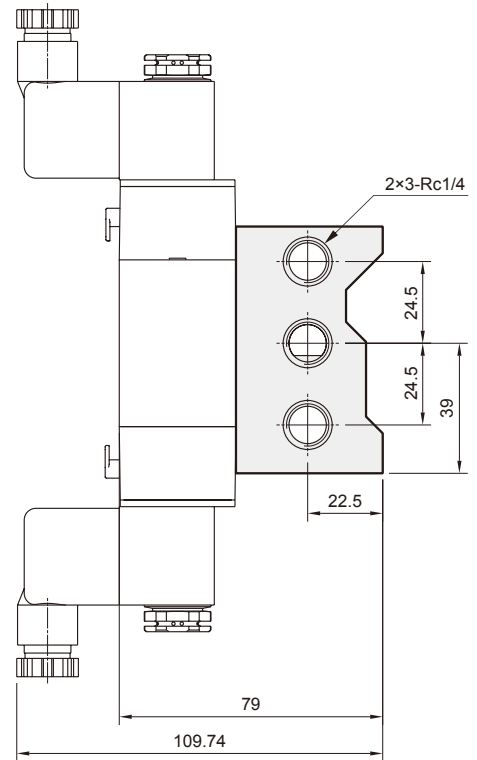
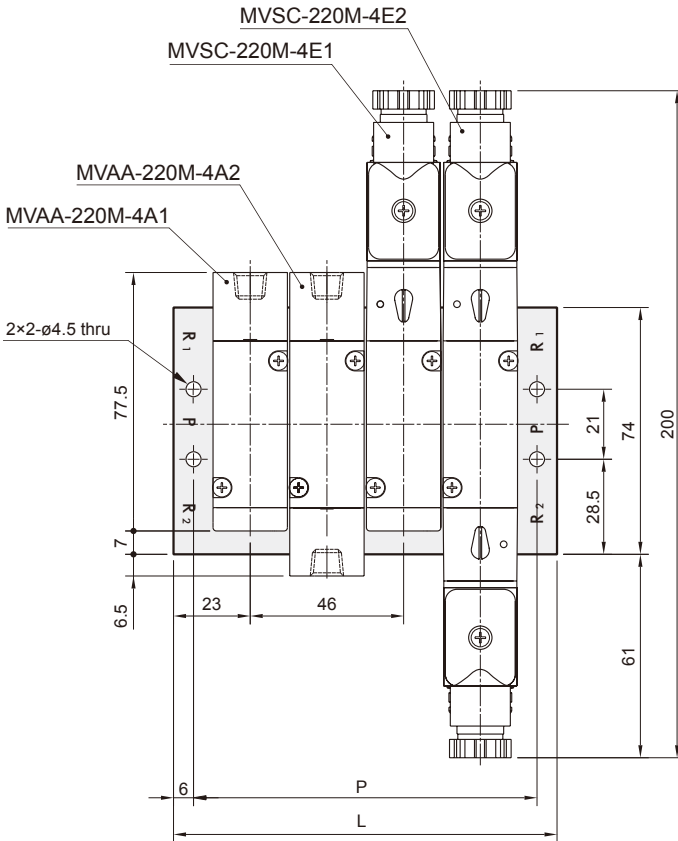
MVSC-220 Manifold

SOLENOID VALVE



MVSC-220M-5M*

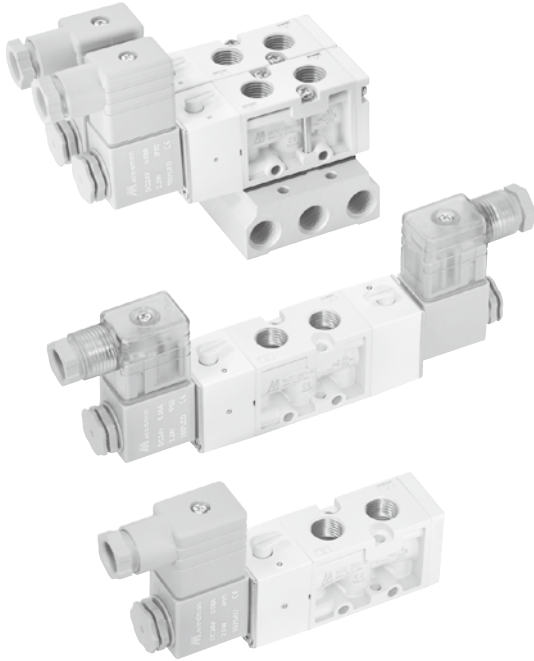
5 port (for manifold type)



No. of stations (N)	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSC-260 series

SOLENOID VALVE

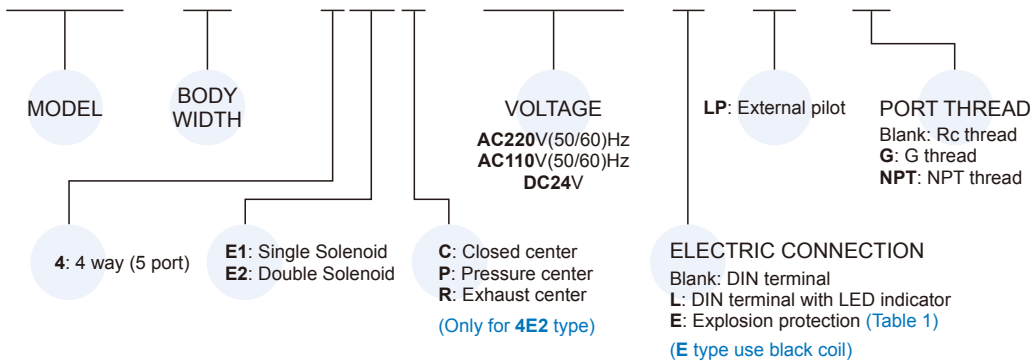


Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.2~0.8 MPa	0.3~0.8 MPa	
Operating pressue (LP)	0~0.8 MPa		
External pilot pressure (LP)	0.2~0.8 MPa	0.3~0.8 MPa	
Proof pressure	1 MPa		
Effective orifice	18 mm ²	16 mm ²	
Reponse time	40 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	203 g	322 g	327 g

Order example of valve

MVSC – 260 – 4E2C – AC110 – L – LP – G



Order example of manifold

MVSC – 260 – 5B3 – G

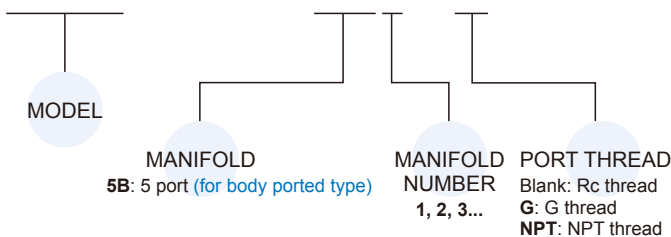


Table 1

Property for explosion-proof type

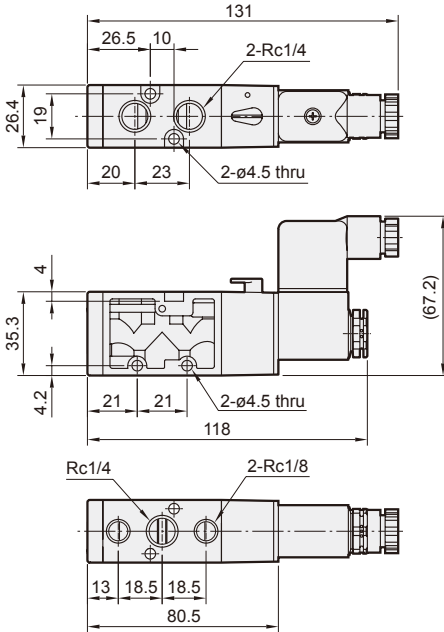
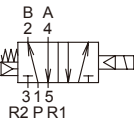
Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

MVSC-260 Dimensions

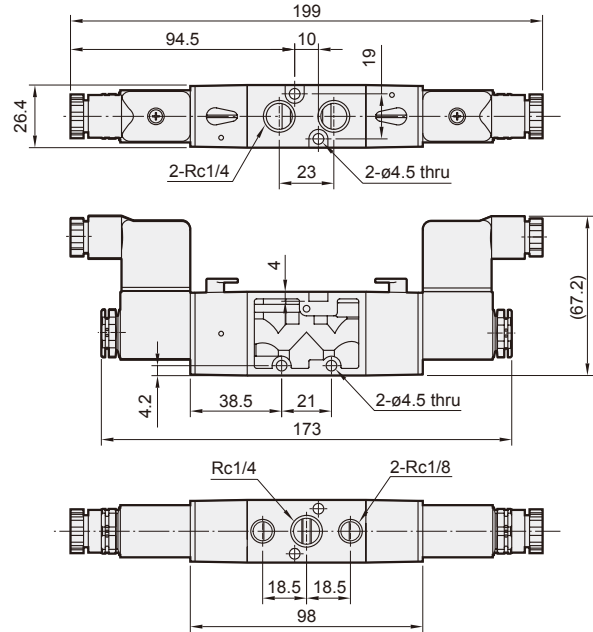
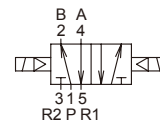
SOLENOID VALVE



MVSC-260-4E1



MVSC-260-4E2

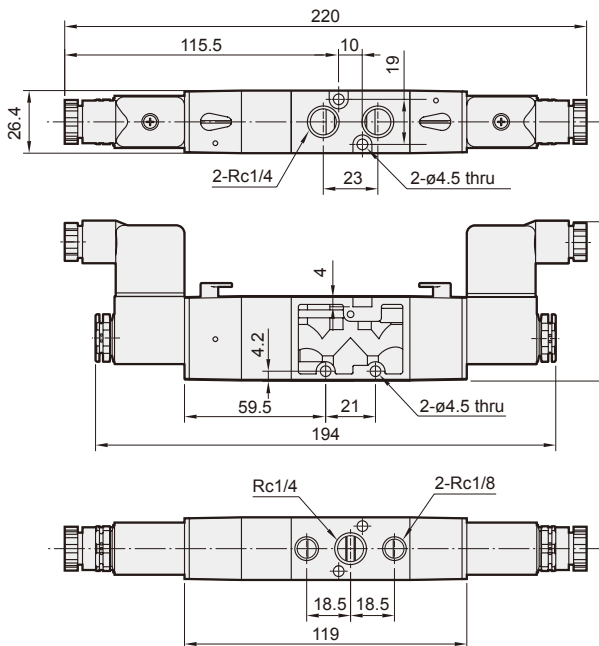
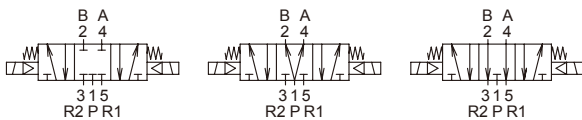


MVSC-260-4E2C.P.R

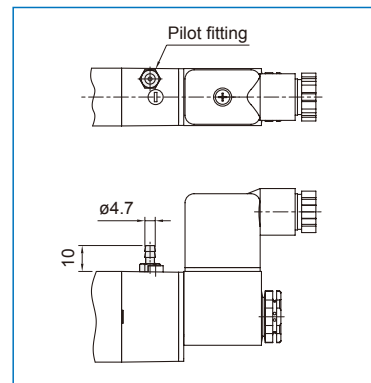
MVSC-260-4E2C

MVSC-260-4E2P

MVSC-260-4E2R

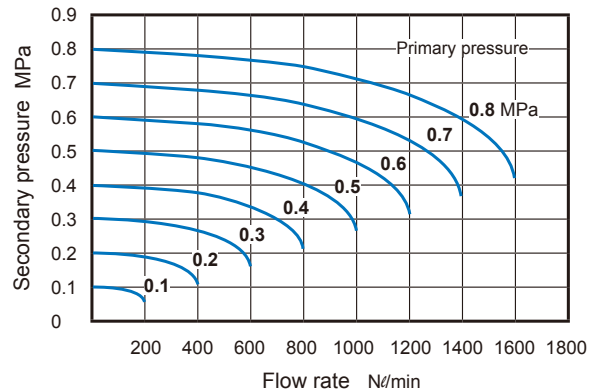


LP



Flow features

MVSC-260-4E1/4E2



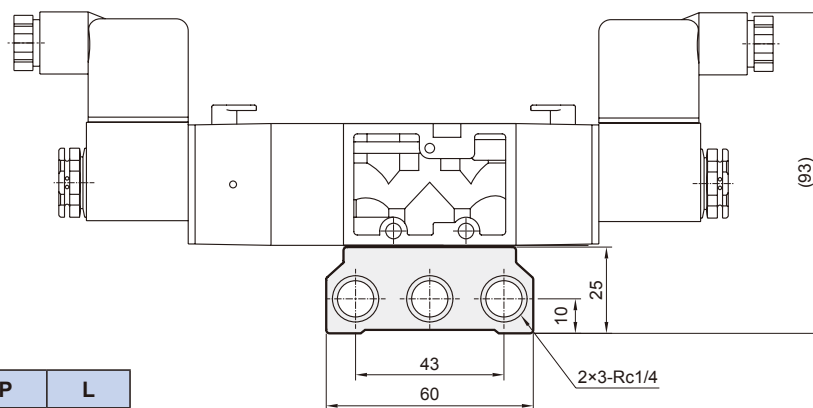
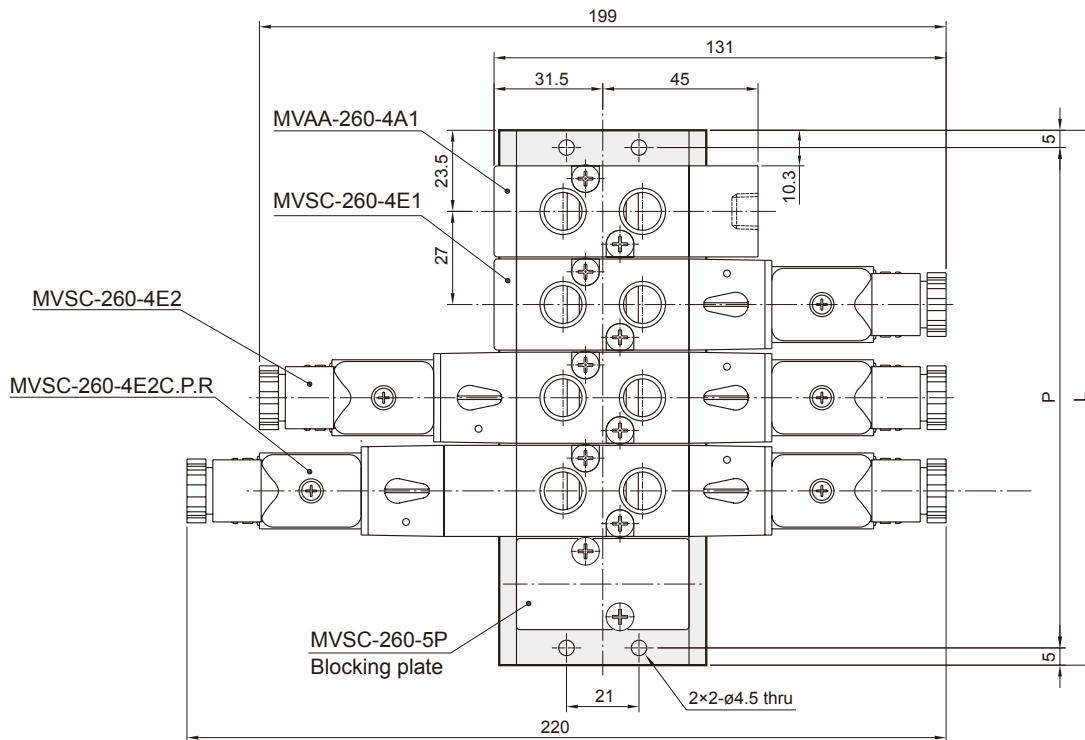
MVSC-260 Manifold

SOLENOID VALVE



MVSC-260-5B*

5 port (for body ported type)



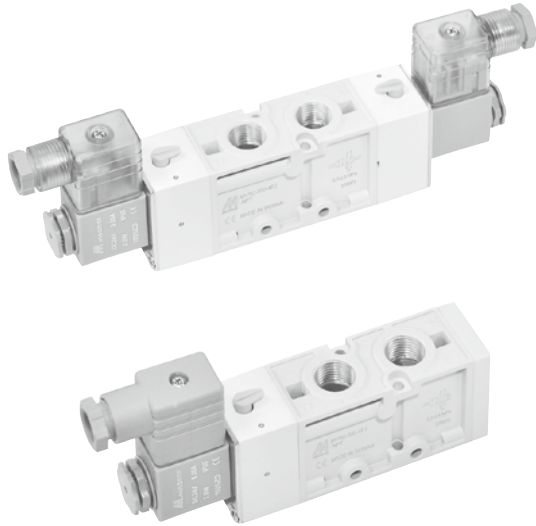
No. of stations	P	L
2	64	74
3	91	101
4	118	128
5	145	155
6	172	182
7	199	209
8	226	236
9	253	263
10	280	290

MVSC-300 series

SOLENOID VALVE



mindman

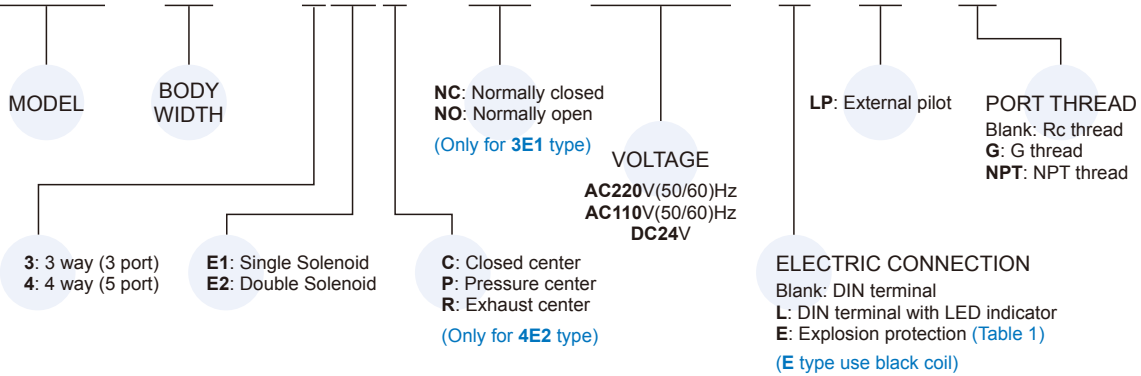


Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	10A				
Port size	Rc3/8				
No. of port	3		5		
No. of position	2			3	
Medium	Air				
Operating pressure range	0.2~0.8 MPa			0.3~0.8 MPa	
Operating pressure (LP)	0~0.8 MPa				
External pilot pressure (LP)	0.2~0.8 MPa			0.3~0.8 MPa	
Proof pressure	1 MPa				
Effective orifice	30 mm ²		35 mm ²		25 mm ²
Response time	50ms				
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V (50/60)Hz, DC24V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W				
Available voltage range	±10%				
Insulation class	F class				
Weight	325 g	453 g	320 g	444 g	505 g

Order example of valve

MVSC – 300 – 4E2C – NC – AC110 – L – LP – G



Order example of manifold

MVSC – 300 – 3B3 – G

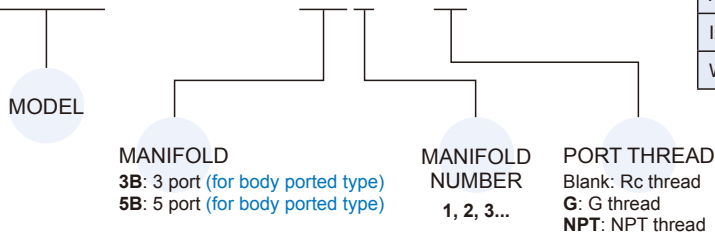


Table 1

Property for explosion-proof type

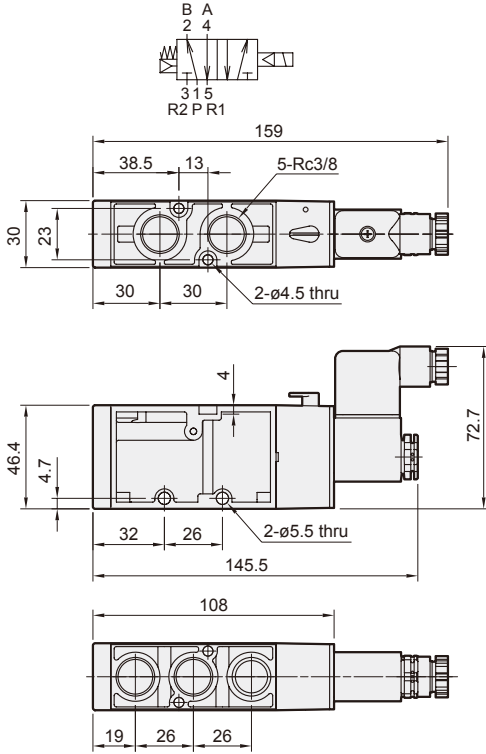
Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V.(50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

MVSC-300 Dimensions

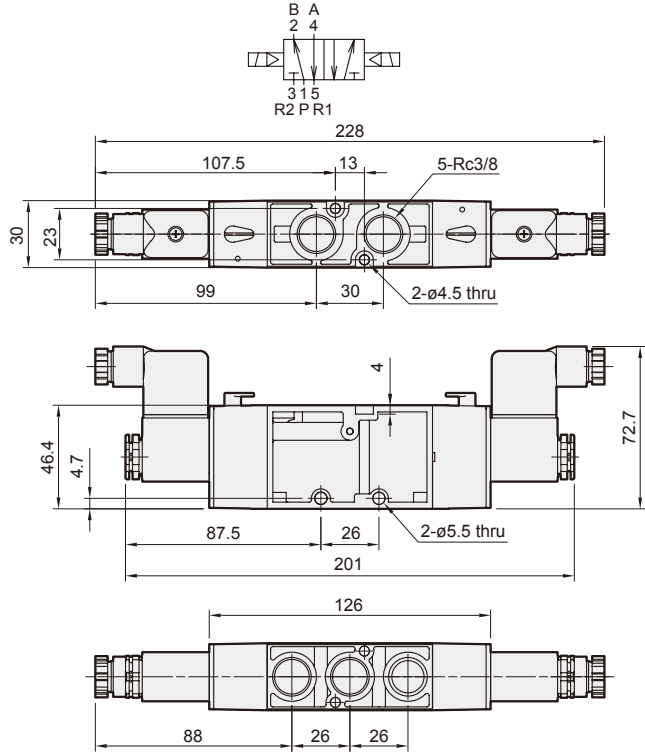
SOLENOID VALVE



MVSC-300-4E1

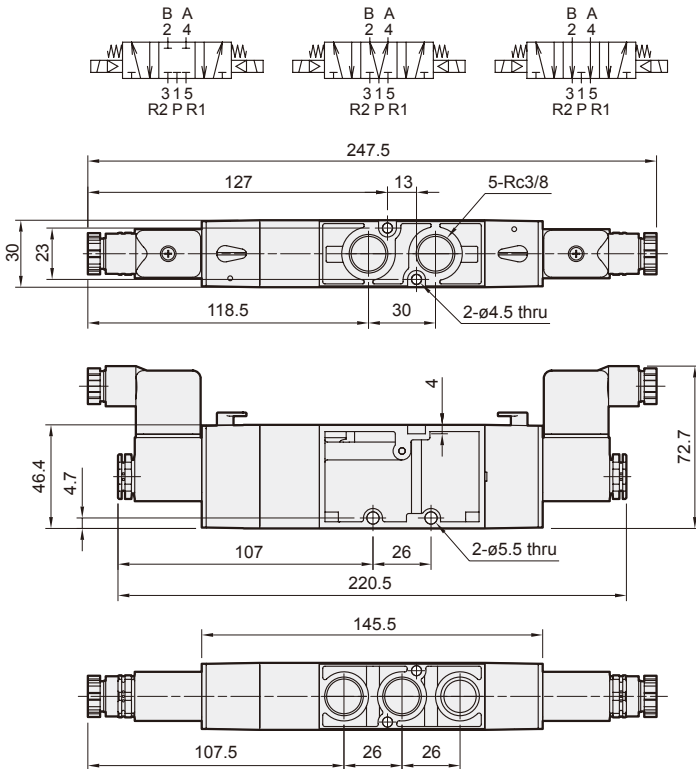


MVSC-300-4E2

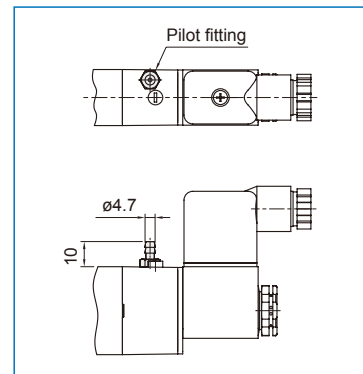


MVSC-300-4E2C.P.R

MVSC-300-4E2C MVSC-300-4E2P MVSC-300-4E2R

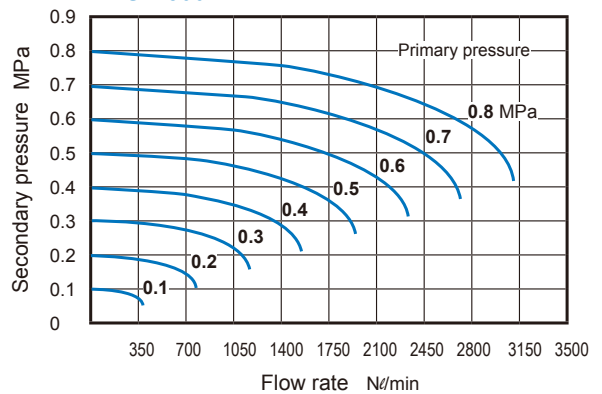


LP



Flow features

MVSC-300-4E1/4E2

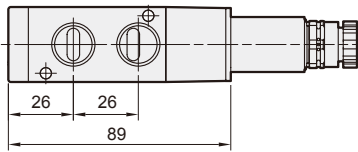
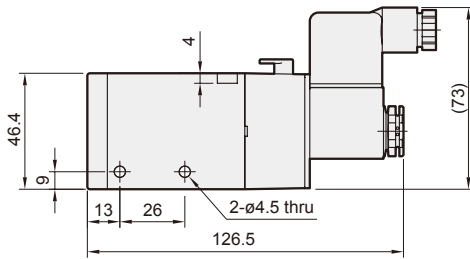
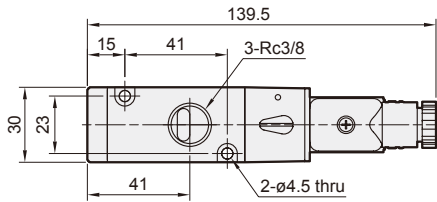
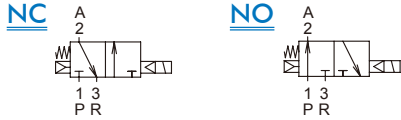


MVSC-300 Dimensions

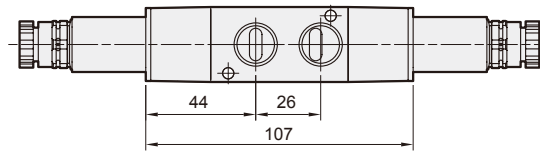
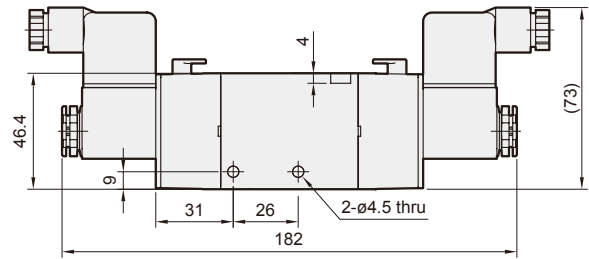
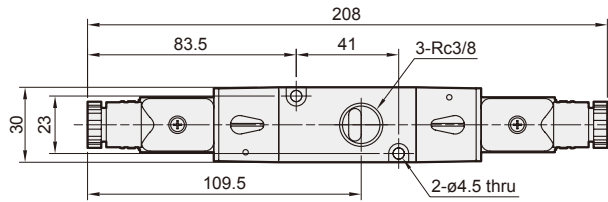
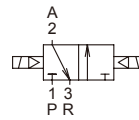
SOLENOID VALVE



MVSC-300-3E1-NC/NO



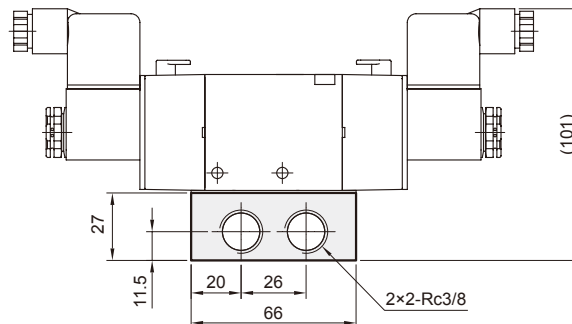
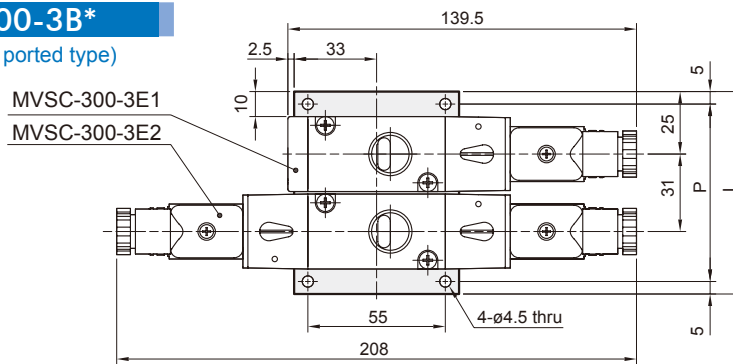
MVSC-300-3E2



Manifold of solenoid valve

MVSC-300-3B*

3 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

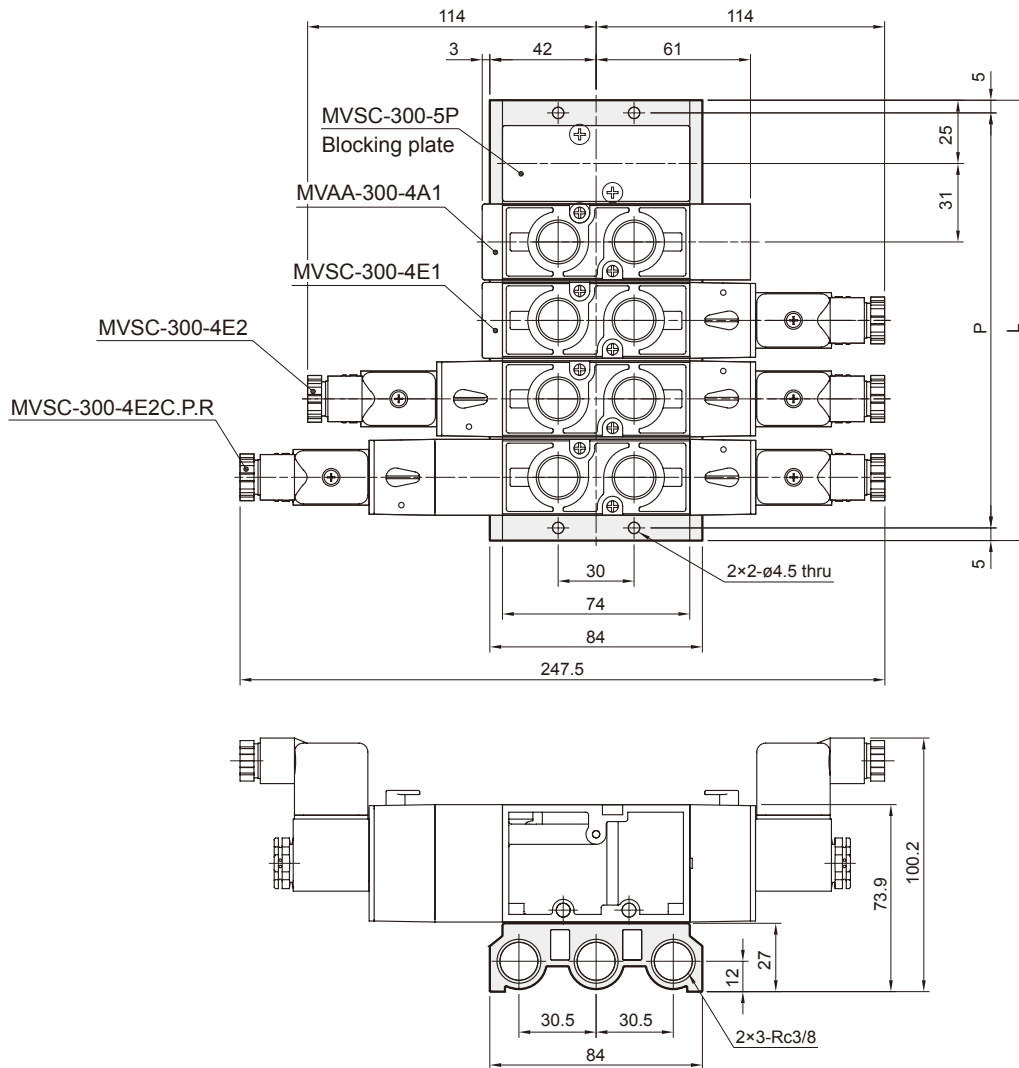
MVSC-300 Manifold

SOLENOID VALVE



MVSC-300-5B*

5 port (for body ported type)



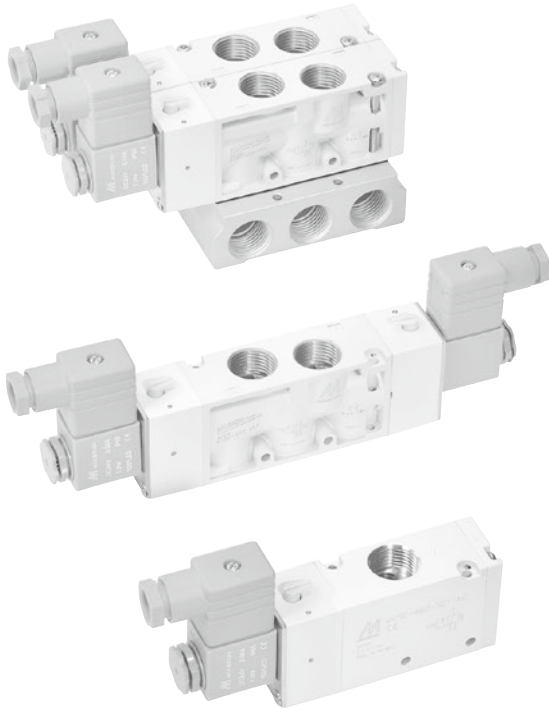
No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC-460 series

SOLENOID VALVE



mindman

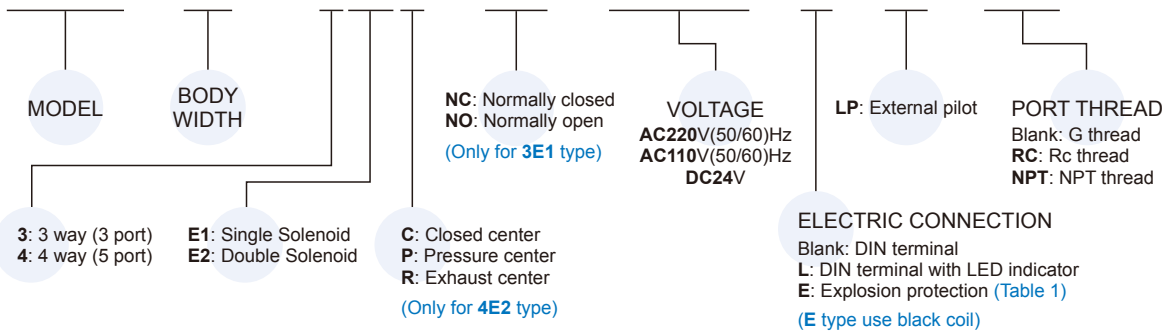


Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	15A				
Port size	G1/2				
No. of port	3		5		
No. of position	2			3	
Medium	Air				
Operating perssure range	0.2~0.8 MPa			0.3~0.8 MPa	
Operating pressue (LP)	0~0.8 MPa				
External pilot pressure (LP)	0.2~0.8 MPa			0.3~0.8 MPa	
Proof pressure	1 MPa				
Effective orifice	60 mm ²	50 mm ²	30 mm ²		
Reponse time	50 ms				
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V (50/60)Hz, DC24V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W				
Available voltage range	±10%				
Insulation class	F class				
Weight	325 g	455 g	339 g	464 g	525 g

Order example of valve

MVSC – 460 – 4E2C – NC – AC110 – L – LP – NPT



Order example of manifold

MVSC – 460 – 5B3 – NPT

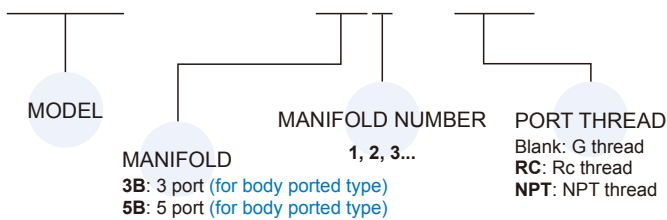


Table 1

Property for explosion-proof type

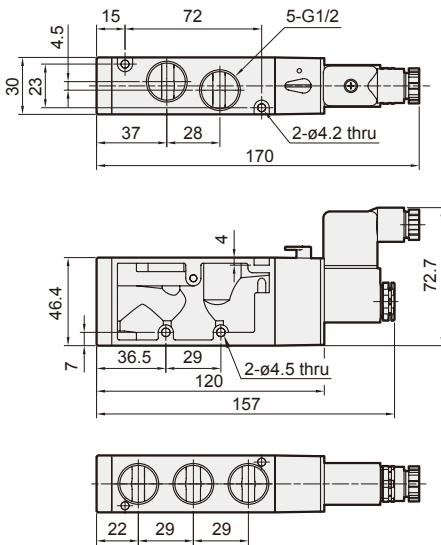
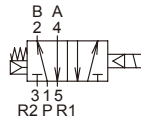
Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V.(50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

MVSC-460 Dimensions

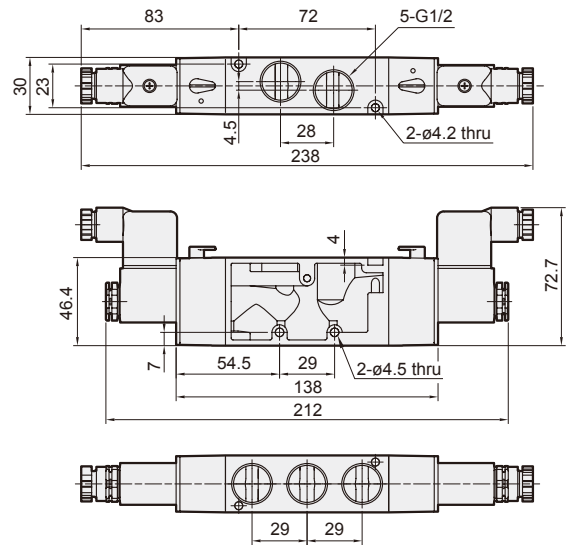
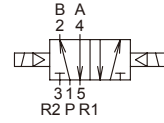
SOLENOID VALVE



MVSC-460-4E1



MVSC-460-4E2

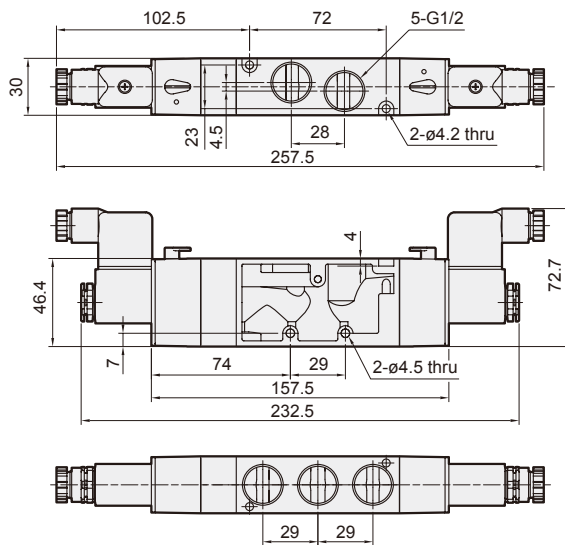


MVSC-460-4E2C.P.R

MVSC-460-4E2C

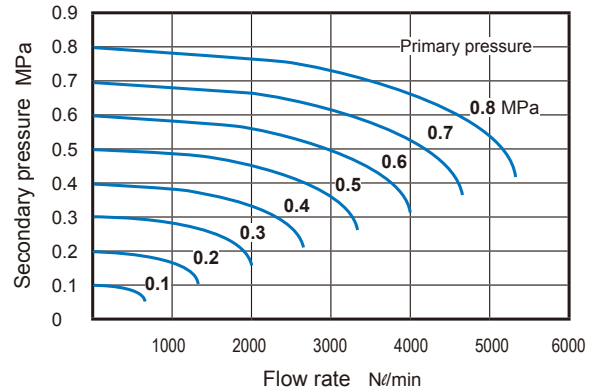
MVSC-460-4E2P

MVSC-460-4E2R

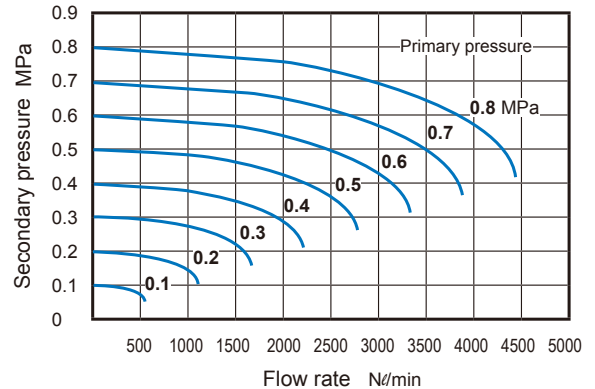


Flow features

MVSC-460-3E1/3E2



MVSC-460-4E1/4E2

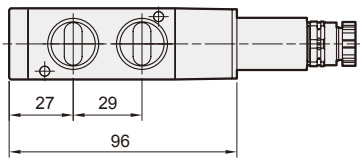
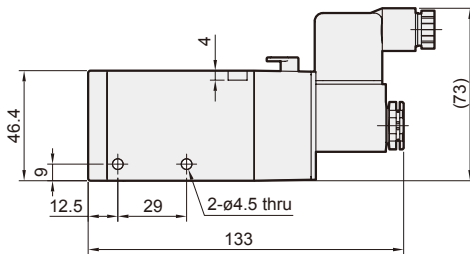
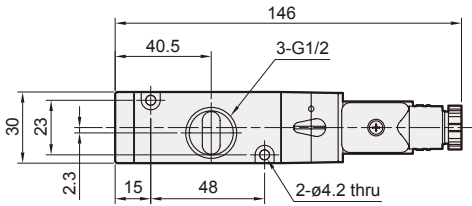
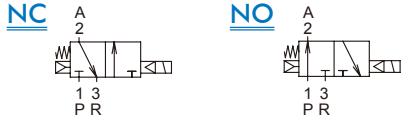


MVSC-460 Dimensions

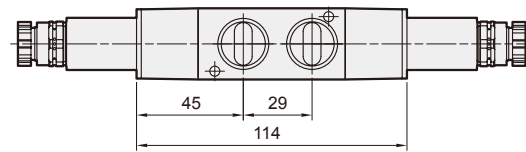
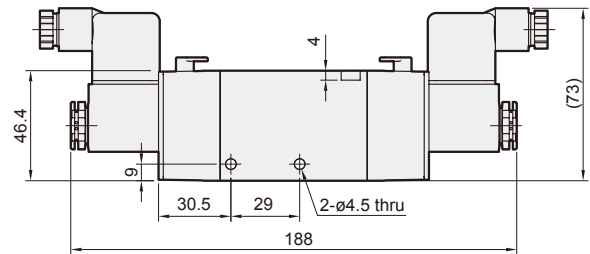
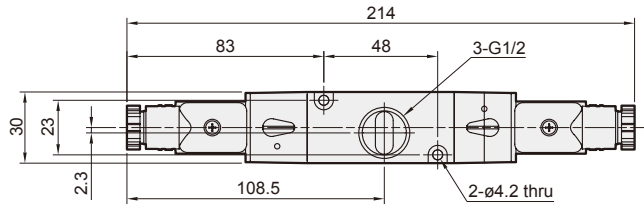
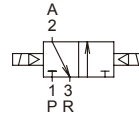
SOLENOID VALVE



MVSC-460-3E1-NC/NO



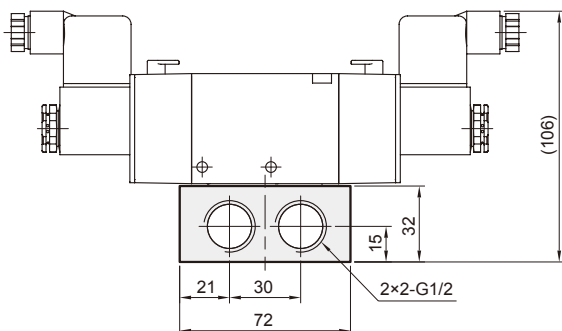
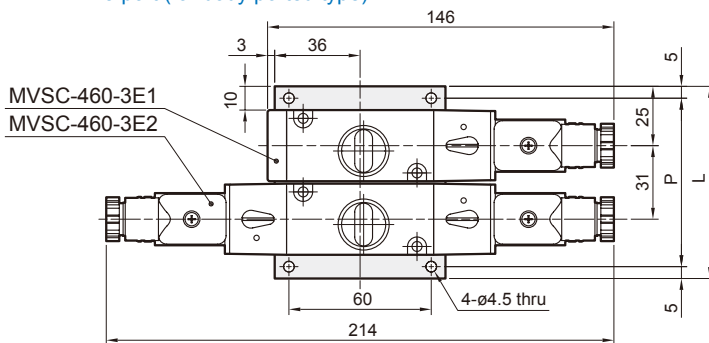
MVSC-460-3E2



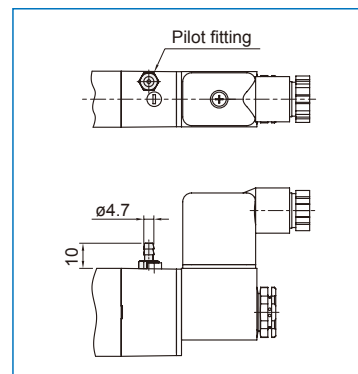
Manifold of solenoid valve

MVSC-460-3B*

3 port (for body ported type)



LP



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

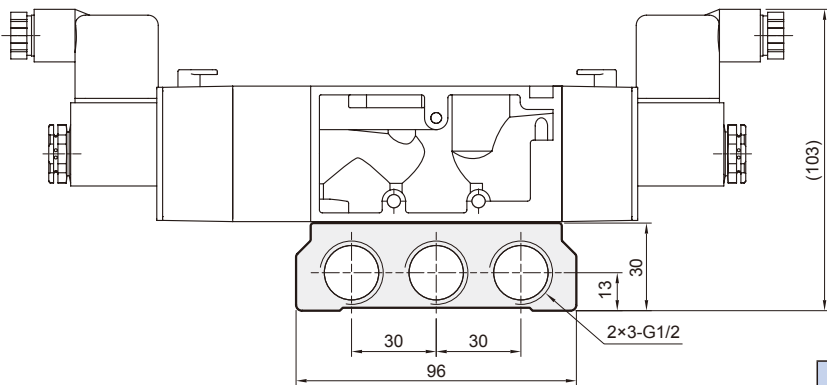
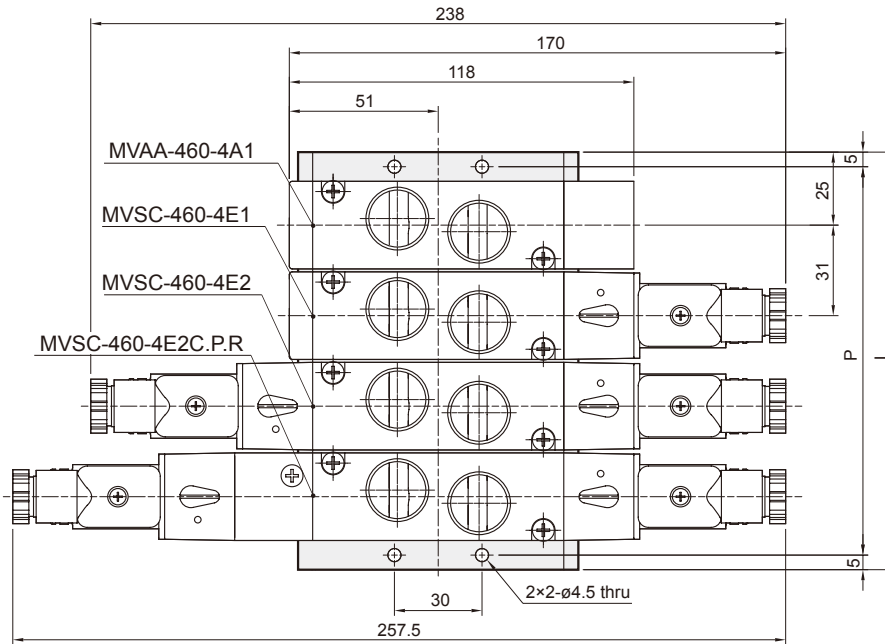
MVSC-460 Manifold

SOLENOID VALVE



MVSC-460-5B*

5 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC1 / MVSP series Features

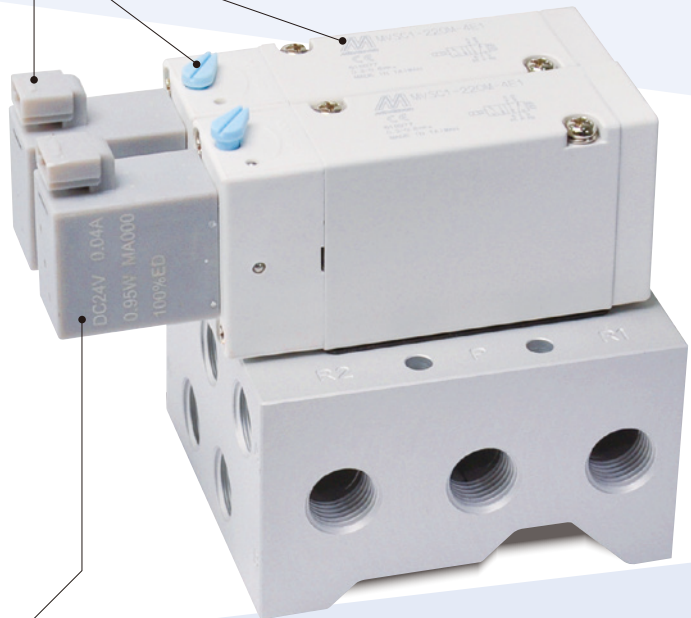


SOLENOID VALVE

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- Manual override design, easier to test.
- Quick plug design, easier to wiring by socket.
- **Terminal Material**
Material of terminal housing is PA6 which has good chemical resistance and weather resistance.
- **DISK seal and U-packing (HNBR)**
High wear resistance, wide working temperature - 35 ~ +150°C, excellent sealability, lifetime 50 million cycles.
- Quick response time (25~30ms).
- [Low power output PLC] can drive solenoid valve directly.
- **Applying SurTec 650**
Nonoxidizable for 336hrs under neutral salt spray test.

Electric Connection



- (L) DIN terminal with LED indicator

- (D) DIN terminal



- (W) Lead wire

- (H) Horizontal plug with LED indicator

Coil Features

Bridge rectifier design

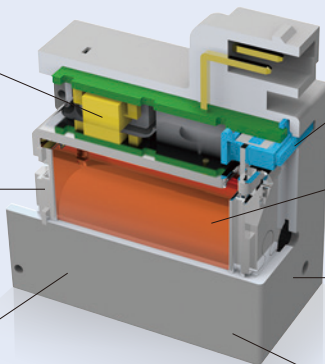
Converting AC voltage to DC, it can eliminate operating noise.

Low power consumption

DC power 0.95W, it can save over 70% power consumption compared with other brand (3W).

Low current consumption

It can extend lifetime of driver (PLC, Relay...).



Indicator (LED)

Indicating coil operating condition.

Cooper wire insulation class

H class/180°C.

Coil insulation class

F class/155°C.

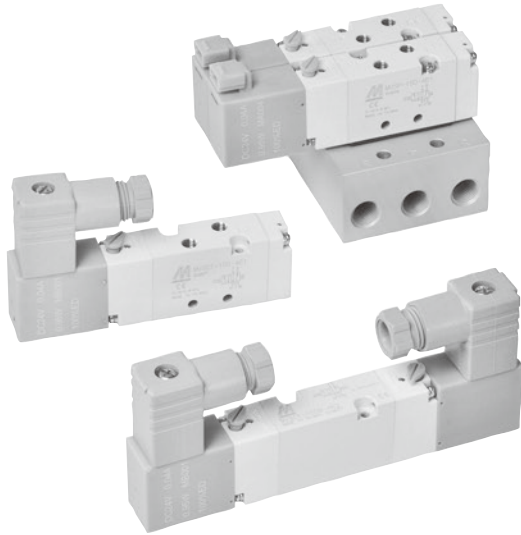
Low ambient temperature as operating.

MVSC1-150 series

SOLENOID VALVE



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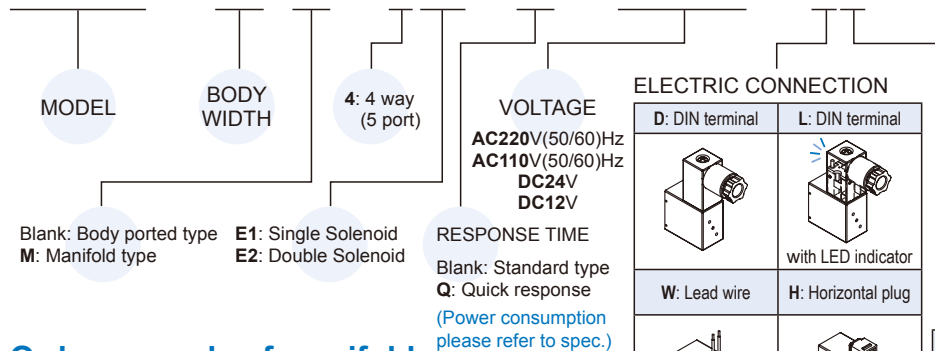
Specification

Model		4E1	4E2
Port size		M5×0.8	
No. of port		5	
No. of position		2	
Medium		Air	
Operating pressure range		0.15~0.8 MPa	
Proof pressure		1 MPa	
Effective orifice		3.8 mm ²	
Response time	Standard	DC < 23 ms, AC < 35 ms	
	Quick response*	DC < 18 ms, AC < 30 ms	
Power consumption	Standard	AC=1.12VA, DC=0.95W	
	Quick response*	AC=2.5VA, DC=2.5W	
Ambient temperature		-5~+50°C (No freezing)	
Voltage		AC110V, 220V (50/60)Hz, DC24V/12V	
Available voltage range		±10%	
Insulation class		F class	
Weight		73 g	108 g

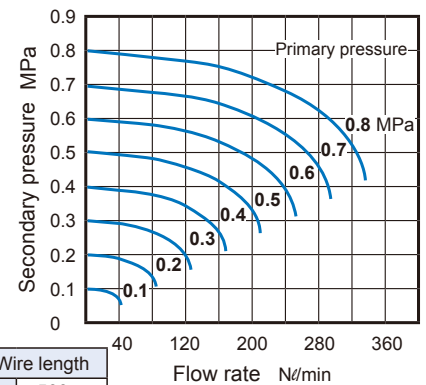
* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

MVSC1 – 150M – 4E2 – □ – AC110 – H1

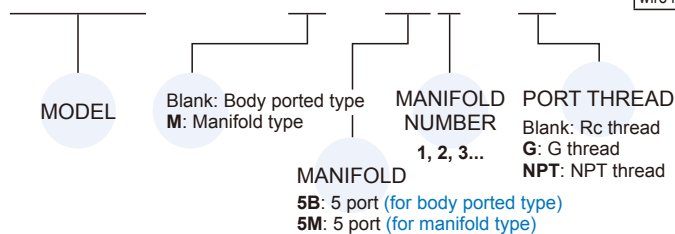


Flow features



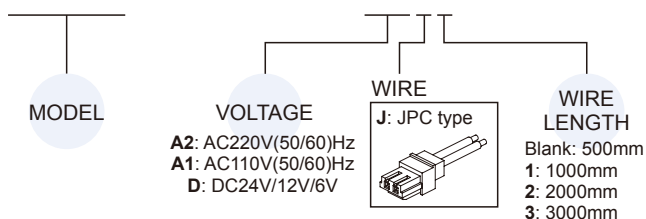
Order example of manifold

MVSC1 – 150M – 5B3 – G



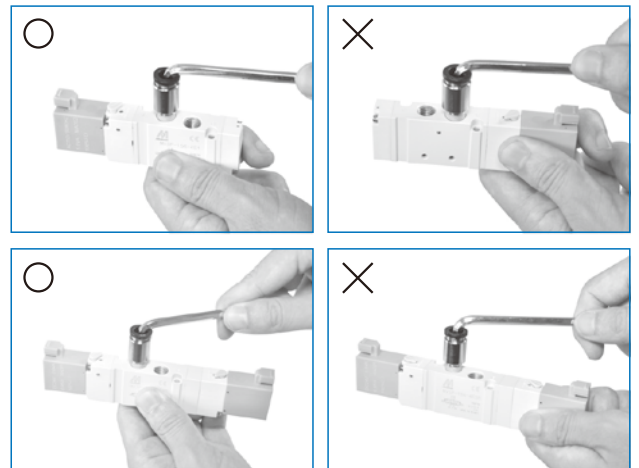
Order example of wire

MVDY – 100 – WA2J2



Caution

Prohibit apply force to coil when tighten the tube fitting.

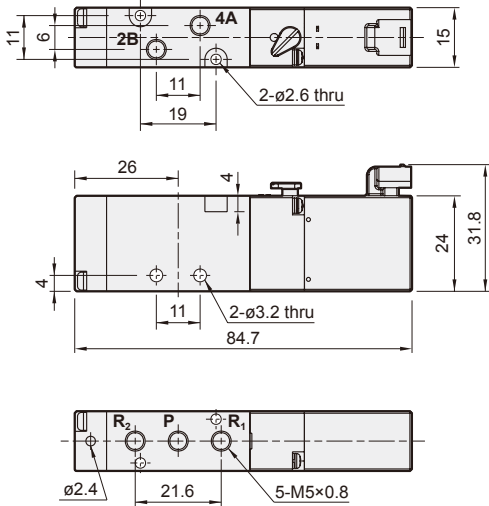
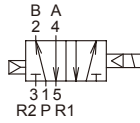


MVSC1-150 Dimensions

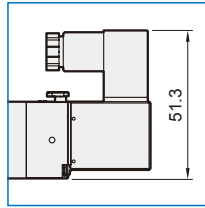
SOLENOID VALVE



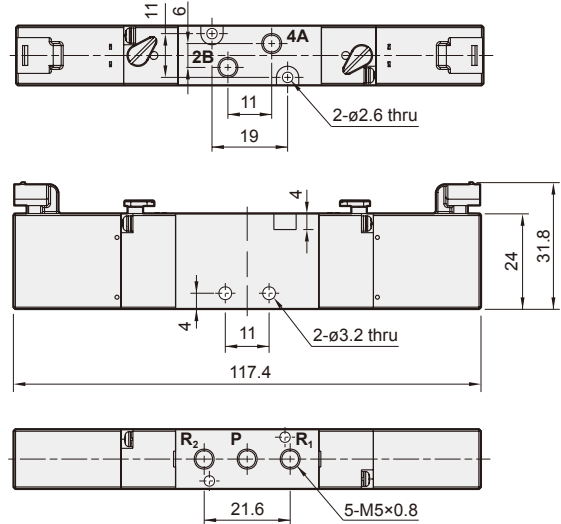
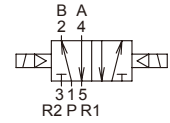
MVSC1-150-4E1



DIN terminal /
DIN terminal with
LED indicator

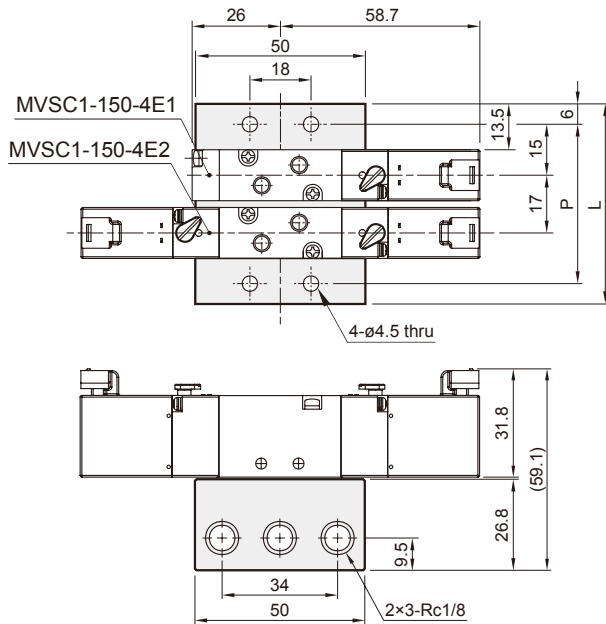


MVSC1-150-4E2



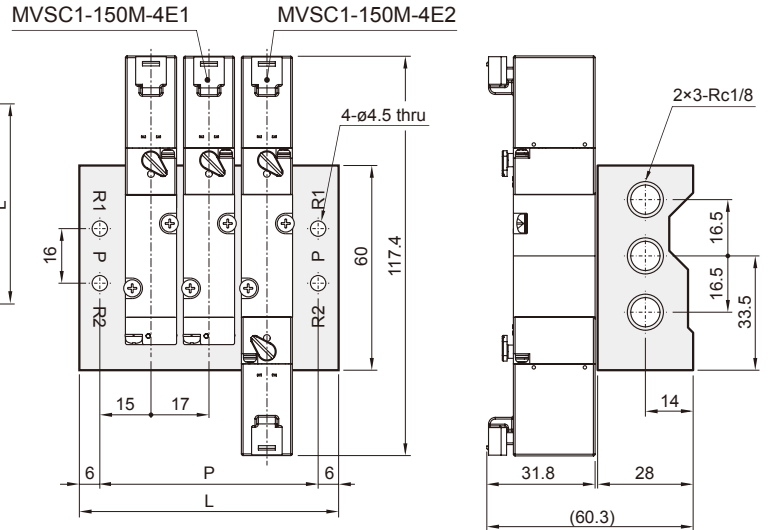
MVSC1-150-5B*

5 port (for body ported type)

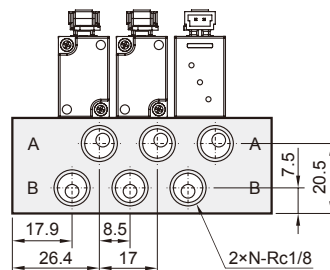


MVSC1-150M-5M*

5 port (for manifold type)



No. of stations	P	L
2	47	59
3	64	76
4	81	93
5	98	110
6	115	127
7	132	144
8	149	161
9	166	178
10	183	195



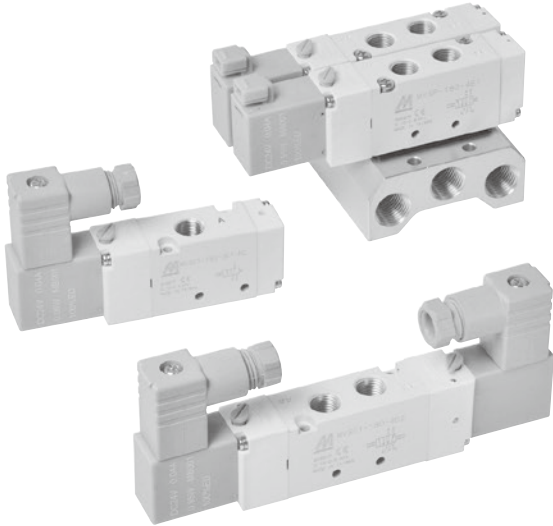
No. of stations (N)	P	L
2	47	59
3	64	76
4	81	93
5	98	110
6	115	127
7	132	144
8	149	161
9	166	178
10	183	195

MVSC1-180 series

SOLENOID VALVE



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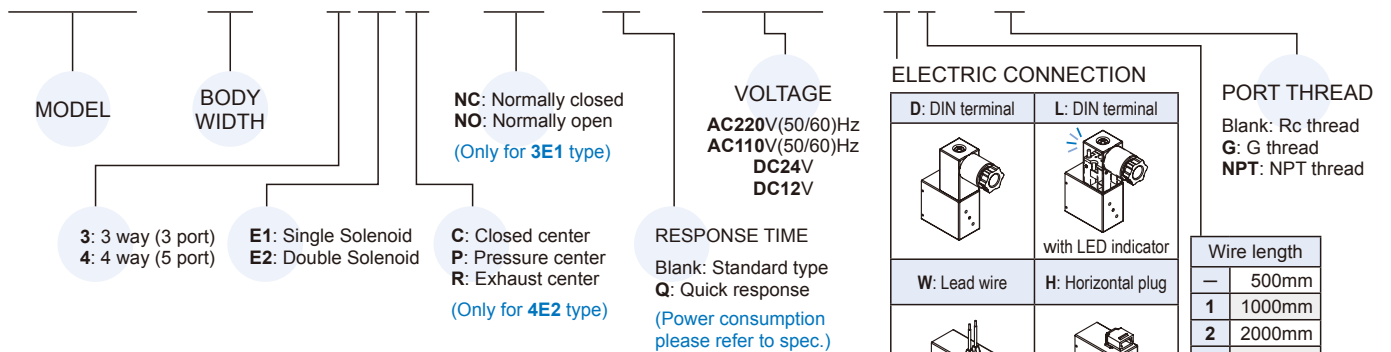
Specification

Model		3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.		6A				
Port size		Rc1/8				
No. of port / position		3 / 2		5 / 2		5 / 3
Medium		Air				
Operating perssure range		0.15~0.8 MPa			0.2~0.7 MPa	
Proof pressure		1 MPa				
Effective orifice		15 mm ²		12 mm ²		9 mm ²
Response time	Standard	DC<25 ms, AC<35 ms			DC<30ms, AC<45ms	
	Quick response*	DC<20 ms, AC<31 ms			DC<25ms, AC<41ms	
Power consumption	Standard	AC=1.12VA, DC=0.95W				
	Quick response*	AC=2.5VA, DC=2.5W				
Ambient temperature		-5~+50°C (No freezing)				
Voltage		AC110V, 220V (50/60)Hz, DC24/12V				
Available voltage range		±10%				
Insulation class		F class				
Weight		90 g	125 g	94 g	129 g	143 g

* For quick response type, it cannot be energized for more than 30 minutes.

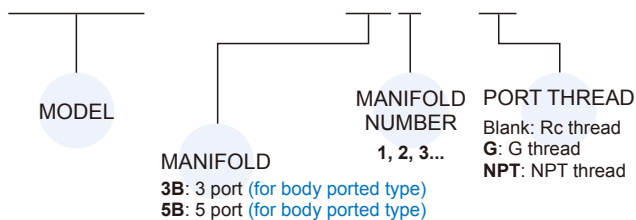
Order example of valve

MVSC1 - 180 - 4E2C - NC - □ - AC110 - H1 - G



Order example of manifold

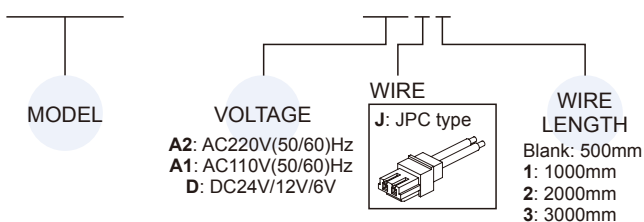
MVSC1 - 180 - 3B3 - G



Order example of wire

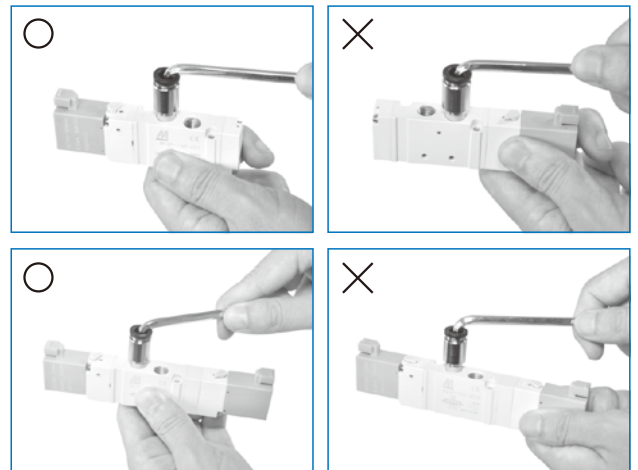
* Use the same wire with MVDY.
* Only for "H: Horizontal plug".

MVDY - 100 - WA2J2



Caution

Prohibit apply force to coil when tighten the tube fitting.

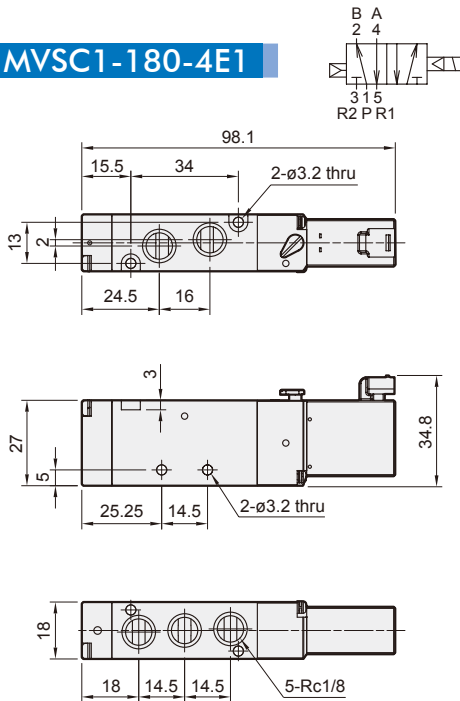


MVSC1-180 Dimensions

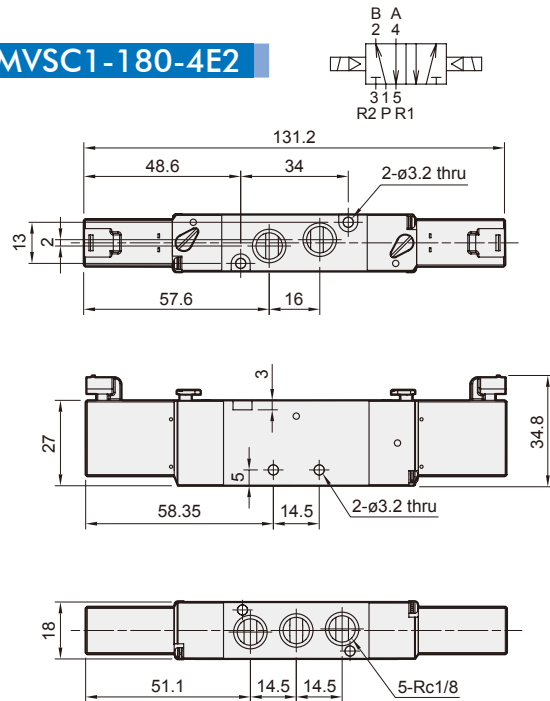
SOLENOID VALVE



MVSC1-180-4E1

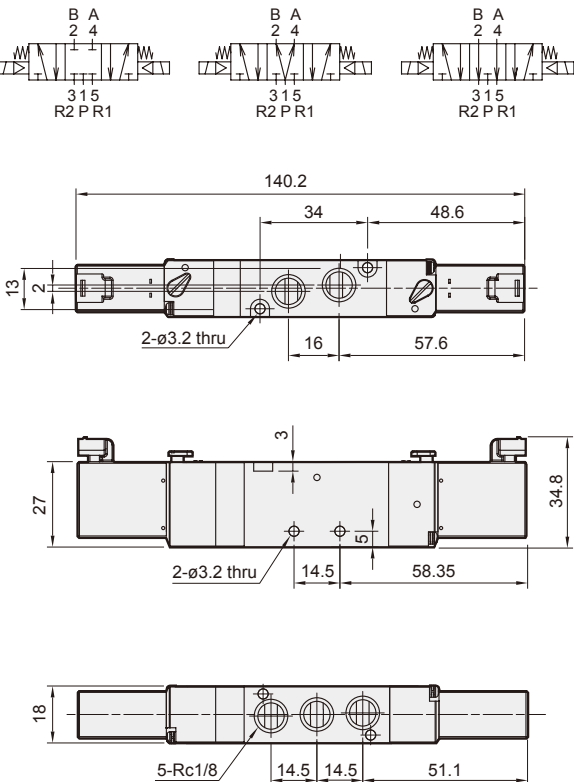


MVSC1-180-4E2

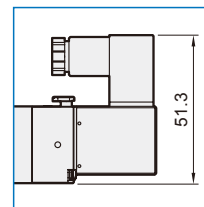


MVSC1-180-4E2C.P.R

MVSC1-180-4E2C MVSC1-180-4E2P MVSC1-180-4E2R

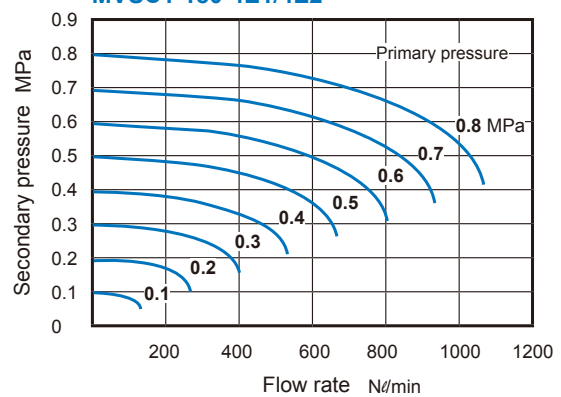


DIN terminal / DIN terminal with LED indicator



Flow features

MVSC1-180-4E1/4E2

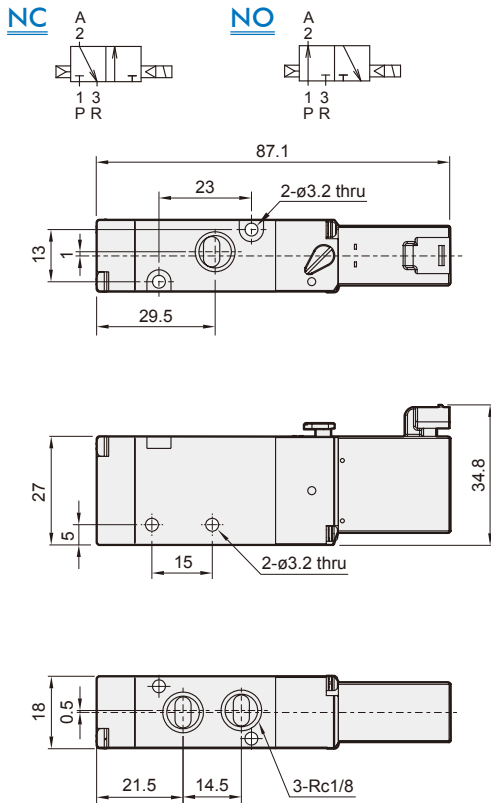


MVSC1-180 Dimensions

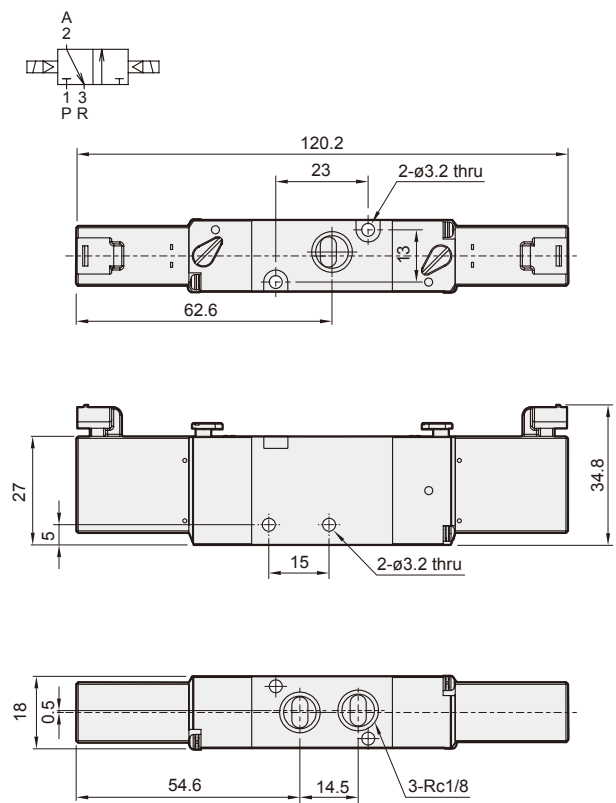
SOLENOID VALVE



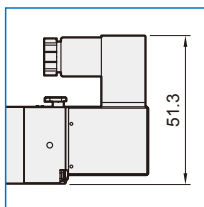
MVSC1-180-3E1-NC/NO



MVSC1-180-3E2



DIN terminal /
DIN terminal with LED indicator



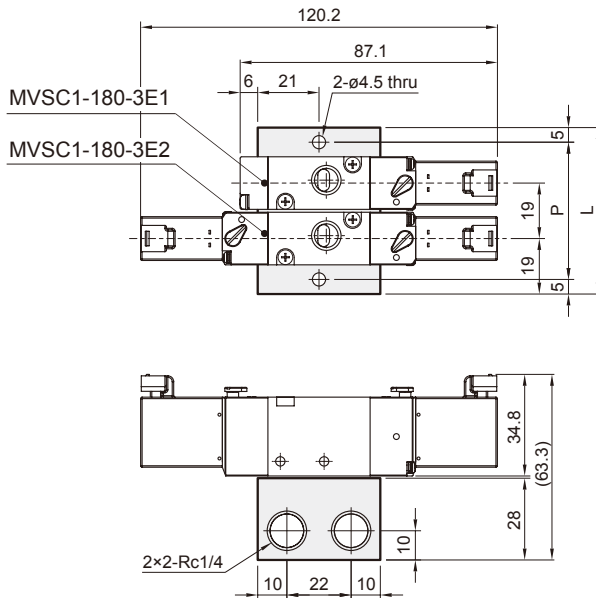
MVSC1-180 Manifold

SOLENOID VALVE



MVSC1-180-3B*

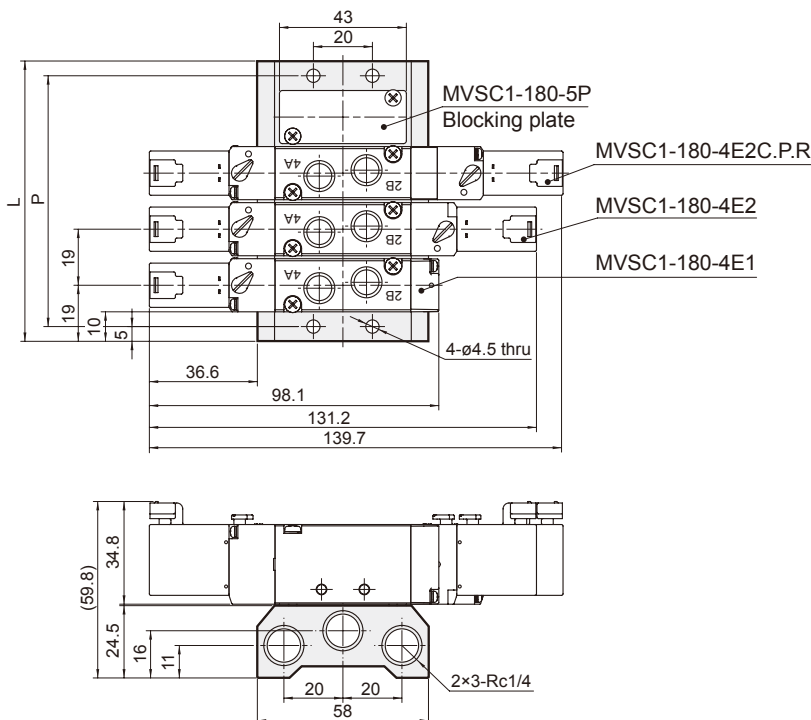
3 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

MVSC1-180-5B*

5 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

MVSC1-220 series

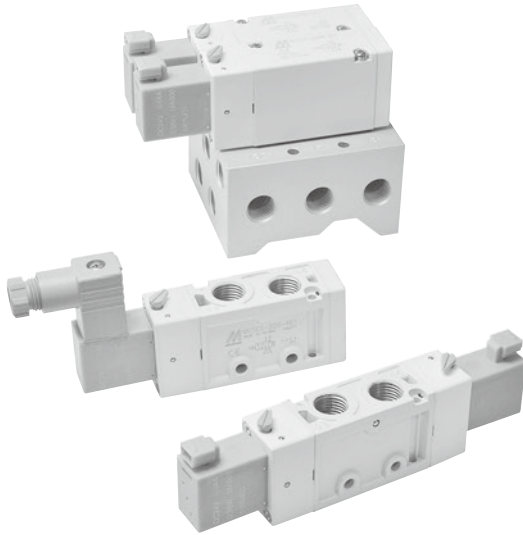
SOLENOID VALVE



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Specification

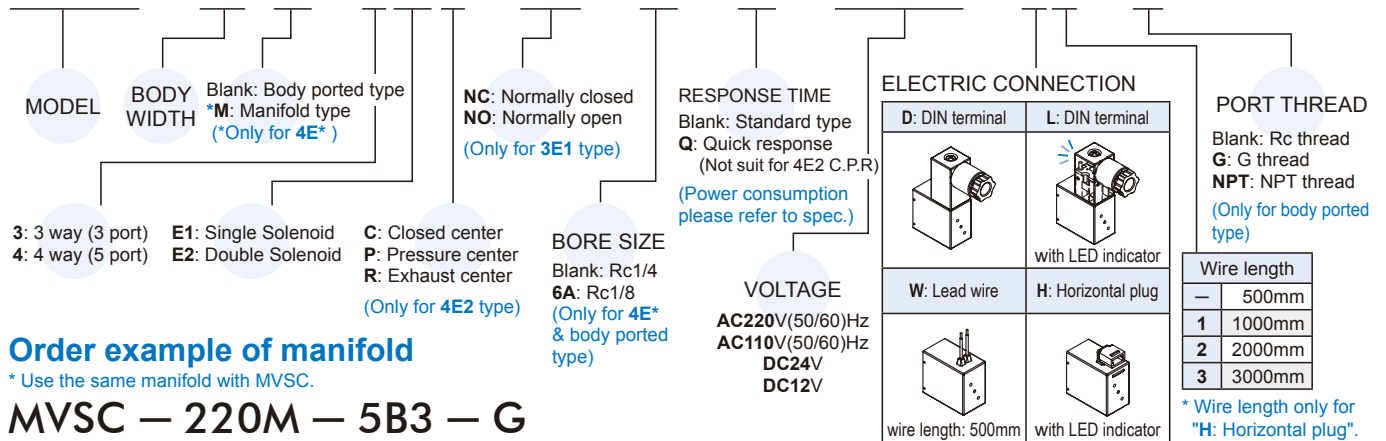
Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	8A		6A, 8A		
Port size	Rc1/4		Rc1/8, Rc1/4		
No. of port / position	3 / 2		5 / 2		5 / 3
Medium	Air				
Operating pressure range	0.2~0.8 MPa			0.3~0.8 MPa	
Proof pressure	1 MPa				
Effective orifice	18 mm ²			16 mm ²	
Response time	Standard	DC < 30ms, AC < 40ms			DC<40ms, AC<50ms
	Quick response*	DC < 26ms, AC < 37ms			—
Power consumption	Standard	AC=1.12VA, DC=0.95W			
	Quick response*	AC=2.5VA, DC=2.5W			
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V (50/60)Hz, DC24/12V				
Available voltage range	±10%				
Insulation class	F class				
Weight	86 g	130 g	108 g	152 g	198 g



* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

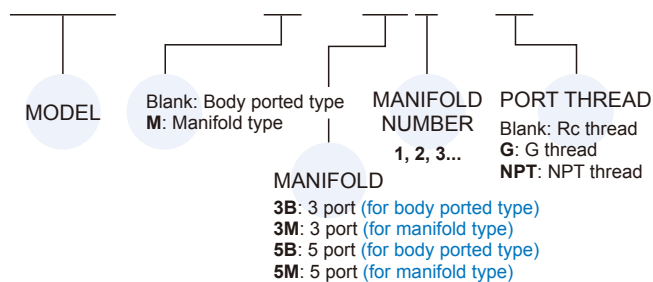
MVSC1 – 220M – 4E2C – NC – □ – □ – AC110 – H1 – G



Order example of manifold

* Use the same manifold with MVSC.

MVSC – 220M – 5B3 – G

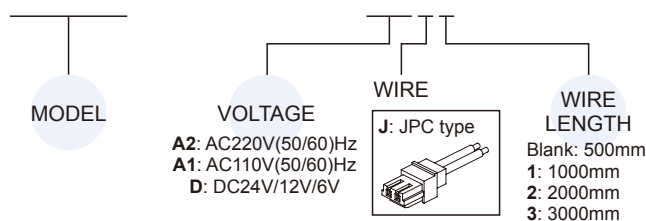


Order example of wire

* Use the same wire with MVDY.

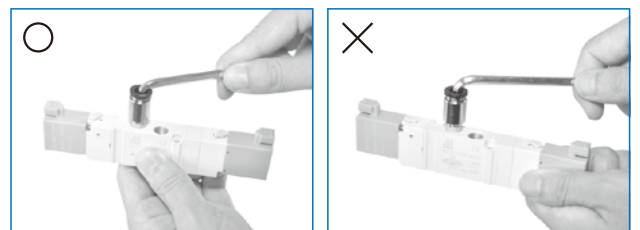
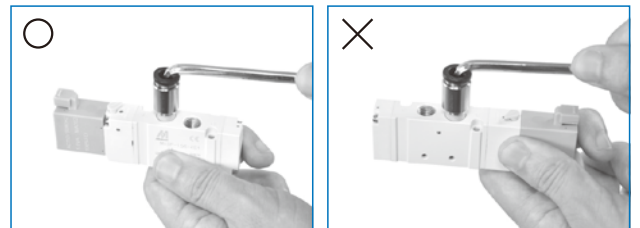
* Only for "H: Horizontal plug".

MVDY – 100 – WA2J2



Caution

Prohibit apply force to coil when tighten the tube fitting.

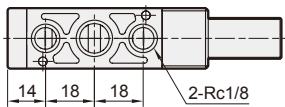
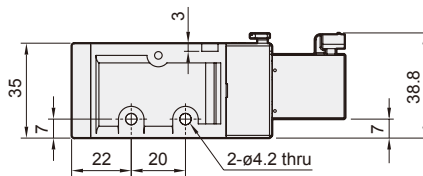
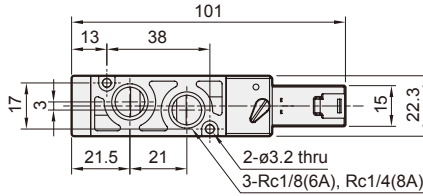
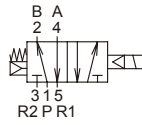


MVSC1-220 Dimensions

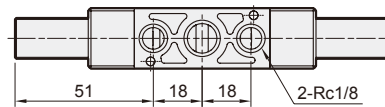
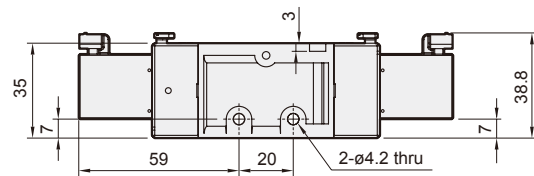
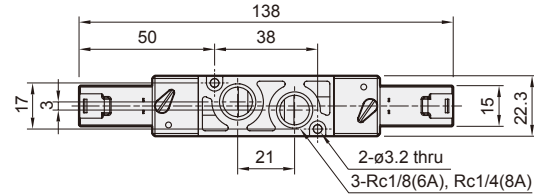
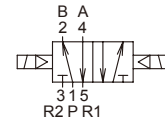
SOLENOID VALVE



MVSC1-220-4E1

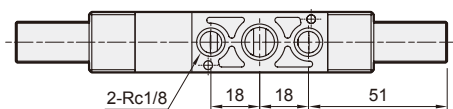
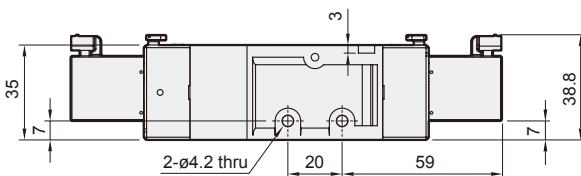
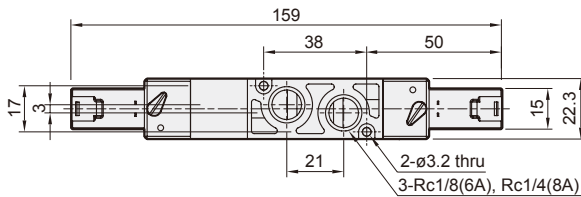
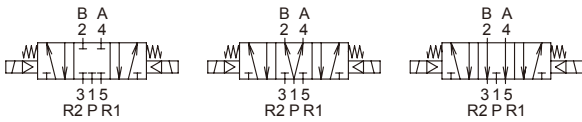


MVSC1-220-4E2

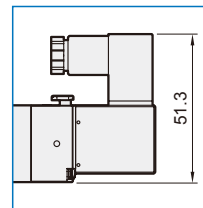


MVSC1-220-4E2C.PR

MVSC1-220-4E2C MVSC1-220-4E2P MVSC1-220-4E2R

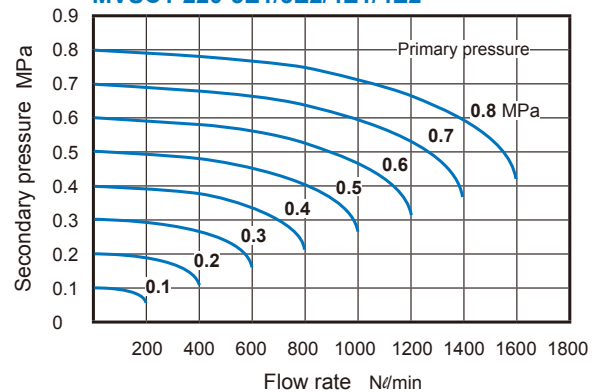


DIN terminal / DIN terminal with LED indicator



Flow features

MVSC1-220-3E1/3E2/4E1/4E2

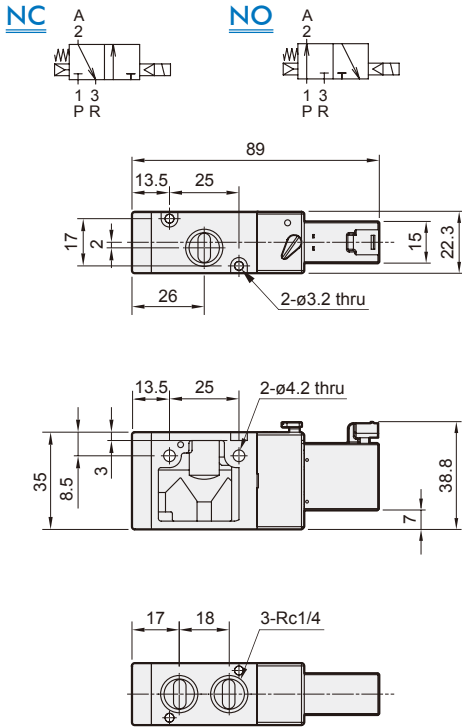


MVSC1-220 Dimensions

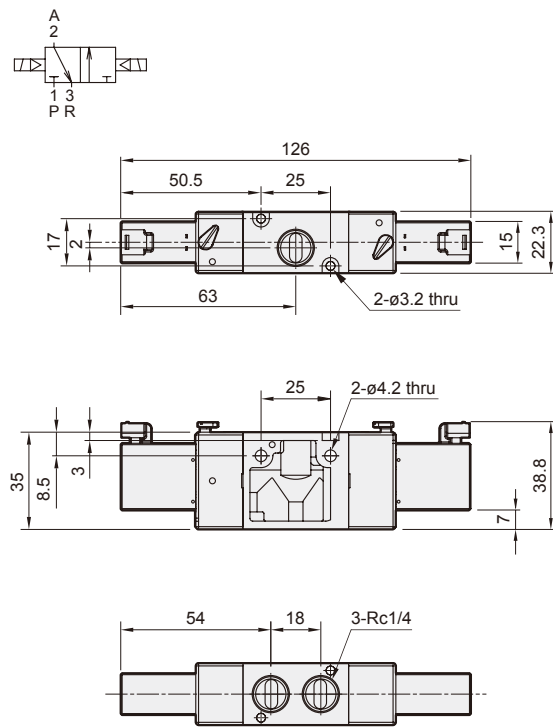
SOLENOID VALVE



MVSC1-220-3E1-NC/NO



MVSC1-220-3E2



MVSC1-220 Manifold

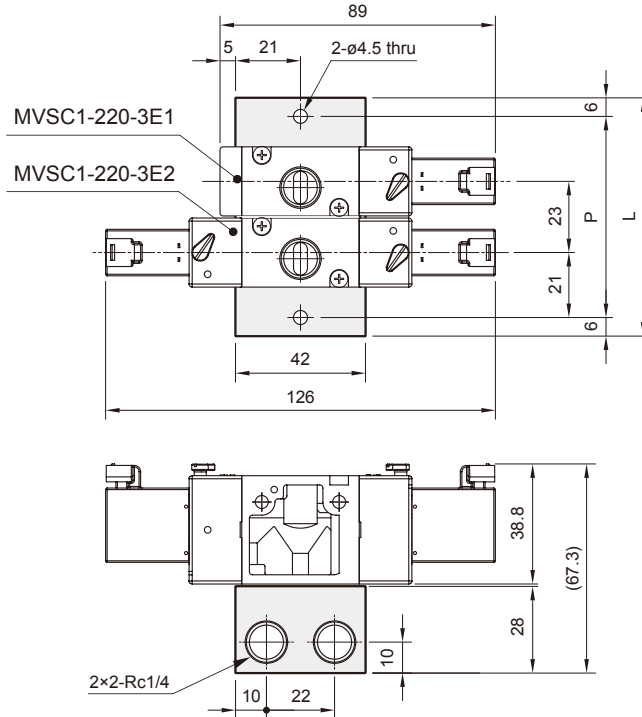
SOLENOID VALVE



MVSC-220-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)

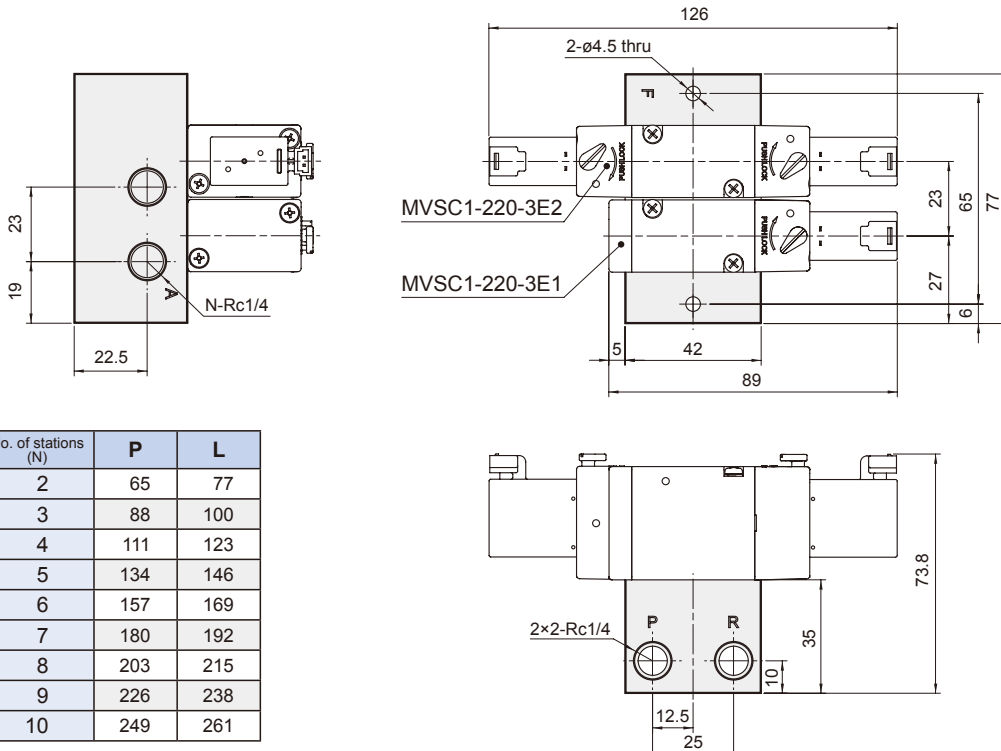


No. of stations	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC-220M-3M*

* Use the same manifold with MVSC.

3 port (for manifold type)



No. of stations (N)	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC1-220 Manifold

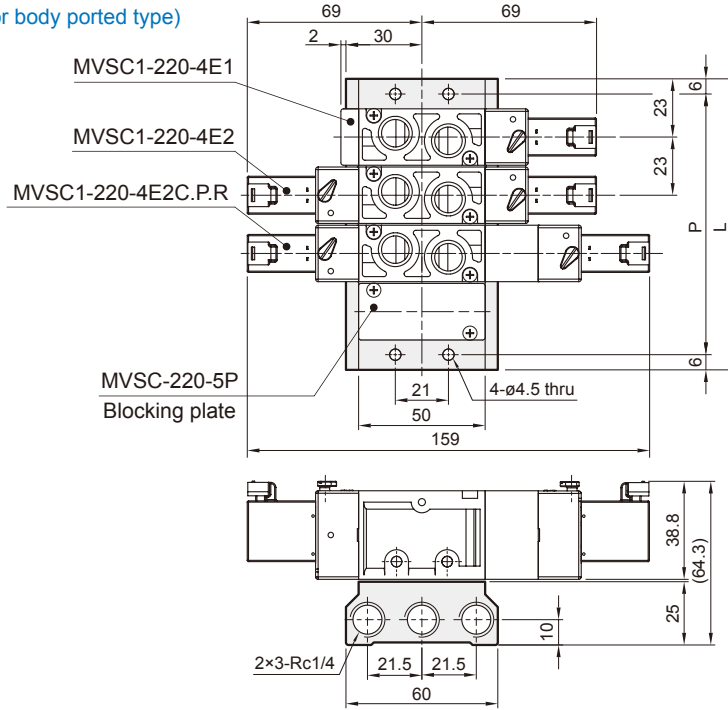
SOLENOID VALVE



MVSC-220-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)

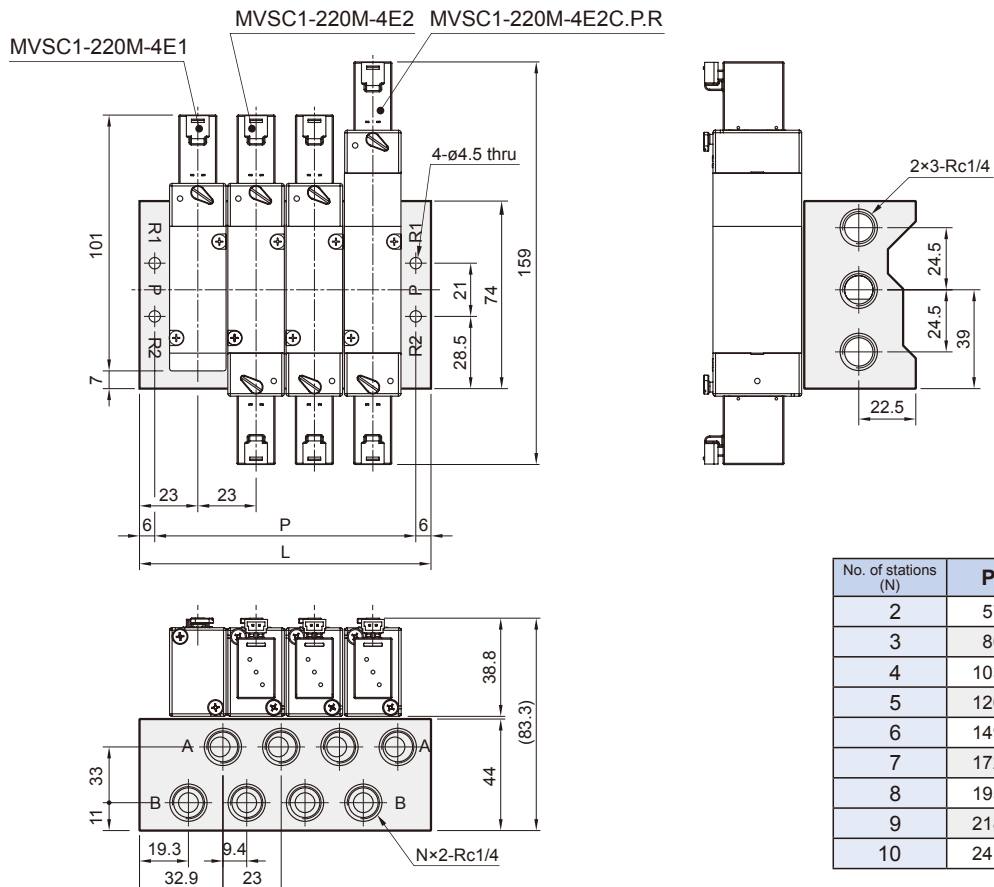


No. of stations	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

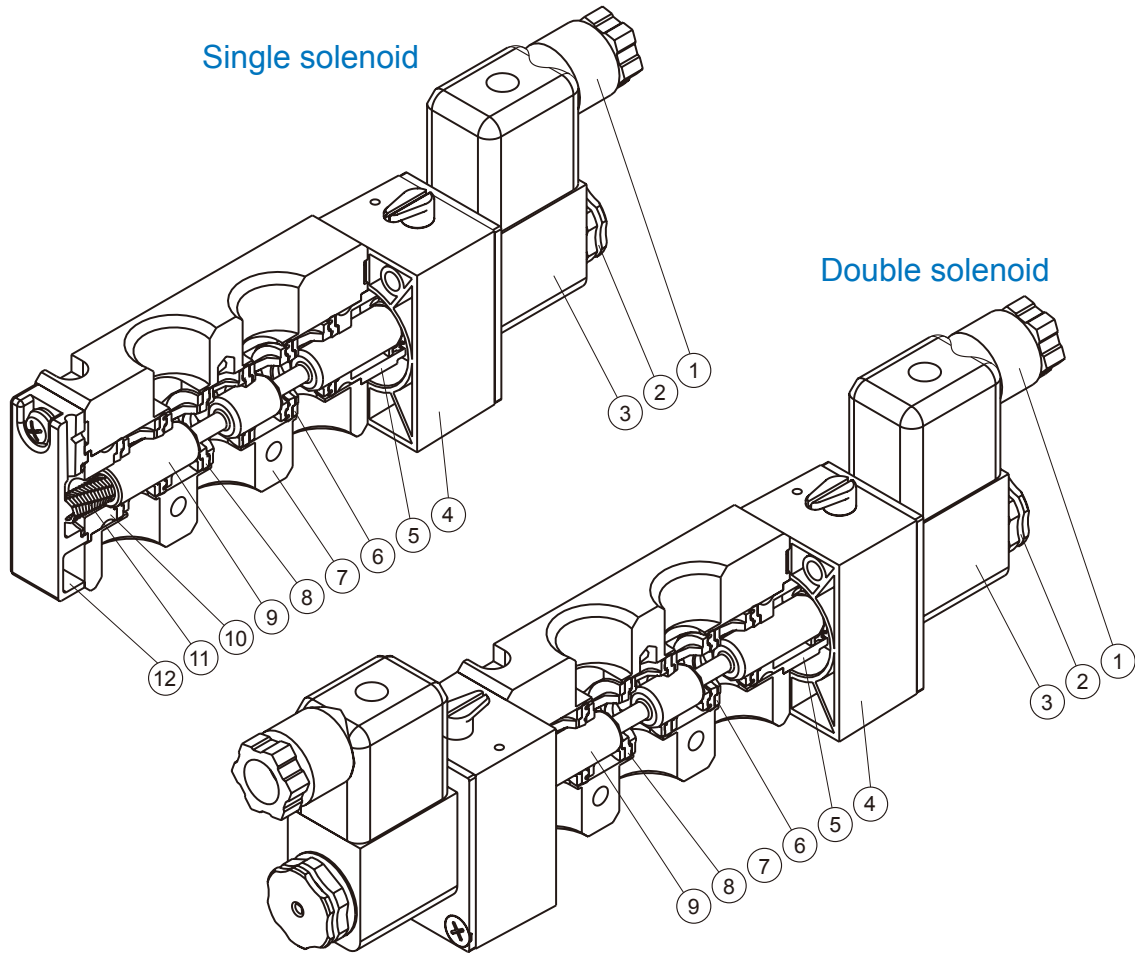
MVSC-220M-5M*

* Use the same manifold with MVSC.

5 port (for manifold type)



No. of stations (N)	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253



Material

No.	Part name	Material
1	Terminal assy.	-
2	Coil nut	POM
3	Coil assy.	-
4	Pilot body	POM
5	Piston guide seat	Brass
6	Packing seat	Plastic
7	Body	Aluminum alloy
8	Spool valve packing	NBR
9	Spool valve	Aluminum alloy
10	Location ring	Brass
11	Spool valve spring	Stainless steel
12	End cover	Zinc

Features

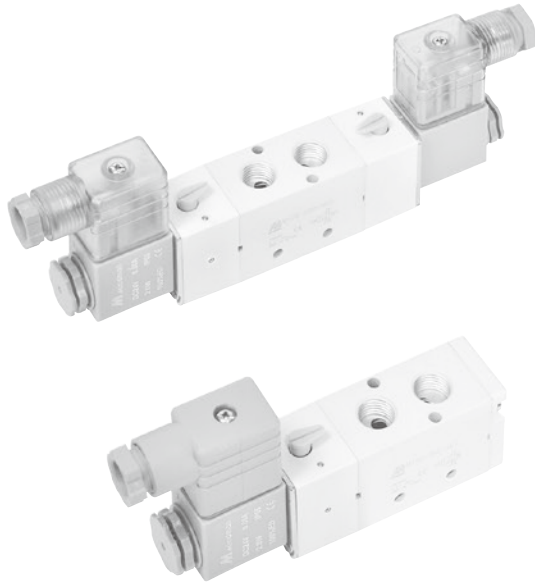
- Max. operating pressure 1.2 MPa.

MVSE-260 series

SOLENOID VALVE



Mindman



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.2~1.2 MPa	0.3~1.2 MPa	
Proof pressure	1.5 MPa		
Effective orifice	18 mm ²	16 mm ²	
Reponse time	40 ms	35 ms	
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	255 g	350 g	405 g

Order example of valve

MVSE — 260 — 4E2C — AC110 — L — G

MODEL

BODY WIDTH

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

ELECTRIC CONNECTION

Blank: DIN terminal
L: DIN terminal with LED indicator
E: Explosion protection (Table 1)
(E type use black coil)

PORT THREAD

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

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

C: Closed center
P: Pressure center
R: Exhaust center
(Only for 4E2 type)

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of manifold

MVSE — 260 — 5B3 — G

MODEL

MANIFOLD

5B: 5 port (for body ported type)

MANIFOLD NUMBER

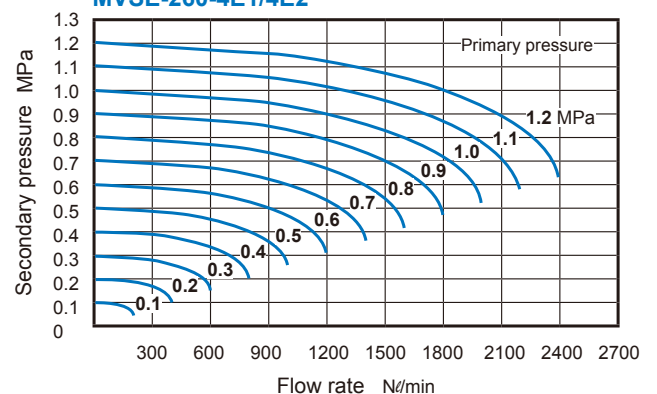
1, 2, 3...

PORT THREAD

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

Flow features

MVSE-260-4E1/4E2

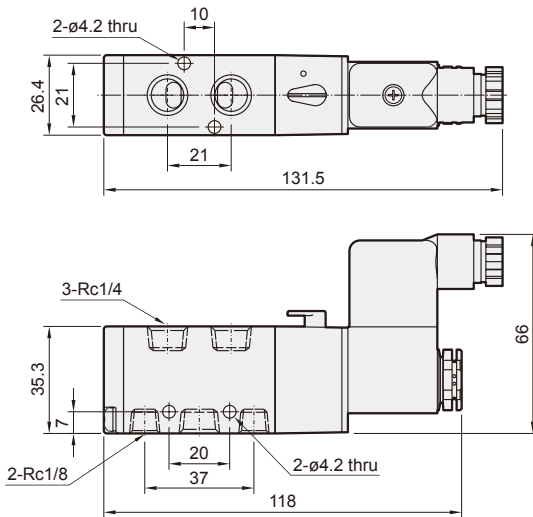
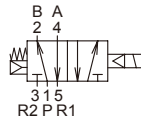


MVSE-260 Dimensions

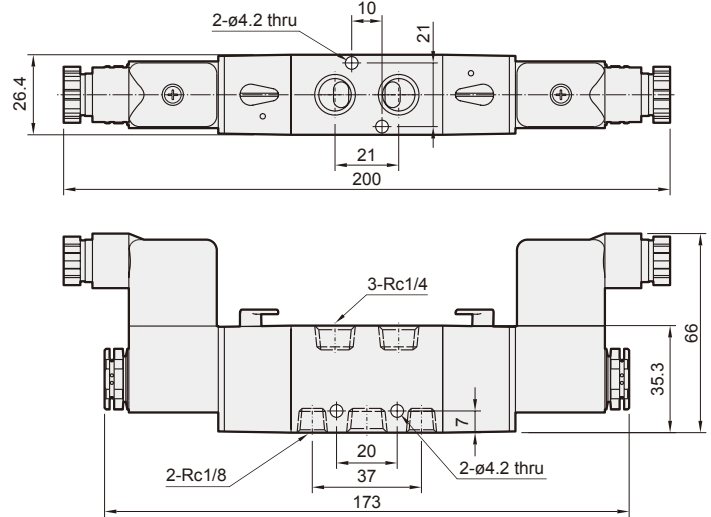
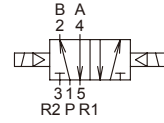
SOLENOID VALVE



MVSE-260-4E1



MVSE-260-4E2

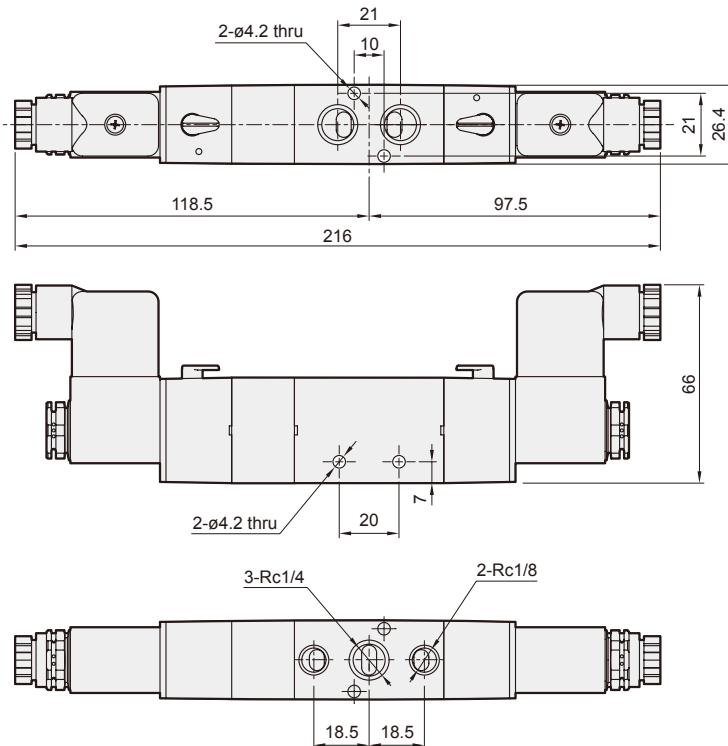
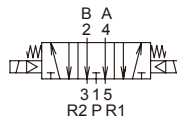
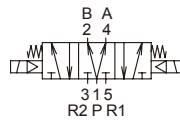
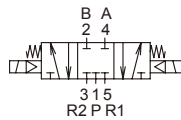


MVSE-260-4E2C.PR

MVSE-260-4E2C

MVSE-260-4E2P

MVSE-260-4E2R



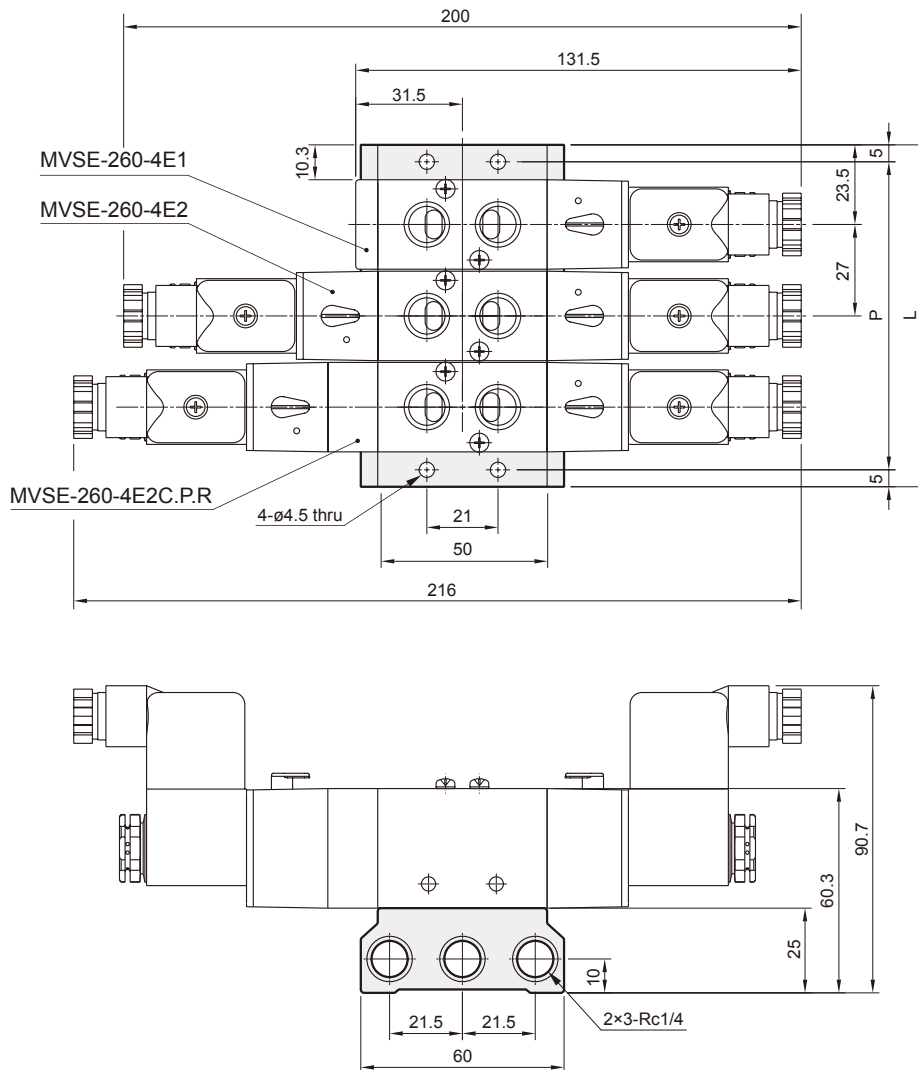
MVSE-260 Manifold

SOLENOID VALVE



MVSE-260-5B*

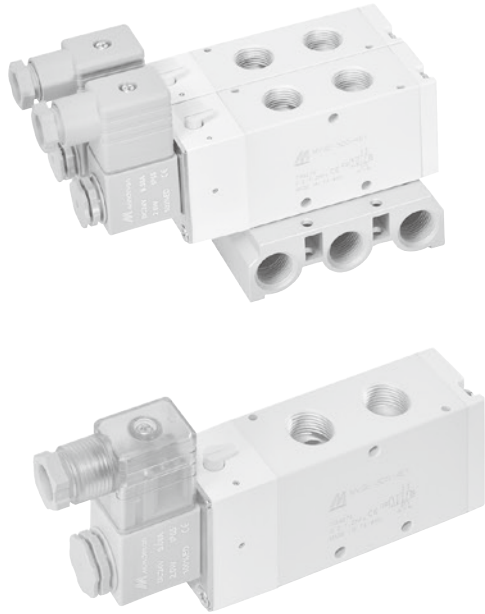
5 port (for body ported type)



No. of stations	P	L
2	64	74
3	91	101
4	118	128
5	145	155
6	172	182
7	199	209
8	226	236
9	253	263
10	280	290

MVSE-300 series

SOLENOID VALVE



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	10A		
Port size	Rc3/8		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.2~1.2 MPa	0.3~1.2 MPa	
Proof pressure	1.5 MPa		
Effective orifice	35 mm ²	34.5 mm ²	
Reponse time	50 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	406 g	508 g	577 g

Order example of valve

MVSE – 300 – 4E2C – AC110 – L – G

MODEL

BODY WIDTH

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

ELECTRIC CONNECTION

Blank: DIN terminal
L: DIN terminal with LED indicator
E: Explosion protection (Table 1)

PORT THREAD

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

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

C: Closed center
P: Pressure center
R: Exhaust center
(Only for 4E2 type)

(E type use black coil)

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V.(50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of manifold

MVSE – 300 – 5B3 – G

MODEL

MANIFOLD

5B: 5 port (for body ported type)

MANIFOLD NUMBER

1, 2, 3...

PORT THREAD

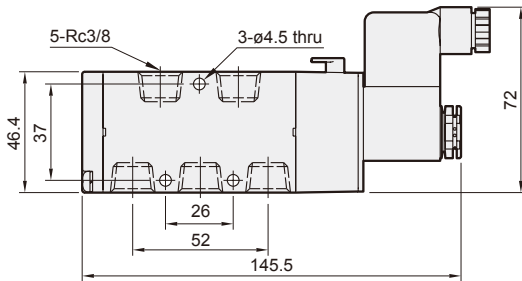
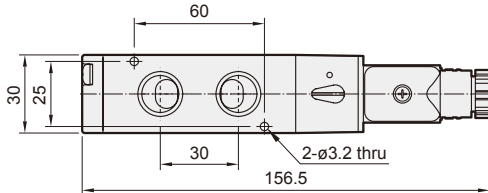
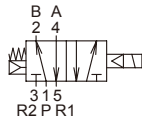
Blank: Rc thread
G: G thread
NPT: NPT thread

MVSE-300 Dimensions

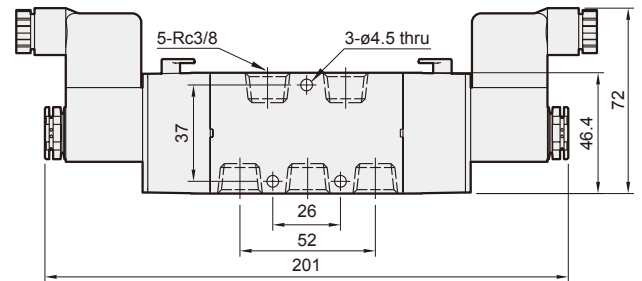
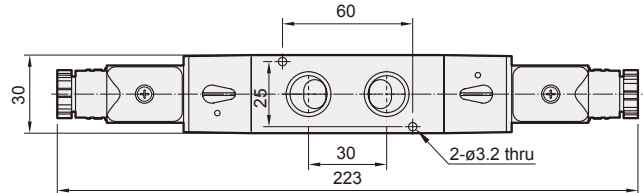
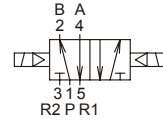
SOLENOID VALVE



MVSE-300-4E1



MVSE-300-4E2

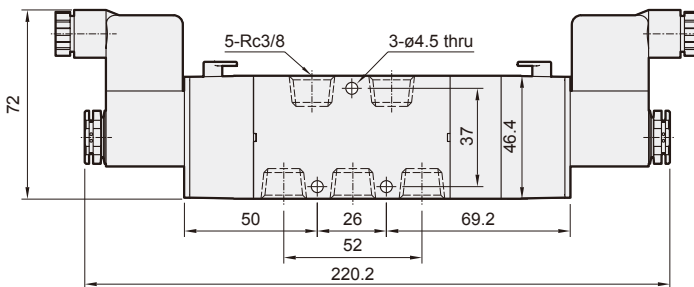
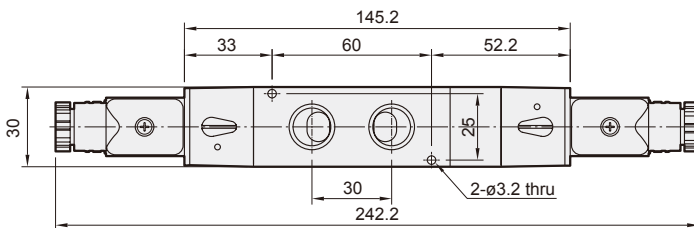
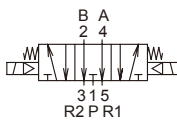
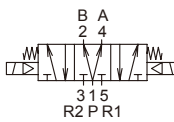
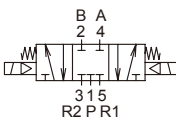


MVSE-300-4E2C.PR

MVSE-300-4E2C

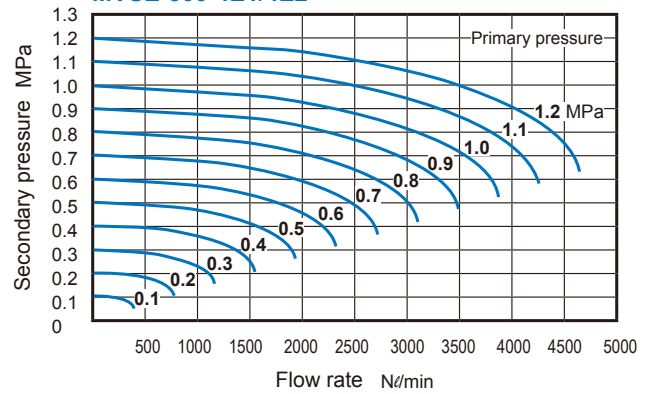
MVSE-300-4E2P

MVSE-300-4E2R



Flow features

MVSE-300-4E1/4E2



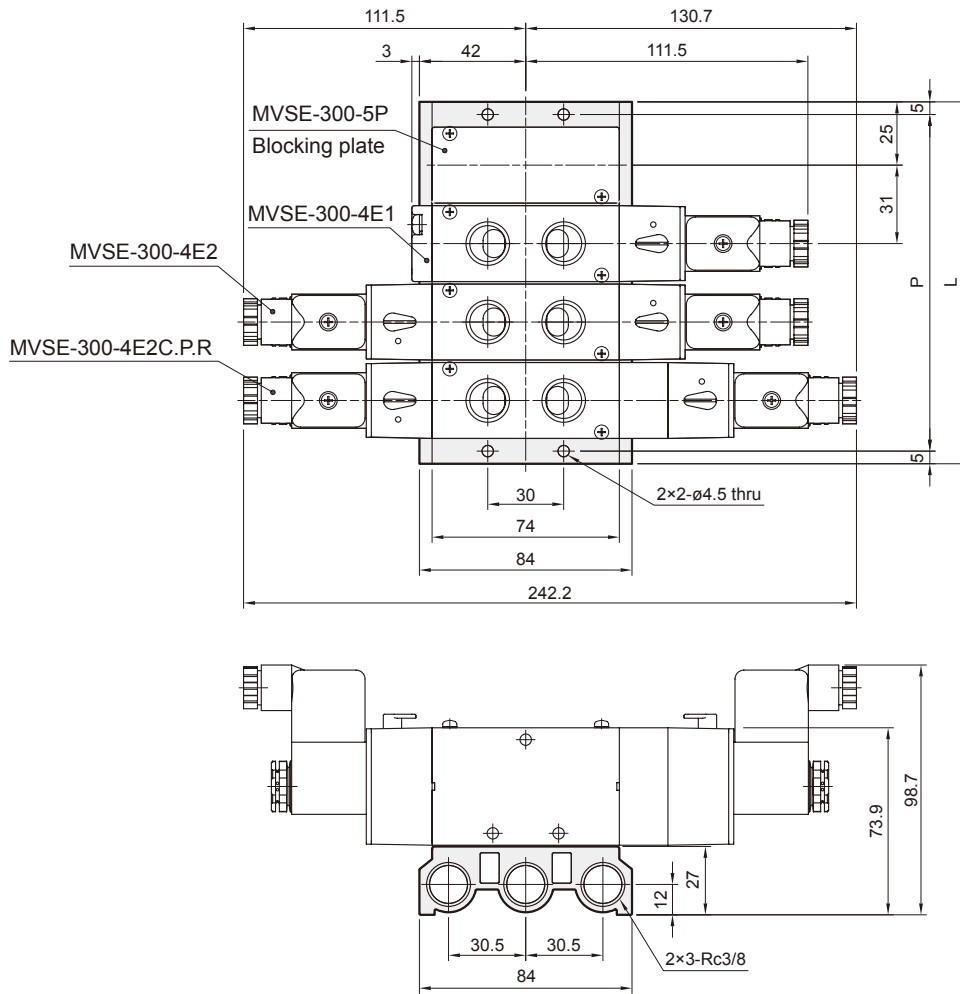
MVSE-300 Manifold

SOLENOID VALVE



MVSE-300-5B*

5 port (for body ported type)



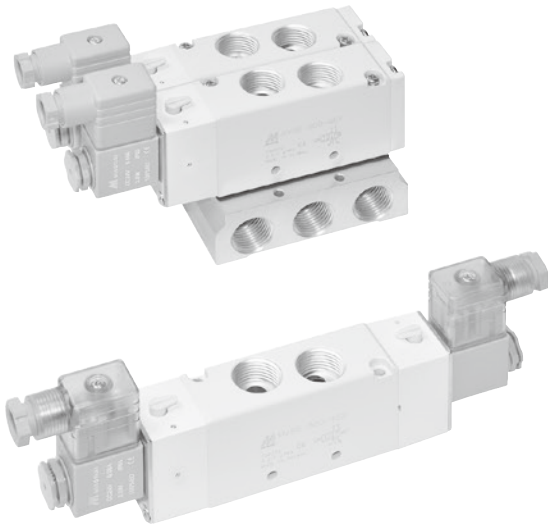
No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSE-500 series

SOLENOID VALVE



mindman



Specification

Model	4E1	4E2
Bore No.	15A	
Port size	Rc1/2	
No. of port	5	
No. of position	2	
Medium	Air	
Operating pressure range	0.2~1.2 MPa	
Proof pressure	1.5 MPa	
Effective orifice	41 mm ²	
Response time	50 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight	453 g	554 g

Order example of valve

MVSE — 500 — 4E2 — AC110 — L — G

MODEL

BODY WIDTH

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

ELECTRIC CONNECTION
Blank: DIN terminal
L: DIN terminal with LED indicator
E: Explosion protection (Table 1)

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

(E type use black coil)

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of manifold

MVSE — 500 — 5B3 — G

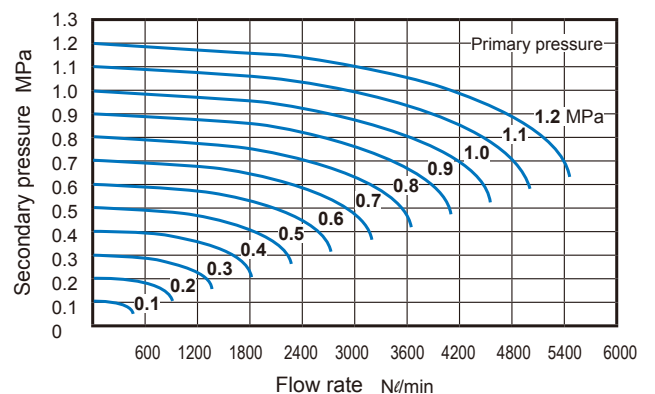
MODEL

MANIFOLD
5B: 5 port (for body ported type)

MANIFOLD NUMBER
1, 2, 3...

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Flow features

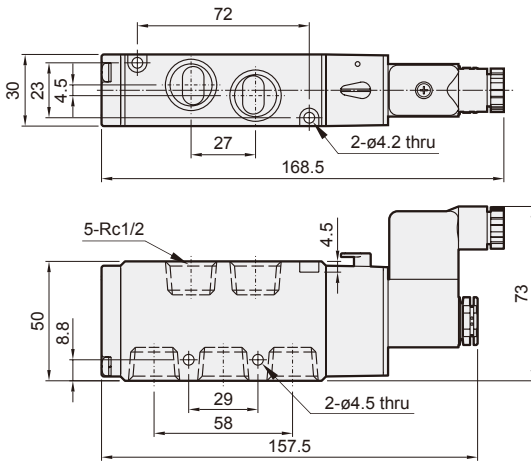
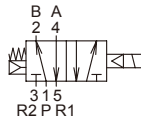


MVSE-500 Dimensions

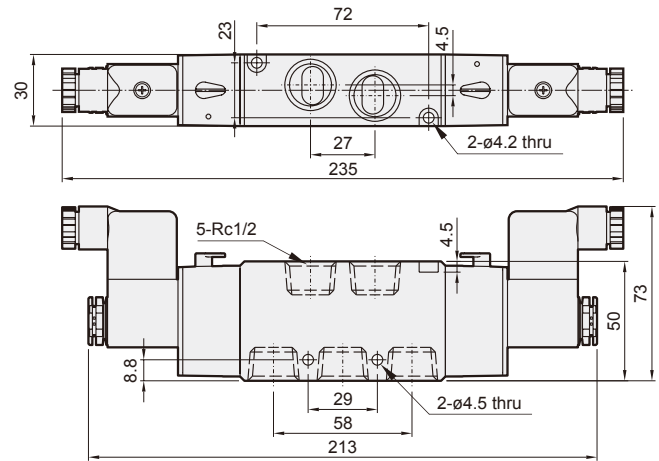
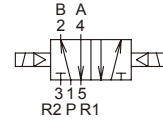
SOLENOID VALVE



MVSE-500-4E1



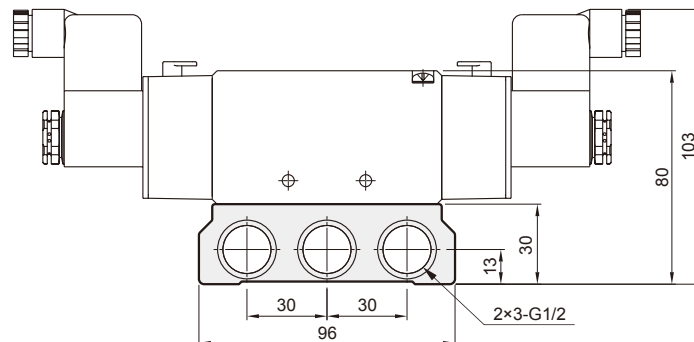
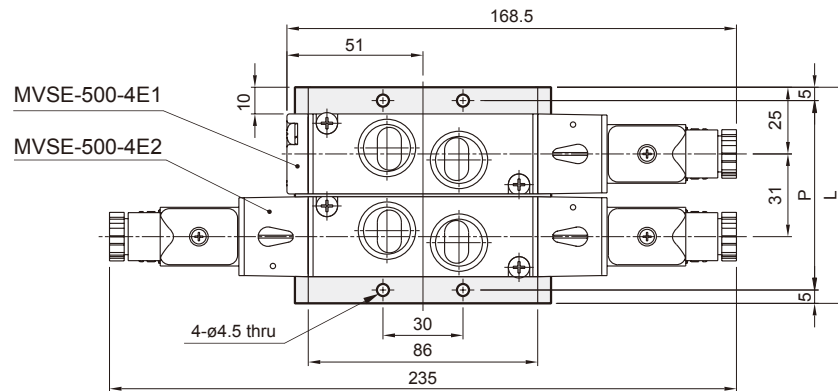
MVSE-500-4E2



Manifold of solenoid valve

MVSE-500-5B*

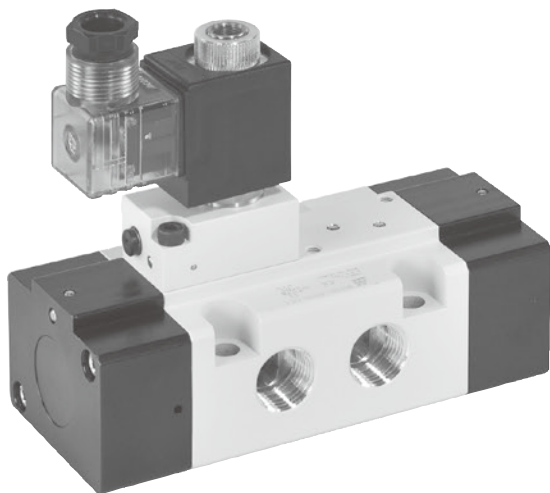
5 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSE-510 series

SOLENOID VALVE



Specification

Model	4E1	4E2
Bore No.	15A	
Port size	Rc1/2	
No. of port	5	
No. of position	2	
Medium	Air	
Operating pressure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	65 mm ²	
Response time	60 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=13/11VA, DC=10W	
Available voltage range	±10%	
Insulation class	H class	
Weight	1523 g	1808 g

Order example of valve

MVSE – 510 – 4E2 – AC110 – L – G

MODEL

BODY WIDTH

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

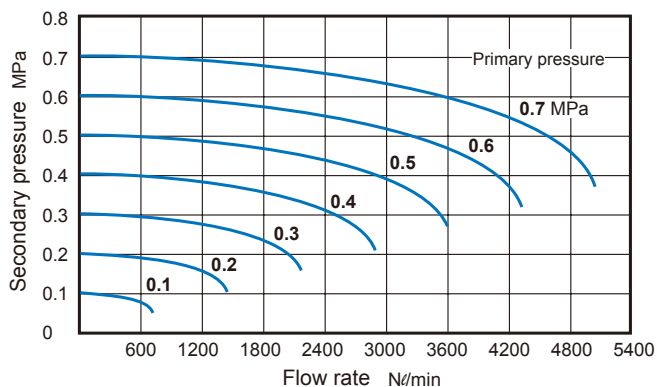
ELECTRIC CONNECTION

Blank: DIN terminal
L: DIN terminal with LED indicator

PORT THREAD

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

Flow features

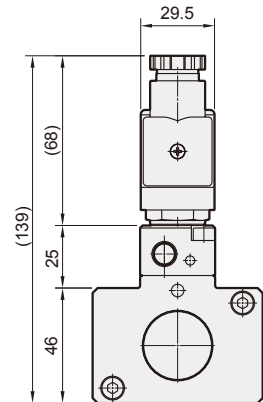
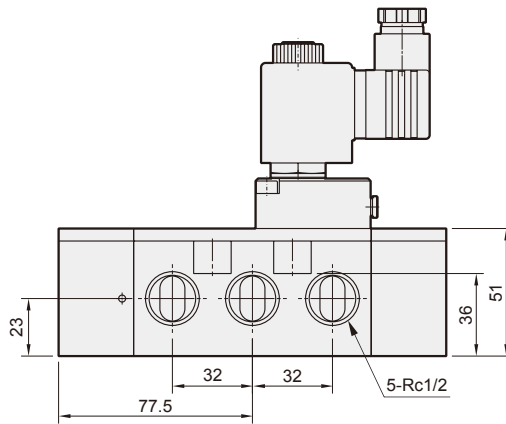
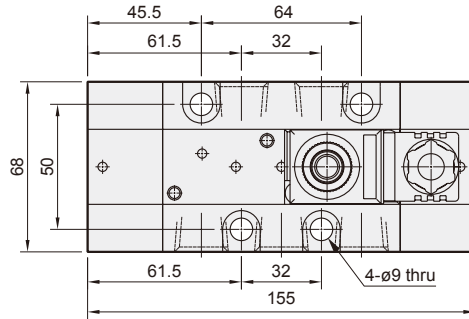
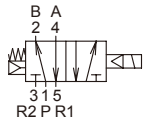


MVSE-510 Dimensions

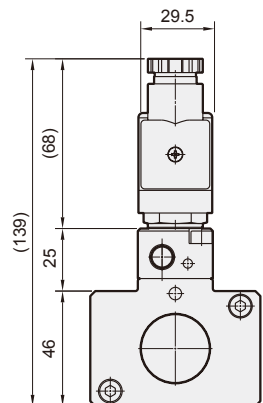
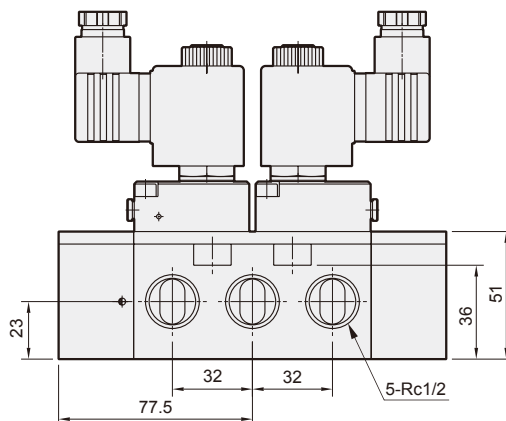
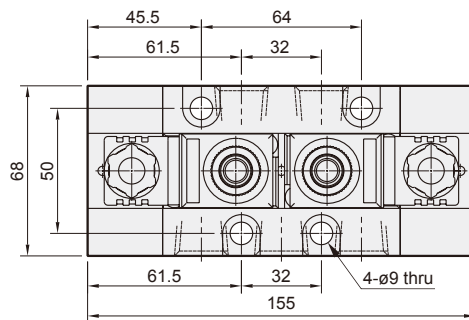
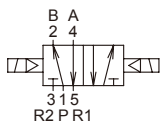
SOLENOID VALVE



MVSE-510-4E1

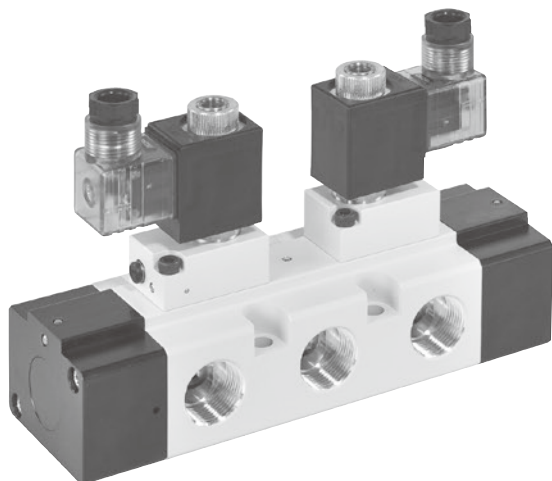


MVSE-510-4E2



MVSE-600 series

SOLENOID VALVE



Specification

Model	4E1	4E2
Bore No.	20A, 25A	
Port size	Rc3/4, Rc1	
No. of port	5	
No. of position	2	
Medium	Air	
Operating pressure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	20A: 96 mm ² , 25A: 100 mm ²	
Response time	80 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=13/11VA, DC=10W	
Available voltage range	±10%	
Insulation class	H class	
Weight	1817 g	2102 g

Order example of valve

MVSE – 600 – 4E2 – 25A – AC110 – L – G

MODEL

BODY WIDTH

4: 4 way (5 port)

BORE SIZE

20A: Rc3/4
25A: Rc1

E1: Single Solenoid
E2: Double Solenoid

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

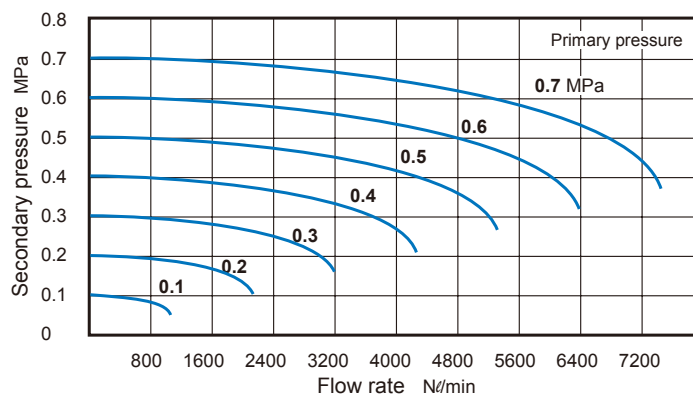
ELECTRIC CONNECTION

Blank: DIN terminal
L: DIN terminal with LED indicator

PORT THREAD

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

Flow features

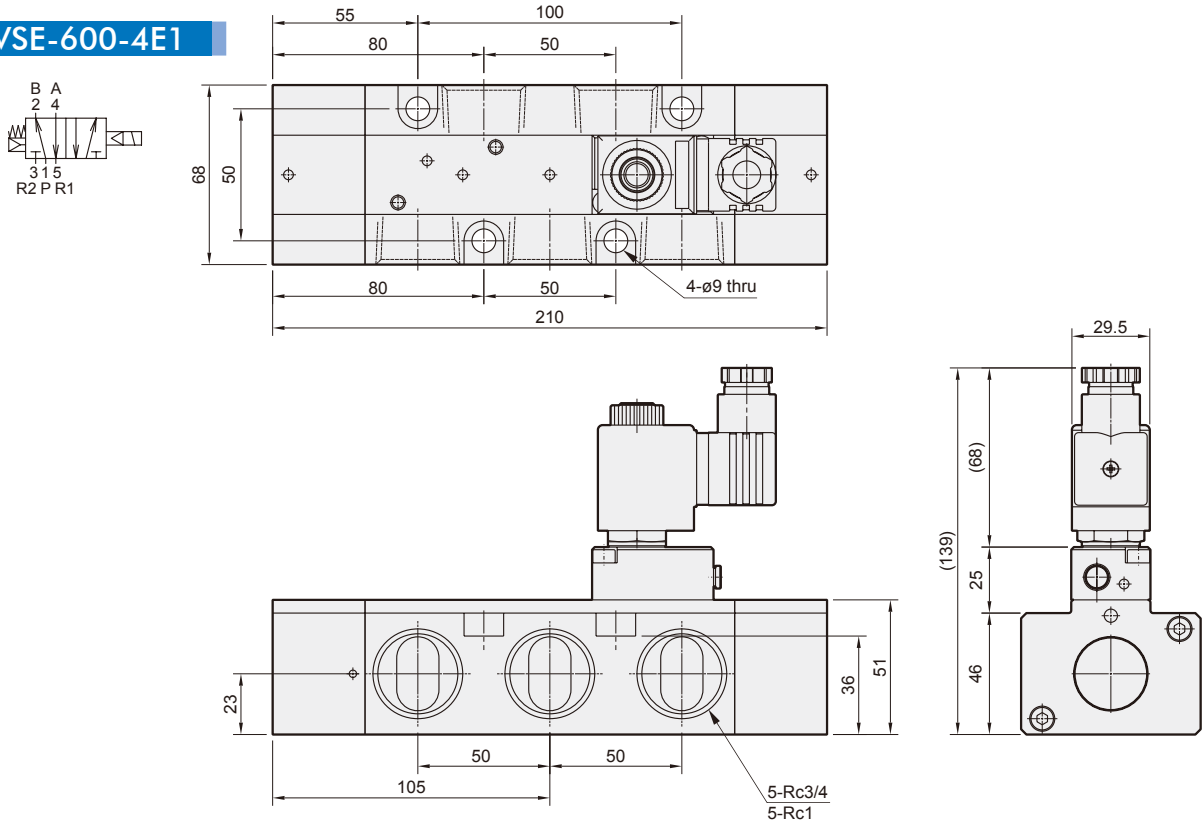


MVSE-600 Dimensions

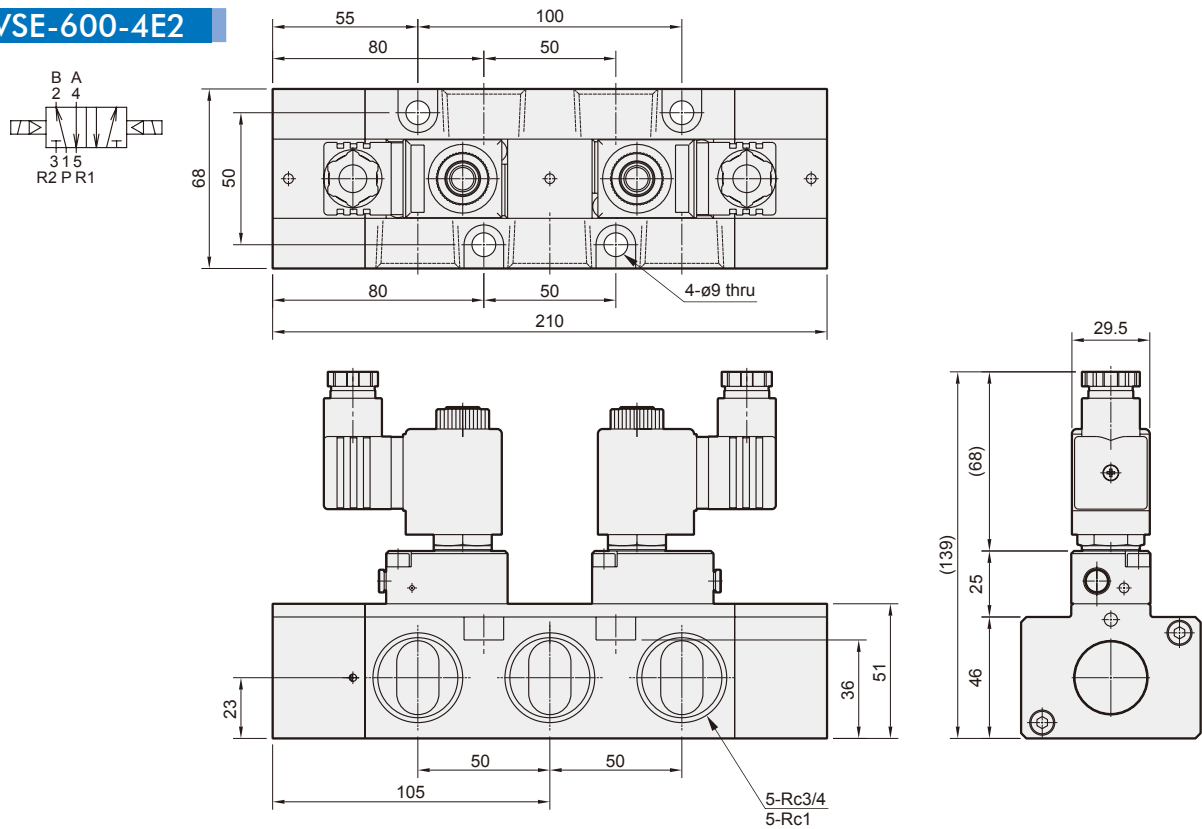
SOLENOID VALVE



MVSE-600-4E1



MVSE-600-4E2

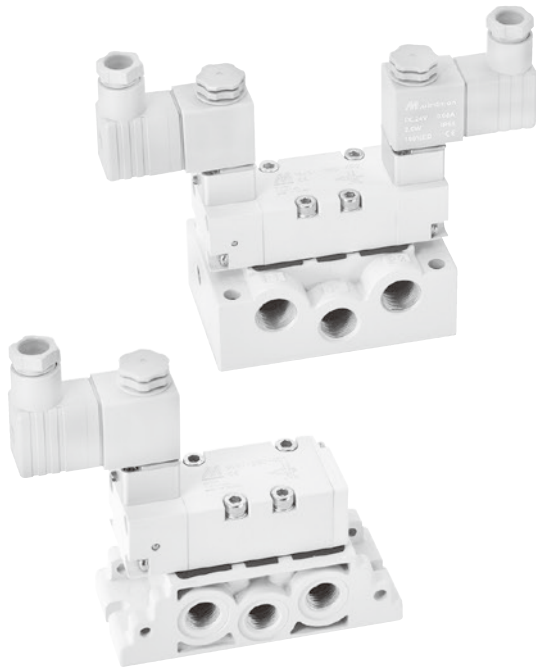


MVSI-260 series

ISO-1 SOLENOID VALVE



Mindman



Specification

Model	4E1	4E2	4E2 C.P.R
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~0.7 MPa		0.3~0.7 MPa
Proof pressure	1 MPa		
Effective orifice	22 mm ²		20 mm ²
Reponse time	40 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	312 g	422 g	572 g

Order example of valve

MVSI – 260 – 4E2C – AC110 – L

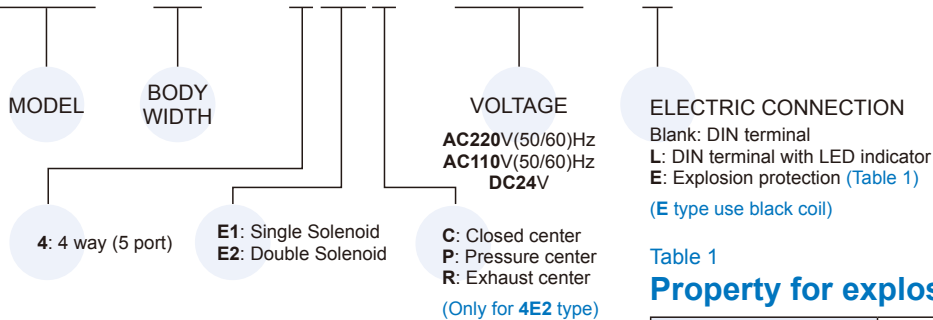


Table 1

Property for explosion-proof type

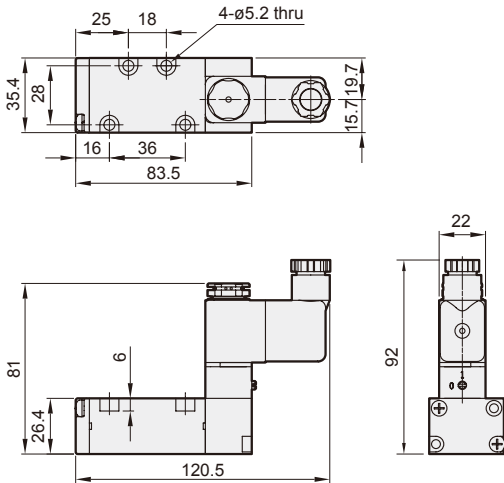
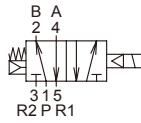
Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V,(50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

MVSI-260 Dimensions

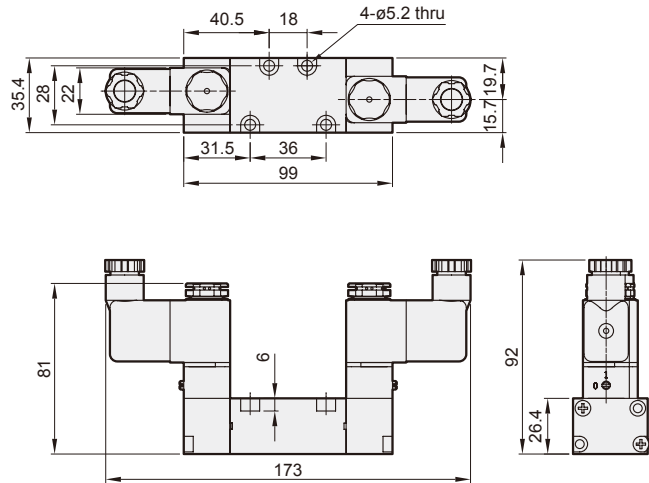
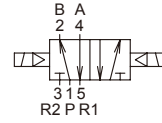
ISO-1 SOLENOID VALVE



MVSI-260-4E1

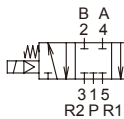


MVSI-260-4E2

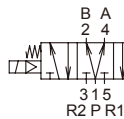


MVSI-260-4E2C.P.R

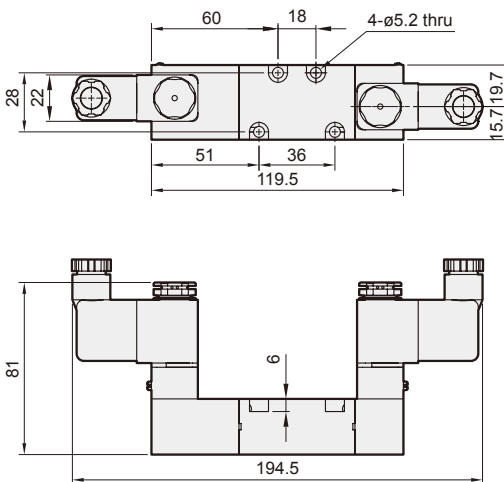
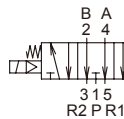
MVSI-260-4E2C



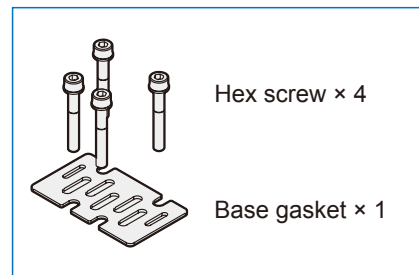
MVSI-260-4E2P



MVSI-260-4E2R

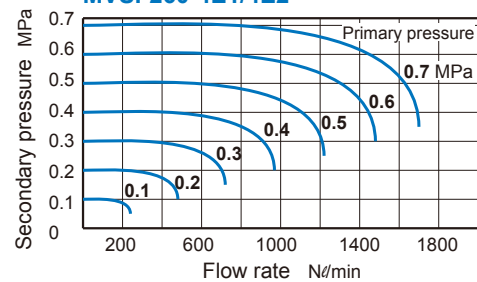


Accessories



Flow features

MVSI-260-4E1/4E2

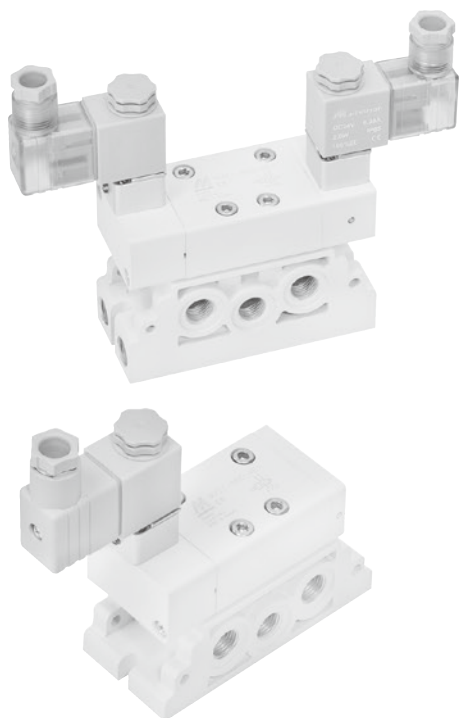


MVSI-450 series

ISO-1 SOLENOID VALVE



Mindman



Specification

Model	4E1	4E2
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	27 mm ²	
Reponse time	40 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight	380 g	540 g

Order example of valve

MVSI – 450 – 4E2 – AC110 – L

MODEL

BODY WIDTH

VOLTAGE

ELECTRIC CONNECTION

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: DIN terminal
L: DIN terminal with LED indicator
E: Explosion protection (Table 1)

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

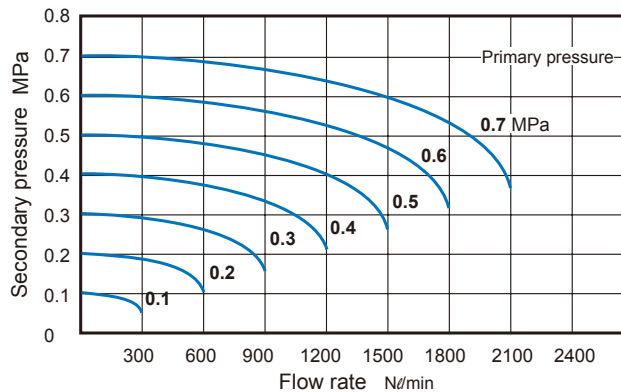
(E type use black coil)

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Flow features

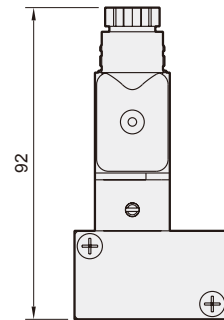
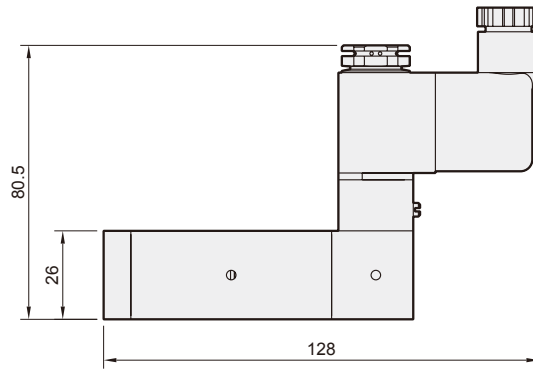
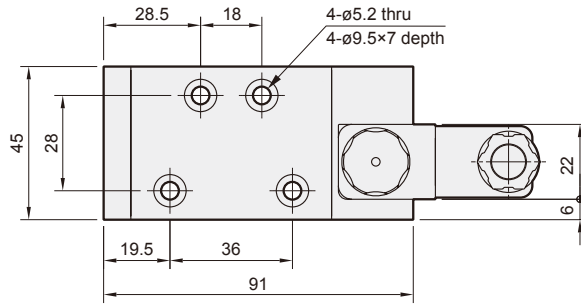
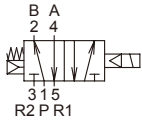


MVSI-450 Dimensions

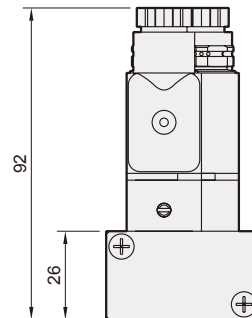
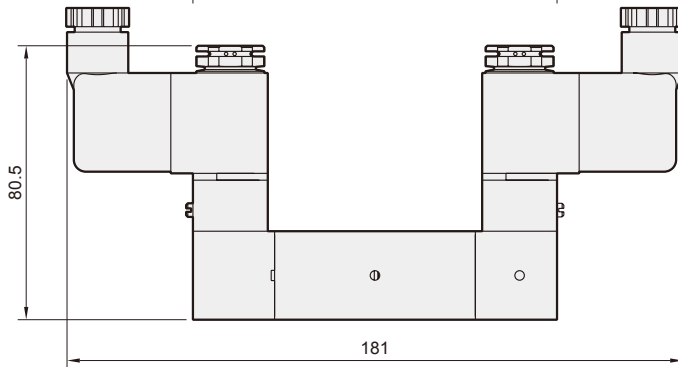
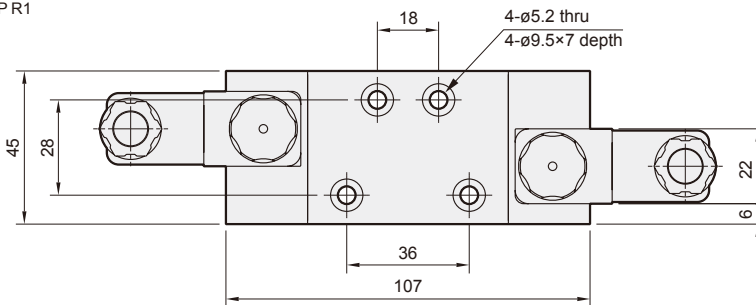
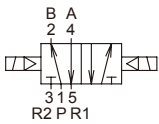
ISO-1 SOLENOID VALVE



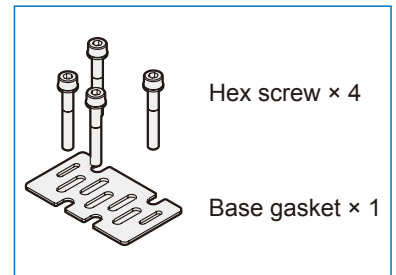
MVSI-450-4E1



MVSI-450-4E2

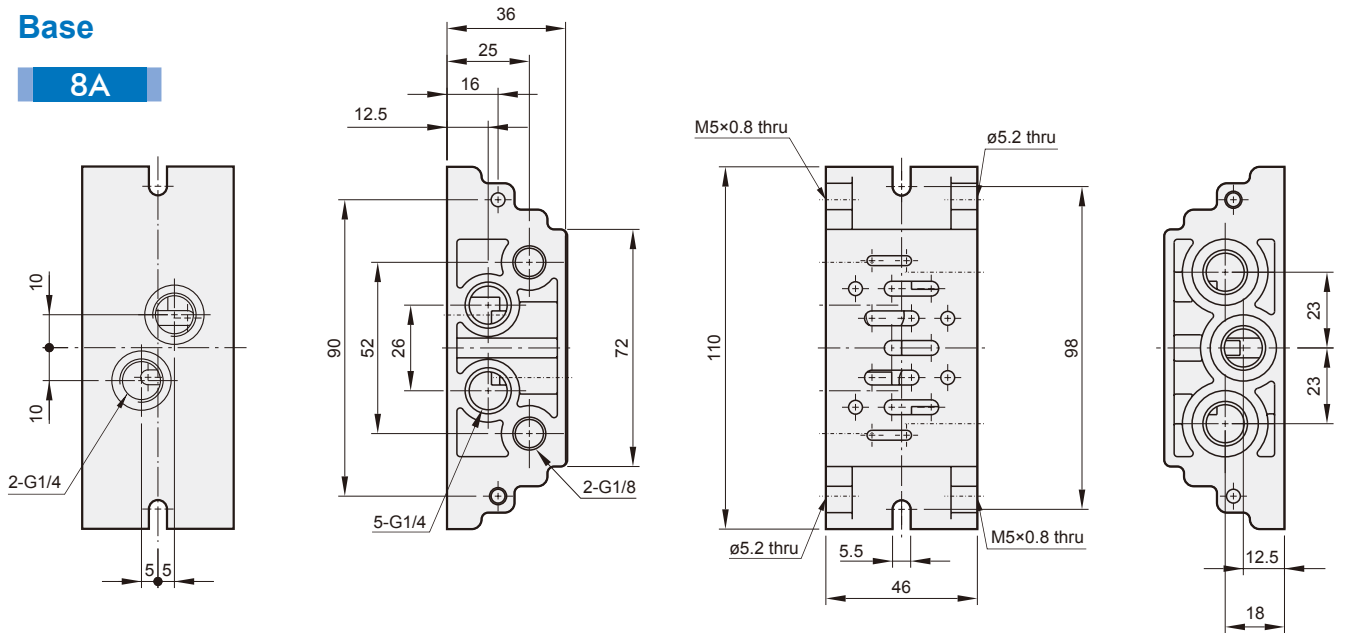


Accessories



Base

8A



Order example

MVSI - 1 - B - 8A

MODEL

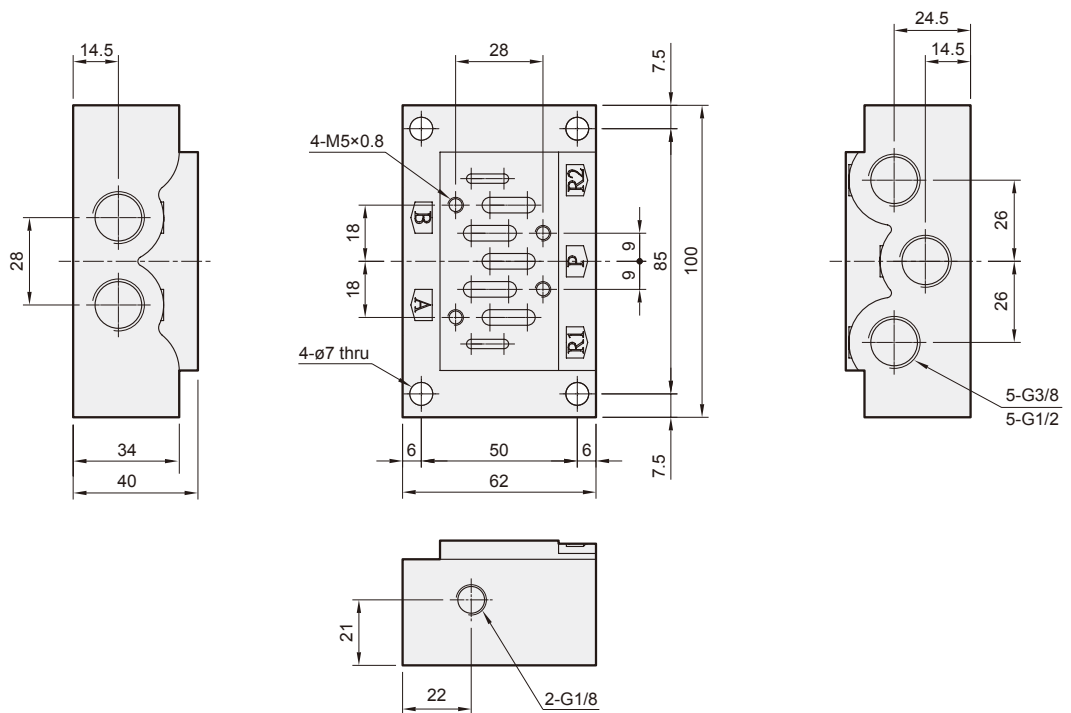
BASE

BORE SIZE

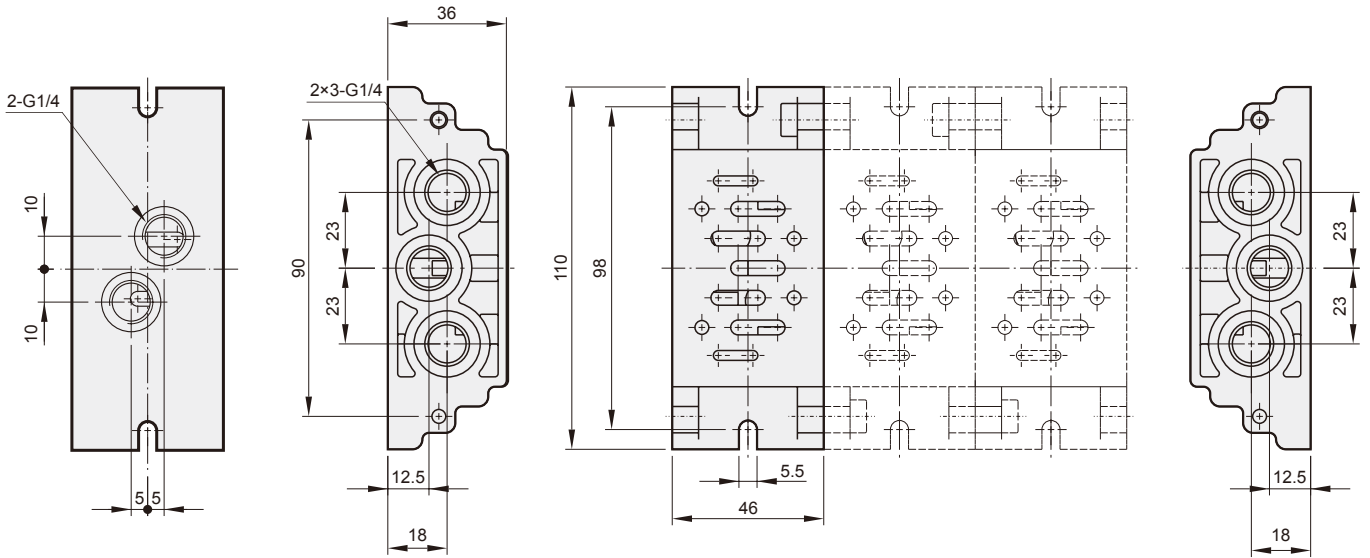
8A: G1/4
10A: G3/8
15A: G1/2

10A

15A



Manifold



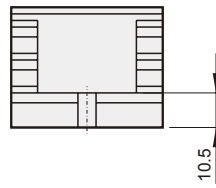
Order example

MVSI - 1 - M2

MODEL

MANIFOLD

NO. OF STATIONS
 1, 2, 3...



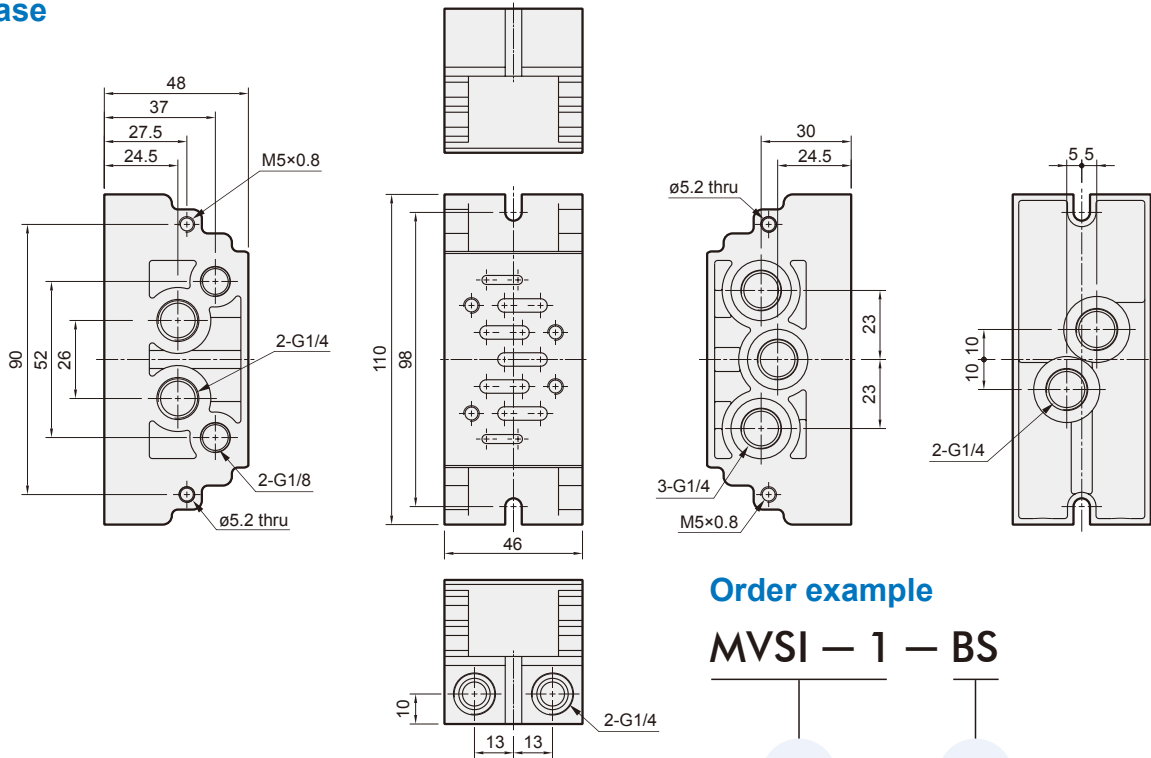
MVSI Base & Manifold (side ported type)



ISO-1 SOLENOID VALVE

Mindman

Base



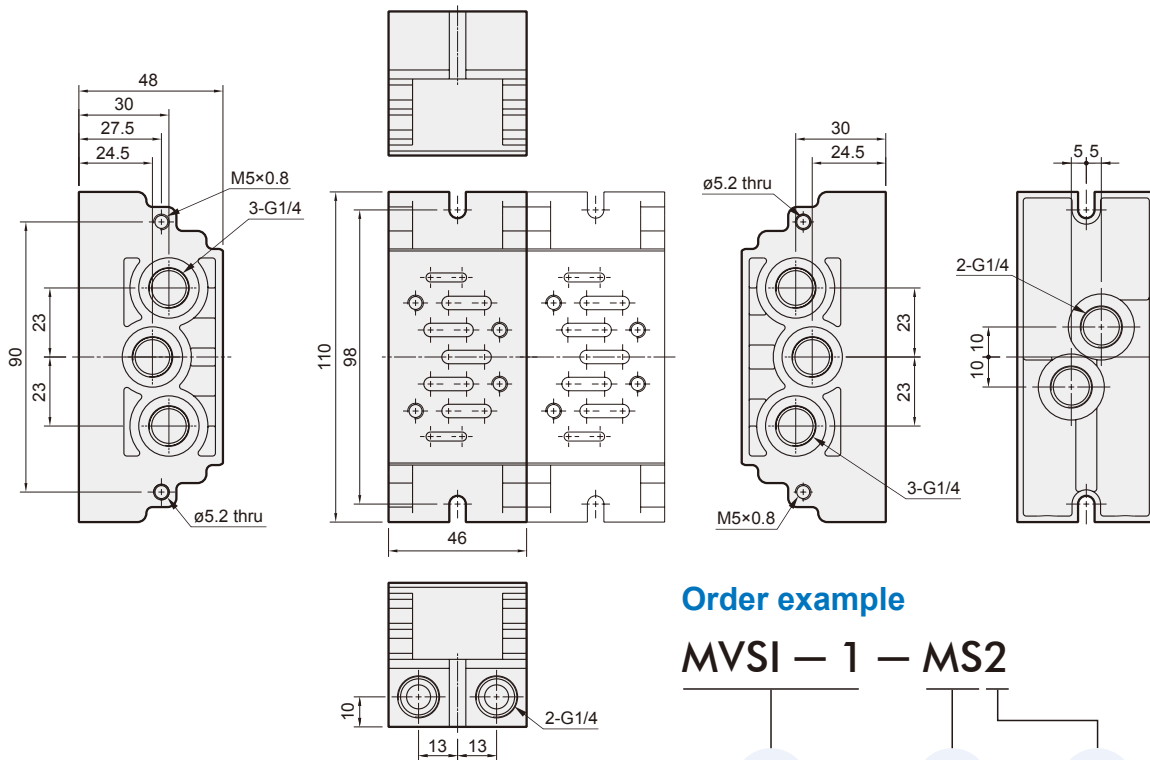
Order example

MVSI — 1 — BS

MODEL

BASE

Manifold



Order example

MVSI — 1 — MS2

MODEL

MANIFOLD

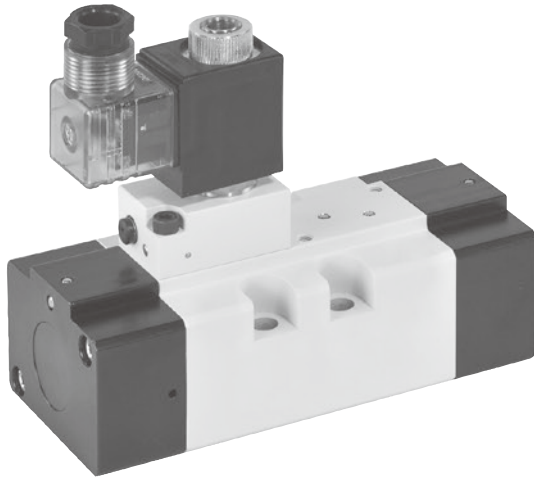
NO. OF STATIONS
2, 3...

MVSI-510 series

ISO-3 SOLENOID VALVE



mindman

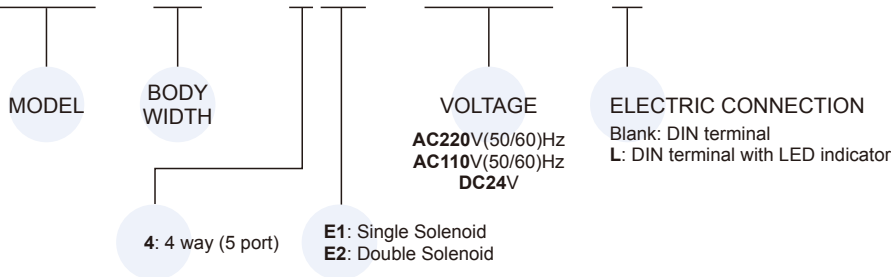


Specification

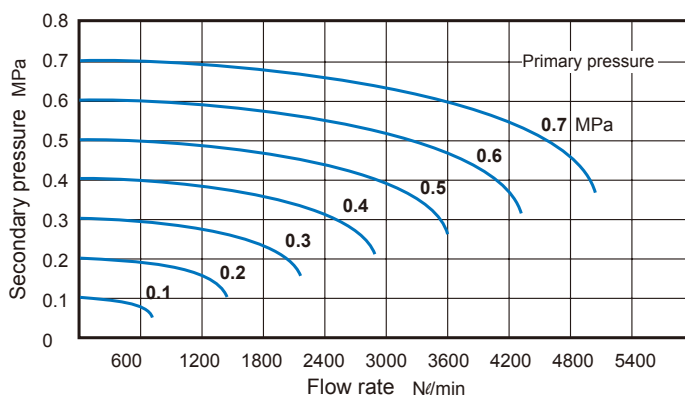
Model	4E1	4E2
No. of port	5	
No. of position	2	
Medium	Air	
Operating pressure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	65 mm ²	
Response time	60 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=13/11VA, DC=10W	
Available voltage range	±10%	
Insulation class	H class	
Weight	1493 g	1778 g

Order example of valve

MVSI – 510 – 4E2 – AC110 – L



Flow features

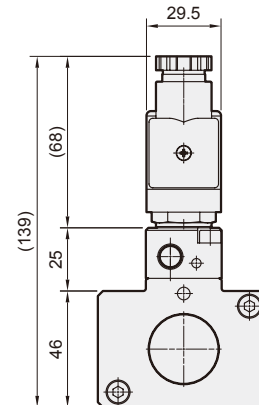
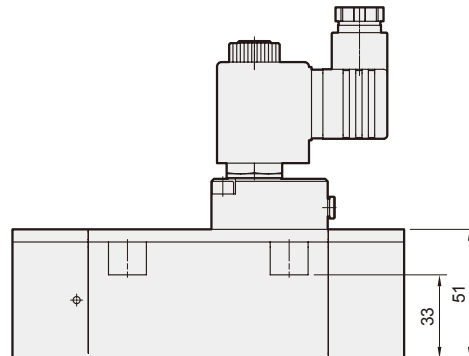
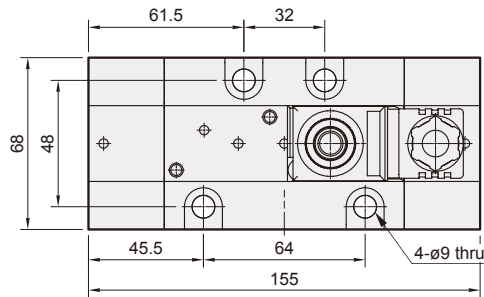
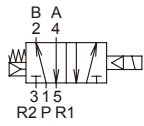


MVSI-510 Dimensions

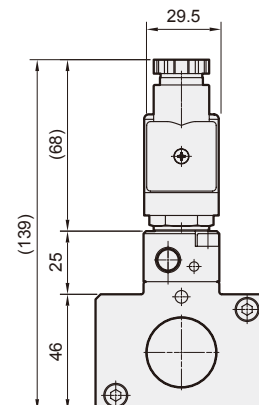
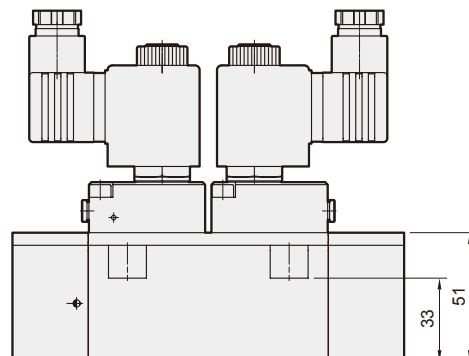
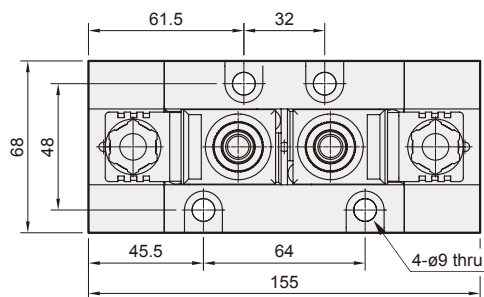
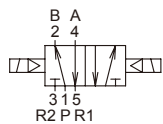
ISO-3 SOLENOID VALVE



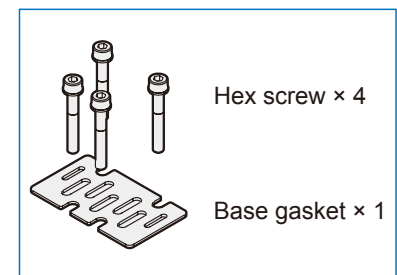
MVSI-510-4E1



MVSI-510-4E2

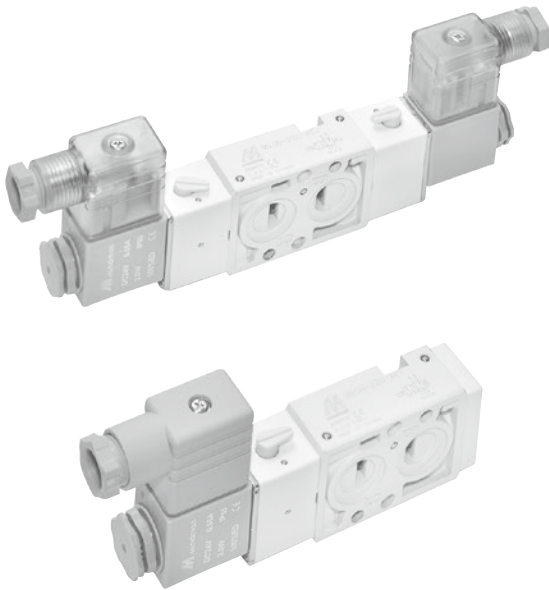


Accessories



MVSN-220 series

NAMUR SOLENOID VALVE



Specification

Model	4E1	4E2
Bore No.	6A, 8A	
Port size	G1/8, G1/4	
No. of port	5	
No. of position	2	
Medium	Air	
Operating pressure range	0.2~0.8 MPa	
Proof pressure	1 MPa	
Effective orifice	18 mm ²	
Response time	38 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, AC/DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight (Explosion-proof)	233 g (441 g)	343 g (761 g)

Order example of valve

MVSN – 220 – 4E2 – 8A – AC110 – L

MODEL

BODY WIDTH

BORE SIZE

6A: G1/8
8A: G1/4

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

ELECTRIC CONNECTION

Blank: DIN terminal
L: DIN terminal with LED indicator
E: Explosion protection (Table 1)

(E type use black coil)

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

Order example of adapter

MVSN – 300 – A

MODEL

ADAPTER

* Use the same adapter with MVSN-300.

Order example of cylinder link seats

MVSN – 300 – C

MODEL

CYLINDER LINK SEATS

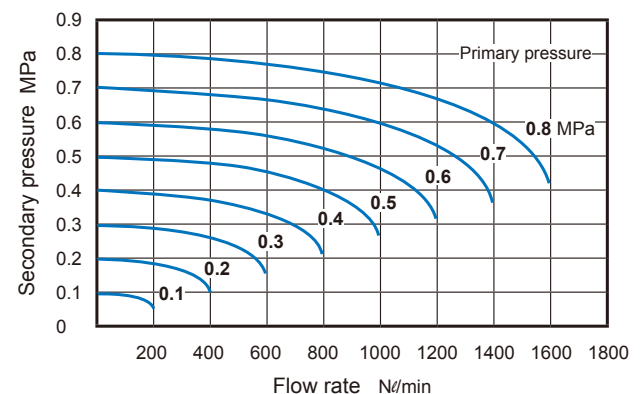
* Use the same link seats with MVSN-300.

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Flow features

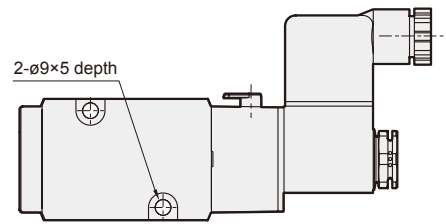
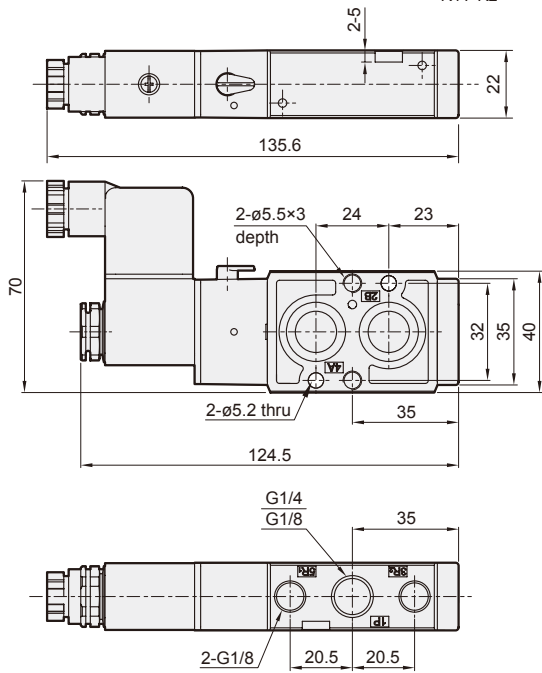
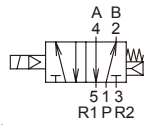


MVSN-220 Dimensions

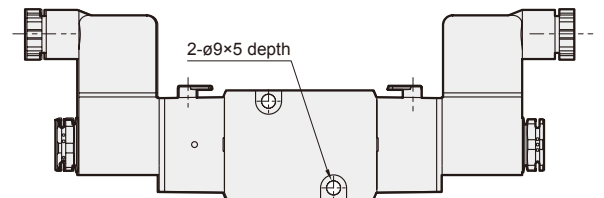
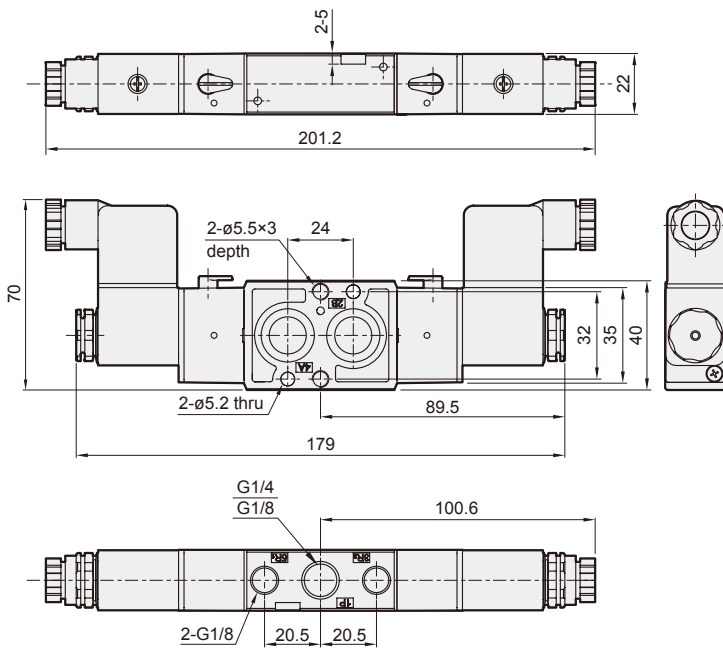
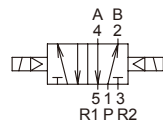
NAMUR SOLENOID VALVE



MVSN-220-4E1

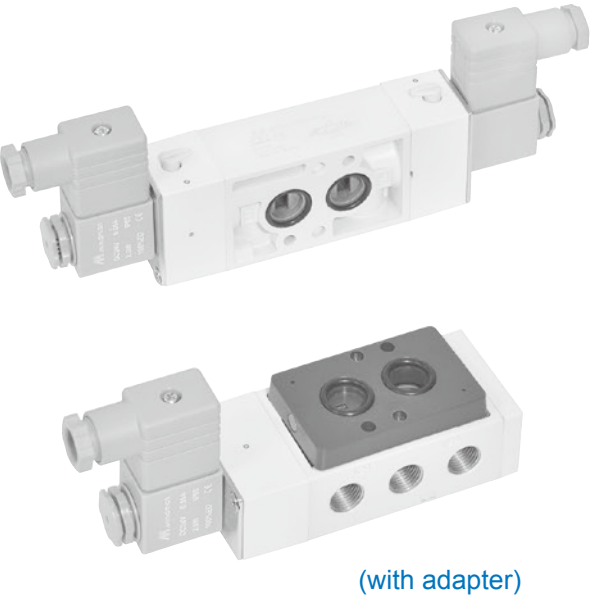


MVSN-220-4E2



MVSN-300 series

NAMUR SOLENOID VALVE



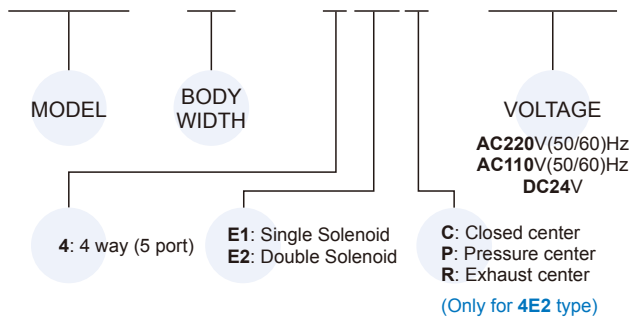
Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	G1/4		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.2~0.8 MPa	0.3~0.8 MPa	
Proof pressure	1 MPa		
Effective orifice	35 mm ²	30 mm ²	
Reponse time	50 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	422 g	507 g	764 g

* Port thread Rc. NPT. are also available.

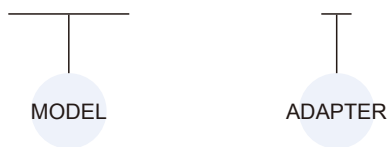
Order example of valve

MVSN – 300 – 4E2C – AC110 – L



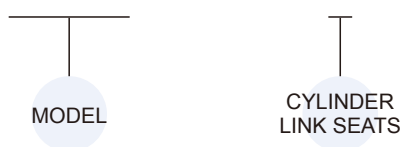
Order example of adapter

MVSN – 300 – A



Order example of cylinder link seats

MVSN – 300 – C



ELECTRIC CONNECTION
Blank: DIN terminal
L: DIN terminal with LED indicator
E: Explosion protection (Table 1)
(E type use black coil)

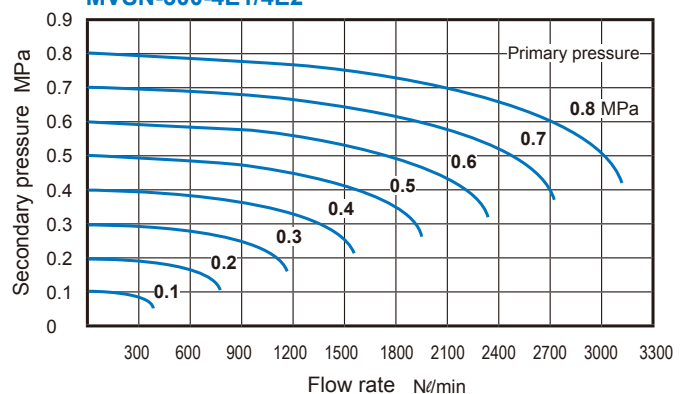
Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Flow features

MVSN-300-4E1/4E2



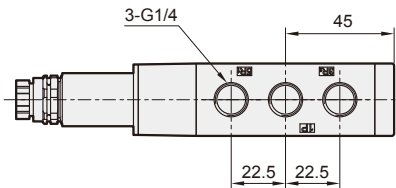
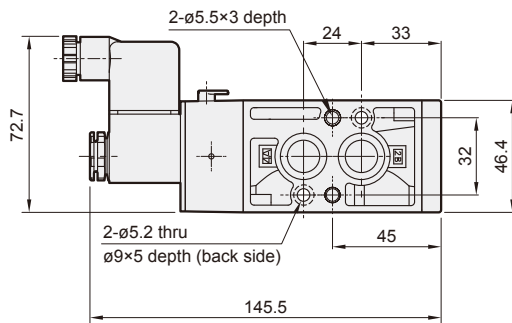
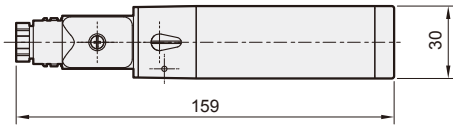
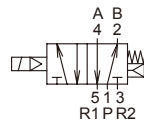
MVSN-300 Dimensions

NAMUR SOLENOID VALVE

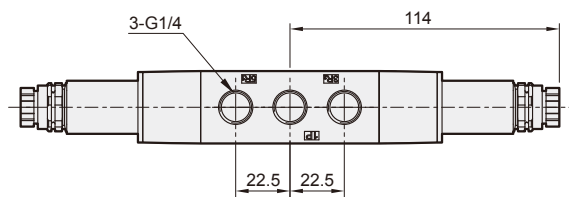
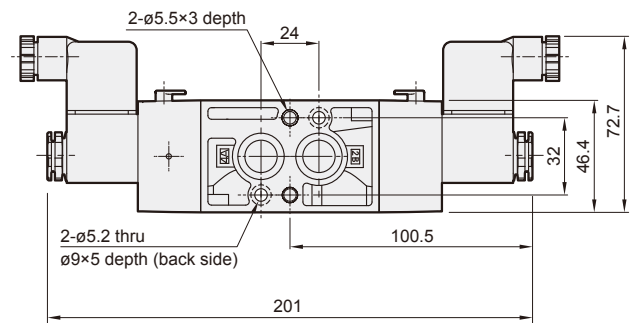
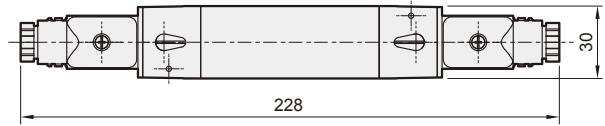
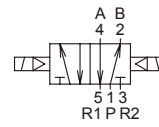


Mindman

MVSN-300-4E1



MVSN-300-4E2

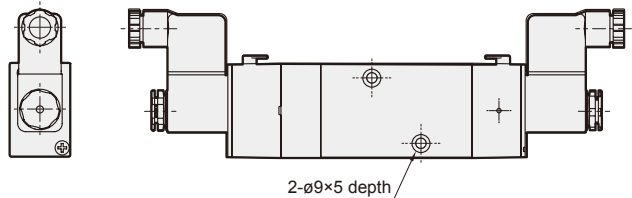
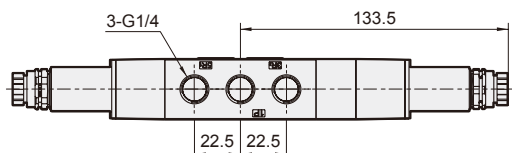
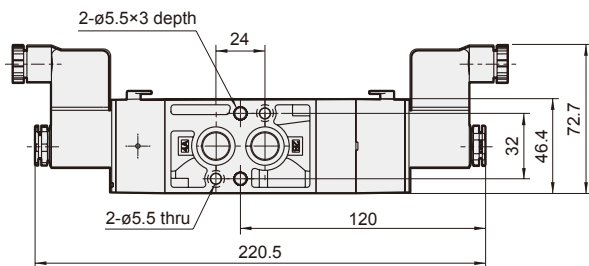
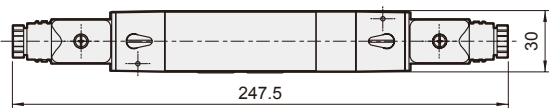
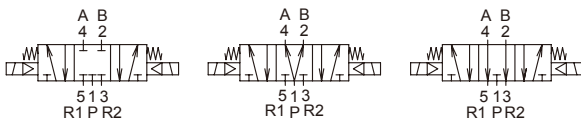


MVSN-300-4E2C.P.R

MVSN-300-4E2C

MVSN-300-4E2P

MVSN-300-4E2R

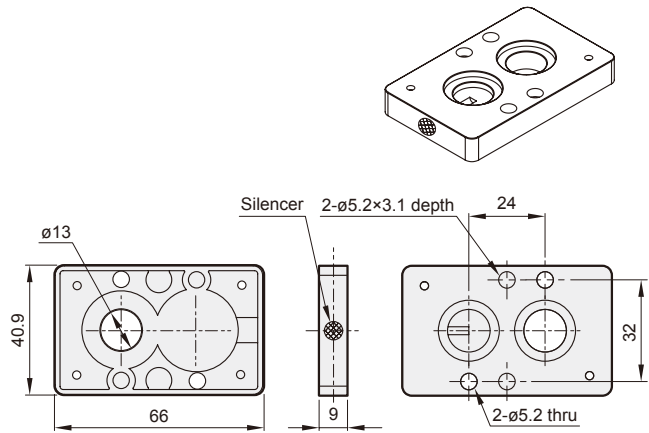
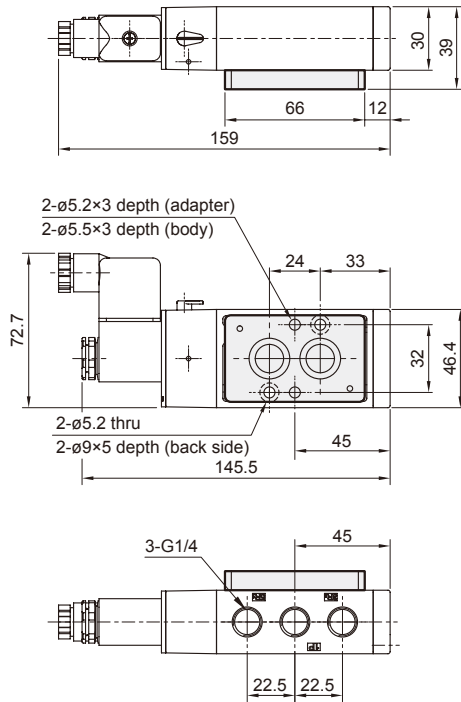


MVSN Adapter / Cylinder link seats

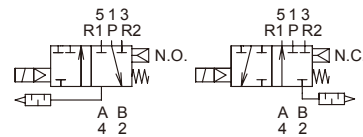
NAMUR SOLENOID VALVE



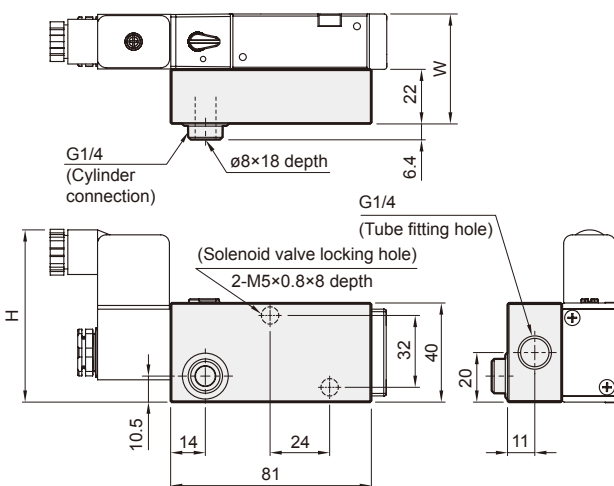
MVSN-300-A



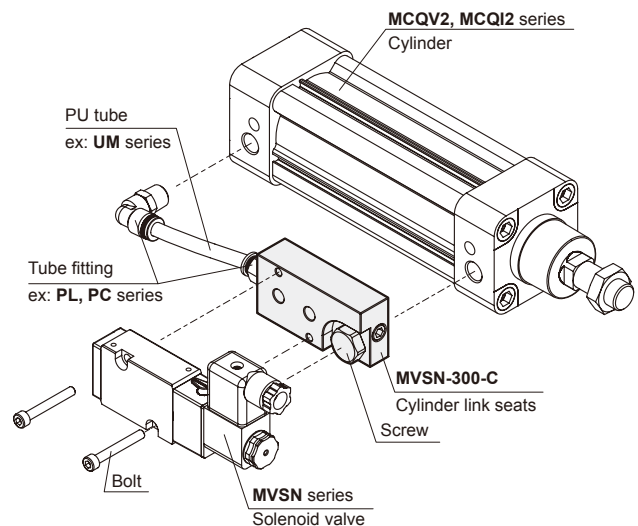
- Solenoid valve without plate: 5/2 single acting
- Solenoid valve with plate: 3/2 single acting
- Silencer on the OPPOSITE side of the solenoid: NC
- Silencer on the SAME side of the solenoid: NO



MVSN-300-C



Mounting of cylinder link seats



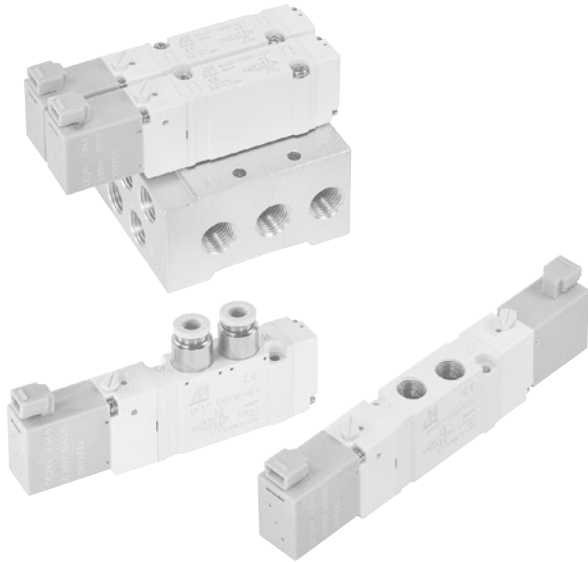
Code Model	H	W	Cylinder type
MVSN-220	70	44	MCQV2 ø40, ø50
MVSN-300	72.7	52	MCQI2 ø40, ø50

MVSP-156 series

SOLENOID VALVE



mindman



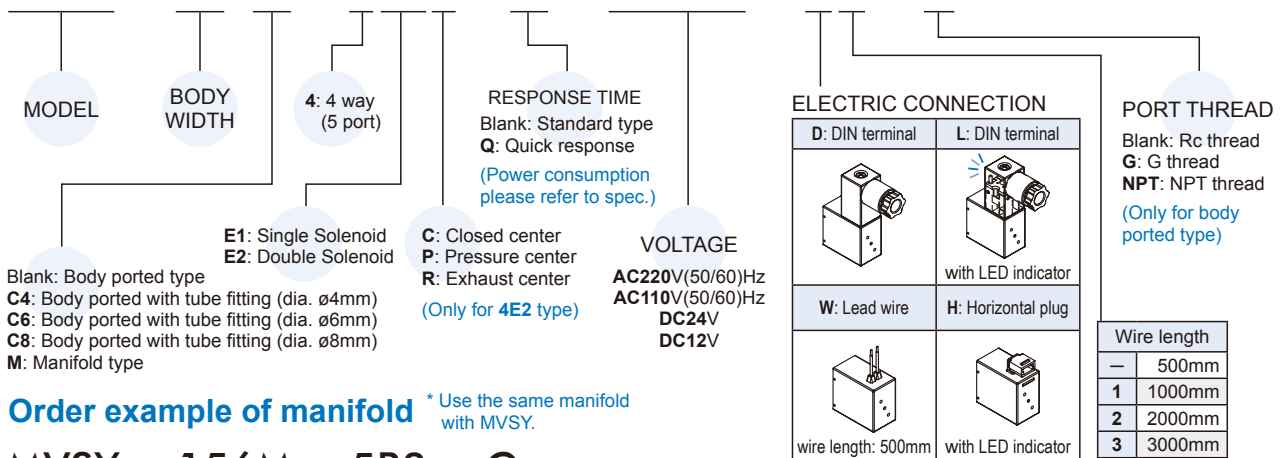
Specification

* Refer to page 1-21 for feature.

Model		4E1	4E2	4E2 C.P.R
Port size		Rc1/8		
No. of port / position		5 / 2		5 / 3
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	11 mm ²	9.5 / 14.6 / 9.5 mm ²	
	Manifold	10 mm ²	7.5 / 13 / 8 mm ²	
Response time	Standard	AC<36ms, DC<23ms	AC<46ms, DC<25ms	
	Quick response*	AC<32ms, DC<20ms	AC<40ms, DC<22ms	
Power consumption	Standard	AC=1.12VA, DC=0.95W		
	Quick response*	AC=2.5VA, DC=2.5W		
Ambient temperature		-5~+50°C (No freezing)		
Voltage		AC110V, 220V (50/60)Hz, DC24/12V		
Available voltage range		±10%		
Insulation class		F class		
Weight		83 g	118 g	127 g

Order example of valve

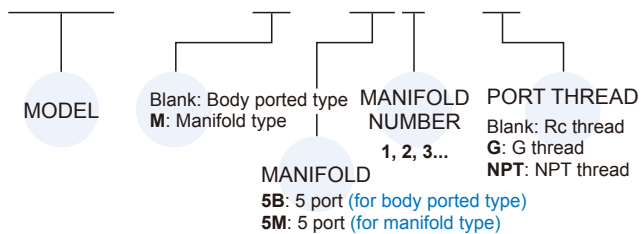
MVSP – 156M – 4E2C – □ – AC110 – H1 – G



* For quick response type, it cannot be energized for more than 30 minutes.

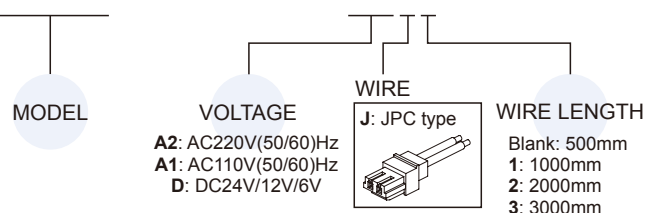
Order example of manifold

MVSY – 156M – 5B3 – G



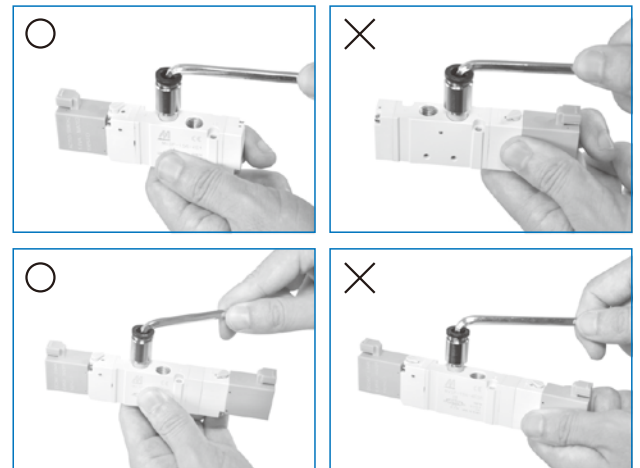
Order example of wire

MVDY – 100 – WA2J2



Caution

Prohibit apply force to coil when tighten the tube fitting.



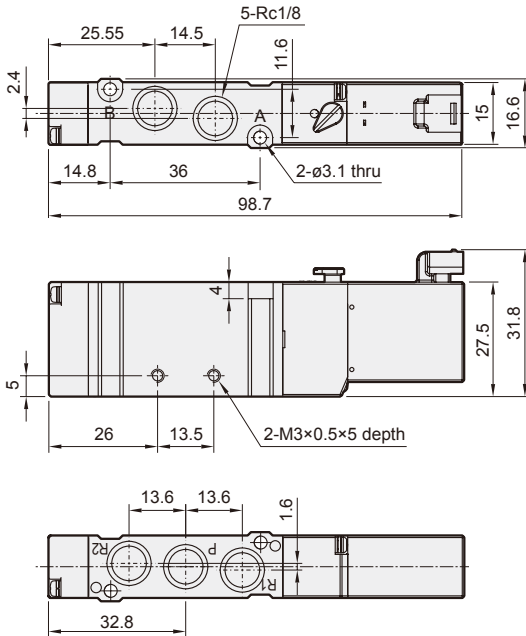
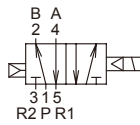
* Wire length only for "H: Horizontal plug".

MVSP-156 Dimensions

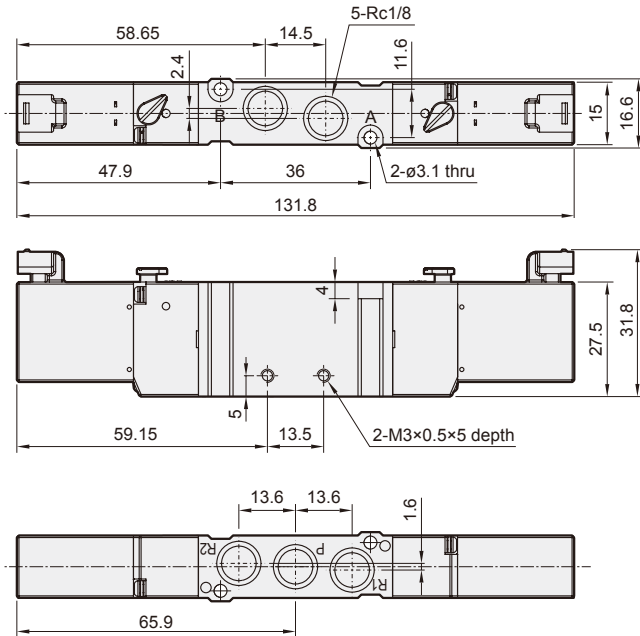
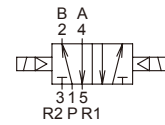
SOLENOID VALVE



MVSP-156-4E1



MVSP-156-4E2

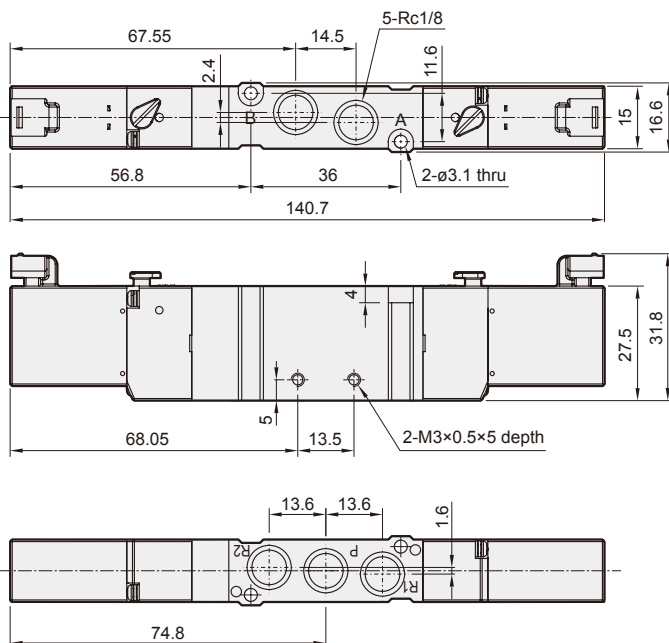
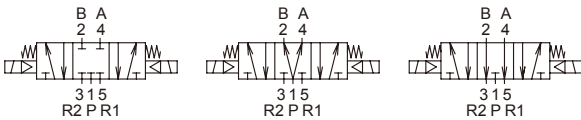


MVSP-156-4E2C.P.R

MVSP-156-4E2C

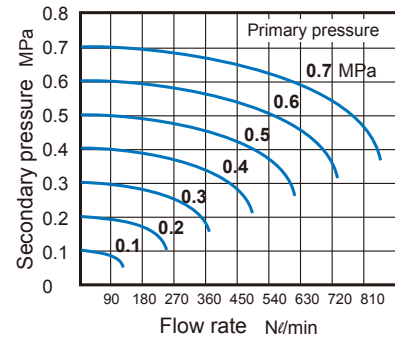
MVSP-156-4E2P

MVSP-156-4E2R

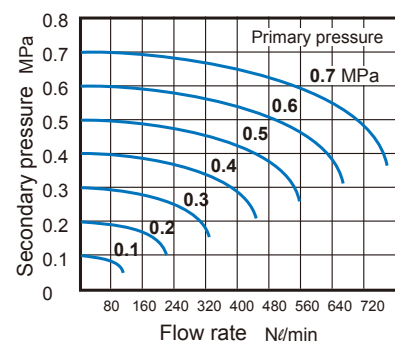


Flow features

MVSP-156-4E1/4E2



MVSP-156M-4E1/4E2

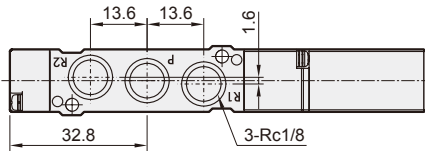
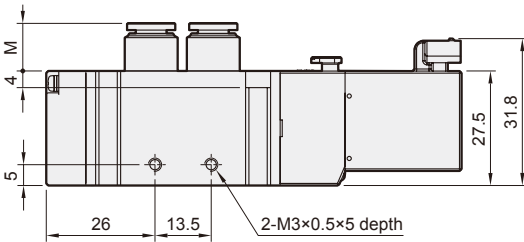
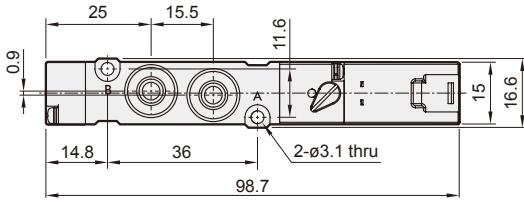
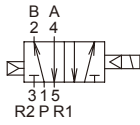


MVSP-156 Dimensions

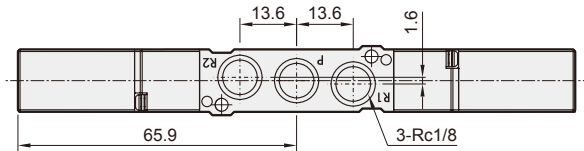
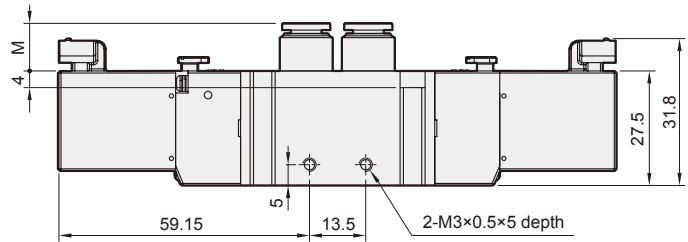
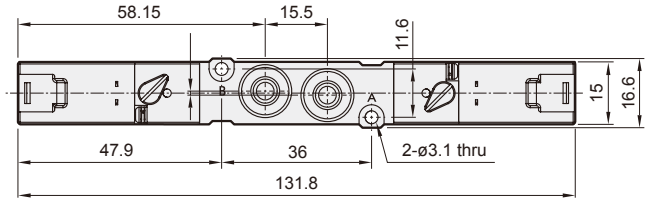
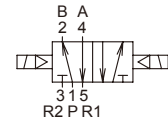
SOLENOID VALVE



MVSP-156C*-4E1



MVSP-156C*-4E2

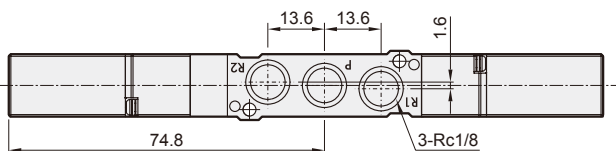
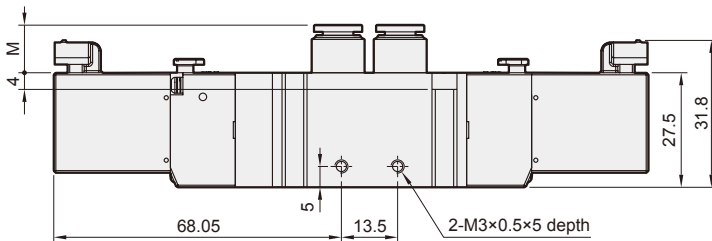
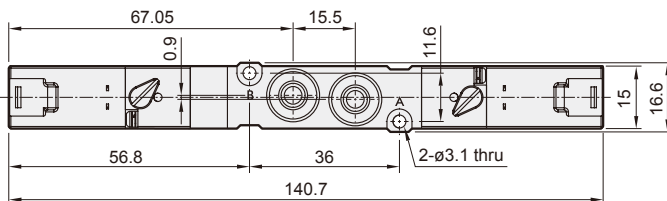


MVSP-156C*-4E2C.PR

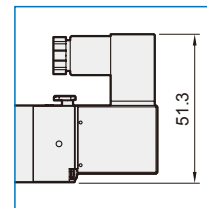
MVSP-156-4E2C

MVSP-156-4E2P

MVSP-156-4E2R



DIN terminal / DIN terminal with LED indicator



Code Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

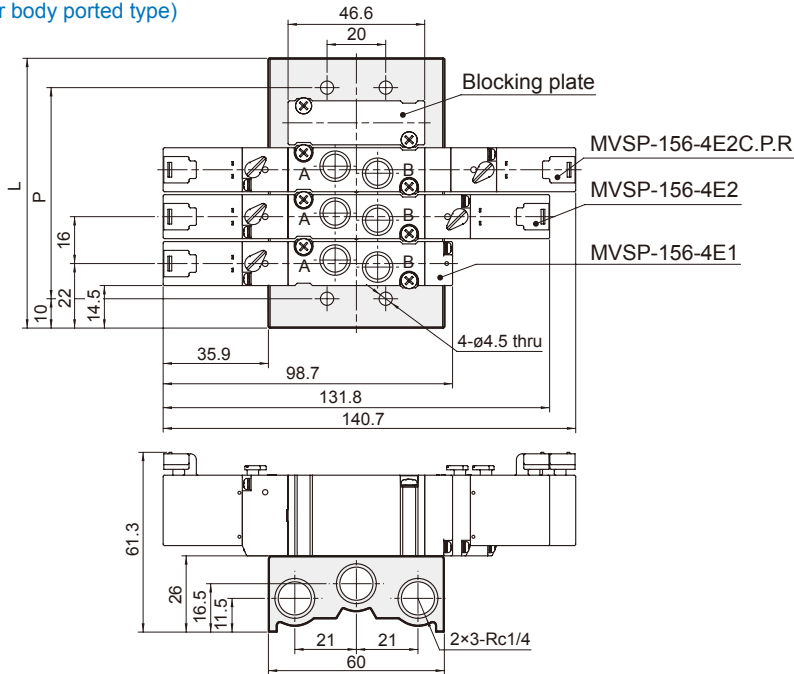
MVSP-156 Manifold

SOLENOID VALVE



MVSY-156-5B*

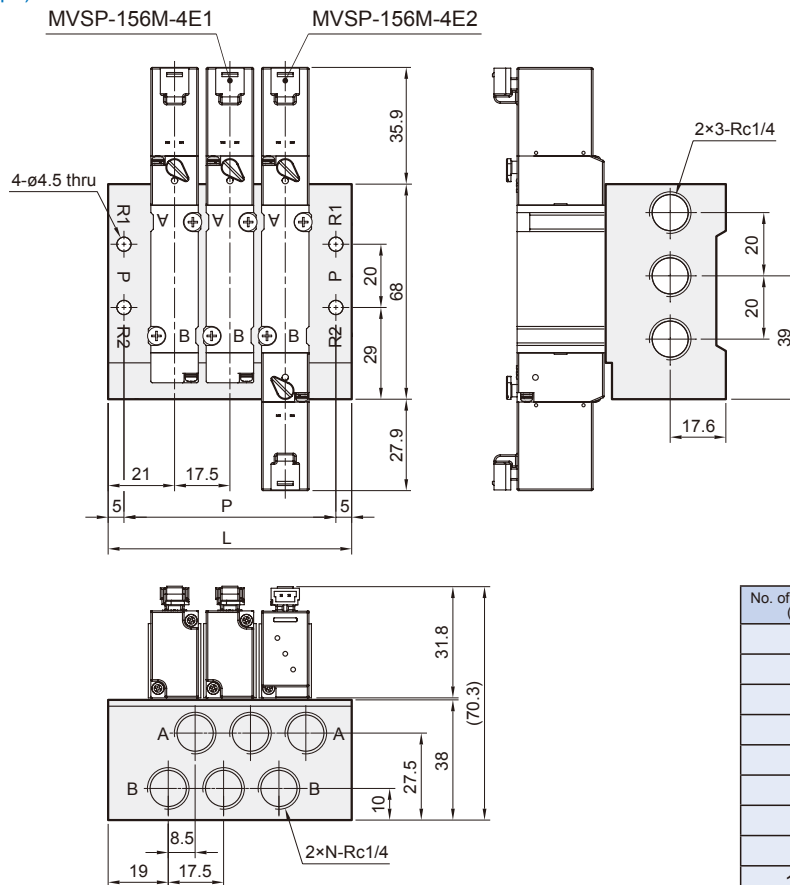
5 port (for body ported type)



No. of stations	P	L
2	40	60
3	56	76
4	72	92
5	88	108
6	104	124
7	120	140
8	136	156
9	152	172
10	168	188

MVSY-156M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	49.5	59.5
3	67	77
4	84.5	94.5
5	102	112
6	119.5	129.5
7	137	147
8	154.5	164.5
9	172	182
10	189.5	199.5

MVSP-156 Mounting bracket & Spacer assembly

SOLENOID VALVE



Order example of bracket

* Use the same bracket with MVSYS.

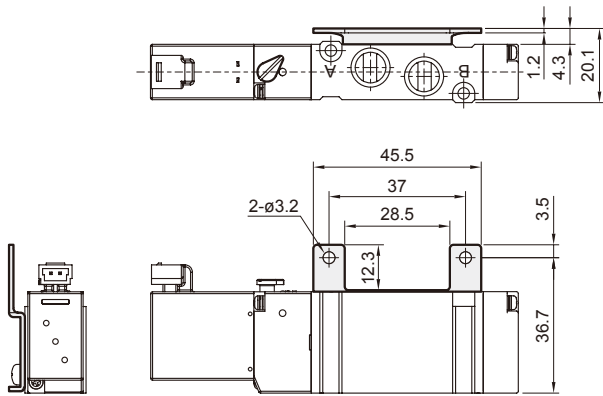
MVSYS – 156 – 1A

MODEL

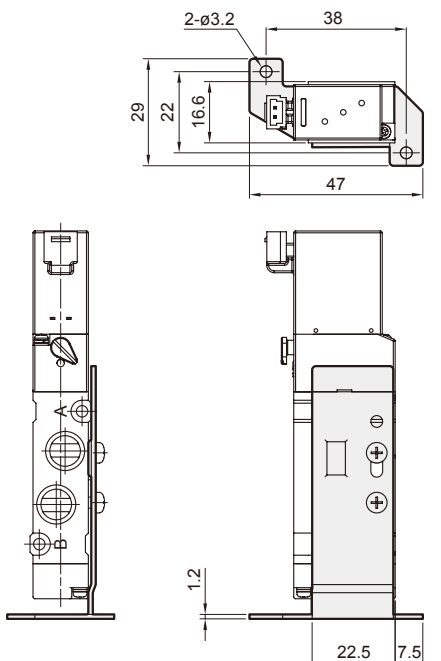
MOUNTING BRACKET

1A
2A

MVSYS-156-1A



MVSYS-156-2A



Order example of spacer assembly

* Use the same spacer assembly with MVSYS.

MVSYS – 156M – 5BP

MODEL

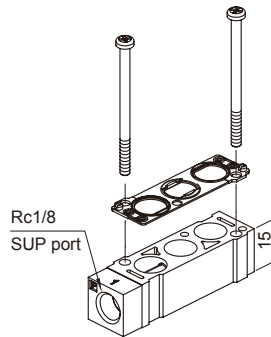
5B: 5 Port (for body ported type)
5M: 5 Port (for Manifold type)

SPACER ASSEMBLY

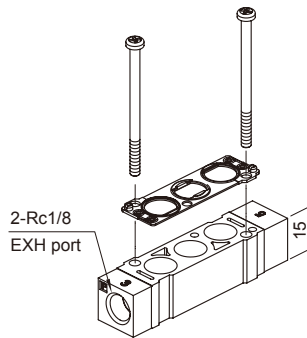
Blank: Body ported type
M: Manifold type

P: Individual SUP spacer assembly
R: Individual EXH spacer assembly
PR: Individual SUP spacer assembly+
Individual EXH spacer assembly

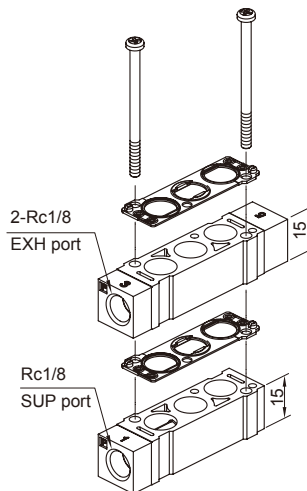
MVSYS-156-5BP



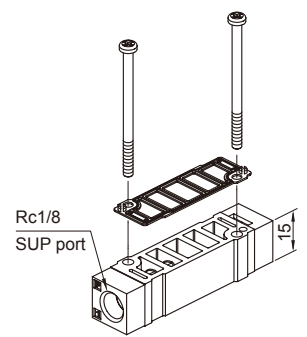
MVSYS-156-5BR



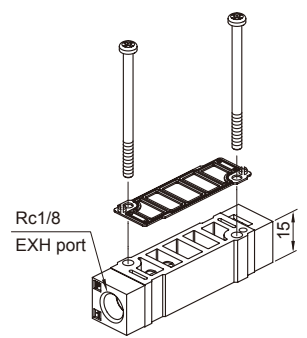
MVSYS-156-5BPR



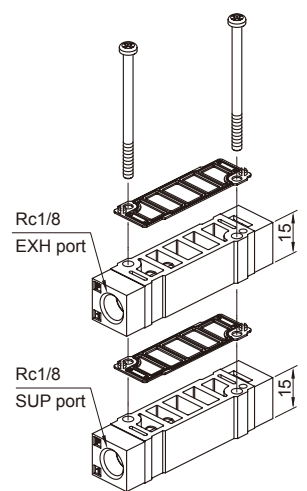
MVSYS-156M-5MP



MVSYS-156M-5MR



MVSYS-156M-5MPR



MVSP-188 series

SOLENOID VALVE



mindman

Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

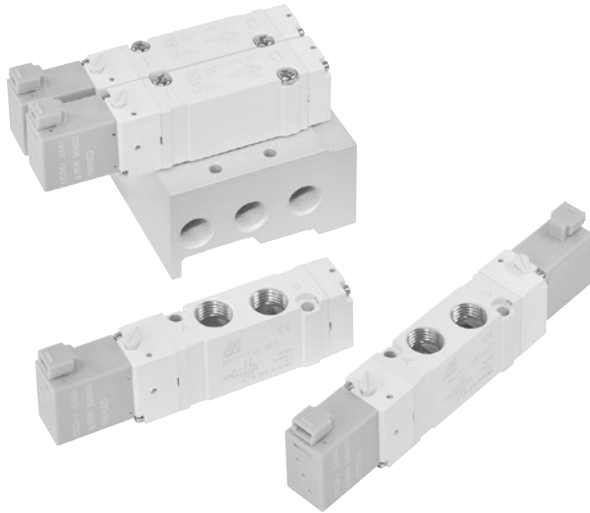
Pressure Switch

Auxiliary Equipment

PISCO®

Specification

* Refer to page 1-21 for feature.

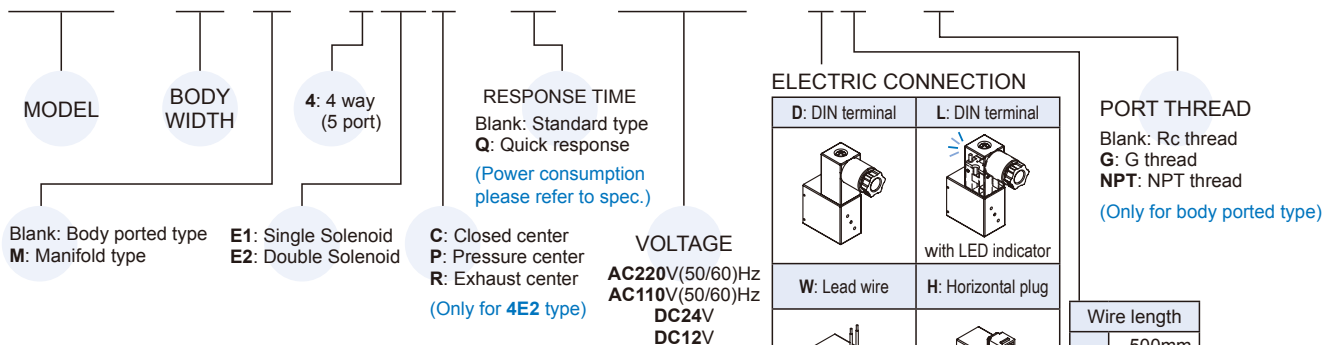


Model		4E1	4E2	4E2 C.P.R
Port size		Rc1/4		
No. of port / position		5 / 2		5 / 3
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	15 mm ²	16.3 / 27 / 12.4 mm ²	
	Manifold	13 mm ²	13.5 / 18.4 / 11 mm ²	
Response time	Standard	DC<23 ms, AC<35 ms	DC<33 ms, AC<45 ms	
	Quick response*	DC<20 ms, AC<32 ms	DC<30 ms, AC<42 ms	
Power consumption	Standard	AC=1.12VA, DC=0.95W		
	Quick response*	AC=2.5VA, DC=2.5W		
Ambient temperature		-5~+50°C (No freezing)		
Voltage		AC110V, 220V (50/60)Hz, DC24/12V		
Available voltage range		±10%		
Insulation class		F class		
Weight		96 g	132 g	142 g

* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

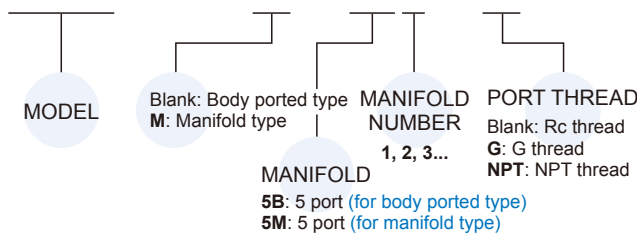
MVSP — 188M — 4E2C — □ — AC110 — H1 — G



Order example of manifold

* Use the same manifold with MVS.Y.

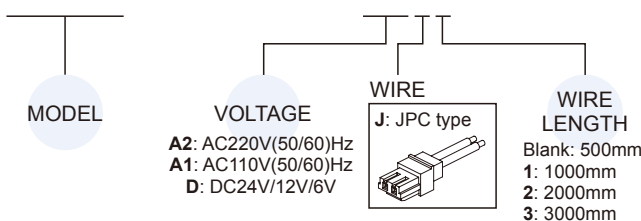
MVS.Y — 188M — 5B3 — G



Order example of wire

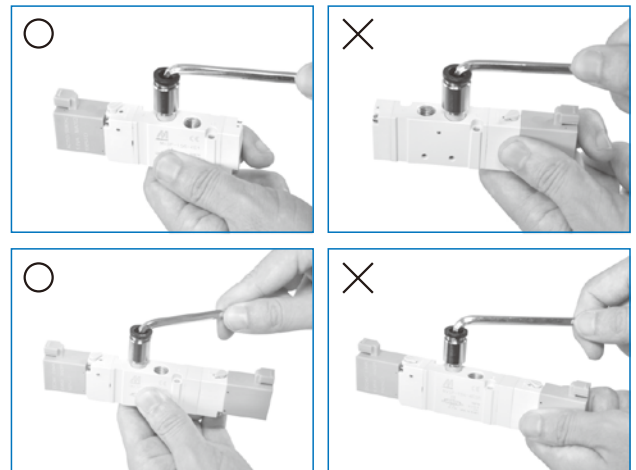
* Use the same wire with MVD.Y.
* Only for "H: Horizontal plug".

MVD.Y — 100 — WA2J2



Caution

Prohibit apply force to coil when tighten the tube fitting.

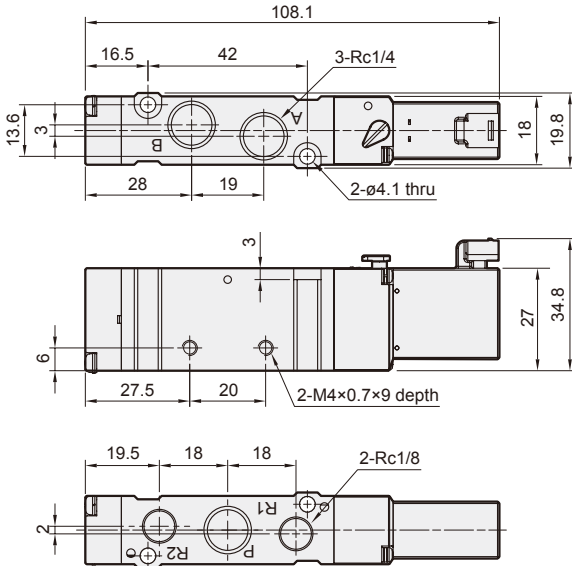
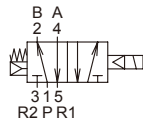


MVSP-188 Dimensions

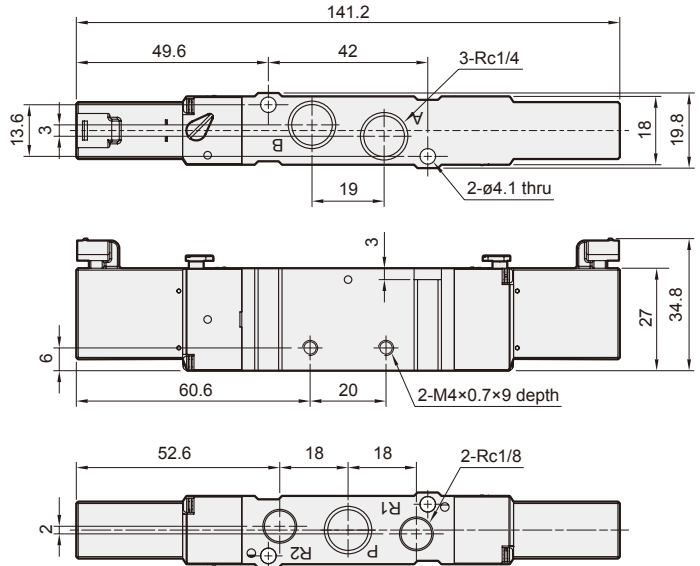
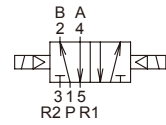
SOLENOID VALVE



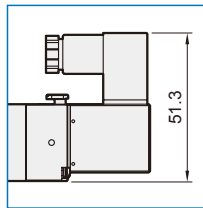
MVSP-188-4E1



MVSP-188-4E2



DIN terminal /
DIN terminal with
LED indicator

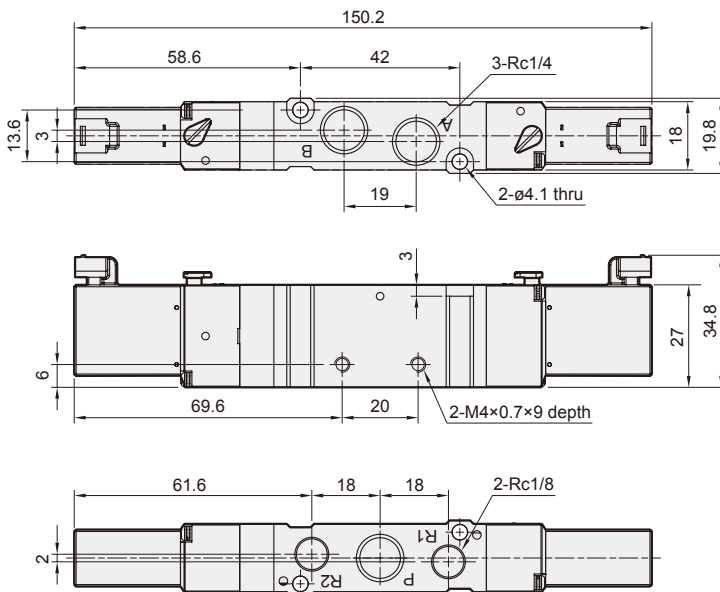
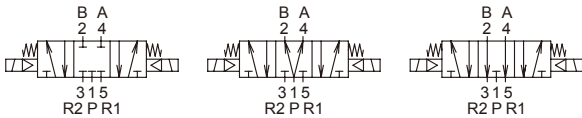


MVSP-188-4E2C.P.R

MVSP-188-4E2C

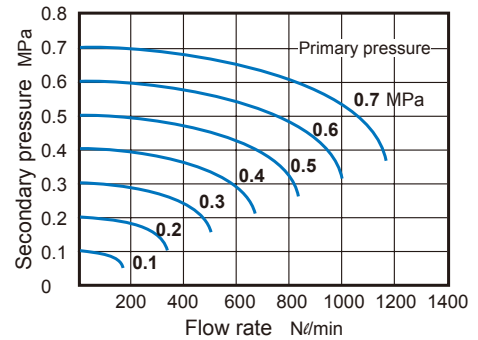
MVSP-188-4E2P

MVSP-188-4E2R

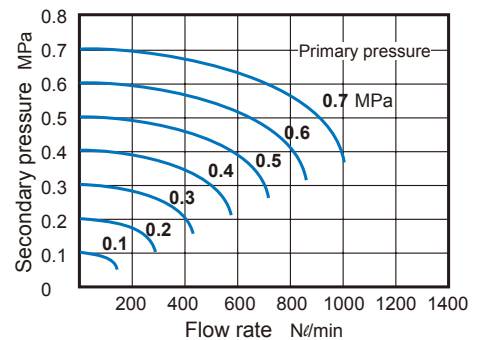


Flow features

MVSP-188-4E1/4E2



MVSP-188M-4E1/4E2



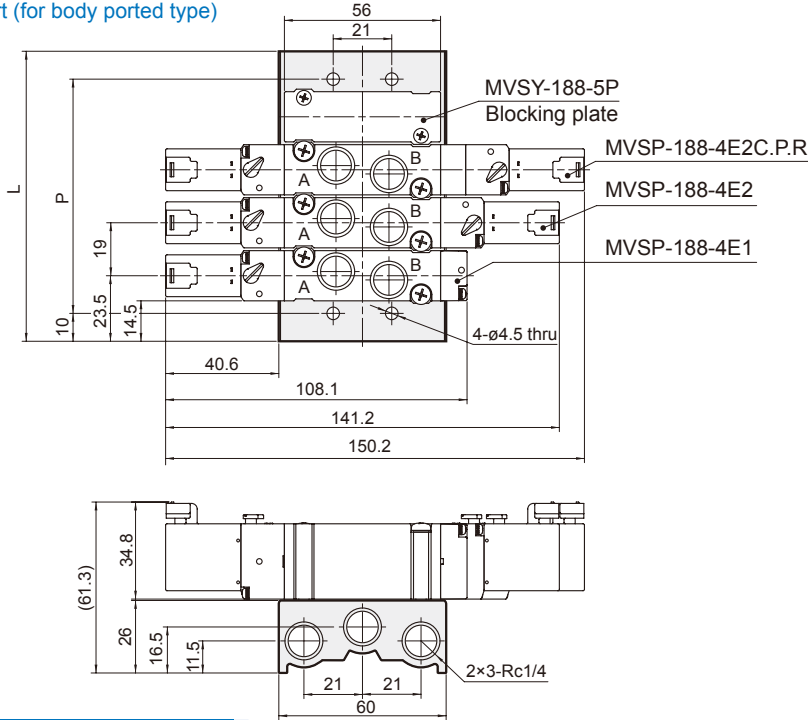
MVSP-188 Manifold

SOLENOID VALVE



MVSY-188-5B*

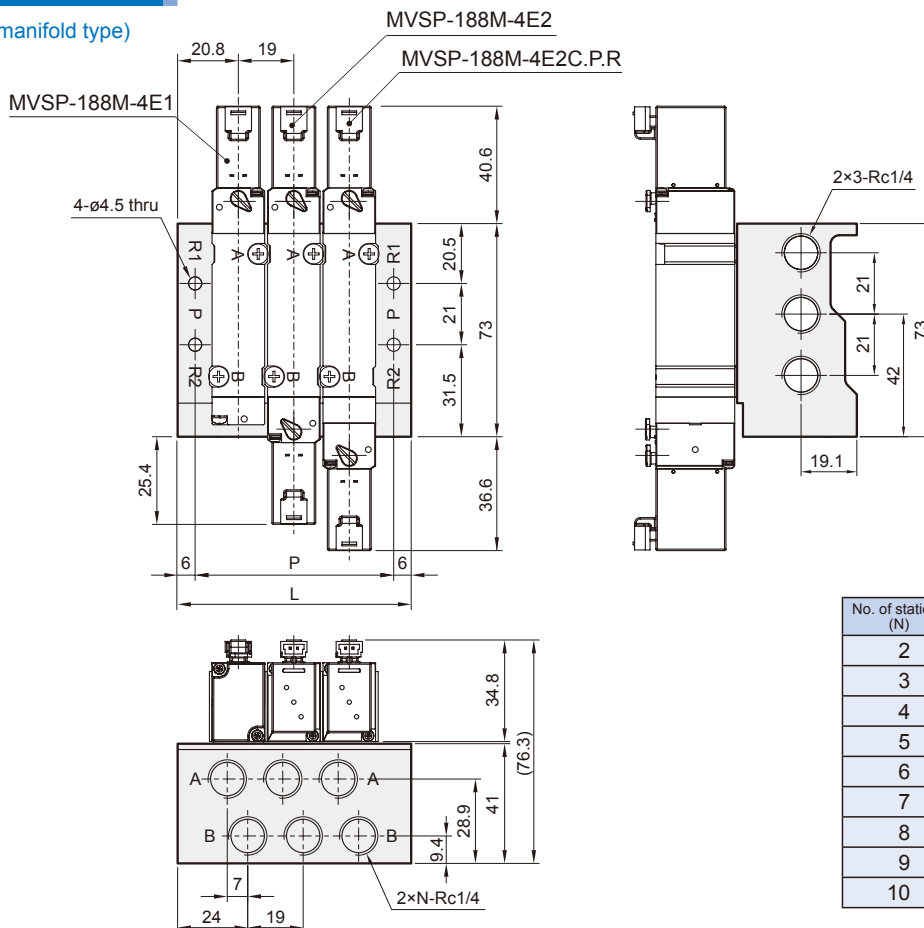
5 port (for body ported type)



No. of stations	P	L
2	46	66
3	65	85
4	84	104
5	103	123
6	122	142
7	141	161
8	160	180
9	179	199
10	198	218

MVSY-188M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	49	61
3	68	80
4	87	99
5	106	118
6	125	137
7	144	156
8	163	175
9	182	194
10	201	213

MVSP-188 Mounting bracket & Spacer assembly

SOLENOID VALVE



Order example of bracket

* Use the same bracket with MVS.Y.

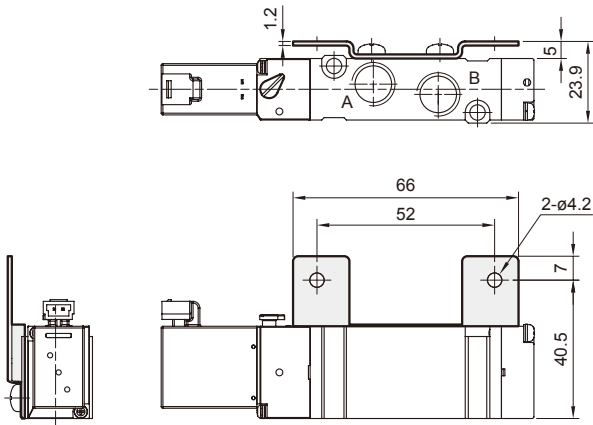
MVS.Y – 188 – 1A

MODEL

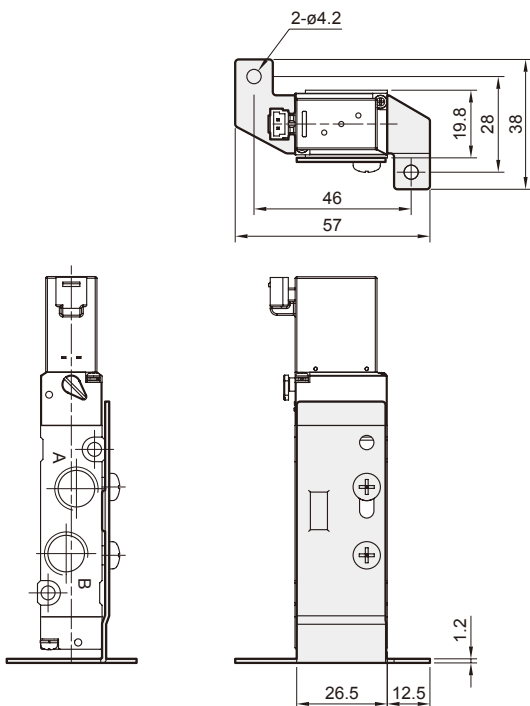
MOUNTING BRACKET

1A
2A

MVS.Y-188-1A



MVS.Y-188-2A



Order example of spacer assembly

* Use the same spacer assembly with MVS.Y.

MVS.Y – 188M – 5BP

MODEL

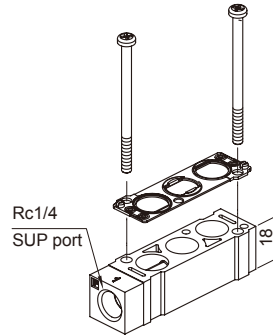
5B: 5 Port (for body ported type)
5M: 5 Port (for Manifold type)

SPACER ASSEMBLY

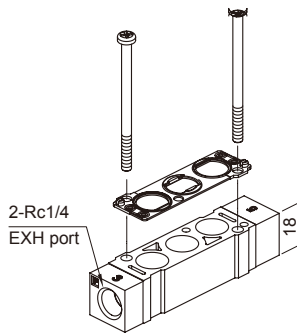
Blank: Body ported type
M: Manifold type

P: Individual SUP spacer assembly
R: Individual EXH spacer assembly
PR: Individual SUP spacer assembly+
Individual EXH spacer assembly

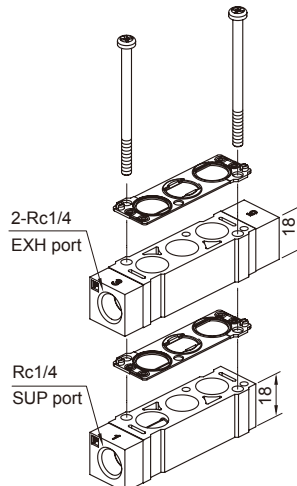
MVS.Y-188-5BP



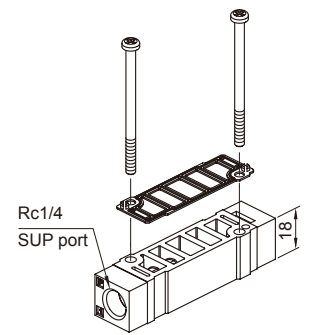
MVS.Y-188-5BR



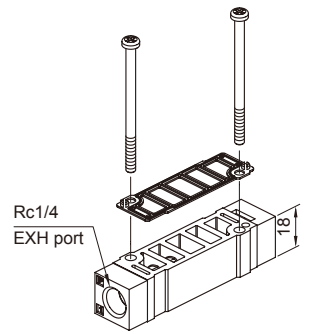
MVS.Y-188-5BPR



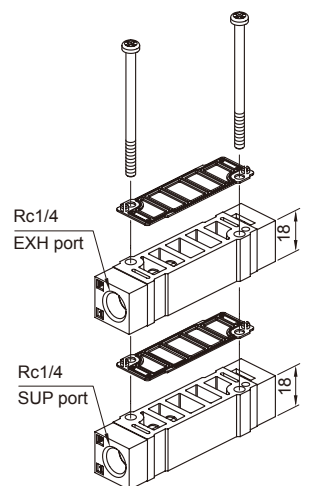
MVS.Y-188M-5MP



MVS.Y-188M-5MR

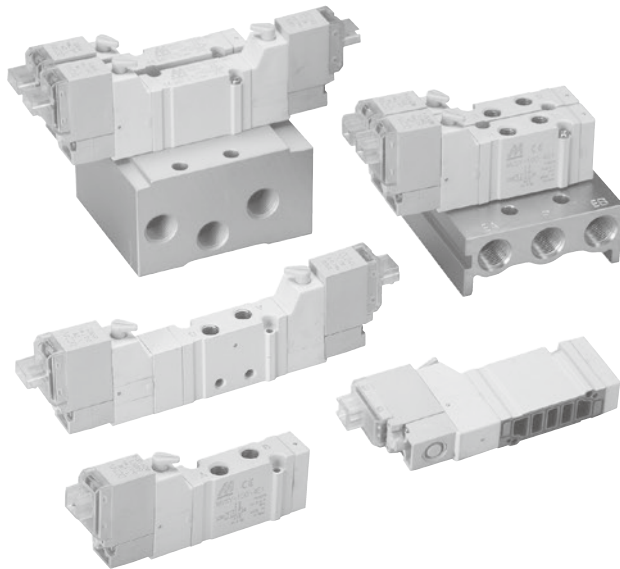


MVS.Y-188M-5MPR



MVSY-100 series

SOLENOID VALVE



Specification

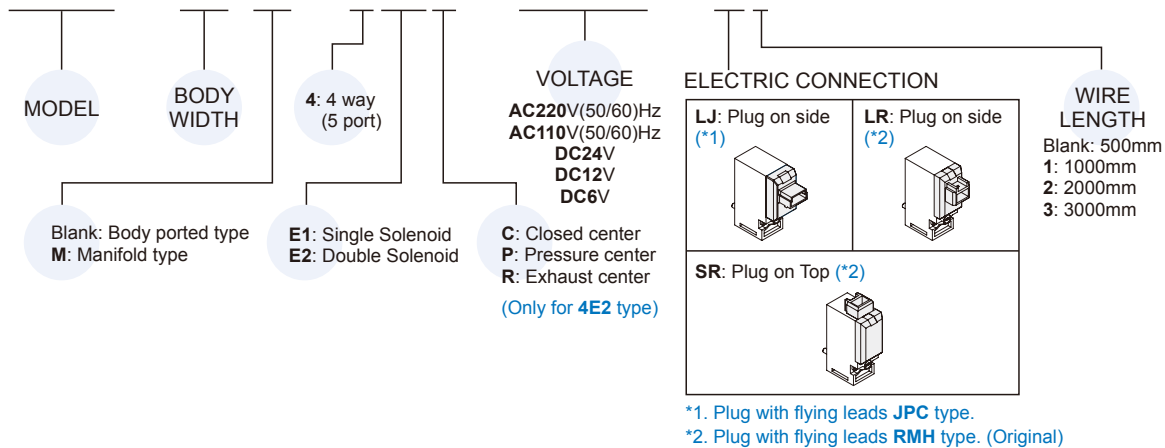
Model	4E1	4E2	4E2 C.P.R
Bore No.	M5		
Port size	M5×0.8		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.2~0.7 MPa		
Proof pressure	1 MPa		
Effective orifice	Body ported	4.5 mm ²	
	Manifold	4.5 mm ²	4.5 / 5 / 4.5 mm ²
Reponse time	12 ms	15 ms	
Ambient temperature	+5~+50°C		
Max. operating frequency	5 Hz		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption	AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range	±10%		
Insulation class	B class		
Weight	30 g	44 g	59 g

Caution

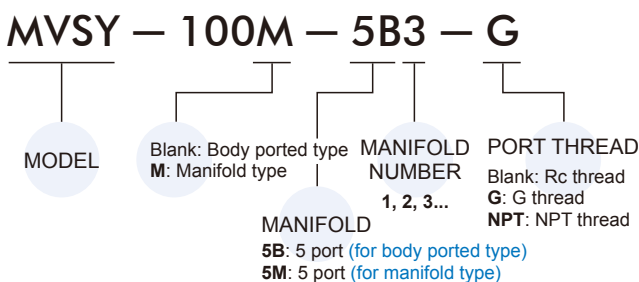
- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.

Order example of valve

MVSY – 100M – 4E2C – AC110 – LJ1

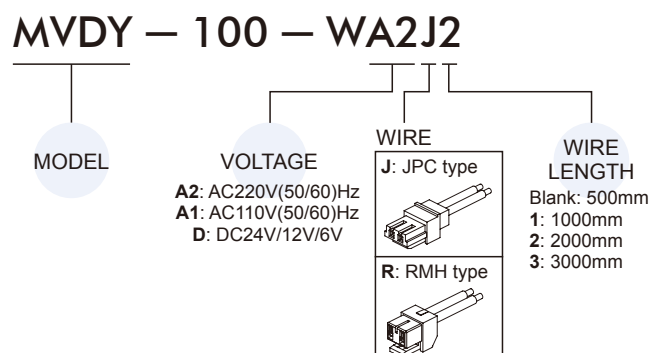


Order example of manifold



Order example of wire

* Use the same wire with MVDY.

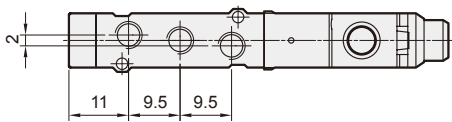
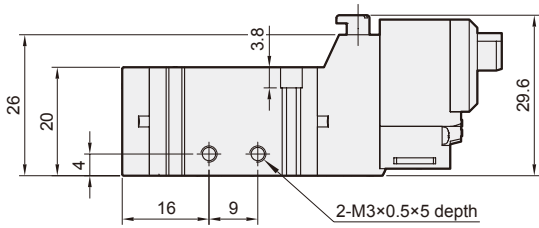
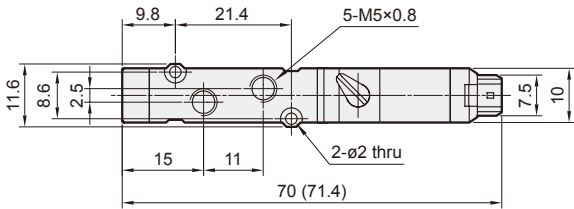
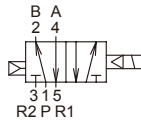


MVSY-100 Dimensions

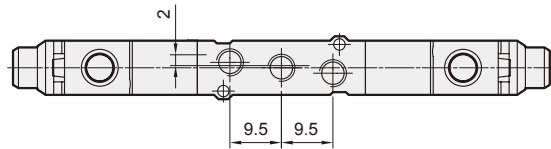
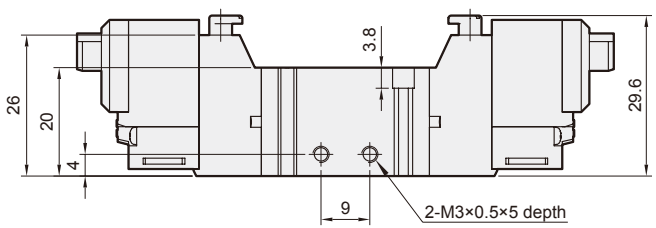
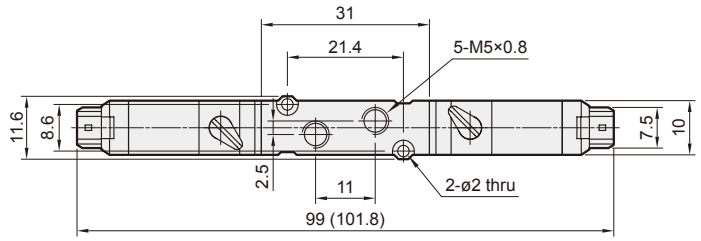
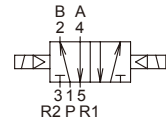
SOLENOID VALVE



MVSY-100-4E1



MVSY-100-4E2

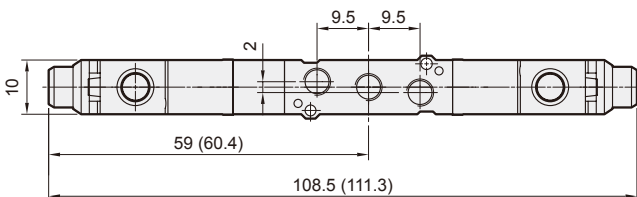
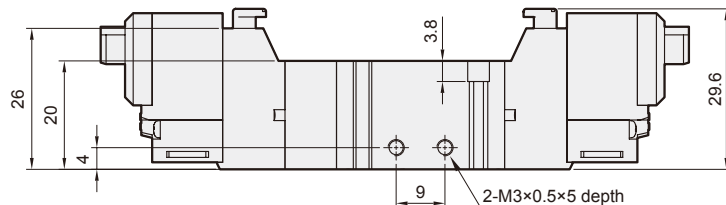
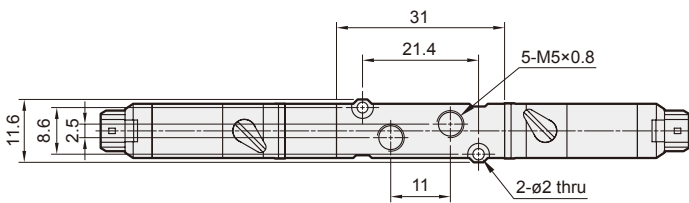
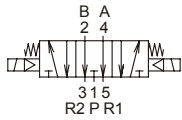
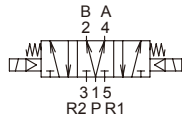
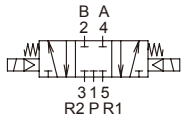


MVSY-100-4E2C.PR

MVSY-100-4E2C

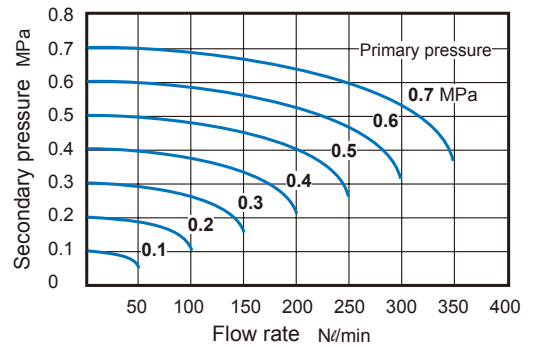
MVSY-100-4E2P

MVSY-100-4E2R



Flow features

MVSY-100-4E1/4E2



() : Dimension for LJ plug type.

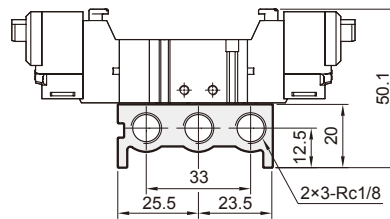
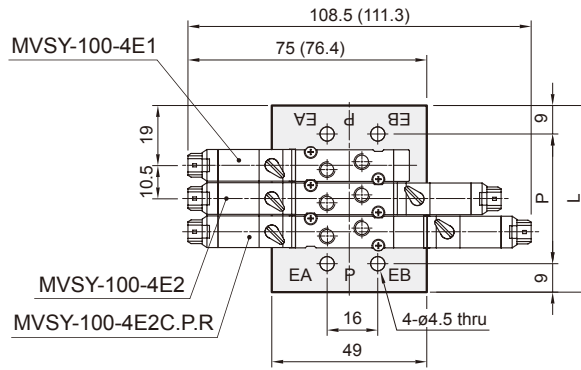
MVSY-100 Manifold

SOLENOID VALVE



MVSY-100-5B*

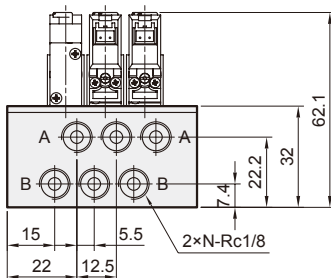
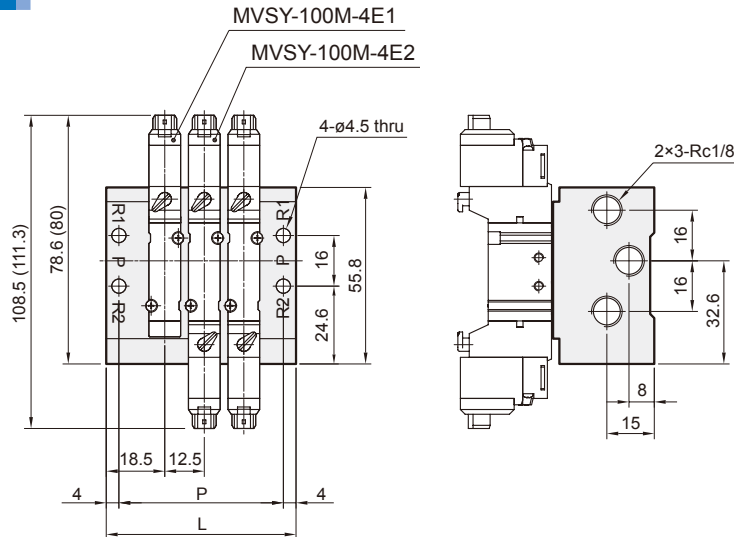
5 port (for body ported type)



No. of stations	P	L
2	30.5	48.5
3	41	59
4	51.5	69.5
5	62	80
6	72.5	90.5
7	83	101
8	93.5	111.5
9	104	122
10	114.5	132.5

MVSY-100M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	39.5	47.5
3	52	60
4	64.5	72.5
5	77	85
6	89.5	97.5
7	102	110
8	114.5	122.5
9	127	135
10	139.5	147.5

() : Dimension for LJ plug type.

MVSY-100 Mounting bracket

SOLENOID VALVE



Order example of bracket

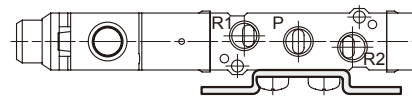
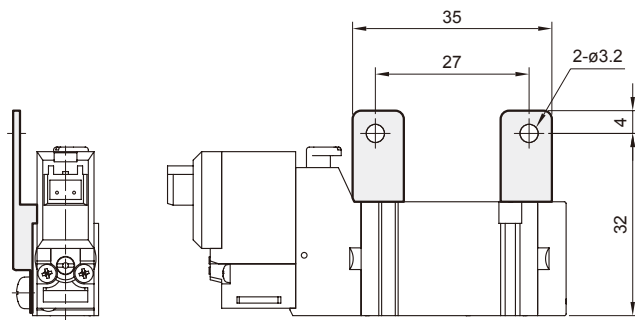
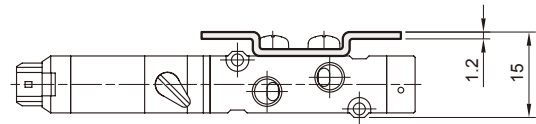
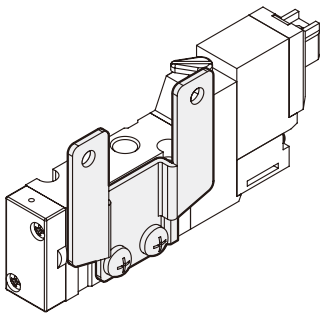
MVSY – 100 – 1A

MODEL

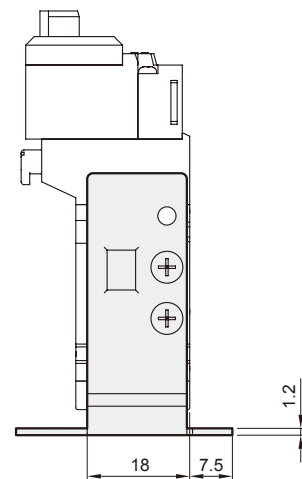
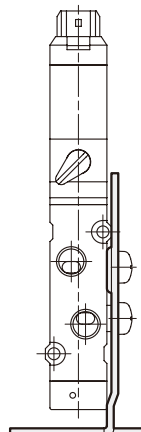
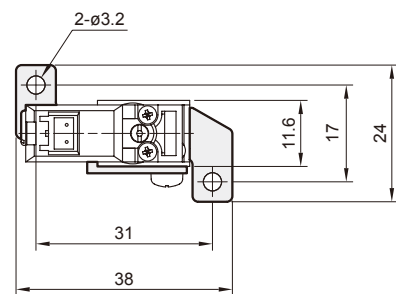
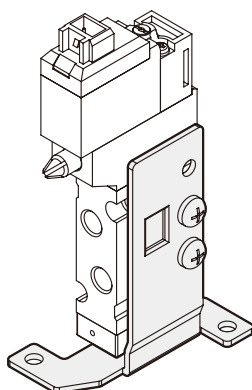
MOUNTING BRACKET

1A
2A

MVSY-100-1A



MVSY-100-2A

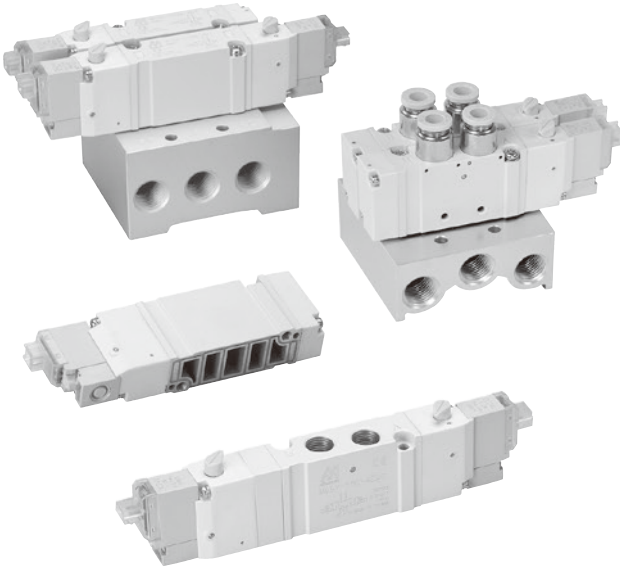


MVSY-156 series

SOLENOID VALVE



mindman



Specification

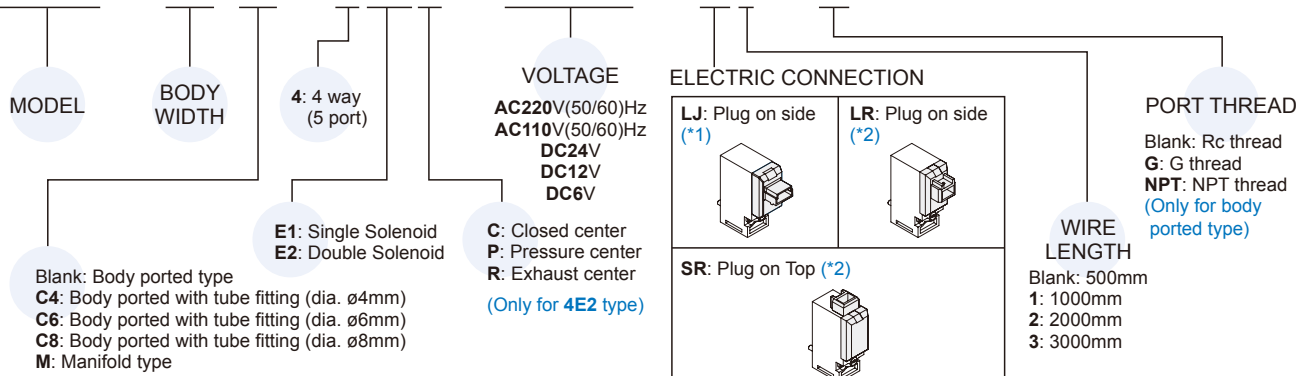
Model	4E1	4E2	4E2 C.P.R
Bore No.	6A		
Port size	Rc1/8		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.15~0.7 MPa	0.2~0.7 MPa	
Proof pressure	1 MPa		
Effective orifice	Body ported	11 mm ²	9.5 / 14.6 / 9.5 mm ²
	Manifold	10 mm ²	7.5 / 13 / 8 mm ²
Reponse time	19 ms	20 ms	
Ambient temperature	+5~+50°C		
Max. operating frequency	5 Hz		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption	AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range	±10%		
Insulation class	B class		
Weight	63 g	82 g	102 g

Caution

- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.

Order example of valve

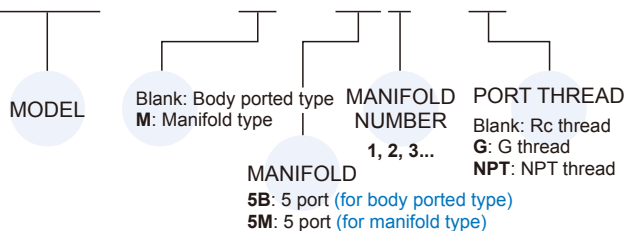
MVSY – 156M – 4E2C – AC110 – LJ1 – G



Blank: Body ported type
C4: Body ported with tube fitting (dia. ø4mm)
C6: Body ported with tube fitting (dia. ø6mm)
C8: Body ported with tube fitting (dia. ø8mm)
M: Manifold type

Order example of manifold

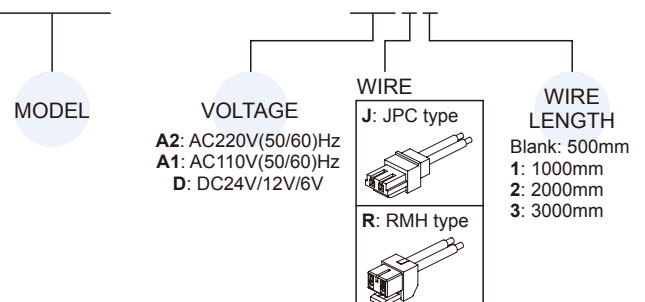
MVSY – 156M – 5B3 – G



Order example of wire

* Use the same wire with MVDY.

MVDY – 100 – WA2J2

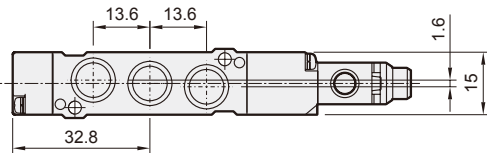
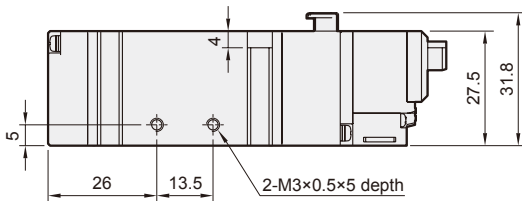
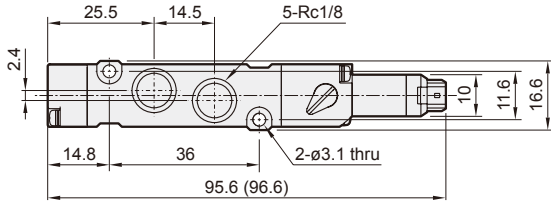
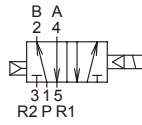


MVSY-156 Dimensions

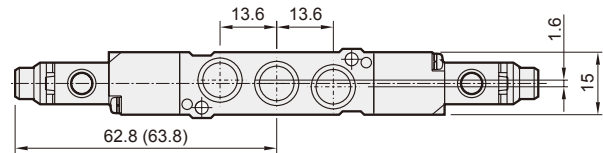
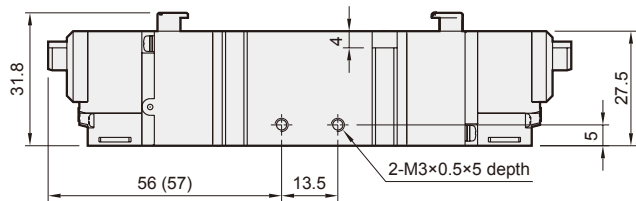
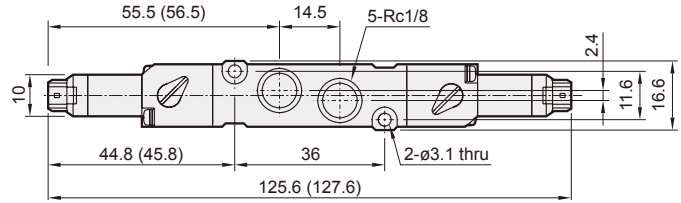
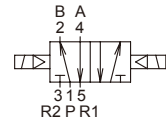
SOLENOID VALVE



MVSY-156-4E1



MVSY-156-4E2

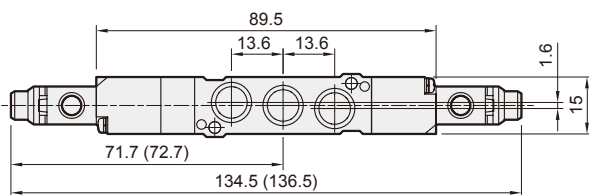
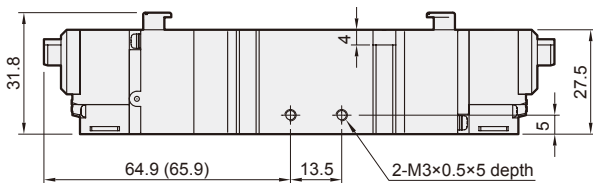
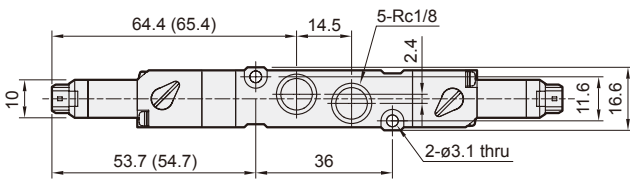
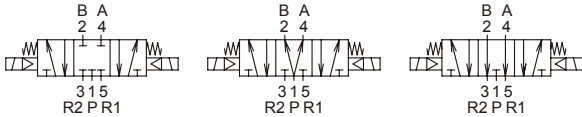


MVSY-156-4E2C.PR

MVSY-156-4E2C

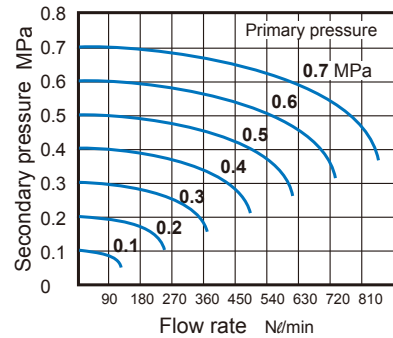
MVSY-156-4E2P

MVSY-156-4E2R

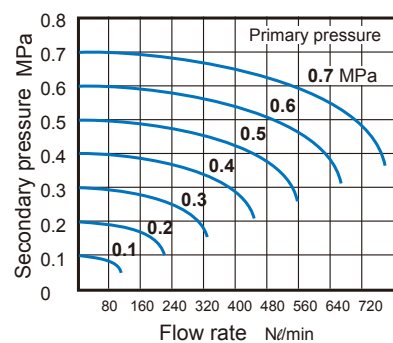


Flow features

MVSY-156-4E1/4E2



MVSY-156M-4E1/4E2



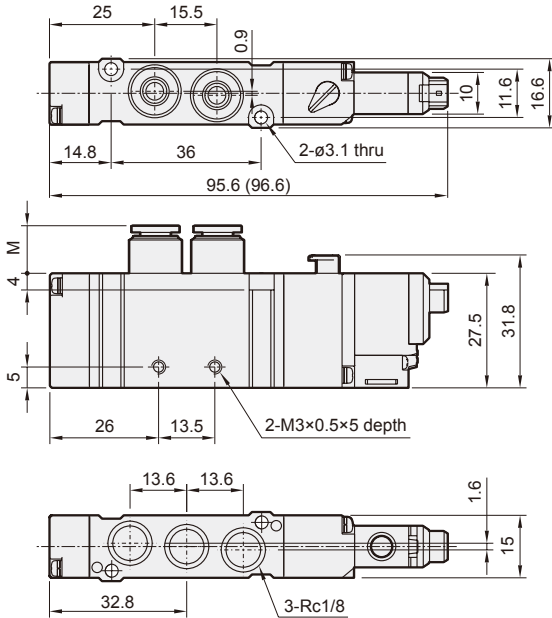
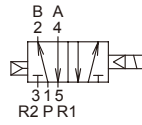
(): Dimension for LJ plug type.

MVSY-156 Dimensions

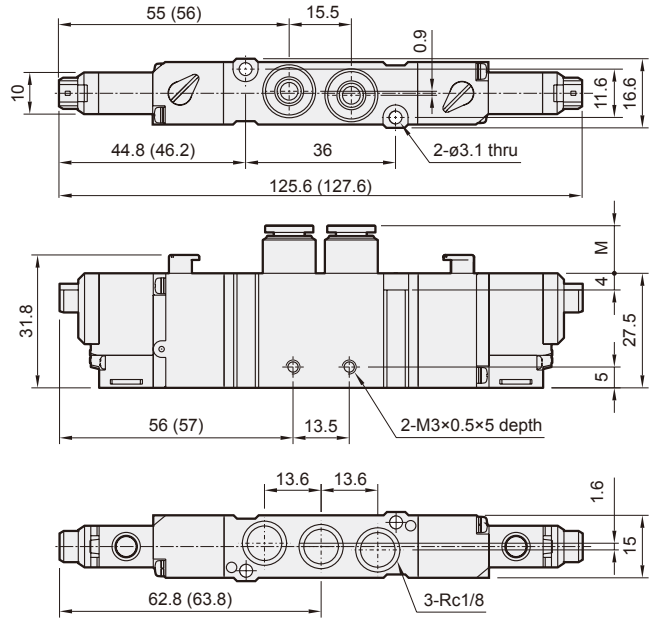
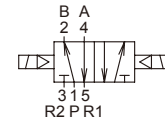
SOLENOID VALVE



MVSY-156C*-4E1



MVSY-156C*-4E2

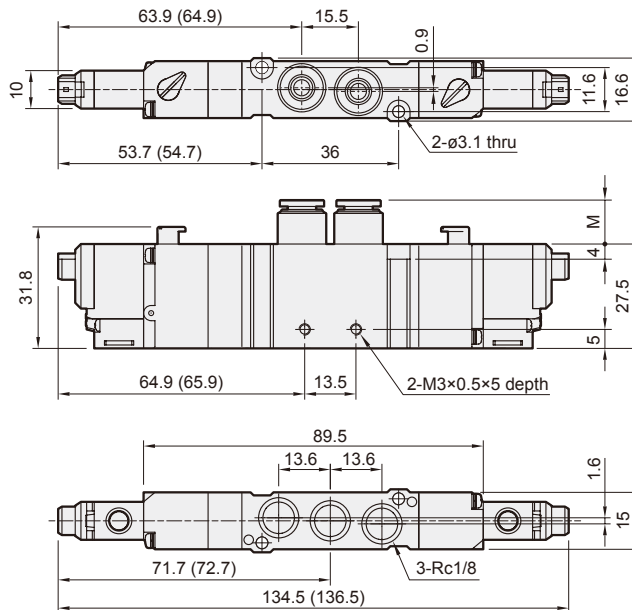


MVSY-156C*-4E2C.PR

MVSY-156-4E2C

MVSY-156-4E2P

MVSY-156-4E2R



Code Tube fitting	M
C4 (ϕ 4)	(13.8)
C6 (ϕ 6)	(14.7)
C8 (ϕ 8)	(19.3)

() : Dimension for LJ plug type.

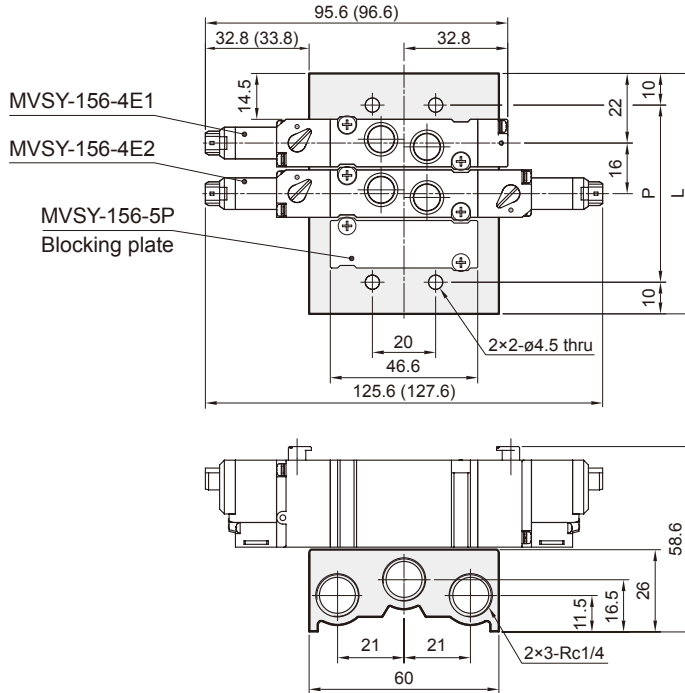
MVSY-156 Manifold

SOLENOID VALVE



MVSY-156-5B*

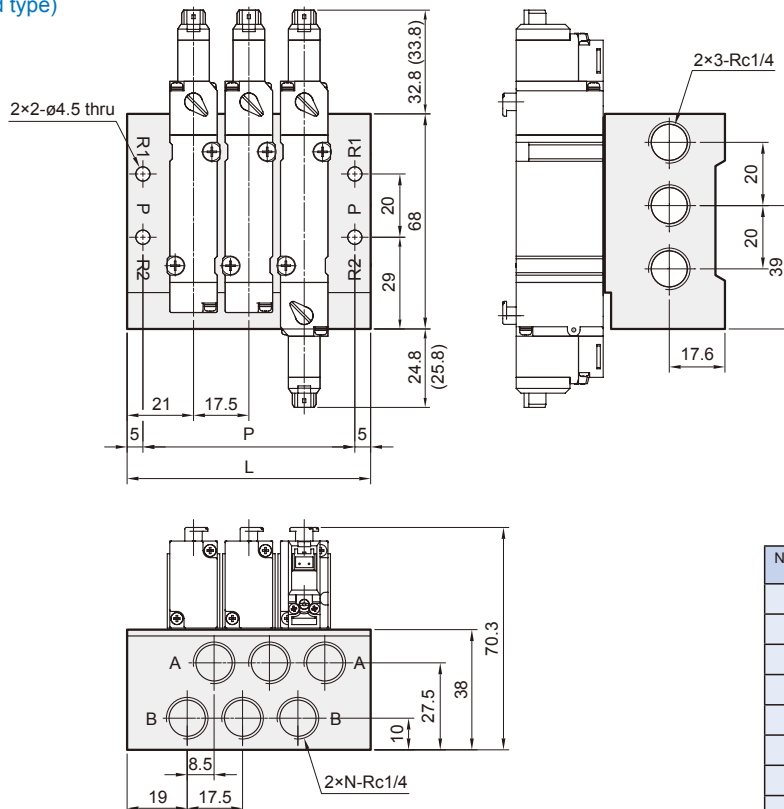
5 port (for body ported type)



No. of stations	P	L
2	40	60
3	56	76
4	72	92
5	88	108
6	104	124
7	120	140
8	136	156
9	152	172
10	168	188

MVSY-156M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	49.5	59.5
3	67	77
4	84.5	94.5
5	102	112
6	119.5	129.5
7	137	147
8	154.5	164.5
9	172	182
10	189.5	199.5

(): Dimension for LJ plug type.

MVSY-156 Mounting bracket & Spacer assembly

SOLENOID VALVE



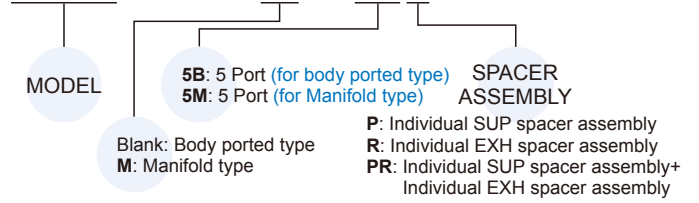
Order example of bracket

MVSY – 156 – 1A

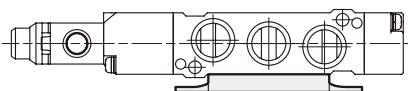
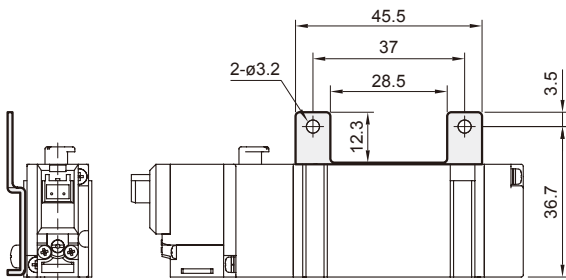
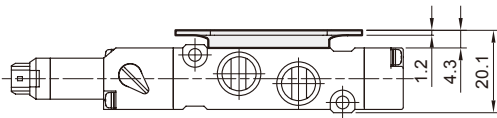
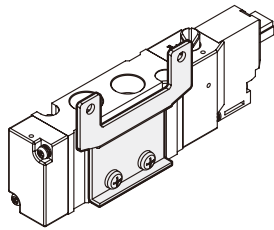


Order example of spacer assembly

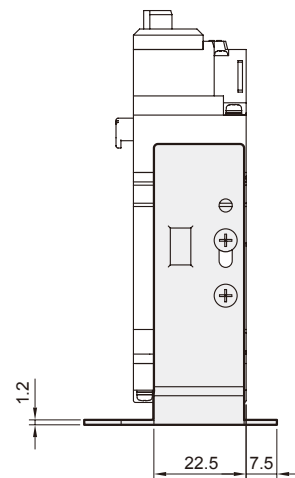
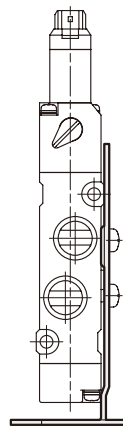
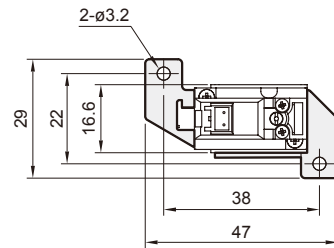
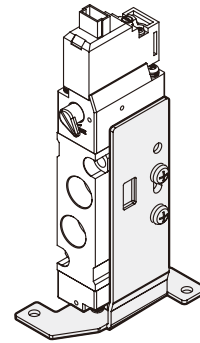
MVSY – 156M – 5BP



MVSY-156-1A



MVSY-156-2A



MVSY-156 Spacer assembly

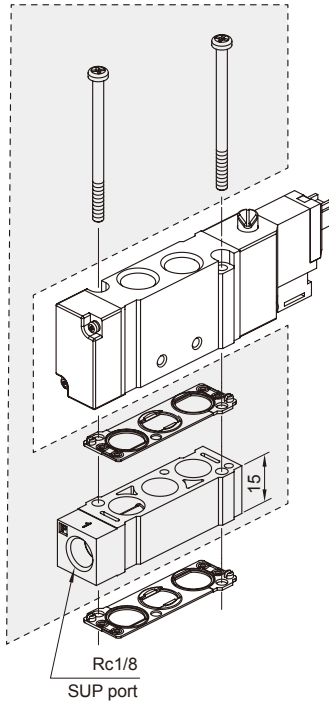
SOLENOID VALVE



for body ported type

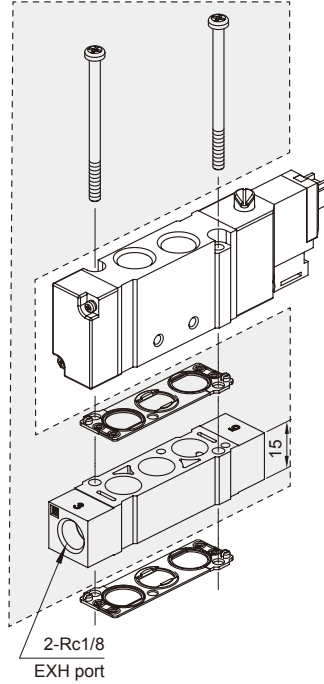
MVSY-156-5BP

Individual SUP spacer assembly



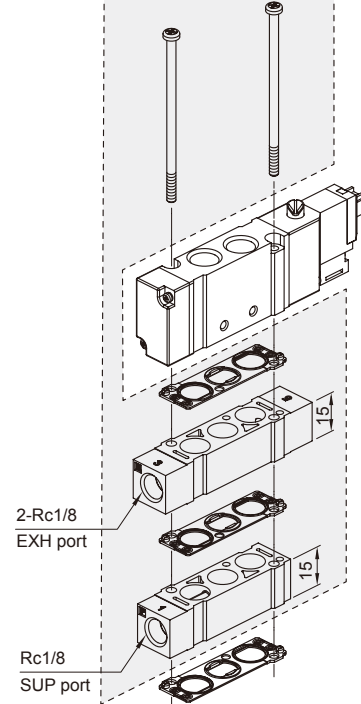
MVSY-156-5BR

Individual EXH spacer assembly



MVSY-156-5BPR

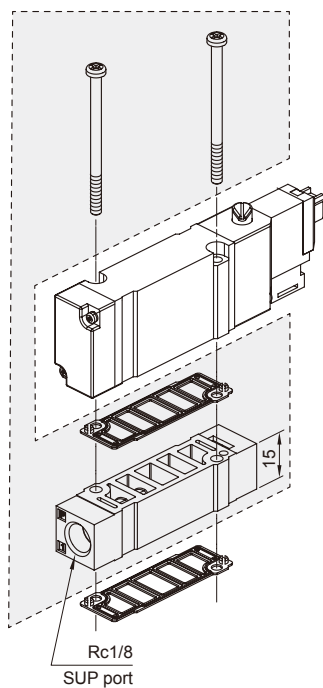
Individual SUP spacer assembly+
Individual EXH spacer assembly



for manifold type

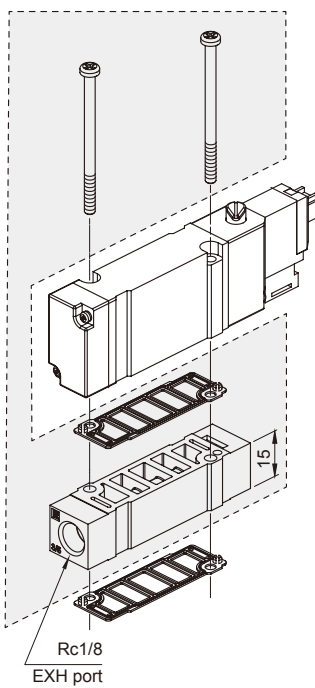
MVSY-156M-5MP

Individual SUP spacer assembly



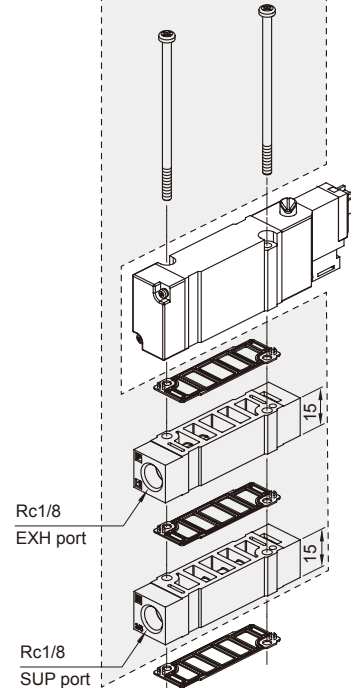
MVSY-156M-5MR

Individual EXH spacer assembly



MVSY-156M-5MPR

Individual SUP spacer assembly+
Individual EXH spacer assembly

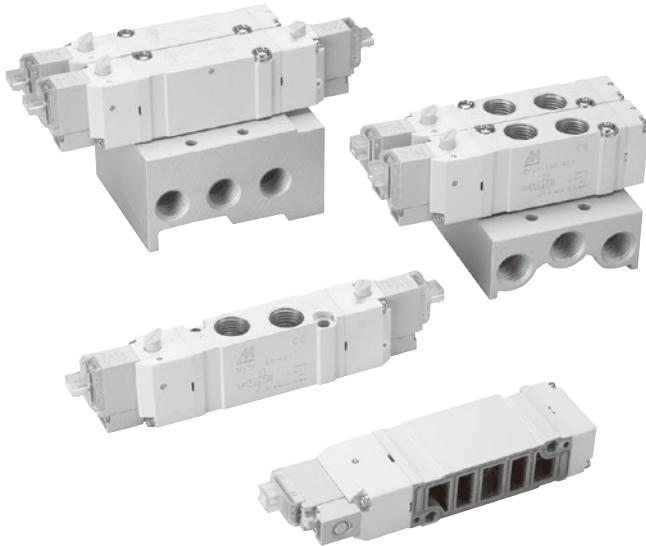


MVSY-188 series

SOLENOID VALVE



mindman



Caution

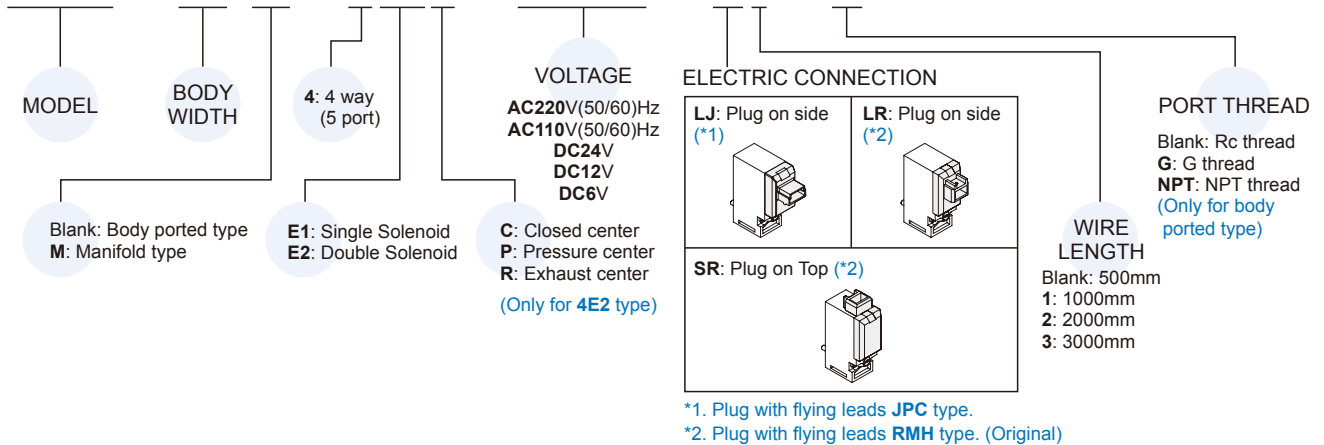
- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.

Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
No. of position	2	3	
Medium	Air		
Operating perssure range	0.15~0.7 MPa	0.2~0.7 MPa	
Proof pressure	1 MPa		
Effective orifice	Body ported	15 mm ²	16.3/27/12.4 mm ²
	Manifold	13 mm ²	13.5/18.4/11 mm ²
Reponse time	23 ms	50 ms	
Ambient temperature	+5~+50°C		
Max. operating frequency	5 Hz		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption	AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range	±10%		
Insulation class	B class		
Weight	77 g	102 g	106 g

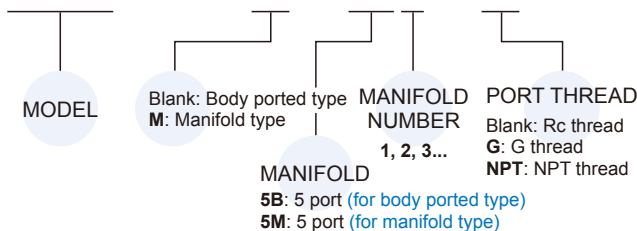
Order example of valve

MVSY – 188M – 4E2C – AC110 – LJ1 – G



Order example of manifold

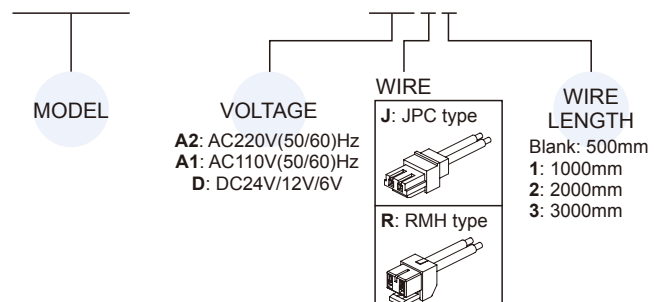
MVSY – 188M – 5B3 – G



Order example of wire

* Use the same wire with MVDY.

MVDY – 100 – WA2J2

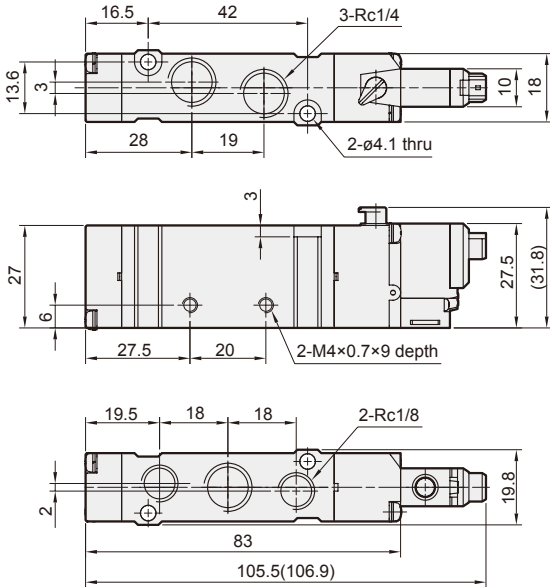
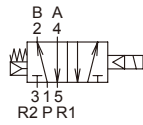


MVSY-188 Dimensions

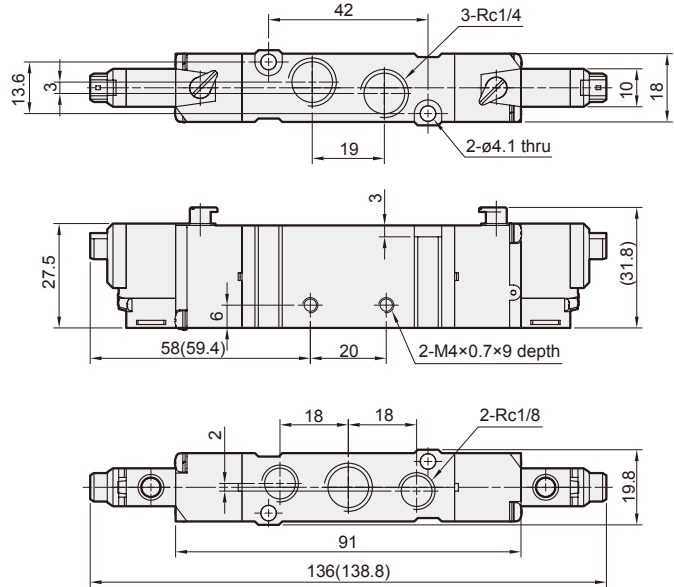
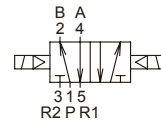
SOLENOID VALVE



MVSY-188-4E1



MVSY-188-4E2

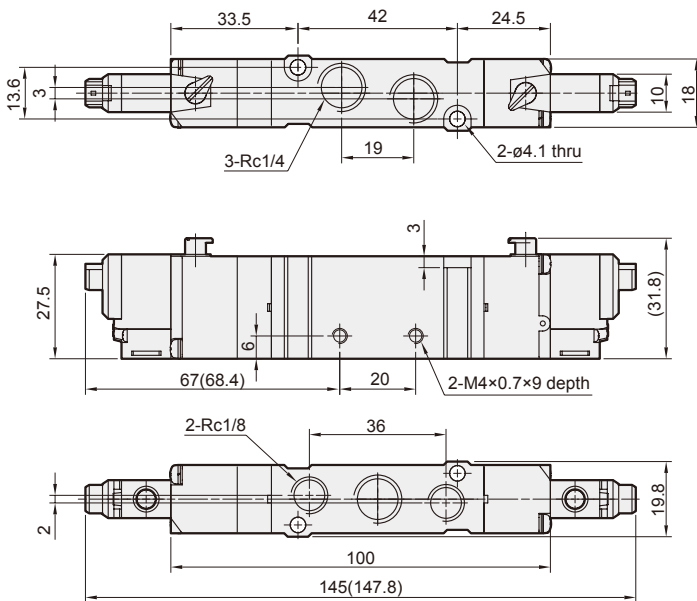
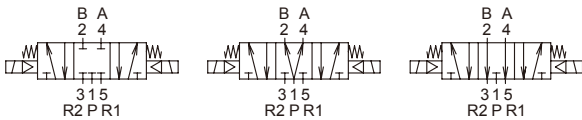


MVSY-188-4E2C.P.R

MVSY-188-4E2C

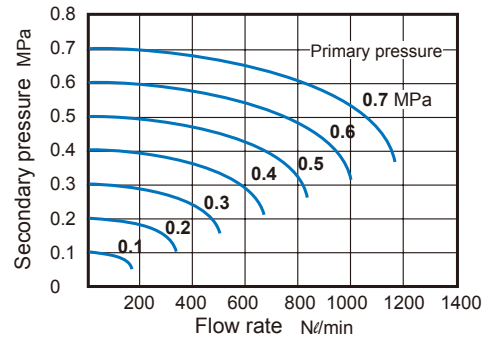
MVSY-188-4E2P

MVSY-188-4E2R

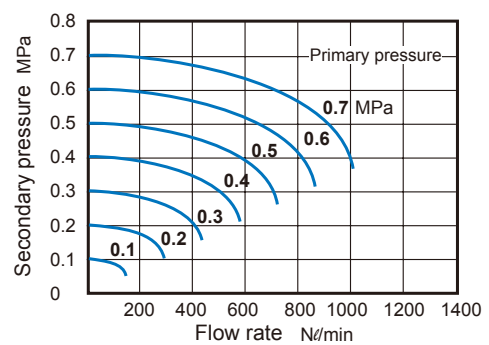


Flow features

MVSY-188-4E1/4E2



MVSY-188M-4E1/4E2



() : Dimension for LJ plug type.

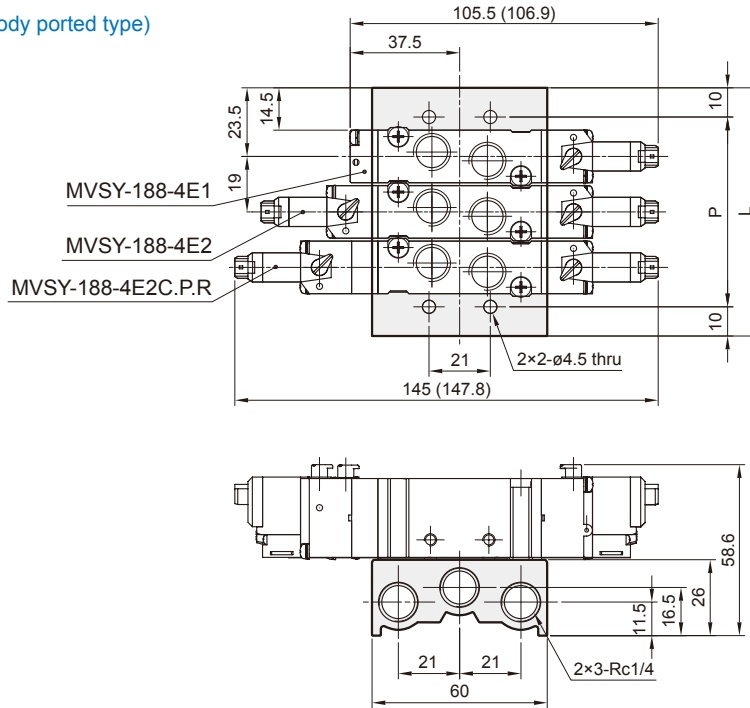
MVSY-188 Manifold

SOLENOID VALVE



MVSY-188-5B*

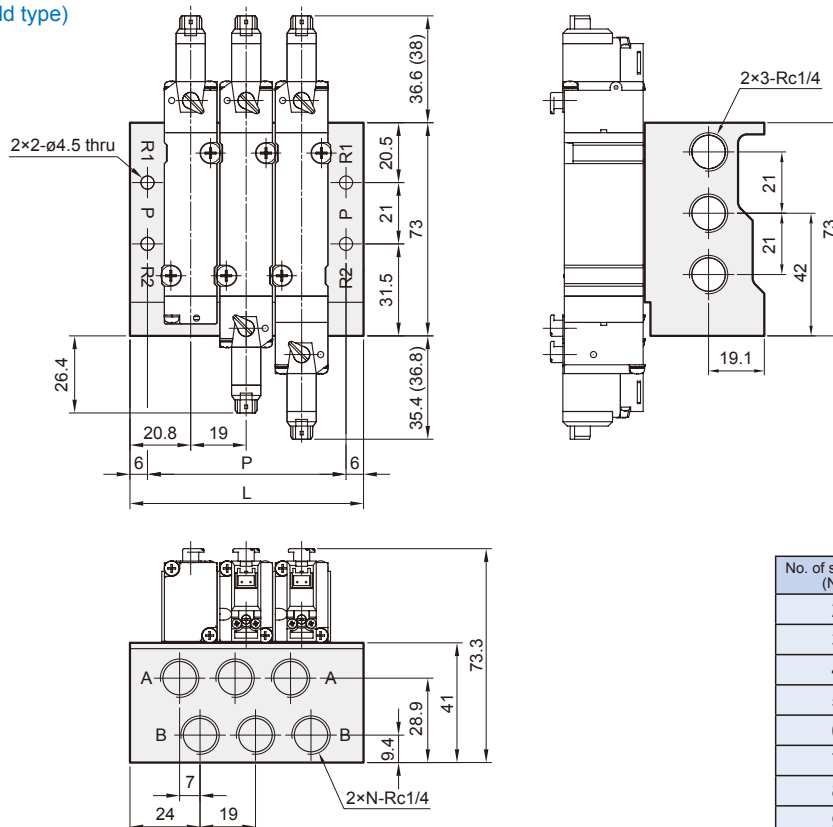
5 port (for body ported type)



No. of stations	P	L
2	46	66
3	65	85
4	84	104
5	103	123
6	122	142
7	141	161
8	160	180
9	179	199
10	198	218

MVSY-188M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	49	61
3	68	80
4	87	99
5	106	118
6	125	137
7	144	156
8	163	175
9	182	194
10	201	213

() : Dimension for LJ plug type.

MVSY-188 Mounting bracket & Spacer assembly



SOLENOID VALVE

Mindman

Order example of bracket

MVSY – 188 – 1A

MODEL

MOUNTING BRACKET

1A
2A

Order example of spacer assembly

MVSY – 188M – 5BP

MODEL

5B: 5 Port (for body ported type)
5M: 5 Port (for manifold type)

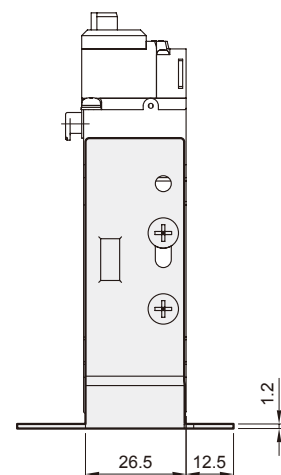
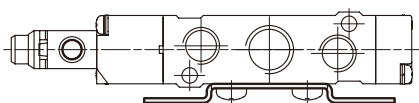
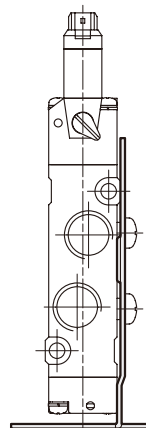
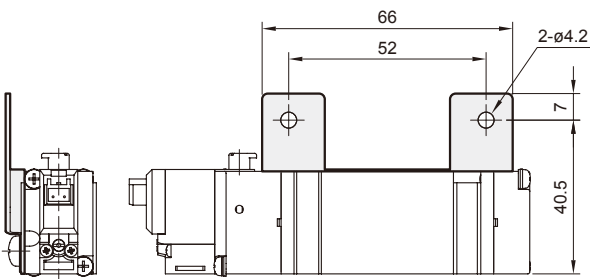
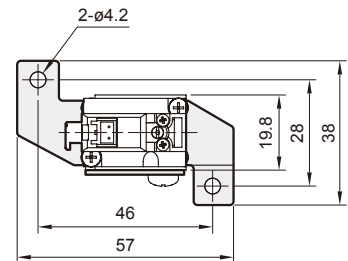
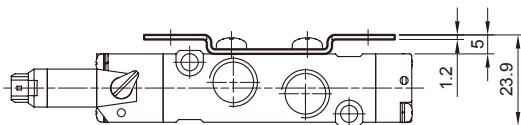
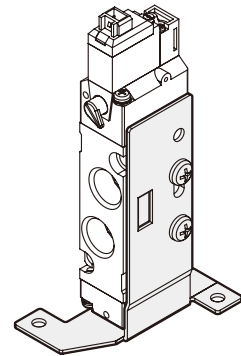
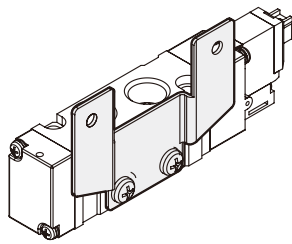
SPACER
ASSEMBLY

Blank: Body ported type
M: Manifold type

P: Individual SUP spacer assembly
R: Individual EXH spacer assembly
PR: Individual SUP spacer assembly+
Individual EXH spacer assembly

MVSY-188-1A

MVSY-188-2A



MVSY-188 Spacer assembly

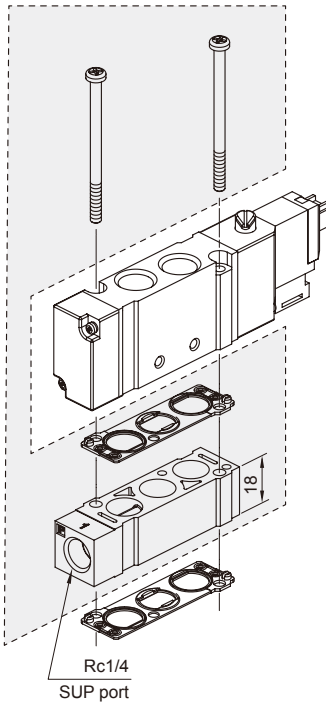
SOLENOID VALVE



for body ported type

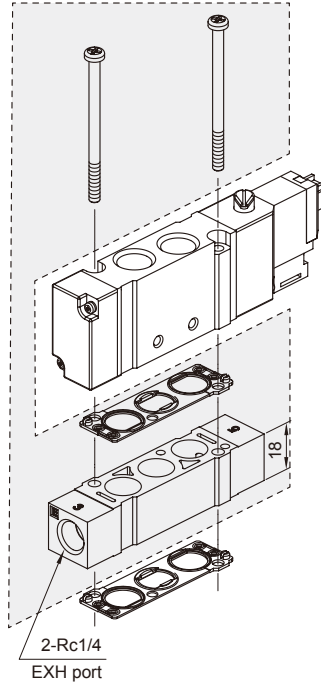
MVSY-188-5BP

Individual SUP spacer assembly



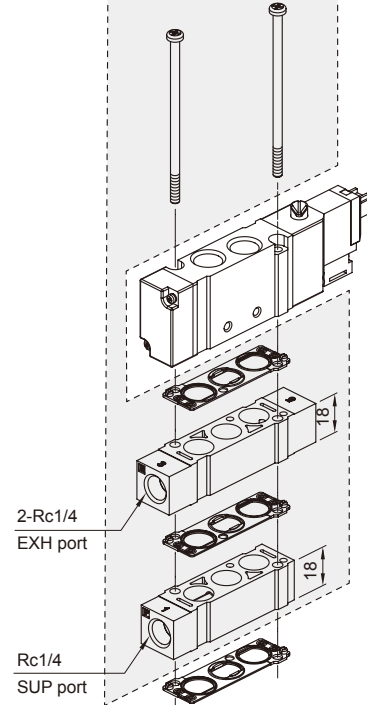
MVSY-188-5BR

Individual EXH spacer assembly



MVSY-188-5BPR

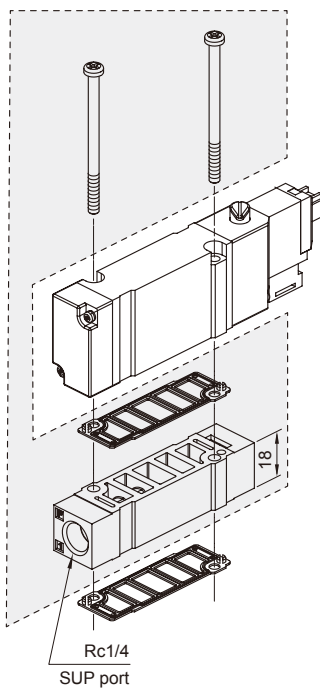
Individual SUP spacer assembly+
Individual EXH spacer assembly



for manifold type

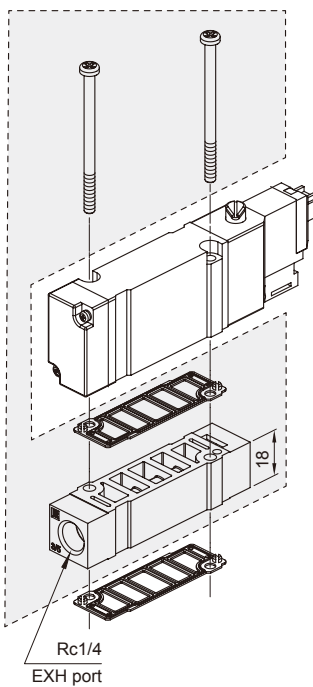
MVSY-188M-5MP

Individual SUP spacer assembly



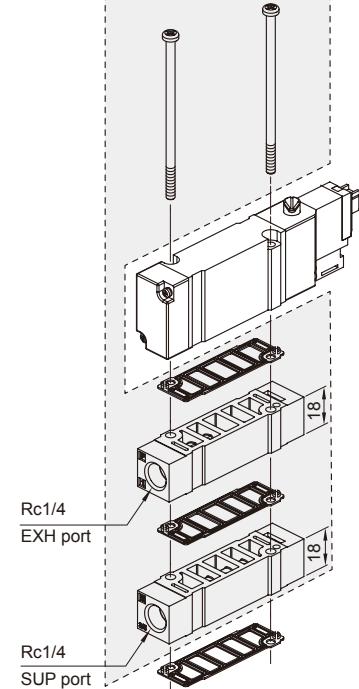
MVSY-188M-5MR

Individual EXH spacer assembly



MVSY-188M-5MPR

Individual SUP spacer assembly+
Individual EXH spacer assembly

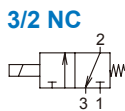
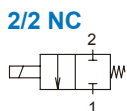
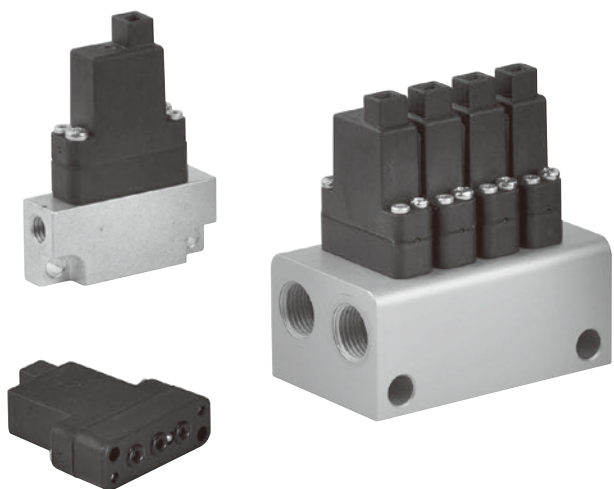


MVDA-80 series



DIRECT ACTING TYPE COMPACT SOLENOID VALVE

mindman



Features

- Response time < 1ms (KK type).
- Product life: 500 million switching cycles.
- Ultra response frequency: 500Hz.

Specification

Model	2E1-KK-A	3E1-KK	3E1-DC24
No. of port	2	3	
No. of position	2		
Medium	Dry air, inert gas		
Operating pressure range	0~1.2 MPa	0~0.8 MPa	
Flow rate (N l/min)	25 ± 10%	28 ± 10%	28 ± 10%
Response time (ms)	ON	0.7 ± 0.5	2.0 ± 0.5
	OFF	1 ± 0.2	0.6 ± 0.2
Operating fluid temp.	-10~+50°C		
Ambient temperature	-10~+50°C		
Storage temperature	-10~+50°C		
Voltage	Speed-up: DC24V, Hold: DC5V		DC24V
Power consumption	0.8 W (Hold)	0.5 W (Hold)	1.2 W
Filter element	40 µm		
Lubrication	No required		
Max. operating frequency	500 Hz (at 250Hz with driver board)		200 Hz
IP protection class	IP52		
Weight	8 g		

Order example of valve

MVDA – 80 – 3E1 – NC – DC24 – C – A – M3

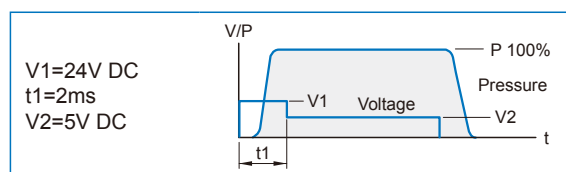
MODEL	BODY WIDTH	Port	Voltage	Wire	Pressure	SYMBOL OF ASSEMBLY	
2E1-NC:	2 way (2 port)	2E1-NC:	KK: DC24V / DC5V (Speed-up in tension) Speed-up: DC24V, hold: DC5V	C: Without driver board S: With driver board (24/5V Signal converter)	A: High pressure (0~1.2 MPa)	B1: Assembly (Base+Valve)	M□: 2,3,4...Manifold number Assembly (Manifold+Valve)
3E1-NC:	3 way (3 port)	3E1-NC:	KK: DC24V / DC5V (Speed-up in tension) Speed-up: DC24V, hold: DC5V	C: Without driver board S: With driver board (24/5V Signal converter)	Blank: General pressure (0~0.8 MPa)		

Order example of base

MVDA – 80 – 3B1

MODEL	BASE
3B:	2B: 2 port base
	3B: 3 port base

KK type electrical control

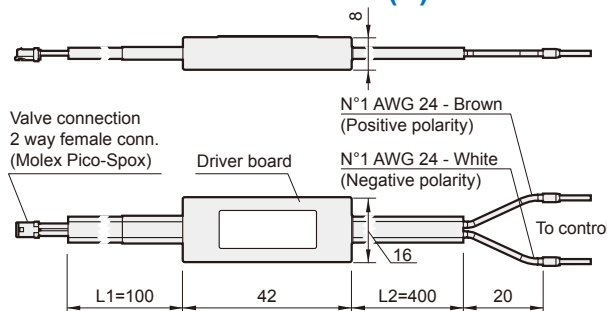


Order example of manifold

MVDA – 80 – 3M2

MODEL	MANIFOLD	MANIFOLD NUMBER
3M:	2M: 2 port	2, 3, 4...
	3M: 3 port	

The wire with driver board (S) dimensions

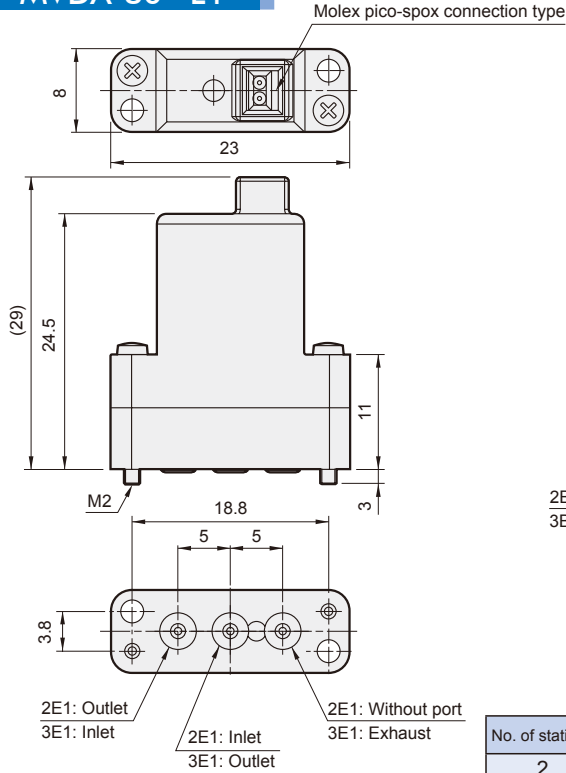


MVDA-80 Dimensions / Base / Manifold

DIRECT ACTING TYPE **COMPACT SOLENOID VALVE**

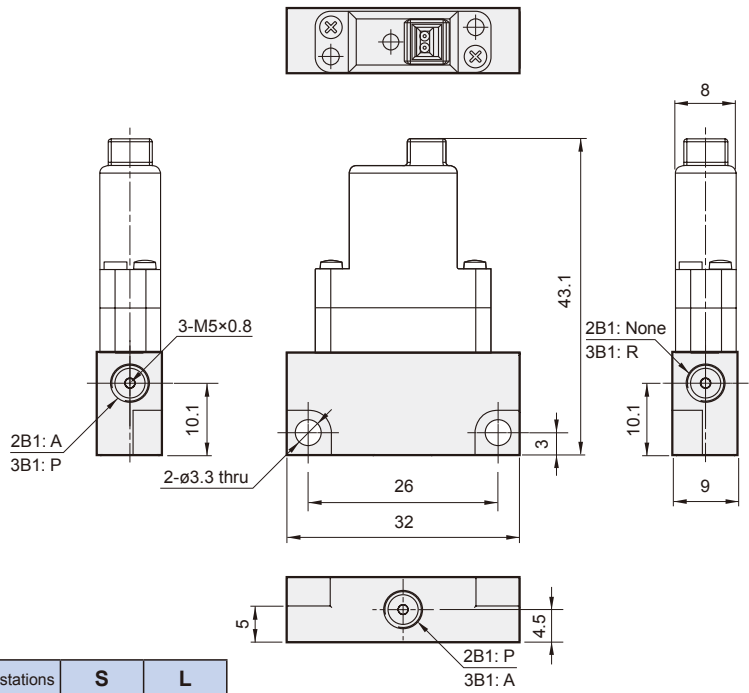


MVDA-80-*E1



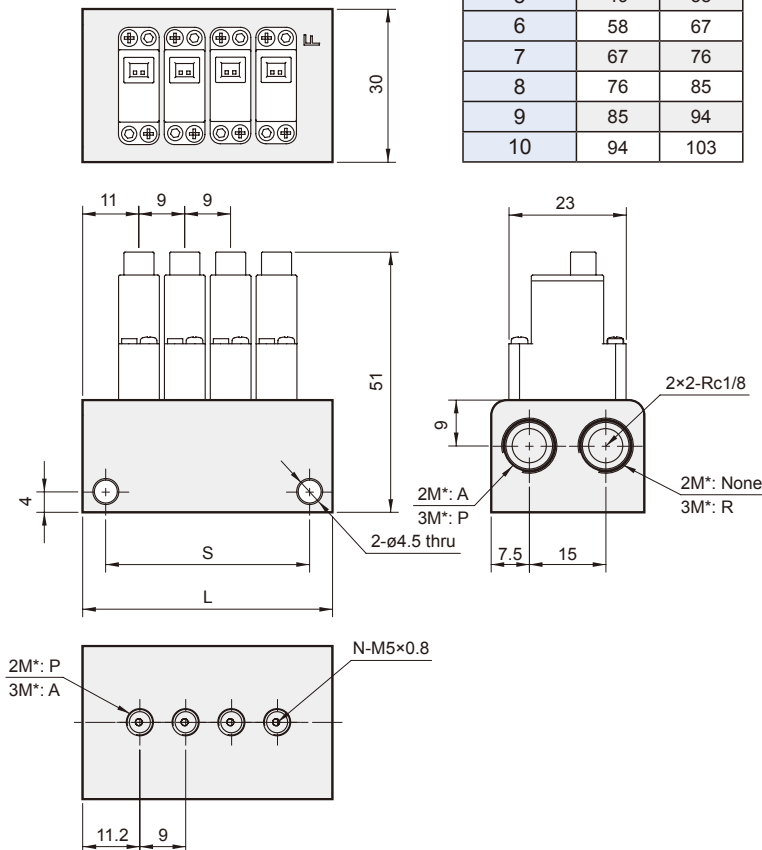
MVDA-80-*B1

Base



MVDA-80-*M*

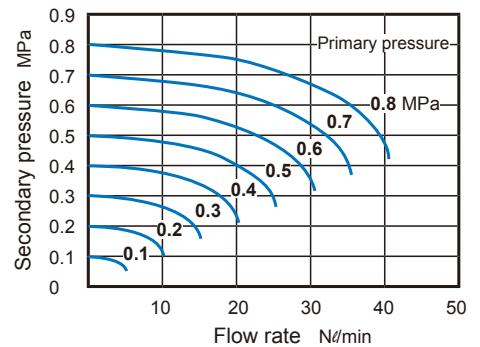
Manifold



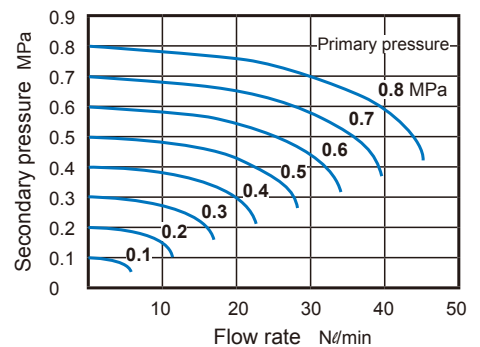
No. of stations	S	L
2	22	31
3	31	40
4	40	49
5	49	58
6	58	67
7	67	76
8	76	85
9	85	94
10	94	103

Flow features

MVDA-80-2E1

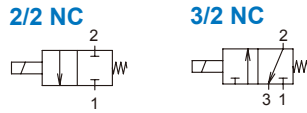
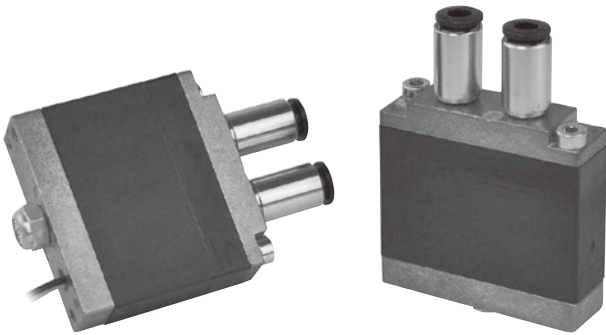


MVDA-80-3E1



MVDA-120 series

DIRECT ACTING TYPE **COMPACT SOLENOID VALVE**



Specification

Model	2E1	3E1
No. of port	2	3
No. of position	2	
Medium	Non-lubricated dry air, Neutral gases	
Operating fluid temp.	-10~+50°C	
Operating pressure range	0~0.8 MPa	
Flow rate	100 N ℓ/min	
Response time	ON	< 2 ms
	OFF	< 2 ms
Ambient temperature	-10~+50°C	
Filtration rating	min. 40 μm	
Voltage	Speed-up: DC24V, Hold: DC5V	
Power consumption	0.8 W (Hold)	
Max. operating frequency	300 Hz (at 250Hz with driver board)	
IP protection class	IP62	
Weight	35 g	

Features

- Flow rate 100 Nℓ/min.
- Response time < 2ms.
- Product life: 500 million switching cycles.
- Ultra response frequency: 300Hz.

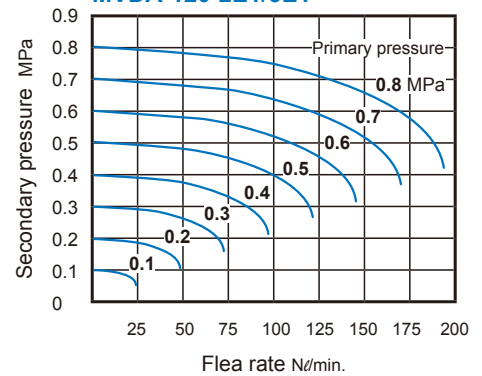
Order example

MVDA — 120 — 2E1 — NC — KK — S

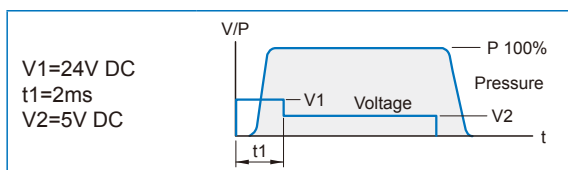
MODEL	BODY WIDTH	Port	Voltage	Wire
		2E1-NC: 2 way (2 port)	KK: DC24V / DC5V (Speed-up in tension)	C: Without driver board S: With driver board (24/5V Signal converter)
		3E1-NC: 3 way (3 port)	Speed-up: DC24V, hold: DC5V	

Flow features

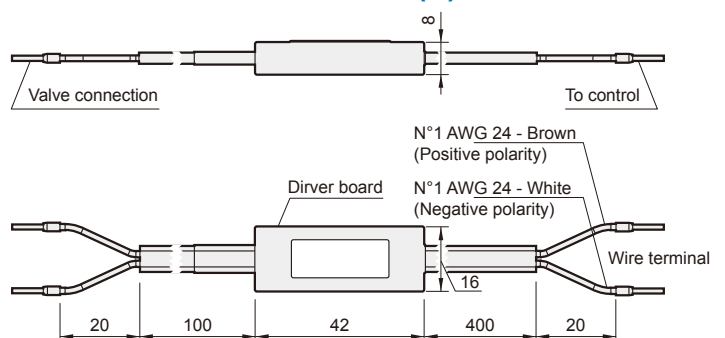
MVDA-120-2E1/3E1



Electrical control



The wire with driver board (S) dimensions

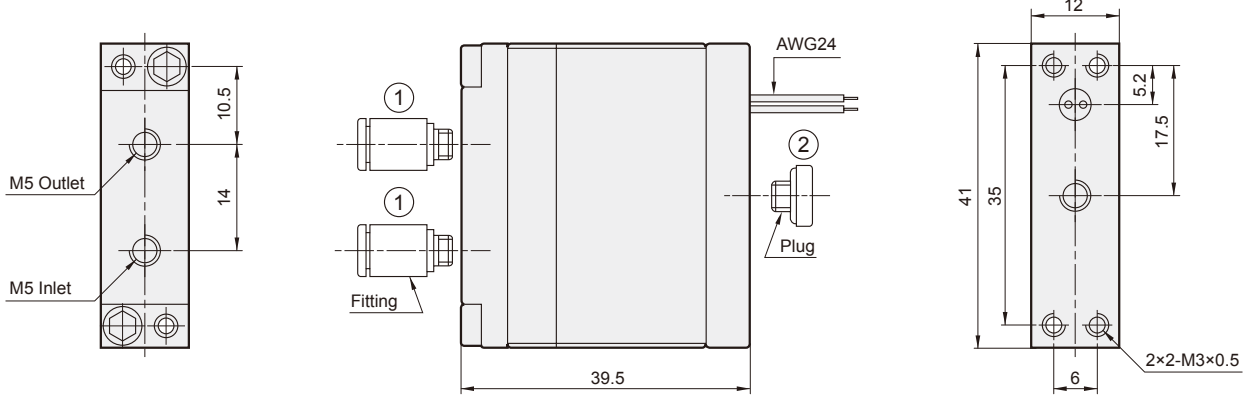


MVDA-120 Dimensions

DIRECT ACTING TYPE **COMPACT SOLENOID VALVE**



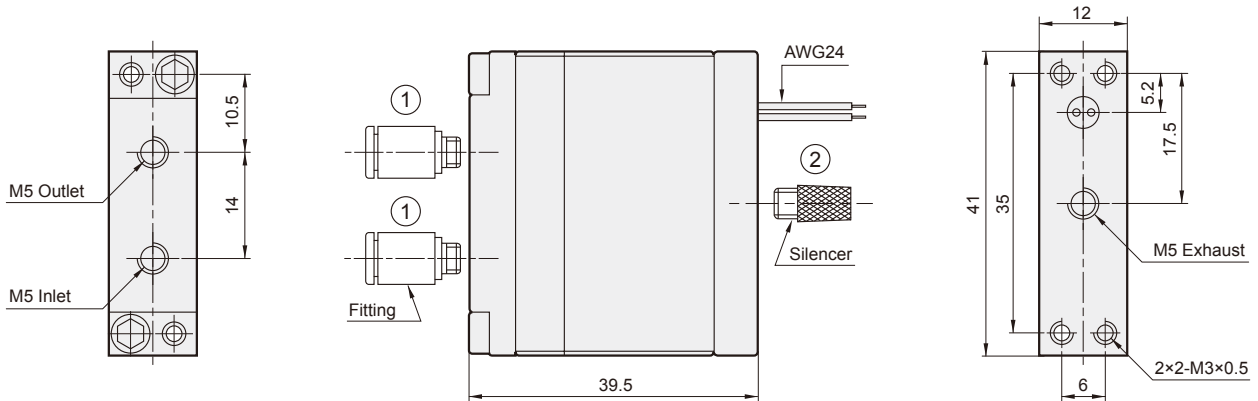
MVDA-120-2E1



Accessories

No.	Quantity	Description
1	2	Fitting $\varnothing 4/6$ (inch)
2	1	Plug

MVDA-120-3E1



Accessories

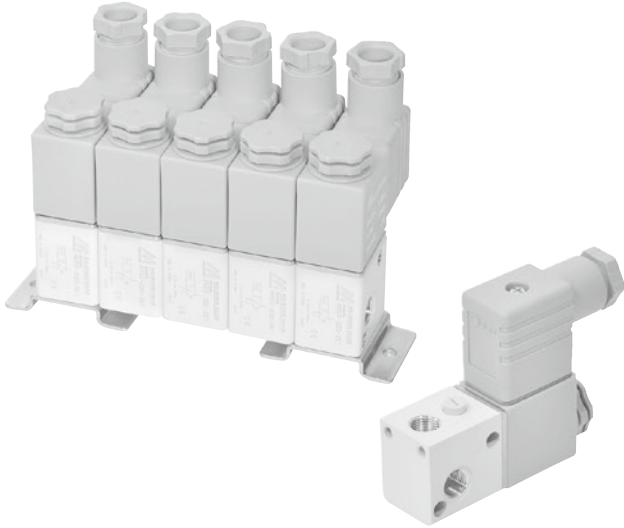
No.	Quantity	Description
1	2	Fitting $\varnothing 4/6$ (inch)
2	1	Silencer

MVDC-220 series

SOLENOID VALVE (DIRECT OPERATED TYPE)



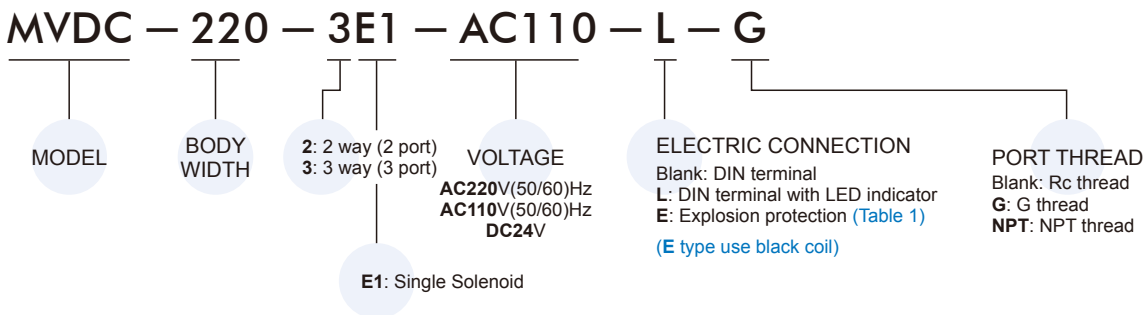
mindman



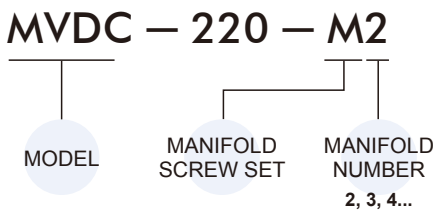
Specification

Model	2E1	3E1
Bore No.	6A	
Port size	Rc1/8	
No. of port	2	3
No. of position	2	
Medium	Air	
Operating pressure range	0.01~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	0.8 mm ²	
Response time	20 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight	155 g	

Order example of valve



Order example of manifold screw set



Order example of bracket

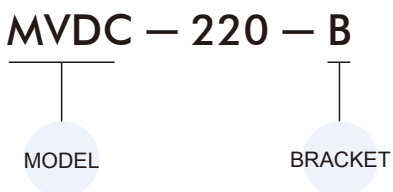
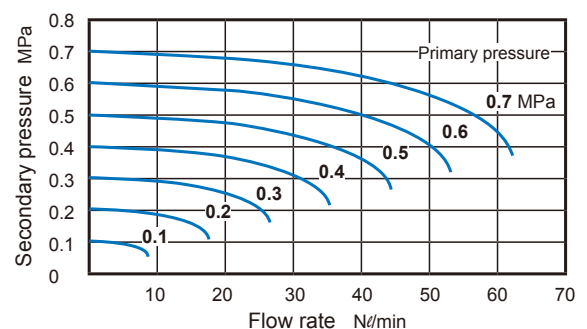


Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Flow features

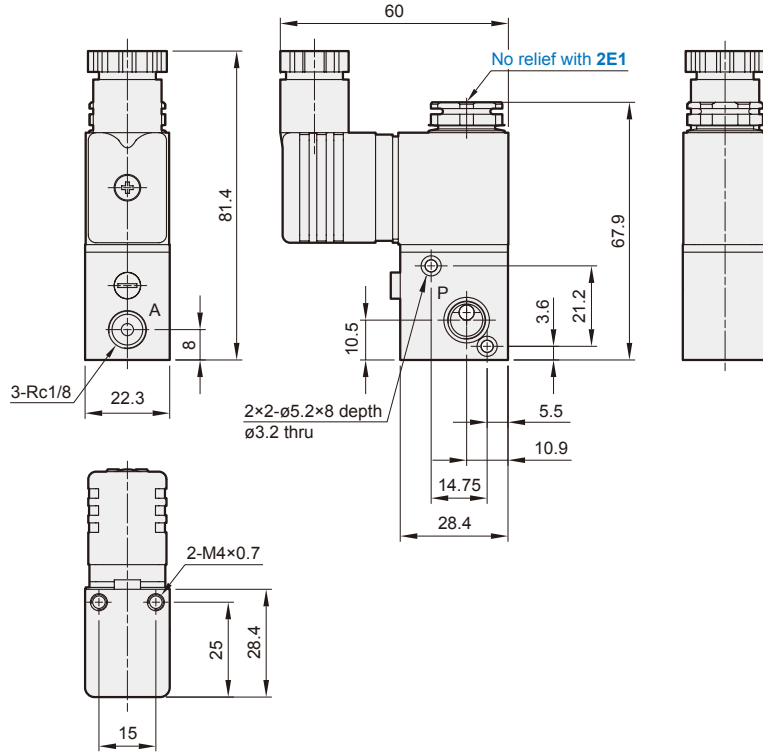
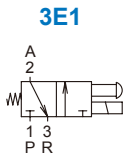
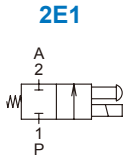


MVDC-220 Dimensions / Mounting accessories

SOLENOID VALVE (DIRECT OPERATED TYPE)



MVDC-220



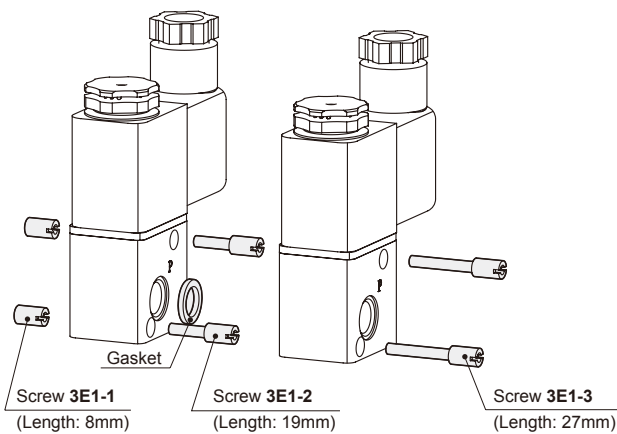
Mounting accessories

MVDC-220-M*

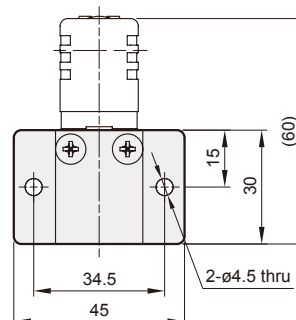
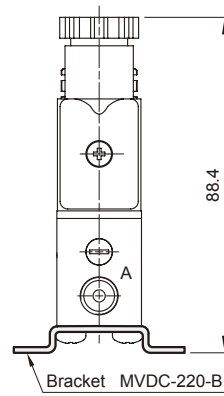
Manifold screw set

MVDC-220-B

Bracket

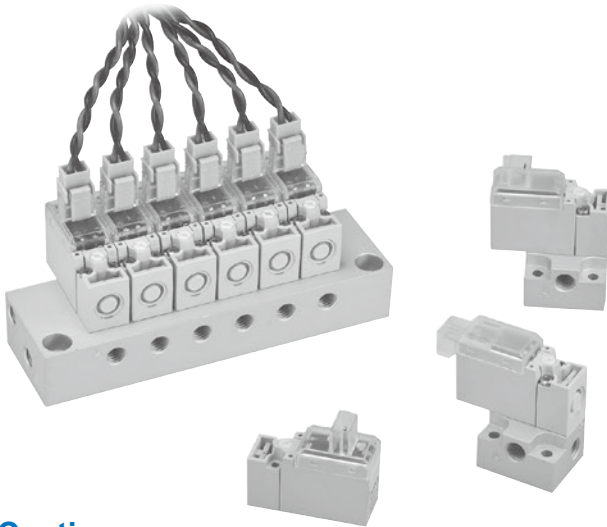


1. Screw 3E1-1 & screw 3E1-2: for the first station.
2. Gasket & Screw 3E1-3: for the second and other station.



MVDY-100 series

SOLENOID VALVE (DIRECT OPERATED TYPE)



Specification

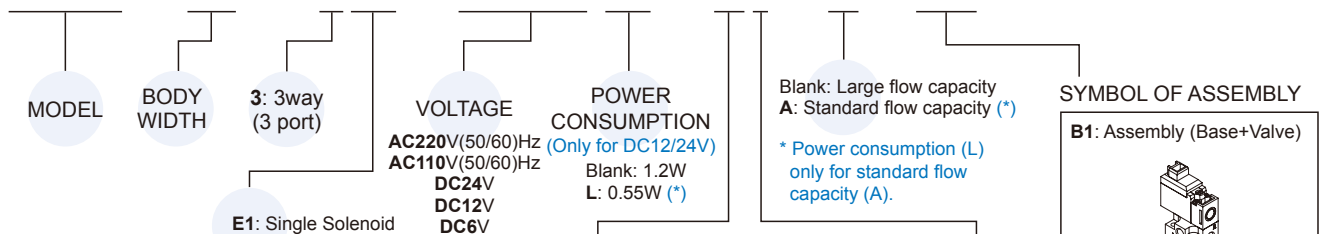
Model	3E1	3E1-**-A	3E1-DC24L-A
No. of port	3		
No. of position	2		
Medium	Air		
Operating perssure range	0~0.7 MPa	0~0.9 MPa	0~0.85 MPa
Proof pressure	1 MPa		
Effective orifice	P→A1	0.28 mm ²	0.09 mm ²
	P→A2	0.23 mm ²	0.1 mm ²
Reponse time	DC: 4 ms, AC: 20ms		
Max. operating frequency	5 Hz		
Ambient temperature	+5~+50°C		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		DC24/12V
Power consumption	AC=1.6/2.5VA, DC=1.2W		0.55W
Available voltage range	±10%		
Insulation class	B class		
Weight	12 g		

Caution

- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.

Order example of valve

MVDY – 100 – 3E1 – AC110 □ – LJ1 – A – M3



* Pressure is 0.5 MPa, at rated voltage.
* LED indicator as standard.

EX

Valve
MVDY-100-3E1-AC220-LJ1-A × 1 pc.

Assembly (5 valve + 5 manifold)
MVDY-100-3E1-AC220-LR2-M5 × 1 set

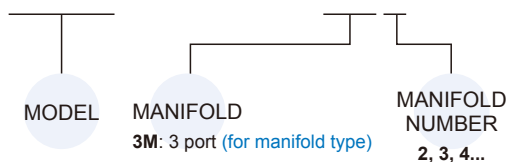
Order example of base

MVDY – 100 – 3B1

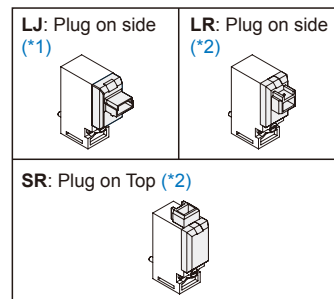


Order example of manifold

MVDY – 100 – 3M2



ELECTRIC CONNECTION

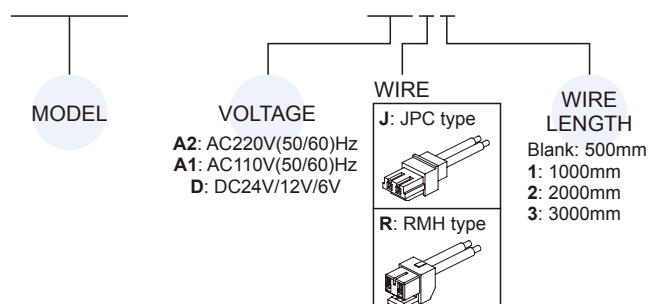


WIRE LENGTH
Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

*1. Plug with flying leads JPC type.
*2. Plug with flying leads RMH type. (Original)

Order example of wire

MVDY – 100 – WA2J2



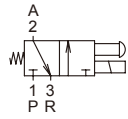
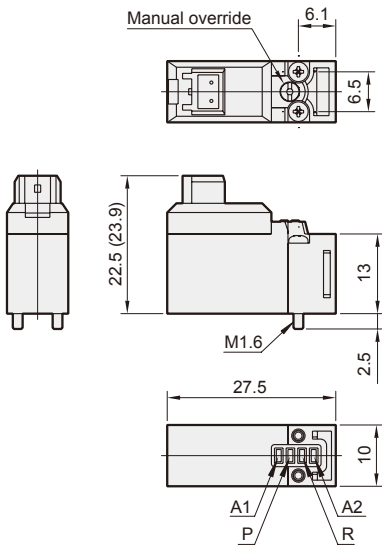
MVDY-100 Dimensions

SOLENOID VALVE (DIRECT OPERATED TYPE)



MVDY-100-3E1

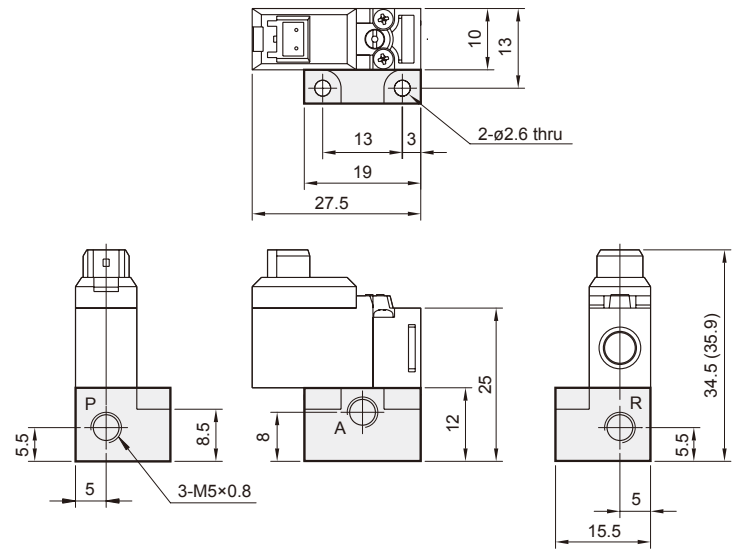
() : Dimension for LJ plug type.



MVDY-100-3B1

3 port base

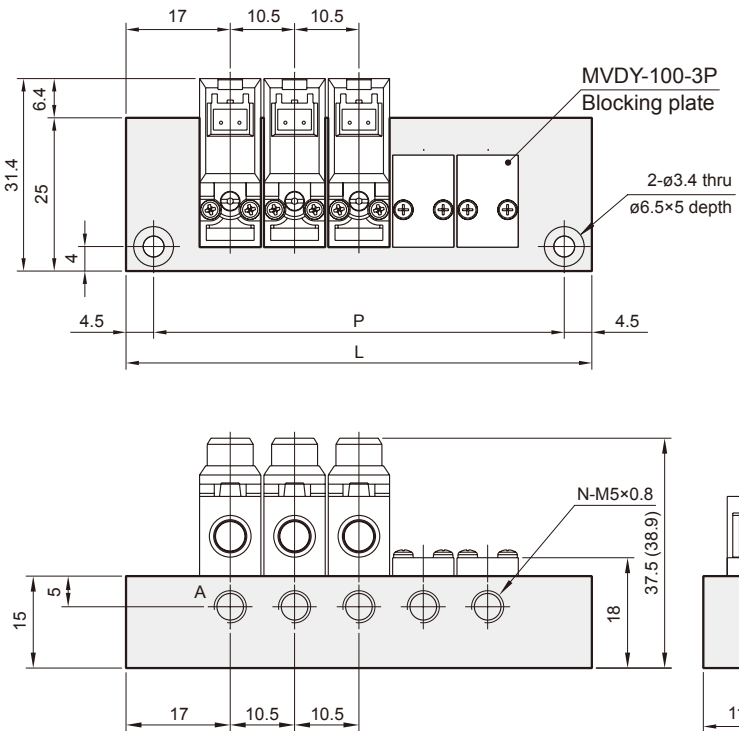
() : Dimension for LJ plug type.



Manifold of solenoid valve

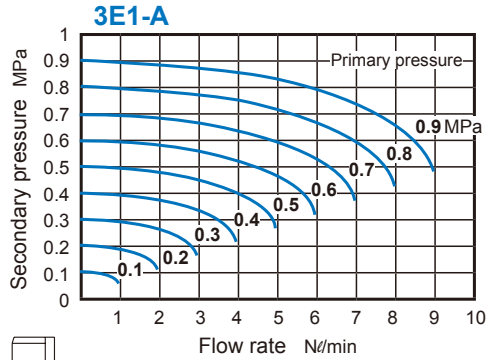
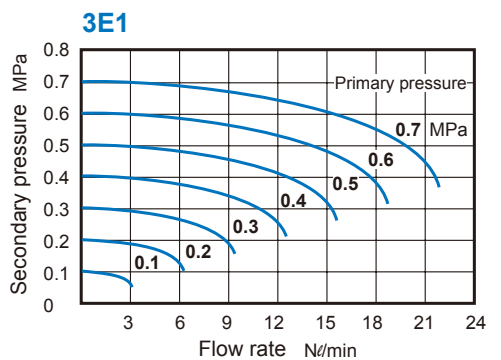
MVDY-100-3M*

3 port (for manifold type)

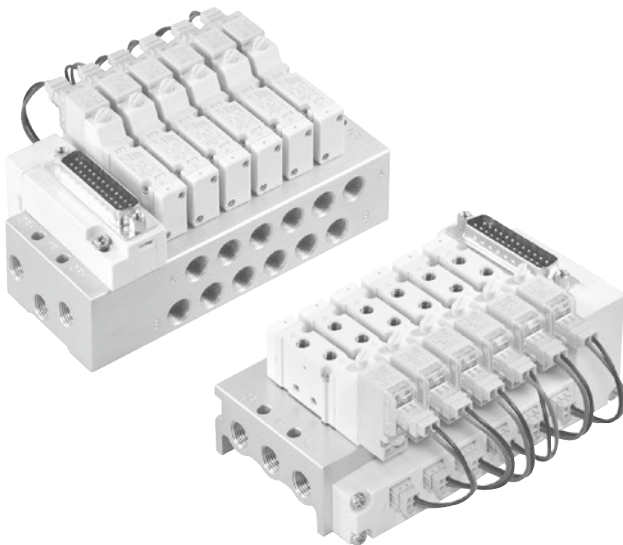


() : Dimension for LJ plug type.

Flow features



No. of stations (N)	P	L
2	35.5	44.5
3	46	55
4	56.5	65.5
5	67	76
6	77.5	86.5
7	88	97
8	98.5	107.5
9	109	118
10	119.5	128.5

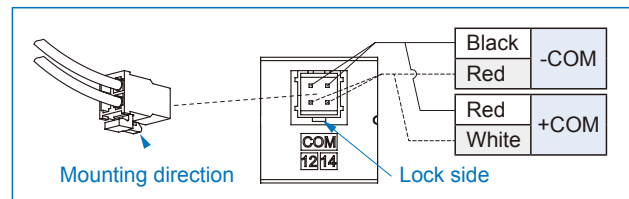


Specification

- 25-Pin D-sub connector (cable length 3m).
- Simple electric wire system.
- Max. operating frequency: 5Hz.

Remark

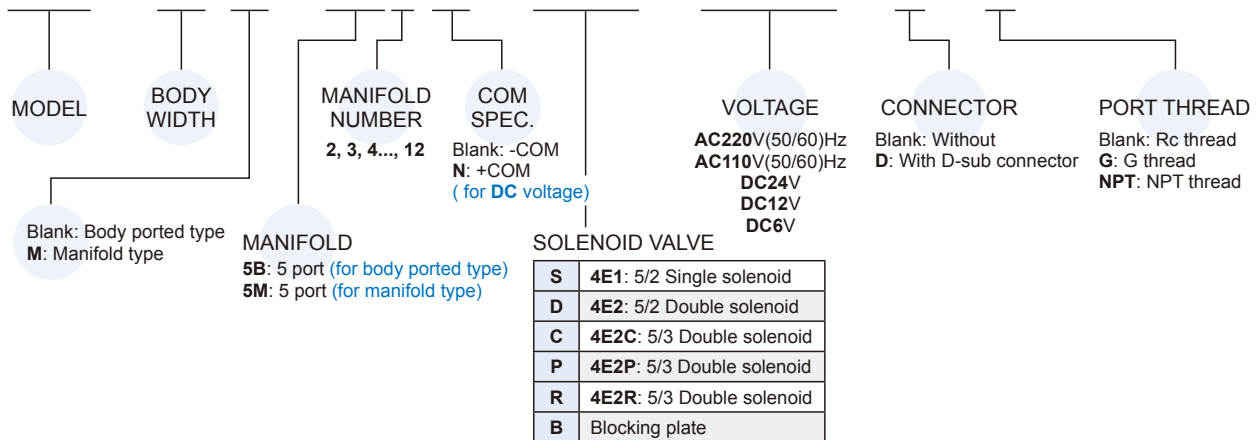
- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.
- Maximum number of stations
4E1: 12 stations
4E2 & 4EC.P.R: 11 stations
- For MVSU-100 series solenoid valve only (Only with LJ plug type).



- * PLC type (PNP output) is applied to -COM.
- * PLC type (NPN output) is applied to +COM

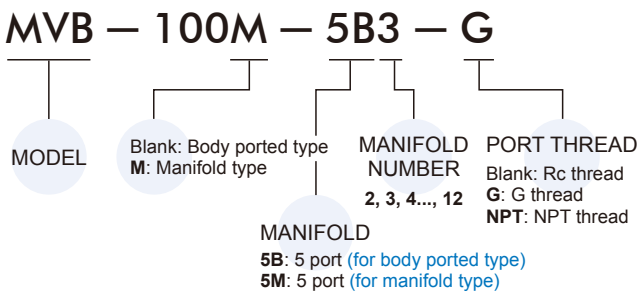
Order example (Multi connector system)

MVB – 100M – 5M4 □ – SSSDC – AC110 – D – G



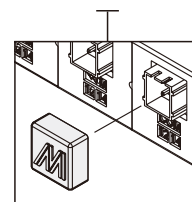
* Valves are assembled from the D-sub side.

Order example of circuit board and manifold



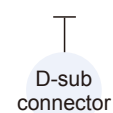
Order example of protective plate

MVB – 100 – P



Order example of connector

MVB – 100 – D



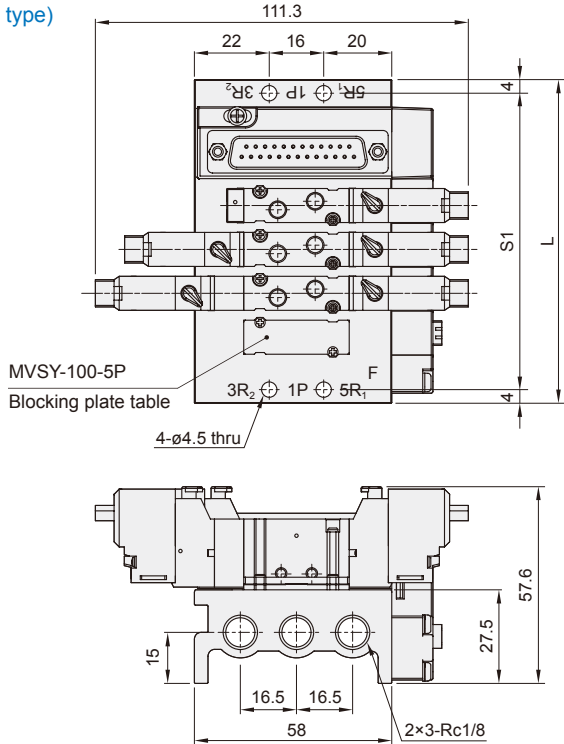
MVB-100 Dimensions

MULTI CONNECTOR SYSTEM



MVB-100-5B*

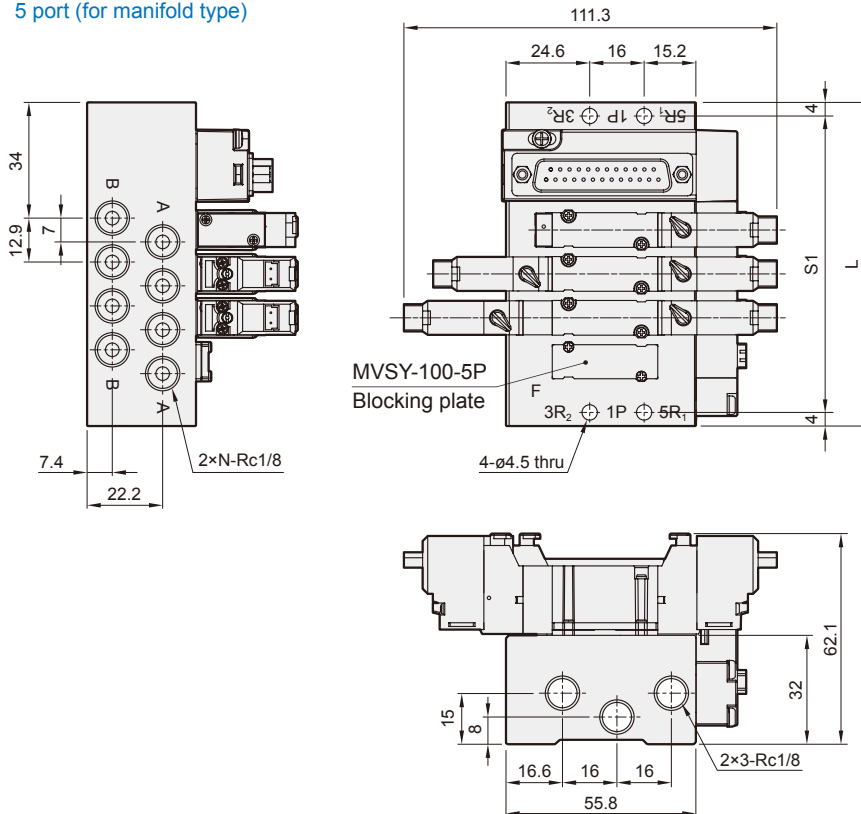
5 port (for body ported type)



No. of stations	L	S1
2	69.3	61.3
3	82.2	74.2
4	95.1	87.1
5	108	100
6	120.9	112.9
7	133.8	125.8
8	146.7	138.7
9	159.6	151.6
10	172.5	164.5
11	185.4	177.4
12	198.3	190.3

MVB-100M-5M*

5 port (for manifold type)



No. of stations (N)	L	S1
2	69.3	61.3
3	82.2	74.2
4	95.1	87.1
5	108	100
6	120.9	112.9
7	133.8	125.8
8	146.7	138.7
9	159.6	151.6
10	172.5	164.5
11	185.4	177.4
12	198.3	190.3

MVB-100 / 156 Order example of wire



MULTI CONNECTOR SYSTEM

mindman

Order example of wire * MVB-100, MVB1-100 and MVB-156 use the same accessories.

MVB — 100 — — WDE1

MODEL

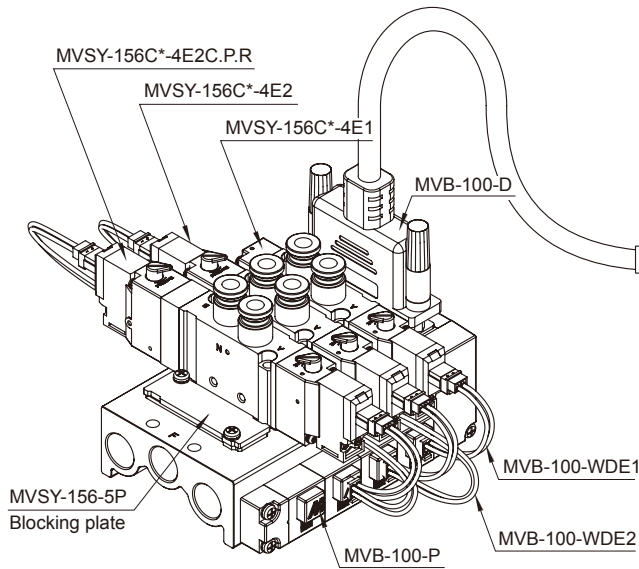
COM SPEC.

Blank: -COM
N: +COM
(Only for DC voltage)

WIRE TYPE

E1: for 4E1 valves
E2: for 4E2 valves

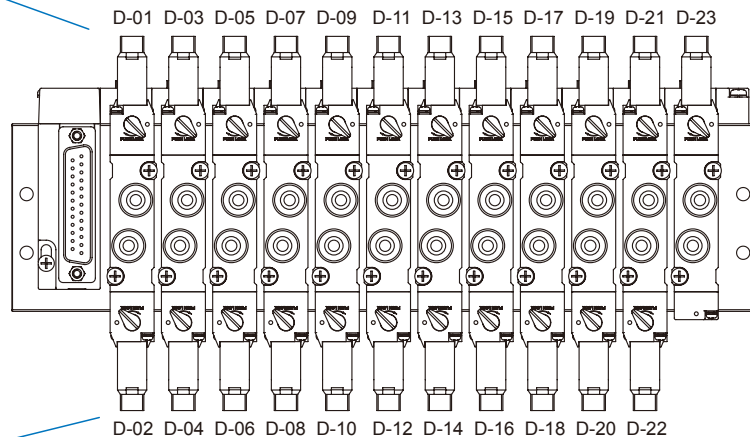
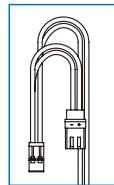
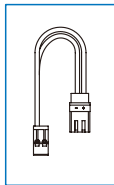
25 PIN



Wire color	Pin No.	Coil No.	
D-01	Brown	1	D-01
D-02	Purple / white	14	D-02
D-03	Brown / white	2	D-03
D-04	Gray	15	D-04
D-05	Red	3	D-05
D-06	Gray / black	16	D-06
D-07	Red / black	4	D-07
D-08	White	17	D-08
D-09	Orange	5	D-09
D-10	White / black	18	D-10
D-11	Orange / black	6	D-11
D-12	Pink	19	D-12
D-13	Yellow	7	D-13
D-14	Pink / black	20	D-14
D-15	Yellow / black	8	D-15
D-16	White / red	21	D-16
D-17	Green	9	D-17
D-18	White / blue	22	D-18
D-19	Green / black	10	D-19
D-20	Light blue	23	D-20
D-21	Blue	11	D-21
D-22	Light blue / black	24	D-22
D-23	Blue / white	12	D-23
COM	Purple	13	COM
COM	Light green	25	COM

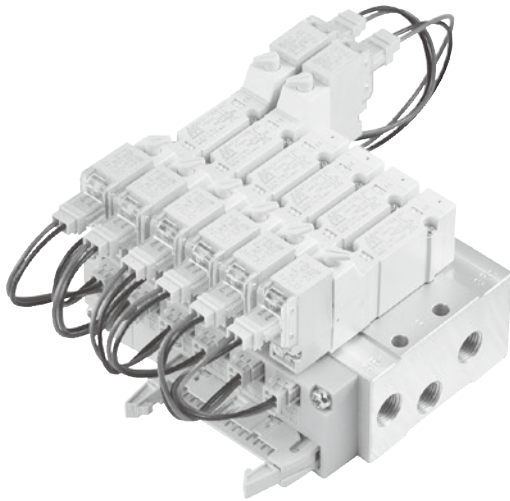
MVB-100-WDE1

MVB-100-WDE2



MVB1-100 series

MULTI CONNECTOR SYSTEM (FLAT CABLE TYPE)

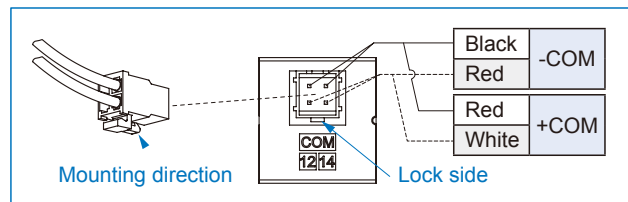


Specification

- 26-Pin flat cable (cable length 3m).
- Simple electric wire system.
- Max. operating frequency: 5Hz.

Remark

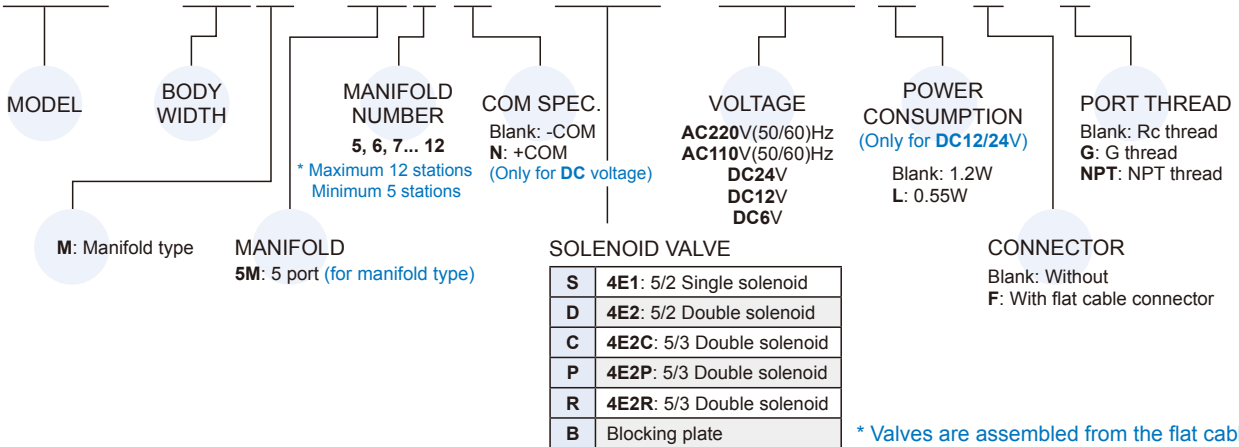
- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.
- Maximum 12 stations.
Minimum 5 stations.
- For MVSY-100 series solenoid valve only (Only with LJ plug type).



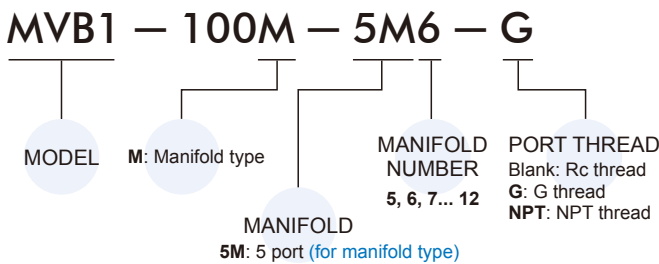
- * PLC type (PNP output) is applied to -COM.
- * PLC type (NPN output) is applied to +COM.

Order example (Multi connector system)

MVB1 - 100M - 5M5 □ - SSSDC - AC110 □ - F - G



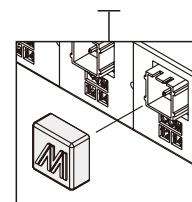
Order example of circuit board and manifold



Order example of protective plate

* Use the same accessories with MVB-100.

MVB - 100 - P



Order example of connector

MVB1 - 100 - F

F: Flat cable connector

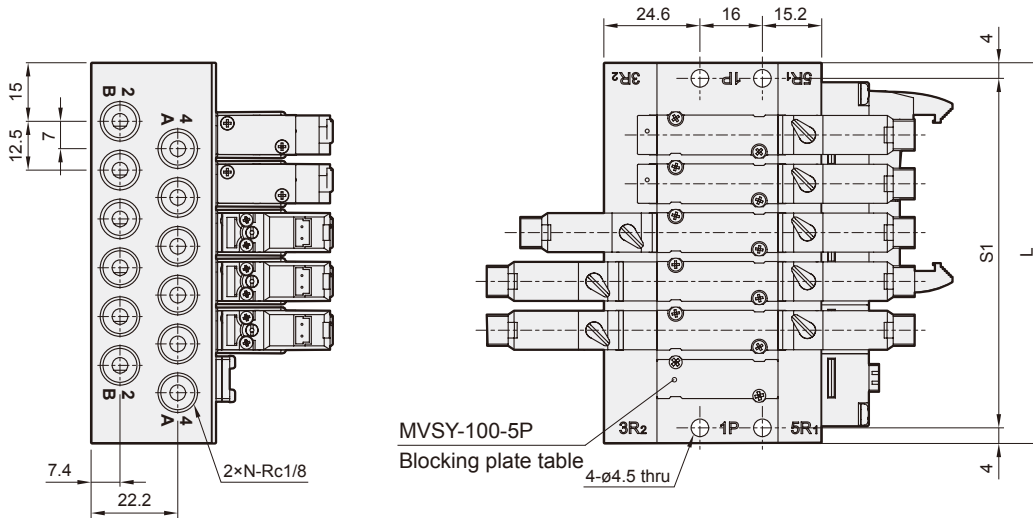
MVB1-100 Dimensions

MULTI CONNECTOR SYSTEM (FLAT CABLE TYPE)

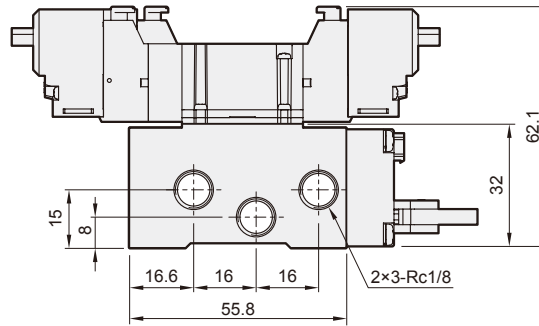


MVB1-100M-5M*

5 port (for manifold type)



No. of stations (N)	L	S1
5	85	77
6	97.5	89.5
7	110	102
8	122.5	114.5
9	135	127
10	147.5	139.5
11	160	152
12	172.5	164.5



MVB1-100 Order example of wire

MULTI CONNECTOR SYSTEM (FLAT CABLE TYPE)



Order example of wire * MVB-100, MVB1-100 and MVB-156 use the same accessories.

MVB — 100 — — WDE1

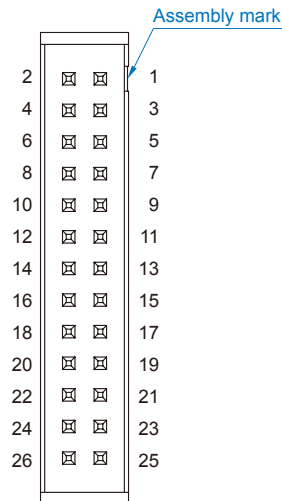
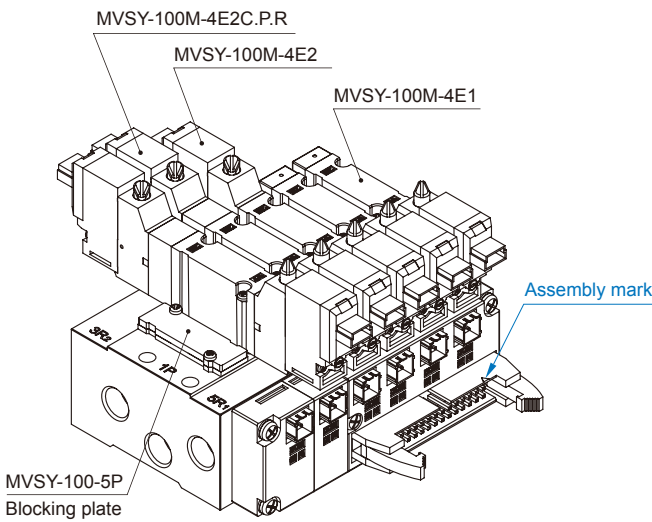
MODEL

COM SPEC.
Blank: -COM
N: +COM

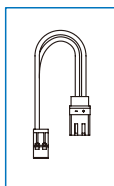
WIRE TYPE
E1: for 4E1 valves
E2: for 4E2 valves

Pin No.	Coil No.
1	D-01
2	D-02
3	D-03
4	D-04
5	D-05
6	D-06
7	D-07
8	D-08
9	D-09
10	D-10
11	D-11
12	D-12
13	D-13
14	D-14
15	D-15
16	D-16
17	D-17
18	D-18
19	D-19
20	D-20
21	D-21
22	D-22
23	D-23
24	D-24
25	COM
26	COM

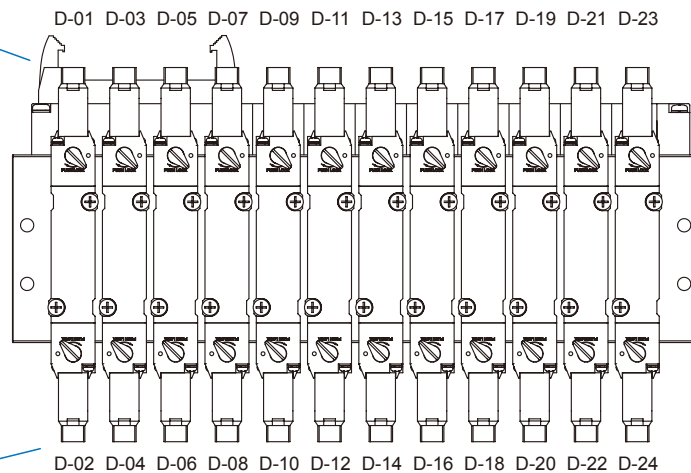
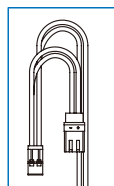
26 PIN

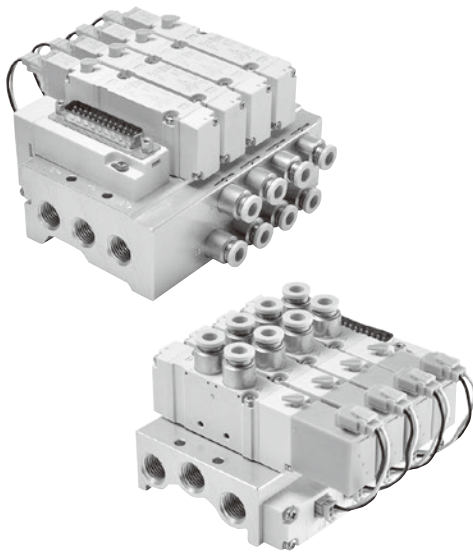


MVB-100-WDE1



MVB-100-WDE2



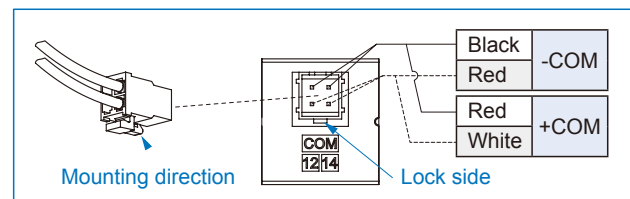


Specification

- 25-Pin D-sub connector (cable length 3m).
- Simple electric wire system.
- Max. operating frequency: 5Hz.

Remark

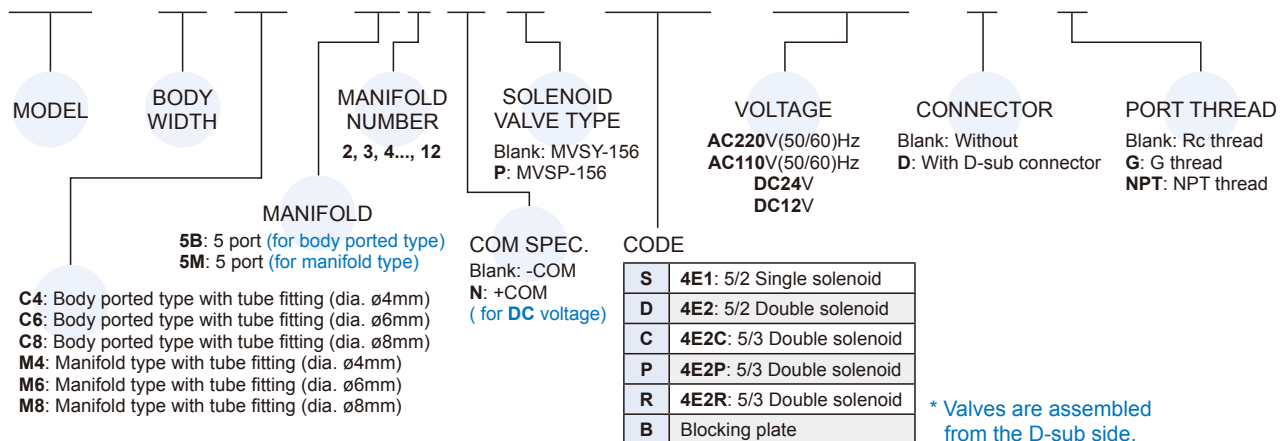
- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.
- Maximum number of stations
4E1: 12 stations
4E2 & 4E2C.P.R: 11 stations
- For MVSY-156 series solenoid valve only (Only with LJ plug type).



- * PLC type (PNP output) is applied to -COM.
- * PLC type (NPN output) is applied to +COM.

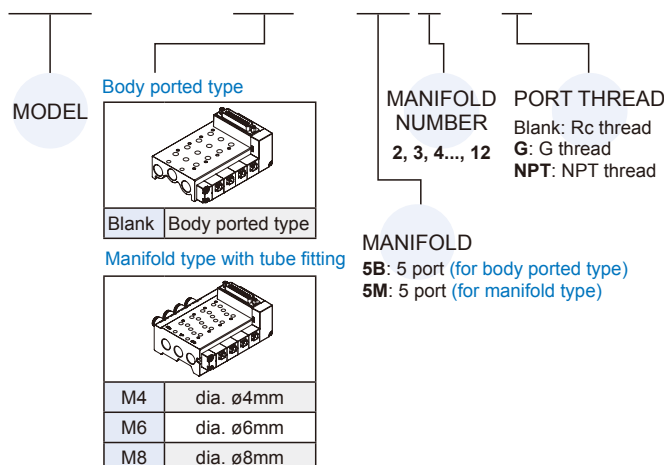
Order example (Multi connector system)

MVB - 156M4 - 5B4 □ □ - SSDC - AC110 - D - G



Order example of circuit board and manifold

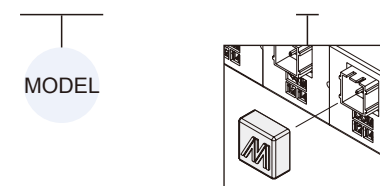
MVB - 156M4 - 5M3 - G



Order example of protective plate

- * Use the same accessories with MVB-100.

MVB - 100 - P



Order example of connector

MVB - 100 - D



Order example of wire

- * Use the same wire with MVB-100, please refer to page 1-94.

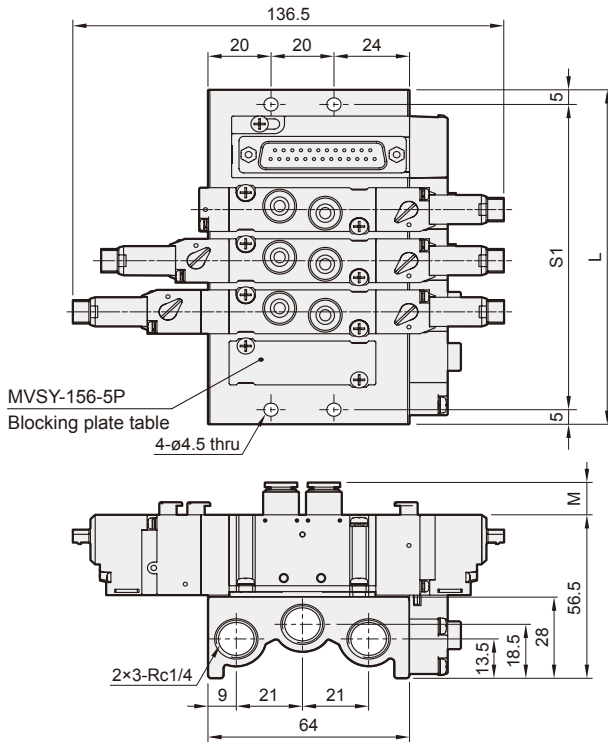
MVB-156 With MVSY-156

MULTI CONNECTOR SYSTEM



MVB-156C*-5B*

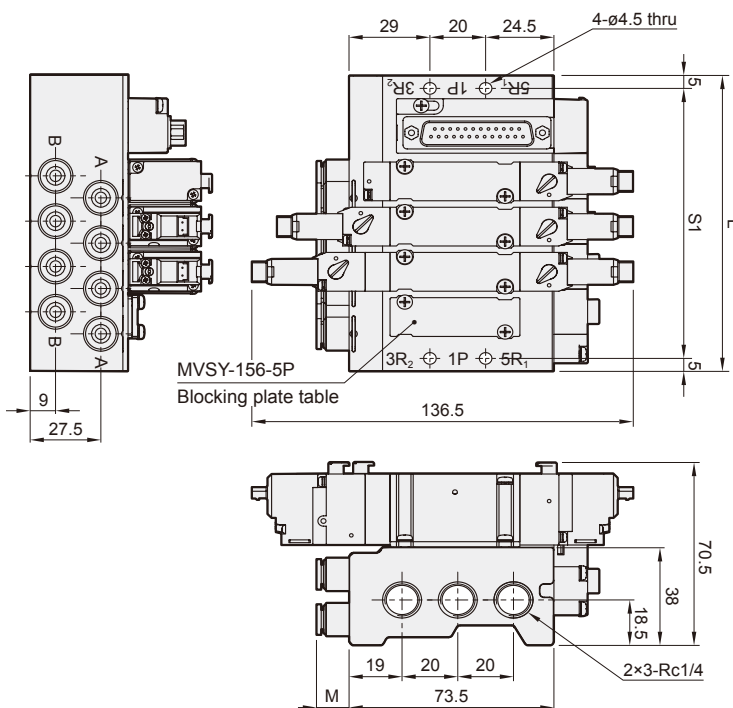
5 port (for body ported type)



No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5
Code Tube fitting	M	
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

MVB-156M*-5M*

5 port (for manifold type)



No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5
Code Tube fitting	M	
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

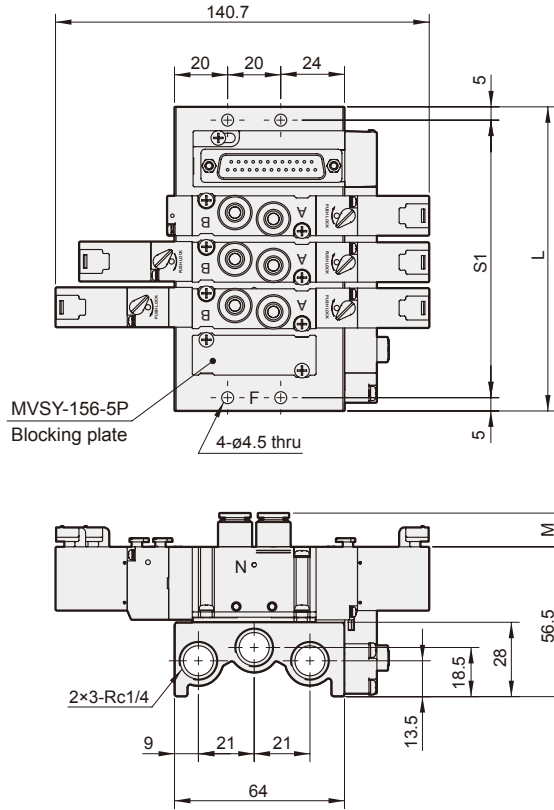
MVB-156 With MVSP-156

MULTI CONNECTOR SYSTEM



MVB-156C*-5B*P*

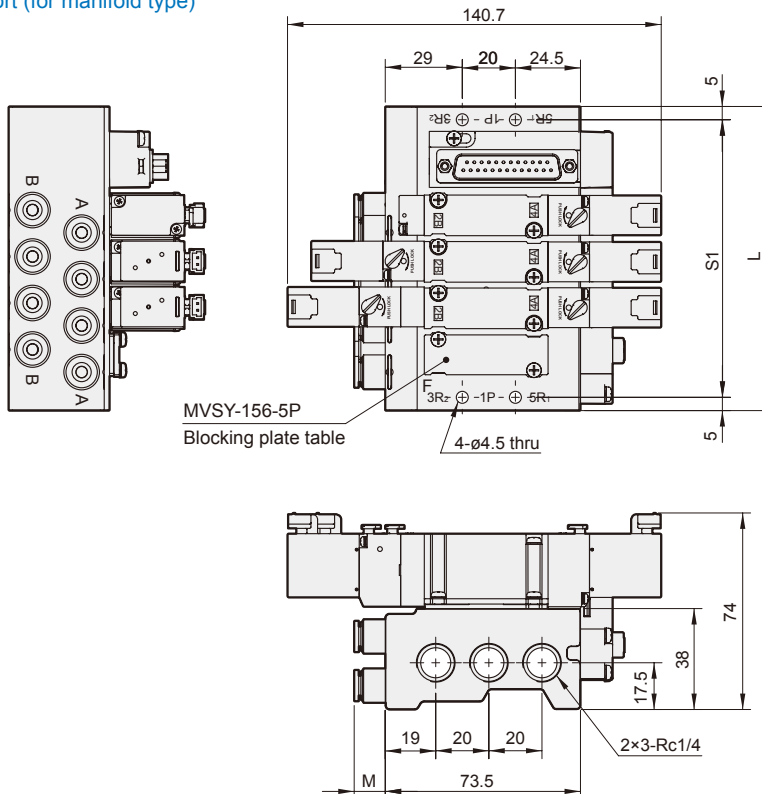
5 port (for body ported type)



No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5
Code Tube fitting	M	
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

MVB-156M*-5M*P*

5 port (for manifold type)



No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5
Code Tube fitting	M	
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

FIELD BUS SYSTEM

Output Device

Valve



MVSC-220



MVSY-100

Others

Relay
buzzer
Indicator light



MVSP-156

Input Device

Switch



Pressure Switch



Flow rate Switch

Others

Proximate Sensor
Photoelectric Switch
Limit Switch



Sensing Switch
(For cylinder)

Feature

Compatible Protocol

EtherNet/IP

Max. 8 units can be connected of I/O

Wiring time and labor costs can be reduced

Short/Open-circuit detection function

The location of error can be identified.

Counter function

It is possible to ascertain the maintenance period and identify the parts that require maintenance.

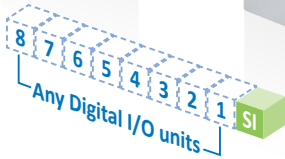
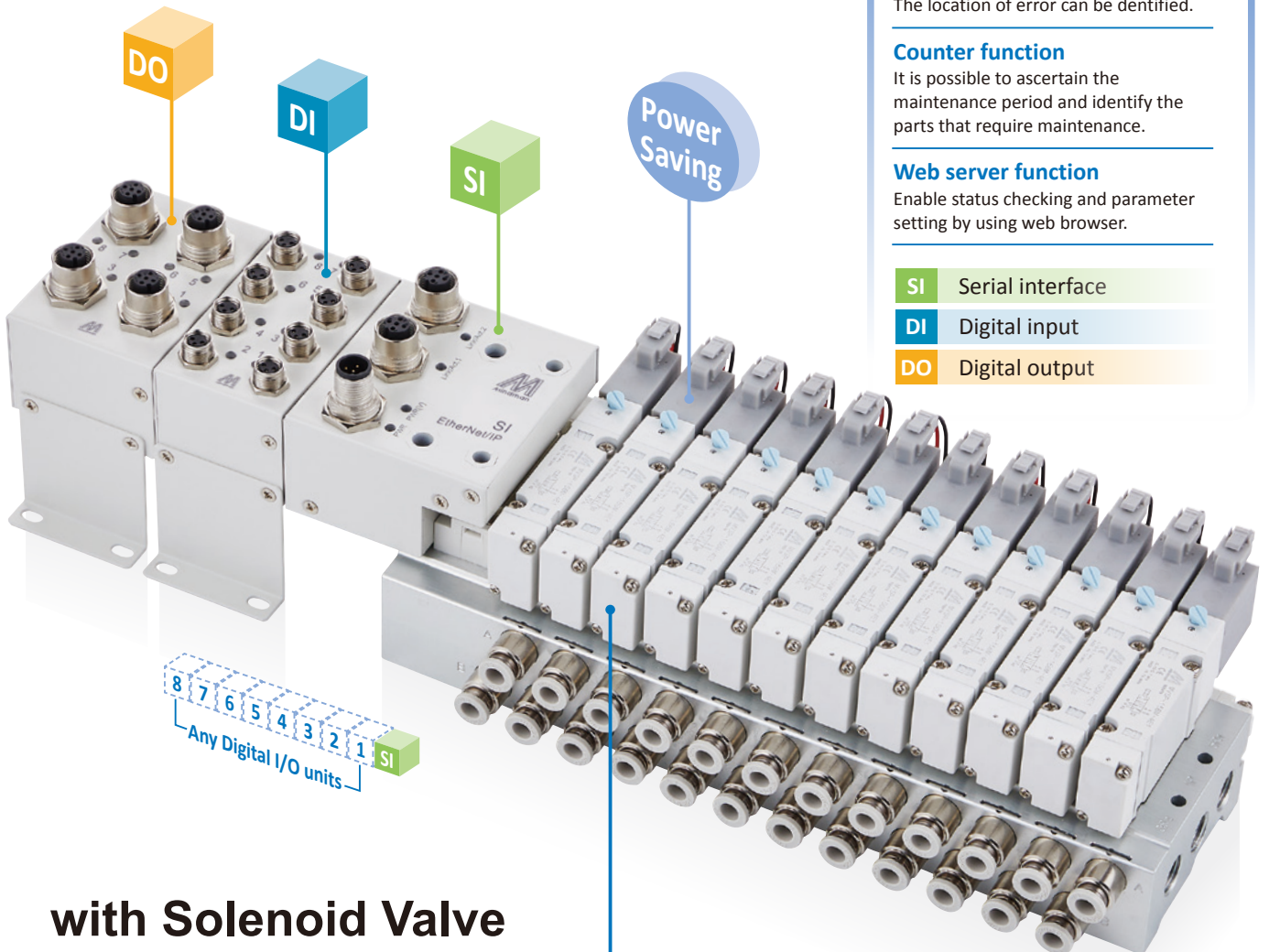
Web server function

Enable status checking and parameter setting by using web browser.

SI Serial interface

DI Digital input

DO Digital output



with Solenoid Valve

MVE-100 series



MVSY-100

Valve Series

Power Consumption

With tube fitting

0.55W

MVE-156 series



MVSY-156



MVSP-156

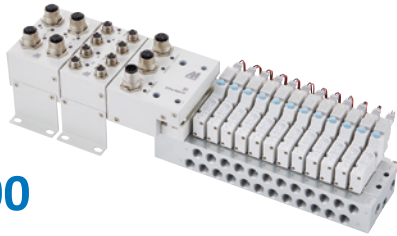
0.55W

∅4, ∅6, ∅8 mm

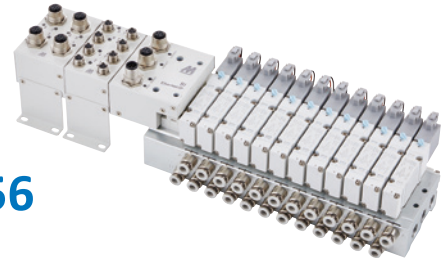
0.95W

∅4, ∅6, ∅8 mm

FIELD BUS SYSTEM



MVE-100
series

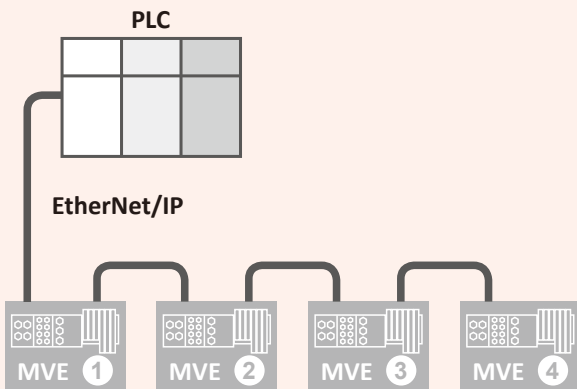


MVE-156
series

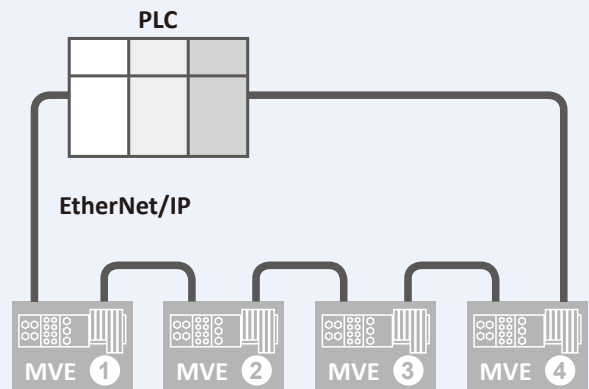
Compatible Topologies

In addition to the general star type, it is available for **linear** and **ring** topologies.

Linear type



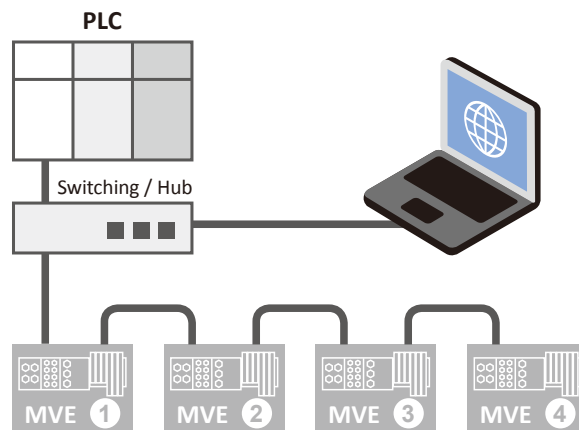
Ring type



Web server function

Using general web browsers, such as IE, Google Chrome which enables status check and parameter settings.

Operation and maintenance of the system can be performed efficiently.



MVE 1 ~ 4
can be accessed
via a web browser.

- Status check
- Parameter setting
- Forced output, etc.

MVE-100 series

FIELDBUS SYSTEM (EtherNet / IP)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

Pressure Switch

Auxiliary Equipment

PISCO®



Feature

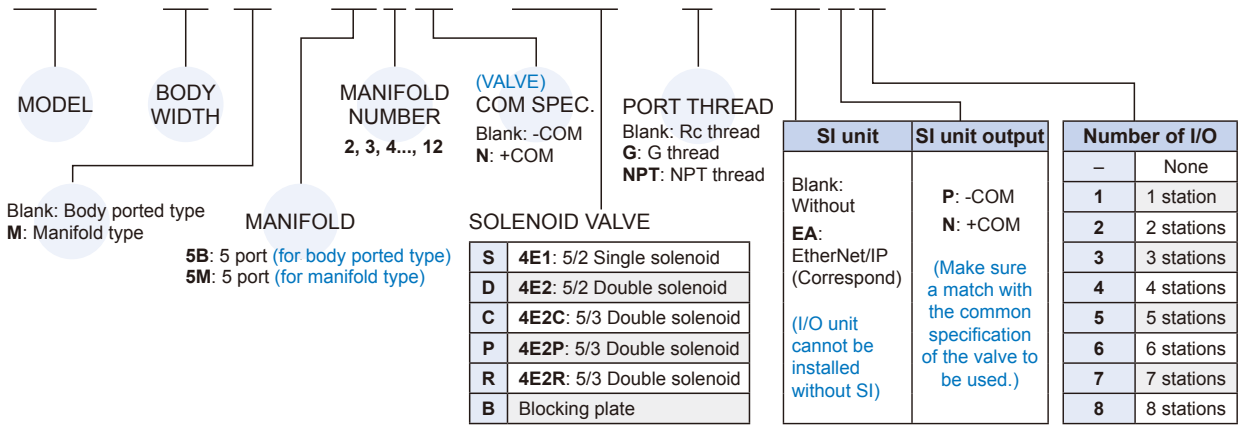
- Wiring time can be reduced.
- Labor cost can be reduced.
- High flexibility for system expansion.
- Circuit protection and self diagnosis function.
- Reduce error of wiring.
- Web server function.

Remark

- Maximum number of stations
4E1: 12 stations
4E2 & 4E2C.P.R: 11 stations
- For MVSY-100 series solenoid valve (Only with LJ plug type)

Order example of fieldbus system

MVE — 100M — 5B4□ — SSDC — G — EAN6

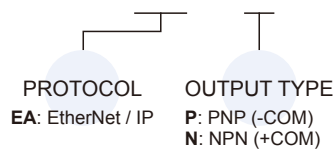


* The valve arrangement is numbered as the 1st station from the SI side.

* When I/O unit is selected, it is shipped separately, and assembled by user.

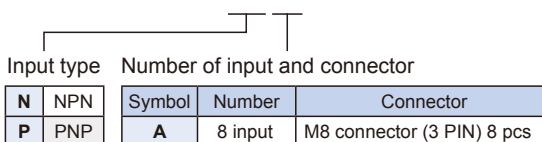
Order example of SI unit

MVE — 100 — SEA — N



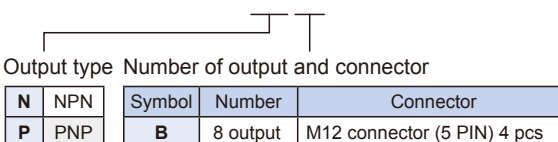
Order example of DI digital input unit

MVE — 100 — DI P A



Order example of DO digital output unit

MVE — 100 — DO P B



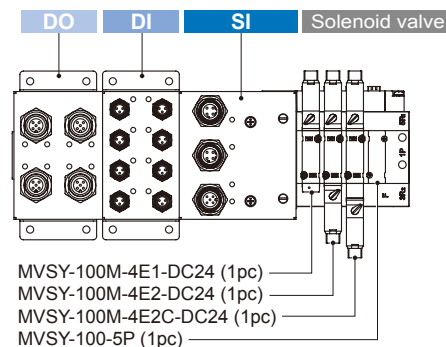
EX

Fieldbus system (Inclusion SI unit and solenoid valve)
MVE-100M-5M4-SDCB-G-EAP2 × 1 set

Digital input unit (DI unit)
MVE-100-DIPA × 1 set

Digital output unit (DO unit)
MVE-100-DOPB × 1 set

* The valve arrangement is numbered as the 1st station from the SI side.

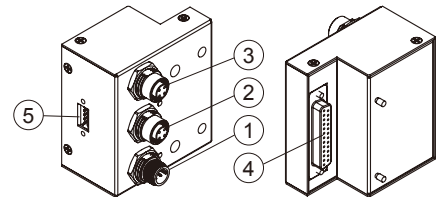


Specification

	Model	SI unit
Interface	Protocol	Ethernet/IP
	Communication speed	10/100 Mbps
	Configuration file	EDS file
Power supply	Power connector	M12 (5 pins) plug
	Control & input	24VDC class2, 2A
	Output	24VDC class2, 2A
	Consumption	12W
Valve output	Polarity of output	PNP(-com) or NPN(+com)
	Power supply	24VDC Class2, 2A
	Number of outputs	23 outputs
	Connected load	Solenoid valve, MVSY-100 / MVSY-156 / MVSP-156 series, DC24V
	Fail safe	Hold / Off / Setting value
Environment	Protective function	Short circuit protection.
	Working temperature	-20°C ~ +50°C
	Working humidity	10% ~ 90% RH

Connector

No.	Item	Description
1	Power	M12 B-coded plug
2	EtherNet/IP port1	M12 D-coded socket
3	EtherNet/IP port2	M12 D-coded socket
4	Valve output	25 PIN D-sub
5	Extended I/O	10 pins connector



Pin arrangement

Power

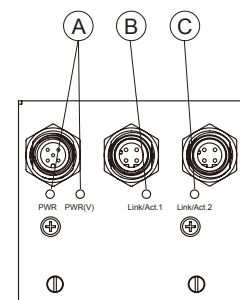
Plug, B-coded	Pin	Signal
	1	24 V (Output)
	2	0 V (Output)
	3	24 V (Control and input)
	4	0 V (Control and input)
	5	FE

Ethernet / IP

Socket, D-coded	Pin	Signal
	1	TX +
	2	RX+
	3	TX-
	4	RX-

LED Indicator

NO.	LED	Status	Description
A	PWR (Yellow)	ON	Power-ON
		OFF	Power-OFF
B	LAN1 (Green)	Flash	Data Transmission
		OFF	No Link / Activity
		ON	Link / Activity
C	LAN2 (Green)	Flash	Data Transmission
		OFF	No Link / Activity
		ON	Link / Activity



MVE-100 / 156 Specification of DI unit



FIELD BUS SYSTEM (EtherNet / IP)

mindman

Specification

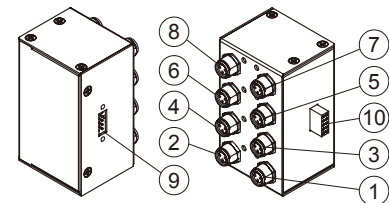
Model		DI unit
Input spec.	Input type	PNP or NPN
	Input connector	M8 (3PIN) socket
	Number of inputs	8 input (1 input / connector)
	Sensor supplied voltage	DC24V
	Maximum sensor supplied current	0.25A / Connector & 2A / Unit
	Rated input current	9mA
	ON voltage	≥ 17V *
	OFF voltage	≤ 5V *
Feature	Short-Circuit Detection & Open-Circuit Detection	
Power	Power supply voltage (control and input)	DC24V, Class2, 2A
Environment	Working temperature	-10°C ~ +50°C
	Storage temperature	-20°C ~ +60°C
	Working humidity	35% ~ 85% RH
	Isolation	500VAC, 10MΩ

* At NPN input, between the pin for input terminal and supplied voltage of +24V.

* At PNP input, between the pin for input terminal and supplied voltage of 0V.

Connector

No.	Item	Description
1	DI 0	M8, 3PIN socket (Female)
2	DI 1	
3	DI 2	
4	DI 3	
5	DI 4	
6	DI 5	
7	DI 6	
8	DI 7	
9	IOM Interface	10PIN connector (Male)
10	IOM Interface	10PIN connector (Female)

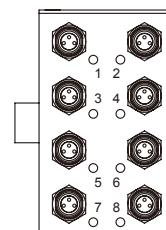


Pin arrangement

Socket	Pin	Signal
	1	24 V (Control and input)
	3	0 V (Control and input)
	4	Input

LED Indicator

NO.	LED	Status	Description	NO.	LED	Status	Description
1	DI 0	ON	Input device is ON	5	DI 4	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF
2	DI 1	ON	Input device is ON	6	DI 5	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF
3	DI 2	ON	Input device is ON	7	DI 6	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF
4	DI 3	ON	Input device is ON	8	DI 7	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF



MVE-100 / 156 Specification of DO unit



FIELD BUS SYSTEM (EtherNet / IP)

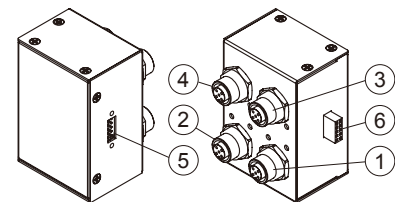
Mindman

Specification

Model		DO unit
Output spec.	Output type	PNP or NPN
	Output connector	M12 (5PIN) socket
	Number of outputs	8 output (2 output / connector)
	Rated load voltage	DC24V
	Maximum load current	0.5A / Connector & 2A / Unit
Feature		Short-Circuit Detection & Open-Circuit Detection
Power	Power supply voltage (output)	DC24V, Class2, 2A
Environment	Working temperature	-10°C ~ +50°C
	Storage temperature	-20°C ~ +60°C
	Working humidity	35% ~ 85% RH
	Isolation	500VAC, 10MΩ

Connector

No.	Item	Description
1	DO 0, DO 1	M12, 5PIN socket (Female)
2	DO 2, DO 3	
3	DO 4, DO 5	
4	DO 6, DO 7	
5	IOM Interface	10PIN connector (Male)
6	IOM Interface	10PIN connector (Female)

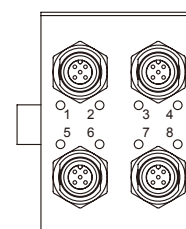


Pin arrangement

Socket, A-coded	Pin	Signal	
		PNP	NPN
	1	NC	24 V (Output)
	2	Output 2	Output 2
	3	0 V (Output)	NC
	4	Output 1	Output 1
	5	FE	FE

LED Indicator

NO.	LED	Status	Description	NO.	LED	Status	Description
1	DO 0	ON	DO Output	5	DO 4	ON	DO Output
		OFF	No DO Output			OFF	No DO Output
2	DO 1	ON	DO Output	6	DO 5	ON	DO Output
		OFF	No DO Output			OFF	No DO Output
3	DO 2	ON	DO Output	7	DO 6	ON	DO Output
		OFF	No DO Output			OFF	No DO Output
4	DO 3	ON	DO Output	8	DO 7	ON	DO Output
		OFF	No DO Output			OFF	No DO Output

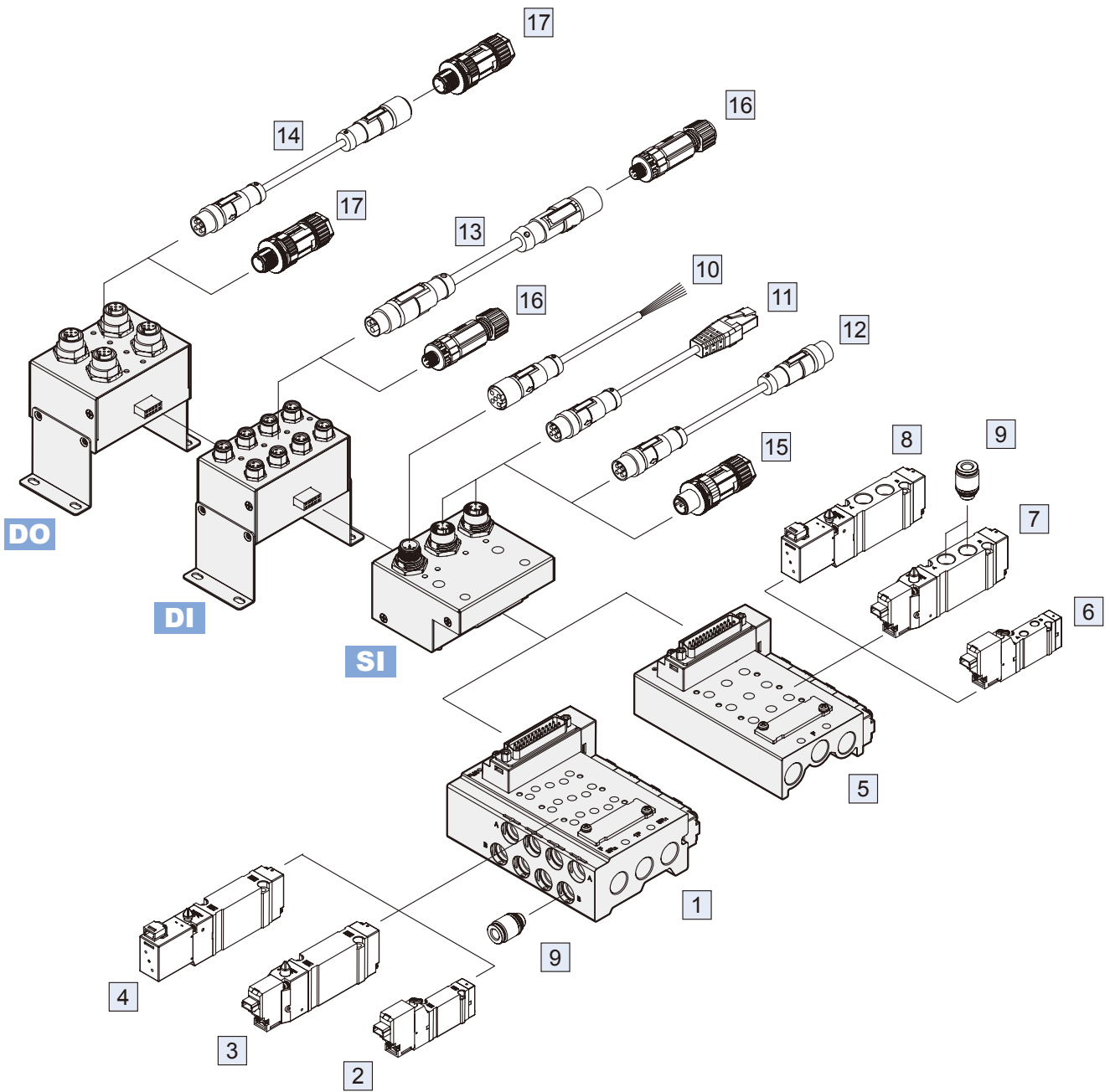


MVE-100 / 156 Valve / Accessories

FIELDBUS SYSTEM (EtherNet / IP)



mindman



No.	Device	Page
1	Manifold (manifold type)	-
2	Solenoid valve MVSY-100M	1-69
3	Solenoid valve MVSY-156M	1-73
4	Solenoid valve MVSP-156M	1-60
5	Manifold (body ported type)	-
6	Solenoid valve MVSY-100	1-69
7	Solenoid valve MVSY-156	1-73
8	Solenoid valve MVSP-156	1-60
9	Tube fitting (ø4,ø6,ø8) (*1)	-

No.	Device	Page
10	Power supply cable M125R-WB	6-14
11	Cable with connector M124R-RJD	6-16
12	Cable with connector M124R-MD	6-16
13	Cable with connector M83R-F	6-13
14	Cable with connector M124R-FA	6-15
15	Connector M124C-MD	6-18
16	Connector M83C-M	6-17
17	Connector M124C-MA	6-18

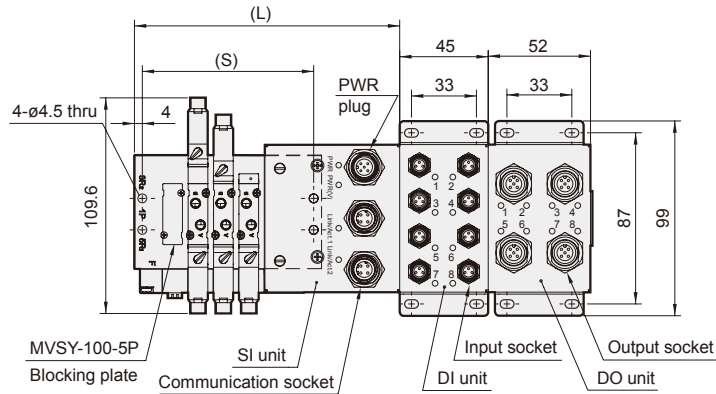
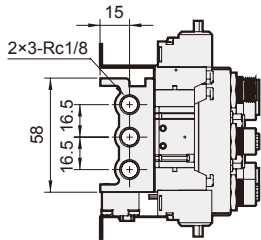
*1. Only for MVE-156 series.

MVE-100 Dimensions

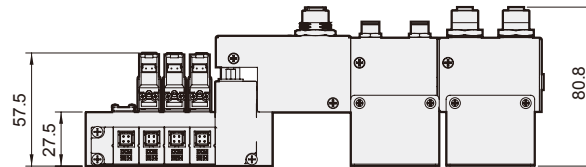
FIELDBUS SYSTEM (EtherNet / IP)

MVE-100-5B*

5 port (for body ported type)

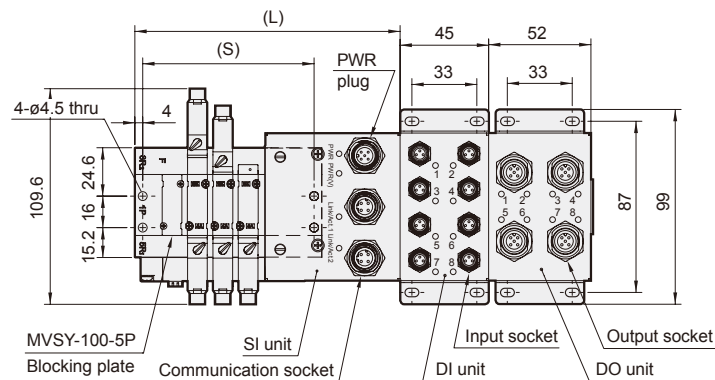
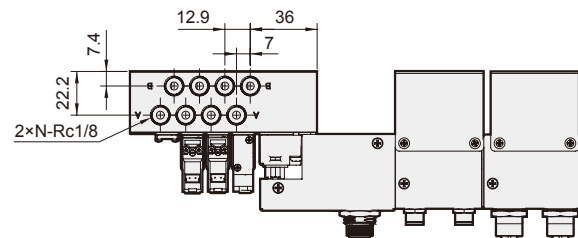
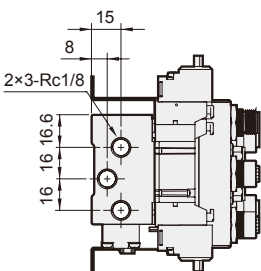


No. of stations	L	S
2	109	62.3
3	121.9	75.2
4	134.8	88.1
5	147.7	101
6	160.6	113.9
7	173.5	126.8
8	186.4	139.7
9	199.3	152.6
10	212.2	165.5
11	225.1	178.4
12	238	191.3

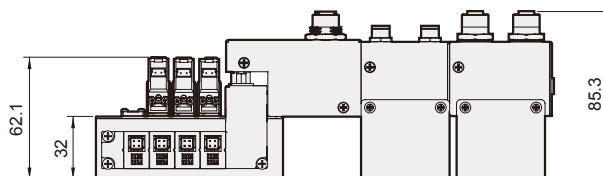


MVE-100M-5M*

5 port (for manifold type)



No. of stations	L	S
2	109	62.3
3	121.9	75.2
4	134.8	88.1
5	147.7	101
6	160.6	113.9
7	173.5	126.8
8	186.4	139.7
9	199.3	152.6
10	212.2	165.5
11	225.1	178.4
12	238	191.3



MVE-156 series

FIELDBUS SYSTEM (EtherNet / IP)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

Pressure Switch

Auxiliary Equipment

PISCO



Feature

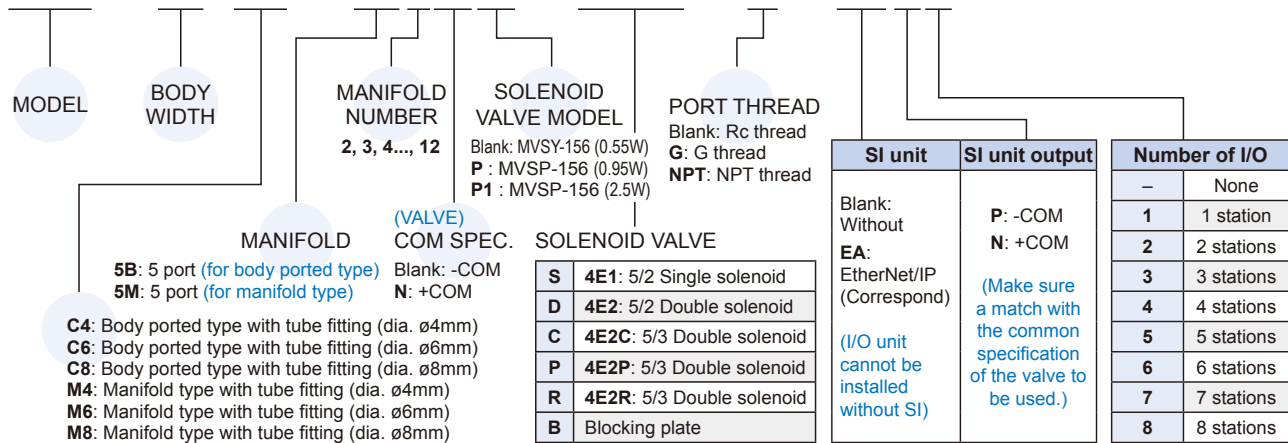
- Wiring time can be reduced.
- Labor cost can be reduced.
- High flexibility for system expansion.
- Circuit protection and self diagnosis function.
- Reduce error of wiring.
- Web server function.

Remark

- Maximum number of stations
4E1: 12 stations
4E2 & 4E2C.P.R: 11 stations
- For MVSY-156 series solenoid valve (Only with LJ plug type)
- For MVSP-156 series solenoid valve (Only with H plug type)

Order example of fieldbus system

MVE - 156M4 - 5B4□□ - SSDC - G - EAN6



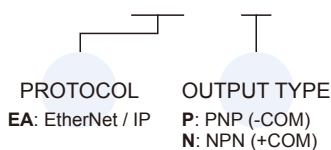
* Use the same SI, DO, DI unit and accessories with MVE-100 series, please refer to page 1-104~107.

* The valve arrangement is numbered as the 1st station from the SI side.

* When I/O unit is selected, it is shipped separately, and assembled by user.

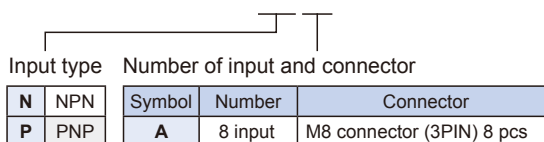
Order example of SI unit

MVE - 100 - SEA - N



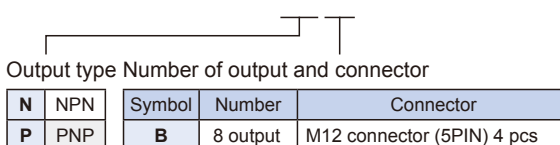
Order example of DI digital input unit

MVE - 100 - DI P A



Order example of DO digital output unit

MVE - 100 - DO P B



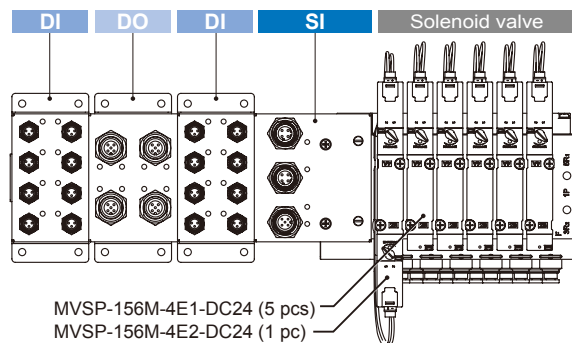
EX (How to order manifold assembly)

Fieldbus system (Inclusion SI unit and solenoid valve)
MVE-156M4-5M6NP-DSSSSS-G-EAN3 × 1 set

Digital input unit (DI unit)
MVE-100-DIPA × 2 set

Digital output unit (DO unit)
MVE-100-DOPB × 1 set

* The valve arrangement is numbered as the 1st station from the SI side.



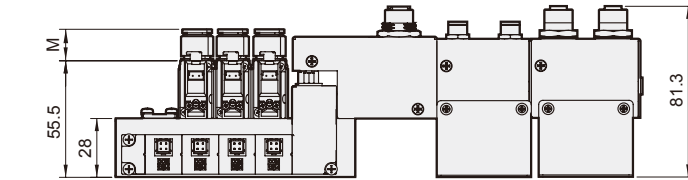
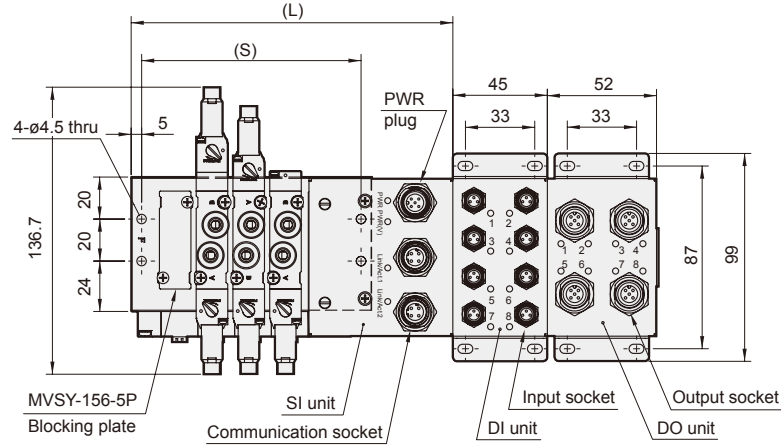
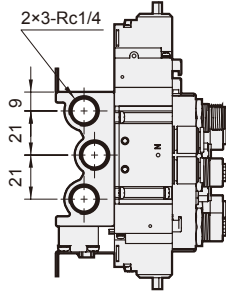
MVE-156 with MVSY-156

FIELDBUS SYSTEM (EtherNet / IP)



MVE-156C*-5B*

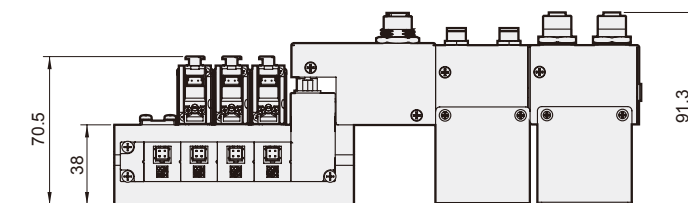
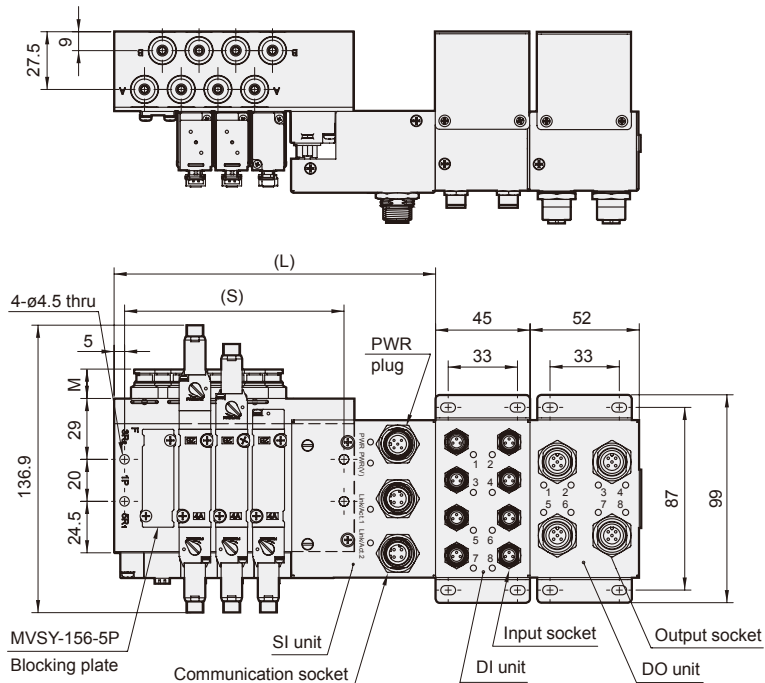
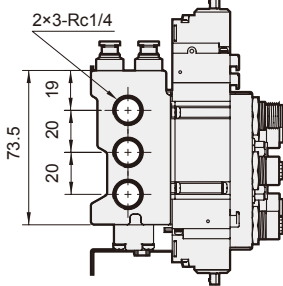
5 port (for body ported type)



No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5
Code	M	
Tube fitting		
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

MVE-156M*-5M*

5 port (for manifold type)



No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5
Code	M	
Tube fitting		
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

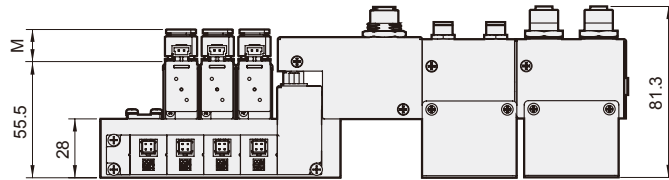
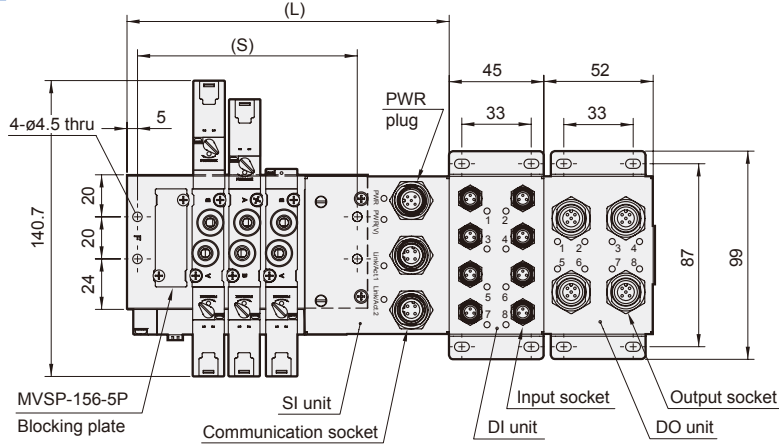
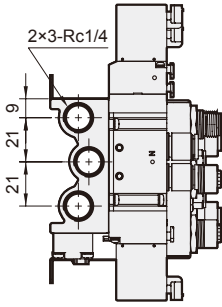
MVE-156 with MVSP-156

FIELDBUS SYSTEM (EtherNet / IP)



MVE-156C*-5B*P*

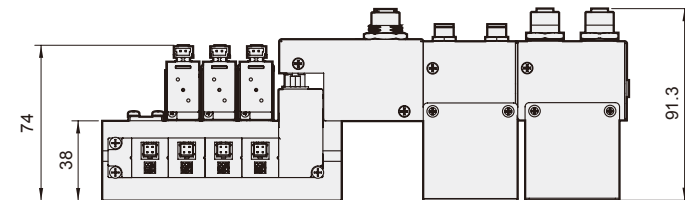
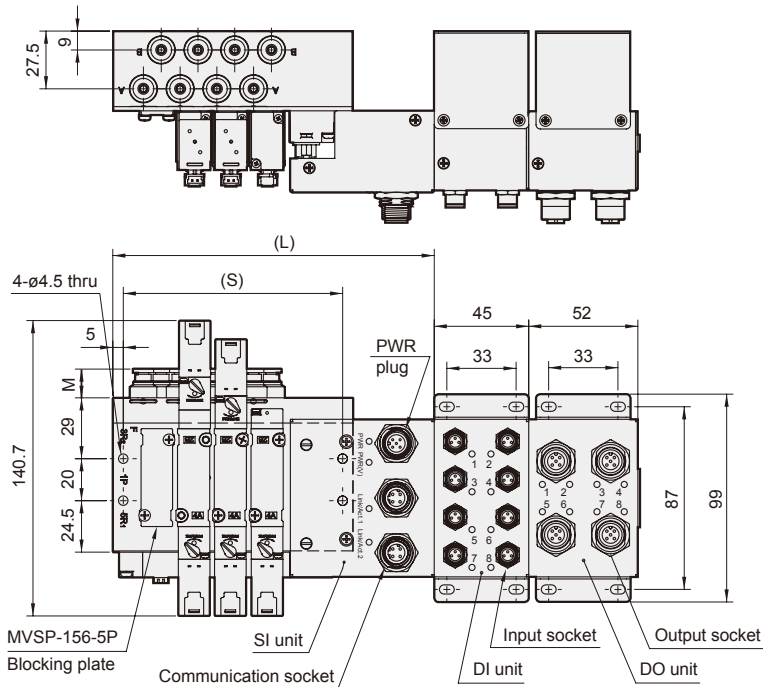
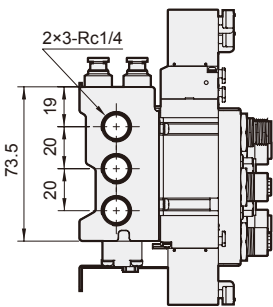
5 port (for body ported type)



No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5
Code	M	
Tube fitting		
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

MVE-156M*-5M*P*

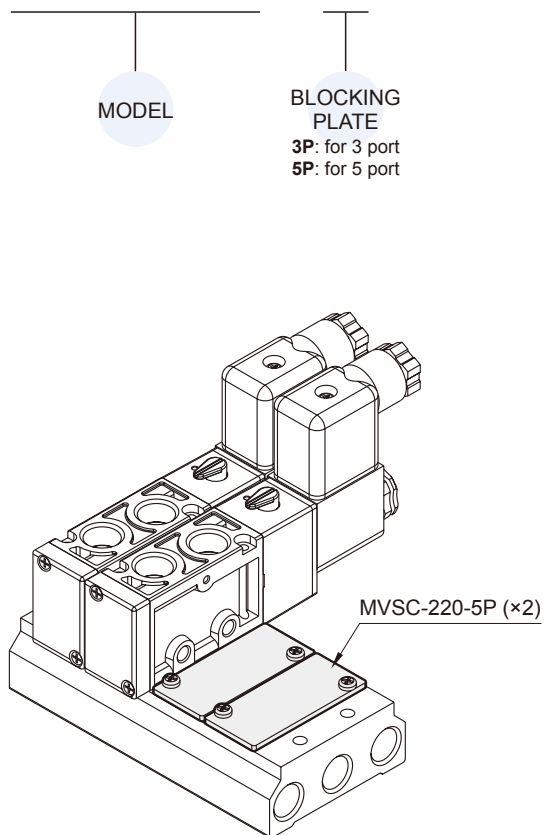
5 port (for manifold type)



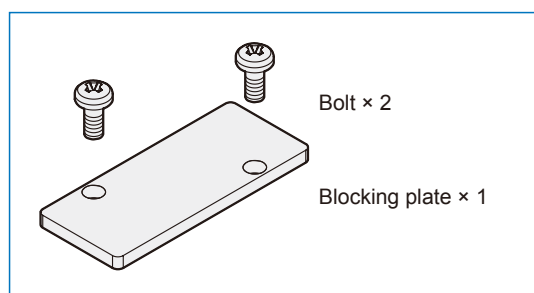
No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5
Code	M	
Tube fitting		
C4 (ø4)	(13.8)	
C6 (ø6)	(14.7)	
C8 (ø8)	(19.3)	

Order example

MVSC – 220 – 5P



Blocking plate parts



Blocking plate table

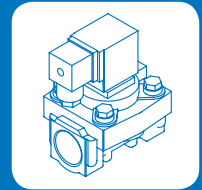
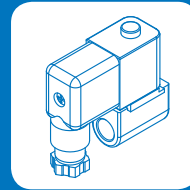
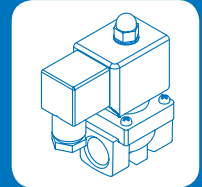
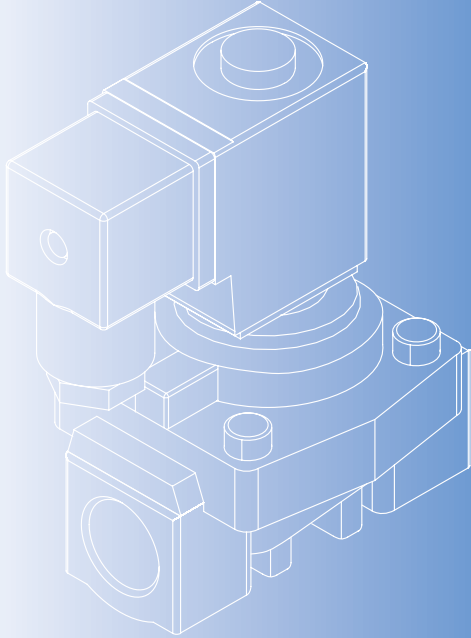
Applicable model	Symbol for order	
	3P: for 3 port	5P: for 5 port
Solenoid valve	3P: for 3 port	5P: for 5 port
MVSC-220	MVSC-220-3P	MVSC-220-5P
MVSC-260	—	MVSC-260-5P
MVSC-300	MVSC-300-3P	MVSC-300-5P
MVSC-460	MVSC-460-3P	MVSC-460-5P
MVSC1-150	—	MVSC1-150-5P
MVSC1-180	MVSC1-180-3P	MVSC1-180-5P
MVSC1-220	MVSC-220-3P (*1)	MVSC-220-5P (*1)
MVSE-260	—	MVSC-260-5P (*1)
MVSE-300	—	MVSE-300-5P
MVSE-500	—	MVSC-460-5P (*1)
MVSP-156	—	MVSY-156-5P (*2)
MVSP-188	—	MVSY-188-5P (*2)
MVSY-100	—	MVSY-100-5P
MVSY-156	—	MVSY-156-5P
MVSY-188	—	MVSY-188-5P
MVDY-100	MVDY-100-3P	—
MVB-100	—	MVSY-100-5P (*2)
MVB1-100	—	MVSY-100-5P (*2)
MVB-156	—	MVSY-156-5P (*2)
MVE-100	—	MVSY-100-5P (*1)
MVE-156	—	MVSY-156-5P (*2)
Pilot valve	3P: for 3 port	5P: for 5 port
MVAA-150	—	MVSC1-150-5P (*3)
MVAA-180	MVSC1-180-3P (*3)	MVSC1-180-5P (*3)
MVAA-220	MVSC-220-3P (*1)	MVSC-220-5P (*1)
MVAA-260	—	MVSC-260-5P (*1)
MVAA-300	MVSC-300-3P (*1)	MVSC-300-5P (*1)
MVAA-460	MVSC-460-3P (*1)	MVSC-460-5P (*1)

*1. Use the same blocking plate with **MVSC**.
 *2. Use the same blocking plate with **MVSY**.
 *3. Use the same blocking plate with **MVSC1**.





PROCESS VALVE



Suitability of material	2-2
MBS	2-5
MCS	2-6
MGD	2-7
MUSC	2-8
MUST	2-9
MUT	2-10

Rubber, plastic

Code	Generic Name	Names	Features
N	NBR -5°C~80°C	Nitrile rubber	<ul style="list-style-type: none"> * Oil resistance and abrasion resistance, often apply to seal materials, particularly resistant to mineral oil for the best. * Not suitable for using in polar solvents, such as ketones, ozone, nitro hydrocarbons, MEK and chloroform.
T	PTFE (Teflon) -5°C~185°C	Polytetrafluoroethylene	<ul style="list-style-type: none"> * Able to withstand all the strong acid(including aqua regia), strong oxidants, reducing agents and various organic solvents except alkali metal fluoride, sodium hydroxide medium. * It is better than rubber almost in all physical properties except elasticity and it has the characteristics of a low coefficient friction.
J	EPDM -5°C~130°C	Ethylene propylene rubber	<ul style="list-style-type: none"> * Resistance to polar solvents (alcohols, ketones, ethylene glycol) of hydrochloric acid. With good ozone resistance, excellent water resistance and chemical resistance. * Not recommended for aromatic hydrogen.
V	VITON (FKM) (FPM) -5°C~130°C	Fluorocarbon rubber	<ul style="list-style-type: none"> * Premium chemical resistance and higher price are the two characteristics, can be resistant to most oils and solvents * Not recommended for ketones, esters and mixtures containing nitrate
R	RUBY -10°C~200°C	-	<ul style="list-style-type: none"> * The artificial ruby sheet is used as a seal to block the orifice, which is resistant to various corrosive and volatile fluids such as aromatic hydrocarbon fluids. But a slight gas leak is caused by the hardness of the ruby.
Z	FFKM -10°C~290°C	Perfluoroelastomer	<ul style="list-style-type: none"> * Excellent air tightness and optimum temperature and chemical resistance in all elastomer materials. * Resistant to corrosion from various chemical products such as strong acids, alkalis, ethers, ketones, esters, lubricants, fats, aromatics, nitrogenous compounds, hydrocarbons, alcohols, aldehydes, oils, vapors, amines, etc.
S	Silicone -5°C~130°C	Silicone rubber	<ul style="list-style-type: none"> * Excellent ozone ,oxides corrosion, and neutral solvent resistance * Not recommended for most concentrated solvents, oils, concentrated acid and dilution sodium hydroxide

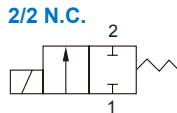
* Please follow the recommended solenoid valve temperatures.

⊙: Outstanding ○: Resistant, unless otherwise specified △: Have no resistance, Unless otherwise specified ×: Have no resistance

Oil, solvents		Rubber types					
		NBR	PTFE	EPDM	VITON	FFKM	Silicone
Engine oil	SAE#30	⊙	⊙	×	⊙	-	⊙
	SAE 10w-#30	⊙	⊙	×	⊙	-	○
Gear oil	For Vehicles	⊙	⊙	×	○	-	△
	Industrial second type (polarity) synthesis	⊙	⊙	△	○	-	△
Brake oil	DOT3(ethanol)	△	⊙	○	×	-	○
	DOT5(ethanol)	△	⊙	○	×	-	○
	DOT5(Silicon-based)	⊙	⊙	×	⊙	-	×
Machine oil (the 2nd axis lubricants)		○	⊙	×	⊙	-	×
Hydraulic operating oil (mineral oil-based)		⊙	⊙	×	⊙	-	△
Flame retardant hydraulic oil	Phosphate ester	×	⊙	×	△	-	⊙
	Water + diethanol Department	○	⊙	×	△	-	△
Consumers cut oil		△	⊙	×	⊙	-	⊙
Lubricating oil	Mineral oil-based	⊙	⊙	×	⊙	⊙	⊙
	Silicon-based	⊙	⊙	○	⊙	⊙	×
	Fluorine	⊙	⊙	×	×	⊙	⊙
Refrigerant	R12+Paraffinic	△	⊙	×	×	-	×
	R134a+Glycol	△	⊙	⊙	×	-	×
Gasoline, diesel oil		△	⊙	×	⊙	⊙	×
Light oil, kerosene		△	⊙	×	⊙	⊙	×
Heavy oil		△	⊙	×	⊙	-	×
Antifreeze (in ene glycol system)		○	⊙	⊙	×	-	△
Warm water		⊙	⊙	⊙	○	⊙	⊙
Sea water		△	⊙	⊙	○	-	×
Hot water, Steam (100°C)		×	⊙	⊙	△	○	○
Hydrochloric acid solution		△	⊙	⊙	○	-	○
30% Sulfuric acid solution		×	⊙	○	△	-	×
10% Nitric acid solution		×	⊙	○	△	-	×
40% Sodium hydroxide solution		△	⊙	⊙	×	-	×
Benzene		×	⊙	×	×	⊙	×
Alcohol		△	⊙	⊙	○	⊙	○
Butanone		×	⊙	×	×	⊙	△

⊙: Outstanding ○: Resistant, unless otherwise specified △: Have no resistance ,Unless otherwise specified ×: Have no resistance

Oil, solvents		Rubber types					
		NBR	PTFE	EPDM	VITON	FFKM	Silicone
Organic acids	Acetic acid	△	⊙	⊙	○	⊙	⊙
Inorganic acid	Hydrochloric acid solution	△	⊙	⊙	○	⊙	⊙
	Sulfuric acid solution	-	⊙	⊙	⊙	⊙	○
	Nitric acid solution	×	⊙	○	△	⊙	○
Alkalies	Sodium hydroxide	△	⊙	⊙	○	⊙	○
	Ammonium hydroxide	△	⊙	⊙	○	⊙	⊙
Salt	Sodium chloride	△	⊙	⊙	⊙	-	⊙
	Sodium carbonate	△	⊙	⊙	○	-	⊙
Oxidizing agent	Sydrogen peroxide	△	⊙	○	⊙	⊙	⊙
	Sodium hypochlorite	×	⊙	○	⊙	⊙	○
Aliphatic carbohydrates	Trimethylpentane	△	⊙	×	⊙	⊙	×
Aromatic carbohydrate	Methylbenzene	△	⊙	×	⊙	⊙	△
Chlorination of carbohydrates	Trichloro ethylene	△	⊙	×	⊙	-	×
Alcohols	Methyl alcohol	△	⊙	⊙	△	⊙	⊙
	Ethyl alcohol	△	⊙	⊙	⊙	⊙	⊙
Ethers	Diethyl ether	△	⊙	△	×	⊙	×
Esters	Ethyl acetate	×	⊙	○	△	-	×
Ketone	Chloromethyl ethyl ketone	×	⊙	⊙	×	⊙	×
Aldehydes	Furfuraldehyde	△	⊙	⊙	×	⊙	×
Amine	Triethanolamine	△	⊙	⊙	×	-	×
Sulfur	Carbon disulfide	△	⊙	×	⊙	-	-



Available fluid: Air, gas, water, vacuum, oil etc.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~50°C
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)

Power consumption

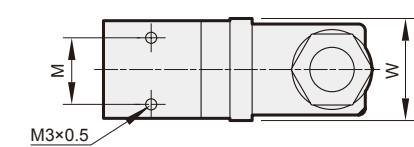
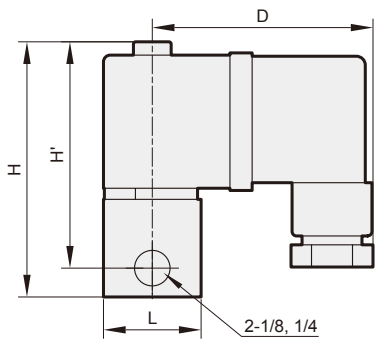
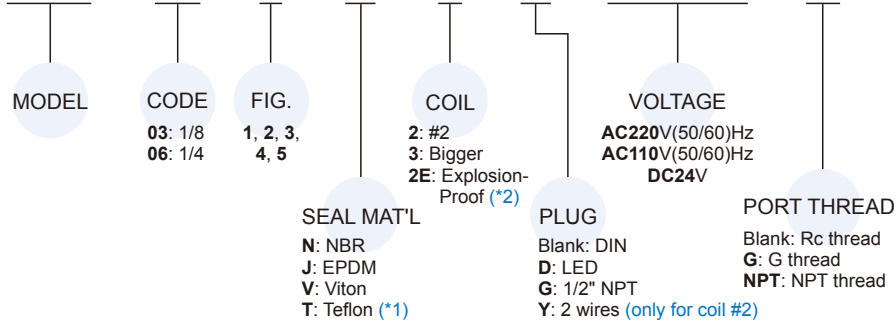
Coil power	2	3	2E
AC (VA)	8.5/6.9	8/6	4.8
DC (W)	5.1	6.8	5.2

Dimensions

Model	MBS	
Code Dimension (mm)	03	06
D	50	50
H	57	61
H'	51	51
L	□22	33
M	15	11.2
W	23	
N.W. (kg)	0.15	

Order example

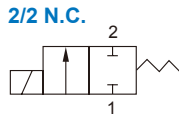
MBS - 03 - 2 - N - 2 - D - AC110 - □



*1. When the seal material is (T) Teflon, the valve has slight leakage.
 *2. Explosion-Proof (2E) coil with LED (D) plug is not applicable.

Specification

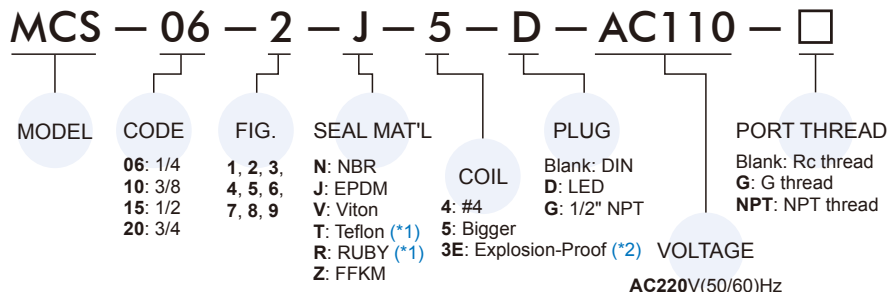
Model MBS: Brass body, mini 2/2 way N.C.																						
Code (Port)	Fig. no.	Mat'l		Coil	Orifice mm	Temp. °C									Max. O.P.D bar (Min. 0 bar)				CV	VAC. torr		
		Seal	Body			Coil 2				Coil 3, 2E					Coil 2		Coil 3				Coil 2E	
						N	J	V	T	N	J	V	T	AC	DC	AC	DC	AC			DC	
03(1/8) 06(1/4)	1	N J V T	C	2	1.0	-5	~	-10	-5	-10	-10	~	~	~	30	20	40	30	20		0.03	10 ⁻³
	2				24										16	35	24	16		0.05		
	3				16										12	30	12	10		0.09		
	4				13										10	25	10	7		0.14		
	5				10										7	20	7	5		0.18		



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~+50°C
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)
- The Max. Orifice for seal **J**=5.0mm, **T**=4.0mm, **R**=2.5mm, **Z**=5.0mm.

Order example



*1. When the seal material is (T) Teflon or (R) RUBY, the valve has slight leakage, not suitable for vacuum.
*2. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

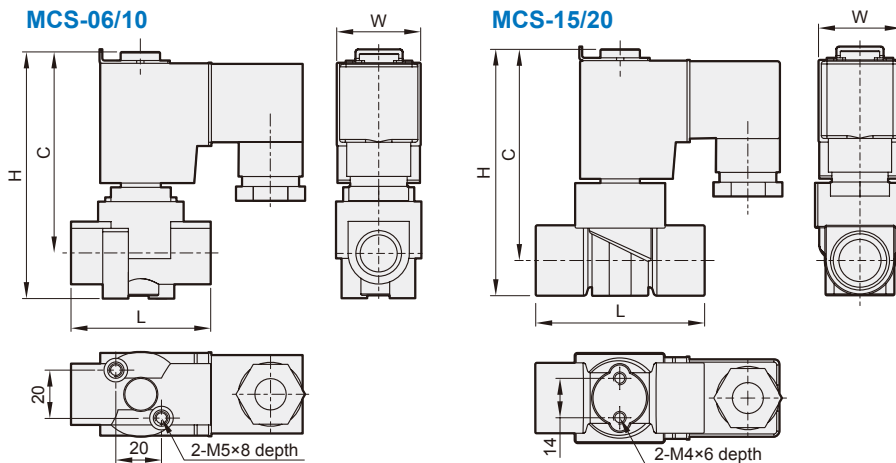
Weight

Unit: kg

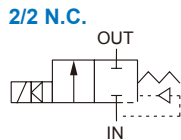
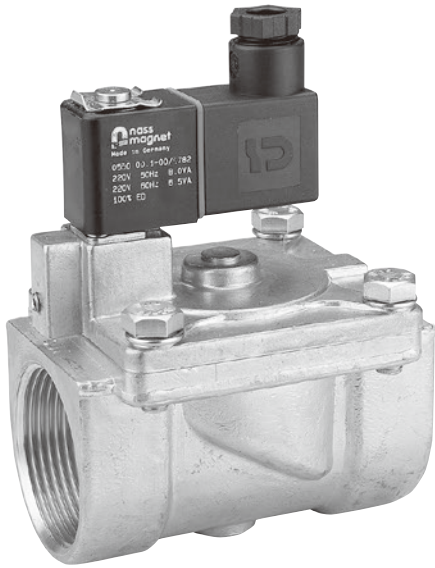
Model	MCS		
Coil Code	4	5	3E
06	0.43	0.51	0.74
10	0.41	0.49	0.72
15	0.47	0.55	0.80
20	0.55	0.63	0.88
Coil power			
AC (VA)	18.0	24.0	8.6
DC (W)	15.0	18.5	10.0

Dimensions

Code Dimension (mm)	06	10	15	20
L	49	55	60	
H	86	88	91	
C	71	74	74	
W	Coil 4	30	32	
	Coil 5	36	36	
	Coil 3E	36	36	



Model MCS: Forged brass body, 2/2 way N.C. Available fluid: water, air, gas, vacuum, light oil (50cst down) etc.																								
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Seal temp. °C												Max. O.P.D bar (Min. 0 bar)						CV	VAC. torr
					Coil 4, 3E						Coil 5						Coil 4		Coil 5		Coil 3E			
					N	J	V	R	T	Z	N	J	V	R	T	Z	AC	DC	AC	DC	AC	DC		
06(1/4) 10(3/8) 15(1/2) 20(3/4)	1	N J V T R Z	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	30	20	40	30	25	20	0.10	10 ⁻²						
	2			2.0							24	14	30	28	16	12	0.15							
	3			2.5							17	10	24	20	10	8	0.20							
	4			3.0							10	6	16	13	7	6	0.31							
	5			4.0							8	4	12	8	4.5	3.5	0.54							
	6			5.0							6	2	9	5	2.5	2	0.80							
	7			5.5							4	2	7	4	2	2	0.95							
	8			7.5							2	0.8	3	2	1	1	1.10							
	9			10.0							0.8	0.4	1.6	0.8	0.4	0.4	1.30		10					



Specification

- IP65 100% ED coil
- EExm II T4 PTB approval coil

Power consumption

Coil power	2	2E	3	4	3E
AC (VA)	6.9	8.0	5.7	15.4	9.2
DC (W)	6.2	6.8	5.2	15.0	10.0

Dimensions

Model	MGD							MGD-F						
	10	15	20	25	32	40	45	50	25	32	40	45	50	
Code Dimension (mm)	10	15	20	25	32	40	45	50	25	32	40	45	50	
A	68.3	72.7	75.5	91.0	97.5	138	155	155	175	175	175	175	175	
B	81.3	88.7	95	119	132	125	135	140	140	140	140	140	155	
C	64	80	90	102	122	138	159	161	168	175	175	175	175	
D	42	51	61	76	95	—	—	—	—	—	—	—	—	
E	22	28	34	—	—	—	—	—	—	—	—	—	—	
N.W (kg)	Coil 2	0.47	0.45	0.70	0.90	1.98	1.67	3.50	2.86	3.22	5.33	4.93	6.76	6.98
	Coil 2E	0.78	0.75	1.00	1.20	2.29	1.98	3.80	3.17	3.52	5.64	5.24	7.06	7.29
	Coil 3	0.51	0.48	0.74	0.94	2.02	1.71	3.54	2.90	3.26	5.37	4.97	6.80	7.02
	Coil 4	0.60	0.57	0.83	1.03	2.11	1.80	3.62	2.98	3.63	5.75	5.35	7.17	7.40
	Coil 3E	0.89	0.86	1.12	1.32	2.40	2.09	3.91	3.28	3.33	5.46	5.06	6.88	7.10

Order example

MGD - 25 - N - 3 - D - F - □ - AC110 - □

MODEL

CODE
10, 15, 20,
25, 32, 40,
45, 50

SEAL MAT'L
N: NBR
J: EPDM
V: Viton

COIL
2, 3, 4,
2E, 3E
(*)

PLUG
Blank: DIN
D: LED
G: 1/2" NPT
Y: 2 wires
(only for coil #2)

CONN.
Blank: Screwed
F: Flanged
(F type no manual,
for code 25~50)

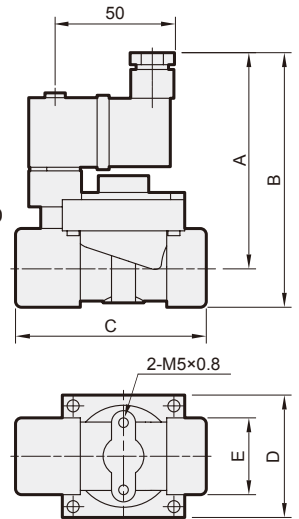
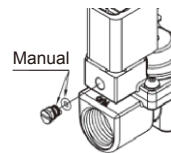
VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.

MANUAL

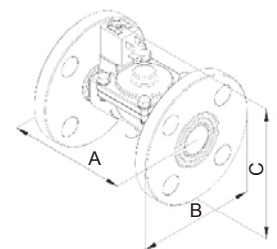
Blank: Without
M: With (for coil 2, 2E, 3)

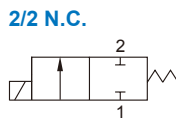


Specification

Model MGD: Forged brass body, for water, air, gas etc. 2/2 way N.C.																				
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C					Working press.(0.3~ bar)						CV					
				Coil 2		Coil 3, 2E		Coil 4, 3E		Coil 2		Coil 2E		Coil 3		Coil 4		Coil 3E		
				N,J,V	N	J,V	N	J,V	N	J,V	AC	DC	AC	DC		AC	DC	AC	DC	AC	DC
10(3/8)	N J V	2 2E 3 4 3E	15						10	10	16	15	16	16	—	—	—	16	2.0	
15(1/2)									10	10	16	15	16	16	—	—	—	16	2.5	
20(3/4)										10	10	14	13	16	16	—	—	—	16	5.2
25(1)					-5	-5	-5	-5	-5	10	10	12	10	16	16	—	—	—	16	8.5
32(1 1/4)					~	~	~	~	~	10	9	10	8	14	13	16	16	16	16	16
40(1 1/2)					60	60	100	60	~145	10	9	10	8	14	13	16	16	16	16	21
45(1 1/2)										8	5	8	5	12	10	16	16	16	16	26
50(2)										8	5	8	5	12	10	16	16	16	16	31

Flanged





Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	18	24	8.6
DC (W)	6.0	6.8	5.2	15.0	18.5	10.0

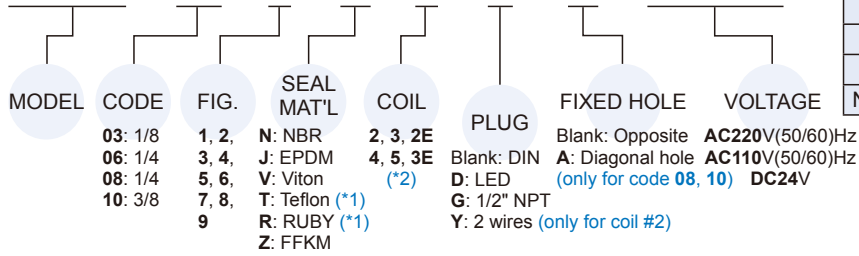
Dimensions

Model	MUSC											
	03			06			08			10		
Code Dimension (mm)	2	3	2E	2	3	2E	4	5	3E	4	5	3E
L	25			30			40			42		
W	25	30	25	30	-			-				
H	58			63			86			87		
C	51			53			75			75		
D	18			23			31			31		
F	50			50			53			53		
M	M4			M4			M5			M5		
A	-			-			22			24		
N.W (kg)	0.18	0.23	0.5	0.23	0.28	0.55	0.50	0.58	0.79	0.52	0.60	0.81

Order example

* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUSC-06-2-N-3-D-□-AC110



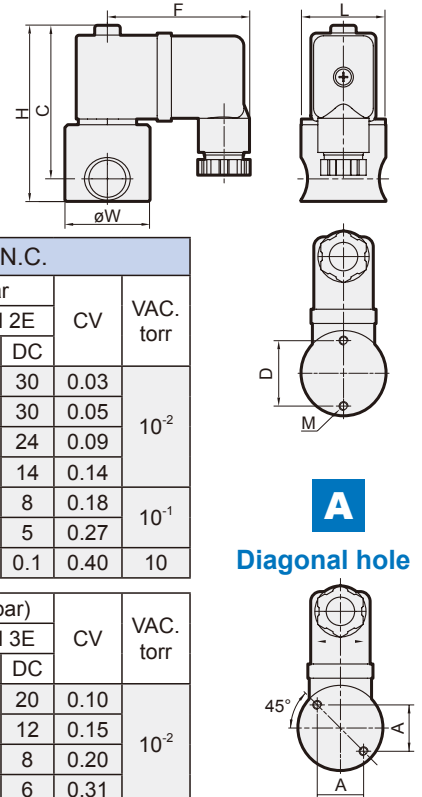
- *1. When the seal material is (T) Teflon or (R) RUBY, the valve has slight leakage.
- *2. Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.

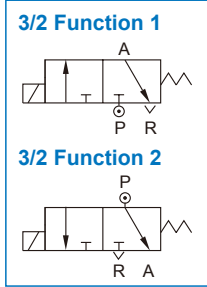
Specification

Model MUSC: 303 S.S. body, for water, air, gas, light oil (50cst down), vacuum. 2/2 way N.C.																		
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Working pressuer 0~bar						CV	VAC. torr
					Coil 2/2E			Coil 3			Coil 2		Coil 3		Coil 2E			
					N	JV	TZ	N	JVTZ	AC	DC	AC	DC	AC	DC			
03(1/8) 06(1/4)	1	N J V T Z	2 3 2E	1.0	-5 ~ 80	-10 ~ 80	-20 ~ 80	-5 ~ 80	-10 ~ 145	30	30	30	30	30	30	0.03	10 ⁻²	
	2			1.3						30	24	30	30	30	30	30		0.05
	3			1.6						30	20	30	30	30	30	24		0.09
	4			2.0						16	11	22	20	17	14	0.14		
	5			2.5						10	7	12	10	10	8	0.18		
	6			3.0						6	4	8	8	7	5	0.27		
	8			5.0						1	0.2	2	0.5	1	0.1	0.40		

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Max. O.P.D. bar (Min. 0 bar)						CV	VAC. torr
					Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E			
					N	JV	TRZ	N	JV	TRZ	AC	DC	AC	DC	AC	DC		
08(1/4) 10(3/8)	1	N J V T R Z	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	30	20	40	30	25	20	0.10	10 ⁻²
	2			2.0							24	14	30	28	16	12	0.15	
	3			2.5							17	10	24	20	10	8	0.20	
	4			3.0							10	6	16	13	7	6	0.31	
	5			4.0							8	4	12	8	4.5	3.5	0.54	
	6			5.0							6	2	9	5	2.5	2	0.80	
	7			5.5							4	2	7	4	2	2	0.95	
	8			7.5							2	0.8	3	2	1	1	1.10	
	9			10.0							0.8	0.4	1.6	0.8	0.4	0.4	1.30	

* Max. Orifice: 03/06 T=2.5mm, Z=3.0mm., 08/10 J=5.0mm, T=4.0mm, R=2.5mm, Z=5.0mm
 * Seal T and R might have below 300cc/min. slight leakage, so it is not suitable for vacuum.





* O.P.D. of function 1, 2 refer to specification table.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	18.0	24.0	8.6
DC (W)	6.2	6.8	5.2	15.0	18.5	10.0

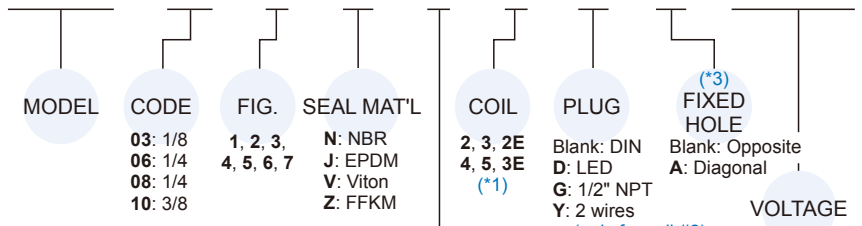
Dimensions

Model	MUST			
Code	03	06	08	10
Dimension (mm)				
L	25	30	40	42
W	2	25	25	-
	3, 2E	30	30	-
F	22	22	29	29
H	58	63	86	87
C	51	53	75	75
D	18	23	31	31
M	M4	M4	M5	M5
A	-	-	22	24
N.W (kg)	2, 4	0.18	0.23	0.52
	3, 5	0.23	0.28	0.58
	2E, 3E	0.50	0.55	0.83

Order example

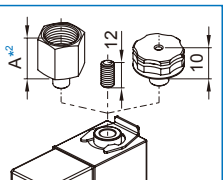
* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUST - 06 - 2 - N - C - 5 - D - S - AC110



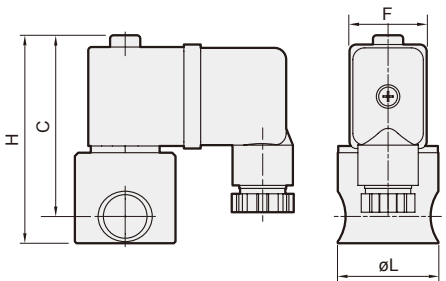
EXHUST ACCESSORIES

U	-	Without
F		PS female
C		Dust-proof & silencer cap
P		1/8" PS male



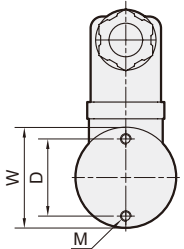
- *1. Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.
- *2. Code

Code	03	06	08	10
A	19	20	20	22
- *3. Only for code 08, 10.

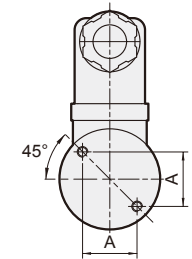


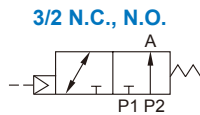
Specification

Model MUST: 303 S.S. bar body , for water, air, gas, light oil (50cst down) , vacuum. 3/2 way N.C., N.O.																			
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C						Working pressure (0~ bar)				CV	Torr		
				Body	Tube	Coil 2, 2E			Coil 3			Coil 2		Coil 3				Coil 2E	
						N	JV	Z	N	JVZ	1	2	1	2	1			2	
03(1/8) 06(1/4)	2	N J V Z	2 3 2E	1.0	1.2	-5	-10	-20	-5	-10	6.5	7.0	8.0	9.0	5.5	5.5	0.03	10 ⁻¹	
	3			~		~	~	~	~	6.0	7.0	7.0	9.0	4.8	5.5	0.05			
	4			~		~	~	~	~	4.0	5.5	5.5	7.0	3.5	3.5	0.09			
	5			80		80	80	80	145	2.8	5.0	3.5	7.0	2.0	3.5	0.14			
	6			2.5		1.5	1.2	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.18			
	7			2.5		1.5	1.2	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.18			
08(1/4) 10(3/8)	1	N J V Z	4 5 3E	1.3	1.6	-5	-10	-20	-5	-10	9.0	10	12	12	8.0	10	0.05	10 ⁻²	
	2			~		~	~	~	~	7.0	8.5	8.5	10	6.0	6.0	0.10			
	3			~		~	~	~	~	5.5	8.0	7.0	10	5.0	8.0	0.15			
	4			80		145	160	80	145	185	4.0	6.5	5.5	8	3.0	6.5	0.20		
	5			2.5		2.5	2.5	2.5	2.5	4.0	4.0	2.0	2.0	2.0	4.5	4.5	0.31		
	6			4.0		3.0	1.5	4.5	2.5	5.5	1.5	4.5	1.5	4.5	1.5	4.5	0.51		
	7			5.0		3.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.65		
	8			5.0		3.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.65		
	9			5.0		3.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.65		
	10			5.0		3.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.65		



Diagonal hole





Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.

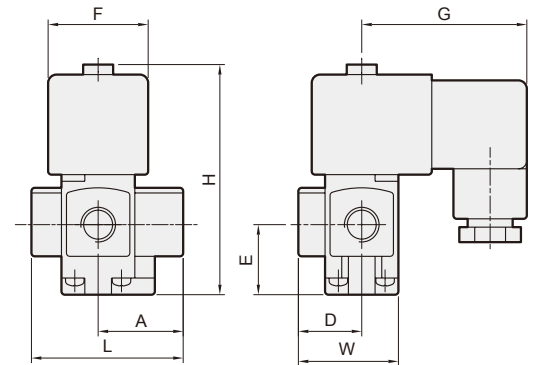
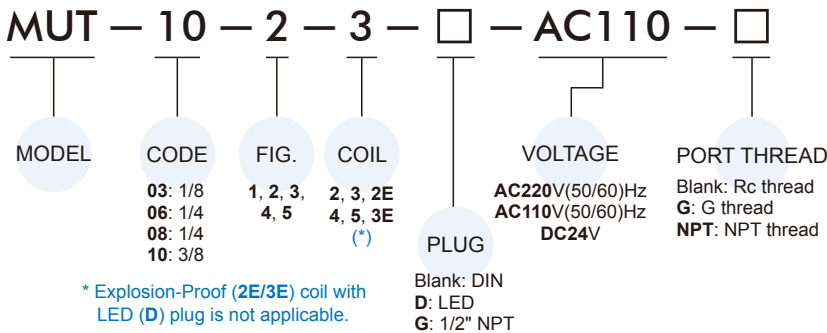
Power consumption

Coil power	3	2E	4	3E
AC (VA)	8.0	4.8	15.4	9.2
DC (W)	6.8	5.2	15.0	10.0

Dimensions

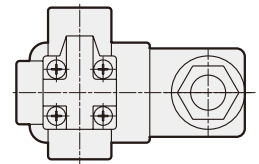
Model	MUT			
Code Dimension (mm)	03	06	08	10
A	25.5		28.5	
D	19.0		22.5	
E	21.0		23.0	
F	30.0		30.0	
G	50.0		53.0	
H	69.0		87.0	
L	45.5		51.0	
W	30.5		39.0	
N.W (kg)	2, 4	0.34	0.5	
	3, 5	0.31	0.6	
	2E, 3E	0.58	0.8	

Order example



Specification

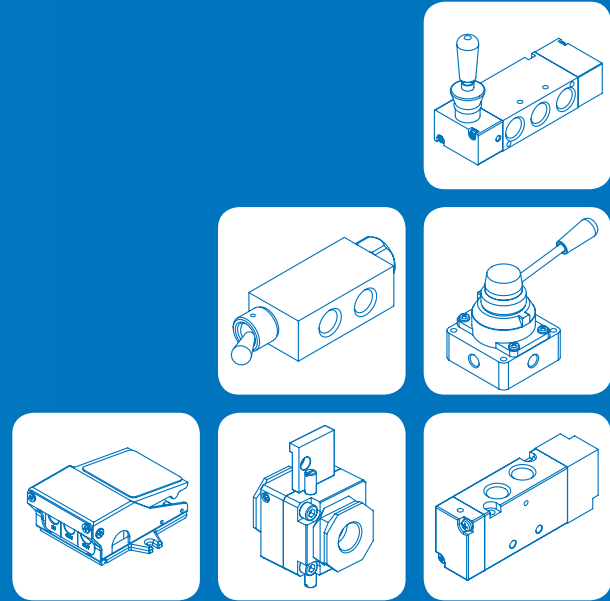
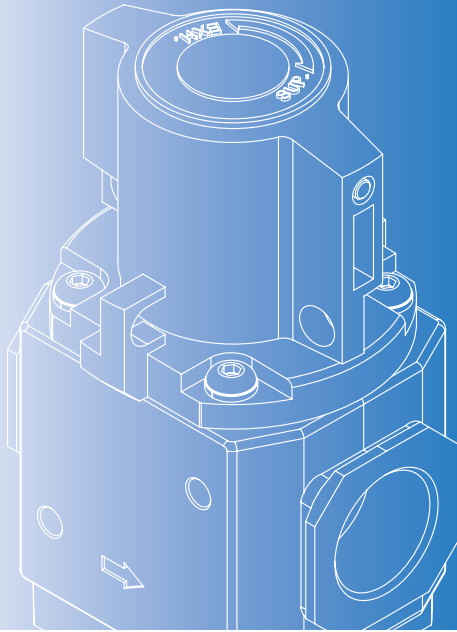
Model MUT: Forged brass body, 3/2 way N.C., N.O., for water, air, gas, light oil, vacuum.											
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Mat'l	Max O.P.D. bar (Min. 0 bar)				Cv	VAC. torr
					Temp. °C	Coil 2	Coil 3	Coil 2E			
					V	AC	DC	AC	DC		
03(1/8) 06(1/4)	1	V	2 3 2E	1.0	-5~95	6	6	6	4	0.02	10 ⁻²
	2			5		5	5	3	0.03		
	3			3		3	2.5	1.5	0.05		
	4			2		2	1.5	1	0.09	10 ⁻¹	
08(1/4) 10(3/8)	1	V	4 5 3E	1.3	-5~95	10	15	10	7	0.07	10 ⁻²
	2			7		12	7	5	0.10		
	3			6		10	6	3	0.15		
	4			5		8	5	2	0.20	10 ⁻¹	
	5			3		5	3	1	0.31		







PILOT & MECHANICAL VALVE

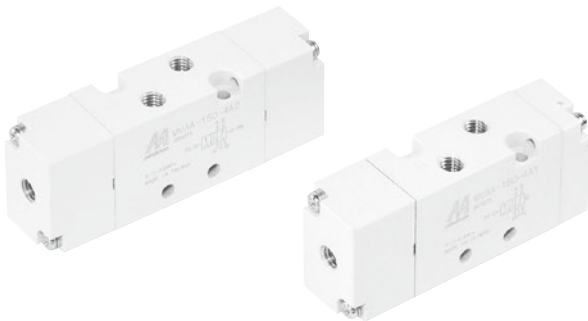


	PILOT VALVE	
MVAA	MVAA-150	3-2
	MVAA-180	3-4
	MVAA-220	3-7
	MVAA-260	3-11
	MVAA-300	3-14
	MVAA-460	3-18
	MECHANICAL VALVE	
MVMA	MVMA-260	3-22
	MVMA-300	3-23
	Push button type	3-24
MVMB	MVMB-220-3*	3-25
	MVMB-220-4*	3-28
	MVMB-250-2*, 3*	3-31
	MVMB-300-4*	3-34
MVMC	MVMC-210	3-37
ACT	.....	3-40
EPA	.....	3-40
	HAND VALVE	
MVHF-3P	MVHF-2P/3P-NC	3-47
	MVHF-3P-NO	3-47
MVHF-*V	MVHF-3V	3-48
	MVHF-5V	3-48
MVHF-5P	.....	3-49
	Miniature Pilot Actuator	
MVHF-AP*	MVHF-AP3 / MVHF-AP6A ...	3-49
	Mounting Bracket	
MVHF-LB	.....	3-50

	Valve Actuators Manual Push Button	
MVHF-PB	MVHF-PB2 / MVHF-PB5	3-50
	HAND VALVE	
MVHA	MVHA-2*, 3*	3-51
	MVHA-4*	3-52
	MVHA-31*	3-53
	MVHA-41*	3-54
	Manual / Mech. Operator	3-56
	HAND LEVER VALVE	
MVHB	MVHB-220	3-57
	MVHB-260	3-58
	MVHB-300	3-60
	MVHB-500	3-62
MVHD	MVHD-220	3-64
	ROTARY HAND LEVER VALVE	
MVHC	.....	3-65
	HAND SLIDE VALVE	
MVHS	.....	3-68
	SHUTOFF VALVE	
MVHT	.....	3-69
MVHR	.....	3-71
	FOOT PEDAL VALVE	
MVFA	.....	3-74

MVAA-150 series

PILOT VALVE



Specification

Model	4A1	4A2
Bore No.	M5	
Port size	M5×0.8	
No. of port	5	
Medium	Air	
Operating pressure range	0.15~0.8 MPa	0~0.8 MPa
Proof pressure	1 MPa	
Effective orifice	3.8 mm ²	
Pilot pressure range	(0.45×P*+0.1)~0.8 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Weight	47 g	58 g

* P: Operating pressure.

Order example of valve

MVAA – 150 – 4A2

MODEL

BODY WIDTH

4: 4way (5 port)

A1: Single pilot
A2: Double pilot

* Use the same manifold with MVSC1.

Order example of manifold

MVSC1 – 150 – 5B3 – G

MODEL

MANIFOLD

5B: 5 port
(for body ported type)

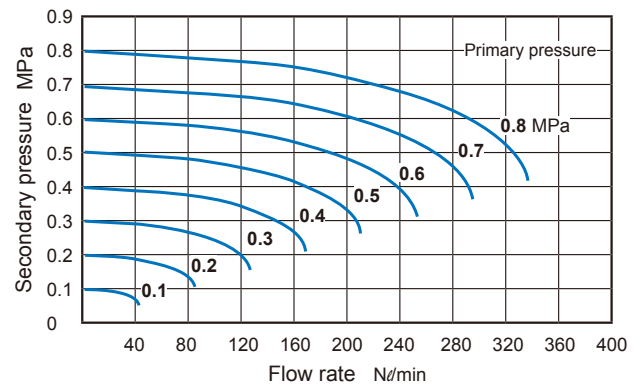
MANIFOLD NUMBER

1, 2, 3...

PORT THREAD

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

Flow features



MVAA-150 Dimensions

PILOT VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

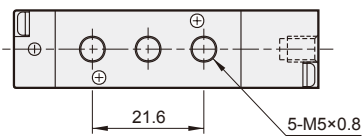
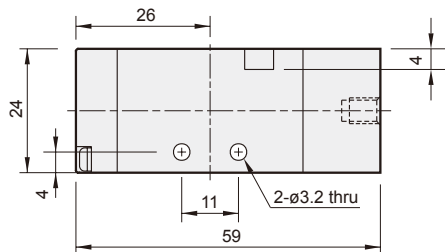
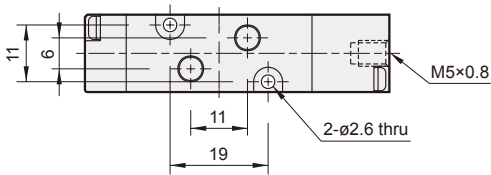
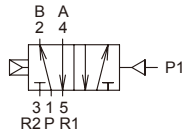
Air Unit

Pressure Switch

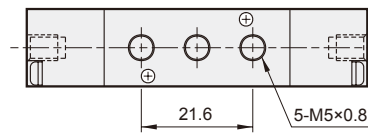
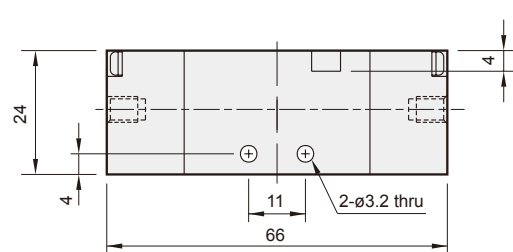
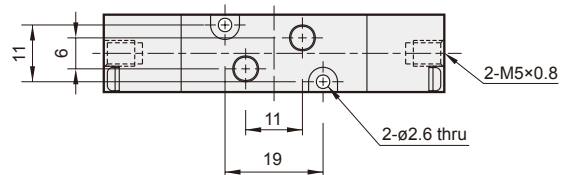
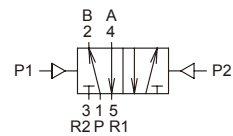
Auxiliary Equipment

PISCO®

MVAA-150-4A1



MVAA-150-4A2

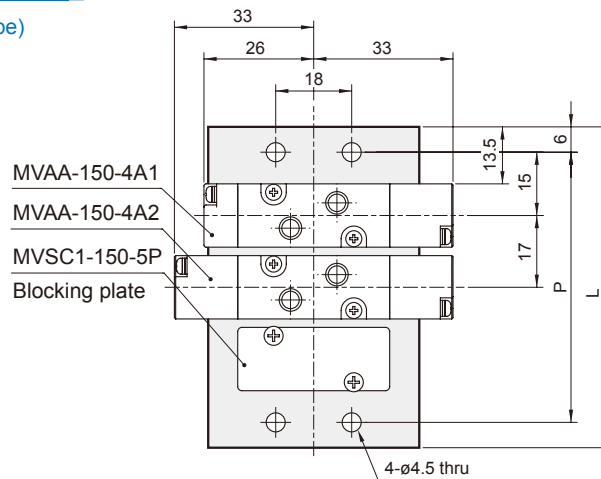


Manifold of pilot valve

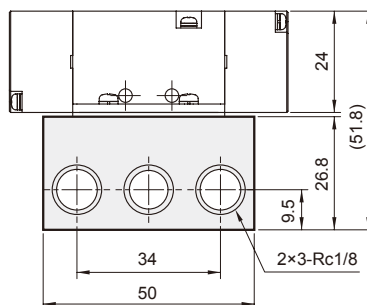
MVSC1-150-5B*

* Use the same manifold with MVSC1.

5 port (for body ported type)



No. of stations	P	L
2	47	59
3	64	76
4	81	93
5	98	110
6	115	127
7	132	144
8	149	161
9	166	178
10	183	195





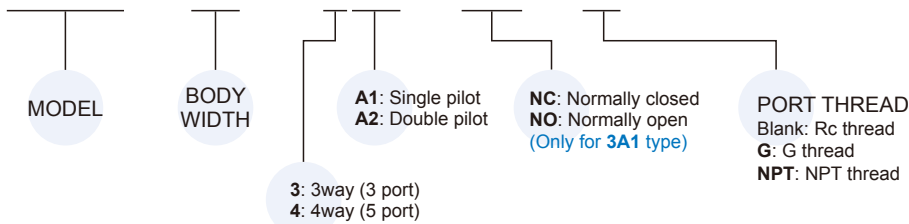
Specification

Model	3A1	3A2	4A1	4A2
Bore No.	6A			
Port size	Rc1/8			
No. of port	3		5	
Medium	Air			
Operating pressure range (MPa)	0~0.8	0.15~0.8	0~0.8	
Proof pressure	1 MPa			
Effective orifice	12 mm ²			
Pilot pressure range	(0.45×P*+0.1)~0.8 MPa			
Ambient temperature	-5~+60°C (No freezing)			
Weight	61 g	74 g	71 g	84 g

* P: Operating pressure.

Order example of valve

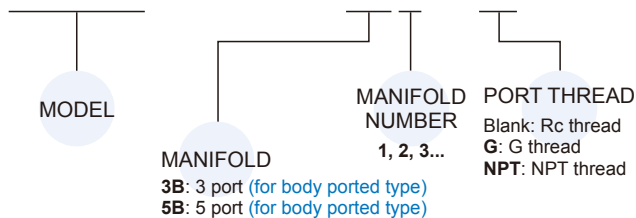
MVAA – 180 – 4A2 – NC – G



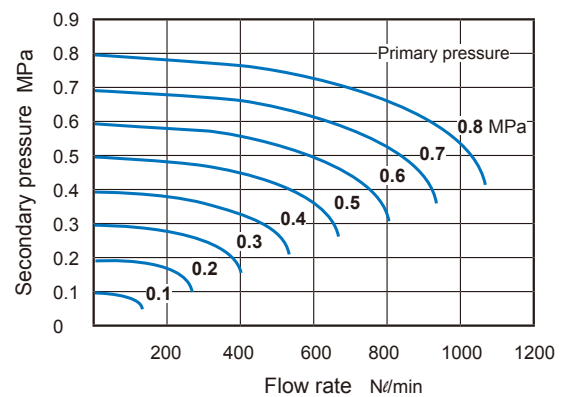
* Use the same manifold with MVSC1.

Order example of manifold

MVSC1 – 180 – 3B3 – G



Flow features

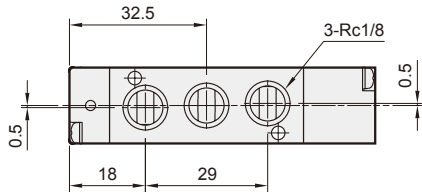
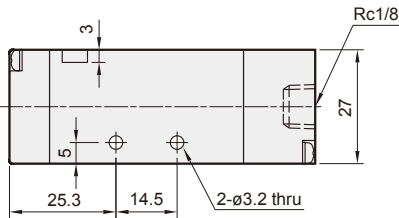
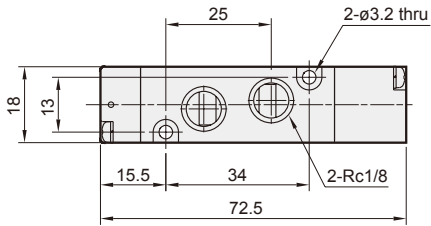
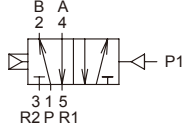


MVAA-180 Dimensions

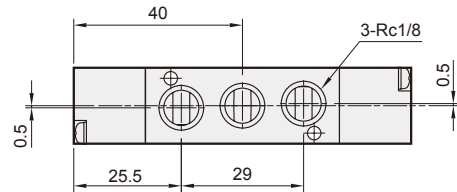
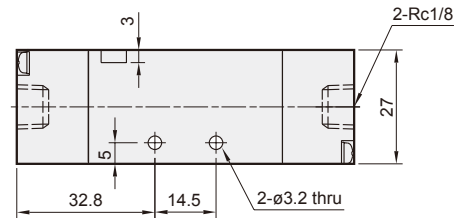
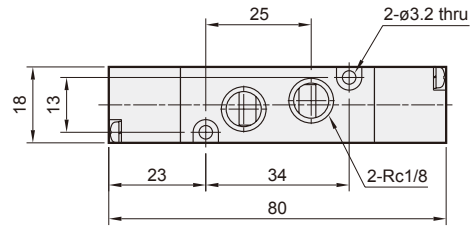
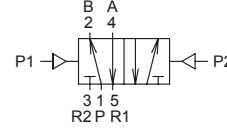
PILOT VALVE



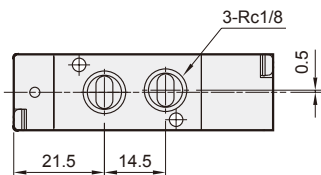
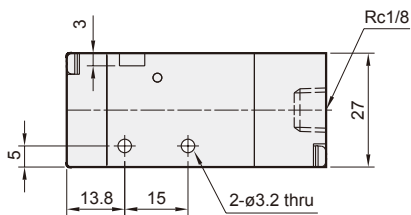
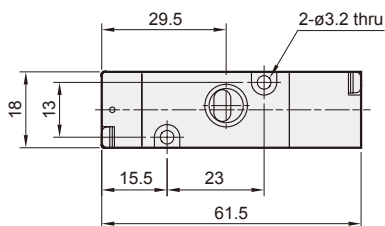
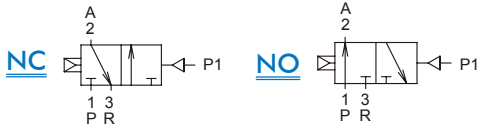
MVAA-180-4A1



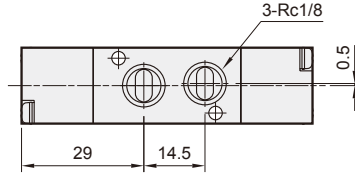
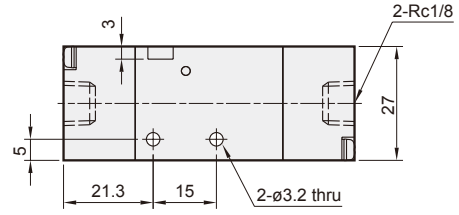
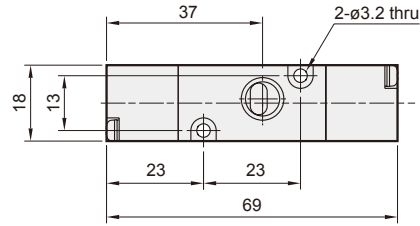
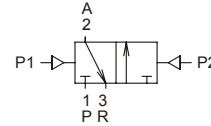
MVAA-180-4A2



MVAA-180-3A1-NC/NO



MVAA-180-3A2



MVAA-180 Manifold

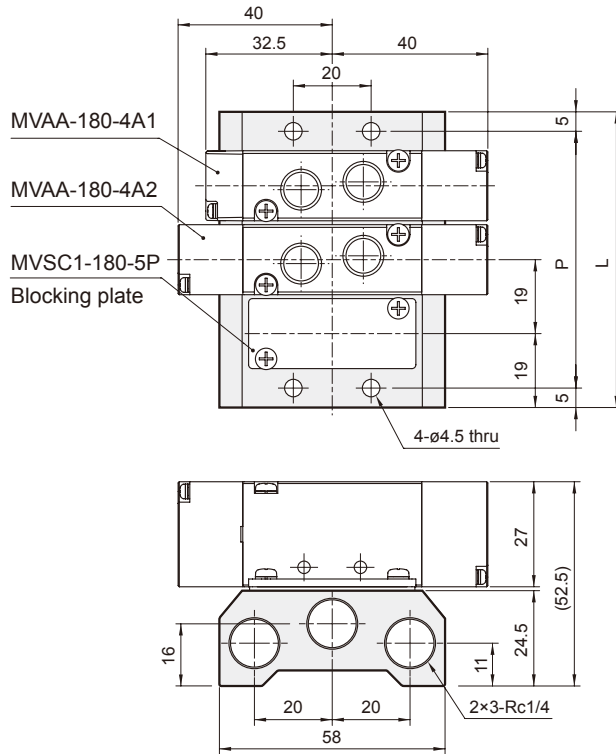
PILOT VALVE



MVSC1-180-5B*

* Use the same manifold with MVSC1.

5 port (for body ported type)

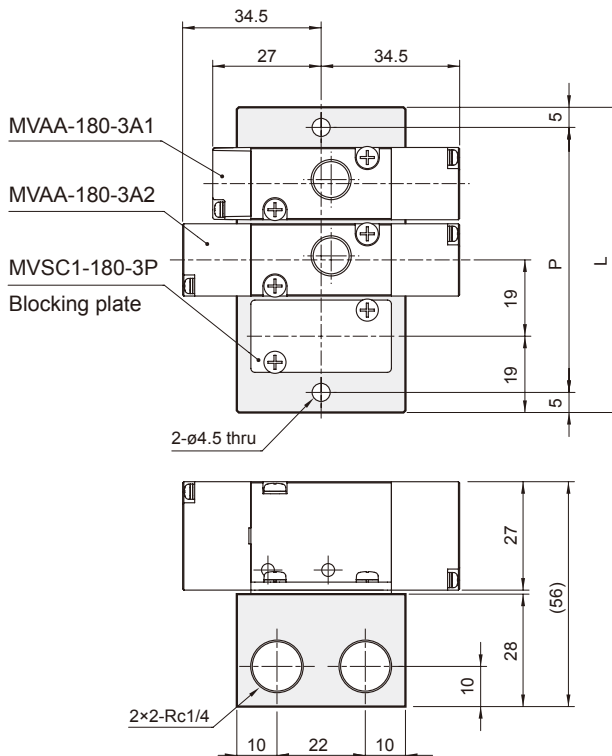


No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

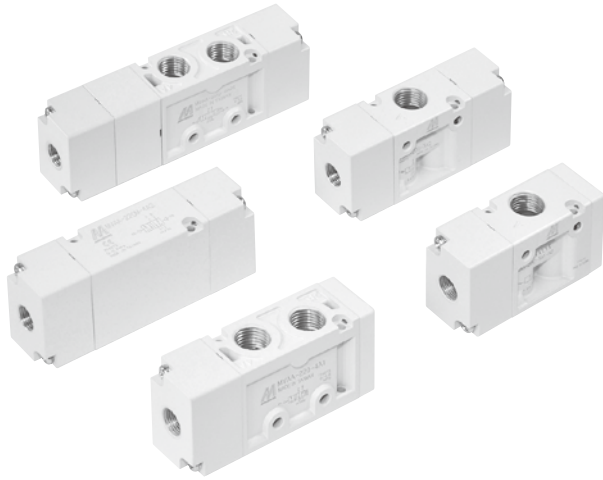
MVSC1-180-3B*

* Use the same manifold with MVSC1.

3 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209



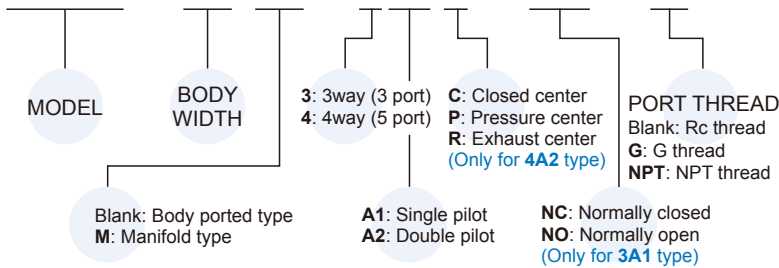
Specification

Model	3A1	3A2	4A1	4A2	4A2C.PR
Bore No.	8A				
Port size	Rc1/4				
No. of port	3		5		
Medium	Air				
Operating pressure range	0~0.8 MPa				
Proof pressure	1 MPa				
Effective orifice	18 mm ²				
Pilot pressure range	(0.3×P*+0.1)~0.8 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	122 g	134 g	106 g	134 g	179 g

* P: Operating pressure.

Order example of valve

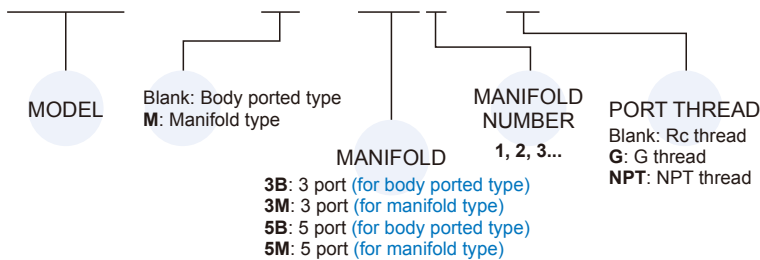
MVAA - 220M - 4A2C - NC - G



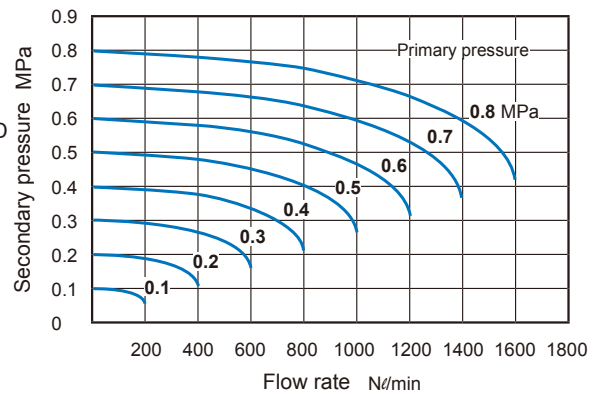
* Use the same manifold with MVSC.

Order example of manifold

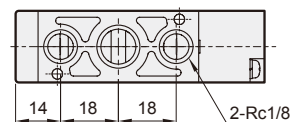
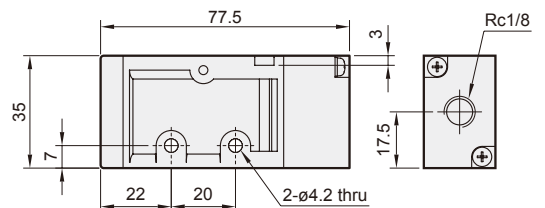
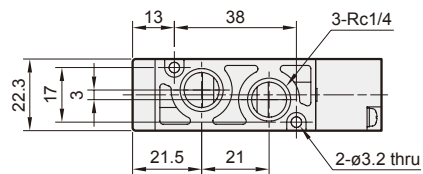
MVSC - 220M - 5M3 - G



Flow features



MVAA-220-4A1

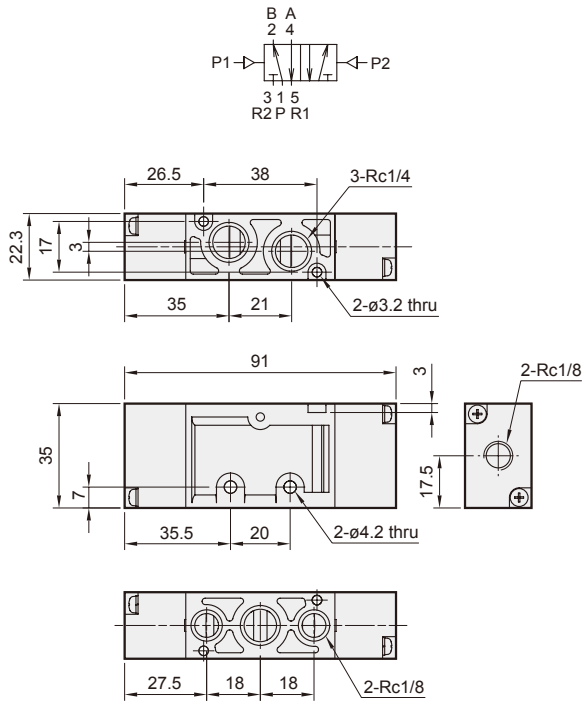


MVAA-220 Dimensions

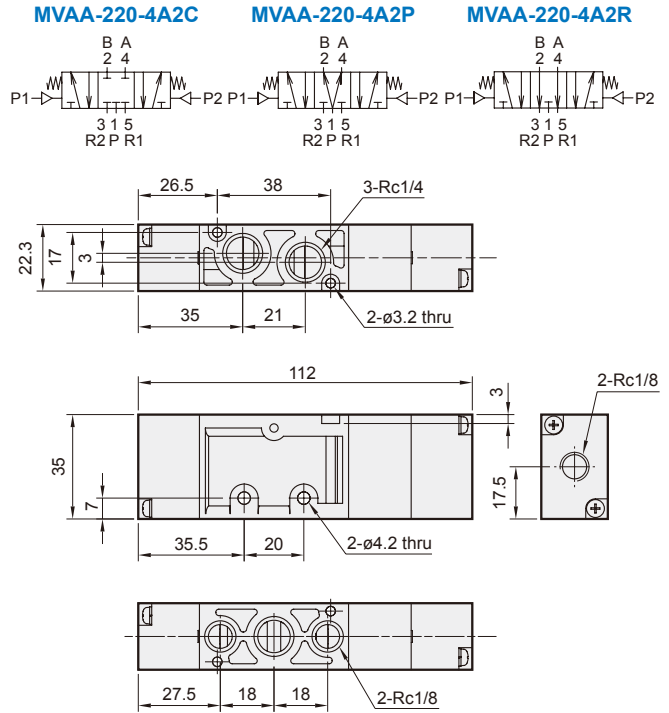
PILOT VALVE



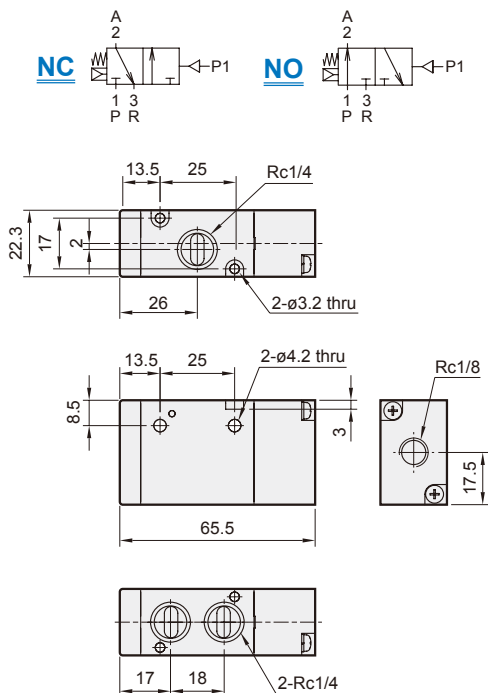
MVAA-220-4A2



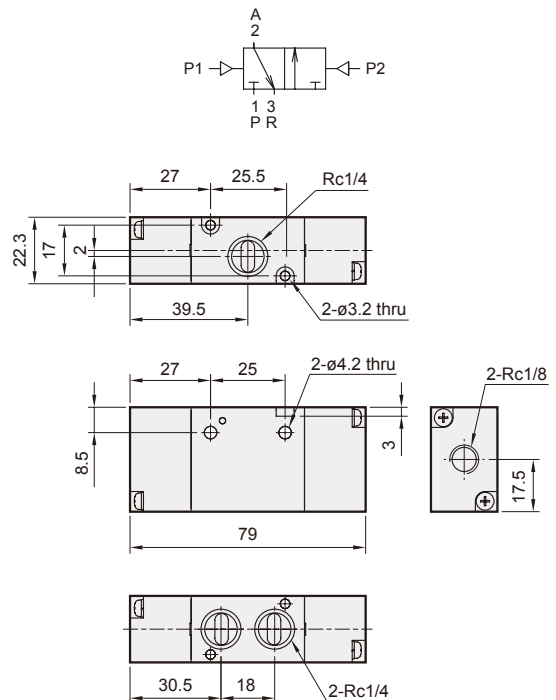
MVAA-220-4A2C.PR



MVAA-220-3A1-NC/NO



MVAA-220-3A2



MVAA-220 Manifold

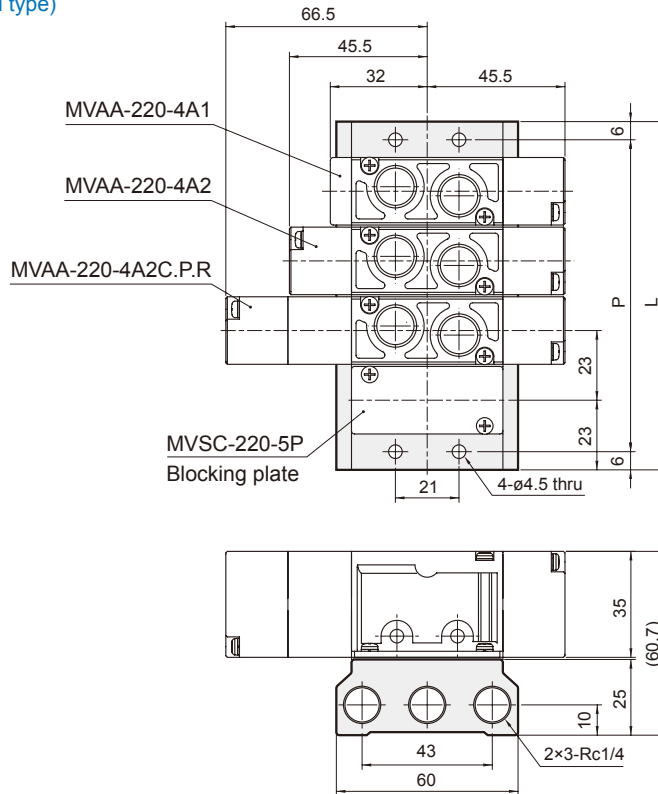
PILOT VALVE



MVSC-220-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)

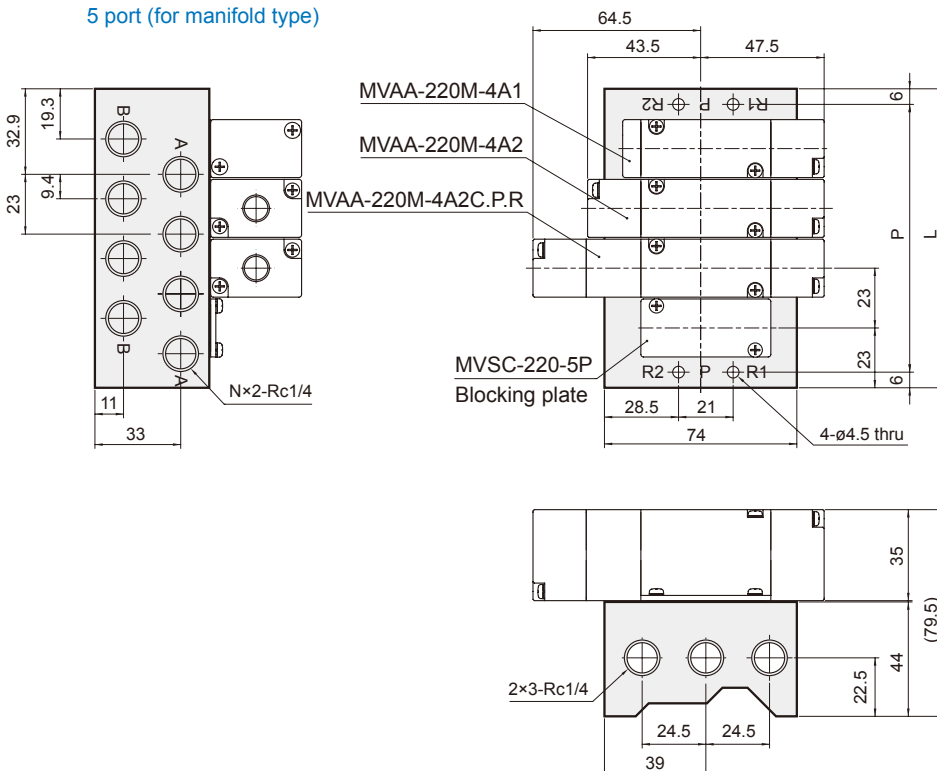


No. of stations	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSC-220-5M*

* Use the same manifold with MVSC.

5 port (for manifold type)



No. of stations (N)	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVAA-220 Manifold

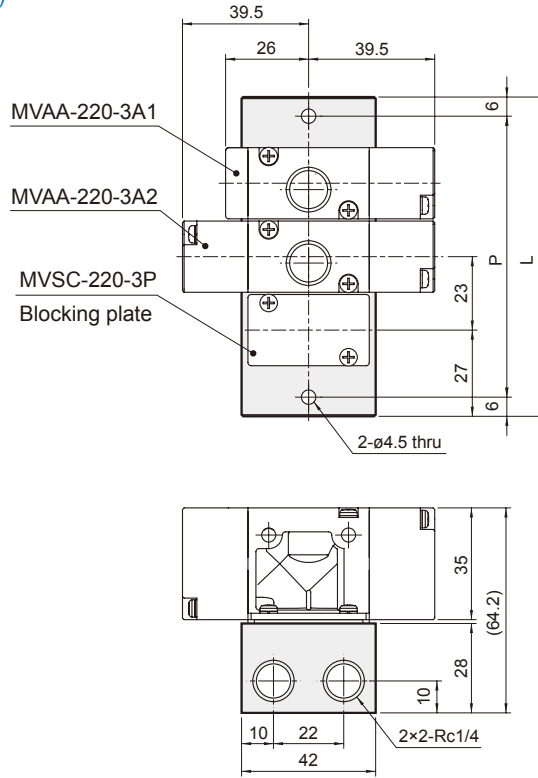
PILOT VALVE



MVSC-220-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)

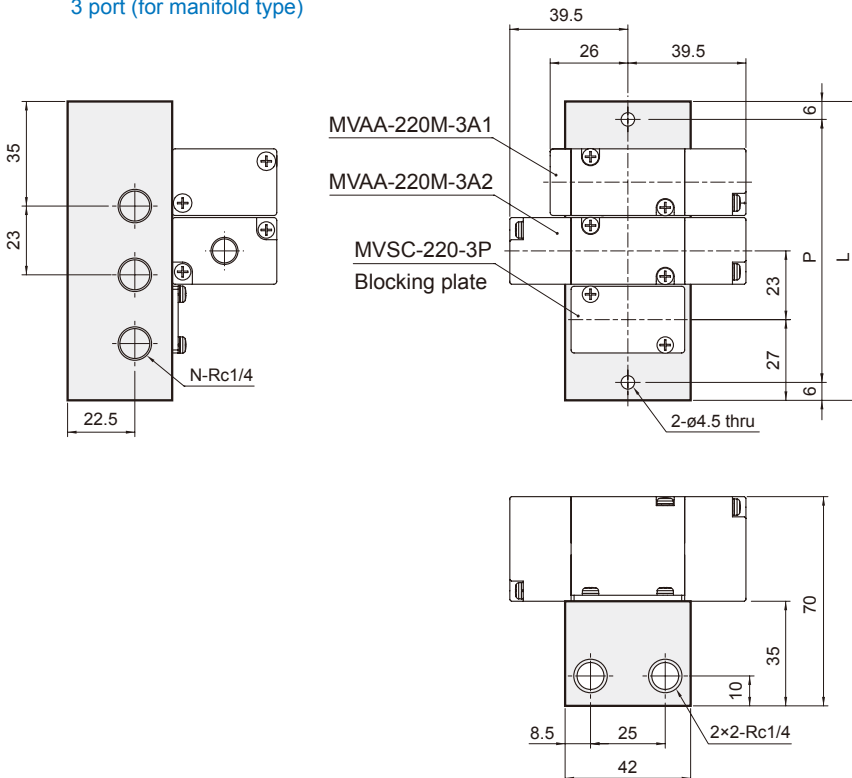


No. of stations	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC-220-3M*

* Use the same manifold with MVSC.

3 port (for manifold type)



No. of stations (N)	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVAA-260 series

PILOT VALVE



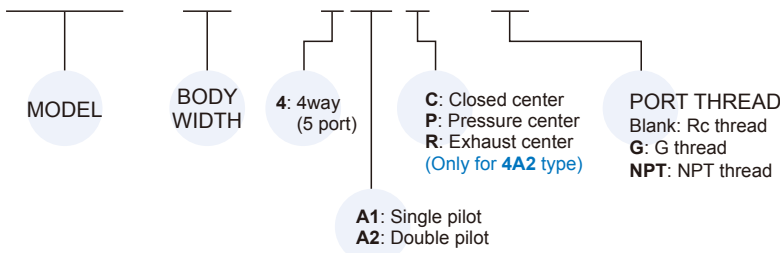
Specification

Model	4A1	4A2	4A2C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
Medium	Air		
Operating pressure range	0~0.8 MPa		
Proof pressure	1 MPa		
Effective orifice	18 mm ²		
Pilot pressure range	(0.3×P*+0.1)~0.8 MPa		
Ambient temperature	-5~+60°C (No freezing)		
Weight	153 g	163 g	219 g

* P: Operating pressure.

Order example of valve

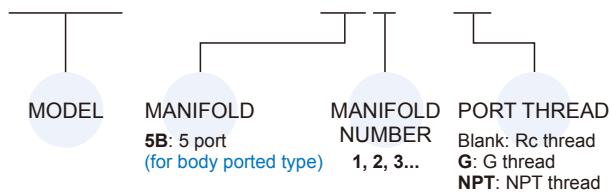
MVAA – 260 – 4A2C – G



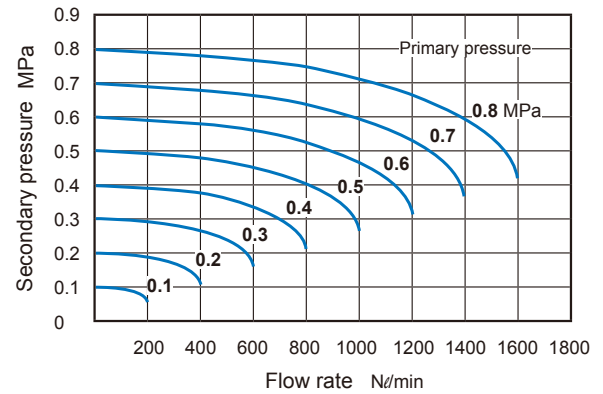
* Use the same manifold with MVSC.

Order example of manifold

MVSC – 260 – 5B3 – G



Flow features

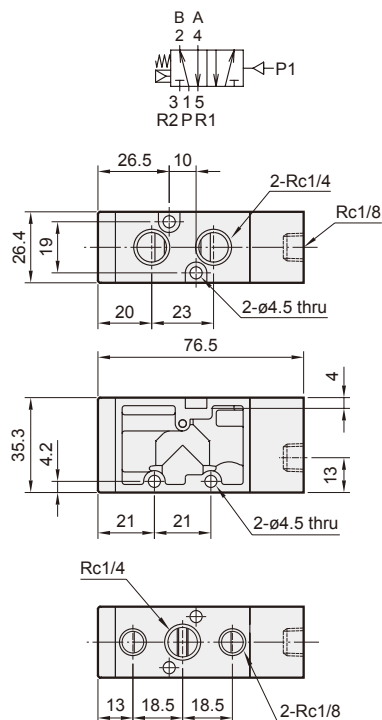


MVAA-260 Dimensions

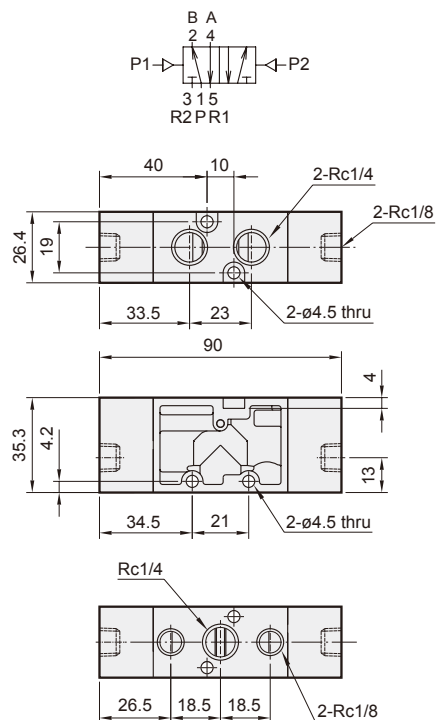
PILOT VALVE



MVAA-260-4A1



MVAA-260-4A2

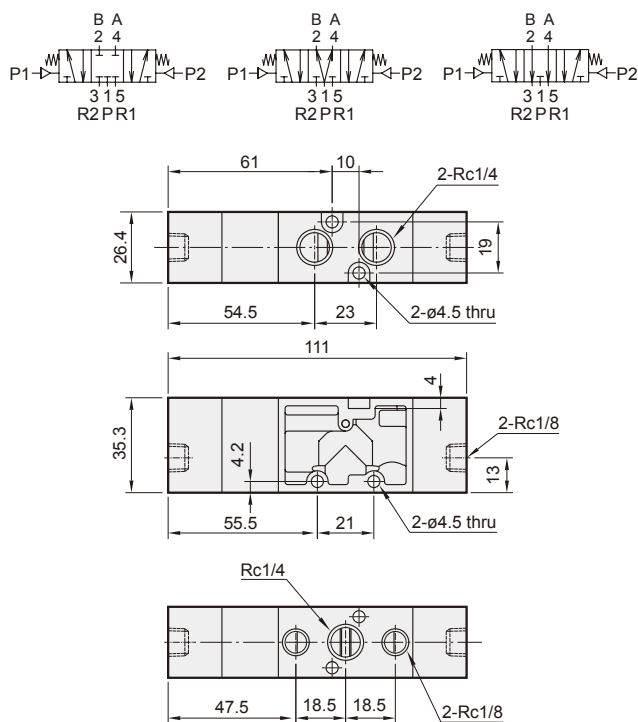


MVAA-260-4A2C.PR

MVAA-260-4A2C

MVAA-260-4A2P

MVAA-260-4A2R



MVAA-260 Manifold

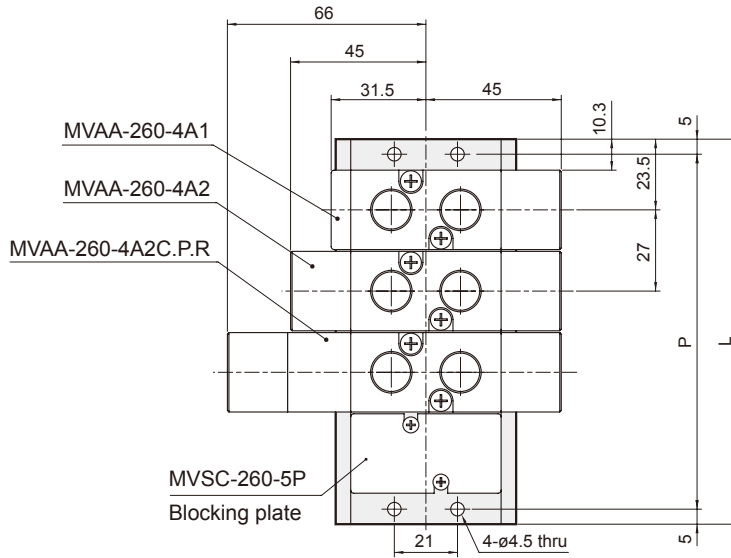
PILOT VALVE



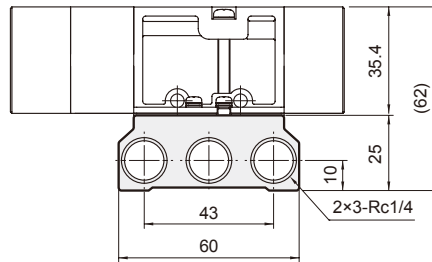
MVSC-260-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)



No. of stations	P	L
2	64	74
3	91	101
4	118	128
5	145	155
6	172	182
7	199	209
8	226	236
9	253	263
10	280	290





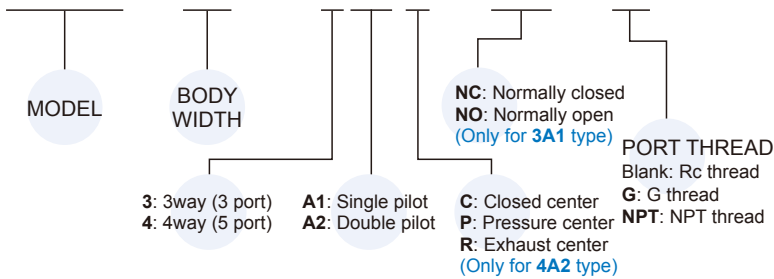
Specification

Model	3A1	3A2	4A1	4A2	4A2C.PR
Bore No.	10A				
Port size	Rc3/8				
No. of port	3		5		
Medium	Air				
Operating pressure range	0~0.8 MPa				
Proof pressure	1 MPa				
Effective orifice	35 mm ²				
Pilot pressure range	(0.34×P*+0.1)~0.8 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	295 g	324 g	236 g	301 g	385 g

* P: Operating pressure.

Order example of valve

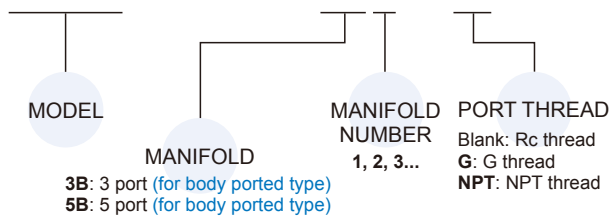
MVAA – 300 – 4A2C – NC – G



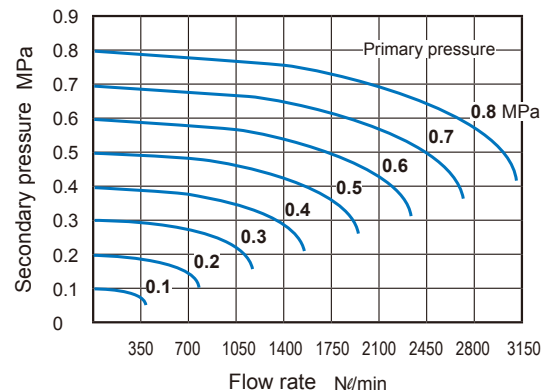
* Use the same manifold with MVSC.

Order example of manifold

MVSC – 300 – 5B3 – G



Flow features



MVAA-300 Dimensions

PILOT VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

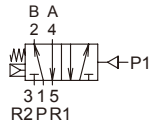
Air Unit

Pressure Switch

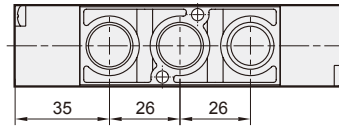
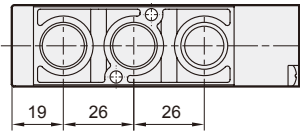
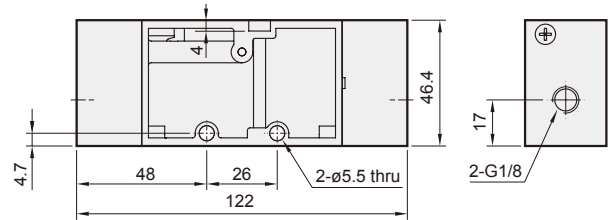
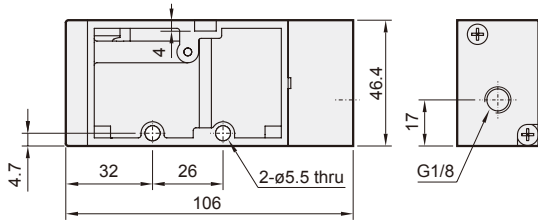
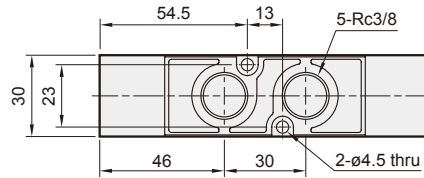
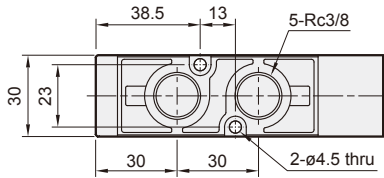
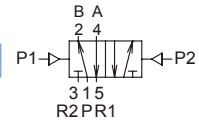
Auxiliary Equipment

PISCO®

MVAA-300-4A1



MVAA-300-4A2

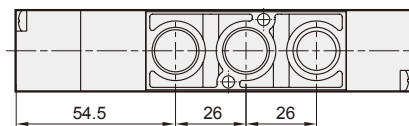
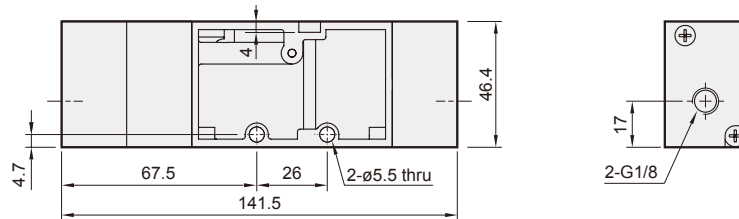
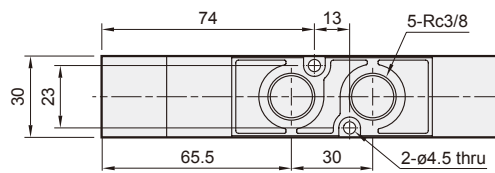
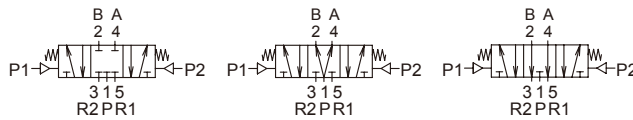


MVAA-300-4A2C.P.R

MVAA-300-4A2C

MVAA-300-4A2P

MVAA-300-4A2R

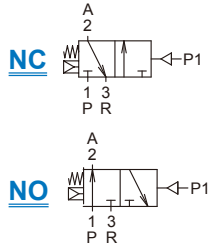
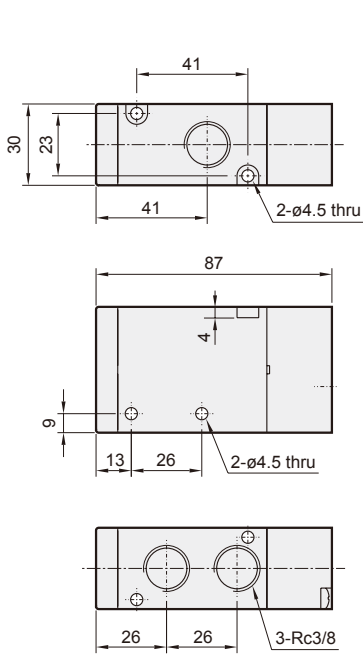


MVAA-300 Dimensions

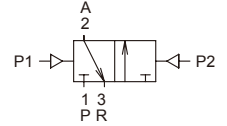
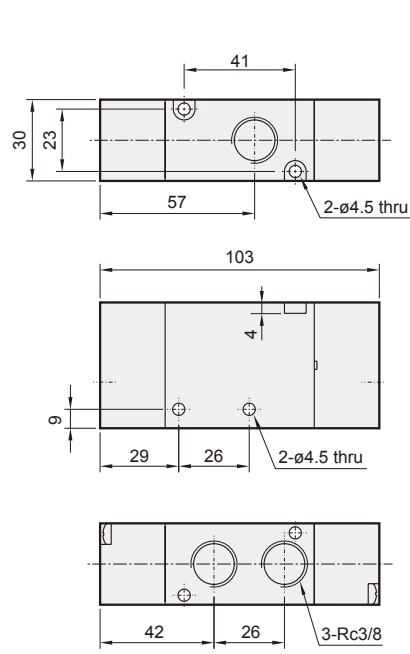
PILOT VALVE



MVAA-300-3A1-NC/NO



MVAA-300-3A2

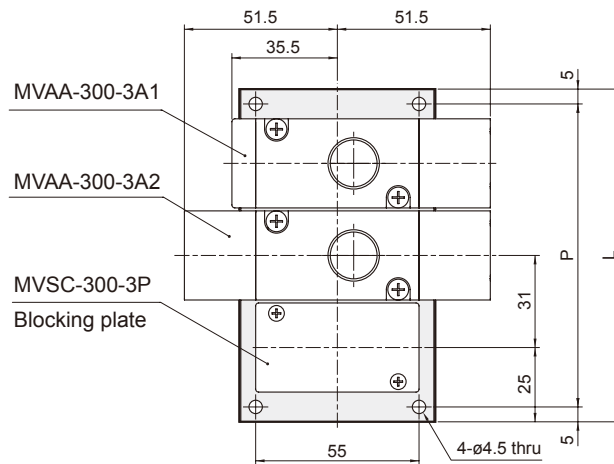


Manifold of pilot valve

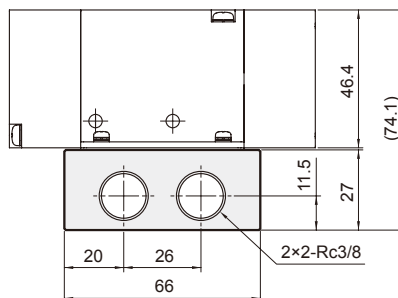
MVSC-300-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329



MVAA-300 Manifold

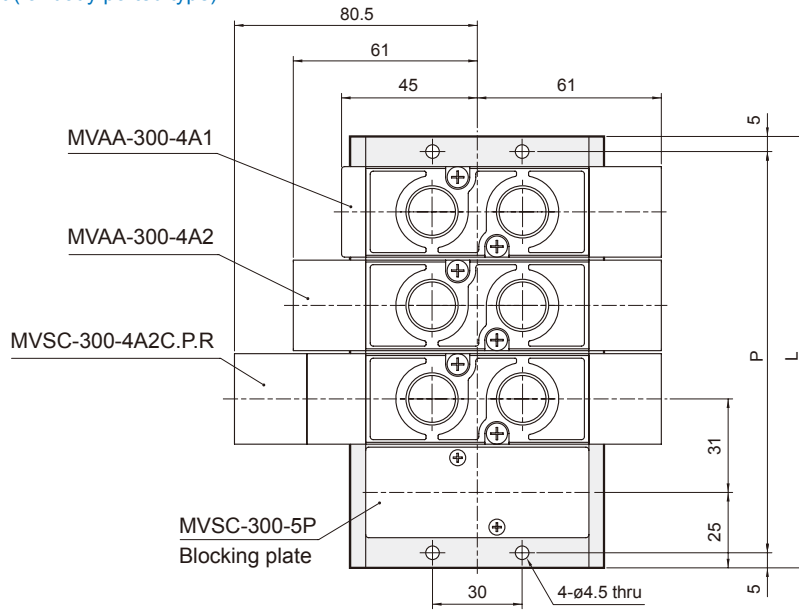
PILOT VALVE



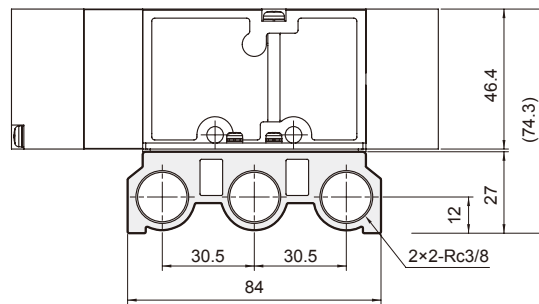
MVSC-300-5B*

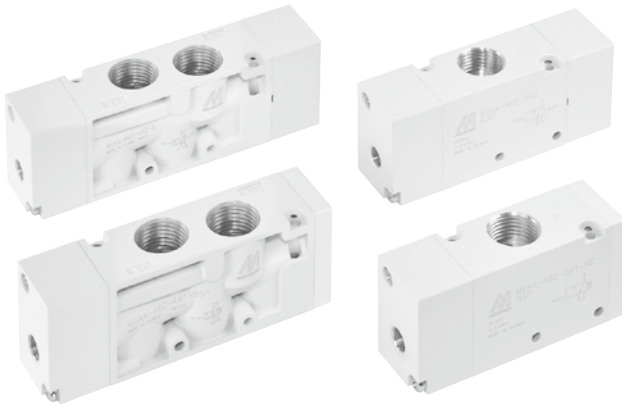
* Use the same manifold with MVSC.

5 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329





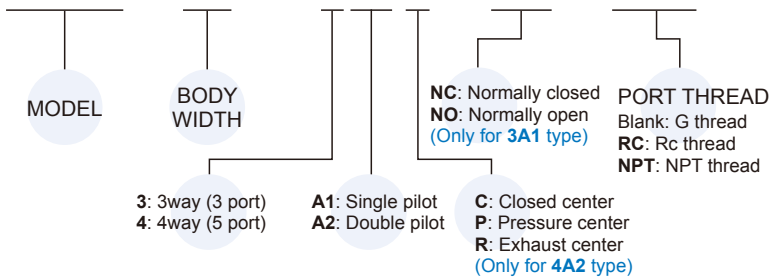
Specification

Model	3A1	3A2	4A1	4A2	4A2C.PR
Bore No.	15A				
Port size	G1/2				
No. of port	3		5		
Medium	Air				
Operating pressure range	0~0.8 MPa				
Proof pressure	1 MPa				
Effective orifice	50 mm ²				
Pilot pressure range	(0.34×P*+0.1)~0.8 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	300 g	326 g	275 g	338 g	410 g

* P: Operating pressure.

Order example of valve

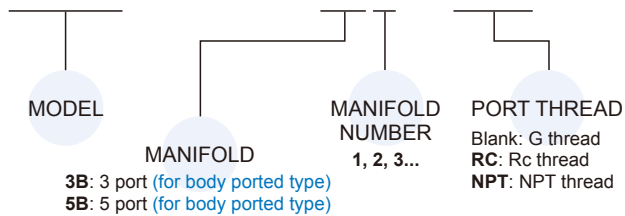
MVAA — 460 — 4A2C — NC — NPT



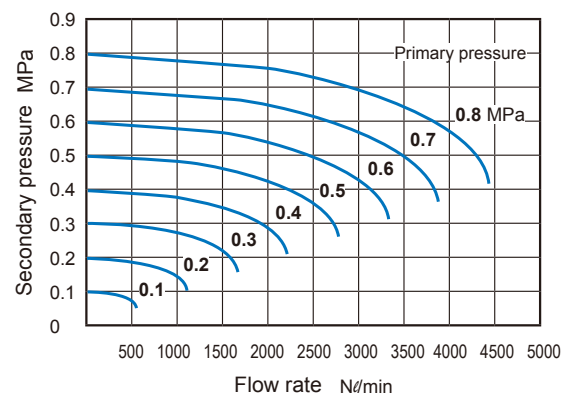
* Use the same manifold with MVSC.

Order example of manifold

MVSC — 460 — 5B3 — NPT



Flow features

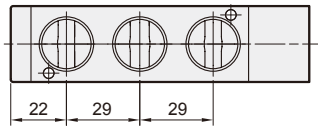
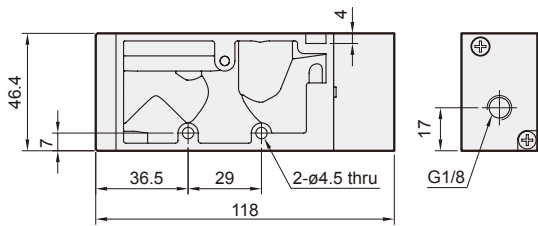
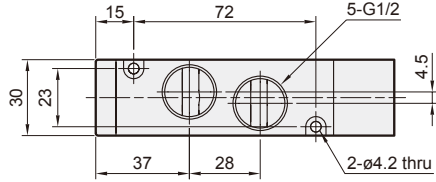
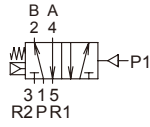


MVAA-460 Dimensions

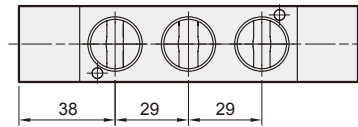
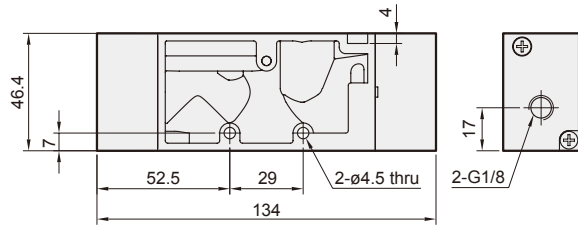
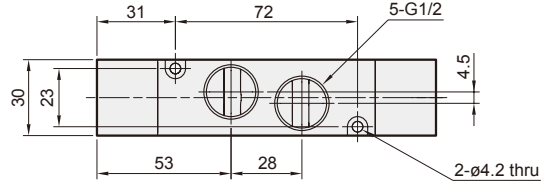
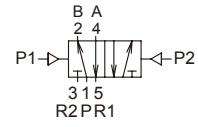
PILOT VALVE



MVAA-460-4A1



MVAA-460-4A2

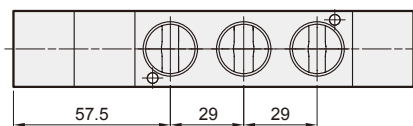
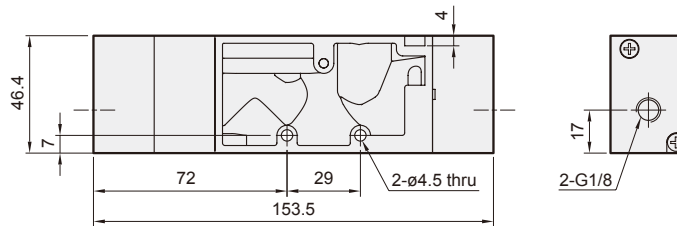
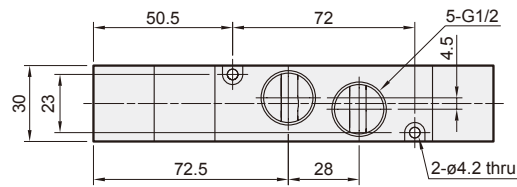
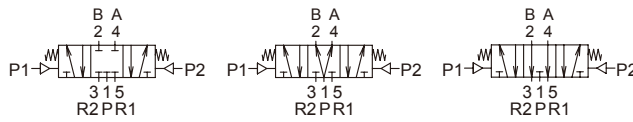


MVAA-460-4A2C.PR

MVAA-460-4A2C

MVAA-460-4A2P

MVAA-460-4A2R

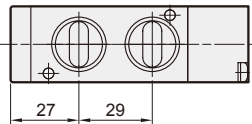
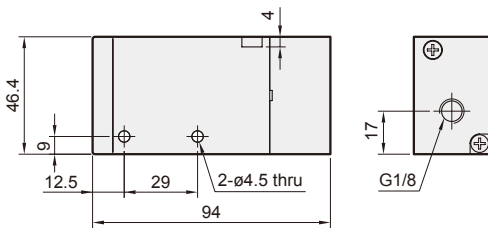
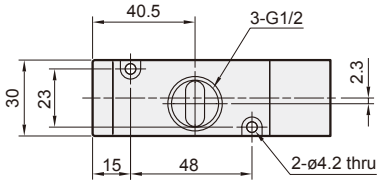
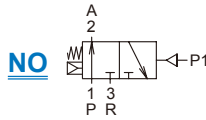
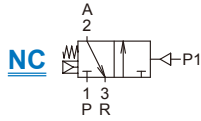


MVAA-460 Dimensions

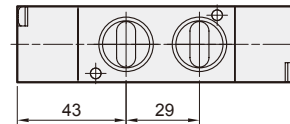
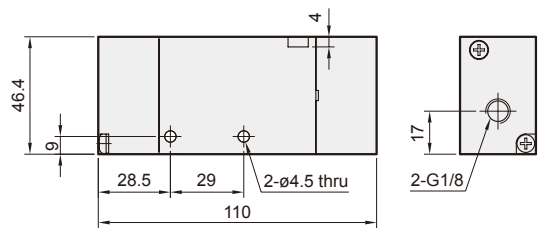
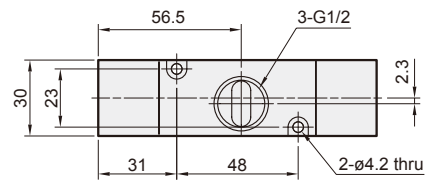
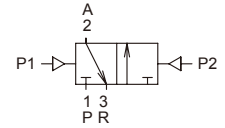
PILOT VALVE



MVAA-460-3A1-NC/NO



MVAA-460-3A2

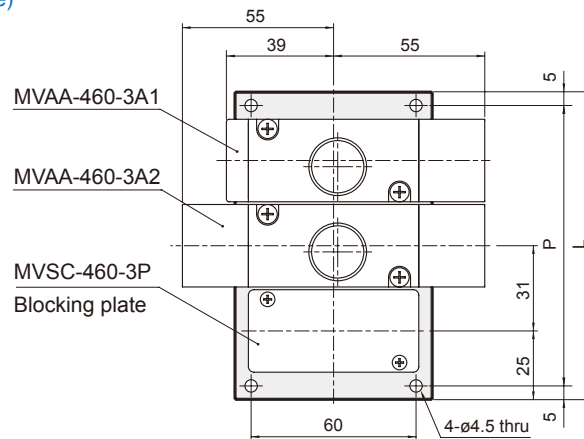


Manifold of pilot valve

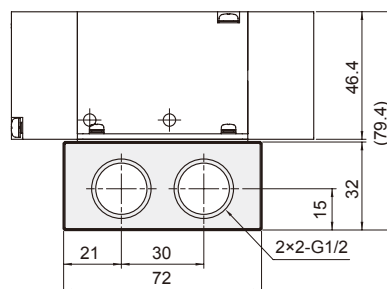
MVSC-460-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329



MVAA-460 Manifold

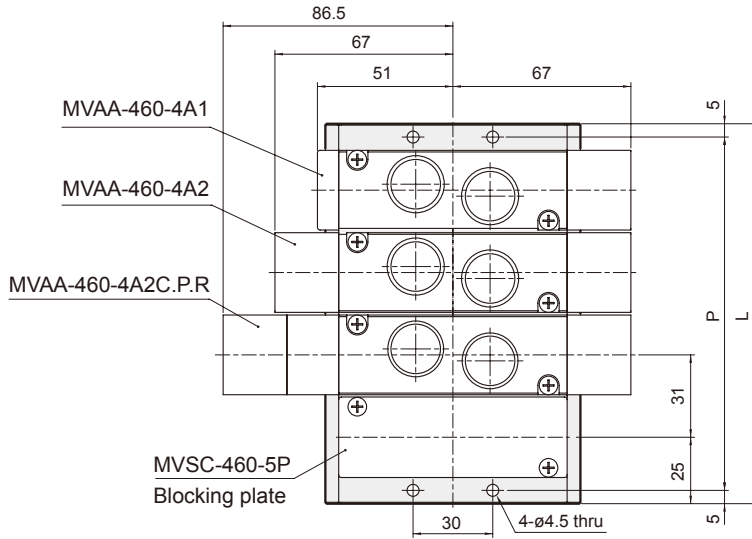
PILOT VALVE



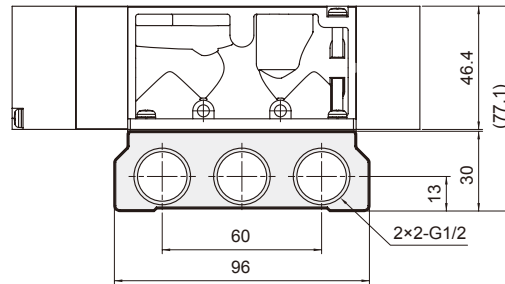
MVSC-460-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329



MVMA-260 series

MECHANICAL VALVE



Specification

Model	MVMA-260-4R1
Bore No.	8A
Port size	Rc1/4
No. of port	5
Medium	Air
Operating pressure range	0~0.8 MPa
Proof pressure	1 MPa
Effective orifice	18 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	178 g

Order example

MVMA - 260 - 4R1 - G

MODEL

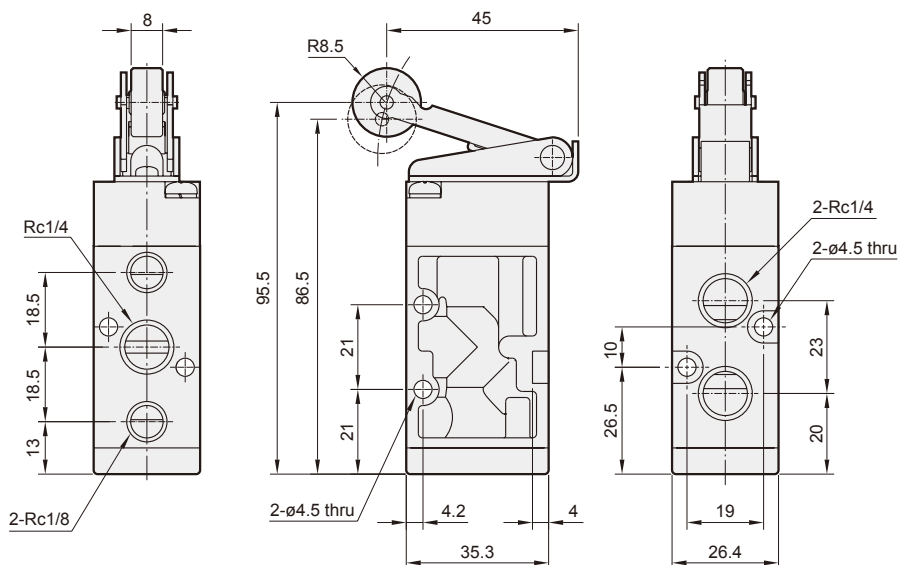
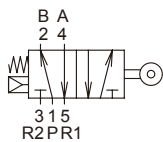
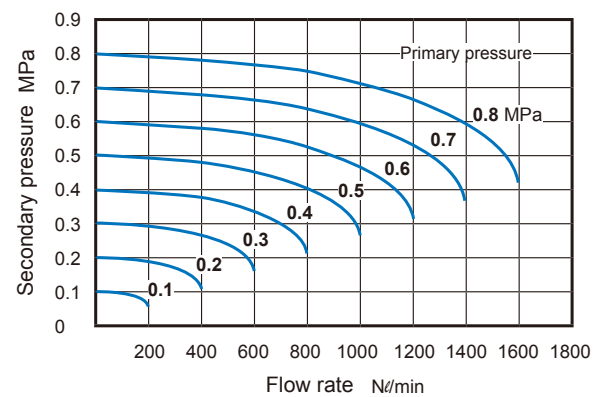
BODY WIDTH

ROLLER LEVER

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

4: 4way (5 port)

Flow features



MVMA-300 series

MECHANICAL VALVE



Specification

Model	MVMA-300-4R1
Bore No.	10A
Port size	Rc3/8
No. of port	5
Medium	Air
Operating pressure range	0~0.8 MPa
Proof pressure	1 MPa
Effective orifice	35 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	260 g

Order example

MVMA - 300 - 4R1 - G

MODEL

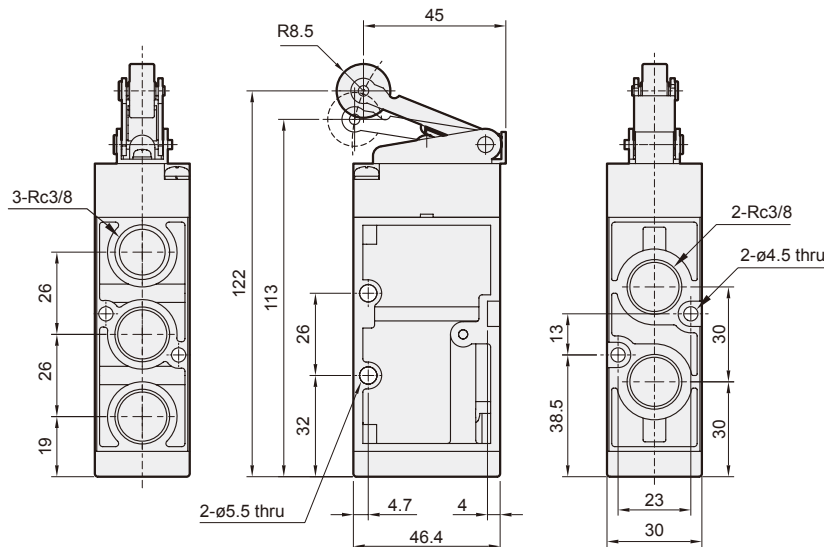
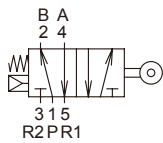
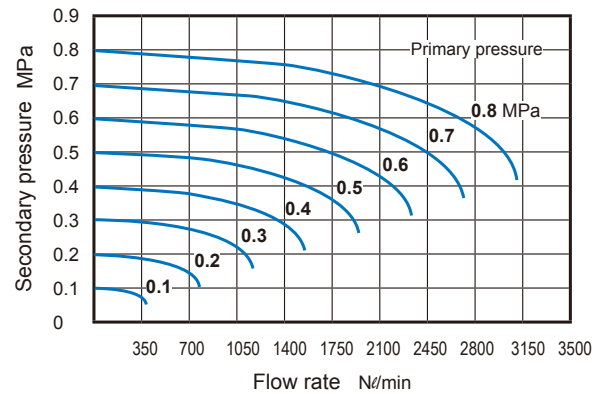
BODY WIDTH

4: 4way (5 port)

ROLLER LEVER

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Flow features



MVMB / MVMC Push button type

MECHANICAL VALVE



EB-22

Latching palm button

LB-22

Extended twist button

TB-22

Twist button

PB-22

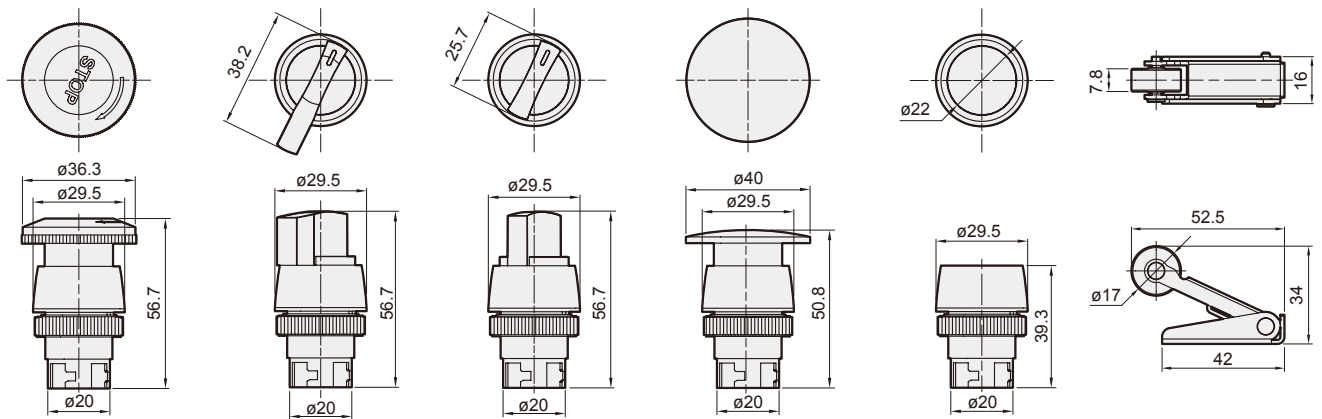
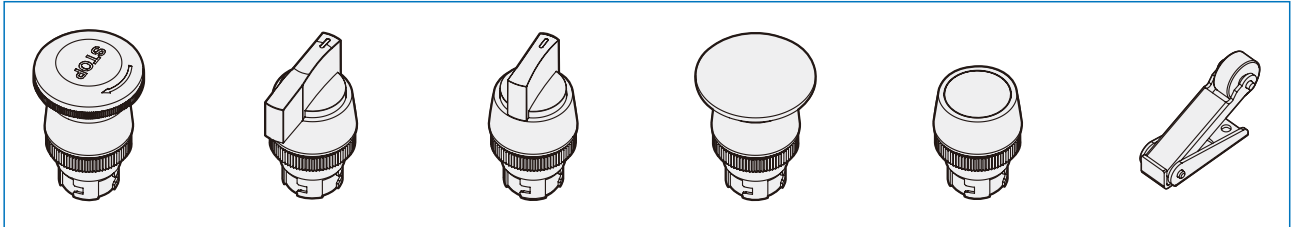
Mushroom palm button

PP-22

Push button

R1

Roller lever



EB-25/30

Latching palm button

LB-25/30

Extended twist button

TB-25/30

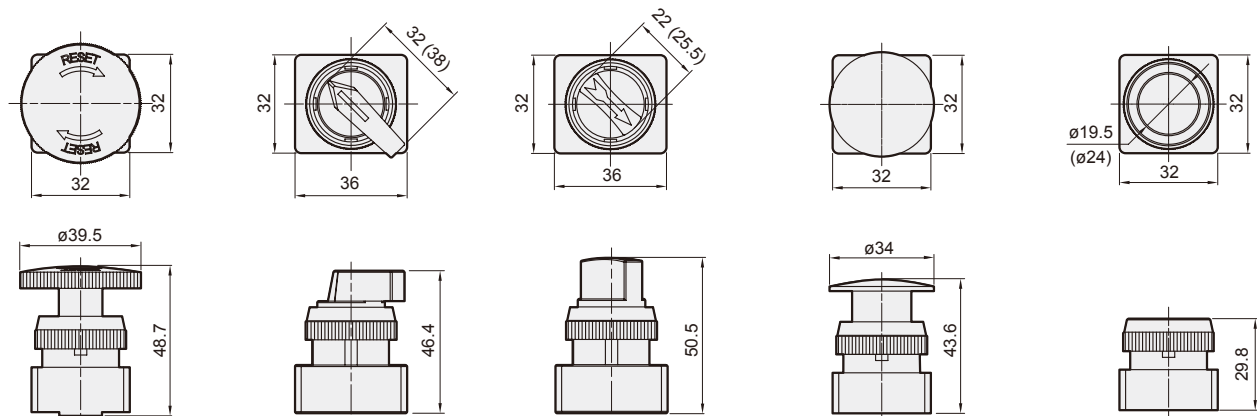
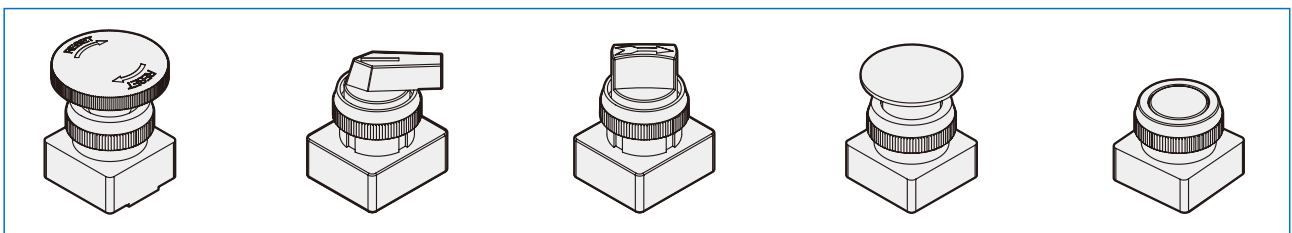
Twist button

PB-25/30

Mushroom palm button

PP-25/30

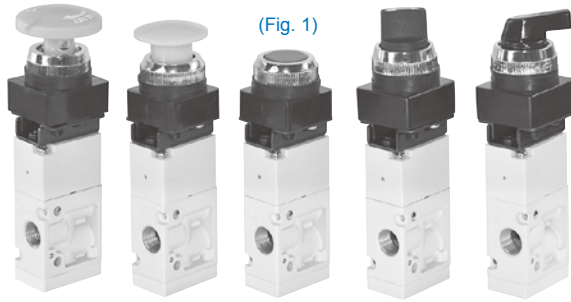
Push button



() : Dimension for button size $\phi 30$.

MVMB-220-3** series

MECHANICAL VALVE



(Fig. 1)

Specification

Model	MVMB-220-3**
Bore No.	8A
Port size	Rc1/4
No. of port	3
No. of position	2
Medium	Air
Operating pressure range	0.15~0.8 MPa
Proof pressure	1 MPa
Effective orifice	18 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	210 g

Actuator-holder (Fig. 2)



- Type $\phi 22$, the body and actuator-holder in (Fig. 2).
- Type $\phi 22$ can set or release button by simply switching actuator-holder.
- Type $\phi 25$, $\phi 30$ fix bracket in (Fig. 1).
- Type $\phi 25$, $\phi 30$ Actuator set or released by screwdriver.
- If choose type 3B1-22, it need an extra order of Actuator-holder when a button is needed.

Order example

MVMB — 220 — 3EB — 25R — G

MODEL

BODY WIDTH

3: 3way (3 port)

BUTTON SIZE

22: $\phi 22$
25: $\phi 25$
30: $\phi 30$

PORT THREAD

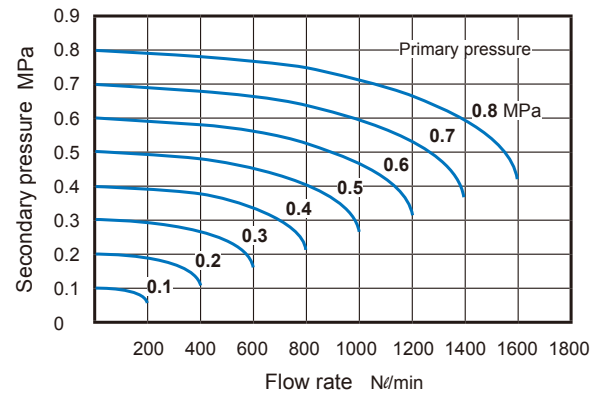
Blank: Rc thread
G: G thread
NPT: NPT thread

B1: Body (without button)
EB: Latching palm button
LB: Extended twist button
TB: Twist button
PB: Mushroom palm button
PP: Push button

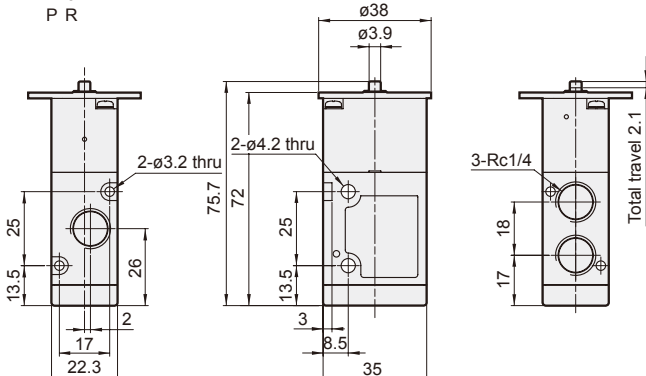
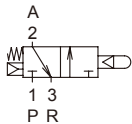
BUTTON COLOR

Color	Type
—	B1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	
R: Red	

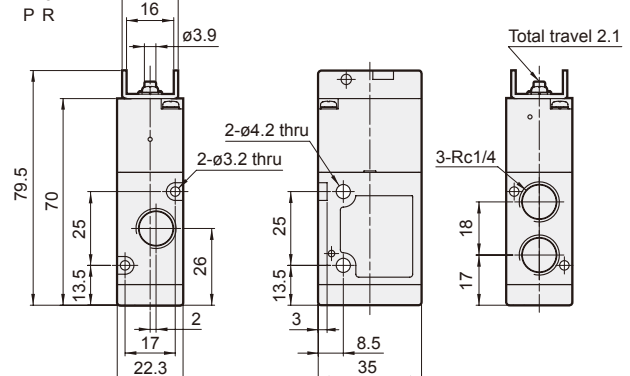
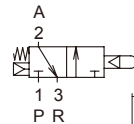
Flow features



3B1-22



3B1-25/30

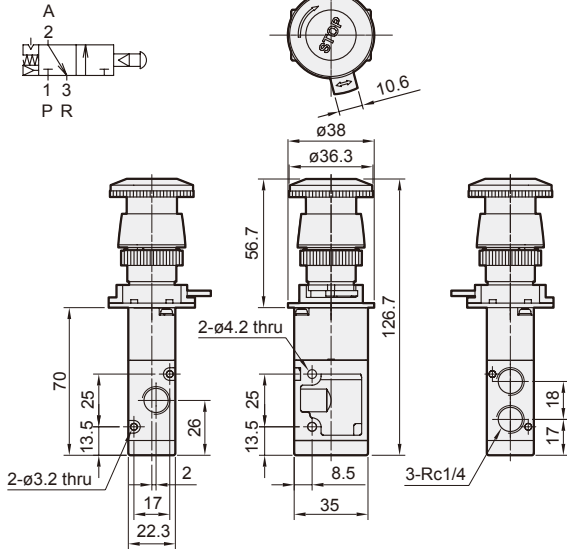


MVMB-220-3** Dimensions

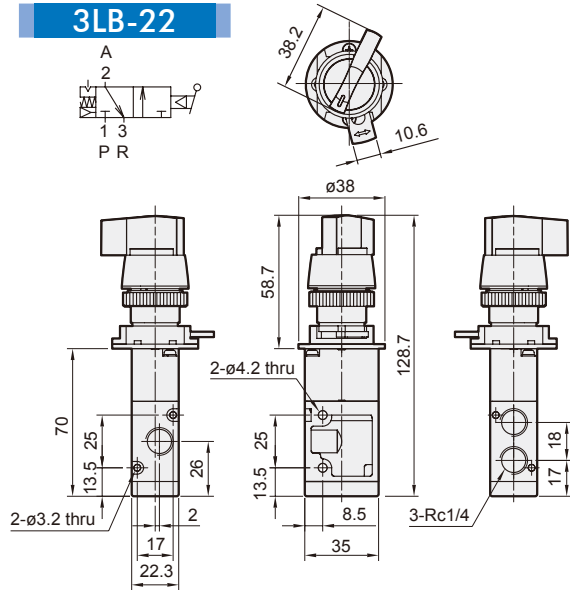
MECHANICAL VALVE



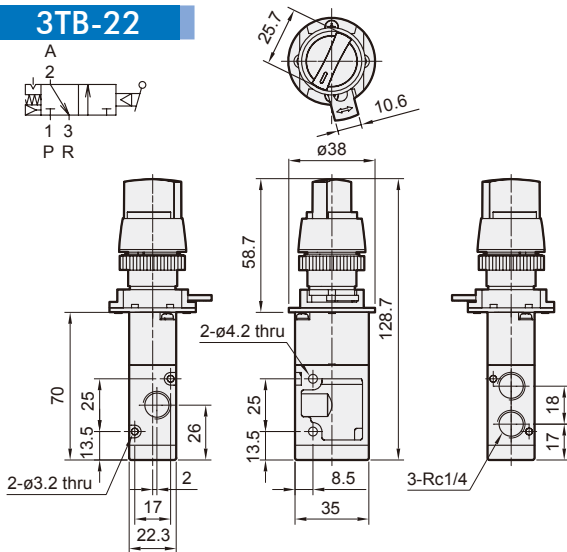
3EB-22



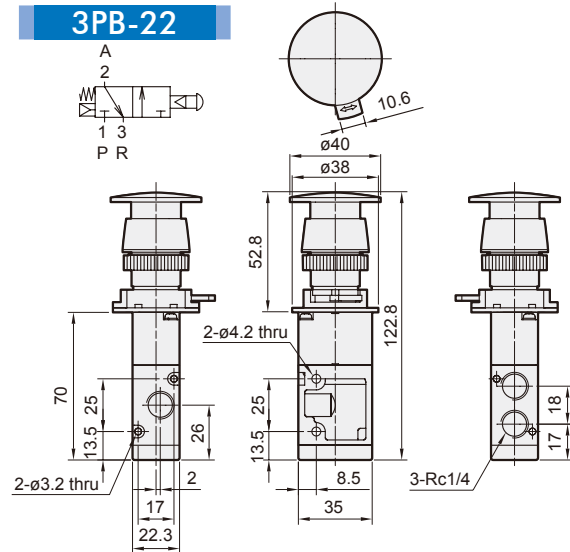
3LB-22



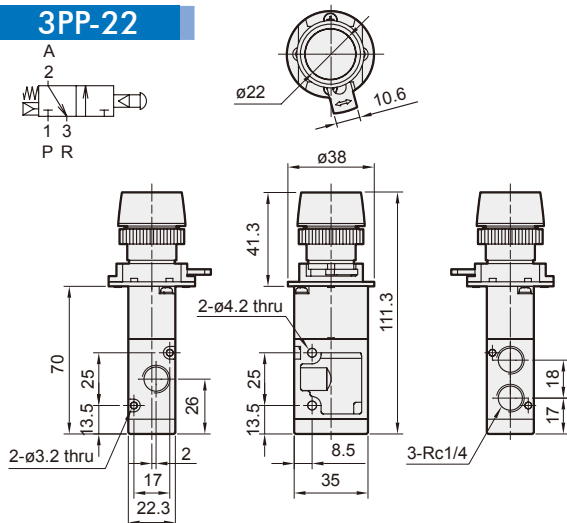
3TB-22



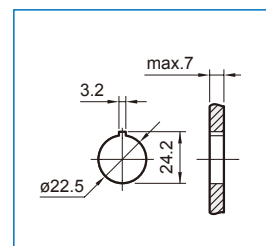
3PB-22



3PP-22



Panel mounting hole



MVMB-220-3** Dimensions

MECHANICAL VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

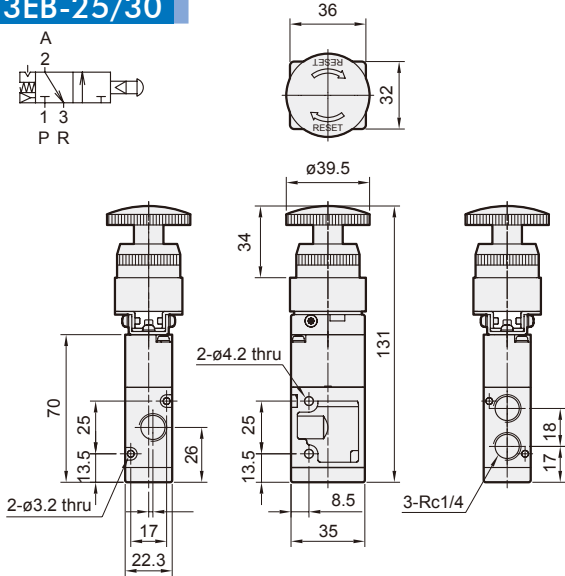
Air Unit

Pressure Switch

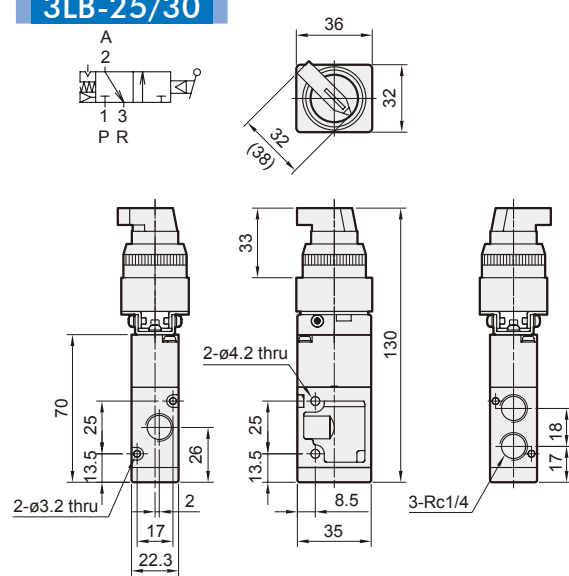
Auxiliary Equipment

PISCO®

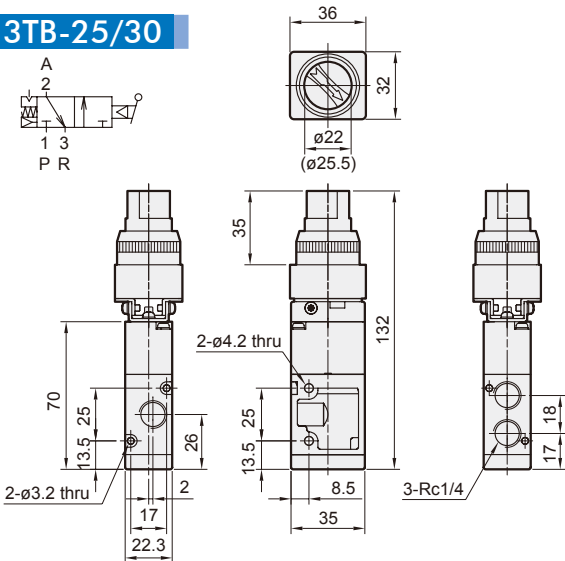
3EB-25/30



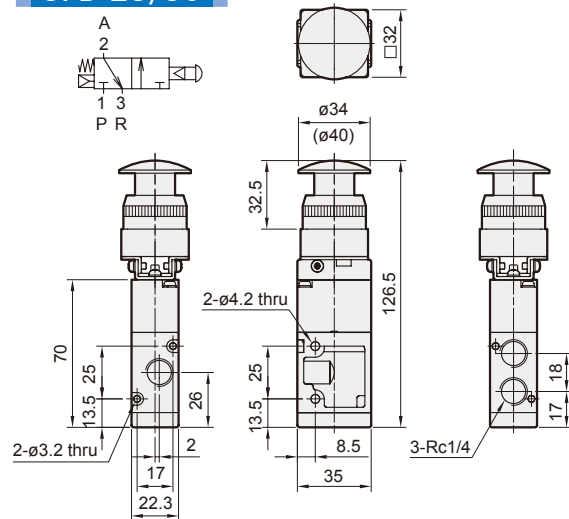
3LB-25/30



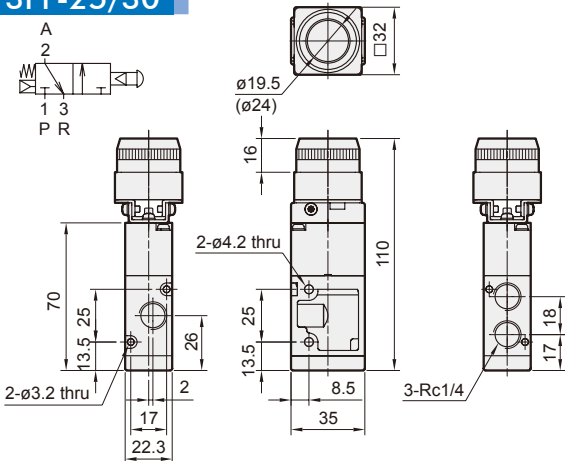
3TB-25/30



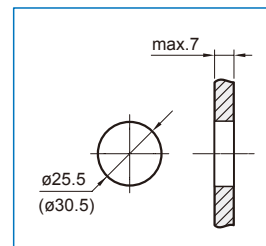
3PB-25/30



3PP-25/30



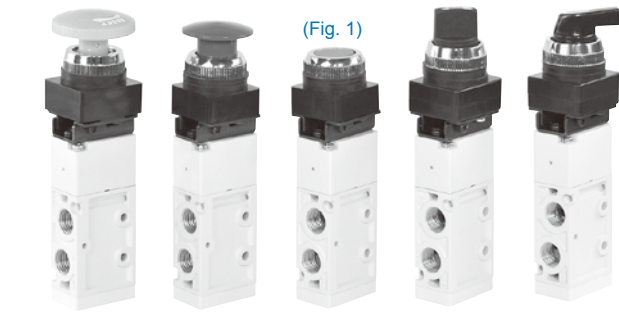
Panel mounting hole



(): Dimension for button size $\phi 30$.

MVMB-220-4** series

MECHANICAL VALVE



(Fig. 1)

Specification

Model	MVMB-220-4**
Bore No.	8A
Port size	Rc1/4
No. of port	5
No. of position	2
Medium	Air
Operating pressure range	0.15~0.8 MPa
Proof pressure	1 MPa
Effective orifice	18 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	180 g

Actuator-holder

(Fig. 2)

- Type $\phi 22$, the body and actuator-holder in (Fig. 2).
- Type $\phi 22$ can set or release button by simply switching actuator-holder.
- Type $\phi 25$, $\phi 30$ fix bracket in (Fig. 1).
- Type $\phi 25$, $\phi 30$ Actuator set or released by screwdriver.
- If choose type 4B1-22, it need an extra order of Actuator-holder when a button is needed.

Order example

MVMB - 220 - 4EB - 25R - G

MODEL

BODY WIDTH

4: 4way (5 port)

BUTTON SIZE

22: $\phi 22$
25: $\phi 25$
30: $\phi 30$

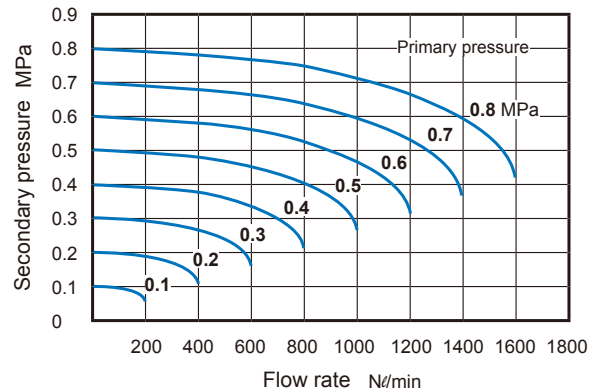
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

B1: Body (without button)
EB: Latching palm button
LB: Extended twist button
TB: Twist button
PB: Mushroom palm button
PP: Push button

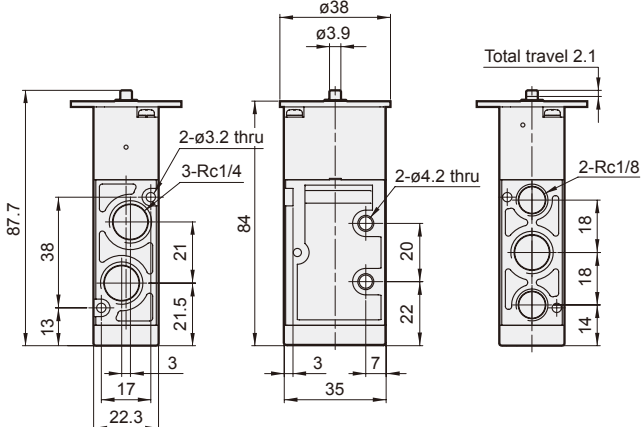
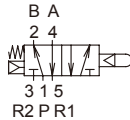
BUTTON COLOR

Color	Type
—	B1 type
G: Green	EB type
R: Red	
B: Black	LB type
	TB type
B: Black	PB type
G: Green	
R: Red	PP type

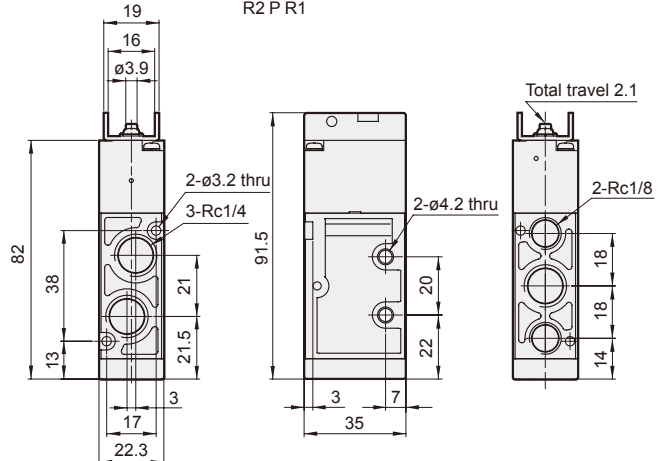
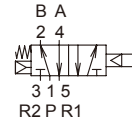
Flow features



4B1-22



4B1-25/30



MVMB-220-4** Dimensions

MECHANICAL VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

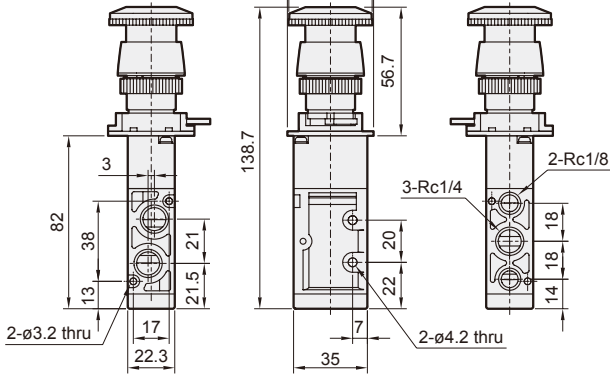
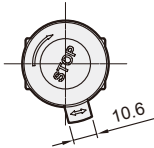
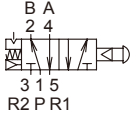
Air Unit

Pressure Switch

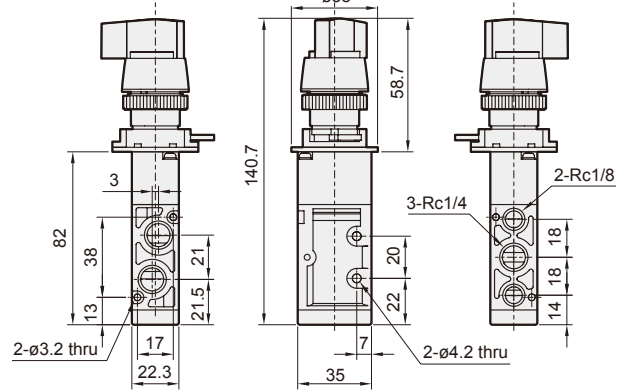
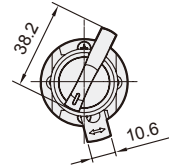
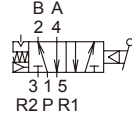
Auxiliary Equipment

PISCO®

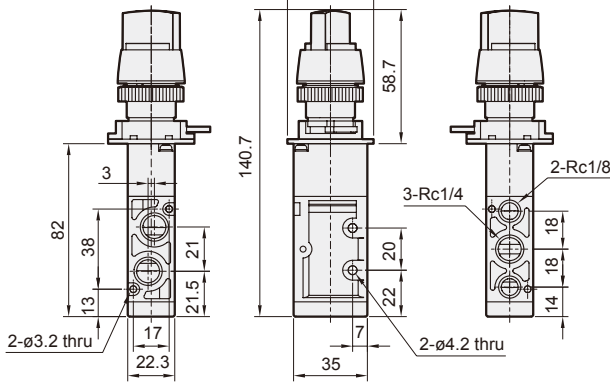
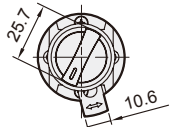
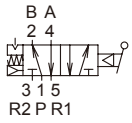
4EB-22



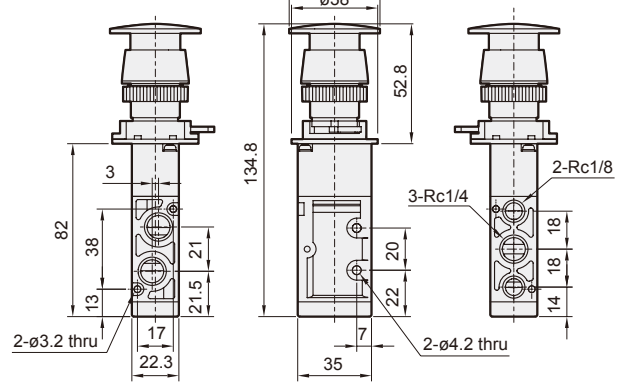
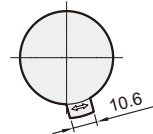
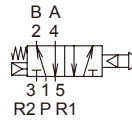
4LB-22



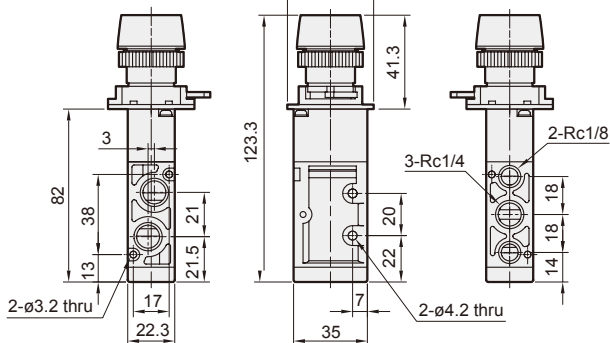
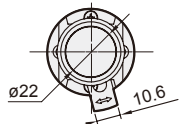
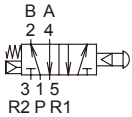
4TB-22



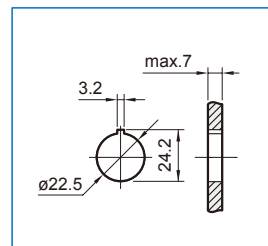
4PB-22



4PP-22



Panel mounting hole

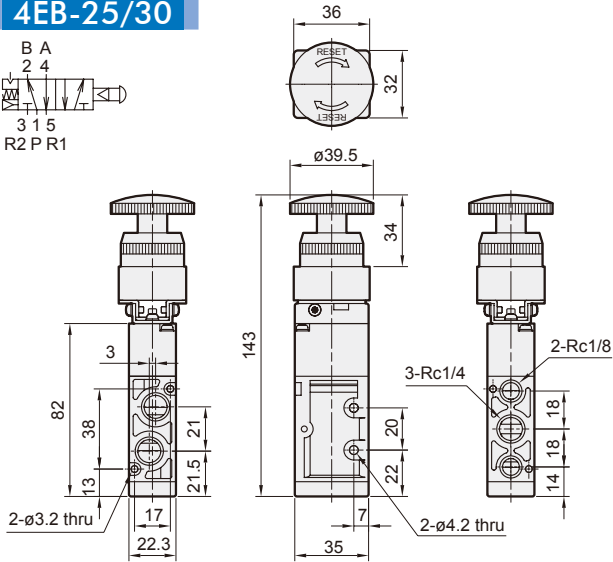
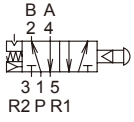


MVMB-220-4** Dimensions

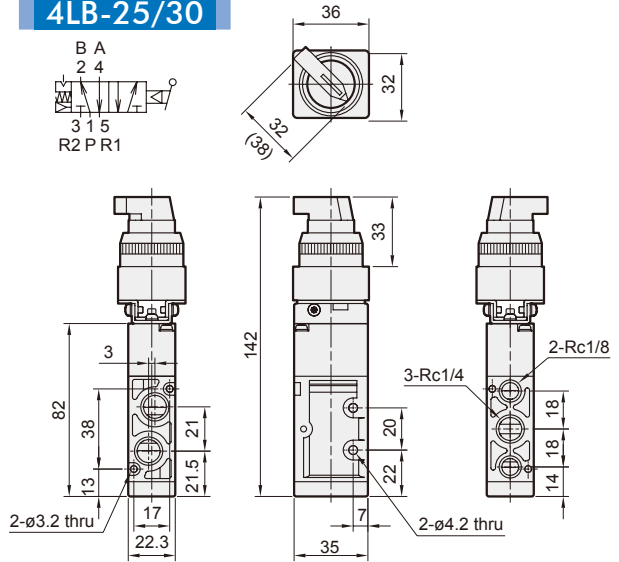
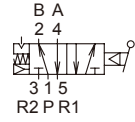
MECHANICAL VALVE



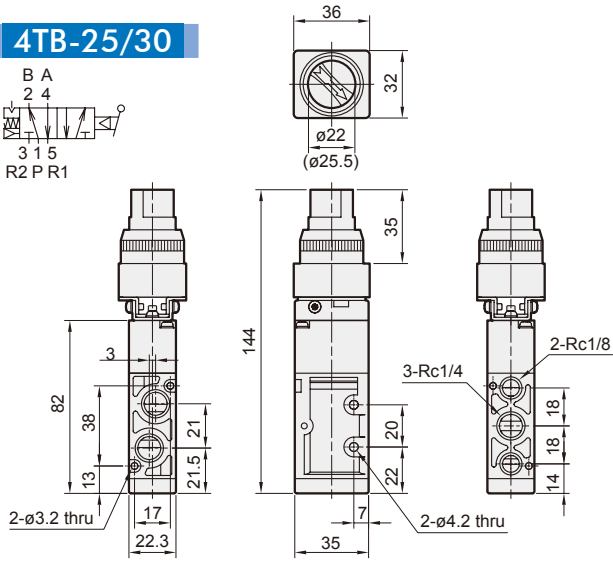
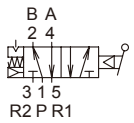
4EB-25/30



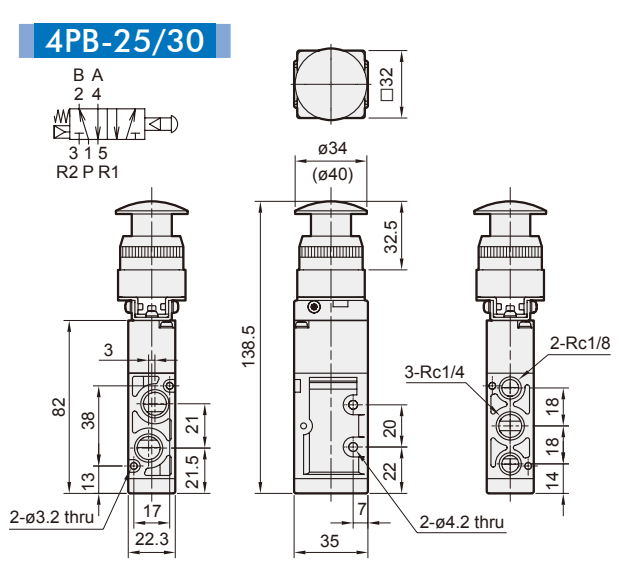
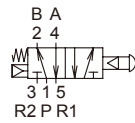
4LB-25/30



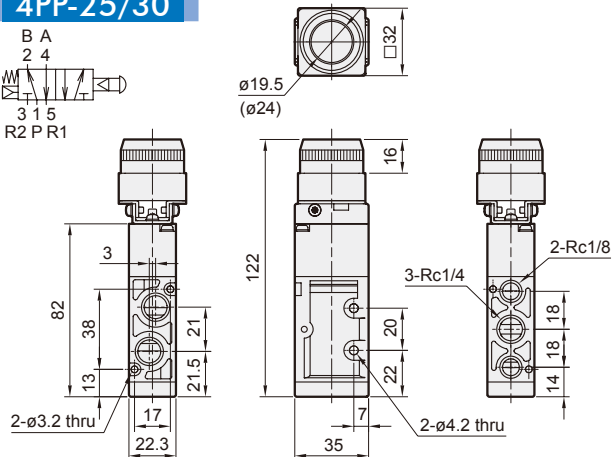
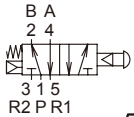
4TB-25/30



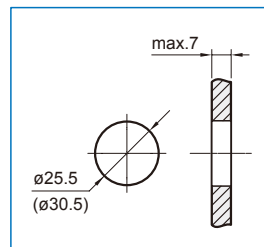
4PB-25/30



4PP-25/30



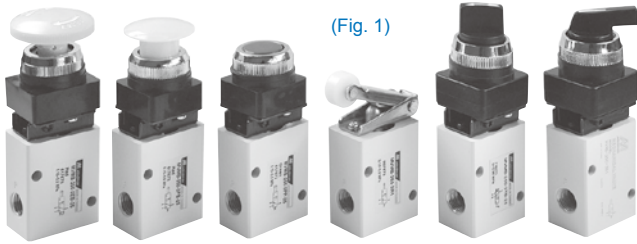
Panel mounting hole



() : Dimension for button size $\phi 30$.

MVMB-250 series

MECHANICAL VALVE



(Fig. 1)

Specification

Model	MVMB-250
Bore No.	8A
Port size	Rc1/4
No. of port	2 or 3
No. of position	2
Medium	Air
Operating pressure range	0~1 MPa
Proof pressure	1 MPa
Effective orifice	18 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	193 g

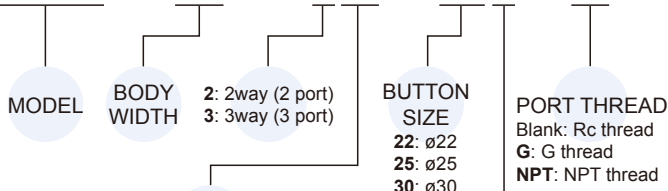
Actuator-holder (Fig. 2)



- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 2B1-22 and 3B1-22, it need an extra order of Actuator-holder when a button is needed.

Order example

MVMB - 250 - 3PB - 25B - G

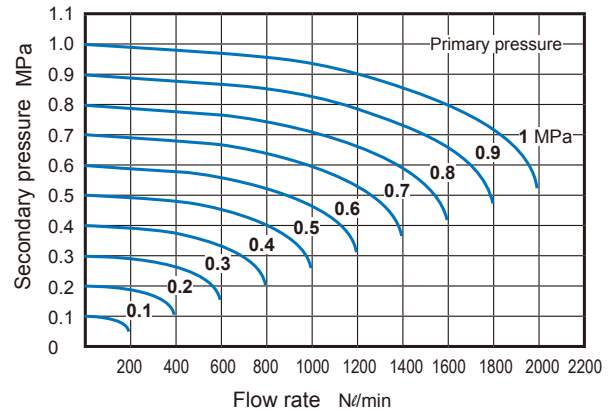


- B1: Body (without button)
- R1: Roller lever
- EB: Latching palm button
- LB: Extended twist button
- TB: Twist button
- PB: Mushroom palm button
- PP: Push button

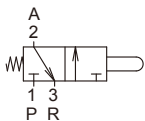
BUTTON COLOR

Color	Type
—	B1 type R1 type
G: Green	EB type
R: Red	EB type
B: Black	LB type TB type
B: Black	PB type
G: Green	PB type
R: Red	PP type

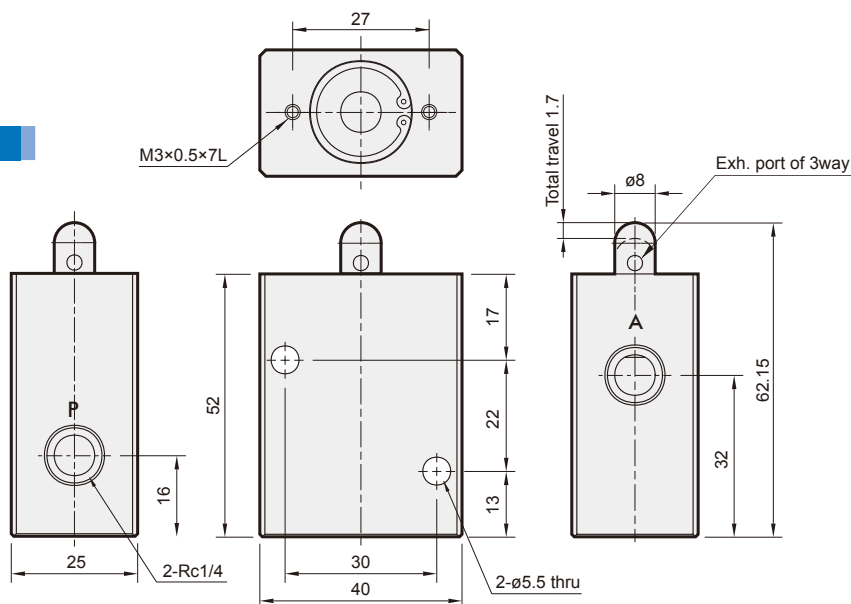
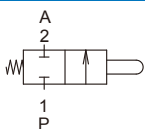
Flow features



MVMB-250-3B1



MVMB-250-2B1



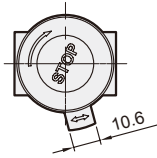
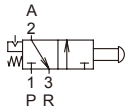
MVMB-250 Dimensions



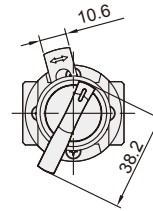
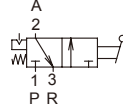
MECHANICAL VALVE

mindman

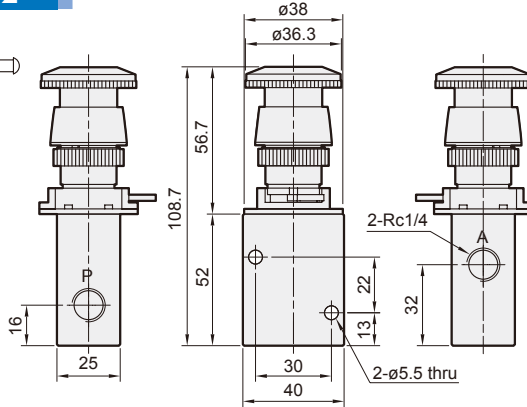
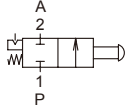
3EB-22



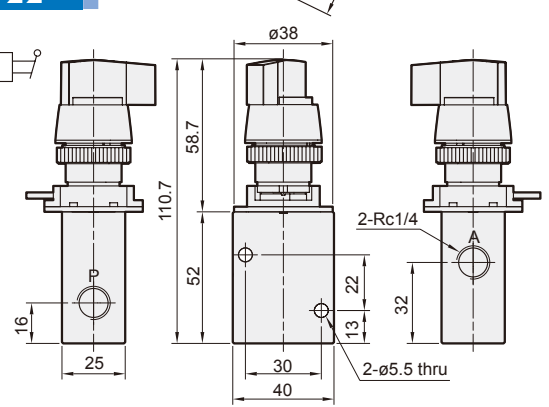
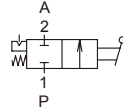
3LB-22



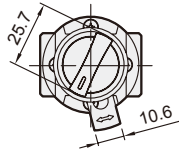
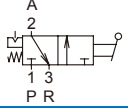
2EB-22



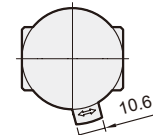
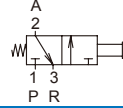
2LB-22



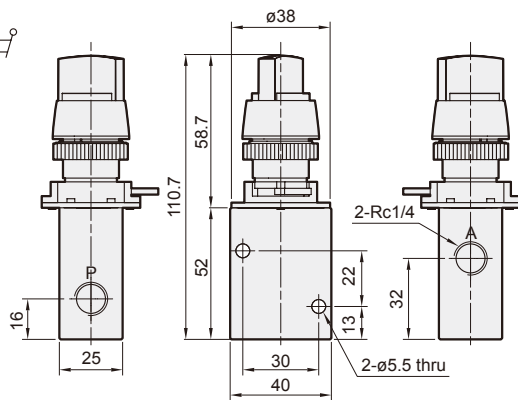
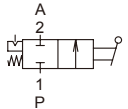
3TB-22



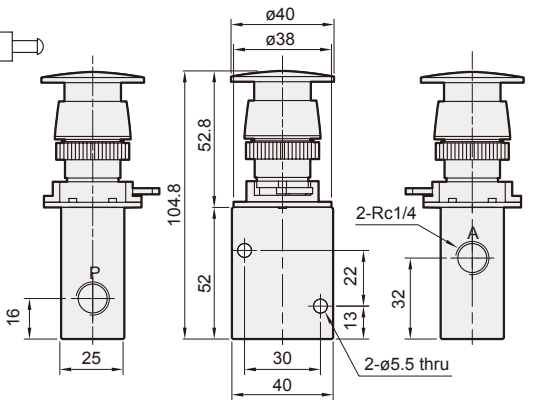
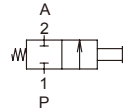
3PB-22



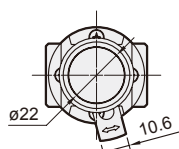
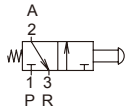
2TB-22



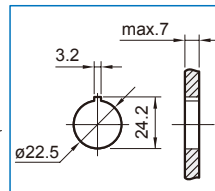
2PB-22



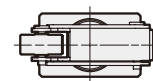
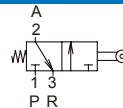
3PP-22



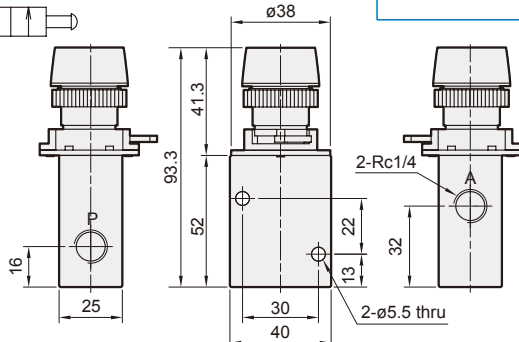
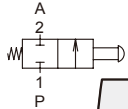
Panel mounting hole



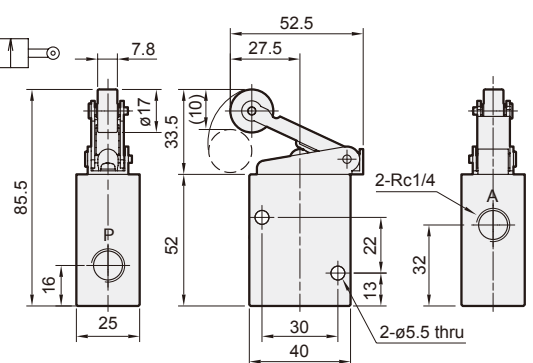
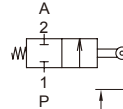
3R1



2PP-22



2R1



MVMB-250 Dimensions

MECHANICAL VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

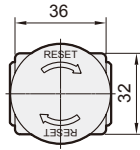
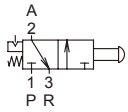
Air Unit

Pressure Switch

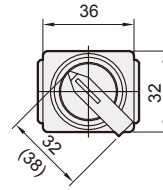
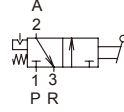
Auxiliary Equipment

PISCO®

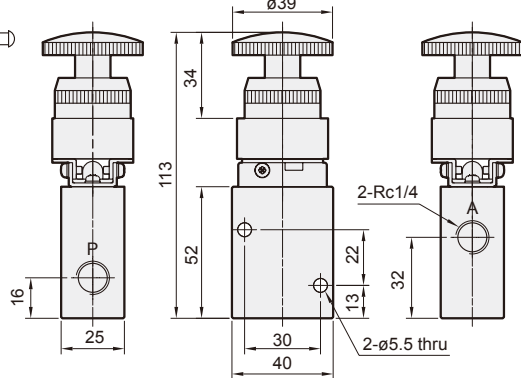
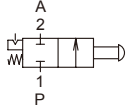
3EB-25/30



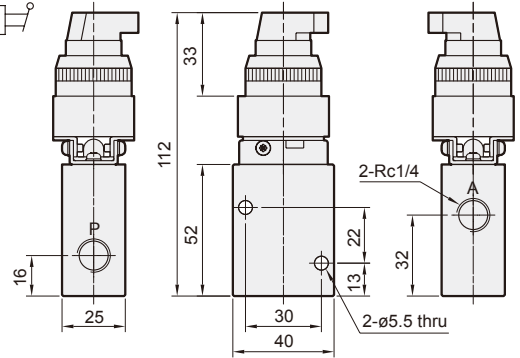
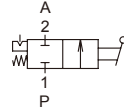
3LB-25/30



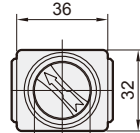
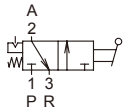
2EB-25/30



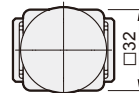
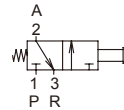
2LB-25/30



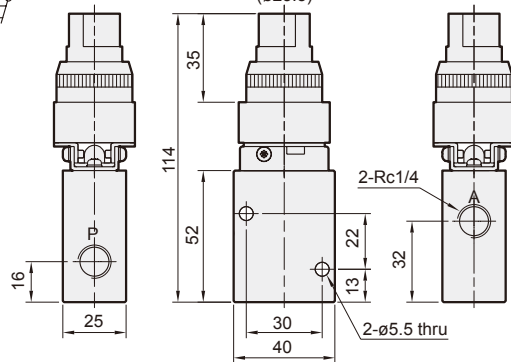
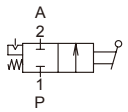
3TB-25/30



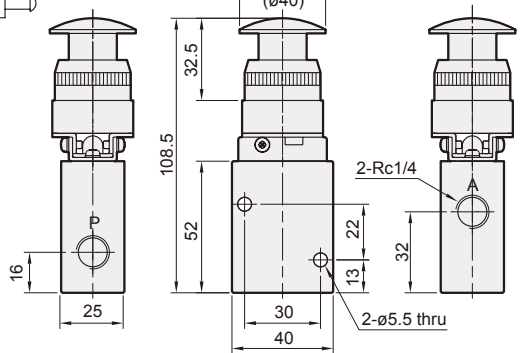
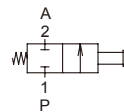
3PB-25/30



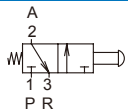
2TB-25/30



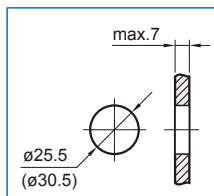
2PB-25/30



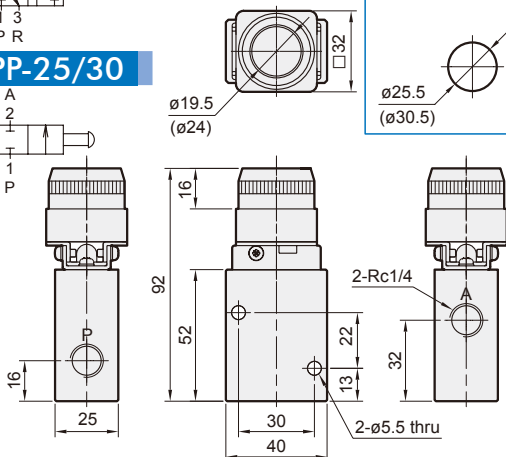
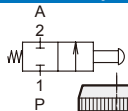
3PP-25/30



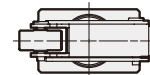
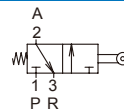
Panel mounting hole



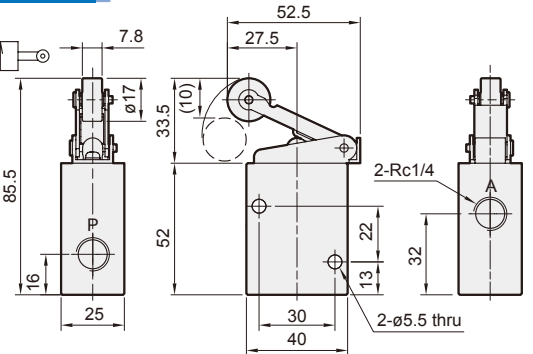
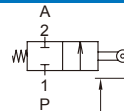
2PP-25/30



3R1



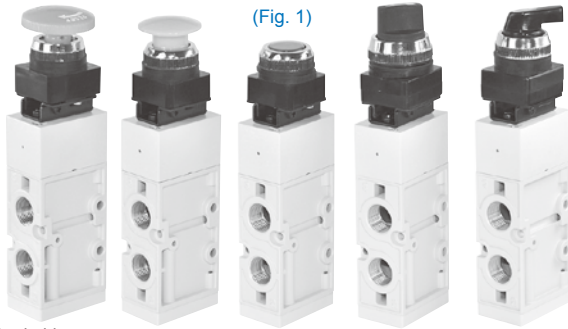
2R1



(): Dimension for button size ø30.

MVMB-300-4** series

MECHANICAL VALVE



(Fig. 1)

Actuator-holder



(Fig. 2)

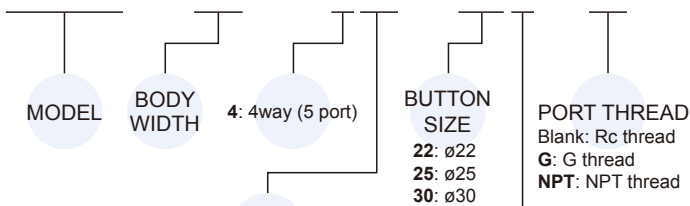
- Type $\phi 22$, the body and actuator-holder in (Fig. 2).
- Type $\phi 22$ can set or release button by simply switching actuator-holder.
- Type $\phi 25$, $\phi 30$ fix bracket in (Fig. 1).
- Type $\phi 25$, $\phi 30$ Actuator set or released by screwdriver.
- If choose type 4B1-22, it need an extra order of Actuator-holder when a button is needed.

Specification

Model	MVMB-300-4**
Bore No.	10A
Port size	Rc3/8
No. of port	5
No. of position	2
Medium	Air
Operating pressure range	0.15~0.8 MPa
Proof pressure	1 MPa
Effective orifice	30 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	315 g

Order example

MVMB - 300 - 4EB - 25R - G

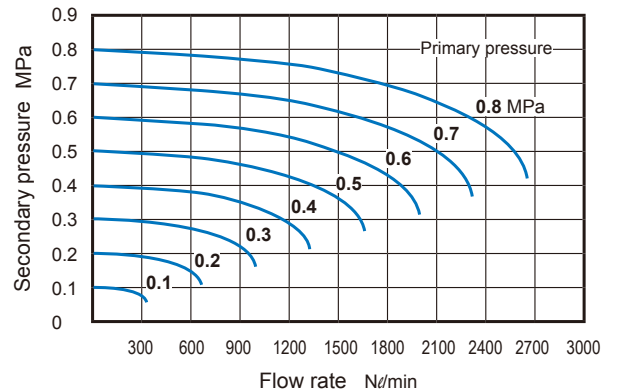


- B1: Body (without button)
EB: Latching palm button
LB: Extended twist button
TB: Twist button
PB: Mushroom palm button
PP: Push button

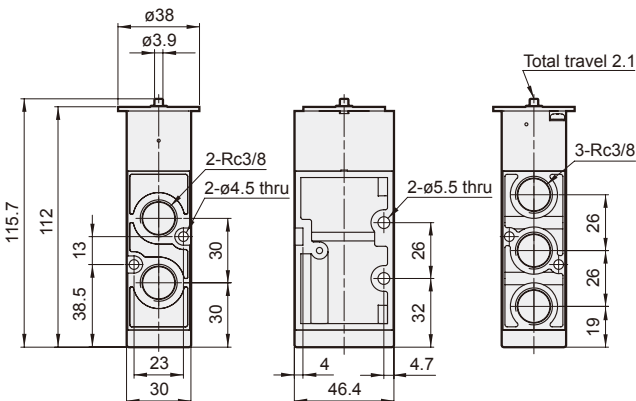
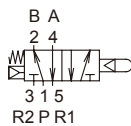
BUTTON COLOR

Color	Type
—	B1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	
G: Green	PB type PP type
R: Red	

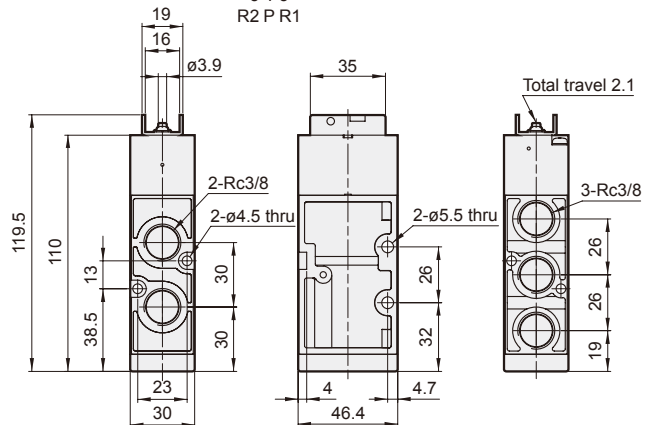
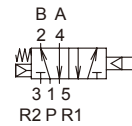
Flow features



4B1-22



4B1-25/30

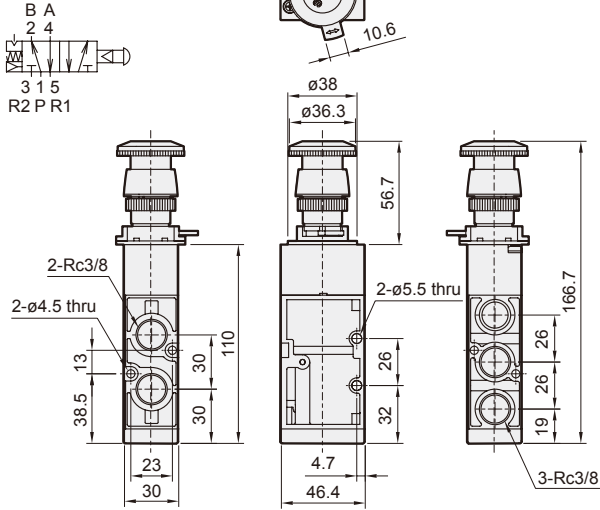


MVMB-300-4** Dimensions

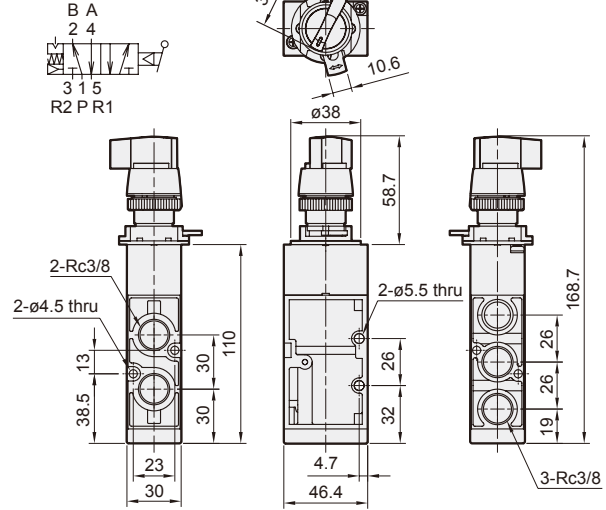
MECHANICAL VALVE



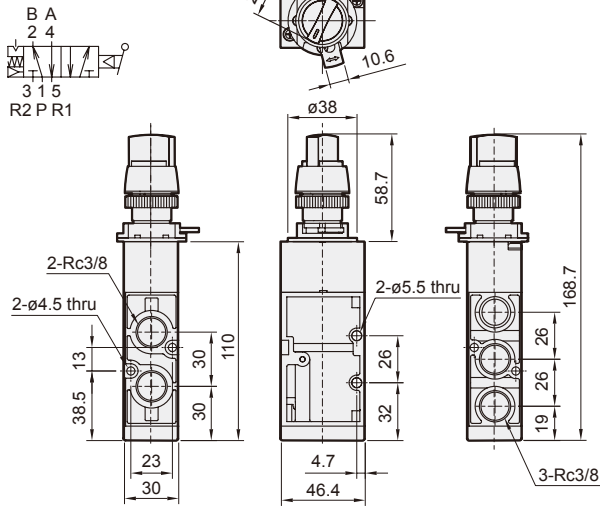
4EB-22



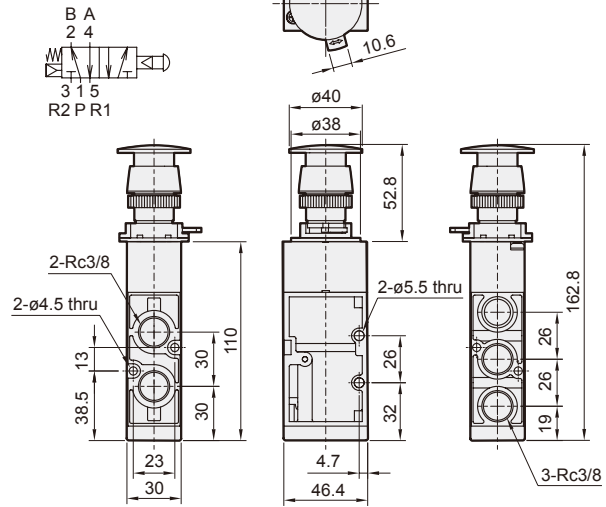
4LB-22



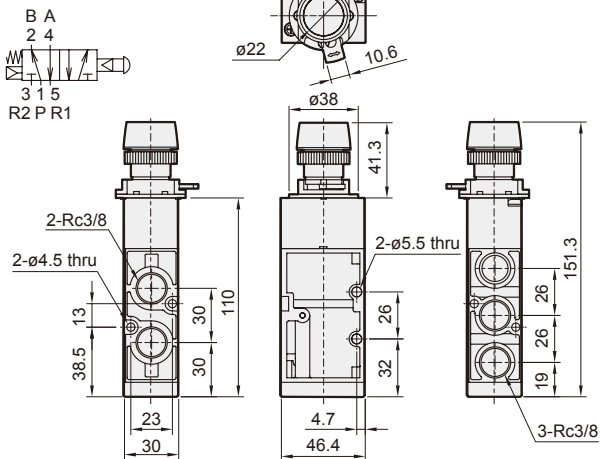
4TB-22



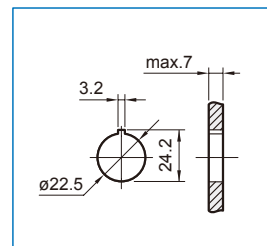
4PB-22



4PP-22



Panel mounting hole

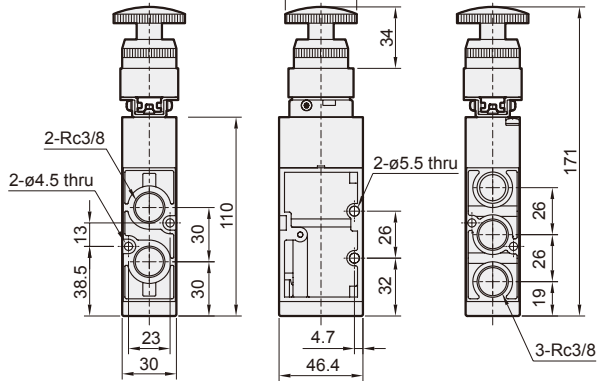
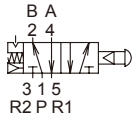


MVMB-300-4** Dimensions

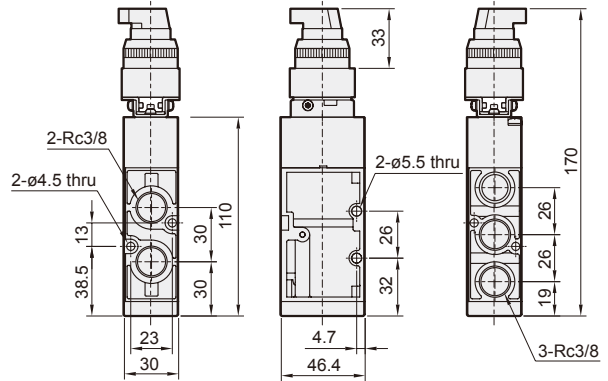
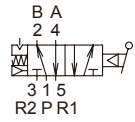
MECHANICAL VALVE



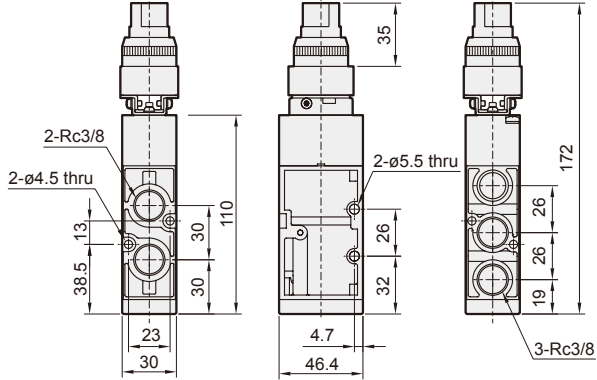
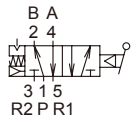
4EB-25/30



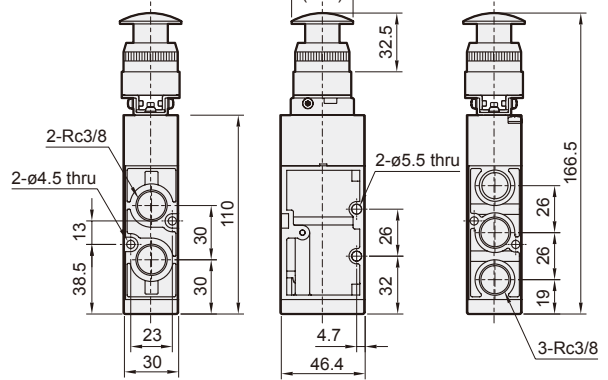
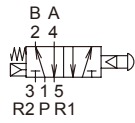
4LB-25/30



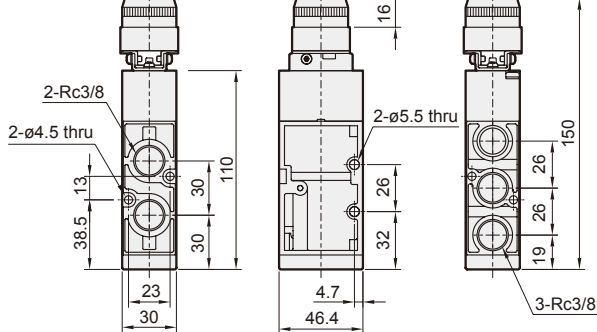
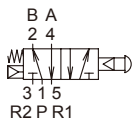
4TB-25/30



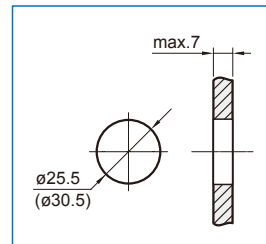
4PB-25/30



4PP-25/30



Panel mounting hole



(): Dimension for button size ø30.

MVMC-210 series

MECHANICAL VALVE



Solenoid Valve

Process Valve

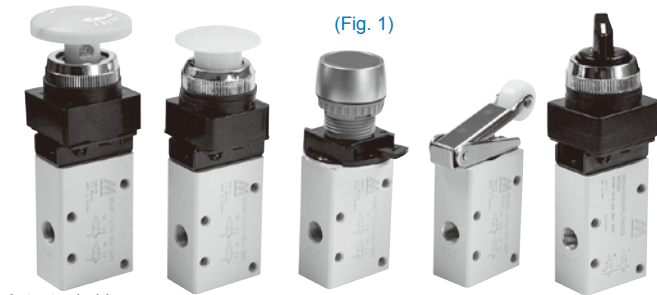
Pilot & Mechanical Valve

Air Unit

Pressure Switch

Auxiliary Equipment

PISCO®



(Fig. 1)

Specification

Model	MVMC-210	
Bore No.	6A	8A
Port size	Rc1/8	Rc1/4
No. of port	3	
No. of position	2	
Medium	Air	
Operating pressure range	0~1 MPa	
Proof pressure	1 MPa	
Effective orifice	19 mm ²	
Ambient temperature	-5~+60°C (No freezing)	
Weight	155 g	

Actuator-holder



(Fig. 2)

- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 3B1-22, it need an extra order of Actuator-holder when a button is needed.

Order example

MVMC - 210 - 6A - 3EB - 25R - G

MODEL

BODY WIDTH

BORE SIZE
6A: Rc1/8
8A: Rc1/4

3: 3way
(3 port)

BUTTON SIZE
22: ø22
25: ø25
30: ø30

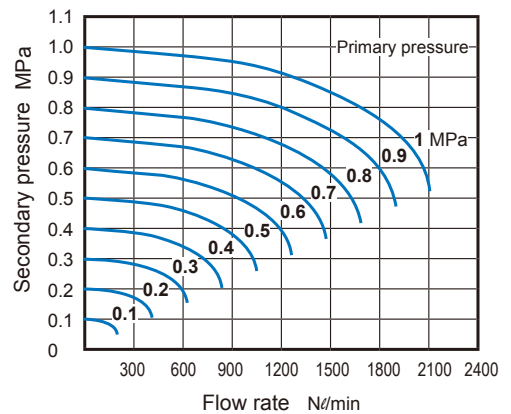
PORT THREAD
Blank: Rc thread
G: G thread
(only for 6A size)
NPT: NPT thread

- B1: Body (without button)
R1: Roller lever
EB: Latching palm button
LB: Extended twist button
TB: Twist button
PB: Mushroom palm button
PP: Push button

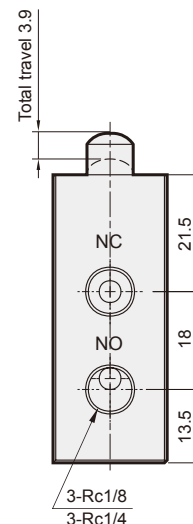
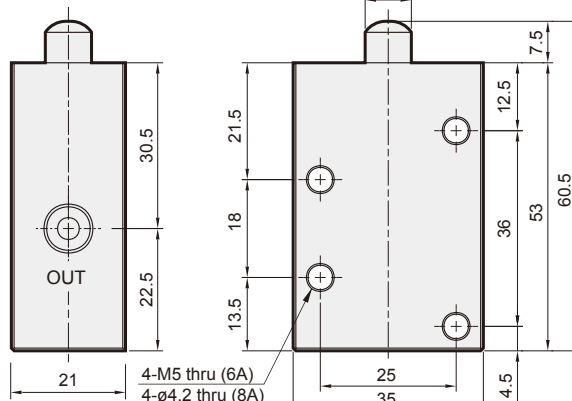
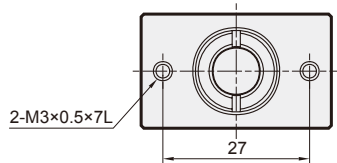
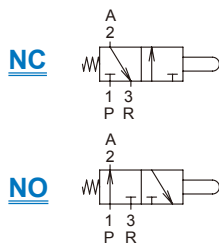
BUTTON COLOR

Color	Type
—	B1 type R1 type
G: Green	EB type
R: Red	EB type
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	PB type PP type
R: Red	PB type PP type

Flow features



MVMC-210-3B1

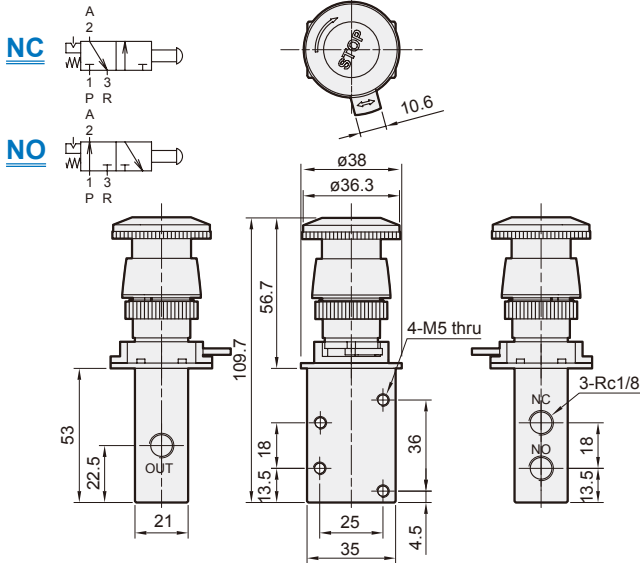


MVMC-210 Dimensions

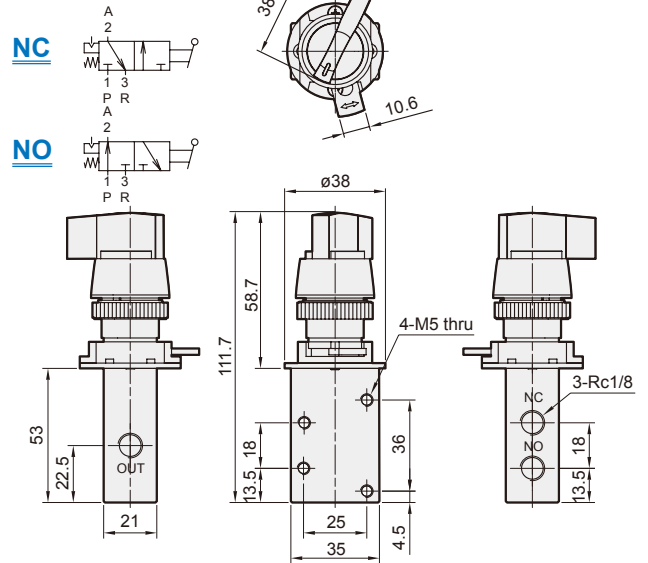
MECHANICAL VALVE



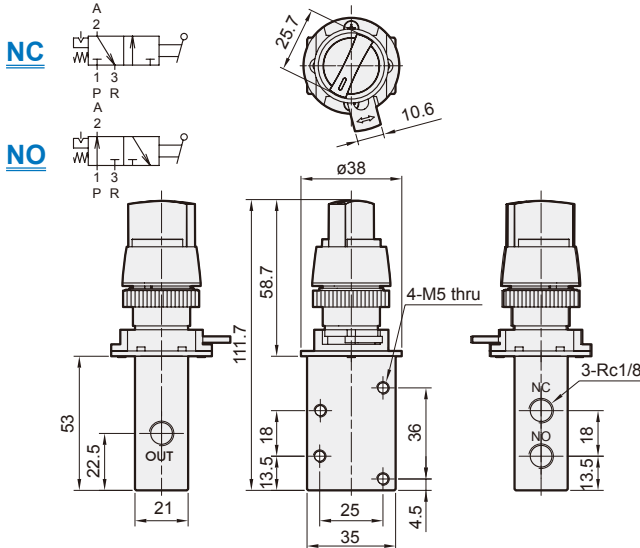
3EB-22



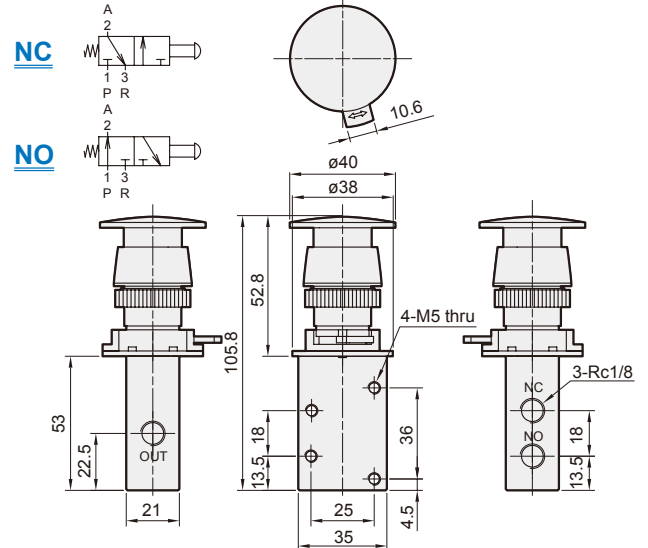
3LB-22



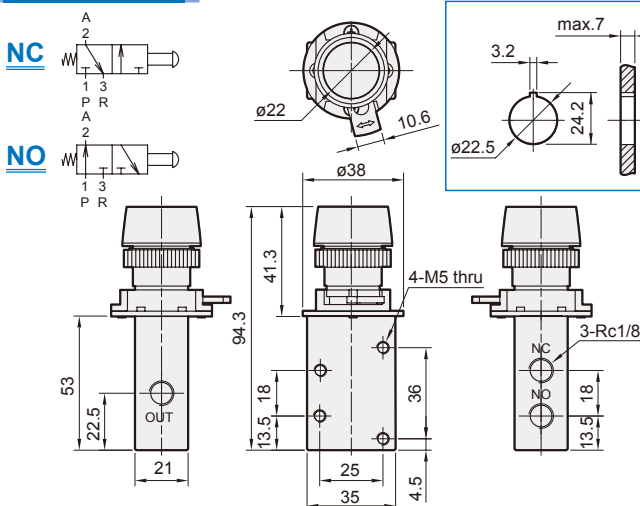
3TB-22



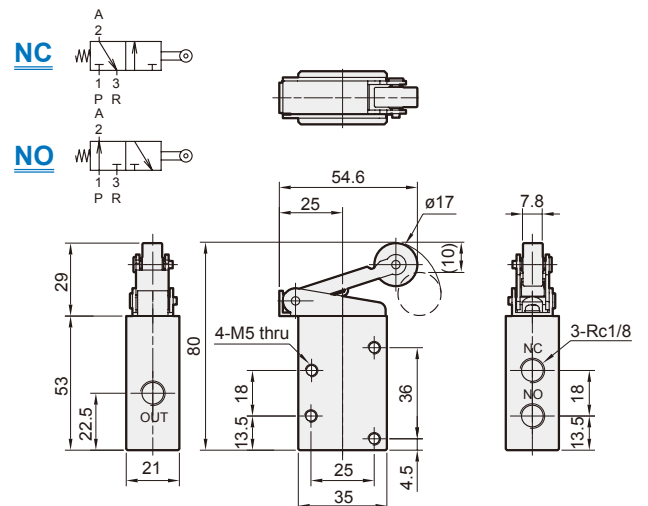
3PB-22



3PP-22



3R1



MVMC-210 Dimensions

MECHANICAL VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

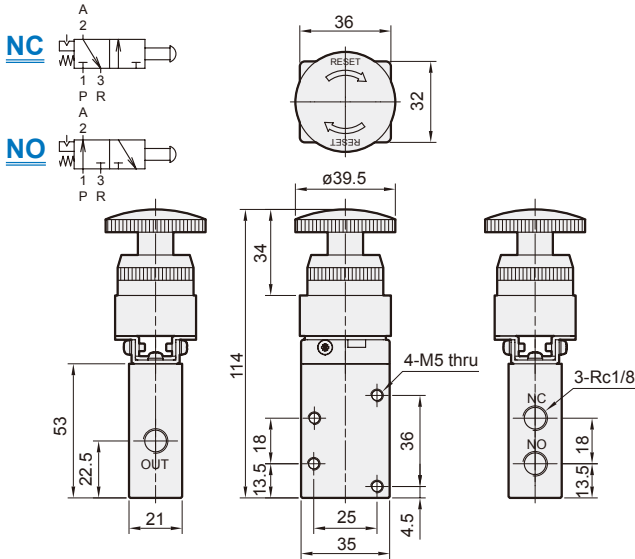
Air Unit

Pressure Switch

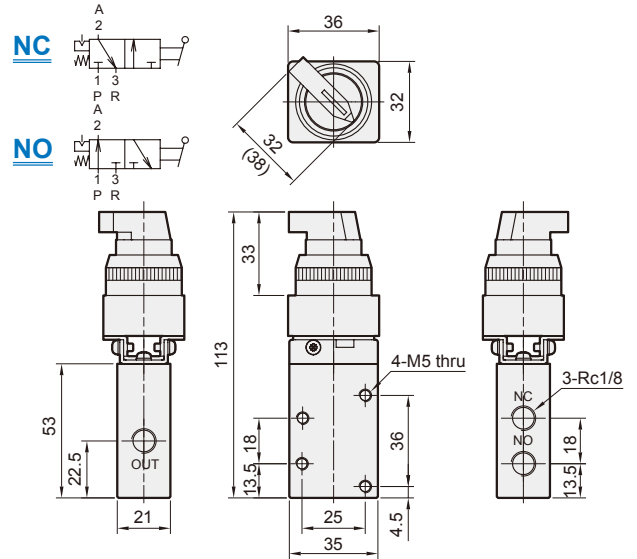
Auxiliary Equipment

PISCO®

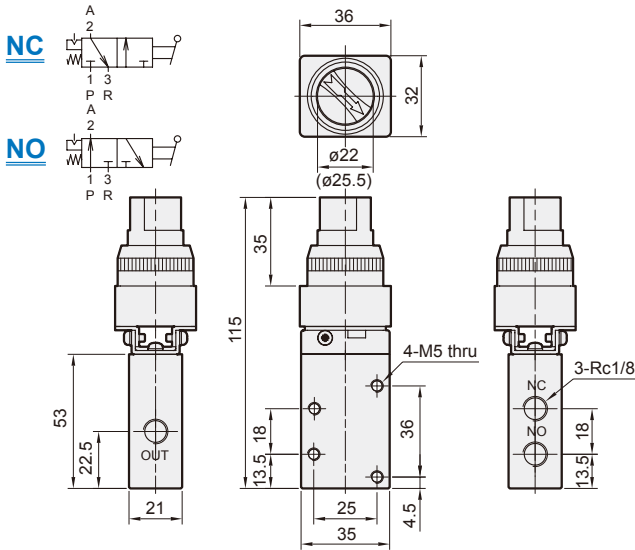
3EB-25/30



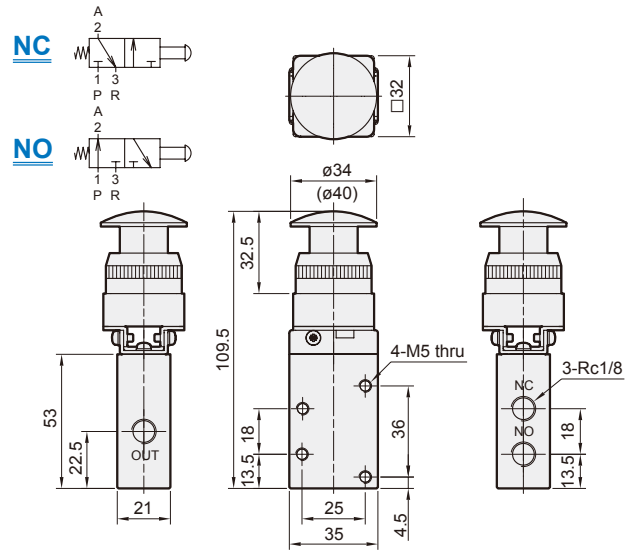
3LB-25/30



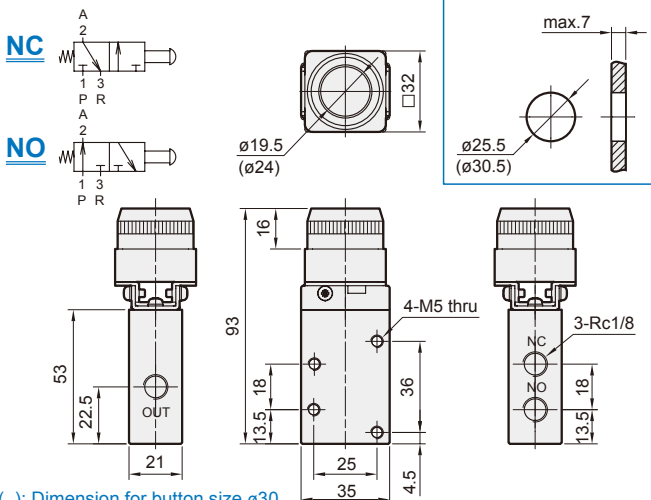
3TB-25/30



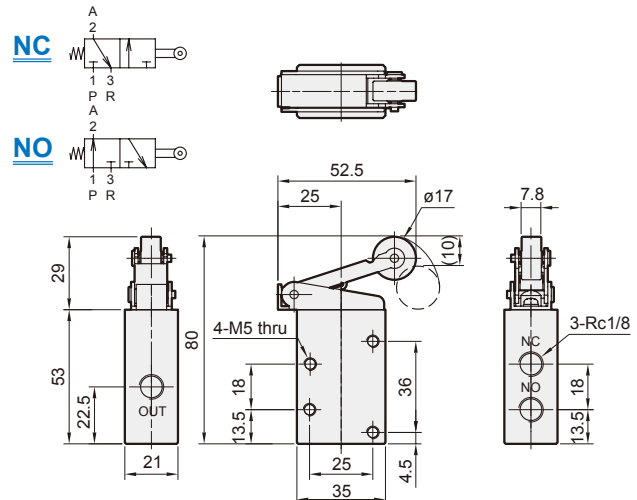
3PB-25/30



3PP-25/30



3R1



() : Dimension for button size ø30.

Specification

Model	Acting	Port size	Port no. / Position	Medium	Operating pressure range	Ambient temperature	Weight
ACT-401-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	380 g
ACT-401-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	363 g
ACT-401-02-3A	Automatic return type (Closed center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	385 g
ACT-401-03-3A	Automatic return type (Closed center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	368 g
ACT-401-02-3A1	Automatic return (Exhaust center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	385 g
ACT-401-03-3A1	Automatic return (Exhaust center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	368 g
ACT-402-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	357 g
ACT-402-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	340 g
ACT-403-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	587 g
ACT-403-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	570 g
ACT-405-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	370 g
ACT-405-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	353 g
ACT-406-02	Pilot return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	352 g
ACT-406-03	Pilot return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	334 g
ACT-407-02	Pilot return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	628 g
ACT-407-03	Pilot return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	606 g
ACT-410-02	Hand return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-410-03	Hand return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-410-02-3	Hand return type (Closed center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-410-03-3	Hand return type (Closed center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-410-02-31	Hand return (Exhaust center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-410-03-31	Hand return (Exhaust center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-411-02	Hand return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-411-03	Hand return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-411-02-3	Hand return type	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	620 g
ACT-411-03-3	Hand return type	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	603 g
ACT-411-02-3A	Automatic return type (Closed center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	658 g
ACT-411-03-3A	Automatic return type (Closed center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	640 g
ACT-411-02-3A1	Automatic return (Exhaust center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	658 g
ACT-411-03-3A1	Automatic return (Exhaust center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	640 g
ACT-412-02	Hand return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	342 g
ACT-412-03	Hand return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	325 g
ACT-301-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	318 g
ACT-302-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	296 g
ACT-303-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	520 g
ACT-305-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	305 g
ACT-306-02	Pilot return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	288 g
ACT-307-02	Pilot return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	564 g
ACT-310-02	Hand return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	282 g
ACT-311-02	Hand return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	555 g
ACT-312-02	Hand return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	270 g

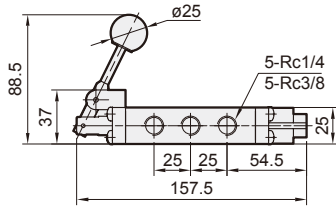
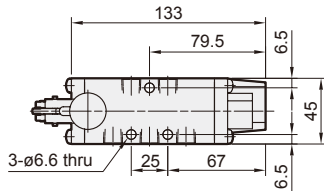
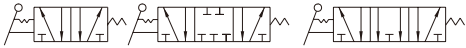
Model	No. of port	Port size	Medium	Operating pressure range	Ambient temperature	Weight
EPA-100 / 100A	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	43 g / 68 g
EPA-101 / 101A	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	70 g / 68 g
EPA-102	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	104 g
EPA-103	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	67 g
EPA-104	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	71 g
EPA-105	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	68 g
EPA-105L	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	104 g
EPA-106	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	61 g
EPA-107	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	54 g
EPA-108*	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	100 g
EPA-109	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	108 g

Hand valve

ACT-401

ACT-401-02 / 02-3A
ACT-401-03 / 03-3A

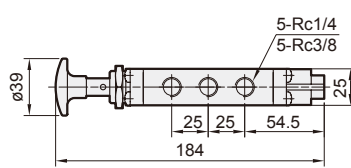
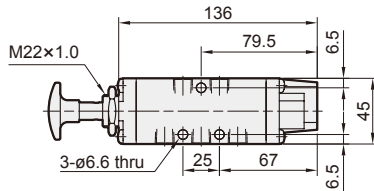
ACT-401-02-3A1
ACT-401-03-3A1



Plam valve

ACT-402

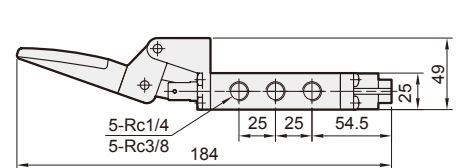
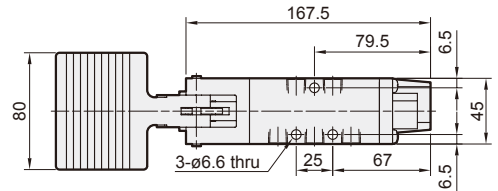
ACT-402-02
ACT-402-03



Pedal valve

ACT-403

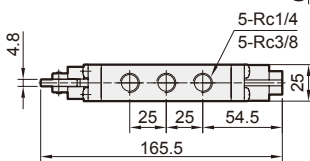
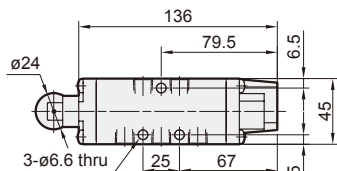
ACT-403-02
ACT-403-03



Roller plunger valve

ACT-405

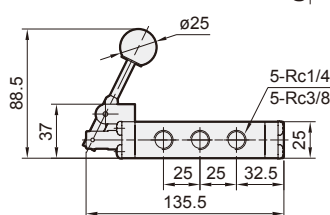
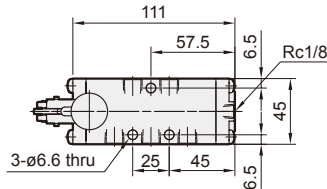
ACT-405-02
ACT-405-03



Hand valve

ACT-406

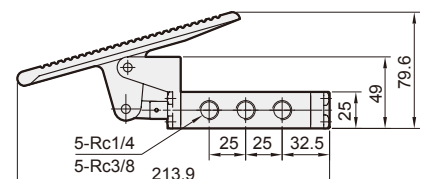
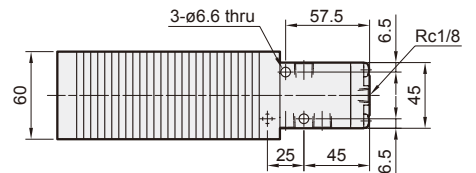
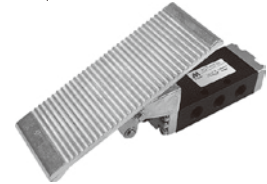
ACT-406-02
ACT-406-03



Treadle valve

ACT-407

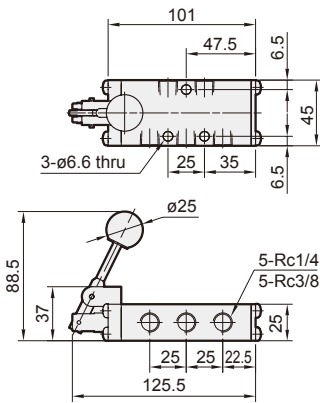
ACT-407-02
ACT-407-03



Hand valve

ACT-410

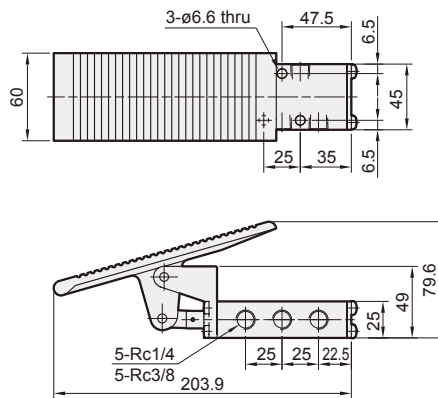
ACT-410-02 / 02-3
ACT-410-03 / 03-3



Treadle valve

ACT-411

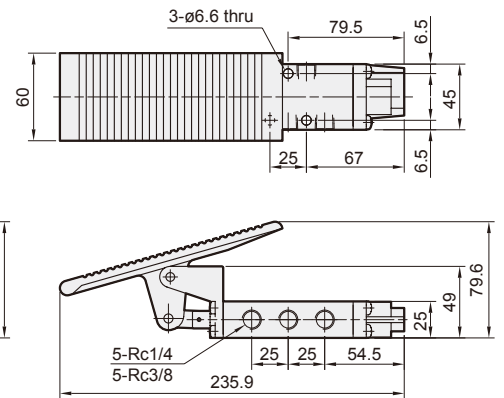
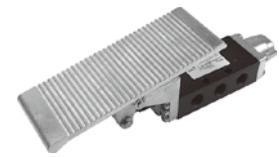
ACT-411-02 / 02-3
ACT-411-03 / 03-3



Treadle valve

ACT-411-A

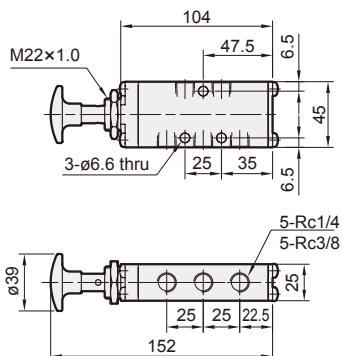
ACT-411-02-3A / 3A1
ACT-411-03-3A / 3A1



Plam valve

ACT-412

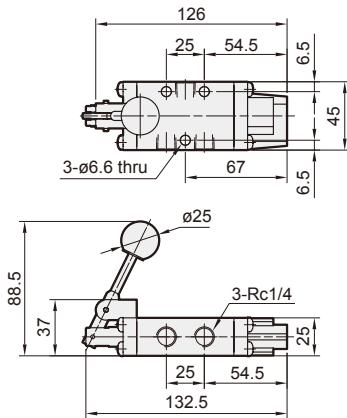
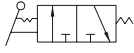
ACT-412-02
ACT-412-03



Hand valve

ACT-301

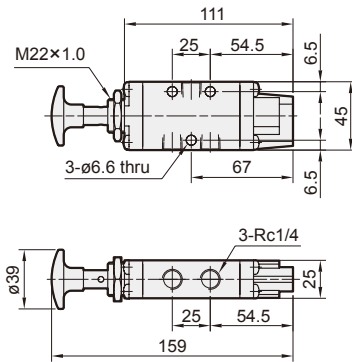
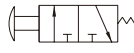
ACT-301-02



Plam valve

ACT-302

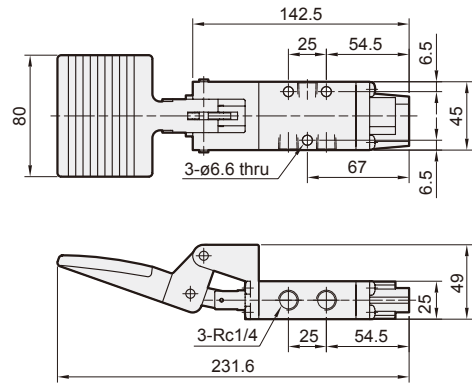
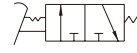
ACT-302-02



Treadle valve

ACT-303

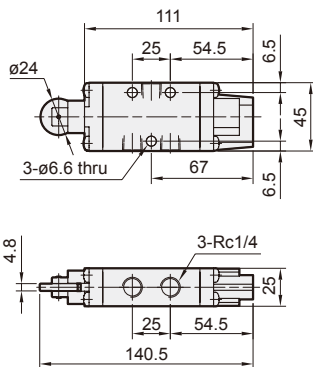
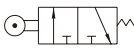
ACT-303-02



Roller plunger valve

ACT-305

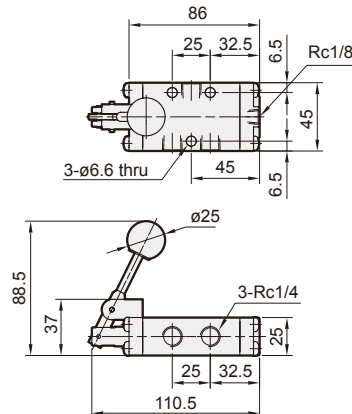
ACT-305-02



Hand valve

ACT-306

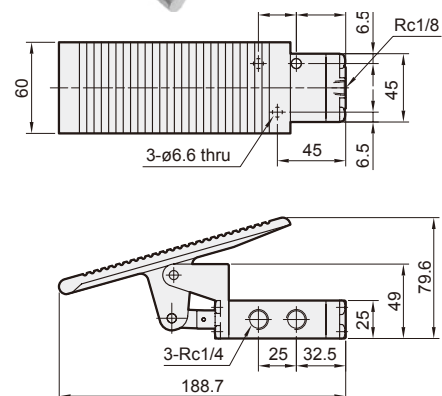
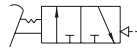
ACT-306-02



Treadle valve

ACT-307

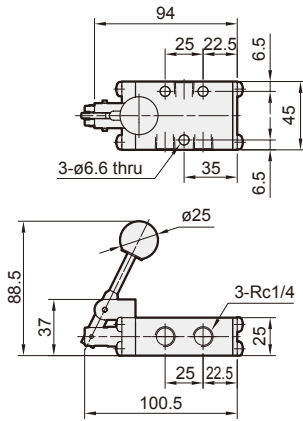
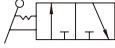
ACT-307-02



Hand valve

ACT-310

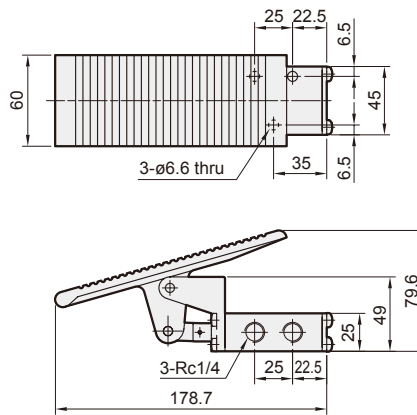
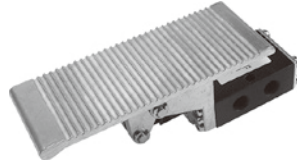
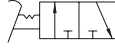
ACT-310-02



Treadle valve

ACT-311

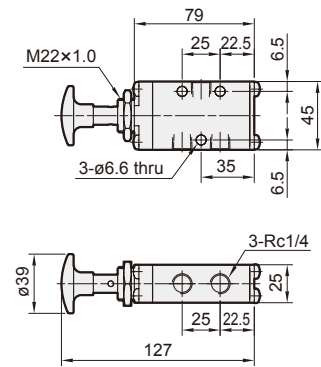
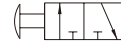
ACT-311-02



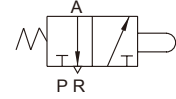
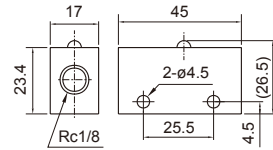
Plam valve

ACT-312

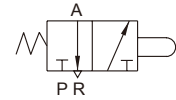
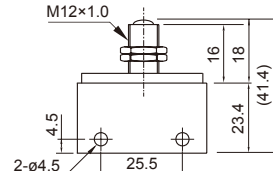
ACT-312-02



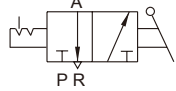
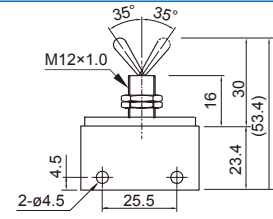
Pin plunger
EPA-100



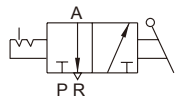
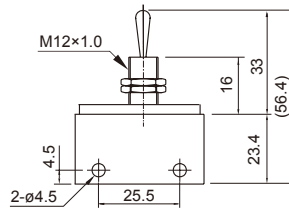
Ball actuator
EPA-100A



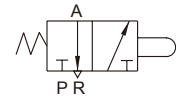
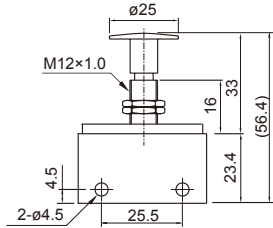
Retained toggle
EPA-101



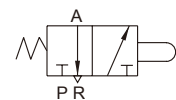
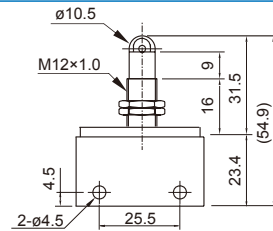
Toggle
EPA-101A



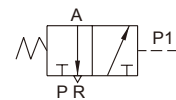
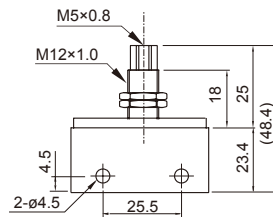
Palm button
EPA-102



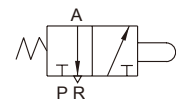
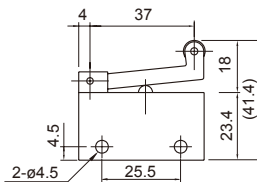
Roller plunger
EPA-103



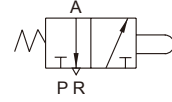
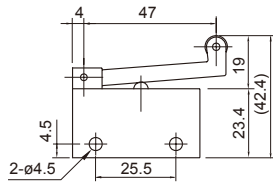
Pilot
EPA-104



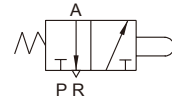
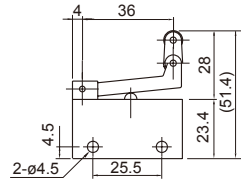
Roller lever
EPA-105



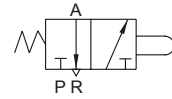
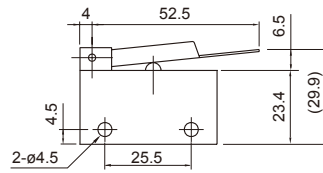
Roller lever
EPA-105L



One way lever
EPA-106

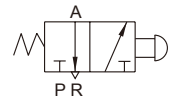
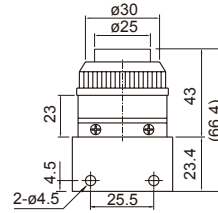


Plain lever
EPA-107



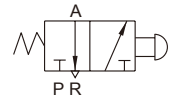
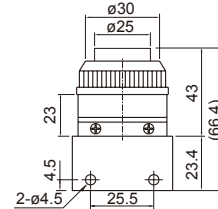
Push button
EPA-108B*

*B=black

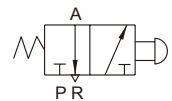
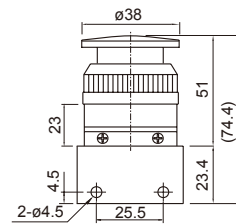


Push button
EPA-108G*

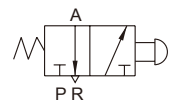
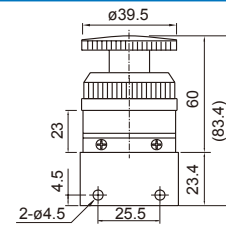
*G=green



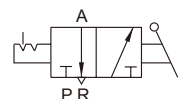
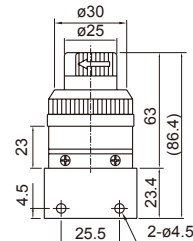
Palm actuator
EPA-108RA



Palm latching actuator
EPA-108RA RESET

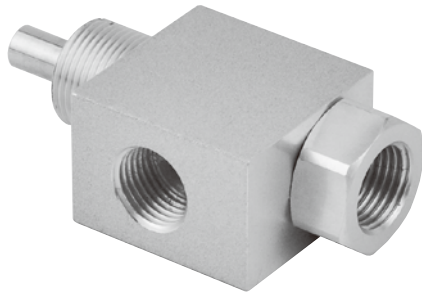


Selector
EPA-109



MVHF-2P/3P-NC

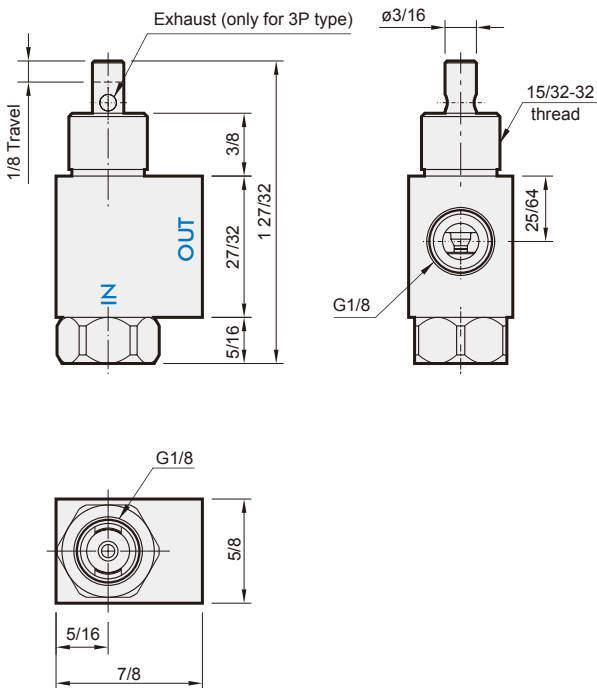
HAND VALVE



Specification

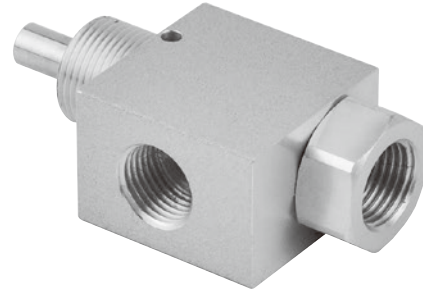
Type	Normally CLOSED 3-way poppet
Medium	Air
Stem travel	1/8"
Input pressure	150 psig max.
Effective orifice	7.2 mm ²
Force for full stem travel	38 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 *, Output: G1/8 *
Exhaust	Hole to atmosphere
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	65 g

* Port thread NPT. are also available.



MVHF-3P-NO

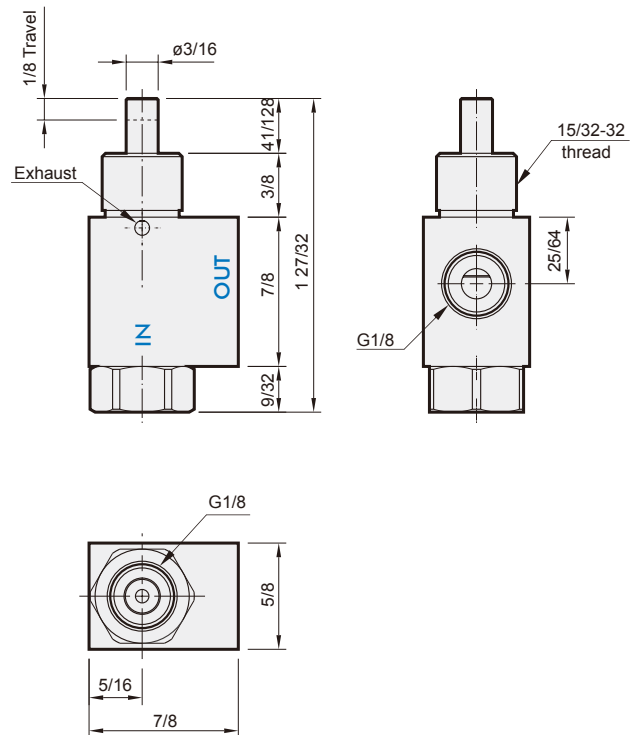
HAND VALVE



Specification

Type	Normally OPEN 3-way poppet
Medium	Air
Stem travel	1/8"
Input pressure	150 psig max.
Effective orifice	5.7 mm ²
Force for full stem travel	38 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 *, Output: G1/8 *
Exhaust	Hole to atmosphere
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	69 g

* Port thread NPT. are also available.



MVHF-3V

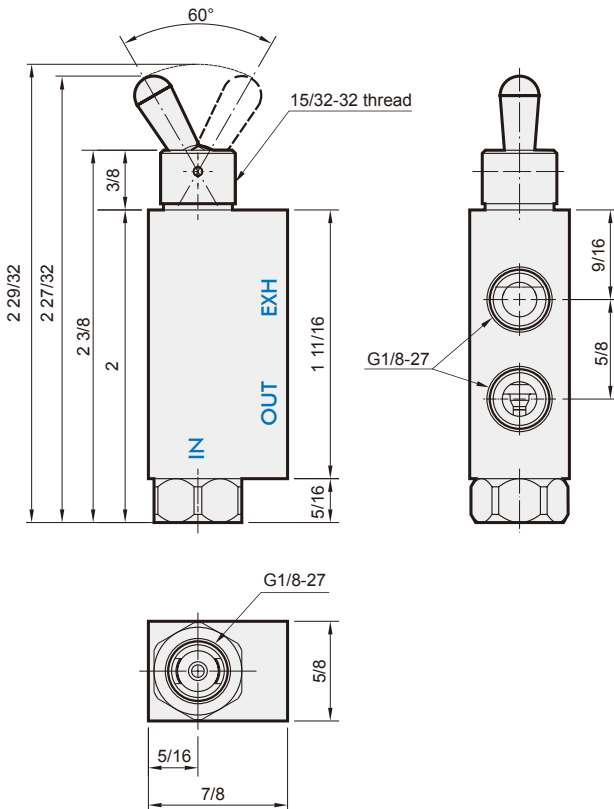
HAND VALVE



Specification

Type	Normally CLOSED 3-way poppet two position toggle valve
Medium	Air, water, oil
Arc of travel	60°
Input pressure	150 psig max.
Air flow	@ 50 psig 14 SCFM, @100 psig 25 SCFM
Force for full stem travel	2 1/2 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 * Output: G1/8 * Exhaust: G1/8 *
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	118 g

* Port thread NPT. are also available.



MVHF-5V

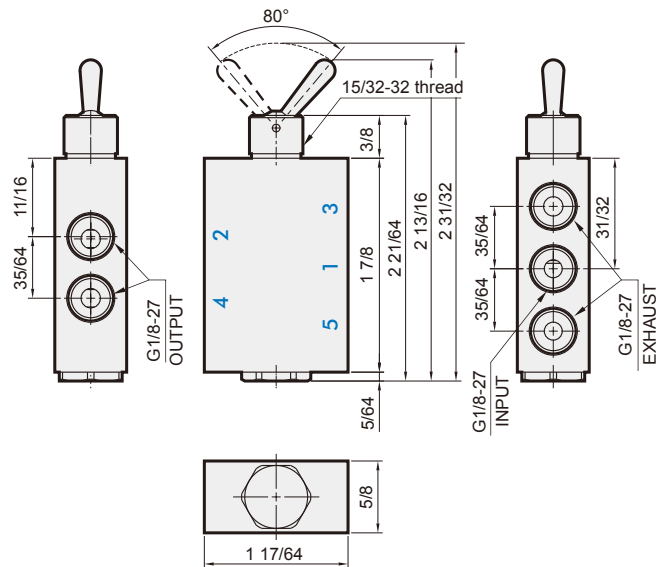
HAND VALVE



Specification

Type	4-way spool valve toggle actuated two position 5 ported
Medium	Air, water, oil
Arc of travel	80°
Input pressure	150 psig max.
Effective orifice	4.3 mm ²
Force for full stem travel	3 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 * Output: G1/8 * Exhaust: G1/8 *
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	172 g

* Port thread NPT. are also available.



MVHF-5P

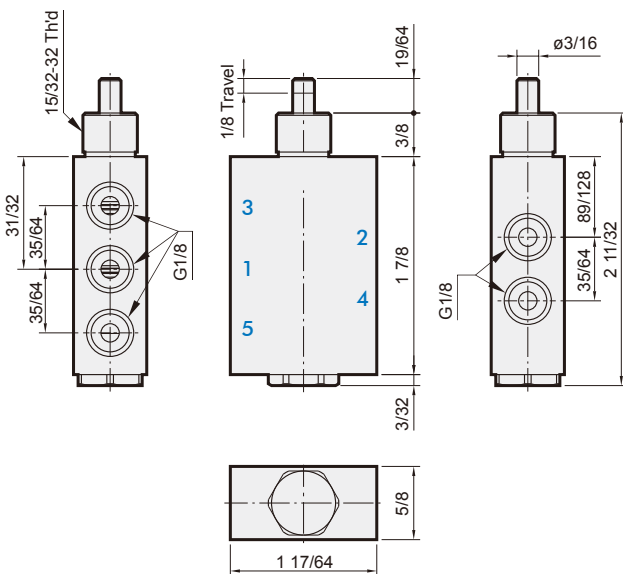
HAND VALVE



Specification

Model	MVHF-5P
Type	4-way spool valve plunger actuated spring return fully ported
Medium	Air, water, oil
Stem travel	1/8"
Input pressure	Vacuum to 150 psig max.
Effective orifice	8.6 mm ²
Force for full stem travel	4 1/2 lb nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 * Output: G1/8 * Exhaust: G1/8 *
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	171 g

* Port thread NPT. are also available.



MVHF-AP*

MINIATURE PILOT ACTUATOR 3/8" BORE



mindman



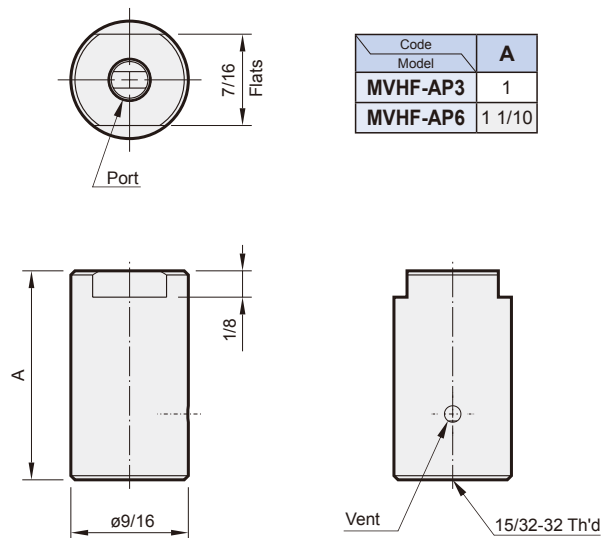
Specification

Model	MVHF-AP3, MVHF-AP6A
Type	Single action, spring return miniature air pilot actuator.
Input pressure	150 psig max
Construction	Body: aluminum alloy
	Springs: stainless steel
	Seals: buna N rubber
	Piston: aluminum
Temperature range	32°F~230°F
Force factor	.1
Ports	MVHF-AP3 → 10-32
	MVHF-AP6A → G1/8 *
Mounting	15/32-32 female thread to mount to miniature valves and components
Weight	22 g

Minimum pressure required MPa (PSIG)

MVHF-3P-NC	0.21 (30)	MVHF-3P-NO	0.21 (30)
MVHF-5P	0.29 (41)		

* Port thread NPT. are also available.



Code	A
MVHF-AP3	1
MVHF-AP6	1 1/10

MVHF-LB

MOUNTING BRACKET

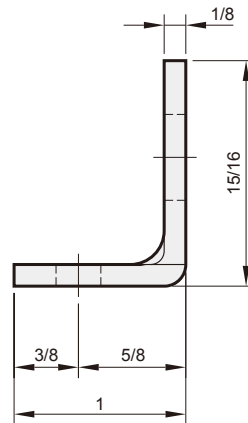
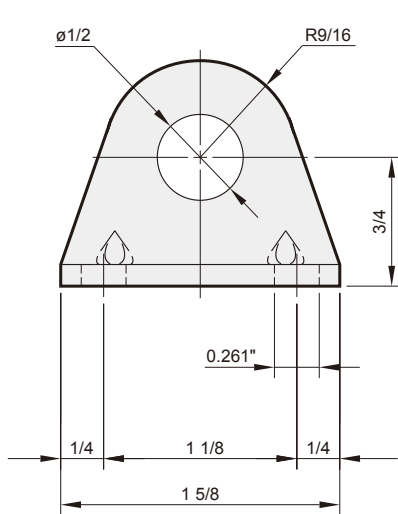


mindman



Specification

Model	MVHF-LB
Type	90° angle, heavy duty mounting bracket for clippard miniature valves.
Mounting	1/2" diameter hole for valve, two (2) 0.261" diameter holes for attaching bracket.
Construction	Stamped from 1/8" thick steel, zinc plated.
Weight	40 g



MVHF-PB2 / MVHF-PB5

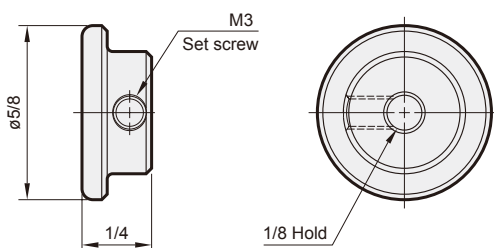
VALVE ACTUATORS MANUAL PUSH BUTTON



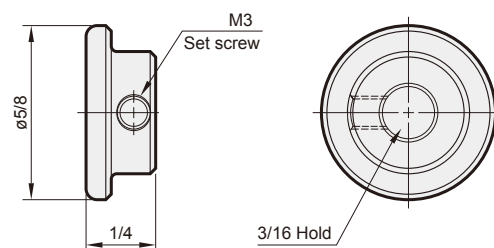
Specification

Model	MVHF-PB2	MVHF-PB5
Type	Round, solid brass prevents over travel of valve stem by providing a positive stop.	
Use	Mounts directly on valve stem for manual operation of valve. Prevents over travel of valve stem by providing a positive stop.	
Mounting	1/8" dia. mounting hole fits valve stems, locks in place by set screw. (Allen wrench furnished)	
Note	Individually packaged or bulk quantities available.	
Weight	7 g	6 g

MVHF-PB2



MVHF-PB5



MVHA-2* / 3* series

HAND VALVE



Specification

Model	MVHA-2*, 3*
Bore No.	M5
Port size	M5×0.8
No. of port	2 or 3
No. of position	2
Medium	Air
Operating pressure range	0~0.9 MPa
Effective orifice	1.8 mm ²
Ambient temperature	-5~+60°C (No freezing)
Weight	30 g

Order example

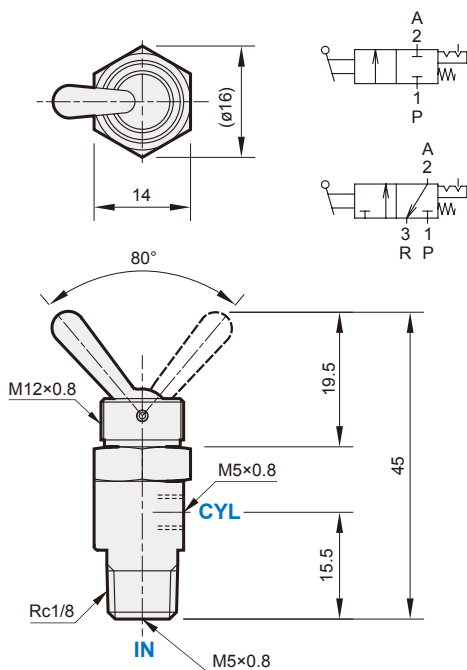
MVHA – 2V

MODEL

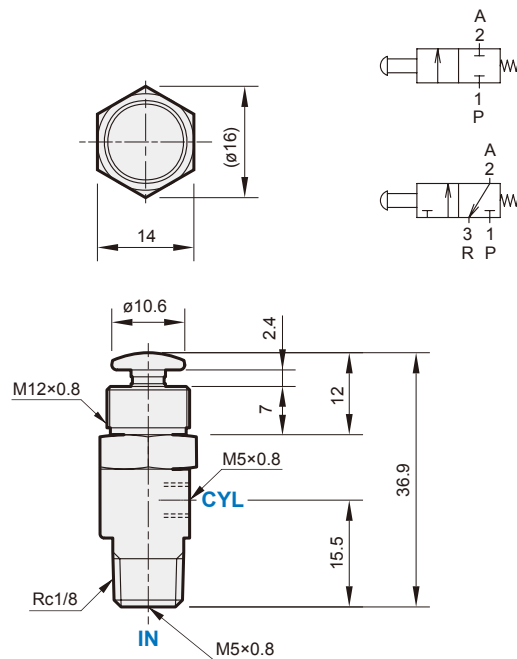
2: 2way (2 port)
3: 3way (3 port)

V: V toggle
P: Push button

MVHA-2V/3V



MVHA-2P/3P



MVHA-4* series

HAND VALVE

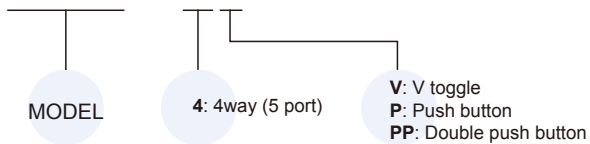


Specification

Model	MVHA-4V	MVHA-4P	MVHA-4PP
Bore No.	M5		
Port size	M5×0.8		
No. of port	5		
No. of position	2		
Medium	Air		
Operating pressure range	0~0.9 MPa		
Effective orifice	1.9 mm ²		
Ambient temperature	-5~+60°C (No freezing)		
Weight	62 g	61 g	66 g

Order example

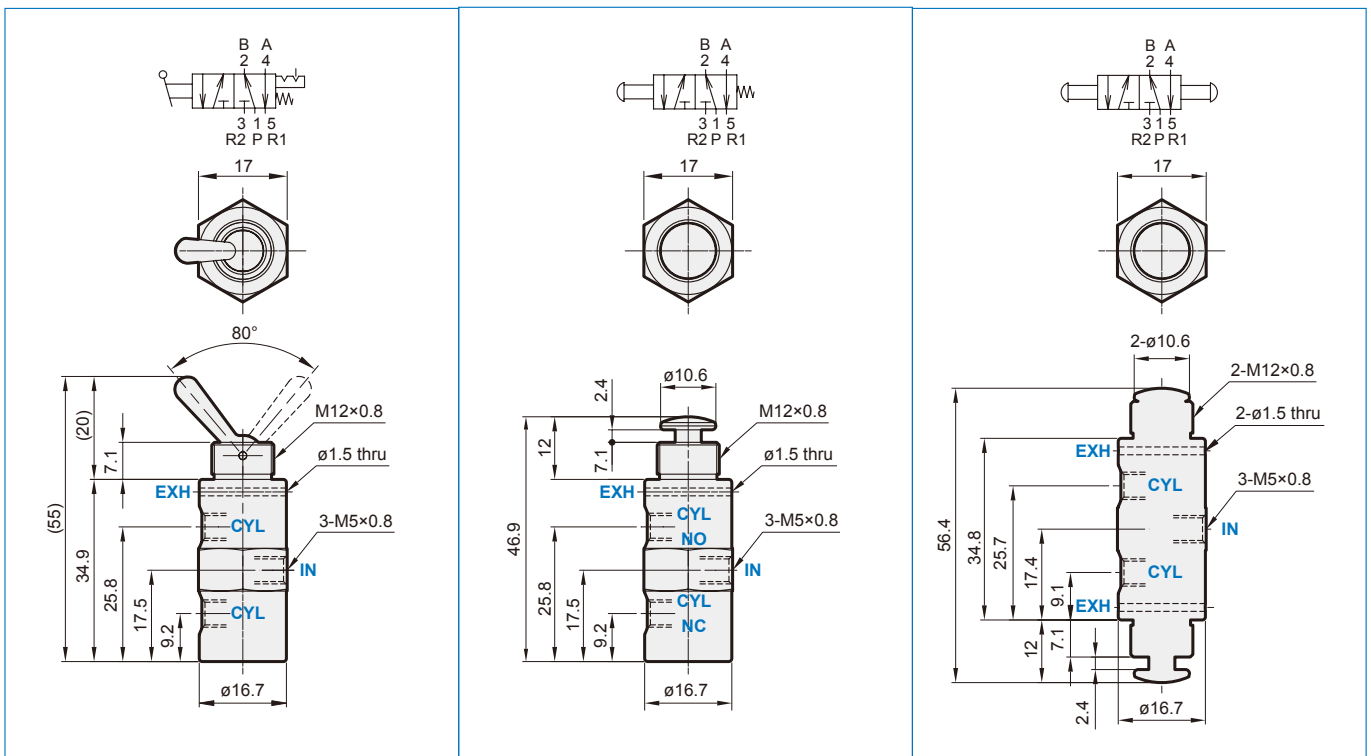
MVHA - 4V



MVHA-4V

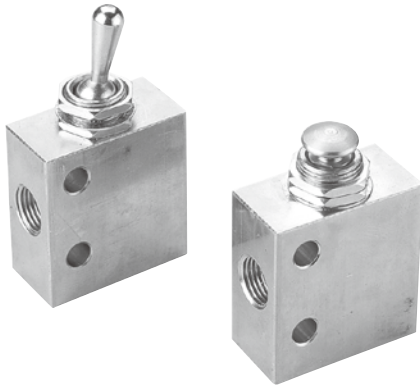
MVHA-4P

MVHA-4PP



MVHA-31* series

HAND VALVE



Specification

Model	MVHA-31V	MVHA-31P
Bore No.	6A	
Port size	Rc1/8	
No. of port	3	
No. of position	2	
Medium	Air	
Operating pressure range	0~0.9 MPa	
Effective orifice	4.5 mm ²	
Ambient temperature	-5~+60°C (No freezing)	
Weight	53 g	50 g

Order example

MVHA - 31V - G

MODEL

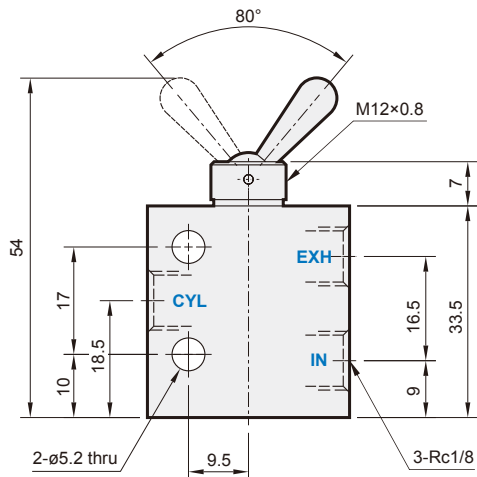
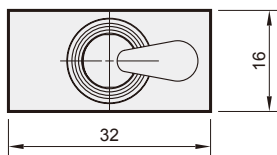
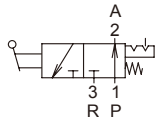
3: 3way (3 port)

V: V toggle
P: Push button

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

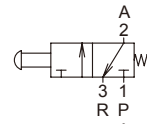
MVHA-31V

NO

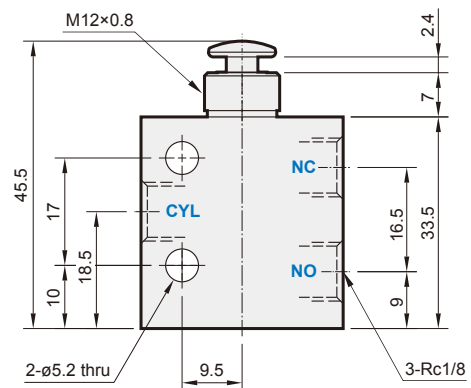
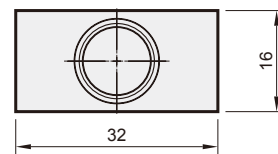
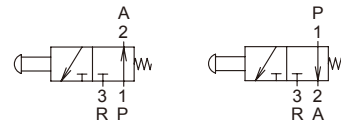


MVHA-31P

NC



NO



MVHA-41* series

HAND VALVE



Specification

Model	MVHA-41V	MVHA-41P	MVHA-41PP
Bore No.	6A		
Port size	Rc1/8		
No. of port	5		
No. of position	2		
Medium	Air		
Operating pressure range	0~0.9 MPa		
Effective orifice	5.5 mm ²		
Ambient temperature	-5~+60°C (No freezing)		
Weight	64 g	58 g	76 g

Order example

MVHA - 41V - G

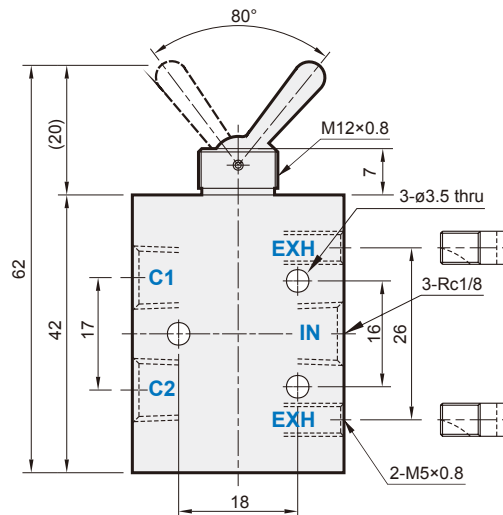
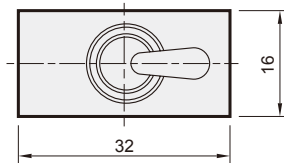
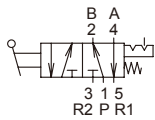
MODEL

4: 4way (5 port)

V: V toggle
P: Push button
PP: Double push button

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

MVHA-41V



MVHA-41* Dimensions

HAND VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

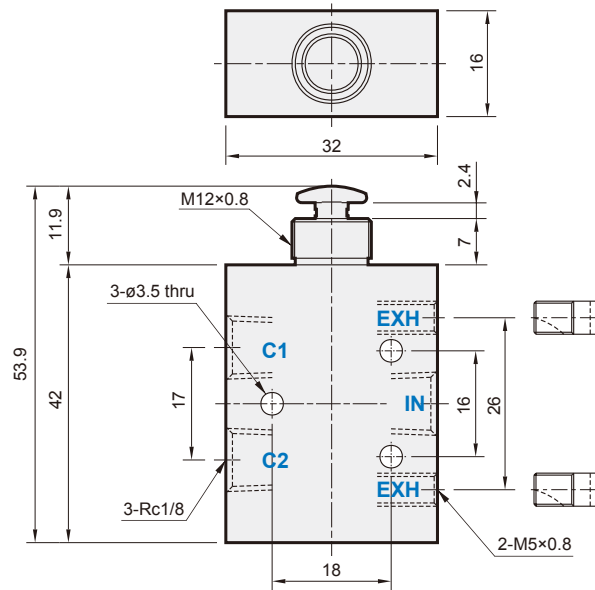
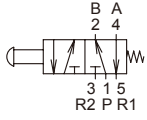
Air Unit

Pressure Switch

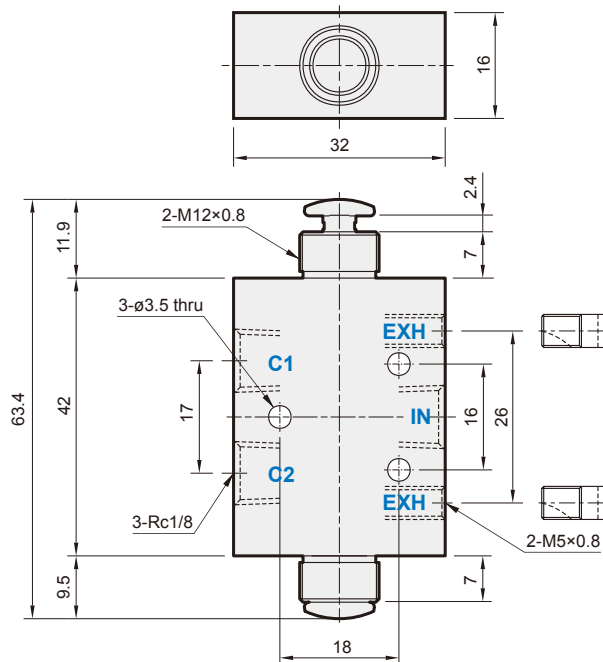
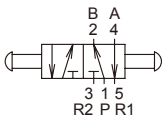
Auxiliary Equipment

PISCO®

MVHA-41P



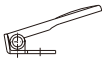
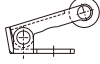
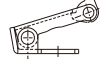


MVHA-41PP



Order example

MVHA – 34T

MODEL

Model	34T	34C	34CW	34B	34A
Shape					
Weight	20 g	15 g	15 g	15 g	28 g

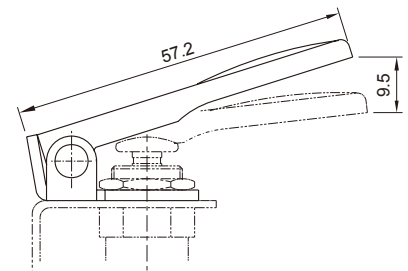
34T

Fingertip operator



The 34T Operator may be used with any TAC series push-button valve to provide easier actuation.

Materials : Nickel-plated steel



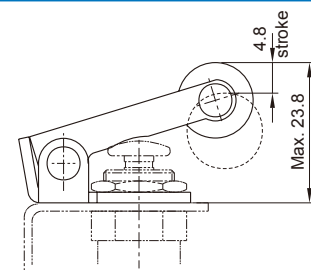
34C

Cam operator



The 34C Operator Cam-stroke is two times by the valve's push-stroke.
Adjustment of roller height is made through the use of a mounting bracket and Locknuts.

Materials : Level...Nickel-plated steel
Roller...POM



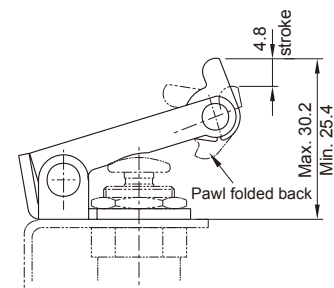
34CW

One-way cam operator



The 34CW Operator actuates valves when the pawl is contacted from lever side.
The pawl then folds out of the way in the opposite direction.

Materials : Level...Nickel-plated steel
Pawl...POM



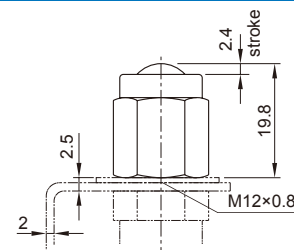
34B

Ball operator



The 34B Operator threads onto the collar of push-button valves.
The mounting bracket thickness plus the washer thickness properly spaces the operator to prevent prestroking of button.

Materials : Body...Nickel-plated brass
Ball...Chrome steel



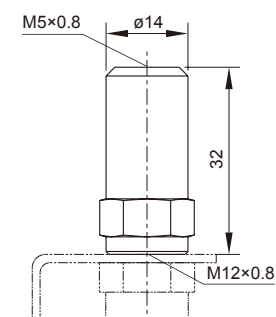
34A

Air pilot operator



The 34A Operator threads directly onto the collar of push-button valves.
The air pressure applied to the pilot port drives piston to actuates the valve's push-button.

Materials : Nickel-plated brass



MVHB-220 series

HAND LEVER VALVE

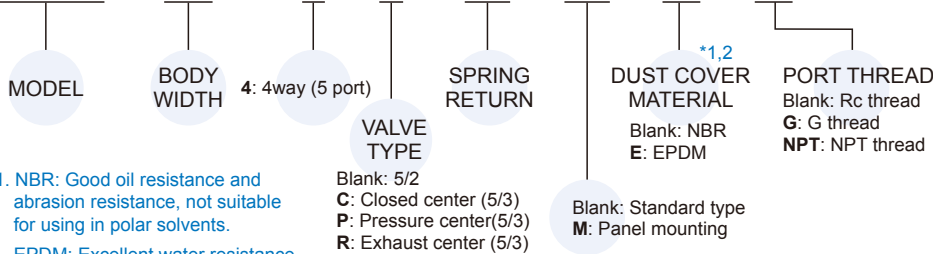


Specification

Model	MVHB-220-4TV MVHB-220-4TV-SP	MVHB-220-4TV* MVHB-220-4TV*-SP
Bore No. (Port size)	8A (Rc1/4)	
No. of port	5	
No. of position	2	3
Medium	Air	
Operating pressure range	0~0.8 MPa	
Effective orifice	18 mm ²	16 mm ²
Ambient temperature	-5~+60°C (No freezing)	
Weight	193 g	234 g

Order example

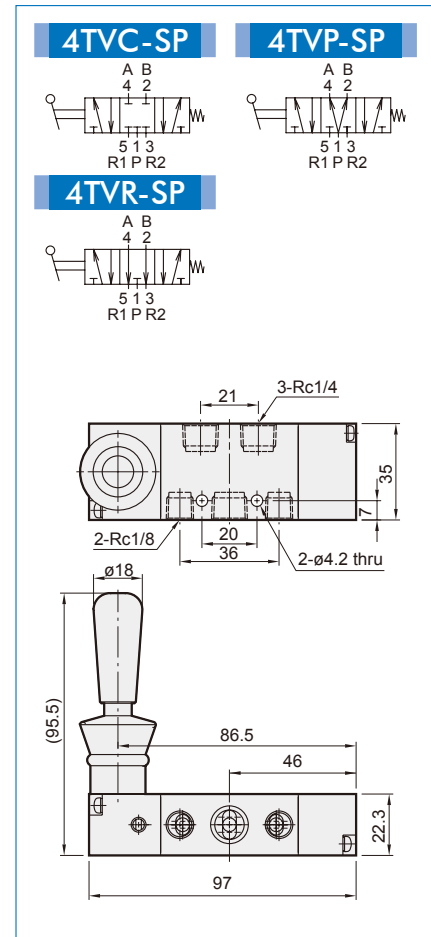
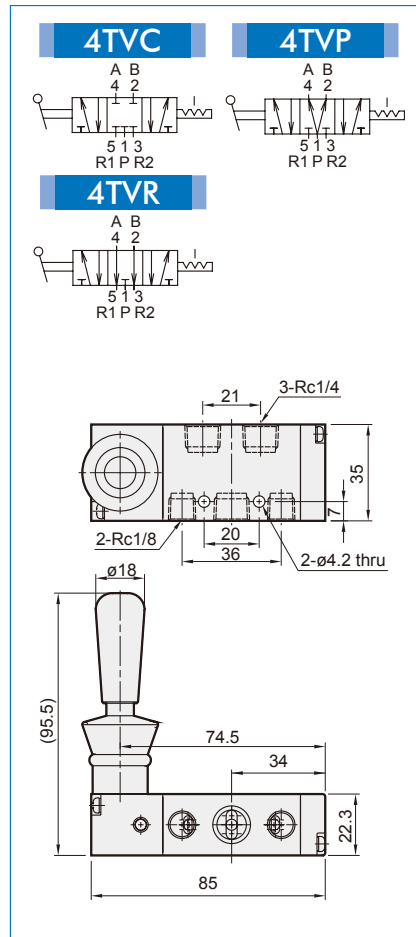
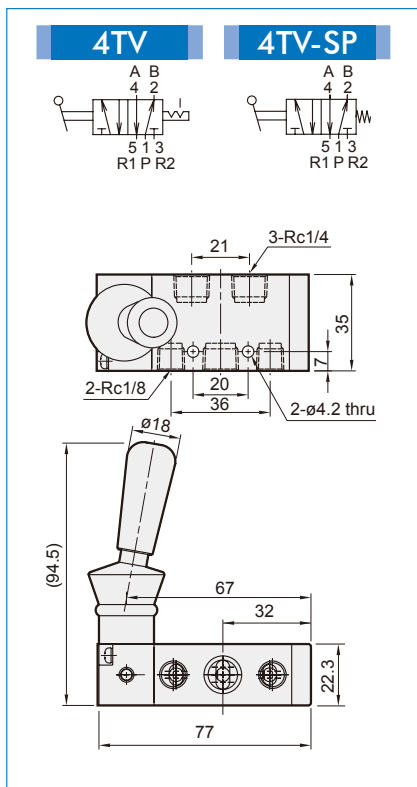
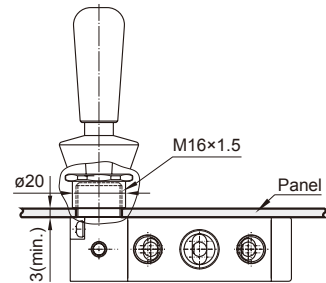
MVHB - 220 - 4TVC - SP - M - □ - G



*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.
EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

*2. Suitability of material please refer to page 2-2~4.

Panel mounting style



MVHB-260 series

HAND LEVER VALVE



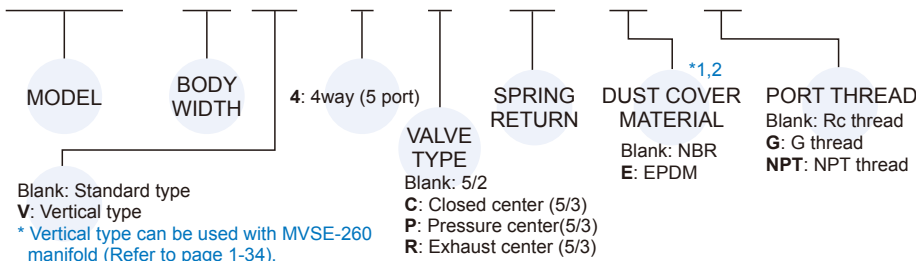
Specification



Model	MVHB-260(V)-4TV MVHB-260(V)-4TV-SP	MVHB-260(V)-4TV* MVHB-260(V)-4TV*-SP
Bore No.	8A	
Port size	Rc1/4	
No. of port	5	
No. of position	2	3
Medium	Air	
Operating pressure range	0~0.8 MPa	
Effective orifice	18 mm ²	
Ambient temperature	-5~+60°C (No freezing)	
Weight	219 g	278 g

Order example

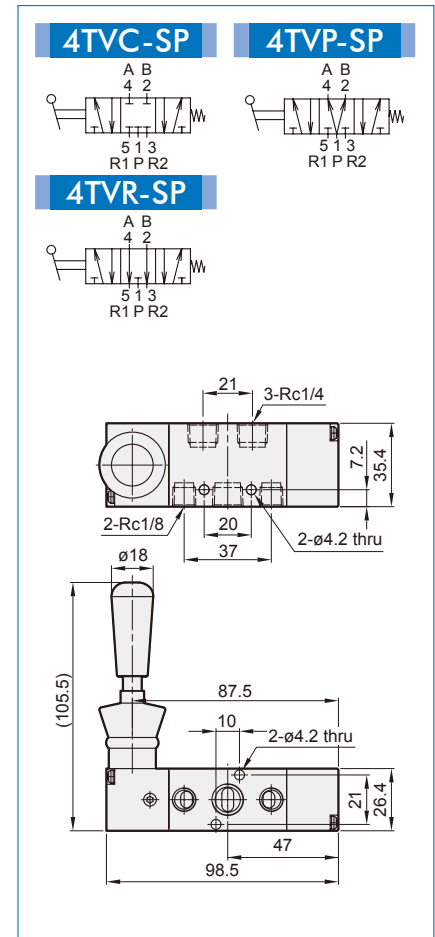
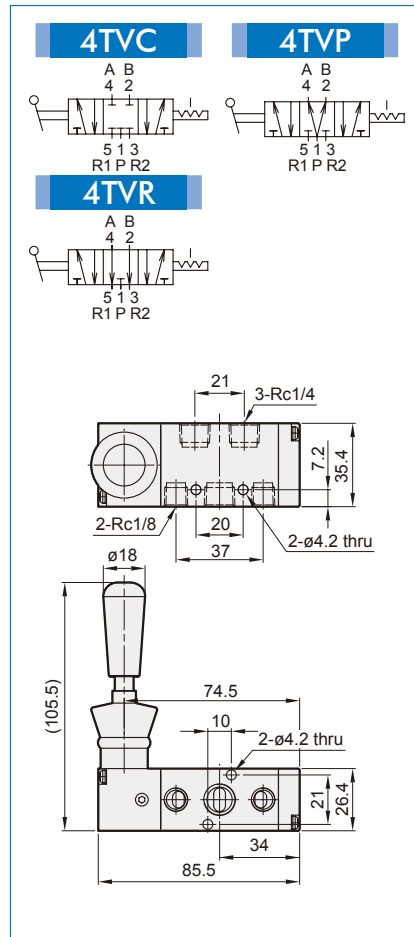
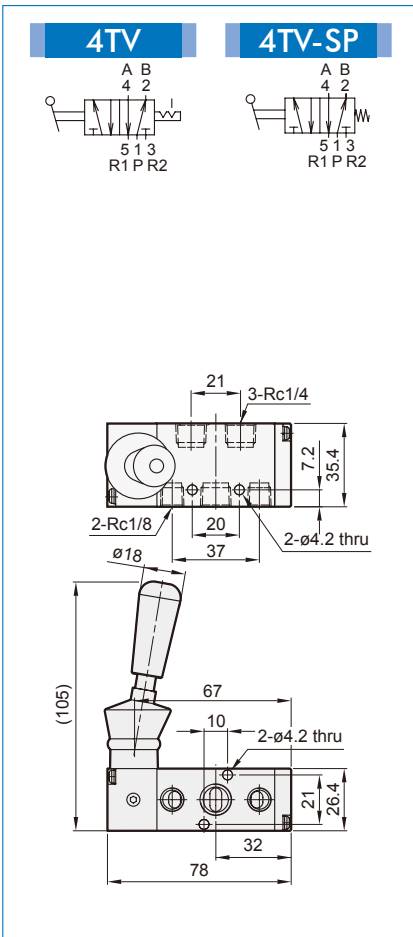
MVHB - 260V - 4TVC - SP - □ - G



*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.

EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

*2. Suitability of material please refer to page 2-2~4.



MVHB-260 Dimensions – Vertical type

HAND LEVER VALVE



Solenoid Valve

Process Valve

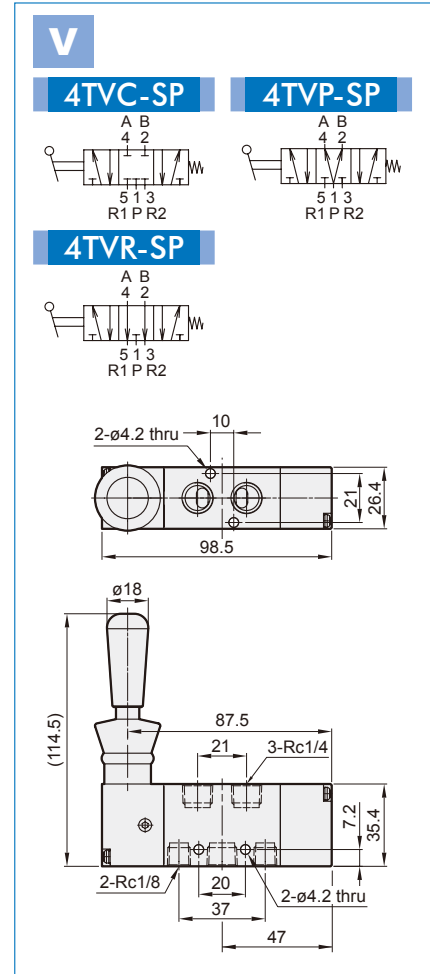
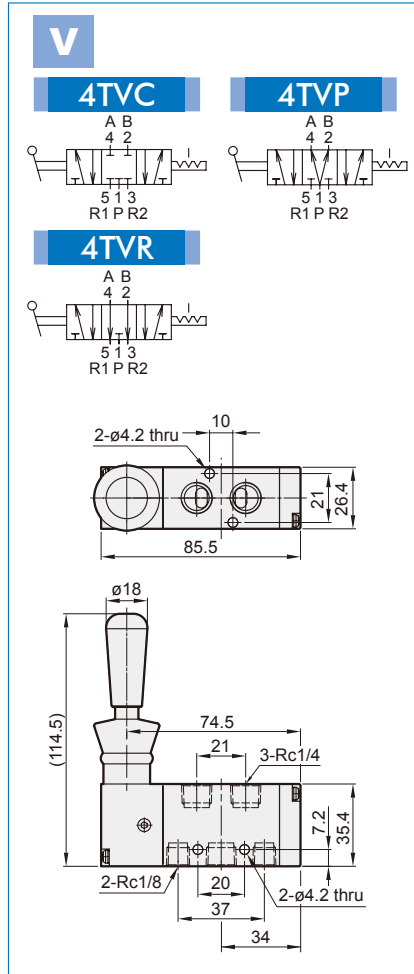
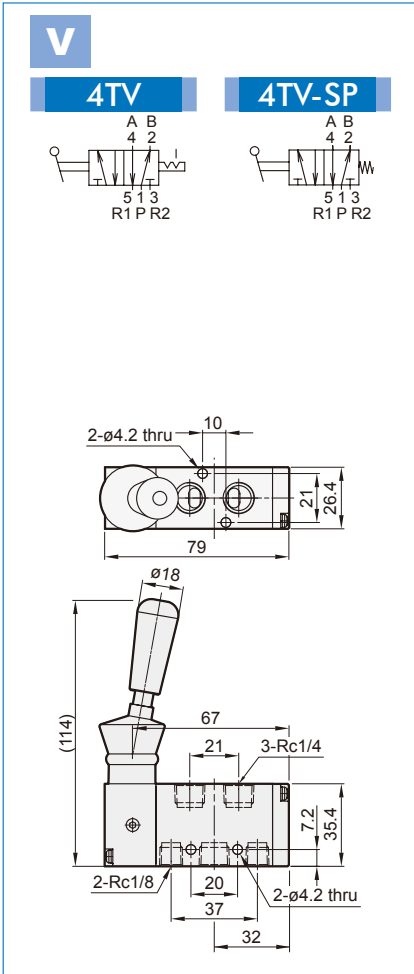
Pilot & Mechanical Valve

Air Unit

Pressure Switch

Auxiliary Equipment

PISCO®



MVHB-300 series

HAND LEVER VALVE

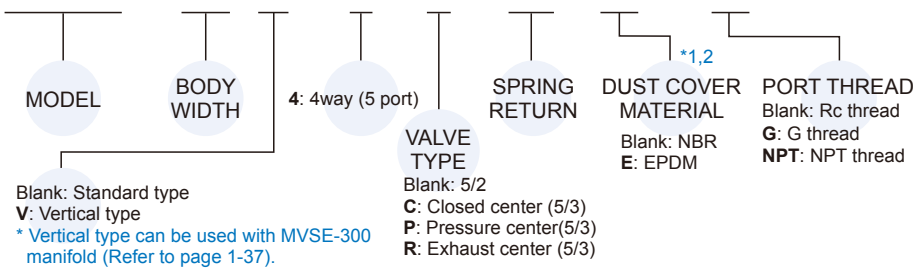


Specification

Model	MVHB-300(V)-4TV MVHB-300(V)-4TV-SP	MVHB-300(V)-4TV* MVHB-300(V)-4TV*-SP
Bore No.	10A	
Port size	Rc3/8	
No. of port	5	
No. of position	2	3
Medium	Air	
Operating pressure range	0~1.2 MPa	
Effective orifice	34 mm ²	
Ambient temperature	-5~+60°C (No freezing)	
Weight	438 g	487 g

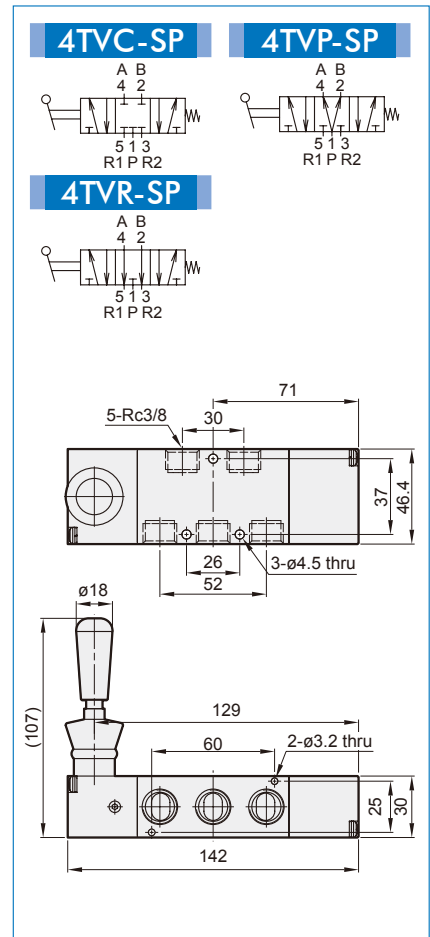
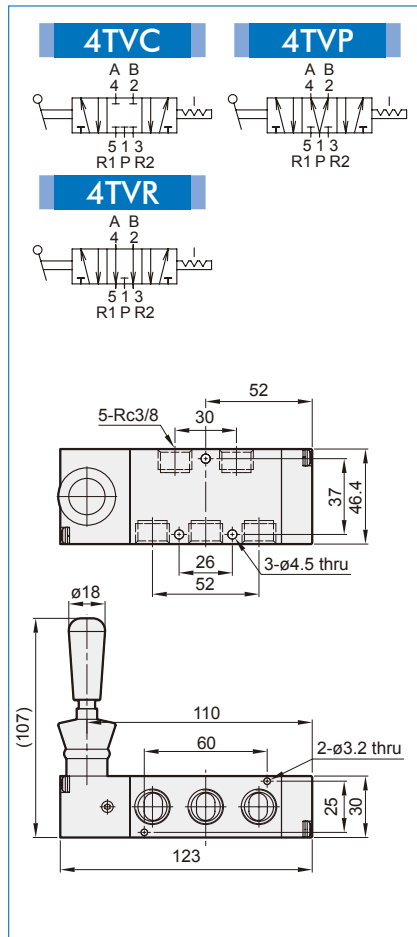
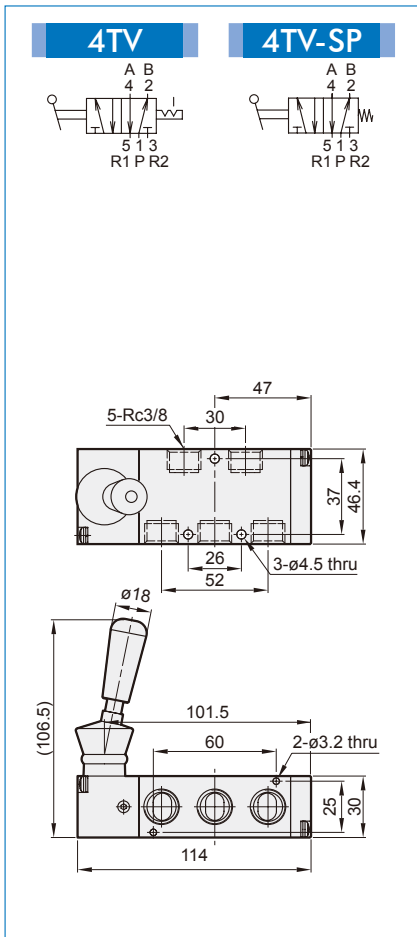
Order example

MVHB - 300V - 4TVC - SP - □ - G



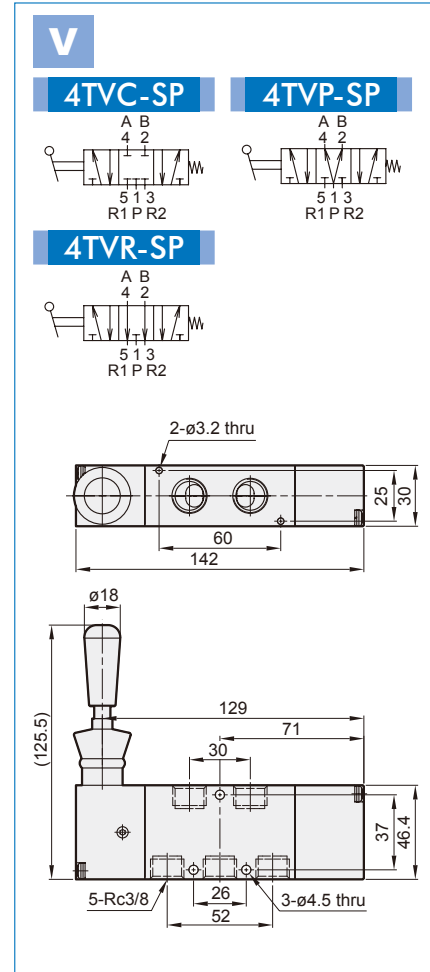
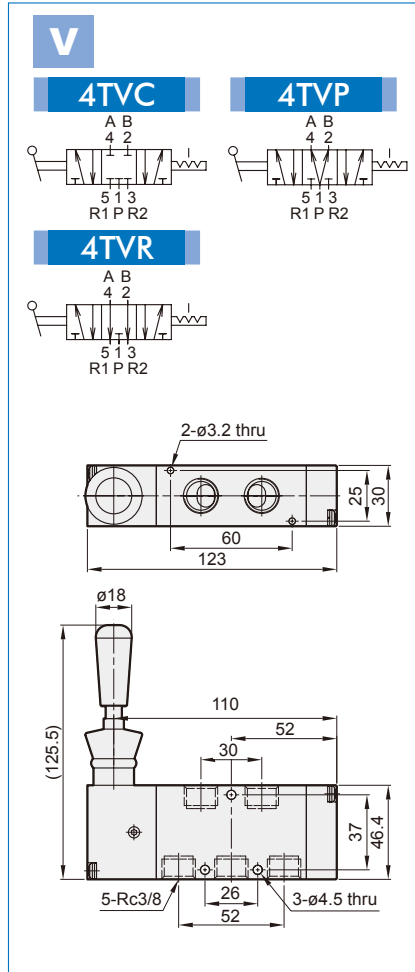
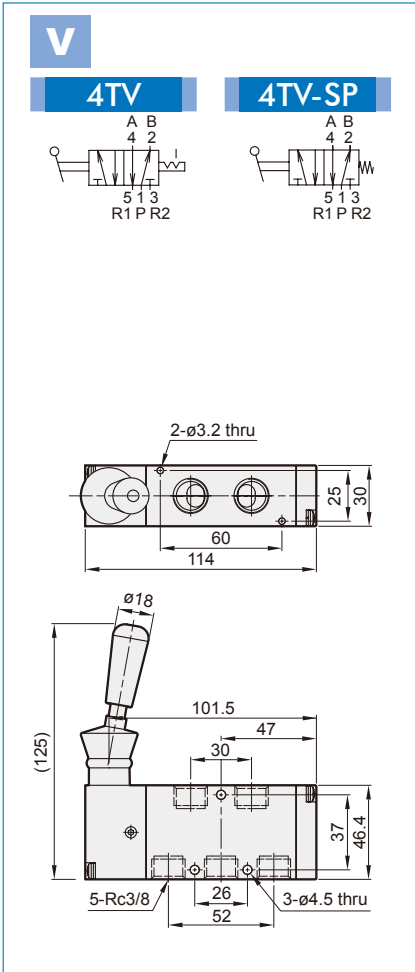
*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.
 EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

*2. Suitability of material please refer to page 2-2~4.



MVHB-300 Dimensions – Vertical type

HAND LEVER VALVE



MVHB-500 series

HAND LEVER VALVE

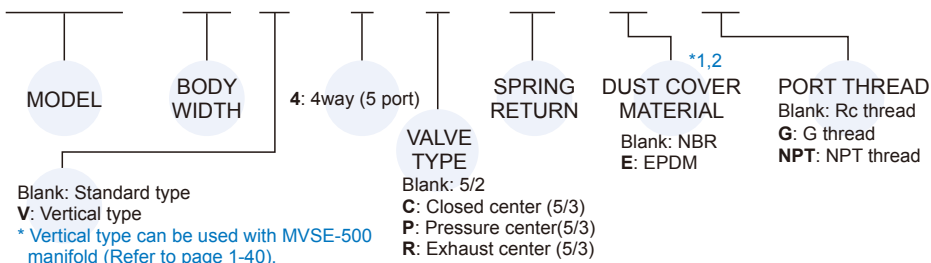


Specification

Model	MVHB-500(V)-4TV	MVHB-500(V)-4TV*
	MVHB-500(V)-4TV-SP	MVHB-500(V)-4TV*-SP
Bore No.	15A	
Port size	Rc1/2	
No. of port	5	
No. of position	2	3
Medium	Air	
Operating pressure range	0~1.2 MPa	
Effective orifice	41 mm ²	
Ambient temperature	-5~+60°C (No freezing)	
Weight	519 g	560 g

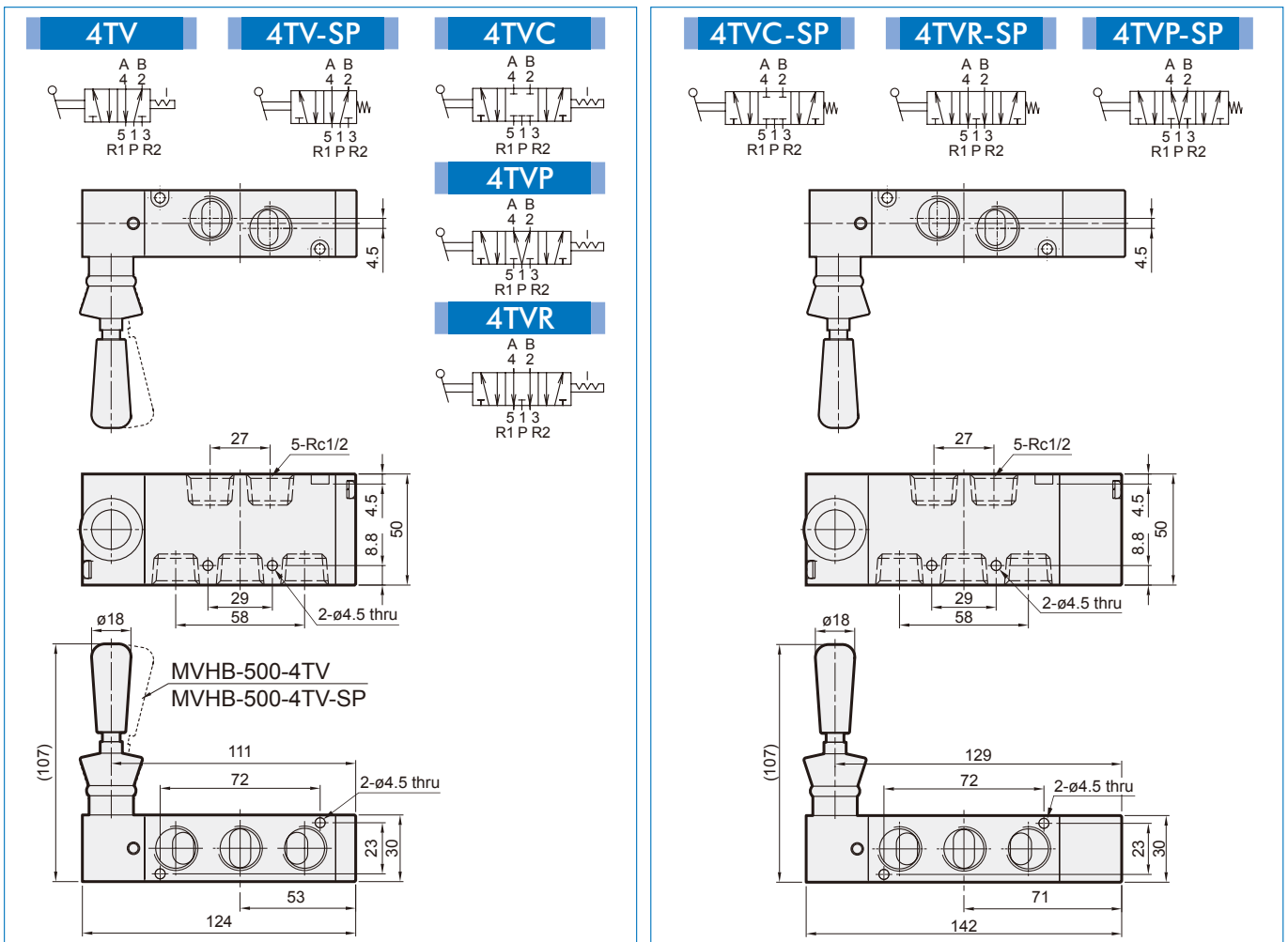
Order example

MVHB – 500V – 4TVC – SP – □ – G



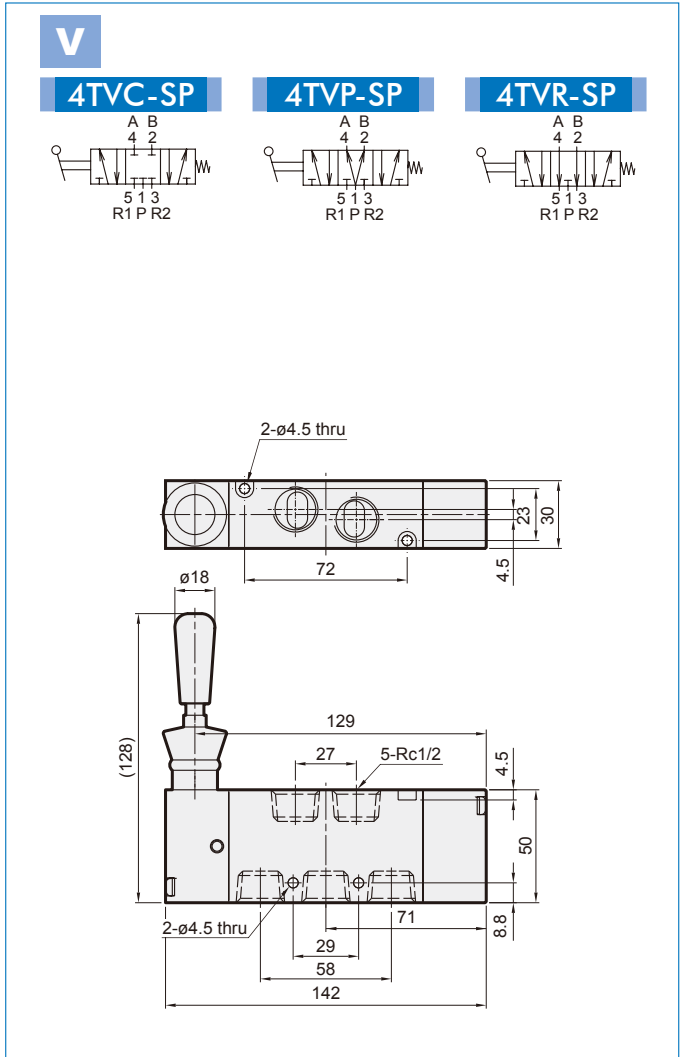
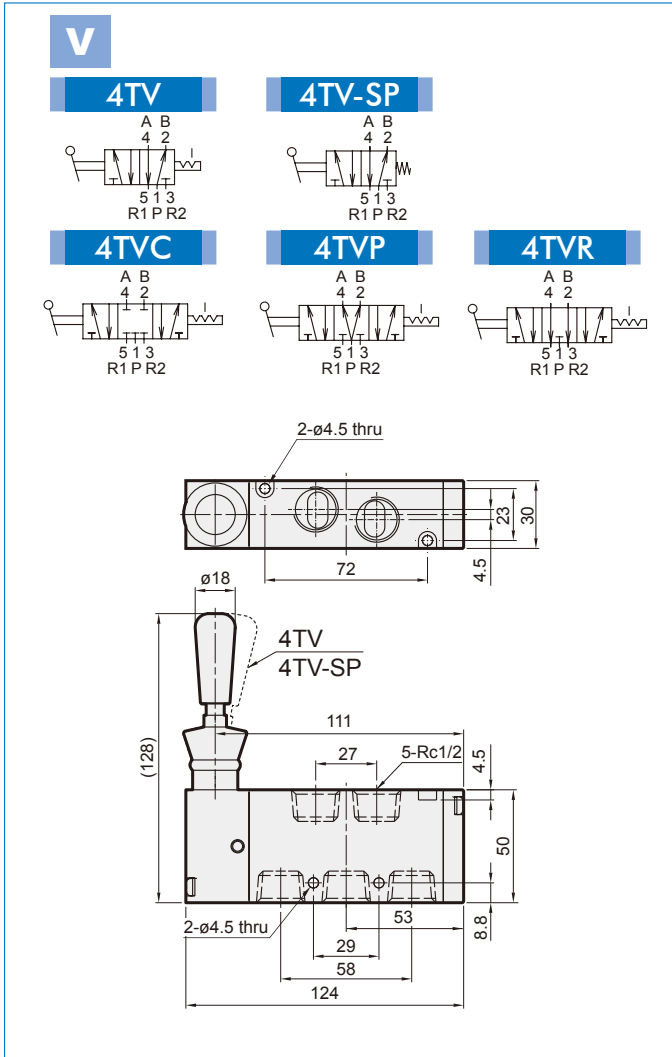
*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.
 EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

*2. Suitability of material please refer to page 2-2~4.



MVHB-500 Dimensions – Vertical type

HAND LEVER VALVE



MVHD-220 series

HAND LEVER VALVE



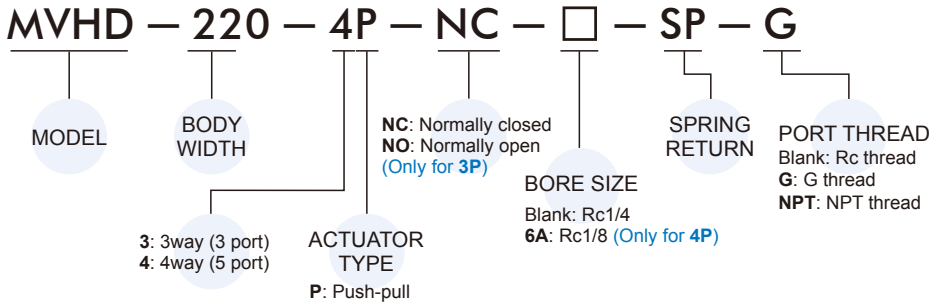
mindman



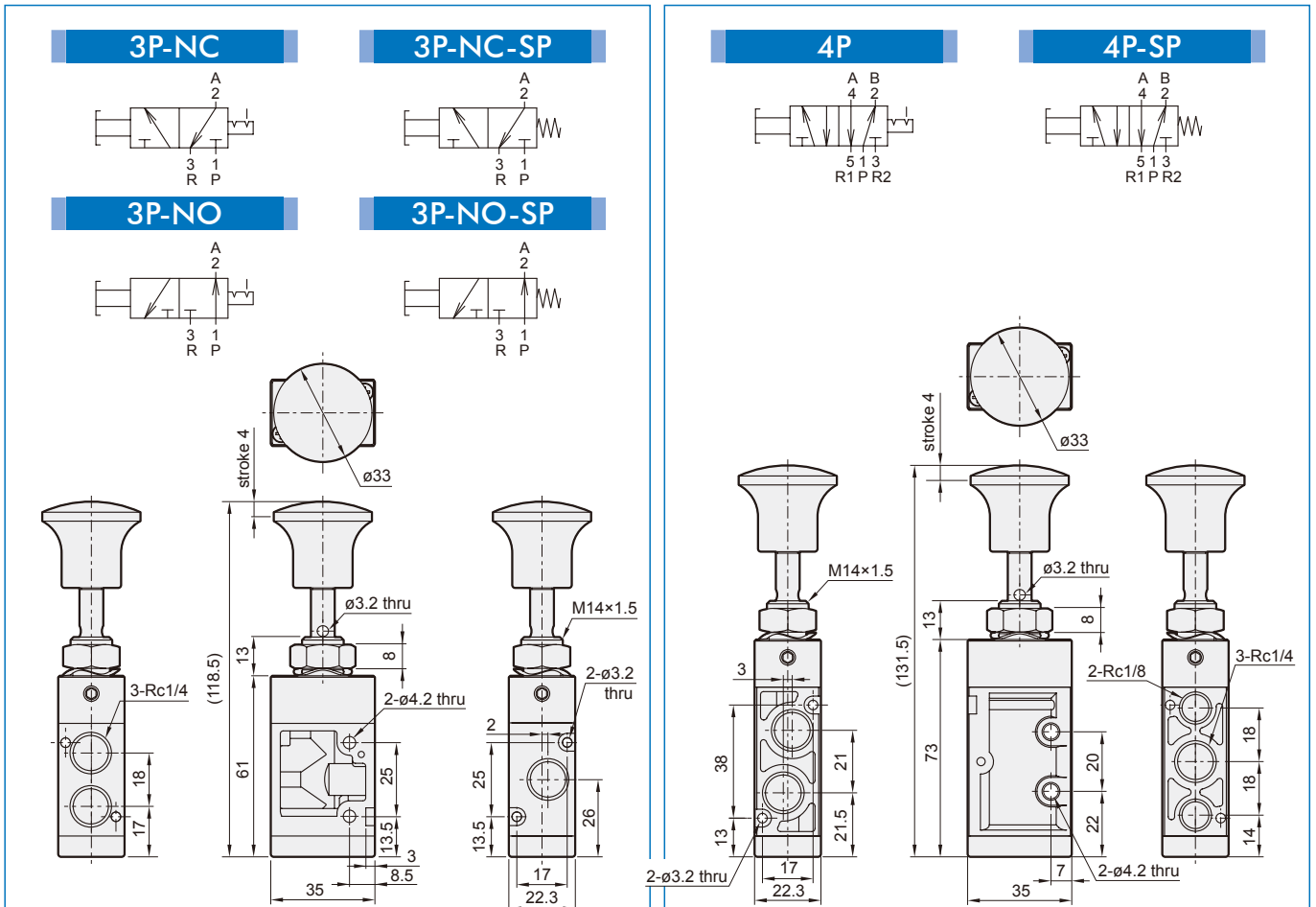
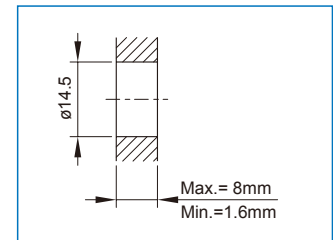
Specification

Model	MVHD-220-3P	MVHD-220-4P
Bore No.	8A	6A, 8A
Port size	Rc1/4	Rc1/8, Rc1/4
No. of port	3	5
No. of position	2	
Medium	Air	
Operating pressure range	0~0.8 MPa	
Effective orifice	18 mm ²	
Ambient temperature	-5~+50°C (No freezing)	
Weight	151 g	170 g

Order example



Panel mounting hole





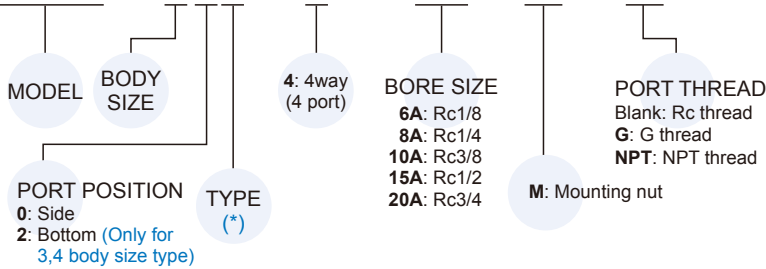
Specification

Model	MVHC-2**		MVHC-3**				MVHC-4**				
Bore No.	6A	8A	8A	10A	15A	8A	10A	15A	20A		
No. of port	4										
Medium	Air										
Operating pressure range	0.05~1 MPa										
Effective orifice (mm ²)	7	26	29	33	26	59	64	71			
Ambient temperature	-5~+60°C (No freezing)										
Option	Mounting nut										
Weight	280 g		420 g				1100 g				

Bore size	6A	8A	10A	15A	20A
Model	Rc1/8	Rc1/4	Rc3/8	Rc1/2	Rc3/4
MVHC-2**					
MVHC-3**					
MVHC-4**					

Order example

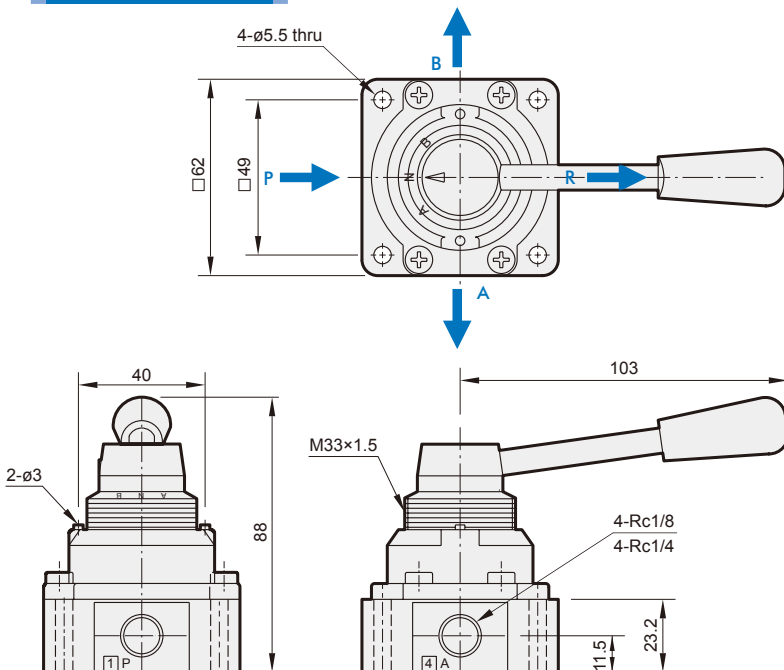
MVHC - 200 - 4H - 8A - □ - G



* TYPE

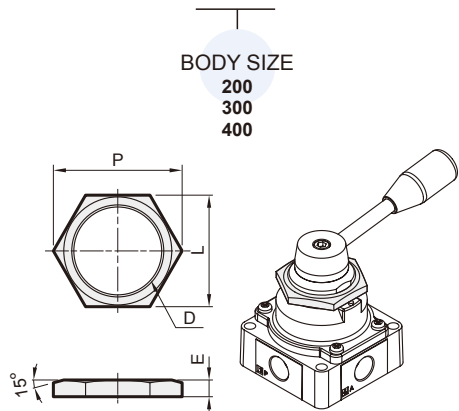
Code	Symbol	Description
0		3 Position Close center
1		3 Position Exhaust center
2		2 Position

MVHC-20*



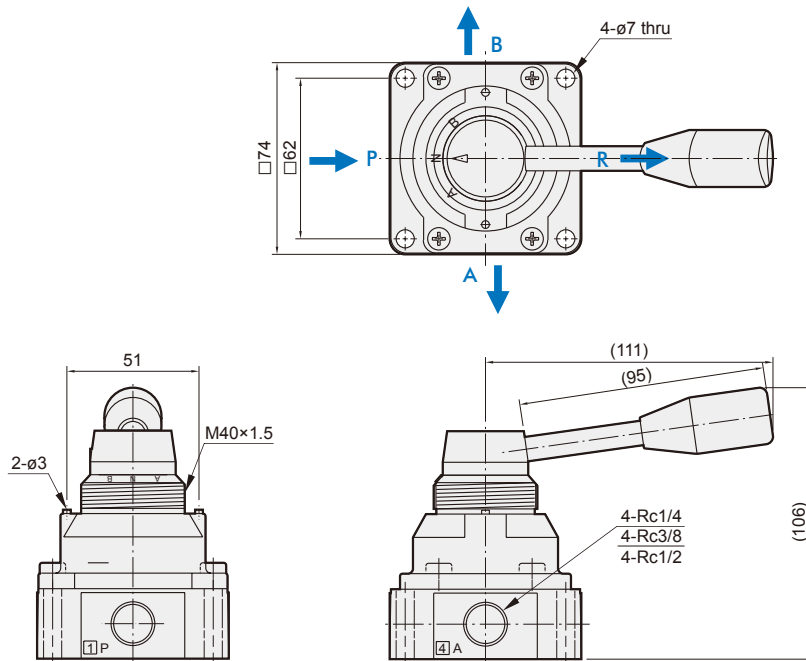
Order example of mounting nut

MVHC - 200 - M

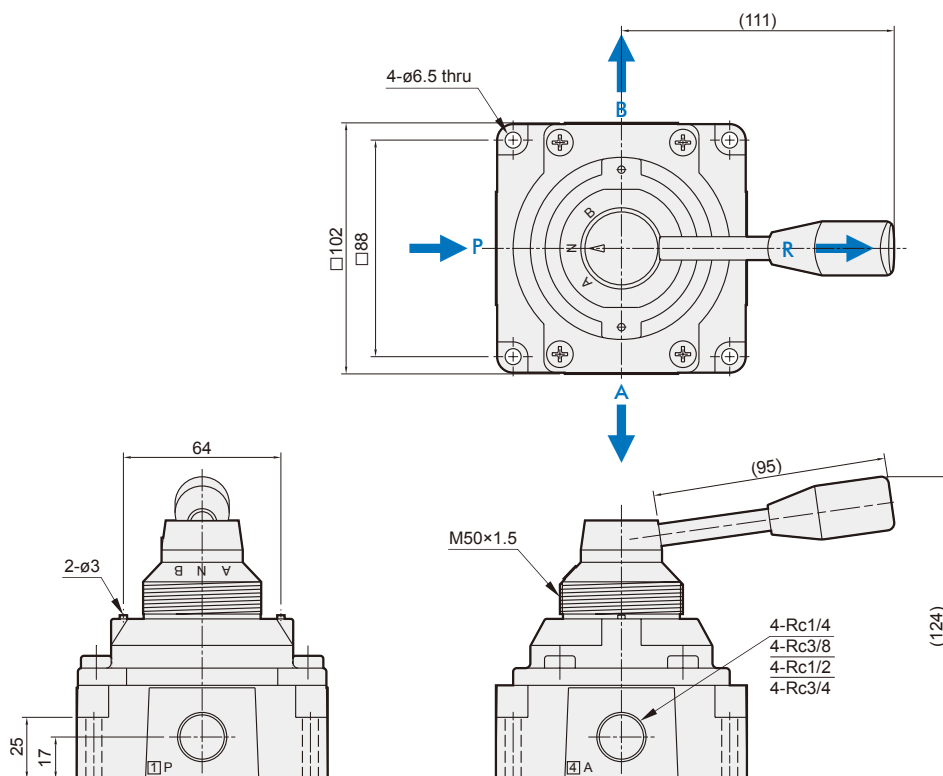


Model	D	E	L	P	Weight
MVHC-200-M	M33×1.5	6	41	46	26.5 g
MVHC-300-M	M40×1.5	6	50	57	41 g
MVHC-400-M	M50×1.5	8	55	63	40 g

MVHC-30*



MVHC-40*

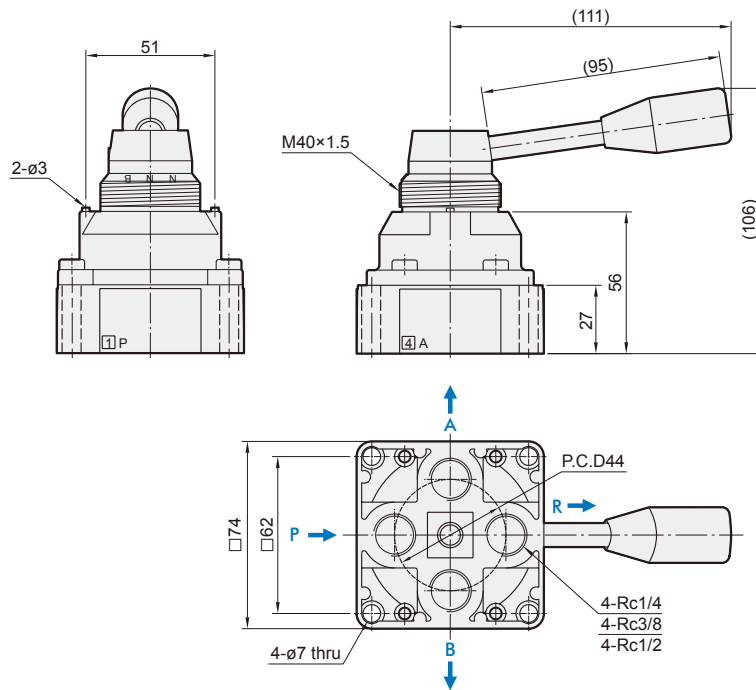


MVHC Dimensions

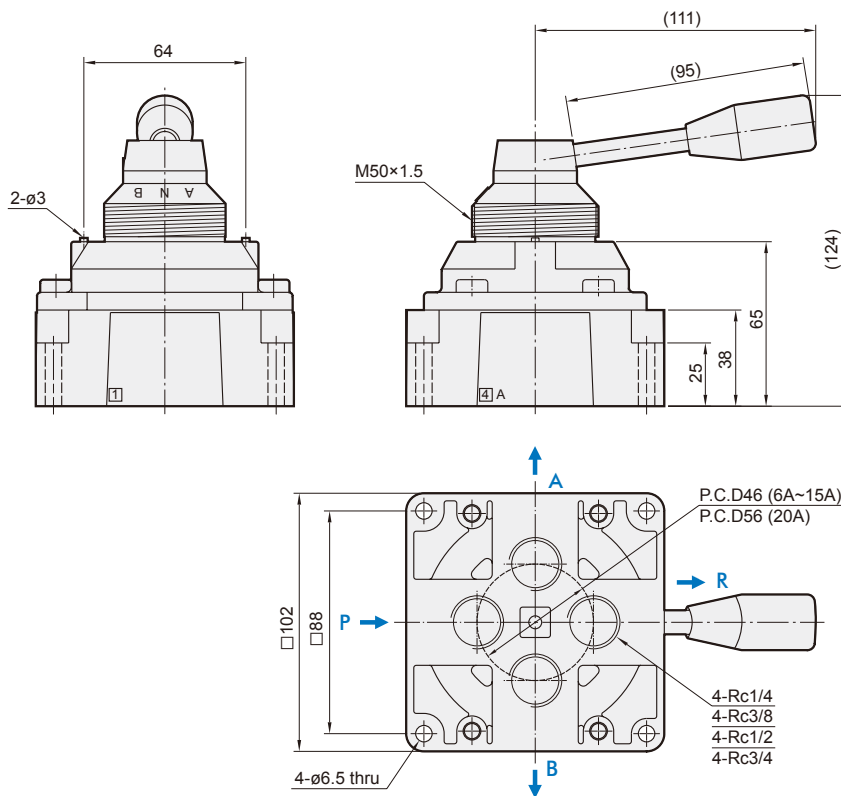
ROTARY HAND LEVER VALVE



MVHC-32*



MVHC-42*





Specification

Model	MVHS				
Bore No.	8A	10A	15A	20A	
Port size	R1/4	R3/8	R1/2	R3/4	
Medium	Air				
Operating pressure range	0.05~1 MPa				
Effective orifice (mm ²)	P→A	30.4	32.3	63.5	85.4
	A→R	34.1	36.8	71.7	90.7
Ambient temperature	-5~+60°C (No freezing)				
Weight	40 g	54 g	132 g	148 g	

Order example

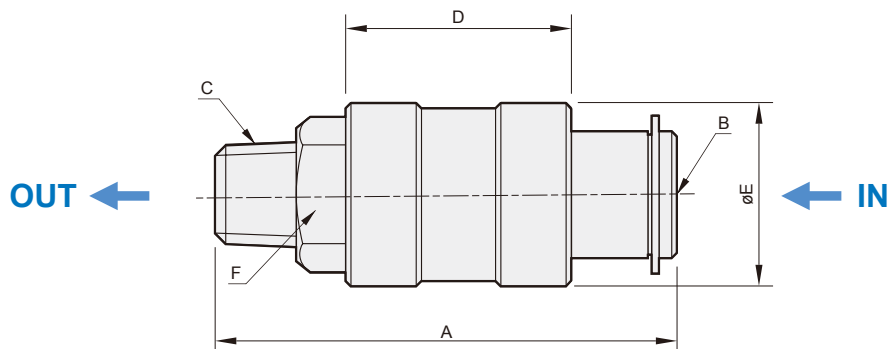
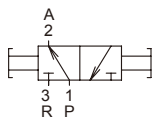
MVHS — 8A — G

MODEL

8A: R1/4
10A: R3/8
15A: R1/2
20A: R3/4

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

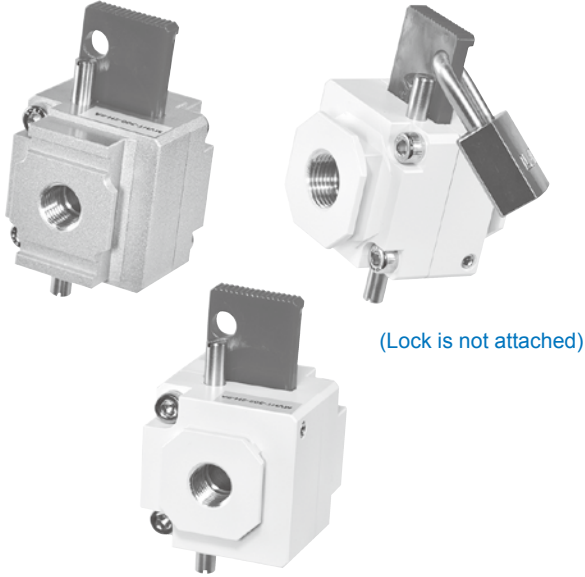
MVHS-*A



Code Model	A	B	C	D	E	F
MVHS-8A	58	Rc1/4	R1/4	32	25.5	∅19
MVHS-10A	57	Rc3/8	R3/8	32	31.5	∅22
MVHS-15A	91	Rc1/2	R1/2	49	38.5	∅27
MVHS-20A	91	Rc3/4	R3/4	49	42	∅35

MVHT series

SHUTOFF VALVE



Specification

Model	MVHT-300		MVHT-302, MVHT-400		
	8A	10A	8A	10A	15A
Bore No.	8A	10A	8A	10A	15A
Port size	Rc1/4	Rc3/8	Rc1/4	Rc3/8	Rc1/2
No. of port	3(2)				
No. of position	2				
Medium	Air				
Operating pressure range	0~1.5 MPa				
Proof pressure	2 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	230 g		249 g, 220 g		

Order example

MVHT - 300 - 3H - 8A - 1 - G

MODEL

MODEL for F.R.L

300: for MA**300 series
302: for MA**302 series
400: for MA**401, 403 series

8A: Rc1/4
10A: Rc3/8
15A: Rc1/2 (Only for MVHT-302 / 400)

PORT THREAD

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

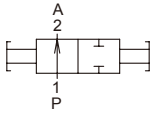
2H: 2way(2port)
3H: 3way(3port)
(Residual pressure release)

Apply to MVHT-400

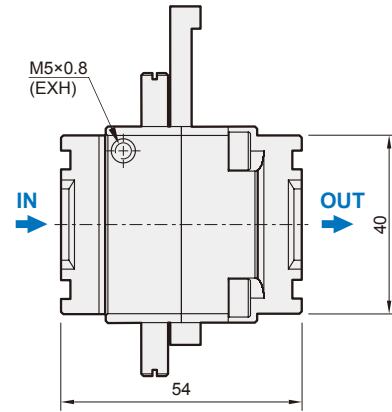
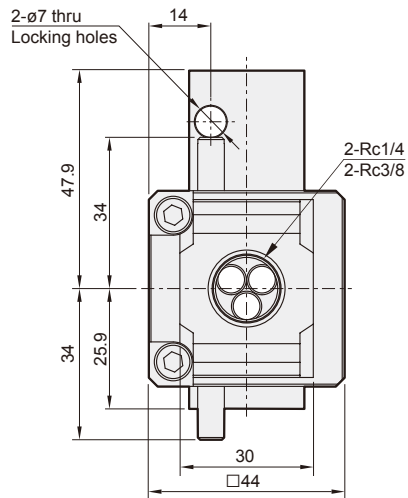
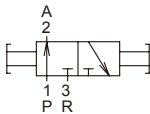
1: Silver (For air unit 401 series)
3: Cool gray (For air unit 401-W, 403 series)

MVHT-300

2H

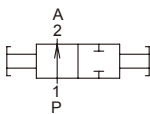


3H

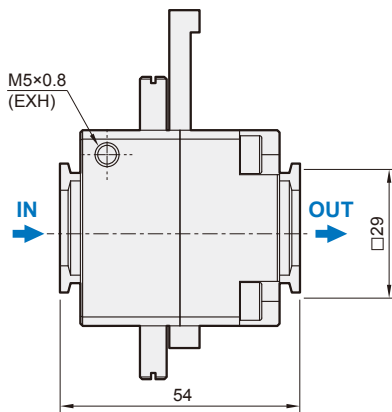
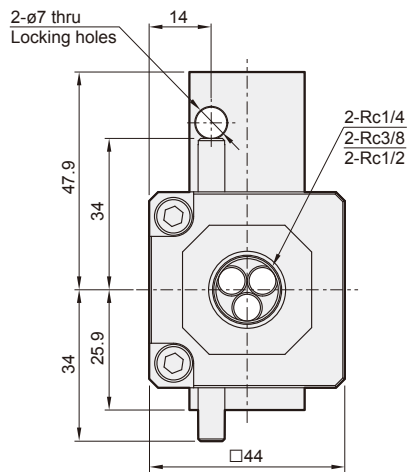
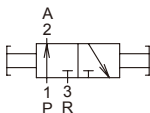


MVHT-302

2H

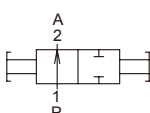


3H

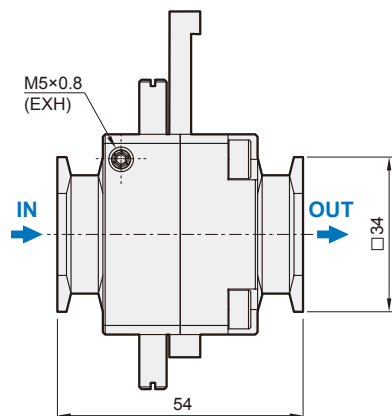
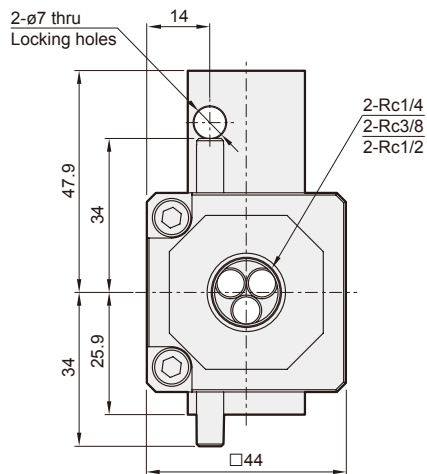
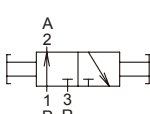


MVHT-400

2H



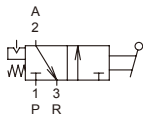
3H



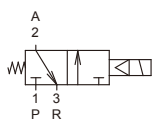


(Lock is not attached)

Symbol



Symbol



* Please note during trial operation and maintenance:
When the A port is open to the atmosphere, do not switch the valve to prevent leakage and malfunction of the seal ring due to flow force.

Specification – Manual type

Model	MVHR-300		MVHR-302 / 400		
	8A	10A	8A	10A	15A
Bore No.	8A	10A	8A	10A	15A
Port size	Rc1/4	Rc3/8	Rc1/4	Rc3/8	Rc1/2
No. of port	3				
No. of position	2				
Medium	Air				
Operating pressure range	0.1~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	323g		304g / 311g		

Specification – Solenoid type

Model	MVHR-300S		MVHR-302S / 400S		
	8A	10A	8A	10A	15A
Bore No.	8A	10A	8A	10A	15A
Port size	Rc1/4	Rc3/8	Rc1/4	Rc3/8	Rc1/2
No. of port	3				
No. of position	2				
Medium	Air				
Operating pressure range	0.15~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Voltage	AC110V, 220V (50/60)Hz, DC24V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W				
Available voltage range	±10%				
Insulation class	F class				
Weight	397g		378g / 385g		

Order example

MVHR – 300□ – 3H – 8A – 1 – DC24 – □ – B – G

MODEL

CONTROL MODEL
Blank: Manual type
S: Solenoid type

MODEL for F.R.L
300: for MA**300 series
302: for MA**302 series
400: for MA**401, 403 series

8A: Rc1/4
10A: Rc3/8
15A: Rc1/2 (Only for MVHR-302 / 400)

VOLTAGE
*Only for solenoid type
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

BRACKET
Blank: Without
B: With bracket

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

*Only for solenoid type
Blank: DIN connector
L: DIN connector with LED indicator
E: Explosion protection (Table 1) (E type use black coil)

3H: 3way(3port)
(Residual pressure release)

Apply to MVHR-400
1: Silver (For air unit 401 series)
3: Cool gray (For air unit 401-W, 403 series)

Order example of bracket

MVHR – 302 – B

BRACKET

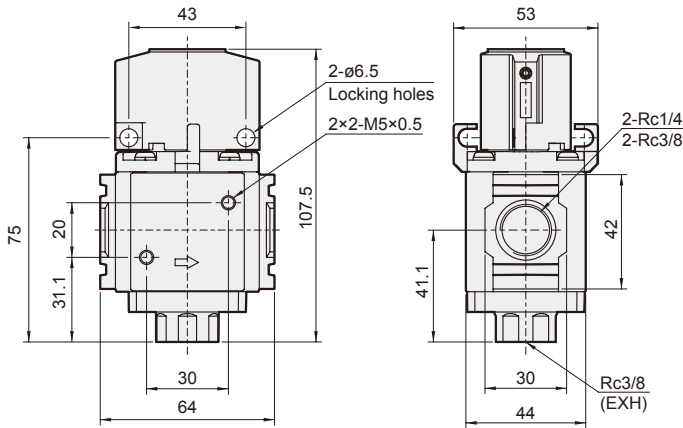
* 300, 302 and 400 use the same bracket.

Table 1

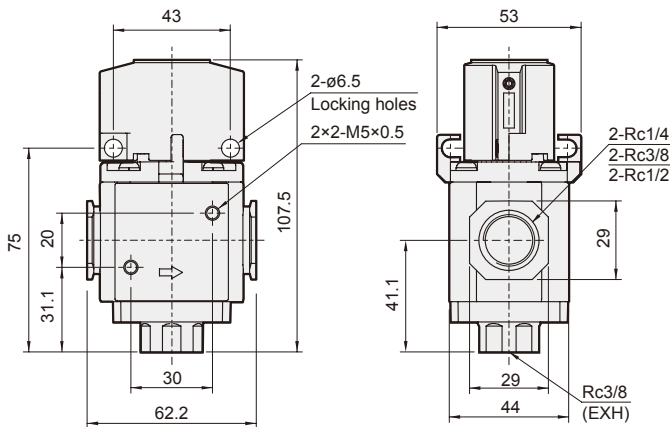
Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V, (50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

MVHR-300

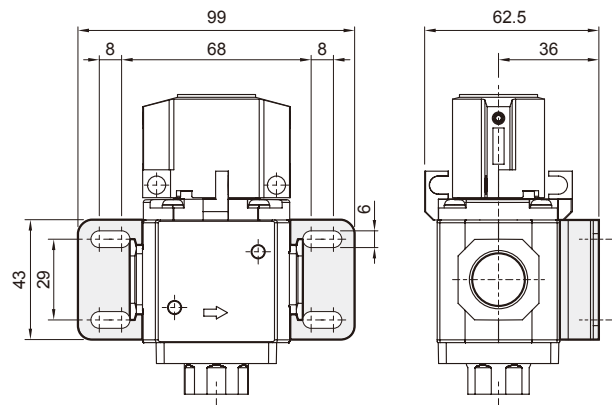


MVHR-302

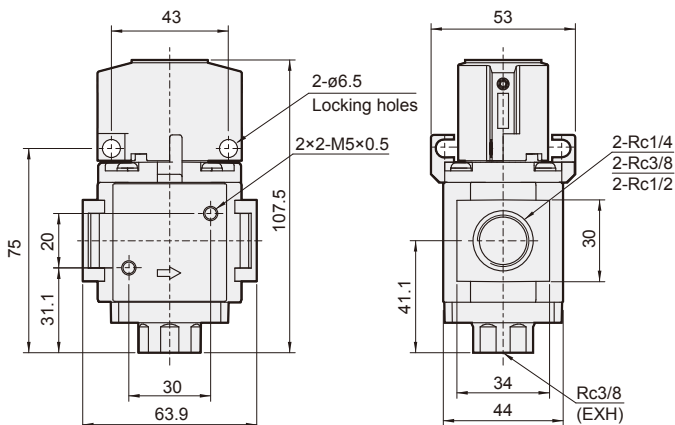


MVHR-*-B

Bracket



MVHR-400

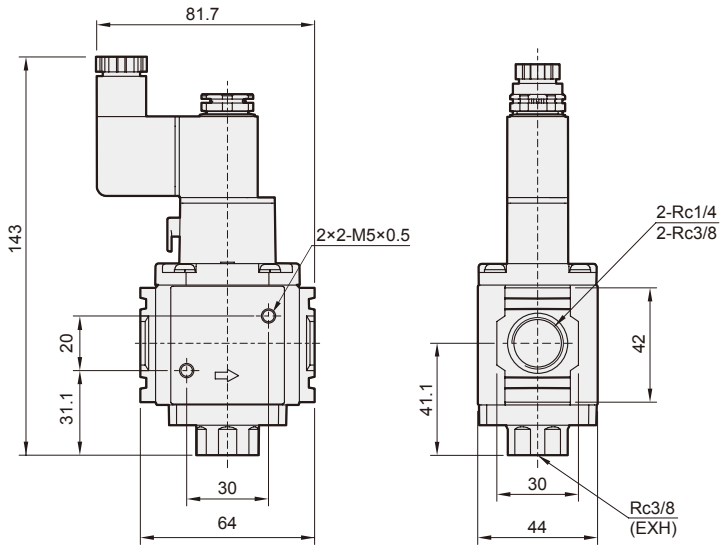


MVHR Dimensions – Solenoid type

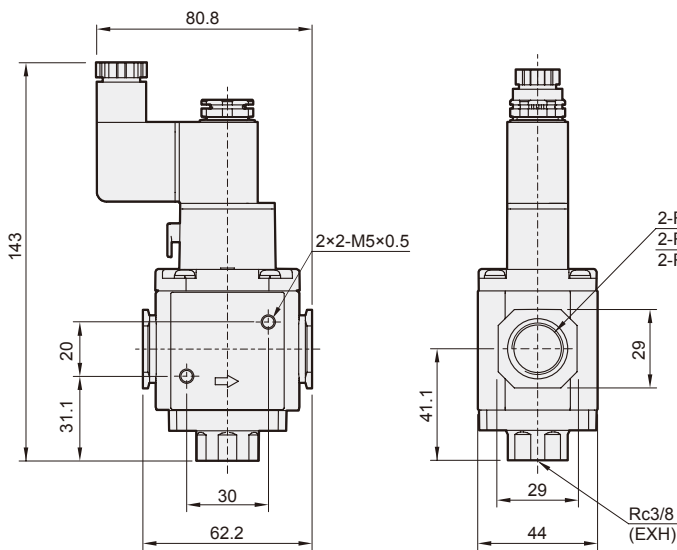


ON-OFF VALVE

MVHR-300S

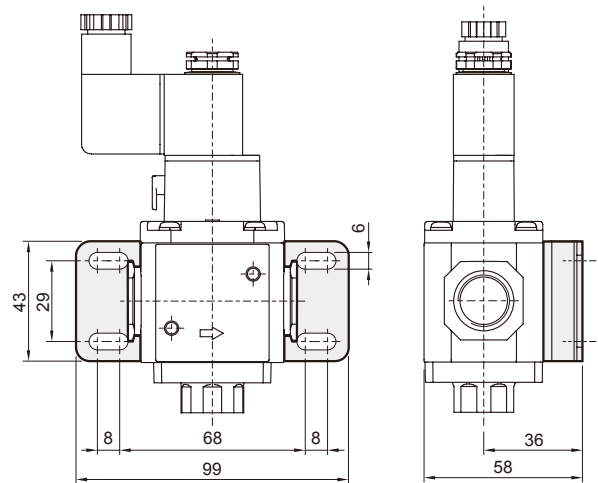


MVHR-302S

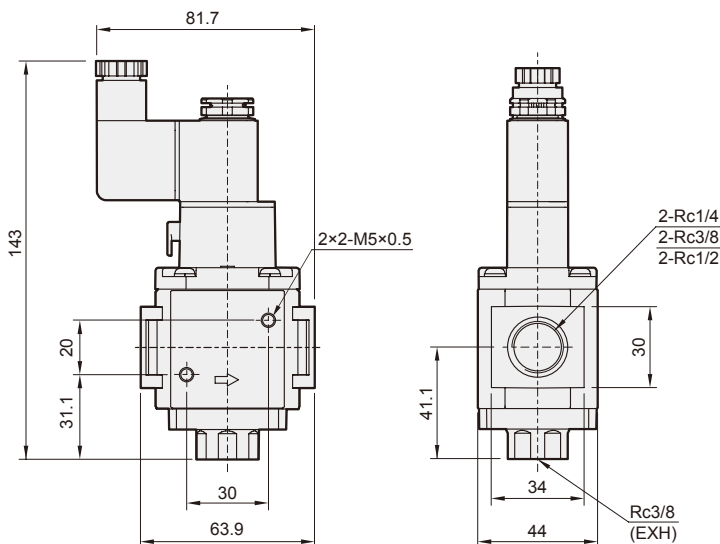


MVHR-*S-*-B

Bracket



MVHR-400S





Specification

Model	MVFA-230	MVFA-231	MVFA-240
Bore No.	8A		
Port size	Rc1/4		
No. of port	3		4
No. of position	2		
Medium	Air		
Operating pressure range	0.2~0.7 MPa		
Proof pressure	1 MPa		
Effective orifice	8 mm ²		
Ambient temperature	-5~+60°C (No freezing)		
Weight (with protection)	684 (1426) g	739 (1481) g	774 (1516) g

Order example

MVFA — 230 — 8A — PL — G

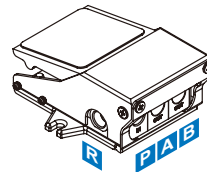
MODEL

230: 3/2 NC
231: 3/2 NO
240: 4/2

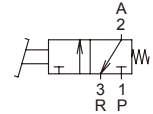
8A: Rc1/4

P: With protection
L: With lock

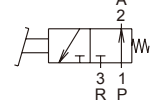
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread



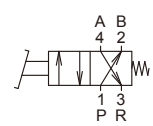
MVFA-230
N.C.



MVFA-231
N.O.



MVFA-240

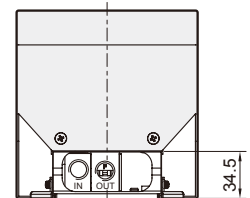
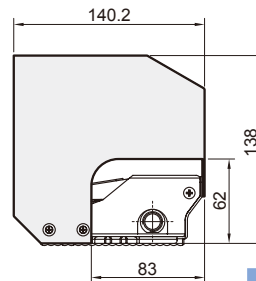
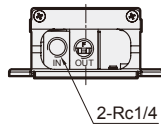
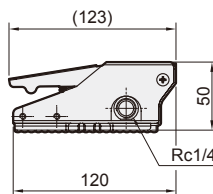
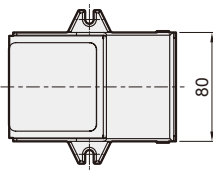


MVFA-230-8A-(L)

MVFA-231-8A-(L)

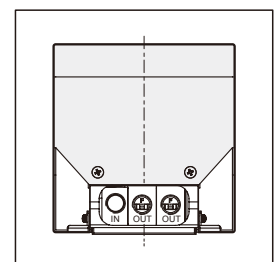
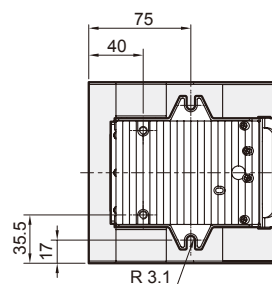
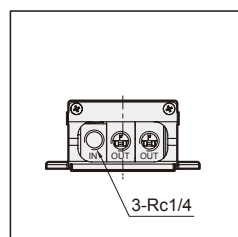
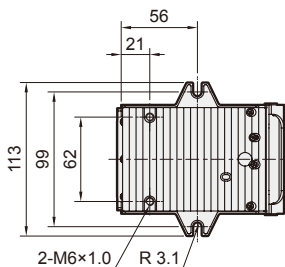
MVFA-230-8A-P(L)

MVFA-231-8A-P(L)



MVFA-240-8A-(L)

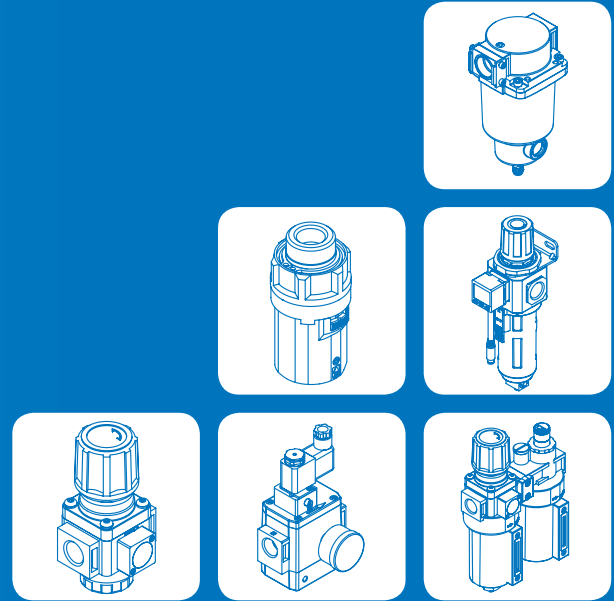
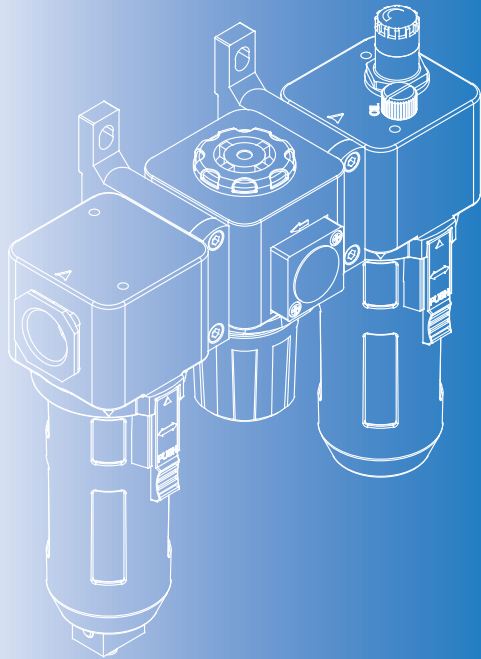
MVFA-240-8A-P(L)





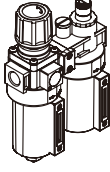
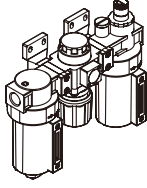
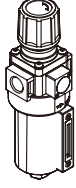
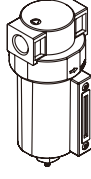
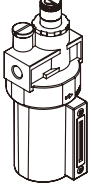


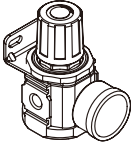
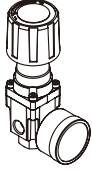
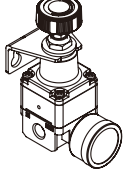
AIR UNITS

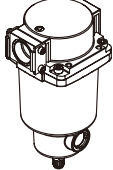


	Selector Table	4-2							
	F.R.L. UNIT								
MAC*	MACP200.....	4-11	FMRF	FMRF300.....	4-58	MAL	MAL200.....	4-96	
	MACP302.....	4-13	MADV	MADV400.....	4-58		MAL302.....	4-97	
	MACP401.....	4-16		FILTER ELEMENT			MAL401.....	4-98	
	MACP403.....	4-19	E*	.....	4-59		MAL403.....	4-99	
	MACP501	4-21		FILTER for TURBINE TYPE			MAL501	4-100	
	MACT200	4-23	MWC	MWC-1000/4000.....	4-60		MAL900.....	4-101	
	MACT302	4-25		PRESSURE REDUCING VALVE		MAF	AIR / MIST / MICRO MIST FILTER		
	MACT401.....	4-27	MAR	MAR100	4-64		Selector Table	4-102	
	MACT403.....	4-29		MAR200	4-65		MAF302D/M.....	4-103	
	MACT501	4-31		MAR201	4-67		MAF401A/D/M	4-105	
	F.R. UNIT			MAR302.....	4-69		MAFF401AD/DM.....	4-107	
MAFR	MAFR100.....	4-33		MAR401.....	4-71		MAFRF401.....	4-108	
	MAFR200.....	4-34		MAR403.....	4-73		MATFR401.....	4-109	
	MAFR302.....	4-36		MAR501	4-75	MAM*	MAF501D/M	4-110	
	MAFR401.....	4-39		MAR900.....	4-76		Feature.....	4-112	
	MAFR403.....	4-41		MAR901.....	4-77		MAMG25/35/45/55 New	4-116	
	MAFR501	4-43	MAHR	MAHR200 New	4-78		MAMB25/35/45/55 New	4-118	
	FILTER			HAND-HELD REGULATOR			MAMD25/35/45/55 New	4-120	
MAF	MAF200	4-45		MAR*	MAR300LK.....	4-79	MAMM25/35/45/55 New	4-122	
	MAF302	4-46		ELECTRO PNEUMATIC REGULATOR			MAMF25/35/45/55 New	4-124	
	MAF401	4-48	MAER	Feature.....	4-80	MAVS	SOFT START-UP VALVE		
	MAF403	4-49		MAER200 New	4-83		MAVS200/300/400	4-128	
	MAF501	4-50		PRECISION REGULATOR			HIGH EFFICIENCY COMPRESSED AIR FILTER		
	MAF900	4-52	MAIR	Feature.....	4-88	MJ*	MJF/MJL	4-132	
	MAF901	4-53		MAIR100.....	4-90		DIGITAL CONDENSATION REMOVAL TIMER		
	AUTO DRAINER			MAIR200.....	4-92	M**	MBS/MCS/MBD	4-134	
MAD	MAD401	4-54		MAIR300 New	4-94				
	MAD401H.....	4-55							
	MAD500.....	4-56							
	MAD501.....	4-57							

Family

Model	MACP	MACT	MAFR	MAF	MAL
Pictures					
100			●		
200	●	●	●	●	●
200L	●	●	●	●	●
302	●	●	●	●	●
401	●	●	●	●	●
403	●	●	●	●	●
501	●	●	●	●	●
900				●	●
901				●	

Model	MAR	MAHR	MAIR
Pictures			
100	●		●
200	●	●	●
200L	●		
201	●		
302	●		
401	●		
403	●		
501	●		
900	●		
901	●		

Model	MAM*
Pictures	
25	●
35	●
45	●
55	●

Selector table

● Standard type ◎ Option

Port size									Series	Drain type		
M5	6A	8A	10A	15A	20A	25A	40A	50A		Manual	Semi-automatic	Automatic
●									100		●	
	●	●							200		●	
	●	●							200L		●	
	●	●							201			
		●	●	●					302		●	◎
		●	●	●					401		●	◎
		●	●	●					403		●	◎
					●	●			501		●	◎
							●		900	●		◎
								●	901	●		◎
		●	●						25		●	◎
			●	●					35		●	◎
				●	●				45		●	◎
					●	●			55		●	◎

Selector table

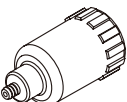
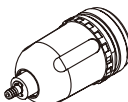
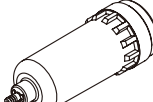
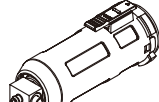
● Standard type ◎ Option

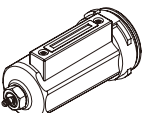
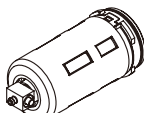
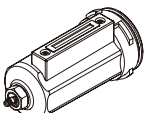
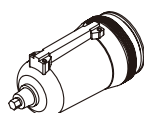
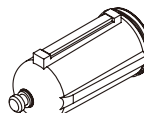
MAR Regulation (Adjustable pressure)						Series	MAF / MAM* Filter (Filter element)							
1K	2K	3K	4K	8.5K	15K		0.01 μ	0.3 μ	3 μ	5 μ	20 μ	40 μ	50 μ	Water separator	0.01 μ + Deodorization
				●		100			●		◎			
◎	◎	◎	◎	●		200			◎		●			
				●		200L			◎		●			
◎	◎	◎	◎	●		201								
				●		302	◎	◎	●		◎			
				●	◎	401	◎	◎	◎		●			
				●		403			◎		●			
				●		501	◎	◎			●			
				●		900						●		
				●		901						●		
						25	●	●	●				●	●
						35	●	●	●				●	●
						45	●	●	●				●	●
						55	●	●	●				●	●

MAHR / MAIR Regulation (Adjustable pressure)					Series
2K	4K	8K	10K	27K	
			●	◎	MAHR200
●	●	●			MAIR100
●	●	●			MAIR200
●	●	●			MAIR300

Bowl assembly (MAFR, MAF series)

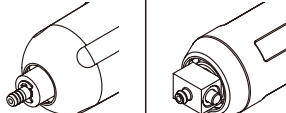
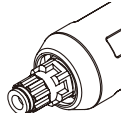
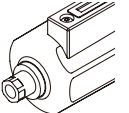
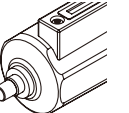
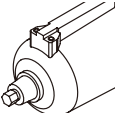
● Standard type ◎ Option

Series	100		200		200L		302	
Fig								
Order example	BOWL-MAFR100		BOWL-MAF200-¹₂		BOWL-MAF200L-¹		BOWL-MAF302-¹₂³	
Applicable model	MAFR100		MAFR200, MAF200		MAFR200L, MAF200L		MAFR302, MAF302	
¹ Bowl	PC	-	●		●		●	
	Metal	M	◎		◎		◎	
	Nylon	N	◎		◎		◎	
² Bowl Guard	None	-	◎		◎		◎	
	U	-	●		●		●	
³ Drain valve	-	●	●		●		●	
	D2	◎	◎		◎		◎	

Series	401		403		501		900		901	
Fig										
Order example	BOWL-MAF401(-W)-³		BOWL-MAF403-¹₂³		BOWL-MAF401-W-³		BOWL-MAF900-³		BOWL-MAF901-³	
Applicable model	MAFR401(-W), MAF401(-W)		MAFR403, MAF403		MAFR501, MAF501		MAFR501-M, MAF501-M		MAF900	
¹ Bowl	PC	-	●		◎		◎		◎	
	Metal	M	●		●		●		●	
	Nylon	N	◎		◎		◎		◎	
² Bowl Guard	None	-	◎		◎		◎		◎	
	U	-	●		●		●		●	
³ Drain valve	-	●	●		●		●		●	
	D2	◎	◎		◎		◎		◎	
	D3	◎	◎		◎		◎		◎	
	D4	◎	◎		◎		◎		◎	
	D7	◎	◎		◎		◎		◎	

*Order example: **BOWL-MAF400-NUD2** (N: Nylon, U: Bowl guard, D2: Auto drain valve)

Drain valve (for MAFR, MAF series)

Auto drain valve	Blank		D2	D3	D4	D7
Fig						
Description	Semi-auto drain		FMRF300	MADV400-WA (Female thread)	MADV400-WB (Male thread)	SN-2636-01

Bowl assembly (MAL series)

● Standard type ◎ Option

Series			200	200L	302	302	401
Fig							
Order example			BOWL-MAL200-¹₂	BOWL-MAL200L-¹	BOWL-MAL302-¹₂	BOWL-MAL302-M	BOWL-MAL401(-W)
Applicable model			MAL200	MAL200L	MAL302	MAL302-M	MAL401(-W)
¹ Bowl	PC	-	●	●	●		
	Metal	M		◎		●	●
	Nylon	N	◎	◎	◎		
² Bowl	None	-	◎		◎		
	Guard	U	●		●		

Series			403	501		900
Fig						
Order example			BOWL-MAL403-¹₂	BOWL-MAL403-¹₂	BOWL-MAL401-W	BOWL-MAL900
Applicable model			MAL403	MAL501	MAL501-M	MAL900
¹ Bowl	PC	-	●	●		
	Metal	M			●	●
	Nylon	N	◎	◎		
² Bowl	None	-	◎	◎		
	Guard	U	●	●		

*Order example: **BOWL-MAL302-NU** (N: Nylon, U: Bowl guard)

Bowl material (Caution for safety)

Effects of atmosphere of organic solvents and chemicals, and where these elements are likely to adhere to the equipment. Chemical data for substances causing degradation (Reference)

Type	Chemical name	Application examples	Material	
			Polycarbonate	Nylon
Acid	Hydrochloric acid, Chromic acid Sulfuric acid, Phosphoric acid	Acid washing liquid for metals	△	×
Alkaline	Sodium hydroxide (Caustic soda) Calcium hydroxide (Slack lime) Potash, Ammonia water Carbonate of soda	Degreasing of metals Industrial salts Water-soluble cutting oil	×	○
Inorganic salts	Sodium sulfide, Potassium nitrate Sulfate of soda	—	×	△
Chlorine solvents	Carbon tetrachloride, Chloroform Ethylene chloride, Methylene chloride	Cleansing liquid for metals Printing ink, Dilution	×	△
Aromatic series	Benzene, Toluene, Paint thinner	Coatings, Dry cleaning	×	△
Ketone	Acetone, Cyclohexane Methyl ethyl ketone	Photographic film Dry cleaning, Textile industries	×	×
Alcohol	Ethyl alcohol, IPA, Methyl alcohol	Anti-freeze, Adhesives	△	×
Oil	Gasoline, Kerosene	—	×	○
Ester	Dimethyl phthalate Diethyl phthalate, Acetic acid	Synthetic oil Anti-rust additives	×	○
Ether	Methyl ether, Ethyl ether	Brake oil additives	×	○
Amino	Methyl amino	Cutting oil, Brake oil additives Rubber accelerant	×	×
Others	Thread-lock fluid, Seawater, Leak tester	—	×	△

○ : Essentially safe △ : Some effects may occur. × : Effects will occur.

* When the above factors are present, or there is some doubt, use a metal bowl for safety.

MAL lubrication (Caution for safety)

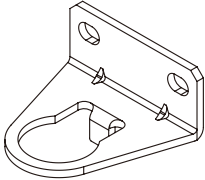
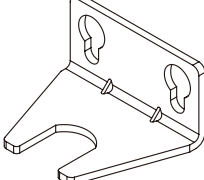
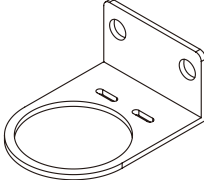
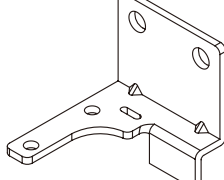
When supplying lubrication, use class 1 turbine oil (with no additive) ISO VG32, or class 2 turbine oil ISO VG32 in the following table. Without continued lubrication during manufacturing, malfunctions could occur. If turbine oil is used, refer to the Material Safety Data sheet (SDS) of the turbine oil. (Reference)

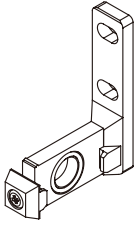
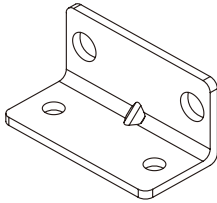
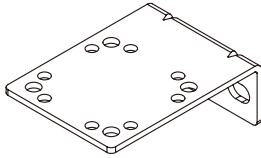
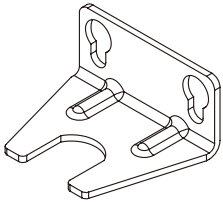
Lubricant brands	Manufacturer	Viscosity Grades
Super turbine oil 32	Idemitsu Kosan	ISO VG32
Mobil DTE LIGHT	Exxon Mobil Corporation	ISO VG32
Mobil rarus 424	Exxon Mobil Corporation	ISO VG32
GII 32	Formosa Petrochemical Corporation	ISO VG32
Turbo T 32	Royal Dutch Shell	ISO VG32
R32	CPC Corporation	ISO VG32

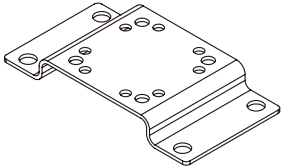
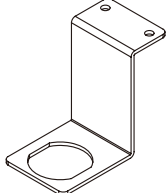
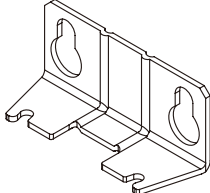
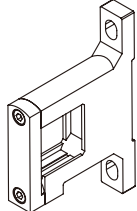
* Do not add additives. This may affect the operation of the product.

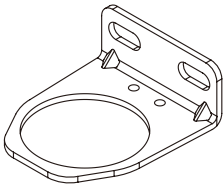
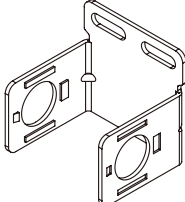
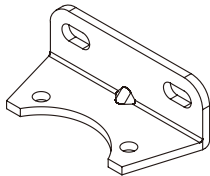
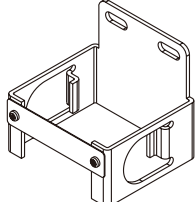
* The name of the lubricant manufacturer and the lubricant brand may change. Please contact each of the companies for details.

Bracket

Order example	B1-MAR100	B1-MAIR100	B1-MAR200	B1-MAL200 (*)
Pictures				
Applicable model	MAR100, MAFR100	MAIR100	MACP200, MACT200 MAFR200, MAR200 MAR201	MAL200

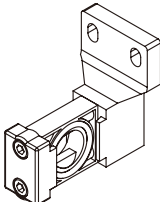
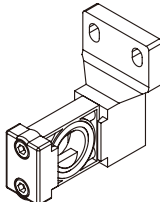
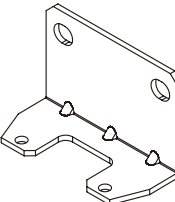
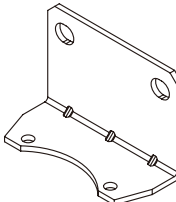
Order example	BL-MACP200	B1-MAF200 (*)	B1-MAER200	B1-MAIR200
Pictures				
Applicable model	MACP200, MACT200	MAF200	MAER200	MAIR200

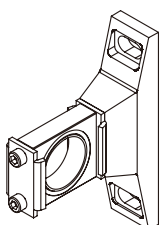
Order example	B2-MAER200	B3-MAR200	B1-MAIR300	BT-MACP302
Pictures				
Applicable model	MAER200	MAFR200, MAR200 MAR201	MAIR300	MACP302, MACT302 MAIR200, MAER200

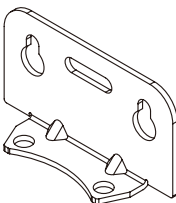
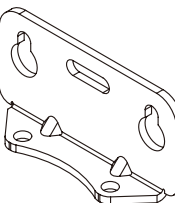
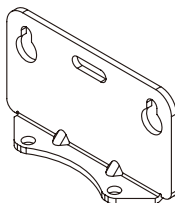
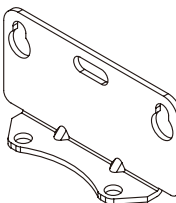
Order example	B1-MAR302	B2-MAF302	B1-MAR401	B2-MAF401
Pictures				
Applicable model	MAFR302, MAR302	MAL302, MAF302	MAFR401, MAR401 MAFR403, MAR403	MAF401, MAL401 MAF403, MAL403

* Order **B1-MAL200**, **B1-MAF200** please note that the body need have the fixed threaded holes collocating with bracket.

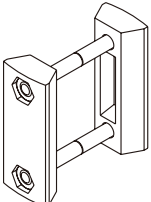
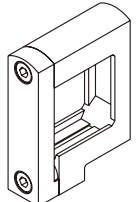
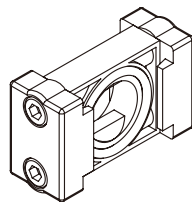
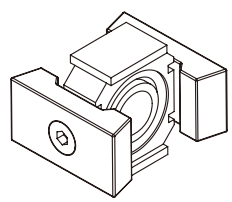
Bracket

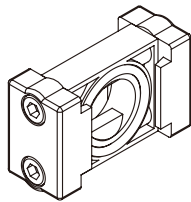
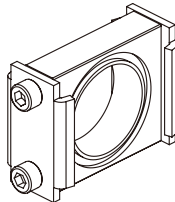
Order example	BL-MACP401	BL-MACP403	B1-MAR501	B1-MAF501
Pictures				
Applicable model	MACP401, MACT401	MACP401-W, MACT401-W MACP403, MACT403, MAIR300	MAR501, MAFR501	MAF501, MAL501

Order example	BT-MACP501
Pictures	
Applicable model	MACP501, MACT501

Order example	B1-MAMG25	B1-MAMG35	B1-MAMG45	B1-MAMG55
Pictures				
Applicable model	MAM*25	MAM*35	MAM*45	MAM*55

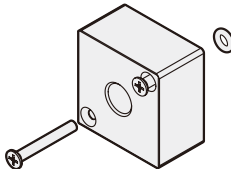
Joiner set

Order example	BS-MACP300	BS-MACP302	BS-MACP401	BS-MACP402
Pictures				
Applicable model	MACP300, MACT300 MACP300L, MACT300L	MACP302, MACT302 MAIR200, MAER200	MACP401, MACT401	MACP402, MACT402

Order example	BS-MACP403	BS-MACP501
Pictures		
Applicable model	MACP401-W, MACT401-W MACP403, MACT403, MAM*25, MAM*35	MACP501, MACT501 MAM*45, MAM*55

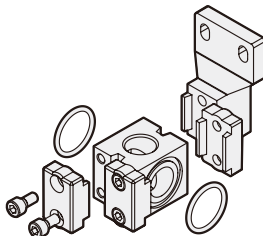
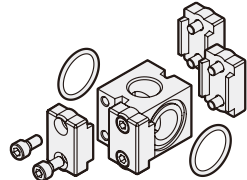
Gauge adapter set *Order example: A-MAR302-NPT

● Standard type ◎ Option

	Applicable model	Order example	Port thread	
			—	NPT
			Rc thread	NPT thread
	MAR302, MAFR302	A-MAR302-□	●	◎
	MAR401, MAFR401	A-MAR401-□	●	◎
	MAR401-W, MAFR401-W MAR403, MAFR403 MAR501, MAFR501	A-MAR302-□ (Shared with 302)	●	◎

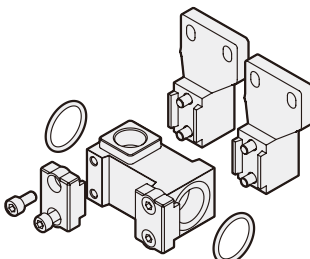
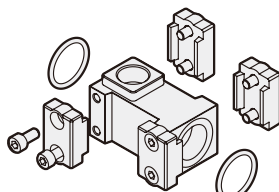
T type module mounting bracket *Order example : T8-MACP302-G

● Standard type ◎ Option

	Applicable model	Order example	Port size		Port thread	
			T8,T10	T15	—	G, NPT
			1/4, 3/8	1/2	Rc thread	G,NPT thread
	MACP302, MACT302	T8/T10/T15-MACP302-□	◎	◎	●	◎
	MACP401, MACT401	T8/T10/T15-MACP401-□	◎	◎	●	◎
	MACP401-W, MACT401-W MACP403, MACT403	T8/T10/T15-MACP403-□				
	MACP501, MACT501	T8/T10/T15-MACP501-□	◎	◎	●	◎
	MAM*25, MAM*35	T8/T10/T15-MAMG25-□	◎	◎	●	◎
	MAM*45	T8/T10/T15-MAMG45-□	◎	◎	●	◎

Check valve *Order example : K8-MACP401-G

● Standard type ◎ Option

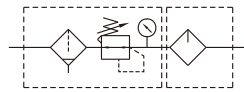
	Applicable model	Order example	Port size	Port thread	
			K8,K10	—	G, NPT
			1/4, 3/8	Rc thread	G,NPT thread
	MACP302, MACT302	K8/K10-MACP302-□	◎	●	◎
	MACP401, MACT401	K8/K10-MACP401-□			
	MACP401-W, MACT401-W MACP403, MACT403	K8/K10-MACP403-□			
	MAM*25, MAM*35	K8/K10-MAMG25-□	◎	●	◎

MACP200 series

AIR UNIT (F.R.L.UNIT)



Symbol

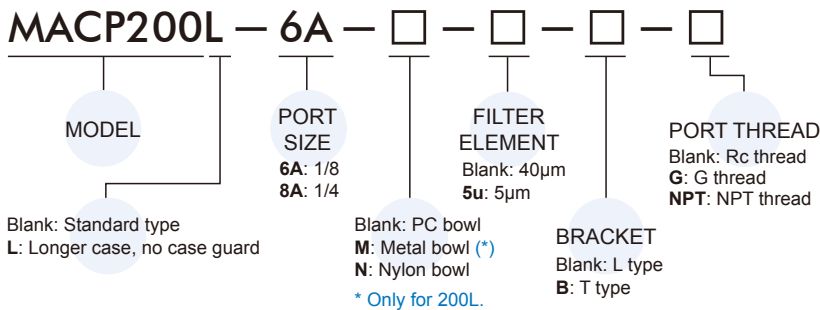


Specification

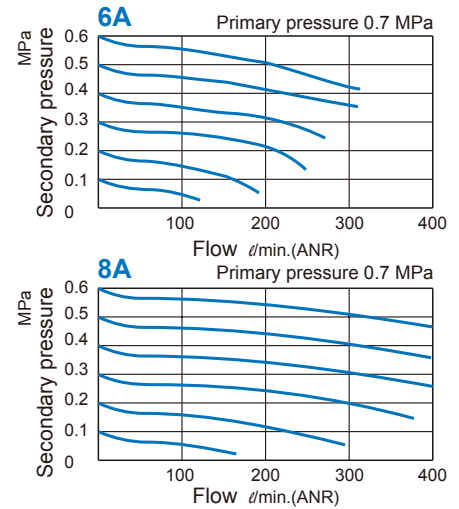
Model	MACP200	
Components	MAFR200, MAL200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	Standard: 40μm, Option: 5μm	
Lubricating oil capacity	20c.c, 35c.c (MACP200L)	
Min. flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-40), L-type bracket	
Weight	432 g, 380 g (MACP200L)	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example



Flow feature



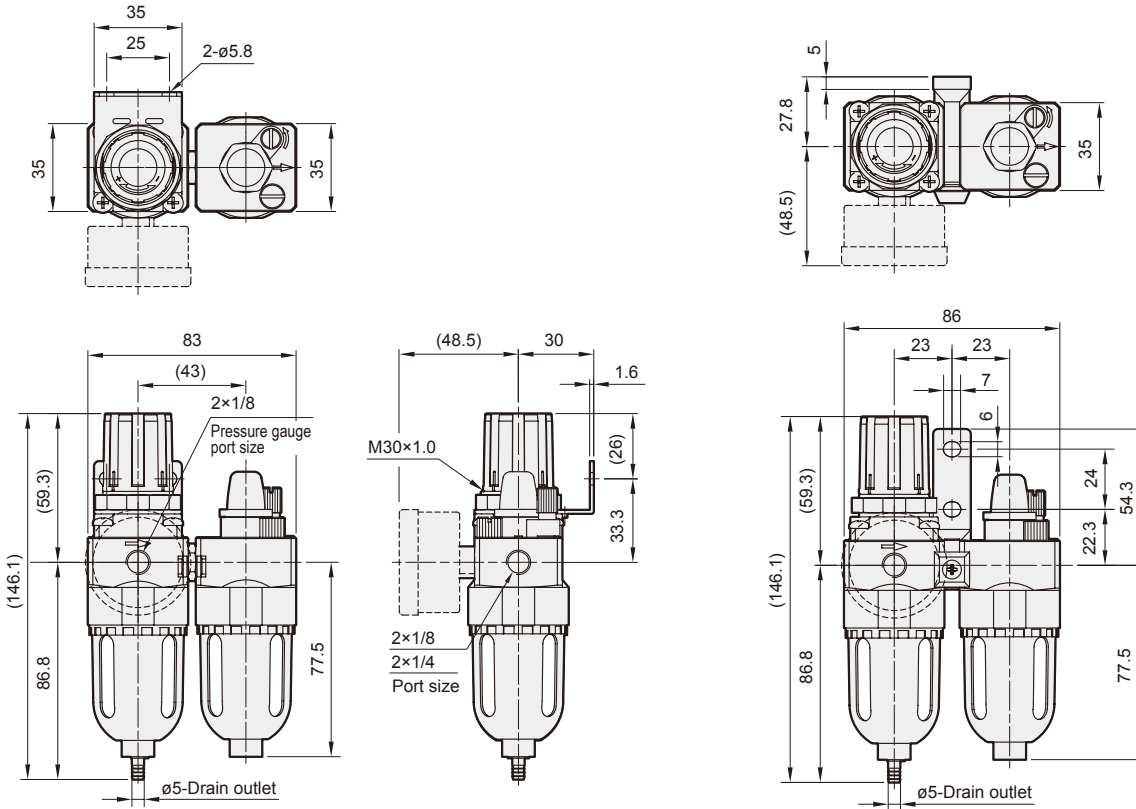
MACP200 Dimensions

AIR UNIT (F.R.L.UNIT)



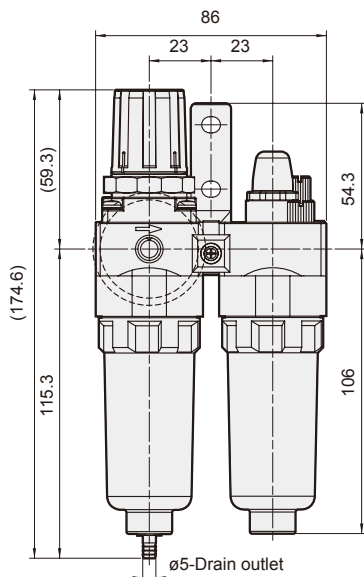
MACP200-B

T type bracket



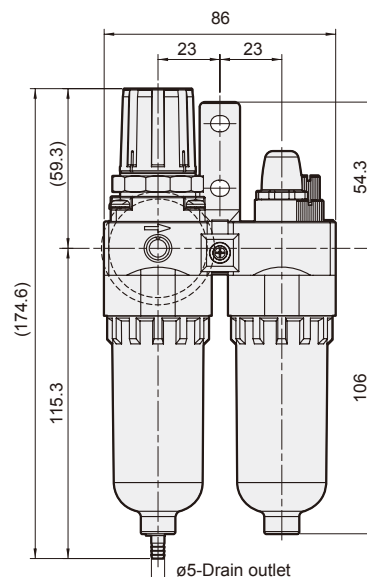
MACP200L-M-B

Metal bowl + T type bracket



MACP200L-B

T type bracket



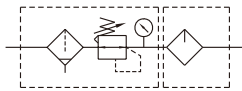
MACP302 series

AIR UNIT (F.R.L.UNIT)



Option: **MP41**

Symbol



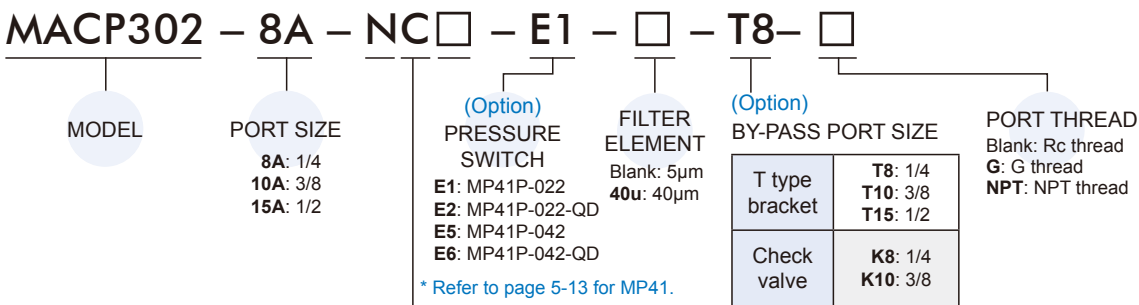
Specification

Model	MACP302		
Components	MAFR302, MAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5µm, Option: 40µm		
Lubricating oil capacity	65c.c		
Min. flow for oil drip	50 l/min	60 l/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge(PG-20),T-type bracket		
Weight	845 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example



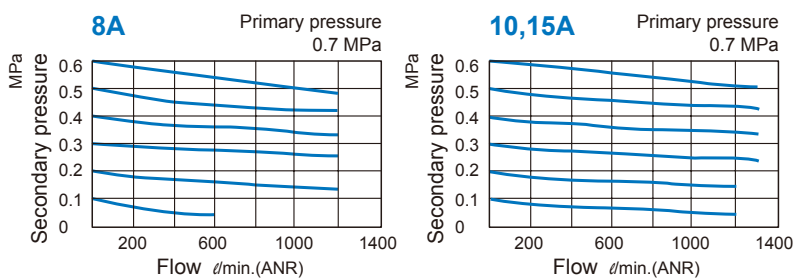
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

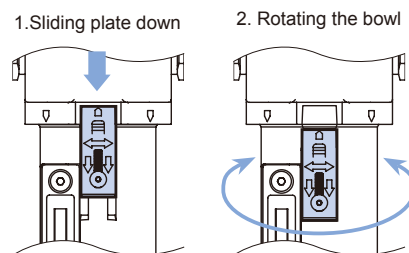
Flow feature



Caution

Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

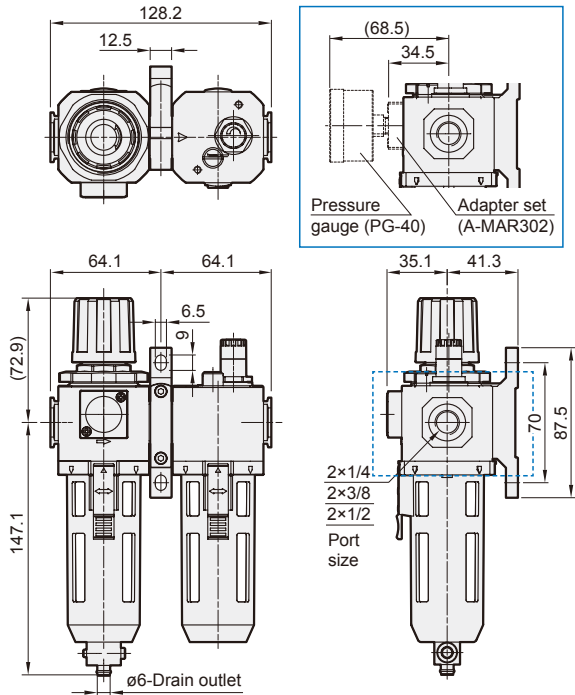


MACP302 Dimensions

AIR UNIT (F.R.L.UNIT)

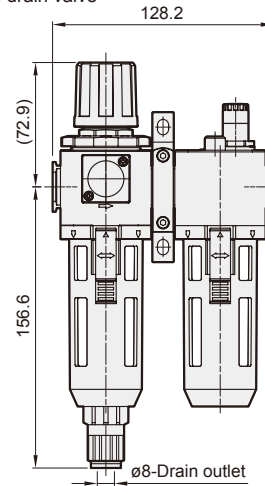


Accessories



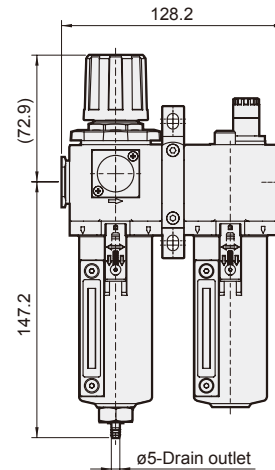
MACP302-D

Auto drain valve



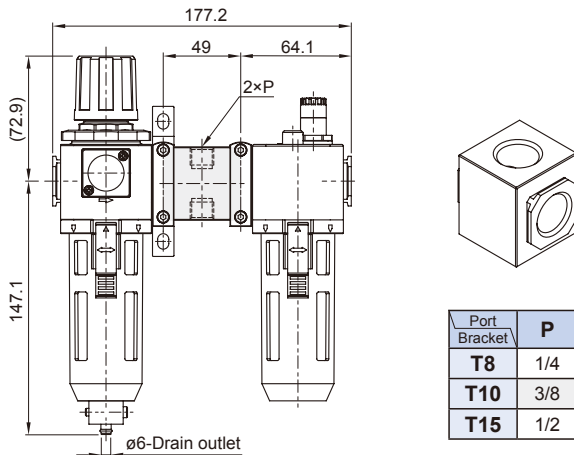
MACP302-M

Metal bowl



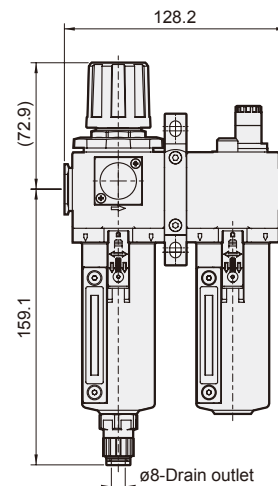
MACP302-T*

T type bracket



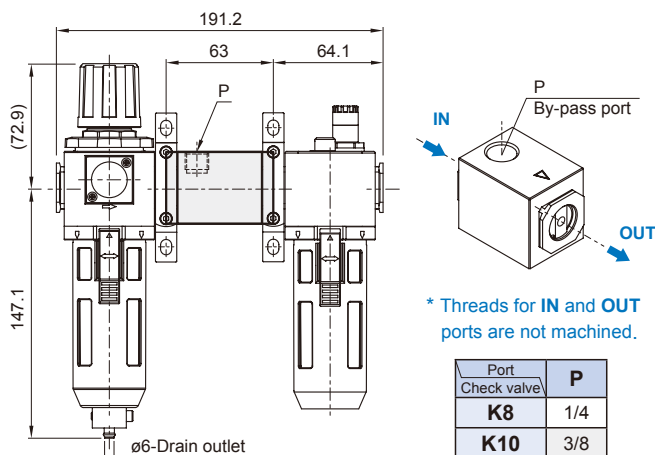
MACP302-MD

Metal bowl + Auto drain valve



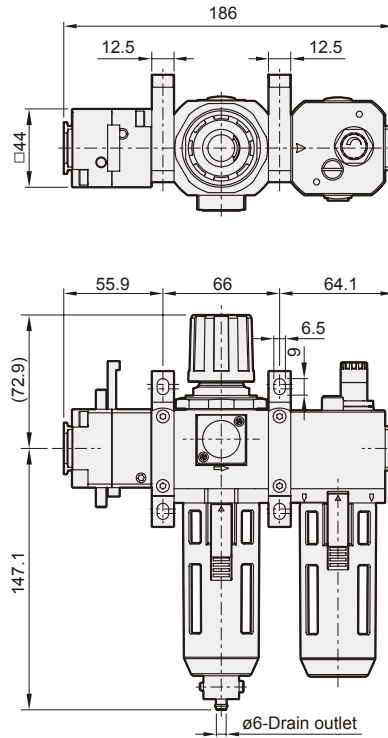
MACP302-K*

Check valve

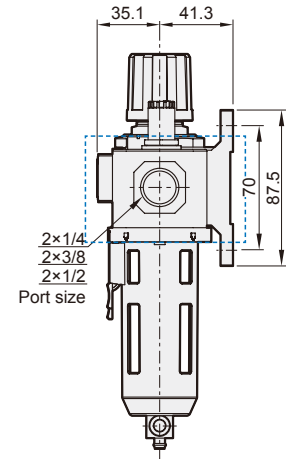
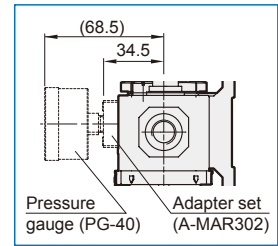


MACP302-HT With shutoff valve

AIR UNIT (F.R.L.UNIT)



Accessories



Order example

MACP302 – 8A – NC□ – E1 – □ – HT – □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

(Option)
PRESSURE
SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

FILTER
ELEMENT

Blank: 5µm
40u: 40µm

SHUTOFF VALVE

HT: MVHT-302-3H

PORT THREAD

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

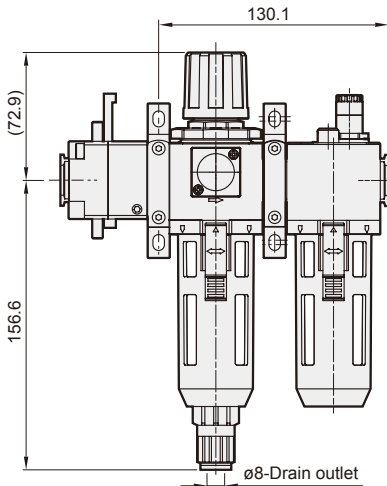
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

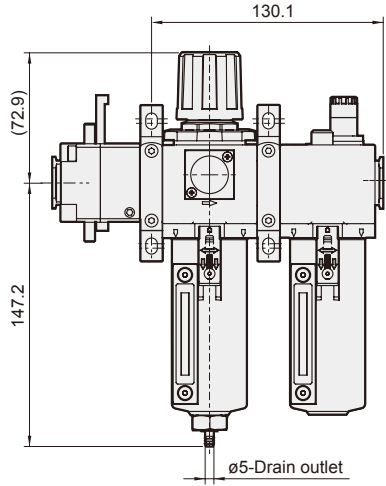
MACP302-D

Auto drain valve



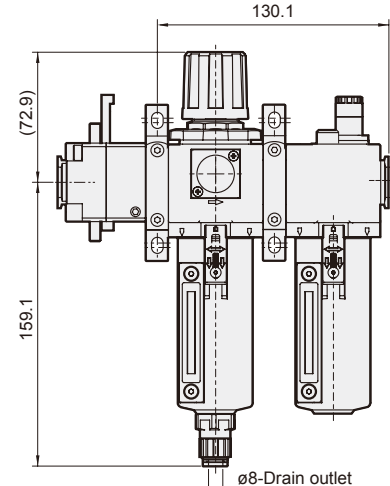
MACP302-M

Metal bowl



MACP302-MD

Metal bowl + Auto drain valve



MACP401 series

AIR UNIT (F.R.L.UNIT)

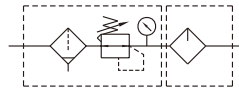


Specification



Option: **MP41**

Symbol



Model	MACP401		
Components	MAFR401, MAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa High pressure type: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40µm, Option: 5µm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 l/min	65 l/min	80 l/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1518 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACP401-8A-□-HA□P-E1-□-T8-□

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR

Blank: Black & silver
W: Gray & white

(Option)
PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

FILTER ELEMENT

Blank: 40µm
5µ: 5µm

(Option)
BY-PASS

PORT SIZE

T type bracket
T8: 1/4
T10: 3/8
T15: 1/2

Check valve

K8: 1/4
K10: 3/8

PORT THREAD

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

(Option) ACCESSORIES

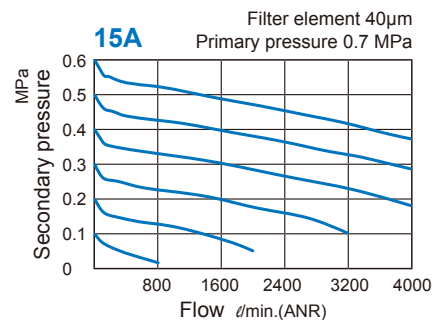
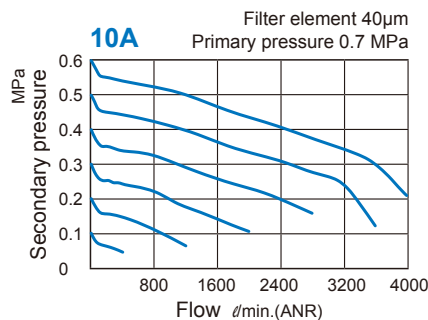
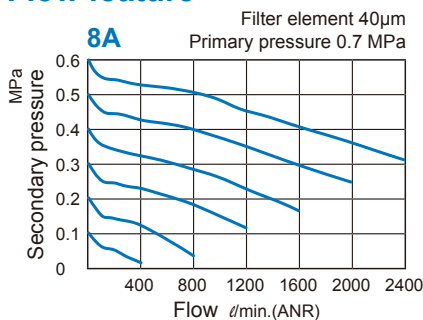
Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	-

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-MAR302).

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature



MACP401 Dimensions

AIR UNIT (F.R.L.UNIT)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

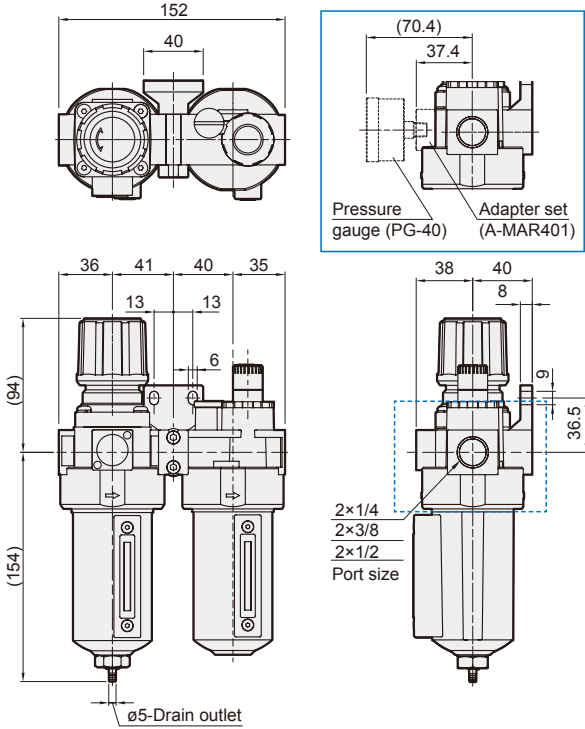
Air Unit

Pressure Switch

Auxiliary Equipment

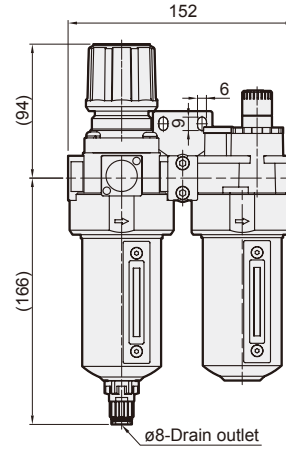
PISCO®

Accessories



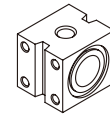
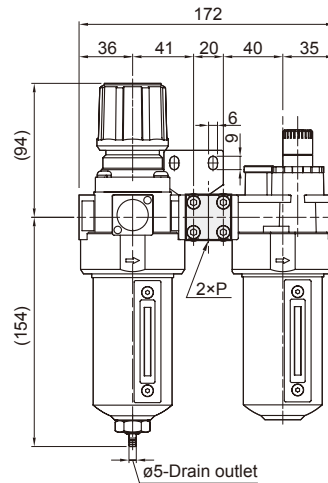
MACP401-D

Auto drain valve



MACP401-T*

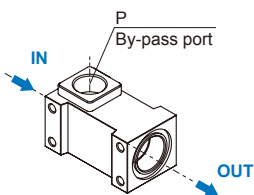
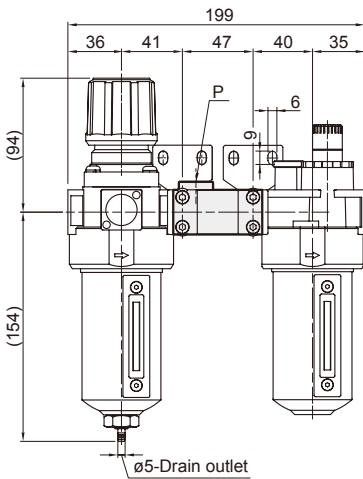
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP401-K*

Check valve

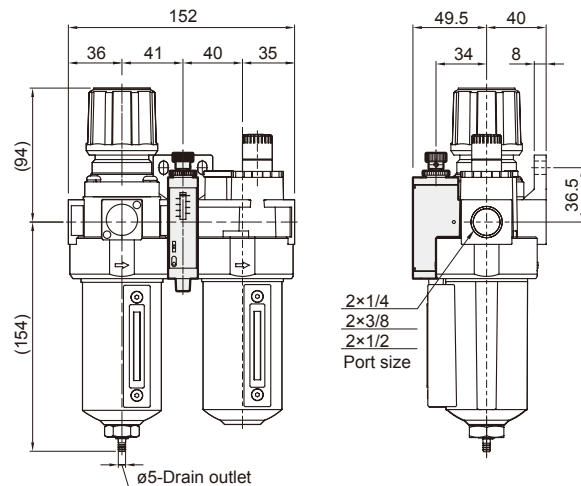


Port Check valve	P
K8	1/4
K10	3/8

* Threads for IN and OUT ports are not machined.

MACP401-P

MPS Series pneumatic pressure switch

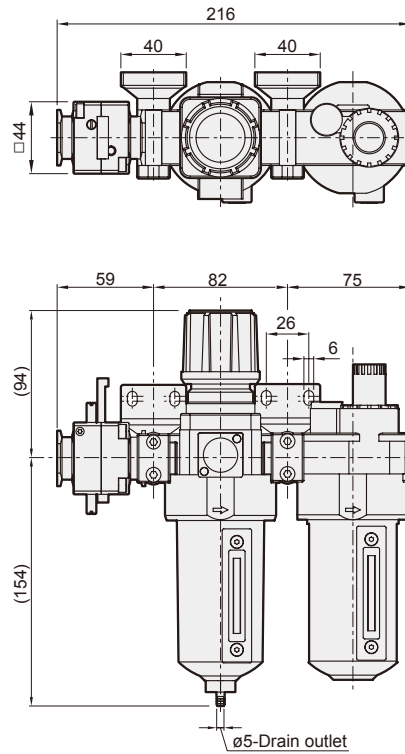


MACP401-HT With shutoff valve

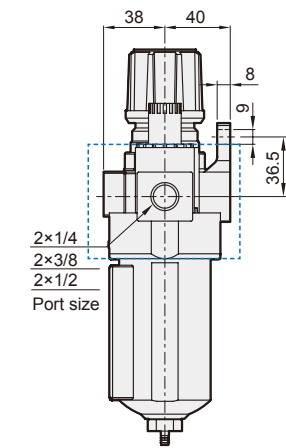
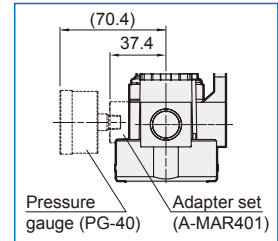


AIR UNIT (F.R.L.UNIT)

mindman



Accessories



Order example

MACP401-8A-□-HA□P-E1-□-HT-□

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR

Blank: Black & silver
W: Gray & white

(Option) PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

FILTER ELEMENT

Blank: 40µm
5u: 5µm

SHUTOFF VALVE

HT: MVHT-400-3H

PORT THREAD

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

(Option) ACCESSORIES

Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	-

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-MAR302).

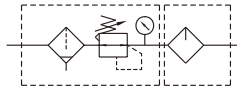
MACP403 series

AIR UNIT (F.R.L.UNIT)



Option: **MP41**

Symbol



Specification

Model	MACP403		
Components	MAFR403, MAL403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40µm, Option: 5µm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1100 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACP403 – 8A – NC□P – E1 – □ – T8 – □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

(Option)

PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 40µm
5µ: 5µm

(Option)

BY-PASS

T type bracket
Check valve

PORT SIZE

T8: 1/4
T10: 3/8
T15: 1/2

PORT THREAD

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

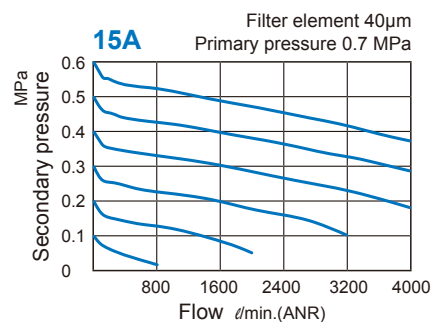
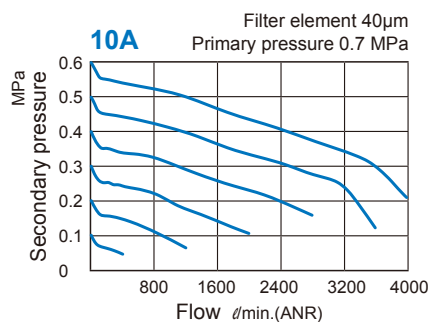
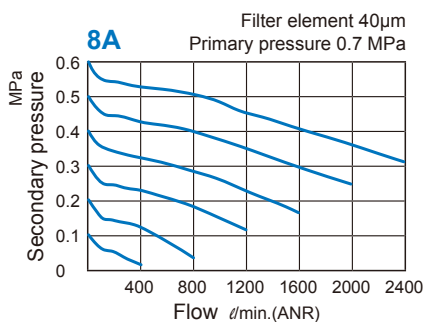
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve	Pressure switch
Blank: PC bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

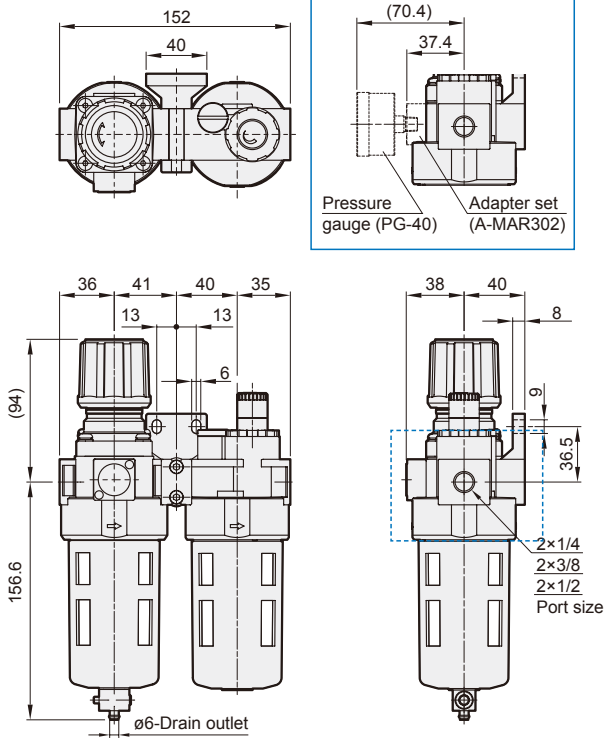


MACP403 Dimensions

AIR UNIT (F.R.L.UNIT)

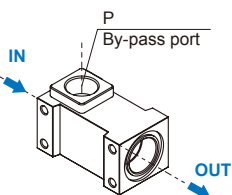
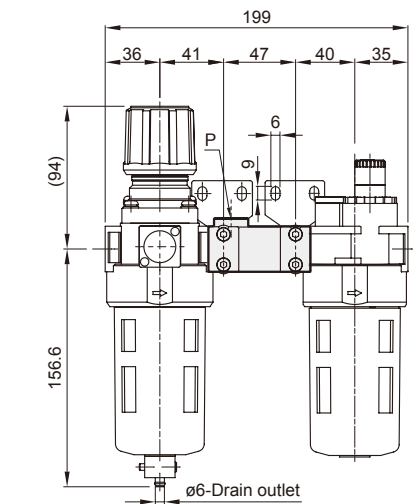


Accessories



MACP403-K*

Check valve

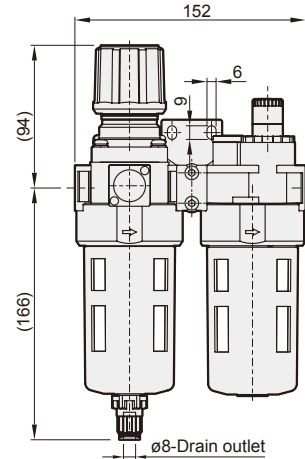


Port Check valve	P
K8	1/4
K10	3/8

* Threads for IN and OUT ports are not machined.

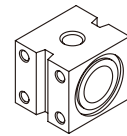
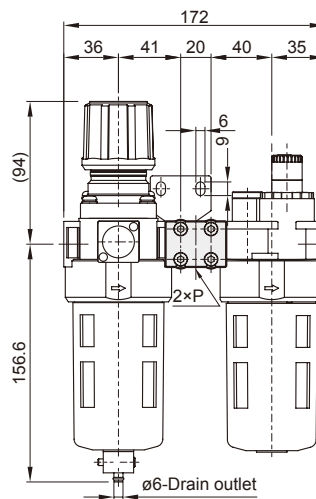
MACP403-D

Auto drain valve



MACP403-T*

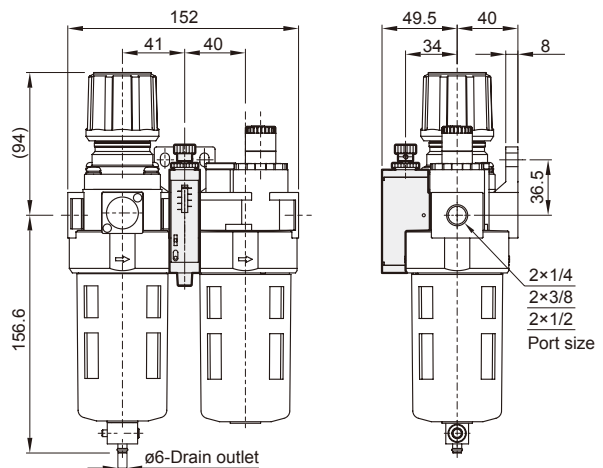
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP403-P

MPS Series pneumatic pressure switch



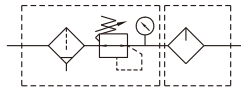
MACP501 series

AIR UNIT (F.R.L.UNIT)



Option: **MP41**

Symbol



Specification

Model	MACP501	
Components	MAFR501, MAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40µm	
Lubricating oil capacity	200c.c	
Min. flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-20), bracket	
Weight	Nylon bowl, PC bowl: 3480 g	
	Metal bowl: 3720 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACP501 - 20A - MC□ - E1 - T8 - □

MODEL

PORT SIZE

20A: 3/4
25A: 1

(Option)
PRESSURE
SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

(Option)
Module
mounting bracket
T8: 1/4
T10: 3/8
T15: 1/2

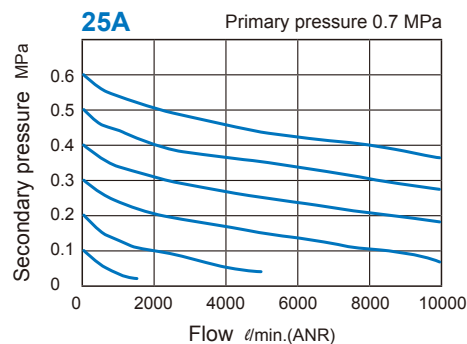
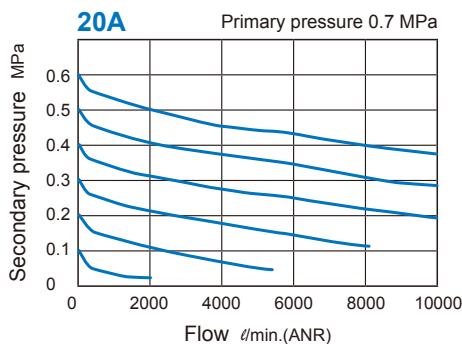
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

Flow feature

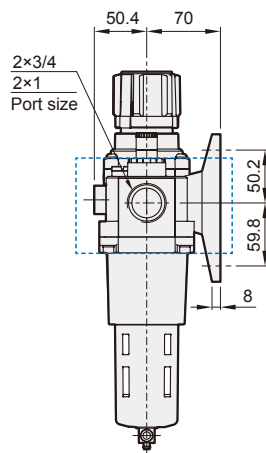
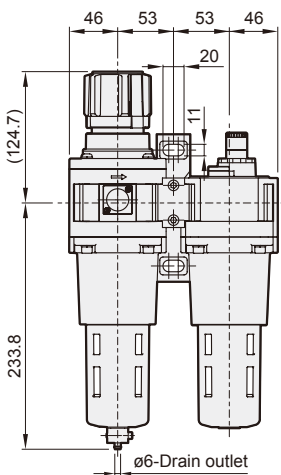
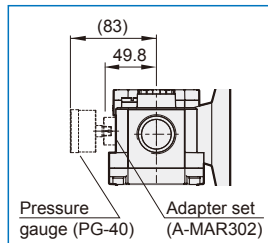
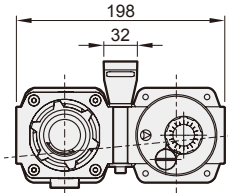


MACP501 Dimensions

AIR UNIT (F.R.L.UNIT)

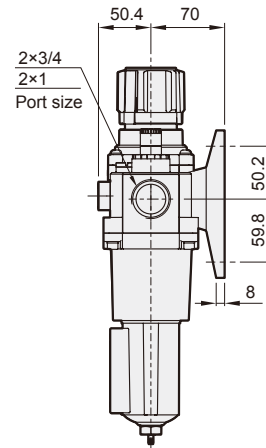
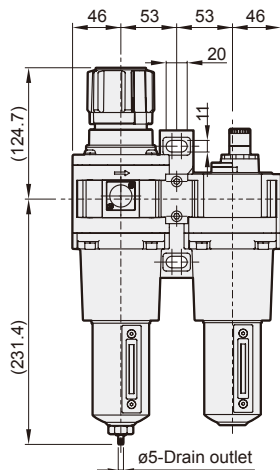
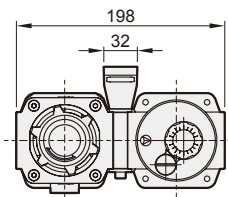


Accessories



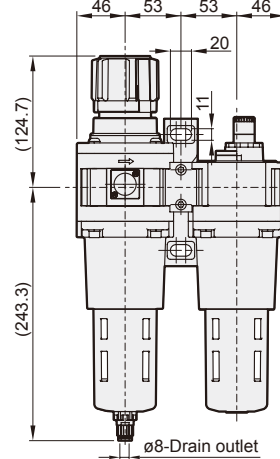
MACP501-M

Metal bowl



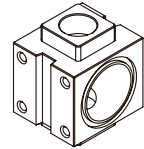
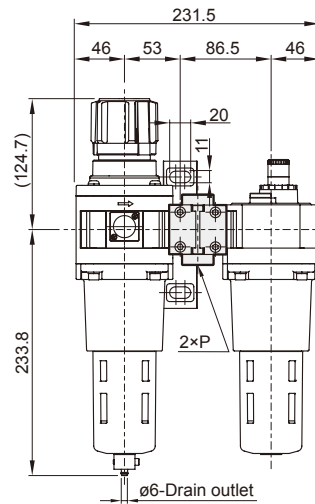
MACP501-D

Auto drain valve



MACP501-T*

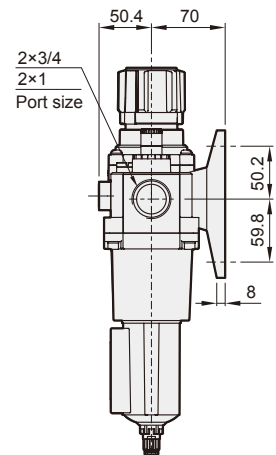
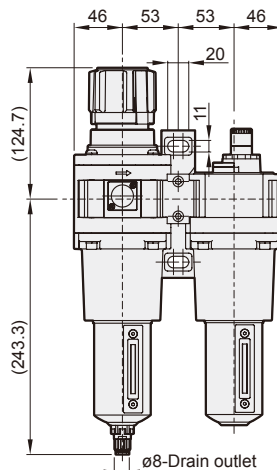
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP501-MD

Metal bowl + auto drain valve

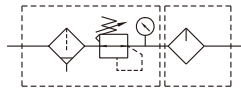


MACT200 series

AIR UNIT (F.R.L.UNIT)



Symbol

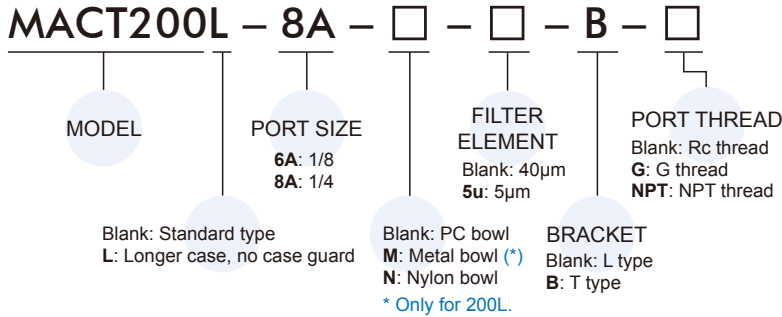


Specification

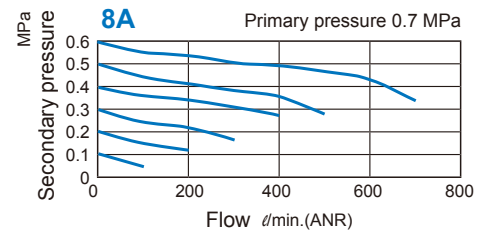
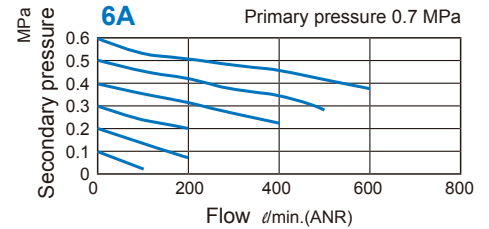
Model	MACT200	
Components	MAF200, MAR201, MAL200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	Standard: 40μm, Option: 5μm	
Lubricating oil capacity	20c.c, 35c.c (MACT200L)	
Min. flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), L-type bracket	
Weight	505 g, 465 g (MACT200L)	

* Standard unit contains auto-drain function when operating pressure below 0.05 MPa.

Order example



Flow feature



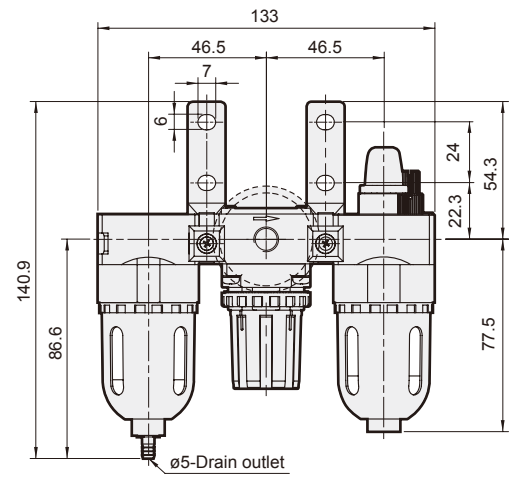
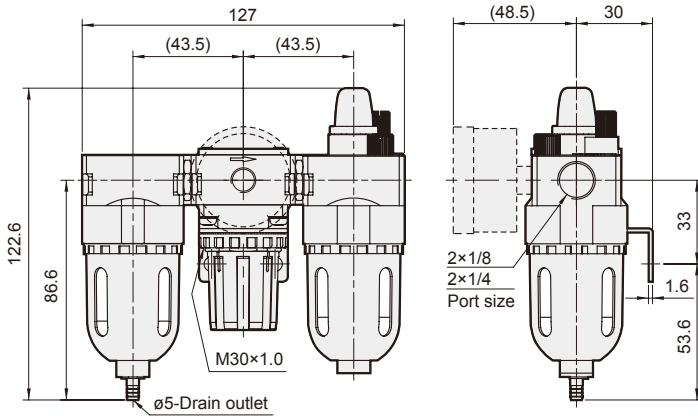
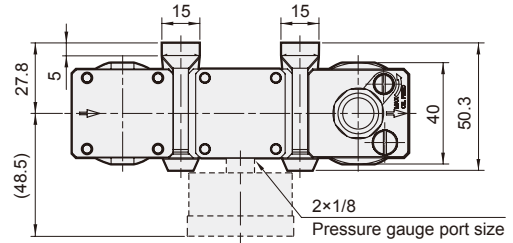
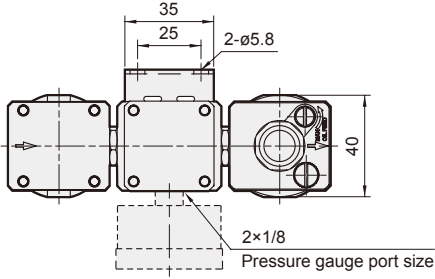
MACT200 Dimensions

AIR UNIT (F.R.L.UNIT)



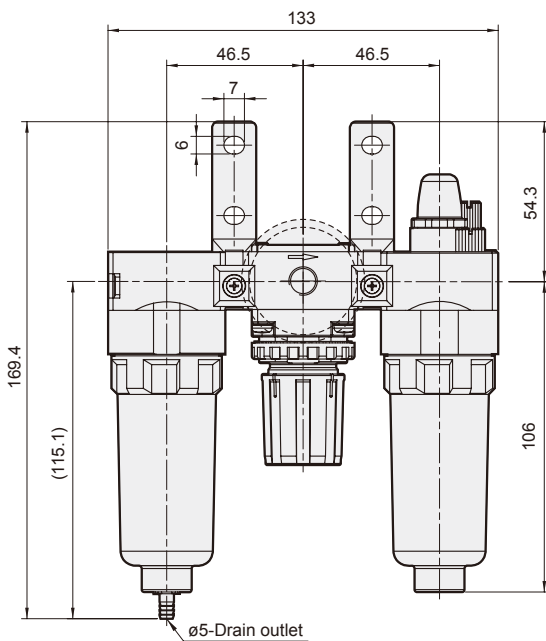
MACT200-B

T type bracket



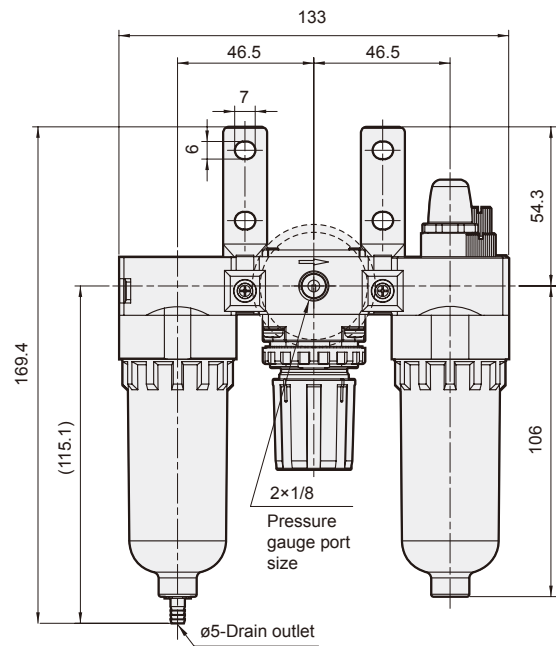
MACT200L-M-B

Metal bowl + T type bracket



MACT200L-B

T type bracket



MACT302 series

AIR UNIT (F.R.L.UNIT)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

Pressure Switch

Auxiliary Equipment

PISCO®

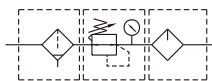
Specification

Model	MACT302		
Components	MAF302, MAR302, MAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Effective orifice	32mm ²	34mm ²	
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Lubricating oil capacity	65c.c		
Min. flow for oil drip	50 ℓ/min	60 ℓ/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), T-type bracket		
Weight	1115 g		



Option: MP41

Symbol



* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACT302 – 8A – NC□ – E1 – □ – T8 – □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

(Option)
PRESSURE
SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

FILTER
ELEMENT

Blank: 5μm
40u: 40μm

(Option)

BY-PASS PORT SIZE

T type bracket	T8: 1/4 T10: 3/8 T15: 1/2
Check valve	K8: 1/4 K10: 3/8

PORT THREAD

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

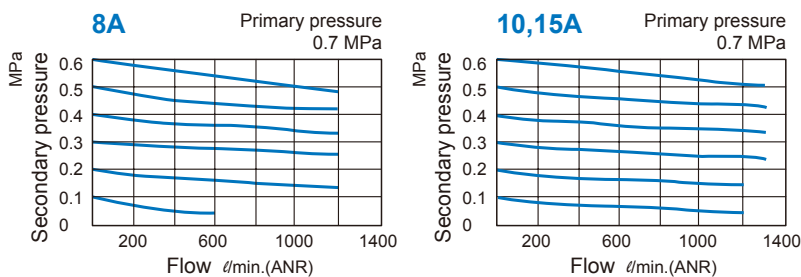
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

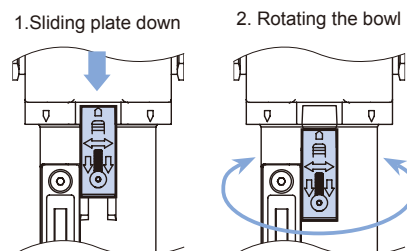
Flow feature



Caution

Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

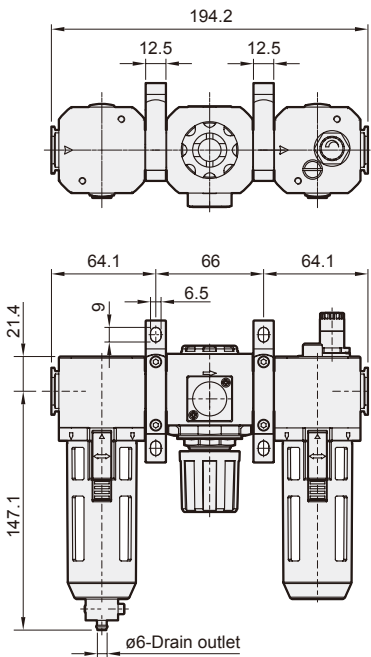
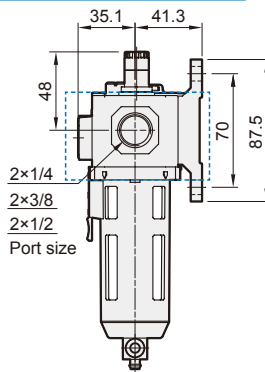
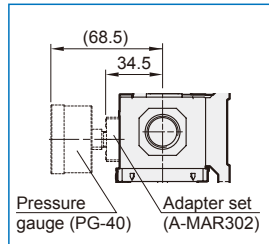


MACT302 Dimensions

AIR UNIT (F.R.L.UNIT)

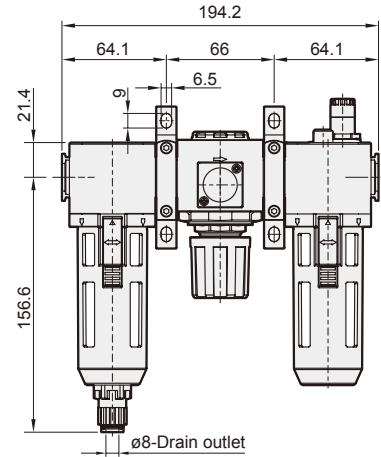


Accessories



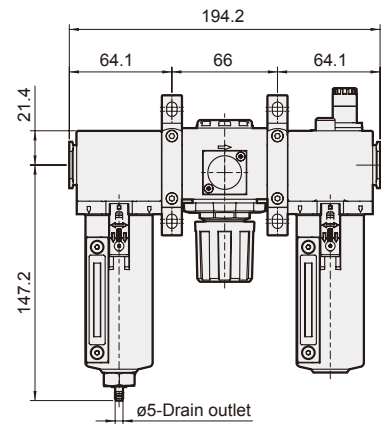
MACT302-D

Auto drain valve



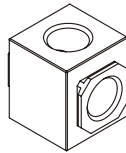
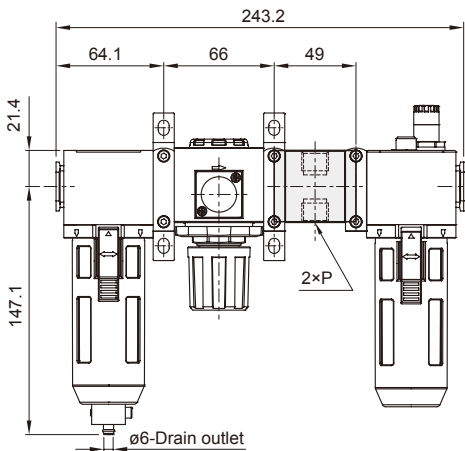
MACT302-M

Metal bowl



MACT302-T*

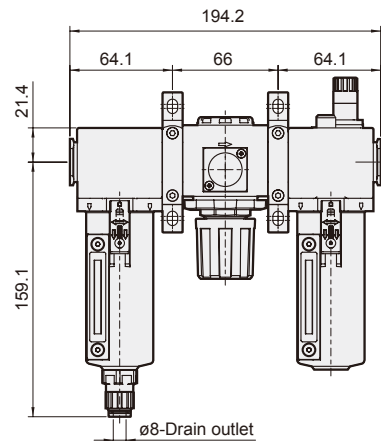
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

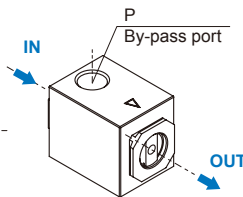
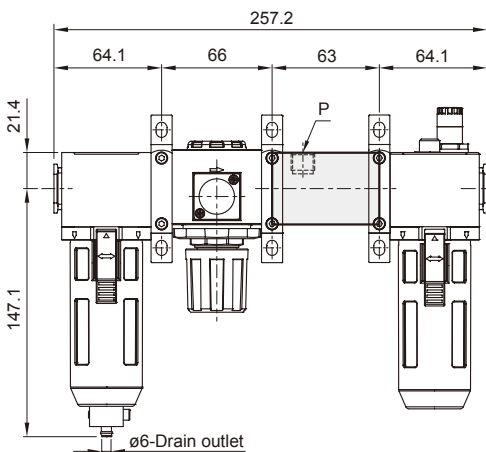
MACT302-MD

Metal bowl + Auto drain valve



MACT302-K*

Check valve

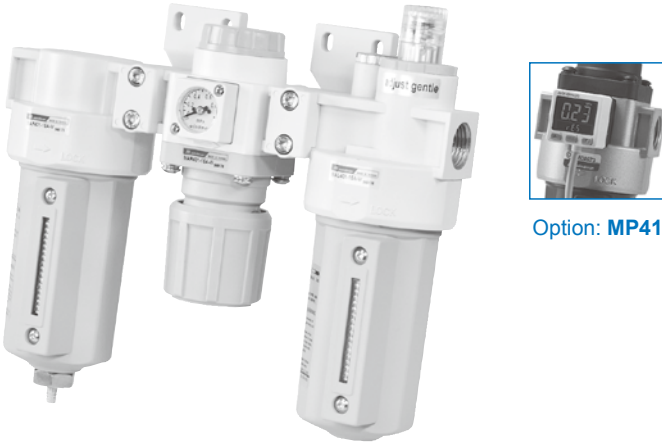


* Threads for IN and OUT ports are not machined.

Port Check valve	P
K8	1/4
K10	3/8

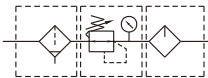
MACT401 series

AIR UNIT (F.R.L.UNIT)



Option: MP41

Symbol



Specification

Model	MACT401		
Components	MAF401, MAR401, MAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard: 0.1~0.85 MPa High pressure: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40µm, Option: 5µm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1812 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACT401 - 8A - □ - HA□P - E1 - □ - T8 - □

MODEL	PORT SIZE	EXTERIOR COLOR	(Option) PRESSURE SWITCH	FILTER ELEMENT	(Option) BY-PASS PORT SIZE	PORT THREAD
8A: 1/4 10A: 3/8 15A: 1/2	Blank: Black & silver W: Gray & white	E1: MP41P-022 E2: MP41P-022-QD E5: MP41P-042 E6: MP41P-042-QD	Blank: 40µm 5u: 5µm	T type bracket Check valve	T8: 1/4 T10: 3/8 T15: 1/2 K8: 1/4 K10: 3/8	Blank: Rc thread G: G thread NPT: NPT thread

* Refer to page 5-13 for MP41.

(Option) ACCESSORIES

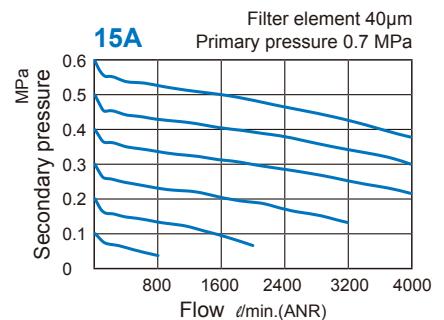
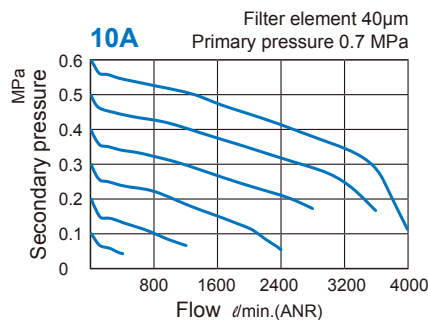
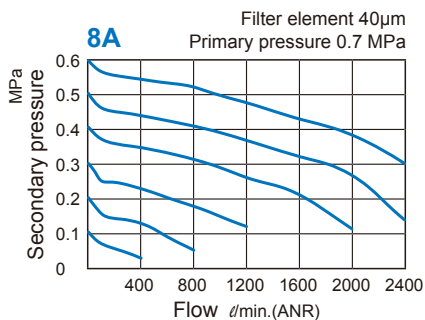
Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	-

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-MAR302).

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

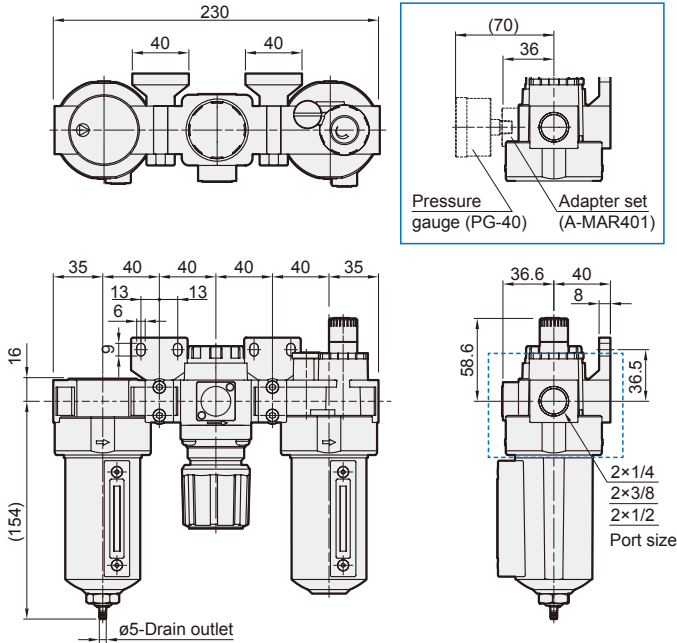


MACT401 Dimensions

AIR UNIT (F.R.L.UNIT)

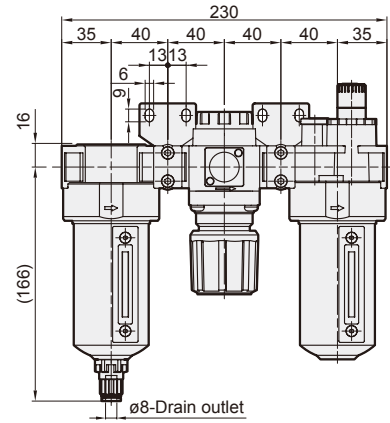


Accessories



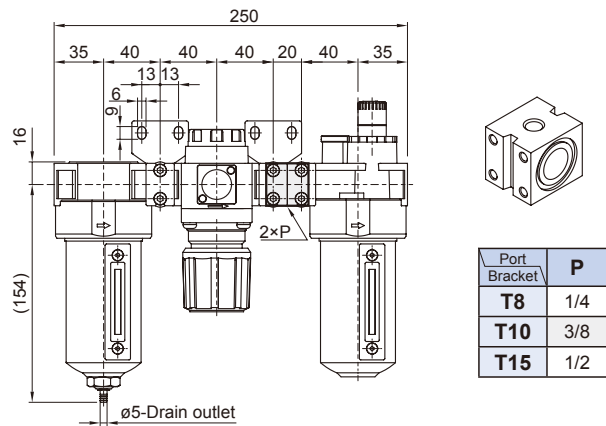
MACT401-D

Auto drain valve



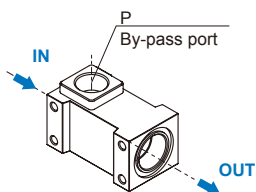
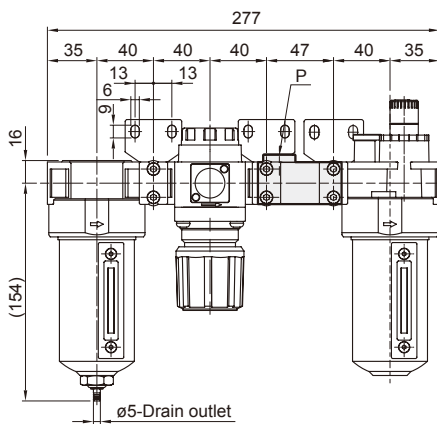
MACT401-T*

T type bracket



MACT401-K*

Check valve

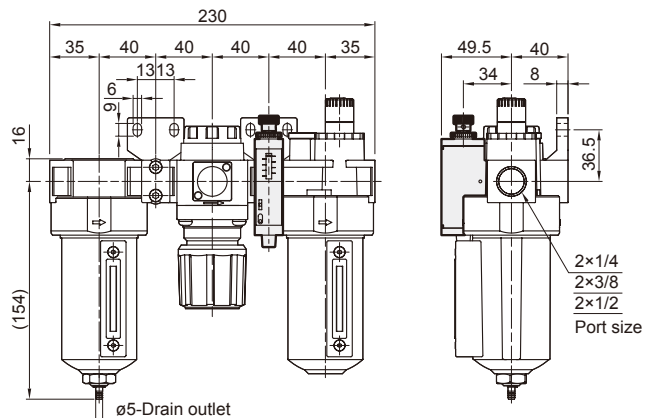


Port Check valve	P
K8	1/4
K10	3/8

* Threads for IN and OUT ports are not machined.

MACT401-P

MPS Series
pneumatic pressure switch



MACT403 series

AIR UNIT (F.R.L.UNIT)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

Pressure Switch

Auxiliary Equipment

PISCO®

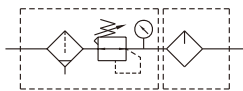
Specification

Model	MACT403		
Components	MAF403, MAR403, MAL403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40µm, Option: 5µm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 l/min	65 l/min	80 l/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1345 g		



Option: **MP41**

Symbol



* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACT403 – 8A – NC□P – E1 – □ – T8 – □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

(Option)

PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 40µm
5u: 5µm

(Option)

BY-PASS PORT SIZE

T type bracket
T8: 1/4
T10: 3/8
T15: 1/2

Check valve

K8: 1/4
K10: 3/8

PORT THREAD

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

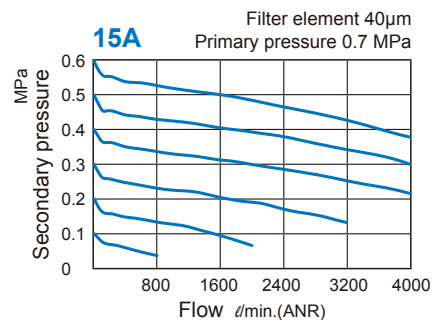
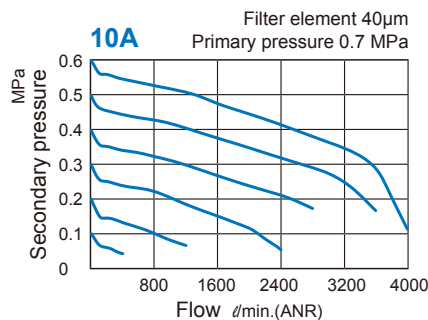
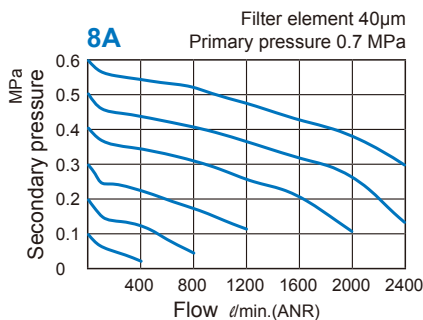
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve	Pressure switch
Blank: PC bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

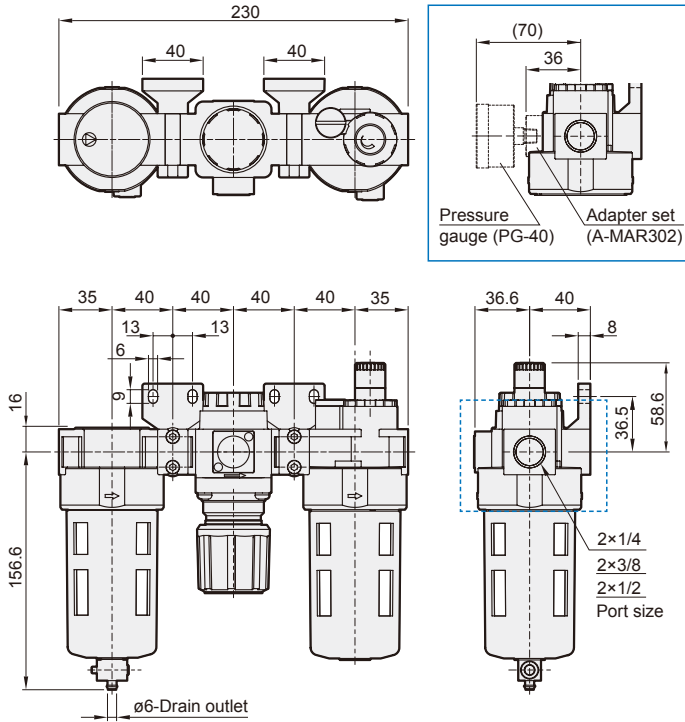


MACT403 Dimensions

AIR UNIT (F.R.L.UNIT)

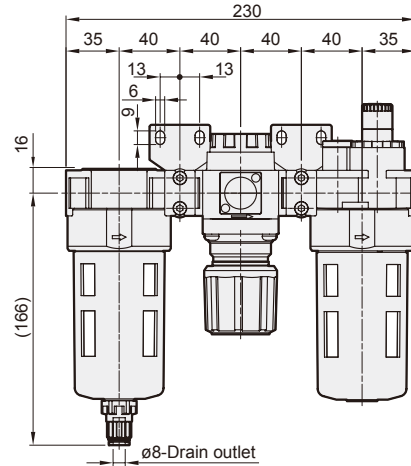


Accessories



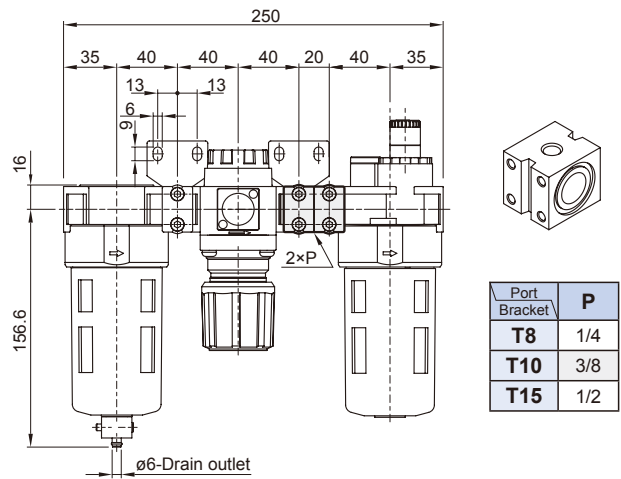
MACT403-D

Auto drain valve



MACT403-T*

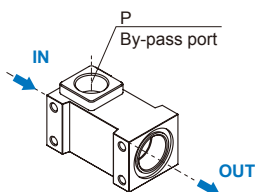
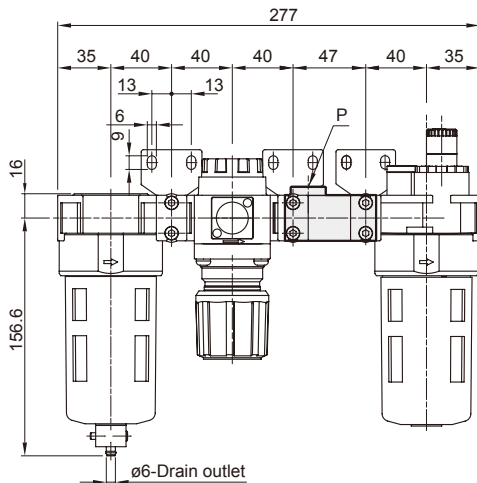
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACT403-K*

Check valve

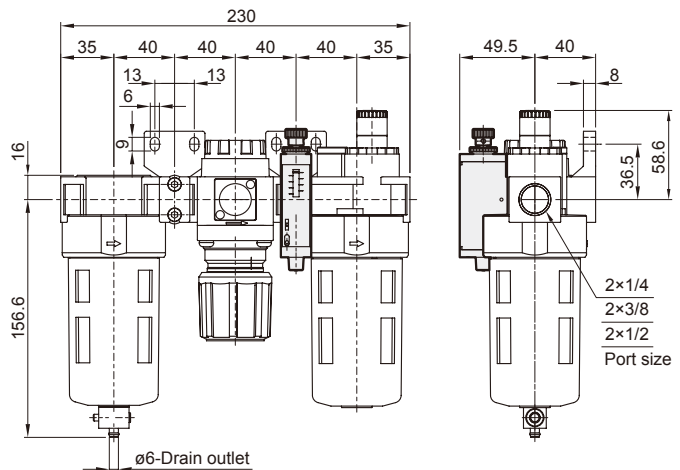


Port Check valve	P
K8	1/4
K10	3/8

* Threads for IN and OUT ports are not machined.

MACT403-P

MPS Series pneumatic pressure switch



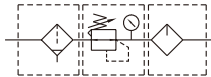
MACT501 series

AIR UNIT (F.R.L.UNIT)



Option: **MP41**

Symbol



Specification

Model	MACP501	
Components	MAF501, MAR501, MAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40µm	
Lubricating oil capacity	200c.c	
Min. flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-20), bracket	
Weight	Nylon bowl, PC bowl: 4200 g	
	Metal bowl: 4440 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACT501 – 20A – MC□ – E1 – T8 – □

MODEL

PORT SIZE
20A: 3/4
25A: 1

(Option)
PRESSURE
SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

(Option)
Module
mounting bracket
T8: 1/4
T10: 3/8
T15: 1/2

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

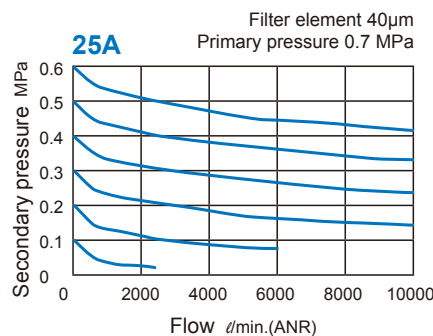
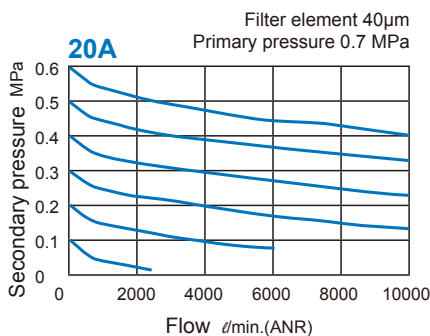
(Option) ACCESSORIES

* Refer to page 5-13 for MP41.

Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

Flow feature

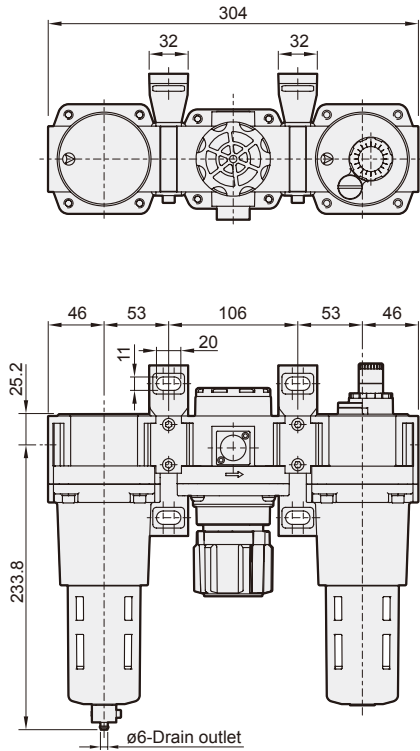
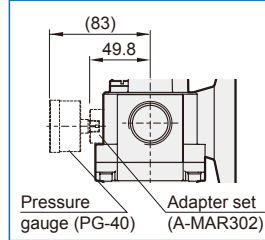


MACT501 Dimensions

AIR UNIT (F.R.L.UNIT)

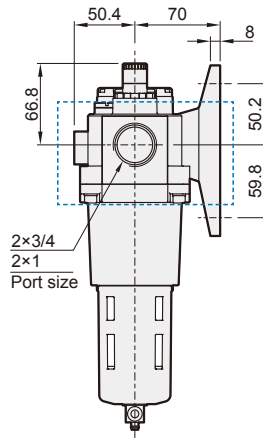
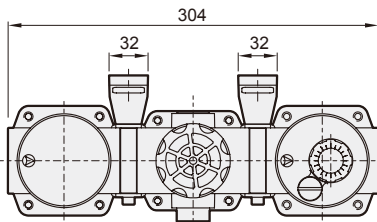


Accessories



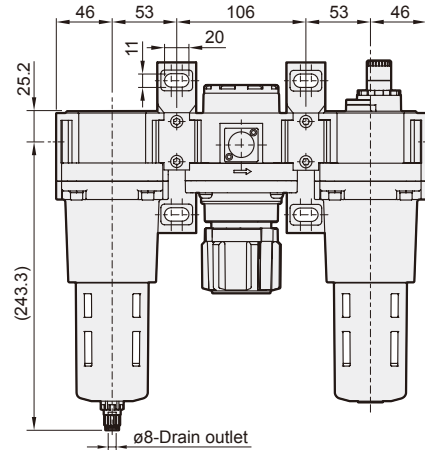
MACT501-M

Metal bowl



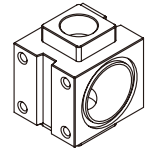
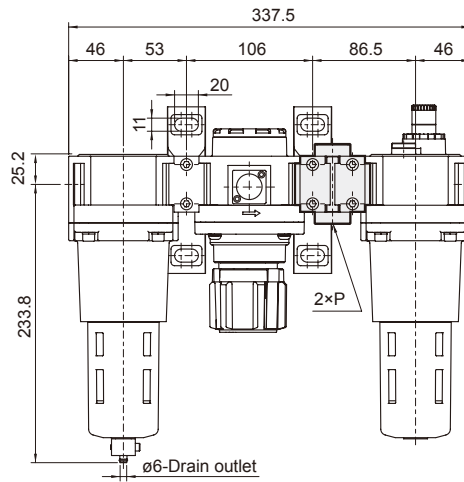
MACT501-D

Auto drain valve



MACT501-T*

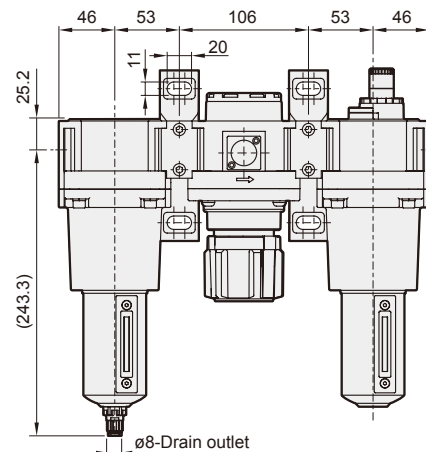
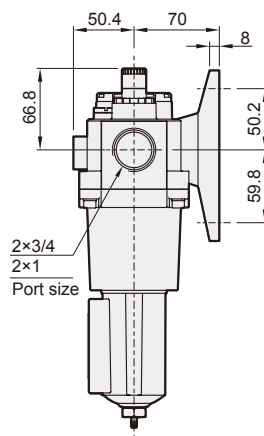
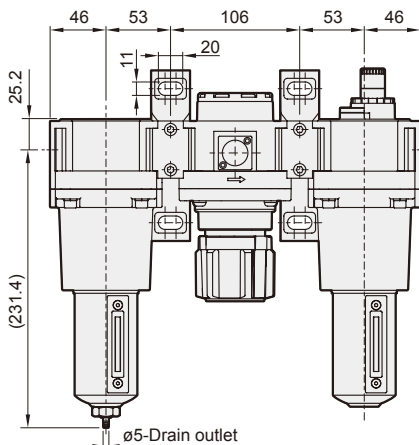
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACT501-MD

Metal bowl + auto drain valve

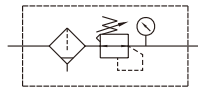


MAFR100 series

AIR UNIT (F.R.UNIT)



Symbol



Specification

Model	MAFR100
Port size	M5×0.8
Medium	Air
Operating pressure range (*)	0.05~1 MPa
Proof pressure	1.5 MPa
Regulated pressure range	0.05~0.7 MPa
Ambient temperature	- 5~+60°C (No freezing)
Filter element	Standard: 5µm, Option: 40µm
Drain capacity	3.5 cm ³
Attachment	Pressure gauge (PG-25), bracket
Weight	130 g

*Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

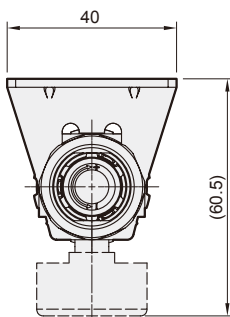
Order example

MAFR100 — M5 — □

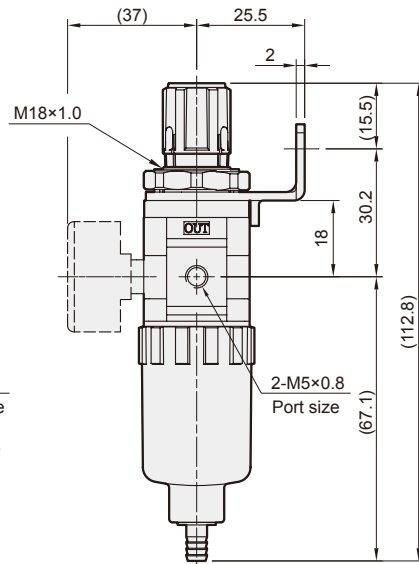
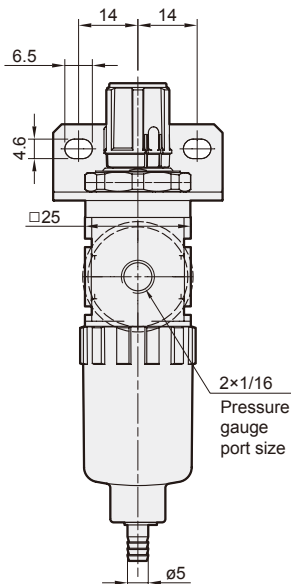
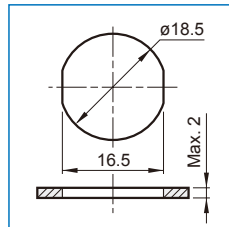
MODEL

PORT SIZE

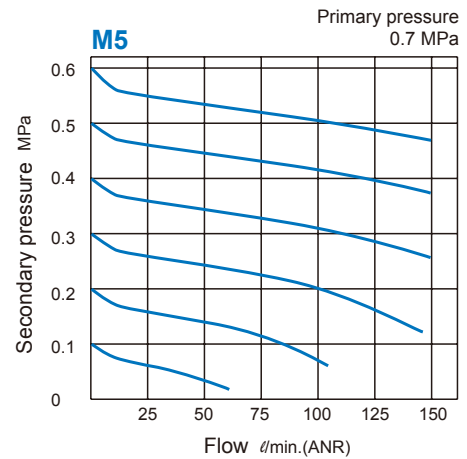
FILTER ELEMENT
Blank: 5µm
40u: 40µm



Panel mounting hole



Flow feature

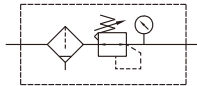


MAFR200 series

AIR UNIT (F.R.UNIT)



Symbol

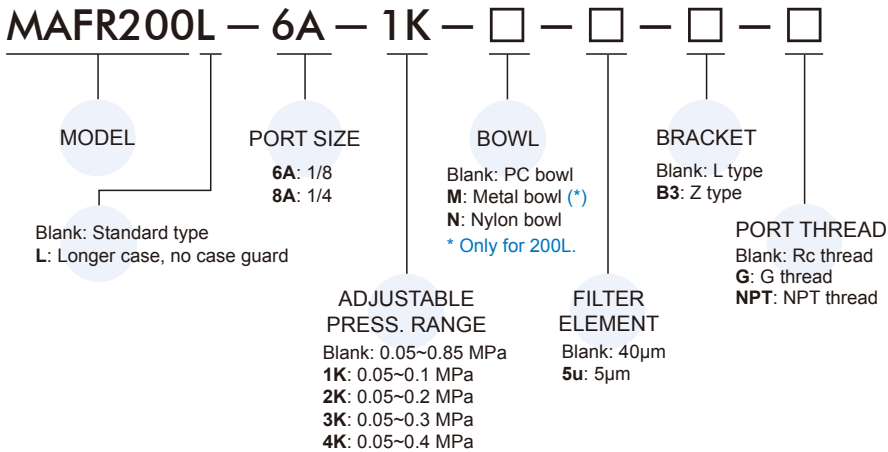


Specification

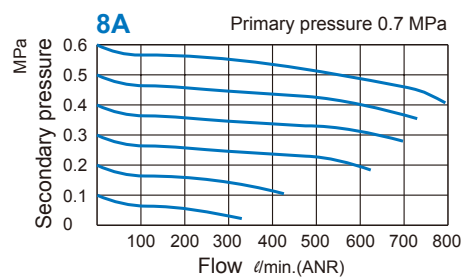
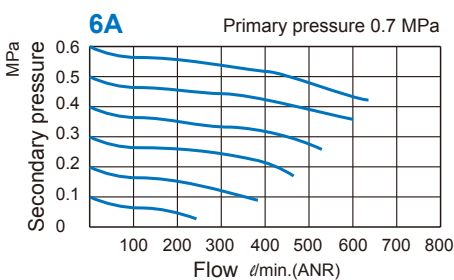
Model	MAFR200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating pressure range (*)	By order specifications	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	Standard: 40µm, Option: 5 µm	
Drain capacity	9.5 cm ³ , 25 cm ³ (MAFR200L)	
Attachment	Pressure gauge (PG-40), L-type bracket	
Weight	257 g, 226 g (MAFR200L)	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example



Flow feature



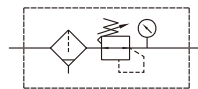
MAFR302 series

AIR UNIT (F.R.UNIT)



Option: MP41

Symbol



Specification

Model	MAFR302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Drain capacity	35 cm ³		
Attachment	Pressure gauge (PG-20), bracket		
Weight	490 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MAFR302 – 8A – NC□ – E1 – □ – HT – □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

(Option)

PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 5μm
40u: 40μm

(Option)
SHUTOFF VALVE
HT: MVHT-302-3H

PORT THREAD

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

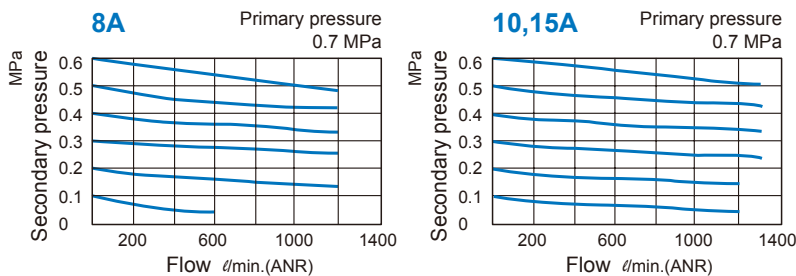
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

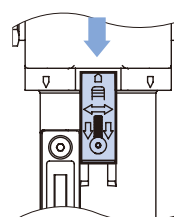


Caution

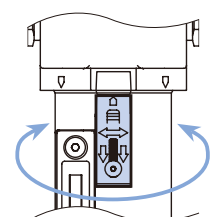
Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1. Sliding plate down



2. Rotating the bowl



MAFR302 Dimensions

AIR UNIT (F.R.UNIT)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

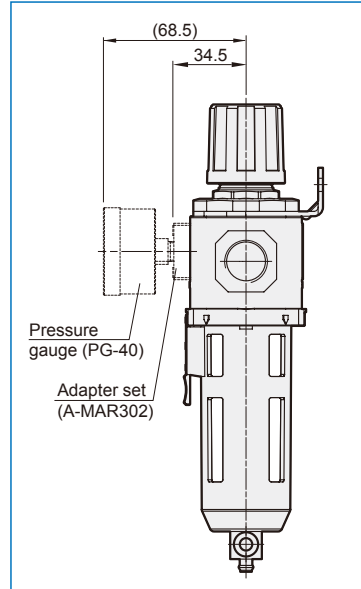
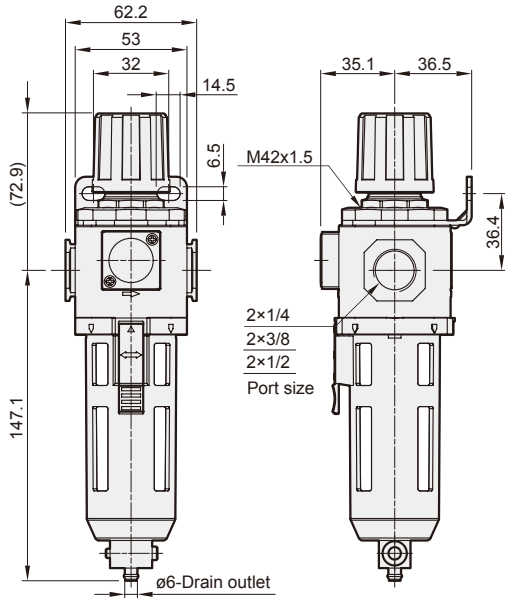
Air Unit

Pressure Switch

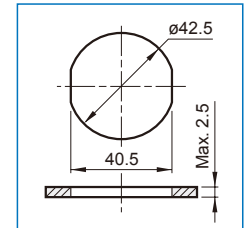
Auxiliary Equipment

PISCO®

Accessories

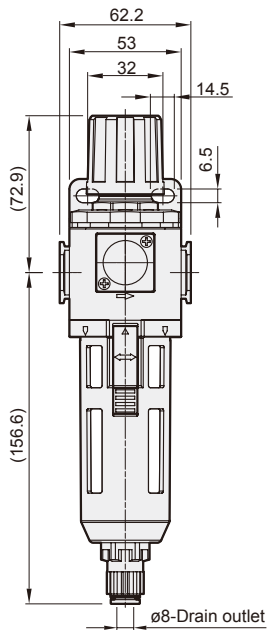


Panel mounting hole



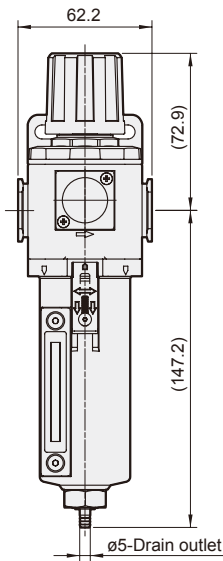
MAFR302-D

Auto drain valve



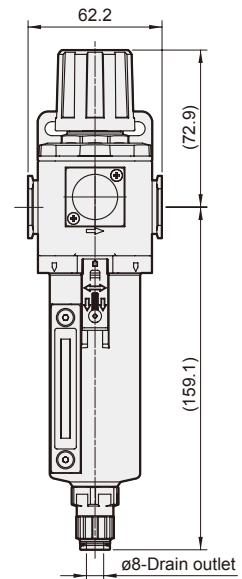
MAFR302-M

Metal bowl



MAFR302-MD

Metal bowl + Auto drain valve

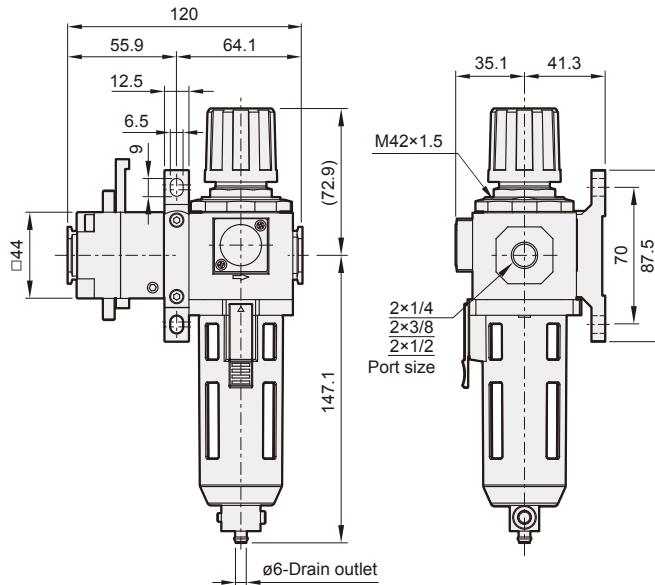


MAFR302-HT with shutoff valve

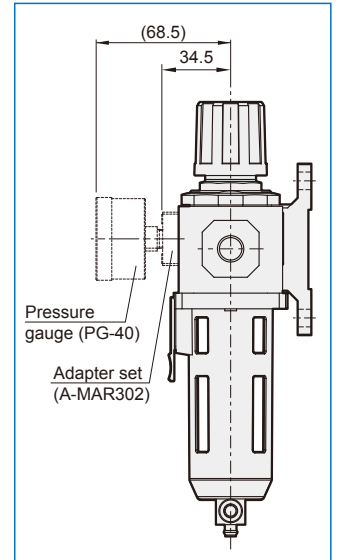
AIR UNIT (F.R.UNIT)



Mindman

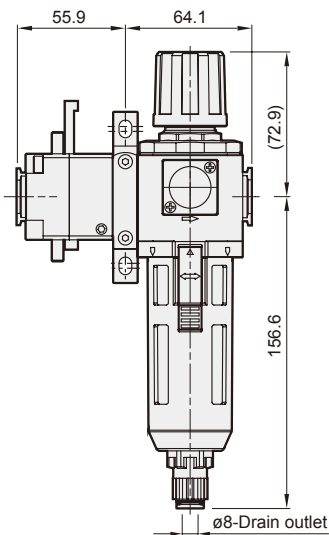


Accessories



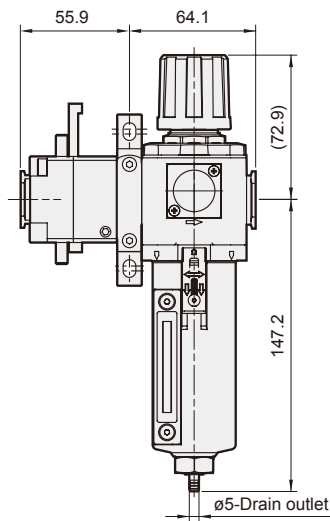
MAFR302-D-HT

Auto drain valve



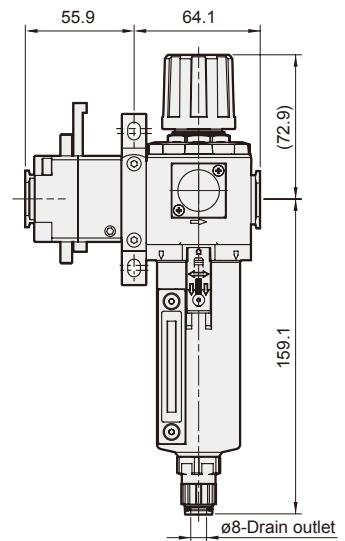
MAFR302-M-HT

Metal bowl



MAFR302-MD-HT

Metal bowl + Auto drain valve



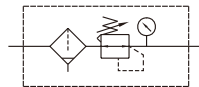
MAFR401 series

AIR UNIT (F.R.UNIT)



Option: **MP41**

Symbol



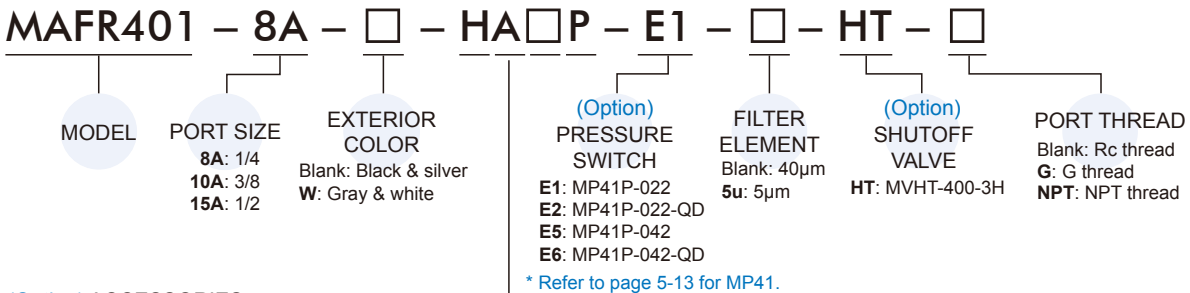
Specification

Model	MAFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	70 cm ³		
Attachment	Pressure gauge(PG-20),L-type bracket		
Weight	800 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example



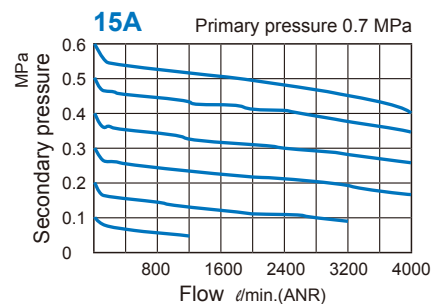
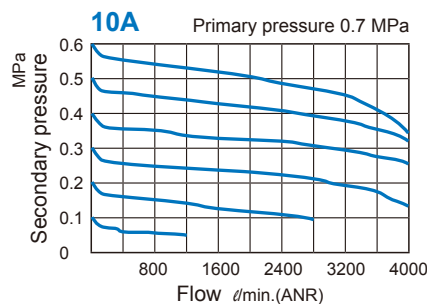
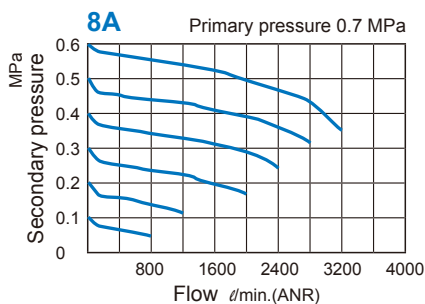
* Refer to page 5-13 for MP41.

Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	-

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-MAR302).

Flow feature

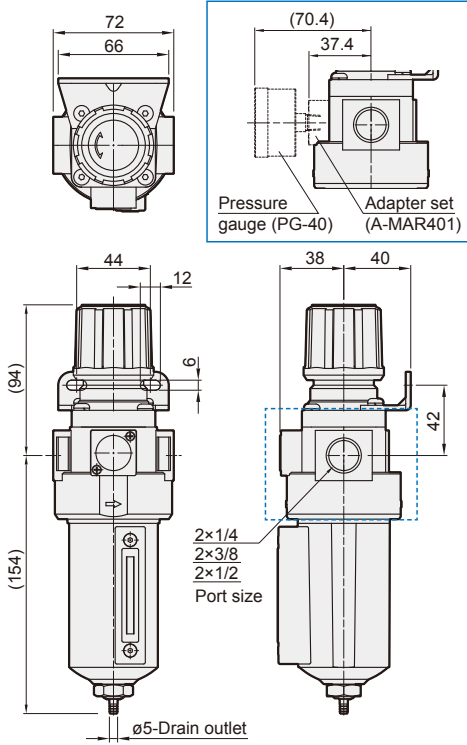


MAFR401 Dimensions

AIR UNIT (F.R.UNIT)

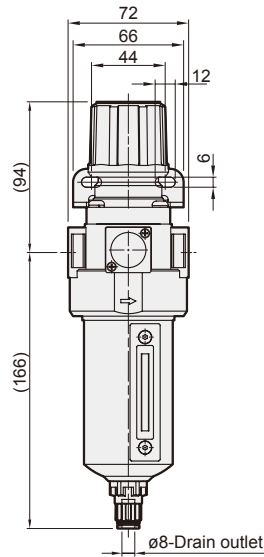


Accessories



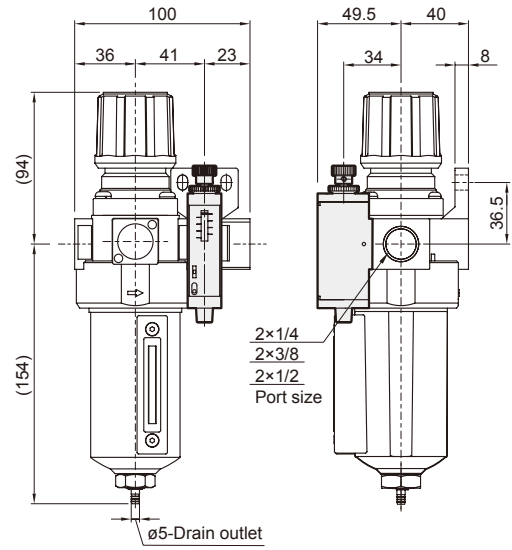
MAFR401-D

Auto drain valve



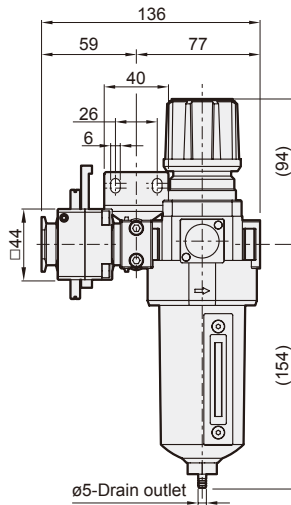
MAFR401-P

MPS Series
pneumatic pressure switch

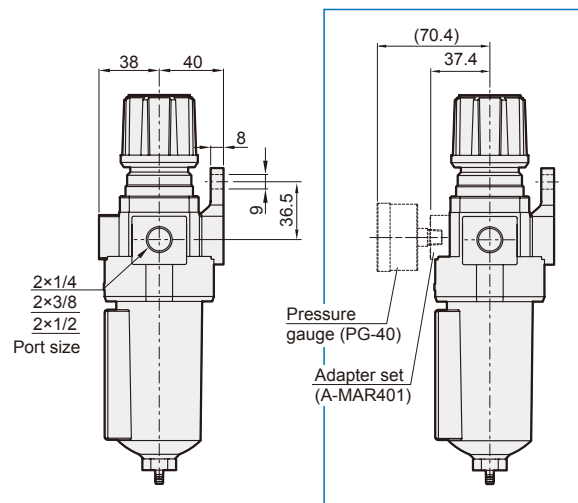


MAFR401-HT

With shutoff valve (MVHT-400)



Accessories



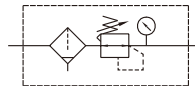
MAFR403 series

AIR UNIT (F.R.UNIT)



Option: **MP41**

Symbol



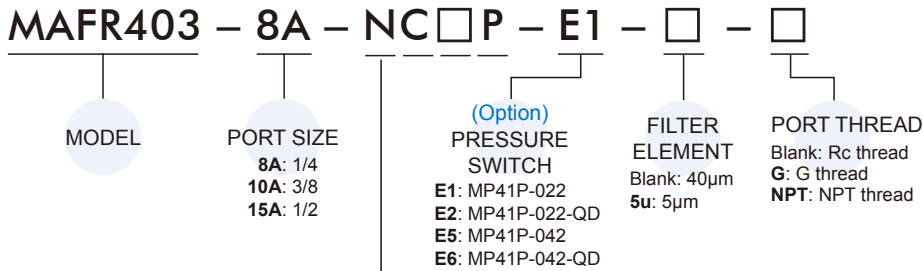
Specification

Model	MAFR403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	75 cm ³		
Attachment	Pressure gauge(PG-20), L-type bracket		
Weight	620 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example



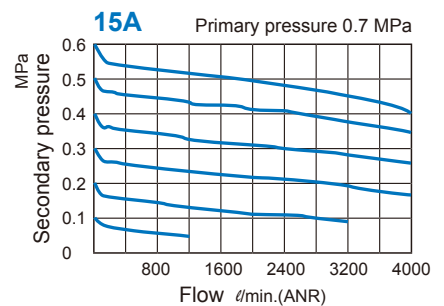
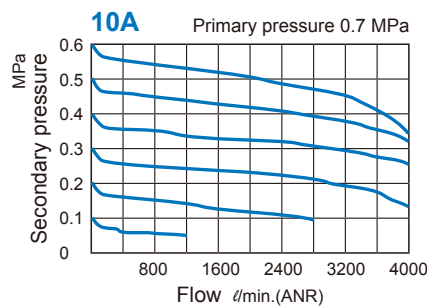
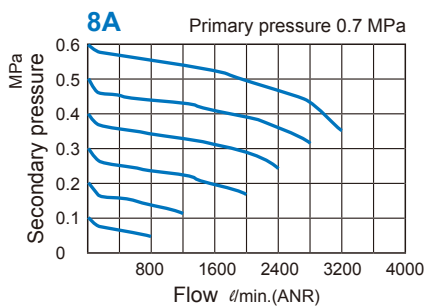
(Option) ACCESSORIES

* Refer to page 5-13 for MP41.

Bowl	Pressure gauge	Drain valve	Pressure switch
Blank: PC bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)

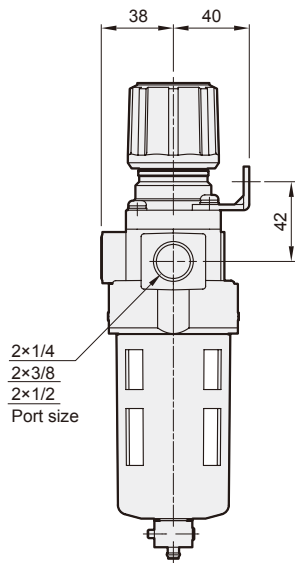
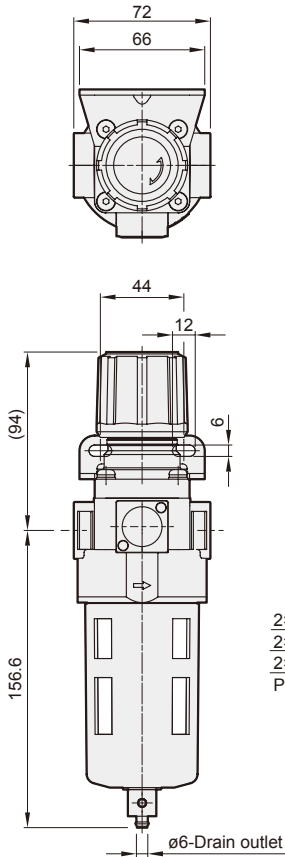
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

Flow feature

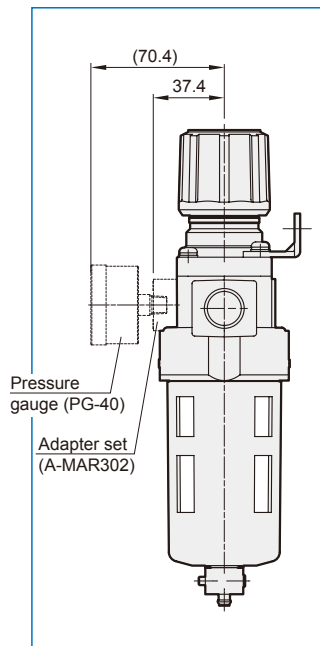


MAFR403 Dimensions

AIR UNIT (F.R.UNIT)

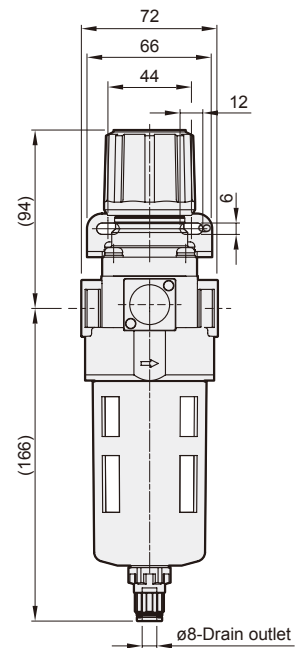


Accessories



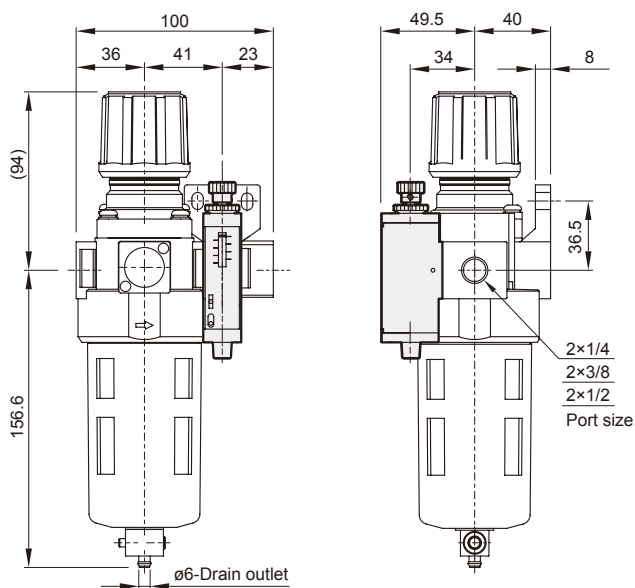
MAFR403-D

Auto drain valve



MAFR403-P

MPS Series
pneumatic pressure switch



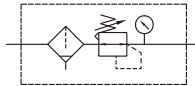
MAFR501 series

AIR UNIT (F.R.UNIT)



Option: MP41

Symbol



Specification

Model	MAFR501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Regulated pressure range	0.1~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40µm	
Drain capacity	PC, Nylon bowl: 75 cm ³	
	Metal bowl: 70 cm ³	
Attachment	Pressure gauge(PG-20), L-type bracket	
Weight	PC, Nylon bowl: 1940 g	
	Metal bowl: 2060 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MAFR501 – 20A – MC□J – E1 – □

MODEL

PORT SIZE

20A: 3/4
25A: 1

(Option)
PRESSURE
SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

PORT THREAD

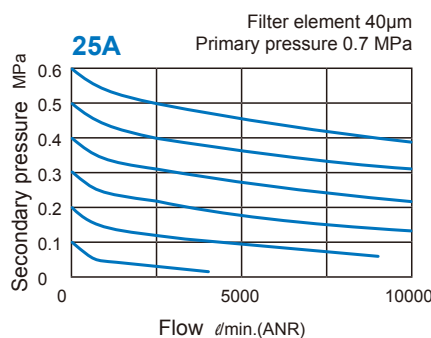
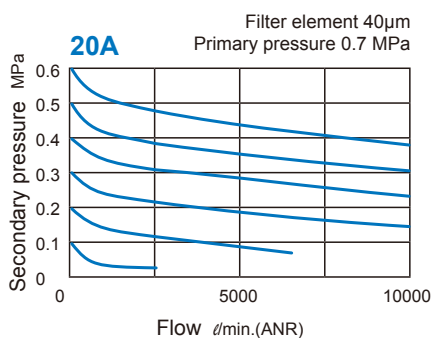
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve	Panel nuts
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	J: Panel nuts

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

Flow feature

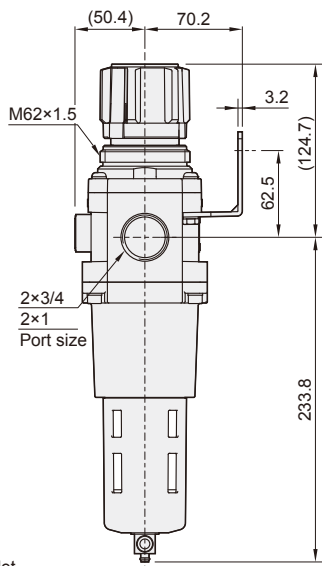
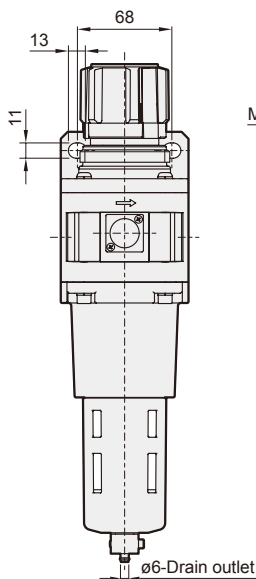
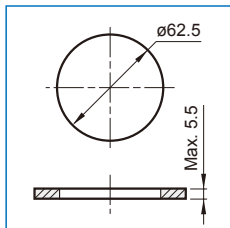
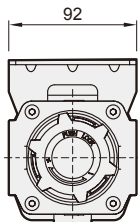


MAFR501 Dimensions

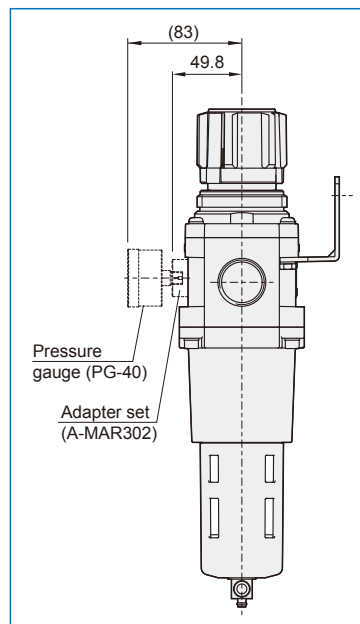
AIR UNIT (F.R.UNIT)



Panel mounting hole

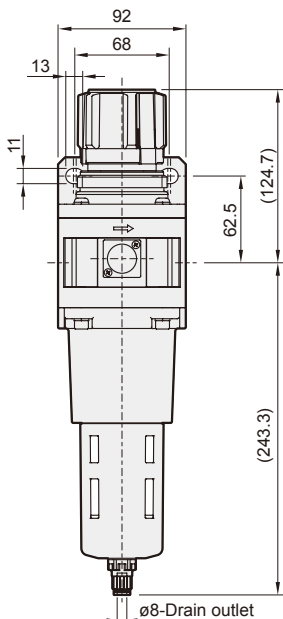


Accessories



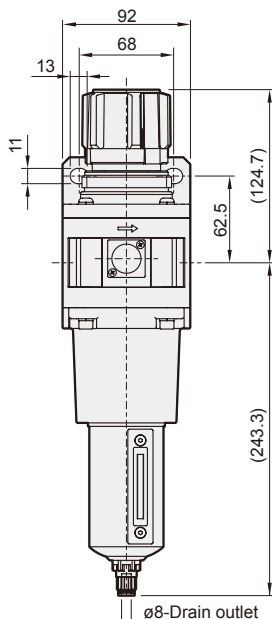
MAFR501-D

Auto drain valve



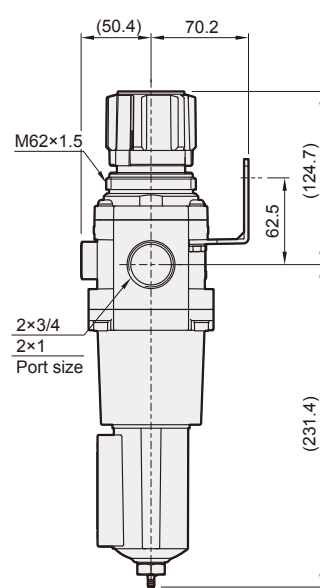
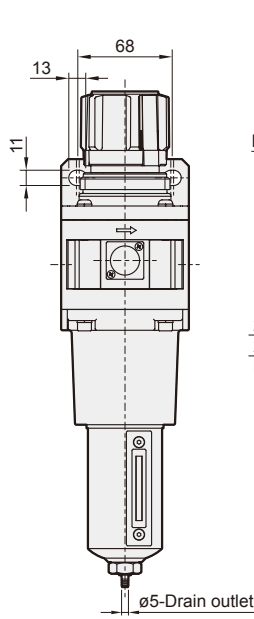
MAFR501-MD

Metal bowl + auto drain valve



MAFR501-M

Metal bowl

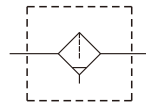


MAF200 series

AIR UNIT (FILTER)



Symbol

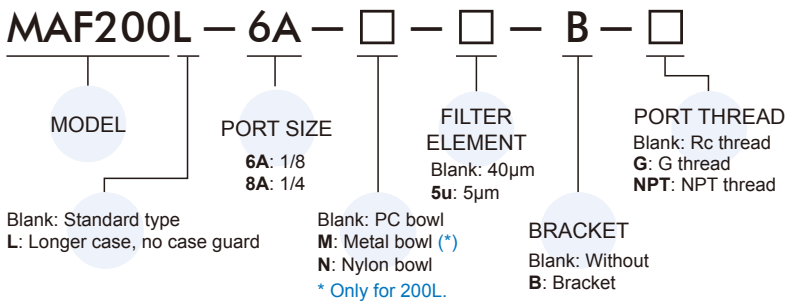


Specification

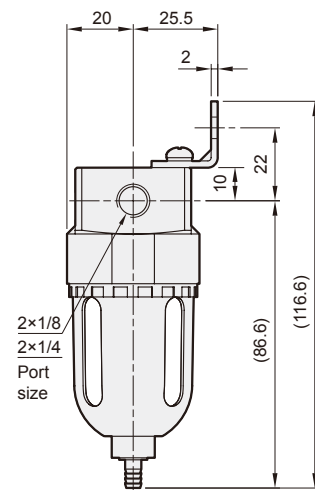
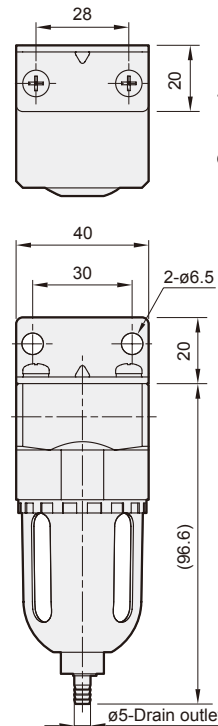
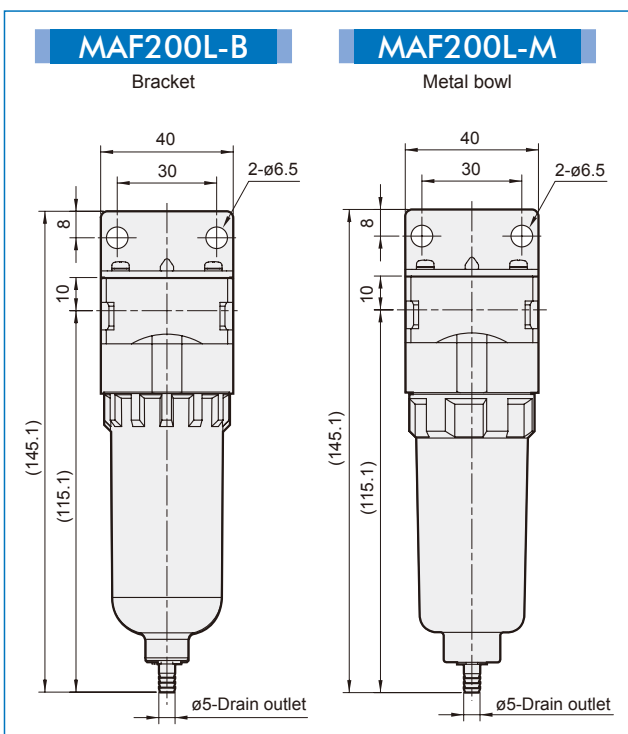
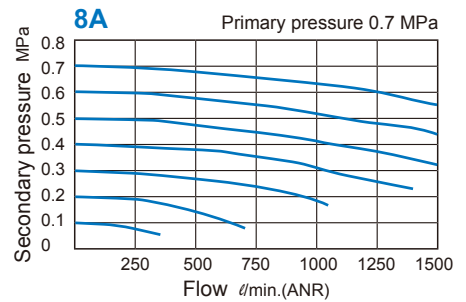
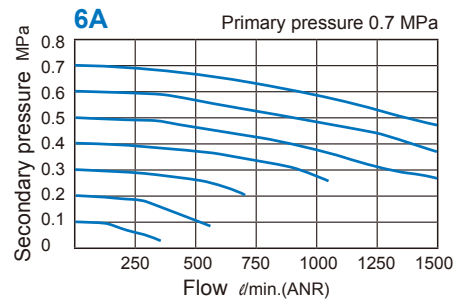
Model	MAF200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	Standard: 40µm, Option: 5µm	
Drain capacity	9.5 cm ³ , 25 cm ³ (MAF200L)	
Weight	187 g, 155 g (MAF200L)	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example



Flow feature



Specification

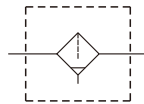
Model	MAF302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Drain capacity	35 cm ³		
Weight	335 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

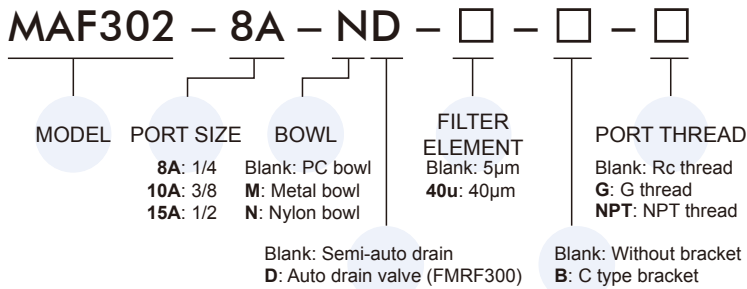
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.



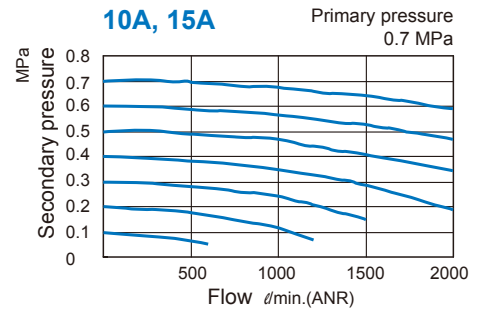
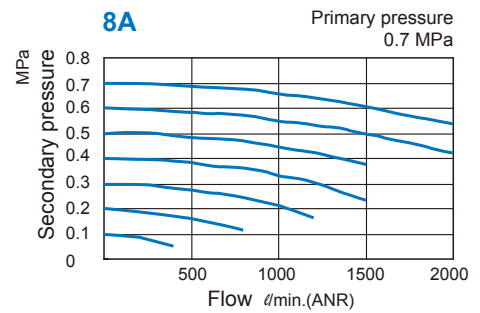
Symbol



Order example

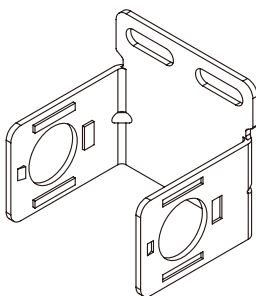


Flow feature



Option accessories

C type bracket

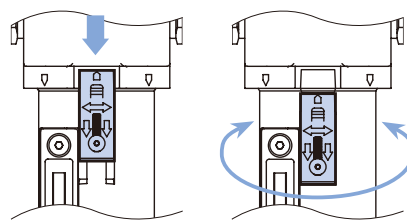


Caution

Metal bowl

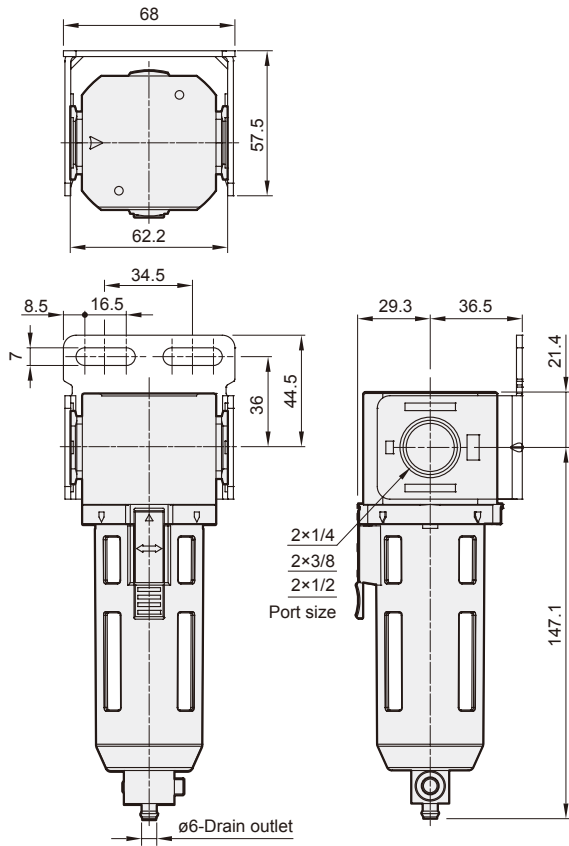
Before assembling or disassembling, push the lock plate down to the end, and confirm that it is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1. Sliding plate down
2. Rotating the bowl



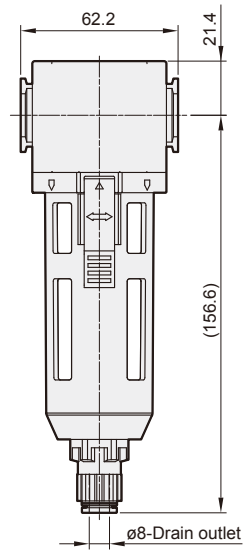
MAF302 Dimensions

AIR UNIT (FILTER)



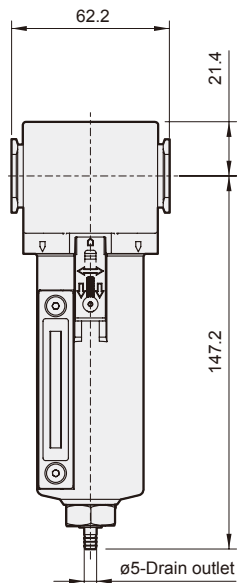
MAF302-D

Auto drain valve



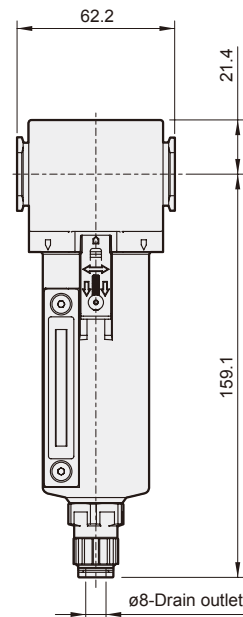
MAF302-M

Metal bowl



MAF302-MD

Metal bowl + Auto drain valve

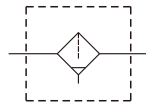




Specification

Model	MAF401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*1,2)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	70 cm ³		
Max. flow rate(*3) ℓ/min(ANR)	1500	2000	2500
Weight	480 g		

Symbol



Order example

MAF401 - 8A - [] - D - [] - [] - []

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

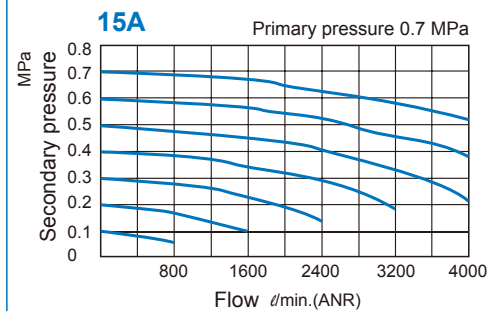
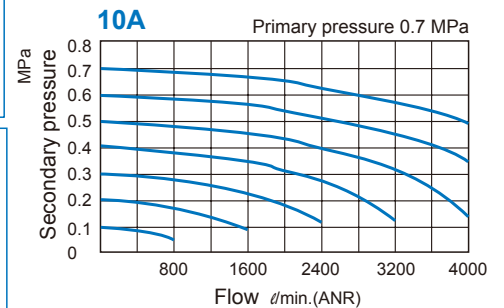
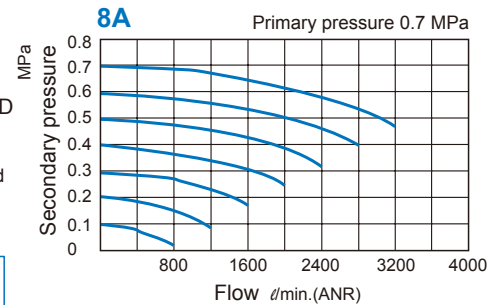
Blank: Semi-auto drain
D: Auto drain valve (FMRF300)

FILTER ELEMENT
Blank: 40μm
5u: 5μm

Blank: Without bracket
B: C type bracket

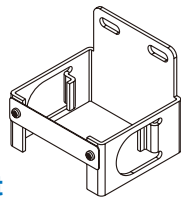
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Flow feature

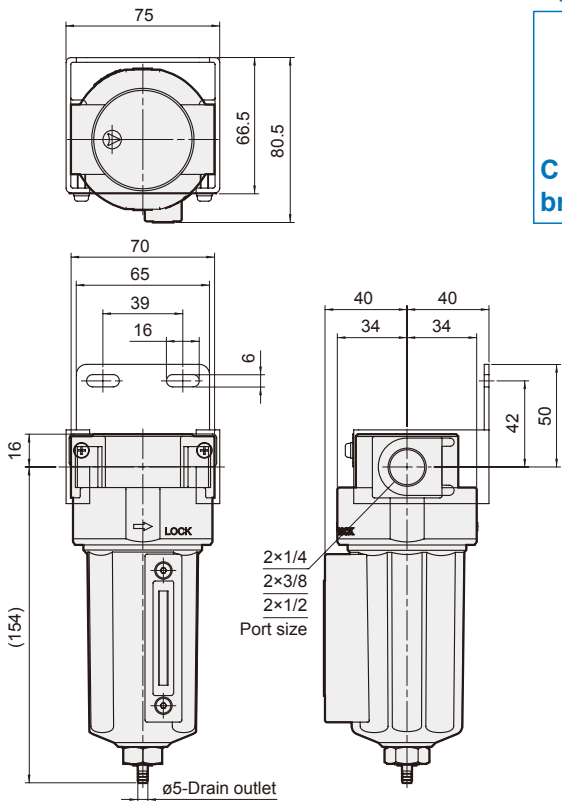
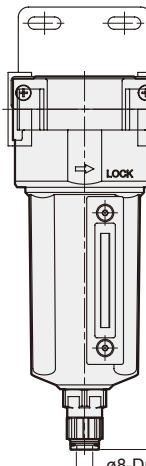


Option accessories

C type bracket



MAF401-D
Auto drain valve

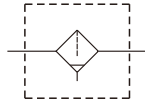


MAF403 series

AIR UNIT (FILTER)



Symbol



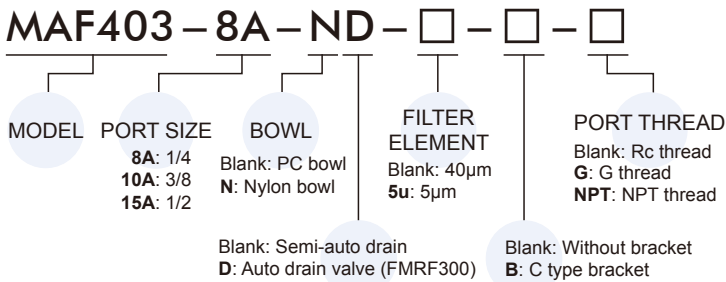
Specification

Model	MAF403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	75 cm ³		
Weight	345 g		

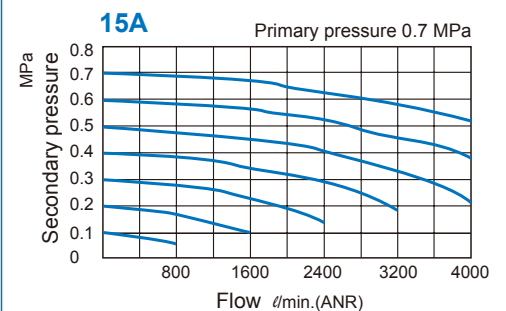
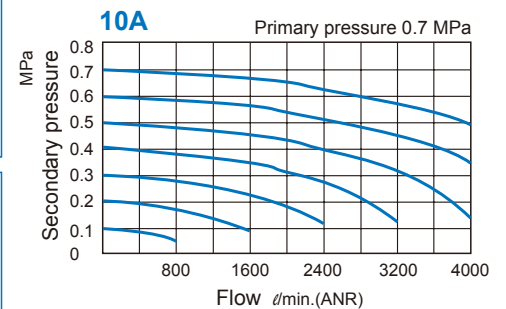
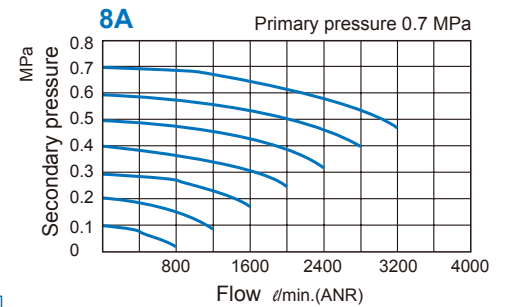
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

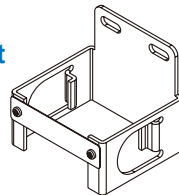


Flow feature



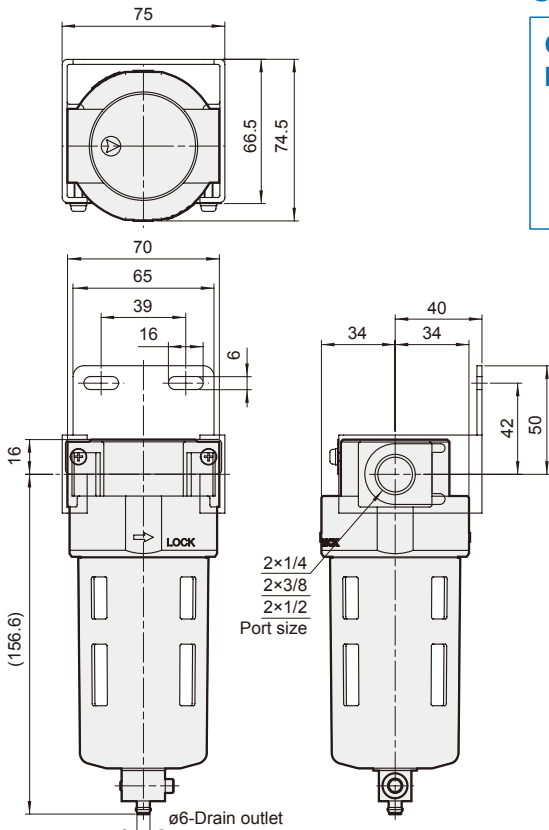
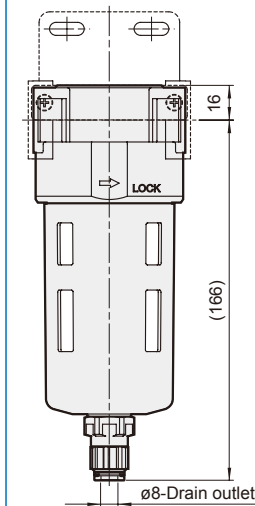
Option accessories

C type bracket



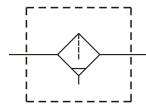
MAF403-D

Auto drain valve





Symbol



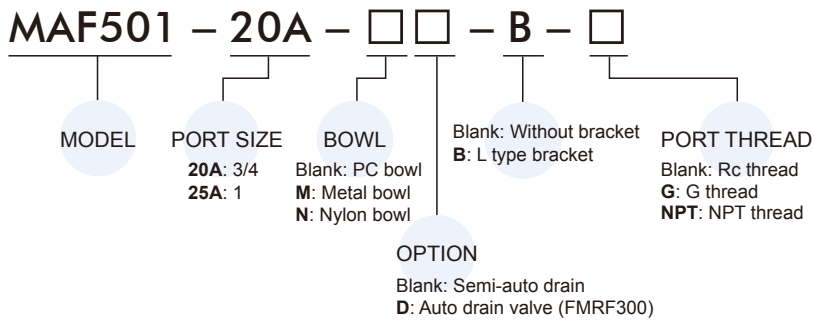
Specification

Model	MAF501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40 μm	
Drain capacity	Nylon bowl, PC bowl: 75 cm ³	
	Metal bowl: 70 cm ³	
Weight	Nylon bowl, PC bowl: 1180g	
	Metal bowl: 1300g	

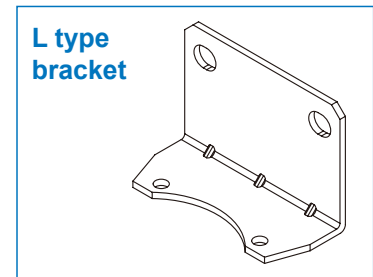
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

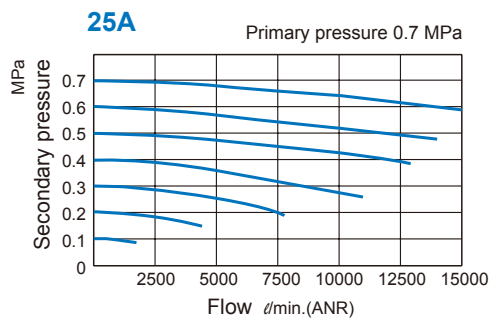
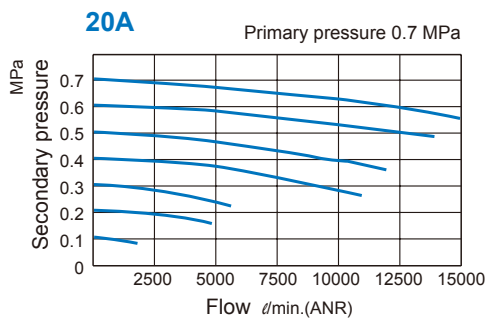
Order example



Option accessories



Flow feature



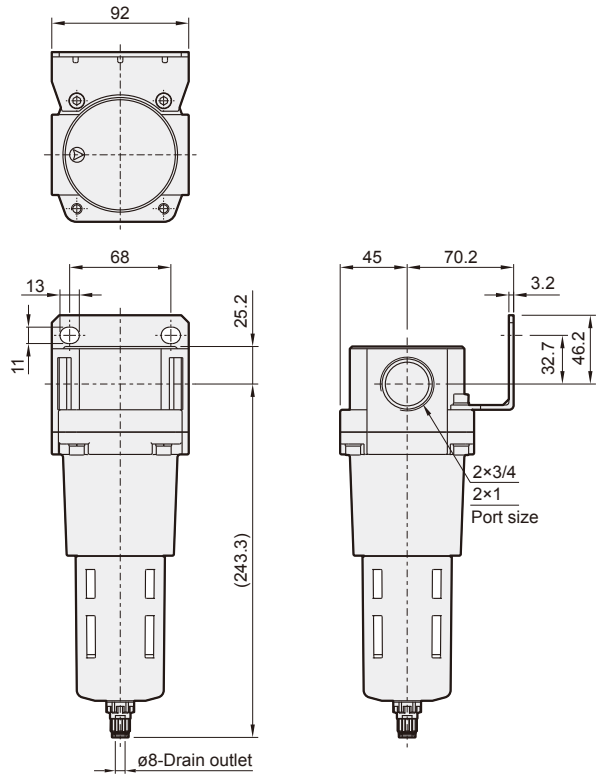
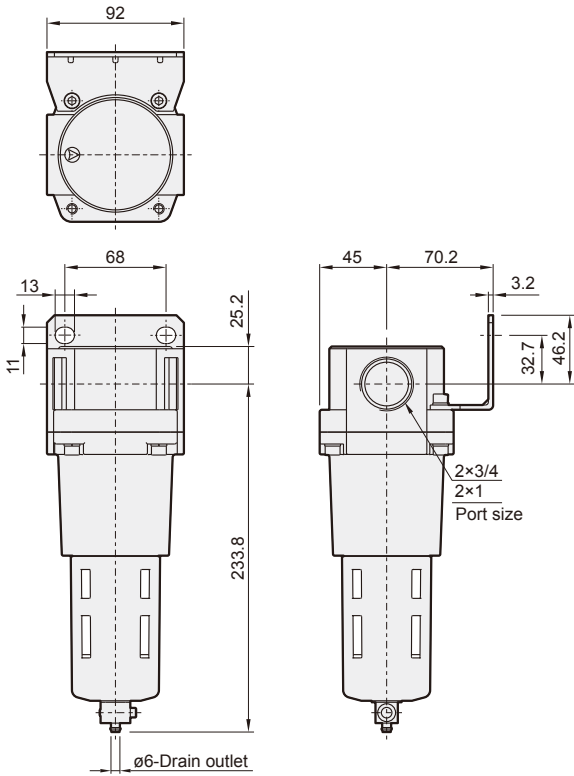
MAF501 Dimensions

AIR UNIT (FILTER)



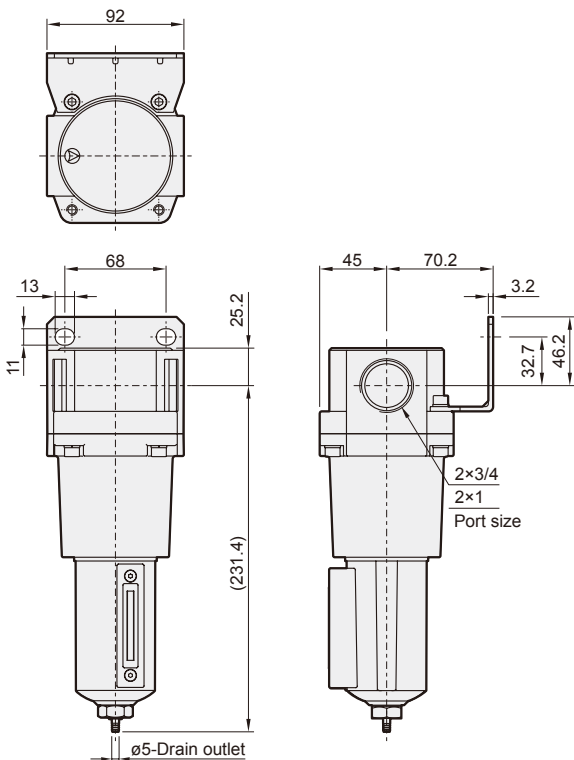
MAF501-D

Auto drain valve



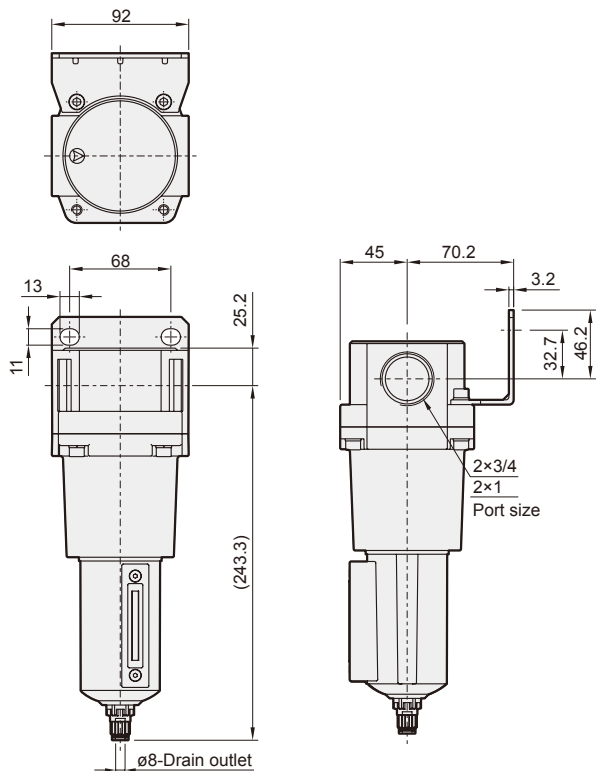
MAF501-M

Metal bowl



MAF501-MD

Metal bowl + auto drain valve



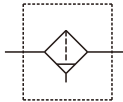
MAF900 series

AIR UNIT (FILTER)

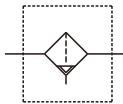


Symbol

Manual drain



Auto drain



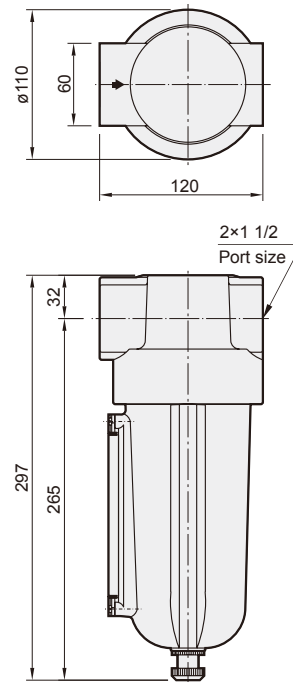
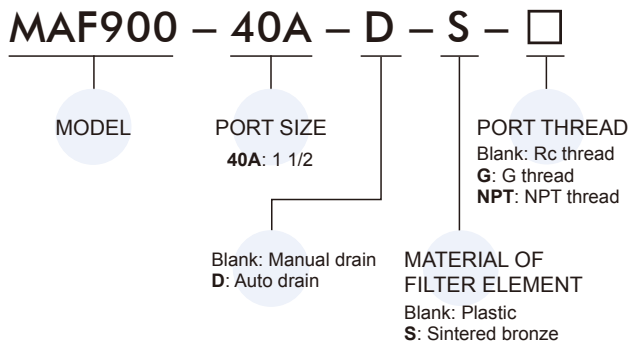
- Removing upto 99% of the liquid water.
- Design of the filter elements gives both surface and depth filtration for cleaner air.
- Ideally suited for header lines and large flow rated tools and cylinder operations.

Specification

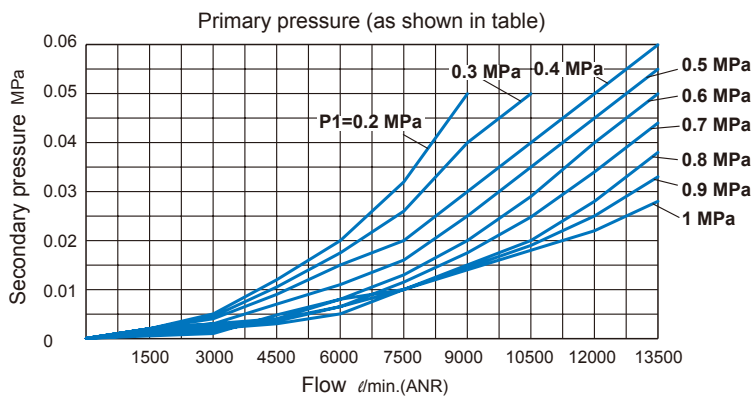
Model	MAF900
Bore No.	40A
Port size	1 1/2
Medium	Air
Operating pressure range (*1)	0.05~1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Filter element	Standard: 50µm
Standard nominal flow rate (*2)	20000 ℓ /min
Weight	2035 g

*1. Choose auto-drain, the pressure range is 0.15~1.75 MPa.
 *2. Flow is at pressure P= 0.6 MPa with pressure drop ΔP=0.1 MPa.

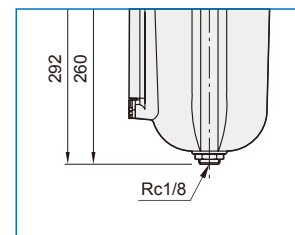
Order example



Flow feature



Auto drain



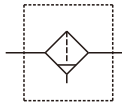
MAF901 series

AIR UNIT (FILTER)

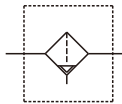


Symbol

Manual drain



Auto drain



- MAF901 with high water removal efficiency and minimal pressure drop are used for removal of liquids and solid contaminants to protect air tools and equipment.
- Ideally suited for header lines and very high flow applications.

Specification

Model	MAF901
Bore No.	50A
Port size	2
Medium	Air
Operating pressure range (*1)	0.05~1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Filter element	Standard: 50µm
Standard nominal flow rate (*2)	63000 ℓ /min
Weight	6930 g

*1. Choose auto-drain, the pressure range is 0.15~1.75 MPa.

*2. Flow is at pressure P= 0.6 MPa with pressure drop ΔP=0.1 MPa.

Order example

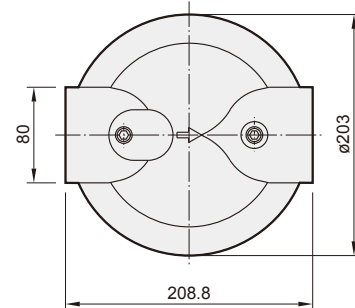
MAF901 – 50A – D – □

MODEL

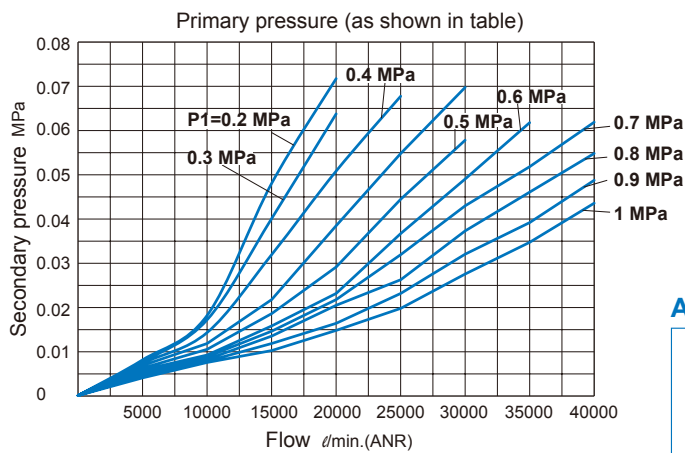
PORT SIZE
50A: 2

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

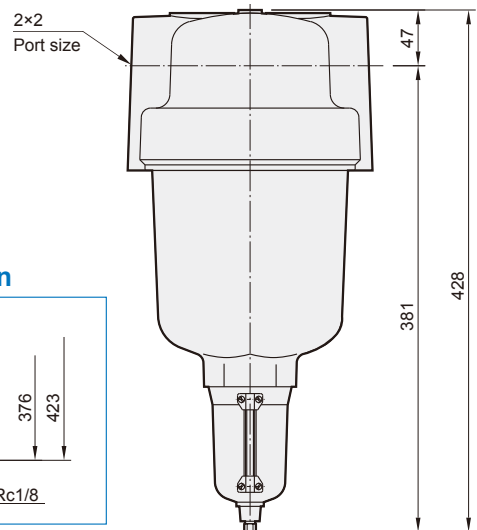
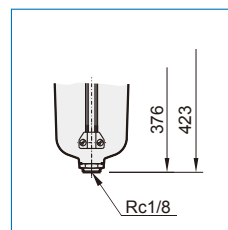
Blank: Manual drain
D: Auto drain



Flow feature

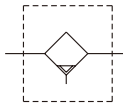


Auto drain





Symbol



Features

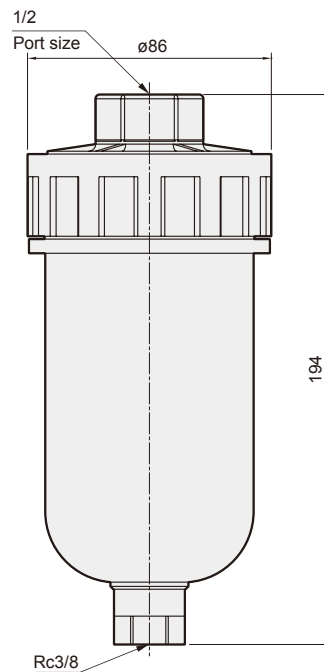
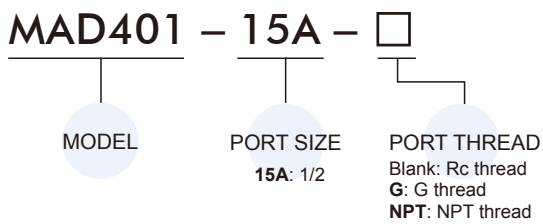
- Max. operating pressure: 1.3 MPa

Specification

Model	MAD401
Bore No.	15A
Port size	1/2
Medium	Air
Operating pressure range (*)	0.1~1.3 MPa
Proof pressure	1.7 MPa
Ambient temperature	-5~+80°C (No freezing)
Weight	745 g

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

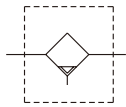


MAD401H series

AUTO DRAINER



Symbol



Features

- Max. operating pressure: 1.3 MPa

Specification

Model	MAD401H
Bore No.	15A
Port size	1/2
Medium	Air
Operating pressure range (*)	0.1~1.3 MPa
Proof pressure	2.0 MPa
Ambient temperature	- 5~+60°C (No freezing)
Weight	519 g

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

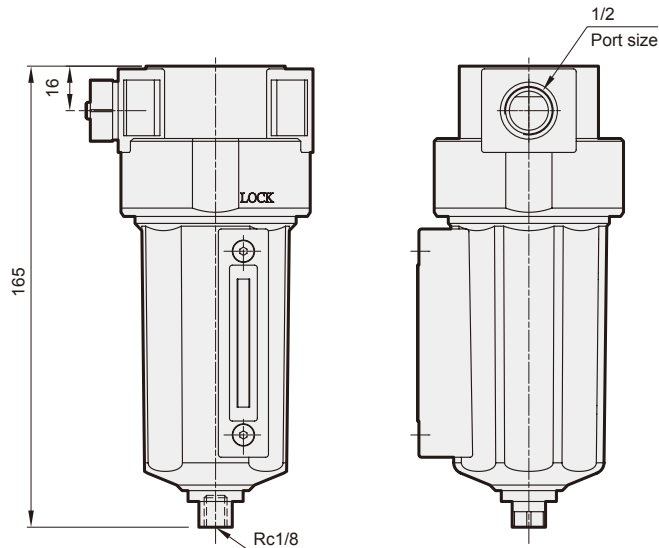
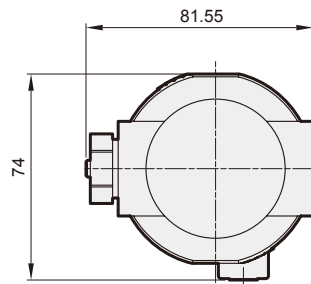
Order example

MAD401H - 15A - □ - □

MODEL PORT SIZE EXTERIOR COLOR PORT THREAD

15A: 1/2 Blank: Black & silver Blank: Rc thread G: G thread

W: Gray & white NPT: NPT thread





Specification

Model	MAD500	MAD500M
Dimensions	High 18cm (7"), Diameter 10cm(4")	
Inlet	Rc1/2	
Outlet	Rc3/8	
Operating perssure range	0.13~1.3 MPa	
Ambient temperature	2~60°C (36~104°F)	
Weight	780 g	
Discharge per operation	60cc per on time. Max. operation 25 times per minute.	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

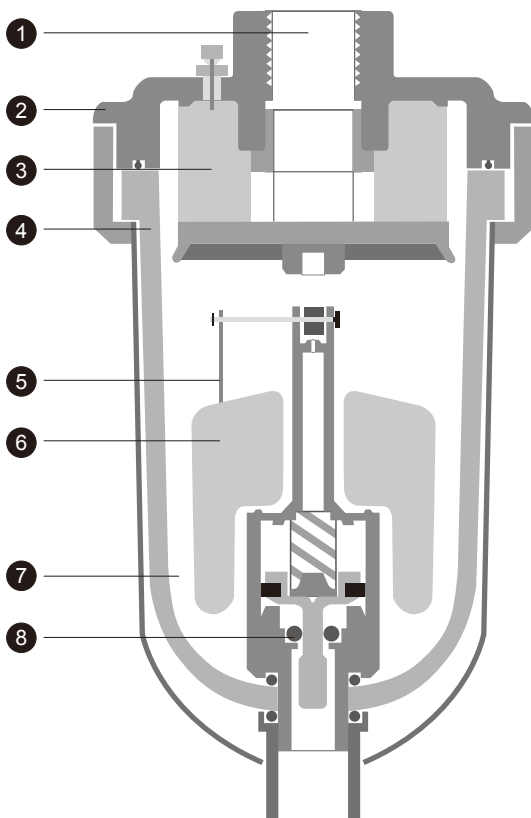
Order example * Port thread G, NPT, are also available.

MAD500 – M

MODEL

FILTER BOWL MATERIAL

Blank: Polycarbonate (PC)
M: Alumium Alloy



Improve the quality of compressed air

Modern plants use large quantity of compressed air to operate many precise automatic machines. With air pollution getting worse in the environment, polluted air from plants and automobiles have increase in a great deal. As the result, the quality of compressed air is degraded due to the dust, oil mist within plants and the increased temperature of the environment. The addition of expensive drying equipment and precise filter can block some water and impurity. But can not block acid chemicals in polluted air such as sulfur dioxide (SO₂), tiny oil mist and dust that are smaller than 0.01micron from entering the compressed air system.

After years of accumulation, these harmful materials can reduce the efficiency and service life of the drying equipment and filter systems. Furthermore, they can corrode the compressed air pipeline and some parts to affect the operation of automatic machines. The only way to prevent these is to use the excellent compressed air automatic drain valve to drain water, oil mist, rust and acid chemicals out of the compressed air system. It will increase the quality of compressed air, smooth the machine operation and increase the production efficiency.

- ① With large diameter sized entrance and path for particles and rust to pass through, no accumulation will occur in dead corners.
- ② Aluminum alloy casting with special anti-corrosion treatment and then coated with high quality baking varnish can withstand acid and alkali without any corrosion occurring.
- ③ Large volume filtered dirt storing compartment can filter and store more rust and dirt than other common automatic drain valve.
- ④ Water collecting bowl, made of optical class transparent plastic material, will not rupture.
- ⑤ Implanted stainless rod for float will never slip off.
- ⑥ Large size float has more buoyancy and is more sensitive to control.
- ⑦ Large size water collecting bowl can store and drain more water thus reduce the draining time and increase the service life of automatic drain valve.
- ⑧ Leakage proof ring, made of high quality VITON rubber, can endure abrasion without leakage. Its service time is ten times longer than NBR rubber.



- Clean compressed air, extends the life of pneumatic equipment.
- No electricity required.
- Easy installation not limited by space.

Specification

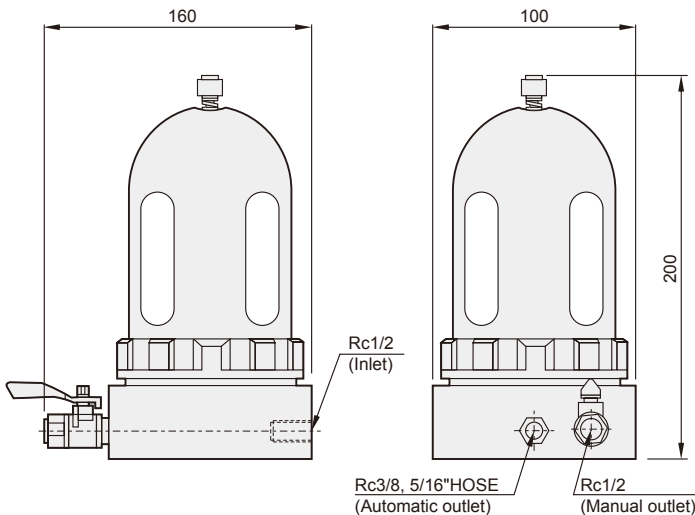
Model	MAD501	MAD501H
Inlet	Rc1/2	
Manual outlet	Rc1/2	
Automatic outlet	Rc3/8, 5/16"HOSE	
Operating pressure range	0.13~0.88 MPa	0.3~1.27 MPa
Ambient temperature	+2~+60°C	
Min. equipment requirement	180 l/min (about 1 HP)	250 l/min (about 2 HP)
Max. condensate discharge rate	15 gal/hour (57 l/min)	12 gal/hour (46 l/min)
Bowl	Polycarbonate (PC)	Aluminium
Dimensions	160mm×100mm×200mm	
Weight	1.3 kg	1.4 kg

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example * Port thread G. NPT. are also available.

MAD501 – H

MODEL FILTER BOWL MATERIAL
 Blank: Polycarbonate (PC)
 H: Aluminium Alloy



Continuous elimination of water

MAD501(H) automatic drain valve features an advanced design. Through the hose connections, Condensate, oil and sludge are eliminated from the compressed air equipment. The continuous-duty drainer constantly collects contaminants until these are eliminated "on demand" thus keeping a compressed air system clean. When installing the drainer, one is not limited by height nor position; uniquely, it can be installed in any ideal place or position. Since it needs only air pressure to operate, no electrical or outside controlling mechanisms are required. It rapidly and accurately eliminates water and other contaminants.

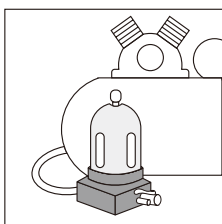
Solid, liquid and gas separation

The specially designed structure of the **MAD501(H)** separates solid, liquid and air. Since the controlling mechanisms are located in the air section, the moving parts are not affected by water, oil, or sludge-producing years of trouble-free draining.

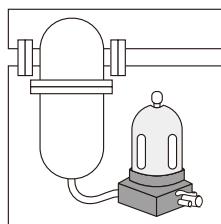
An integral part of the MAD501(H)'s design is the large cylindrical filter and manual valve (located in the base). Here, solids such as rust and pipe scale collect. In order to eliminate this waste, one need not stop the unit or use any tools; conversely, by briefly opening the manual valve, waste is immediately purged from the unit.

Finally, the liquid water and oil collect in the lower chamber (away from the controlling mechanisms) until purged either automatically or by opening the manual valve.

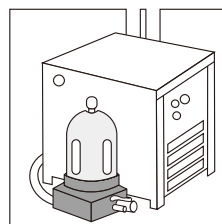
Applications



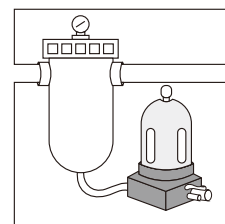
Air compressor



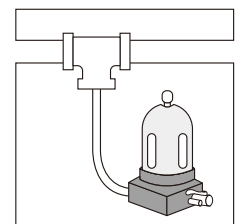
Separator



Air dryer



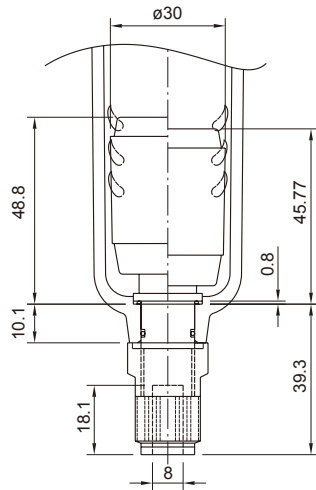
Air filter



Drop leg

FMRF300 / MADV400 series

AUTO DRAIN VALVE



Specification

Model	FMRF300
Operating pressure range	0.15~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	- 5~+60°C (No freezing)

Order example

FMRF300 – AD – U

for AIR UNIT
 MA**300 / 302 series
 MA**400 series
 MA**401 / 403 series
 MA**501 series
 * Ordered with filter together.



Specification

Model	MADV400
Operating pressure range	0.05~1.3 MPa
Proof pressure	2.0 MPa
Ambient temperature	- 5~+60°C (No freezing)

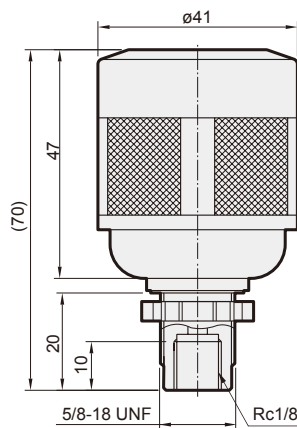
Order example

MADV400 – WB

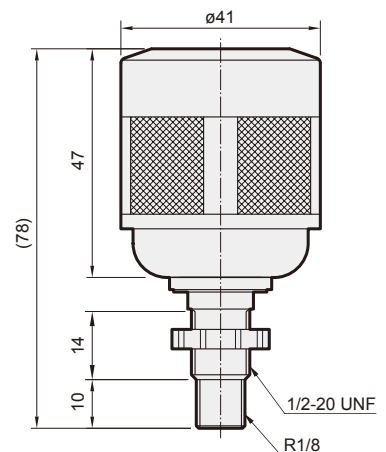
MODEL

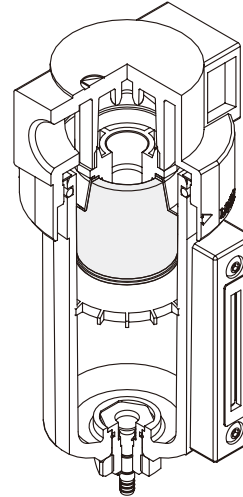
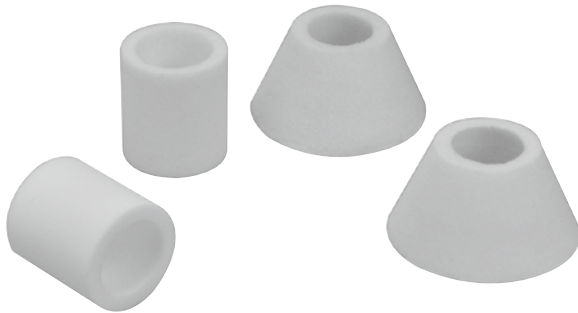
TYPE
 WA
 WB

WA



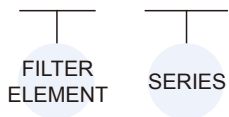
WB





Order example

E40 – 200



The table of the symbol

series	Applicable model					Symbol for order		
	MACC	MACT	MACP	MAFR	MAF	E5: 5μ	E20: 20μ	E40: 40μ
100				●		E5-100	–	E40-100
200		●	●	●	●	E5-200	–	E40-200
302		●	●	●	●	E5-300	–	E40-300
401		●	●	●	●	E5-401	–	E40-401
403		●	●	●	●	E5-401	–	E40-401
501		●			●	–	–	E40-501
501			●	●		–	–	E40-R501

EX: If order the 5u element of MACT300, the order symbol is E5-300.

Applicable model	Symbol for order		
	E001: 0.01μ	E03: 0.3μ	E5: 5μ
MAF302D, MAF401D	–	E03-302	–
MAF302M, MAF401M	E001-302	–	–
MAFF401AD, MAFRF401	–	E03-302	E5-401
MAFF401DM	E001-302	E03-302	–
MATFR401	E001-302	E03-302	E5-401
MAF501D	–	E03-501	–
MAF501M	E001-501	–	–



Features

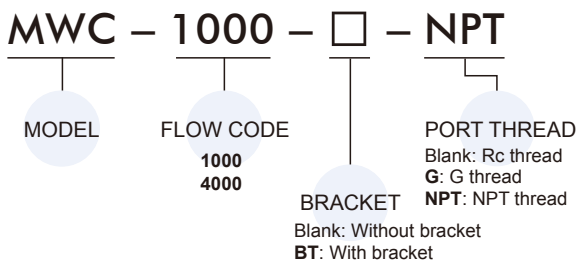
- Water removal rate remove as much as 99.99% of the water.
- Cost space saving save 80% cost.
- No power supply since no electricity is used, no wiring work is necessary. Installation is very easy.
- Compact design easily installed in wide variety of mechanical systems, due to space-saving design.

Specification

Model	MWC-1000	MWC-4000
Port size	3/8	1
External dimension (mm)	ø85×382	ø130×501
Max. operating pressure	1 MPa	
Max. air flow (*)	940 Nl/min	4,000 Nl/min
Option	Bracket	
Weight	1.6 kg	4.3 kg

* Pressure is at 0.7 MPa.

Order example of filter



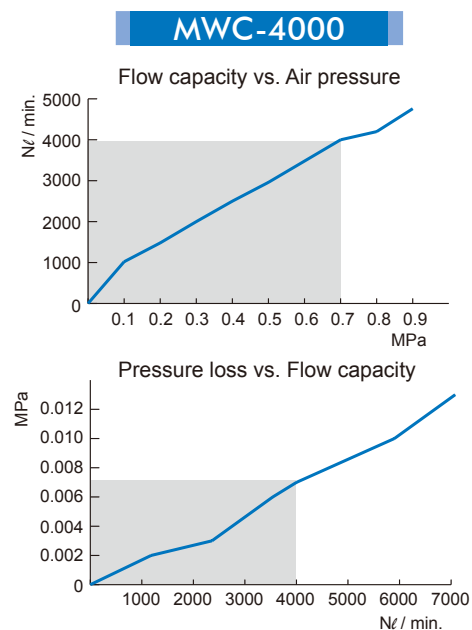
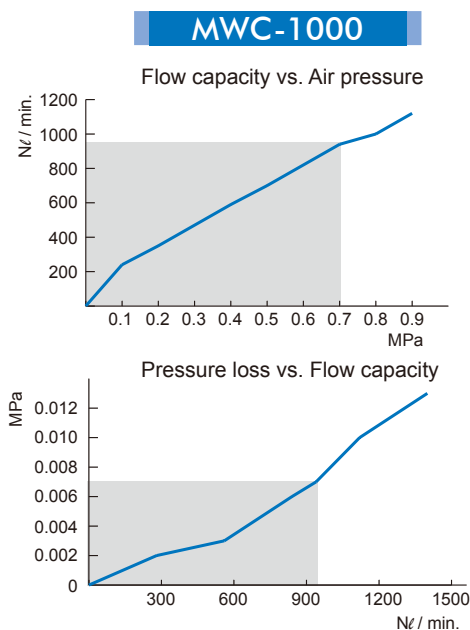
Order example of bracket



* NPT, G: Using converting sockets (Attachment).

Pressure loss / flow capacity

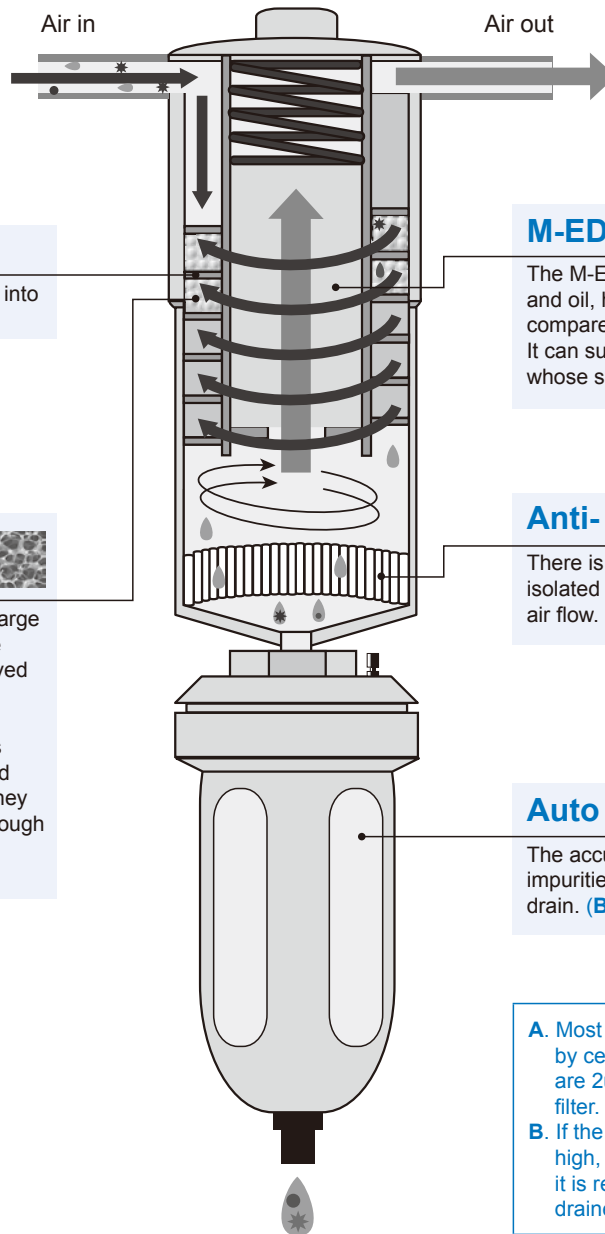
The pressure loss is less than 1%



* This product must be operated within the condition designated by blue areas in the graphs.

Compact and high efficiency

- 💧 Water drop
- ✳️ Dust
- Oil mist



Helical air path

The compressed air is induced into the helical air path.

M-EDDY filter

The M-EDDY filter which absorbs both mist and oil, has four times filtration capacity compared to the regular filters. It can supply clean air free of mist particles whose size is more than 1µm. (A)

Mesh coalescer



The mesh coalescer removes large particles and lets them fall. The majority of impurities are removed at this stage.

Next, centrifugal force removes small particles that have passed through the mesh coalescer. They are dropped into the bottom through the wall of the body and finally collected in the sump.

Anti-rolling up mechanism

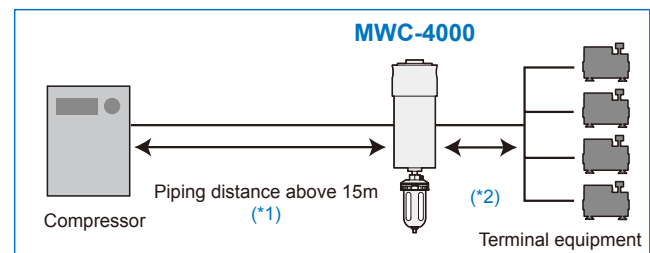
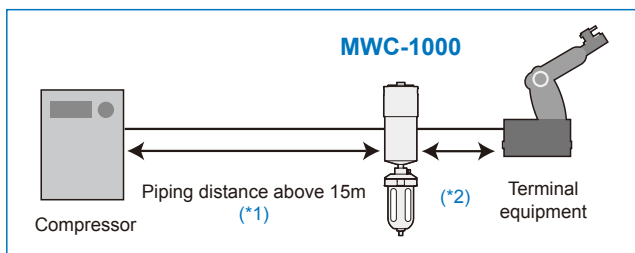
There is a built-in mechanism that keeps isolated impurities from coming back to the air flow.

Auto drain

The accumulation of oil, sewage and other impurities in the bowl are automatically drain. (B)

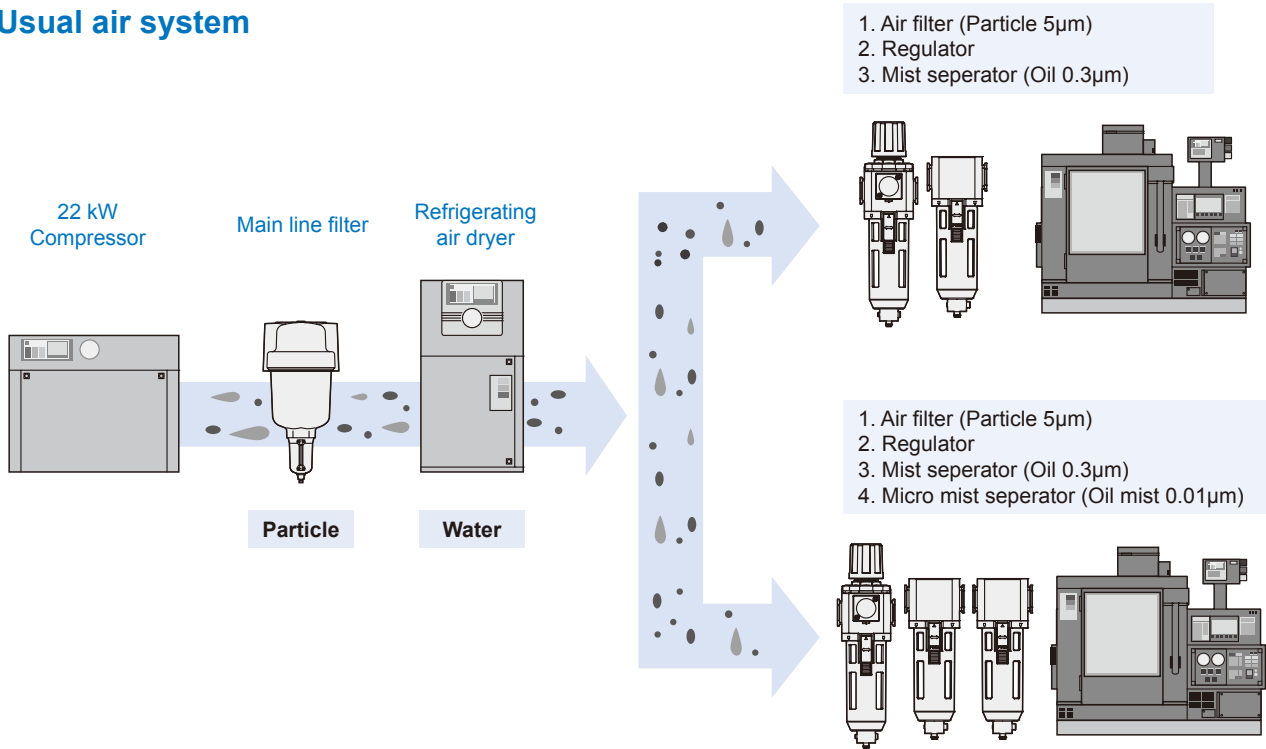
- A. Most of the impurities will be separated by centrifugal force, and the particles size are 2µm ~ 5µm, even without M-EDDY filter.
- B. If the concentration of oil or impurity is too high, the automatic drainer may be failure, it is recommended to install manual drainer.

Application examples

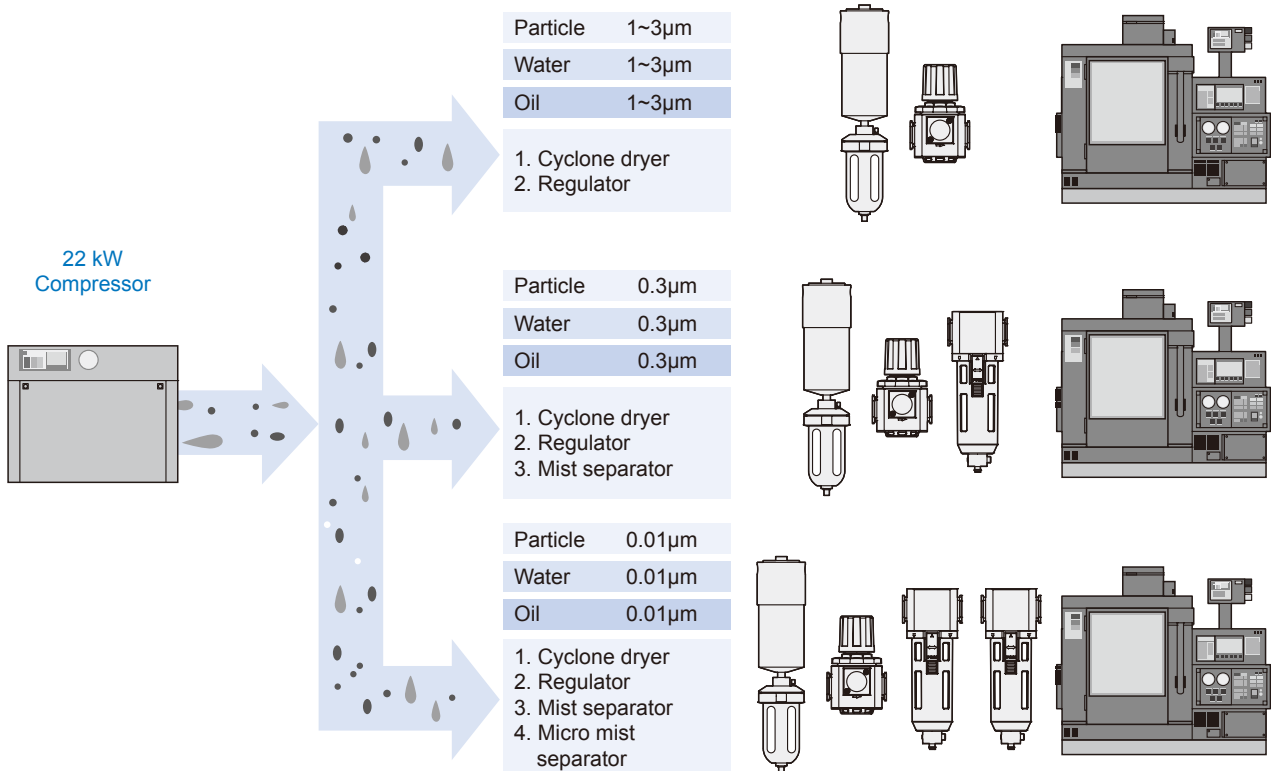


*1. Should be installed as far as possible from the compressor.
 *2. Should be installed as closer as possible to the terminal equipments.

Usual air system



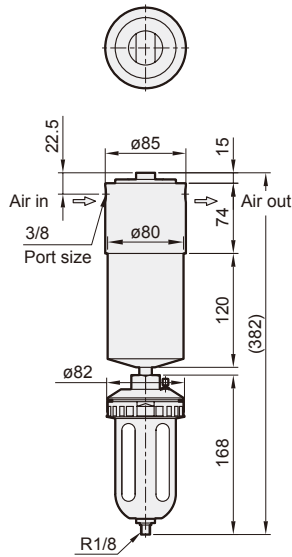
Cyclone dryer system



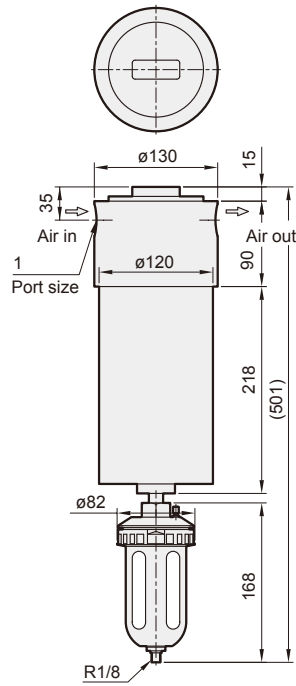
Dimensions

MWC-1000

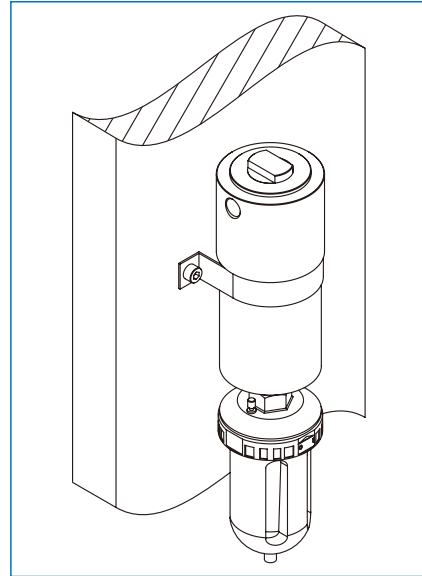
Rc thread



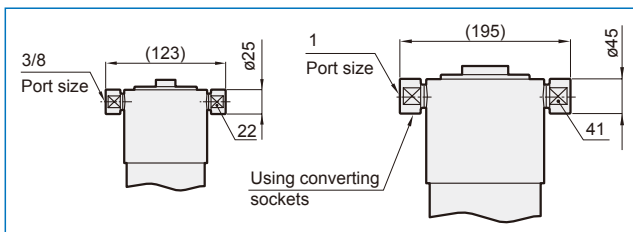
MWC-4000



Installation diagram

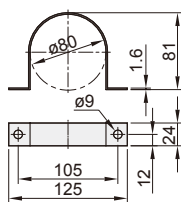


G & NPT thread

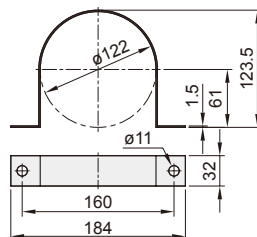


Bracket

BT-MWC-1000



BT-MWC-4000

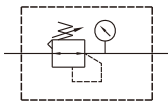


MAR100 series

PRESSURE REGULATOR



Symbol



Specification

Model	MAR100
Port size	M5×0.8
Medium	Air
Max. operating pressure	1 MPa
Proof pressure	1.5 MPa
Regulated pressure range	0.05~0.7 MPa
Repeatability	±10% F.S.
Ambient temperature	-5~+60°C (No freezing)
Flow rate (*)	90 ℓ/min
Attachment	Pressure gauge (PG-25), bracket
Weight	100g

* Measured at primary pressure 0.7 MPa, secondary pressure 0.6 MPa and pressure drop 0.1 MPa.

Order example

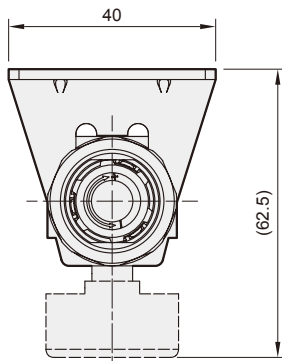
MAR100 — M5 — B — C

MODEL

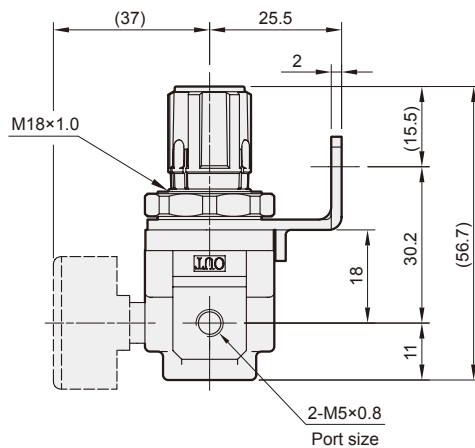
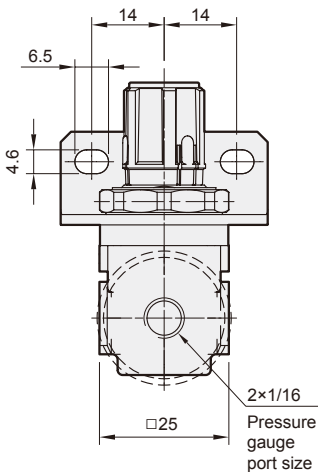
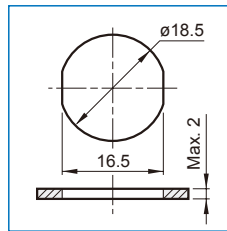
PORT SIZE

BRACKET

PRESSURE GAUGE

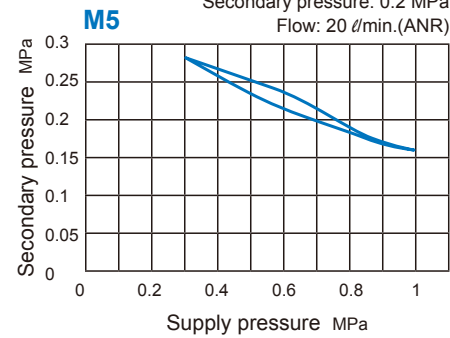


Panel mounting hole



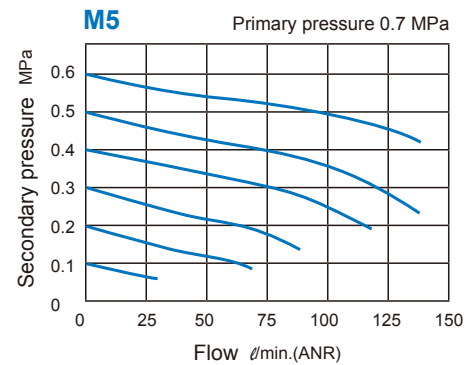
Pressure characteristics

Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 20 ℓ/min.(ANR)



Flow feature

Primary pressure 0.7 MPa

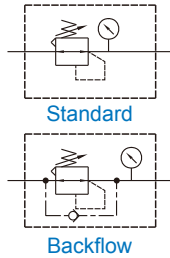


MAR200 series

PRESSURE REGULATOR



Symbol



Specification

Model	MAR200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	Standard type: 0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Attachment	L-type bracket	
Option	Pressure gauge (PG-40)	
Weight	190 g	

Order example

MAR200 K - 6A - □ - 1K - C - □ - □

MODEL

PORT SIZE

6A: 1/8
8A: 1/4

Blank: Standard
K: Backflow function

EXHAUST MECHANISM

Blank: Relieving type
Q: Non-relieving type

ADJUSTABLE PRESS. RANGE

Blank: 0.05~0.85 MPa
1K: 0.05~0.1 MPa
2K: 0.05~0.2 MPa
3K: 0.05~0.3 MPa
4K: 0.05~0.4 MPa

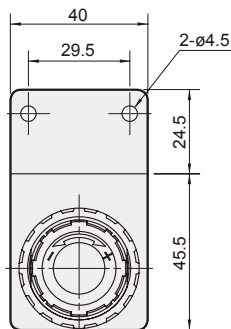
BRACKET

Blank: L type
B3: Z type

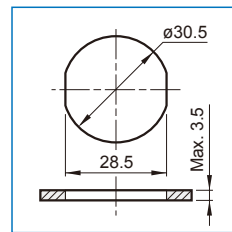
PORT THREAD

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

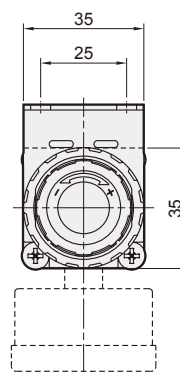
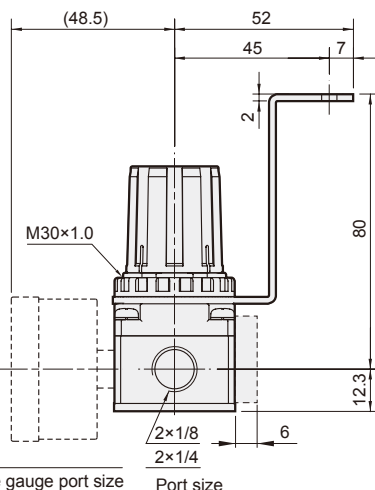
Blank: Without pressure gauge
C: Pressure gauge (PG-40)



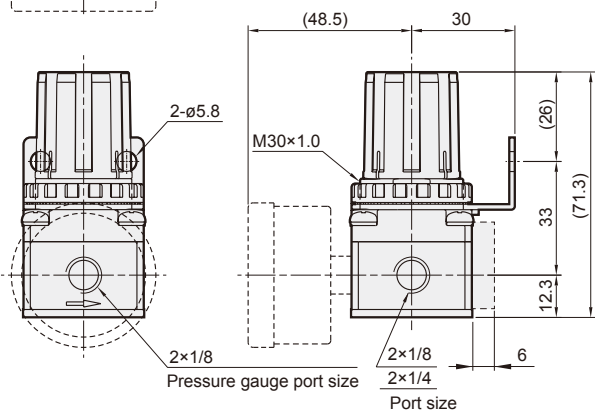
Panel mounting hole



Z type bracket

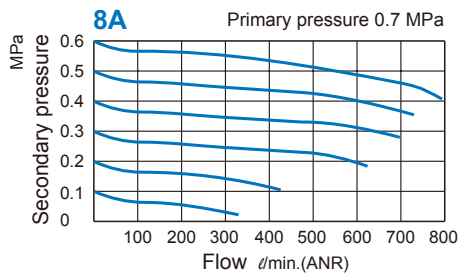
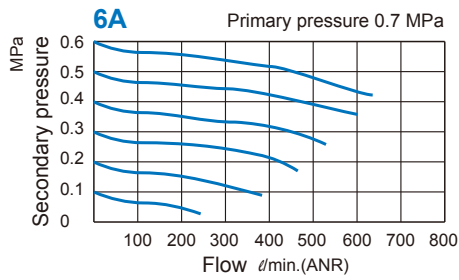


L type bracket

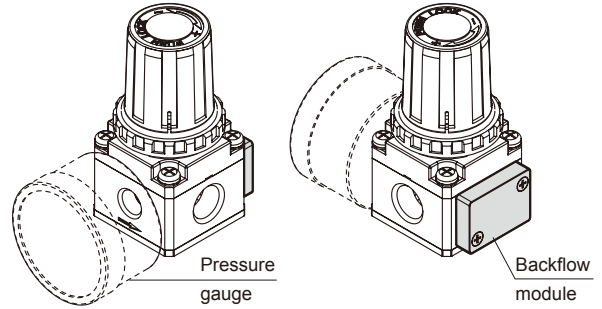


- * The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.
- * Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
- * The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

Flow feature



Precautions



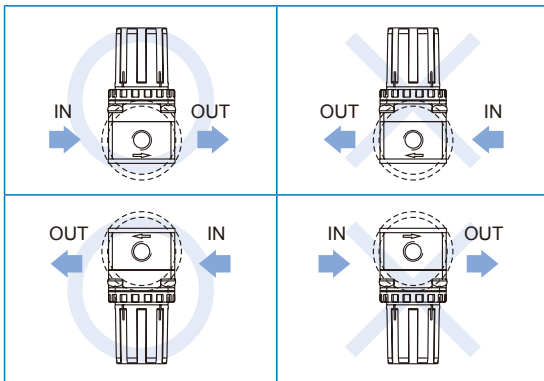
- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

Working principle

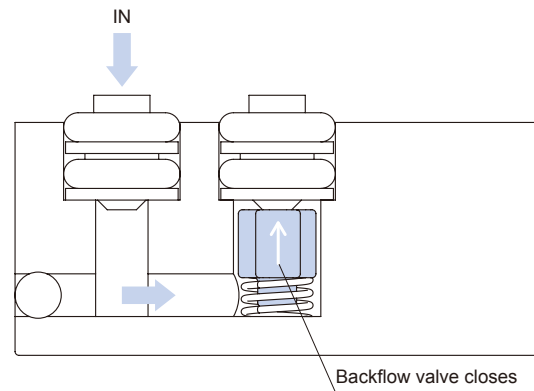
Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Installation direction

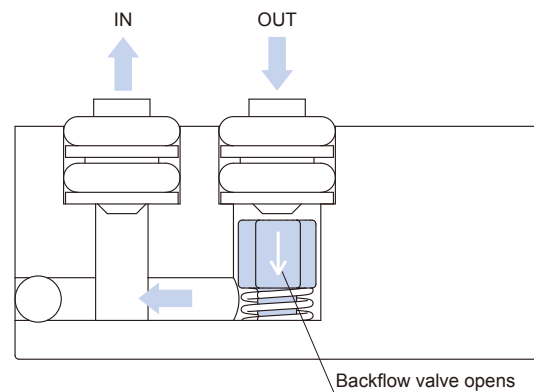
When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Normal air supply



Cut off air source

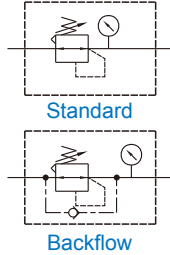


MAR201 series

PRESSURE REGULATOR



Symbol



Specification

Model	MAR201	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	Standard type: 0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Attachment	L type bracket	
Option	Pressure gauge (PG-40)	
Weight	190 g	

Order example

MAR201 K - 6A - □ - 1K - C - □ - □

MODEL

PORT SIZE

EXHAUST MECHANISM

ADJUSTABLE PRESS. RANGE

BRACKET

PORT THREAD

Blank: Standard
K: Backflow function

Blank: Relieving type
Q: Non-relieving type

Blank: 0.05~0.85 MPa
1K: 0.05~0.1 MPa
2K: 0.05~0.2 MPa
3K: 0.05~0.3 MPa
4K: 0.05~0.4 MPa

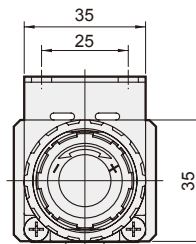
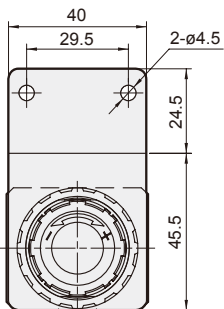
Blank: L type
B3: Z type

Blank: Without pressure gauge
C: Pressure gauge (PG-40)

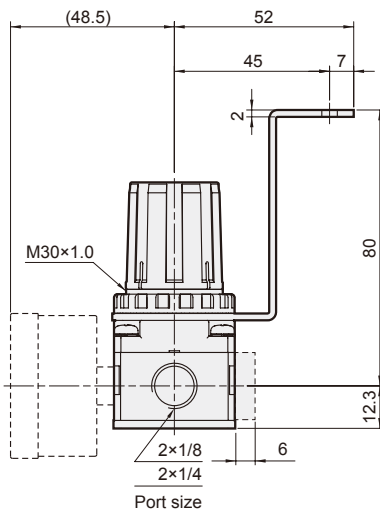
* The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.

* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

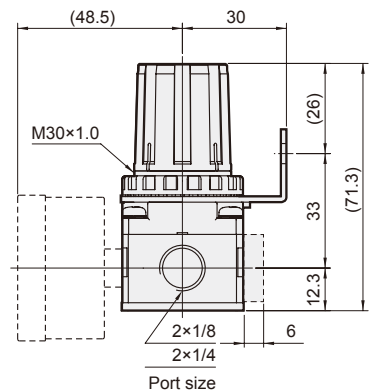
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.



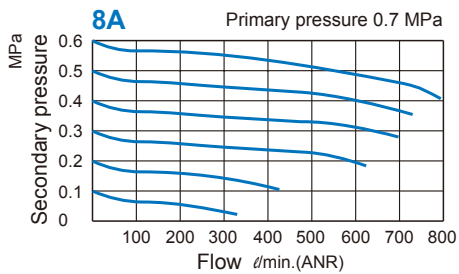
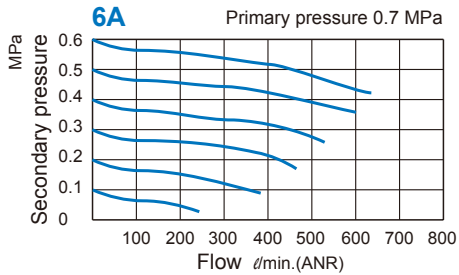
Z type bracket



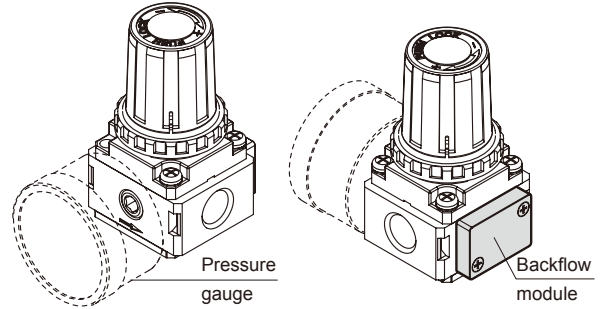
L type bracket



Flow feature



Precautions



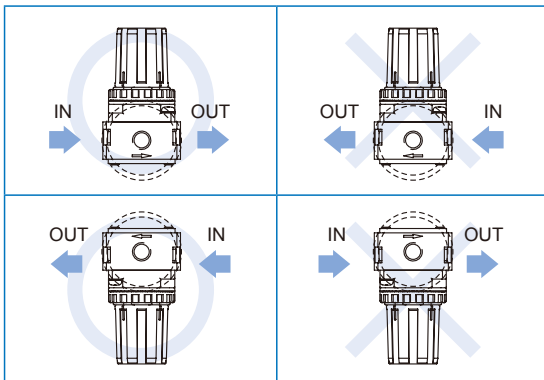
- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

Working principle

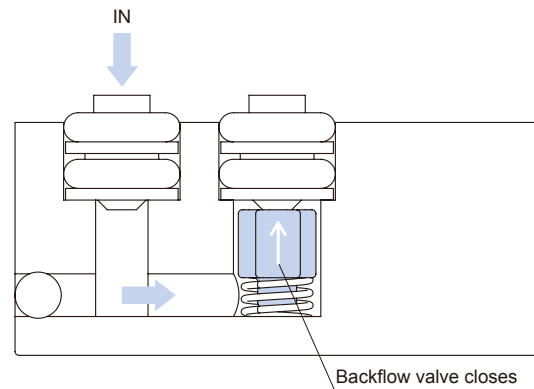
Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Installation direction

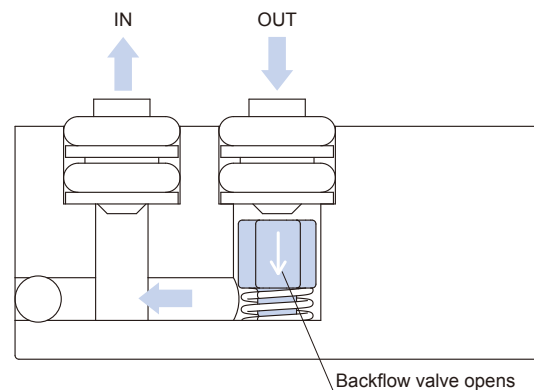
When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Normal air supply



Cut off air source



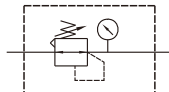
MAR302 series

PRESSURE REGULATOR

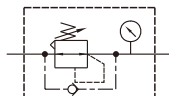


Option: **MP41**

Symbol



Standard



Backflow

Specification

Model	MAR302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), Bracket		
Weight	270 g		

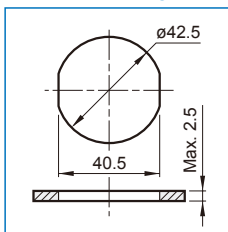
Order example

MAR302 K - 8A - □ - □ - E1 - □

MODEL

Blank: Standard
K: Backflow function

Panel mounting hole



EXHAUST MECHANISM

Blank: Relieving type
Q: Non-relieving type

BORE SIZE

8A: 1/4
10A: 3/8
15A: 1/2

(Option)
PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

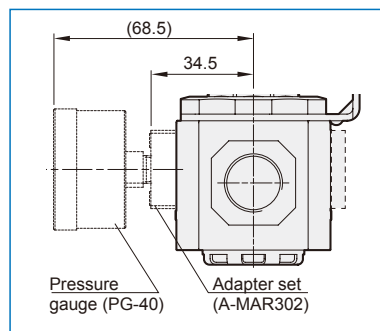
Blank: Standard type (PG-20)
C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302)
A: Gauge adapter set (A-MAR302)

PORT THREAD

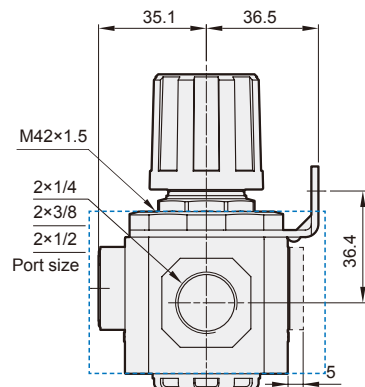
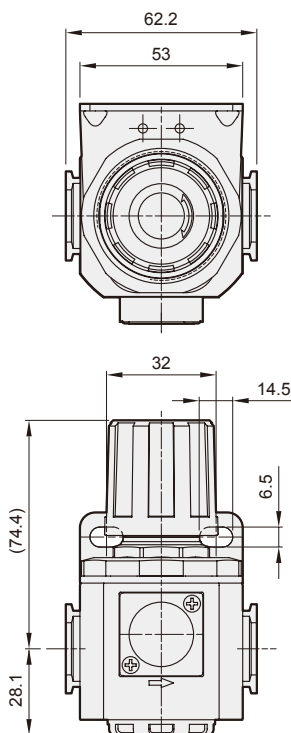
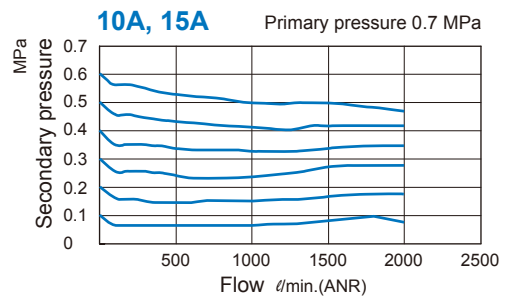
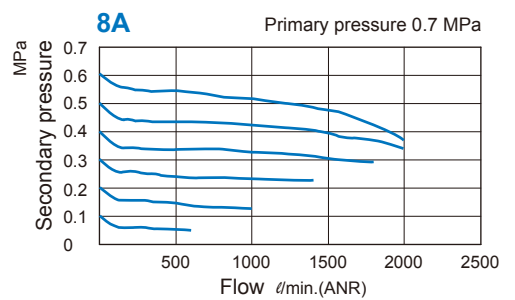
Blank: Rc thread
G: G thread
NPT: NPT thread

- * The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.
- * Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
- * The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.
- * PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
- * Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

Accessories

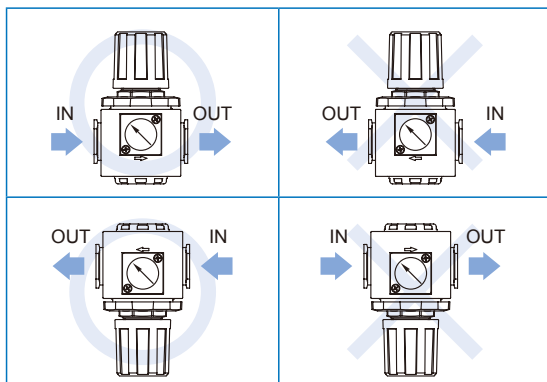


Flow feature

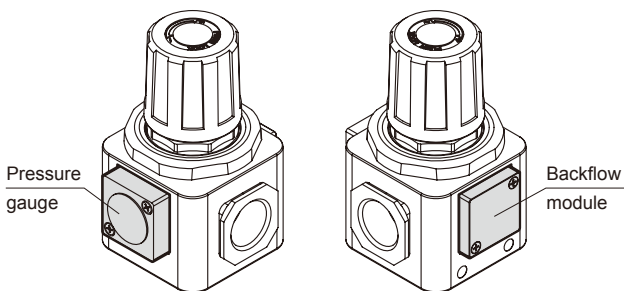


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

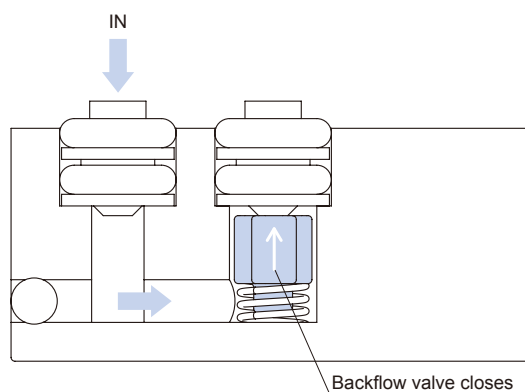


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

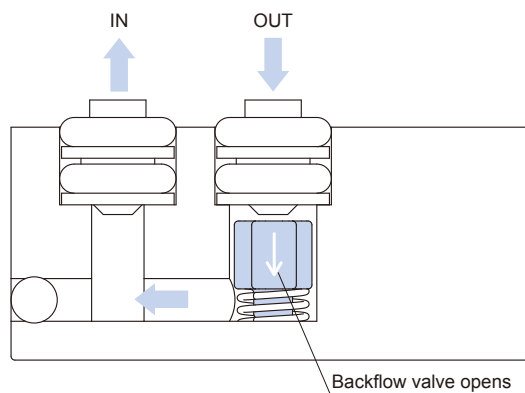
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



MAR401 series

PRESSURE REGULATOR



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

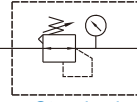
Pressure Switch

Auxiliary Equipment

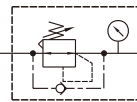
PISCO



Option: **MP41**
Symbol



Standard



Backflow

Specification

Model	MAR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	450 g		

Order example

MAR401 K - 8A - [] - [] - HAP - E1 - []

MODEL

PORT SIZE

EXTERIOR COLOR

EXHAUST MECHANISM

(Option) PRESSURE SWITCH

PORT THREAD

Blank: Standard
K: Backflow function

8A: 1/4
10A: 3/8
15A: 1/2

Blank: Black& silver
W: Gray& white

Blank: Relieving type
Q: Non-relieving type

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

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

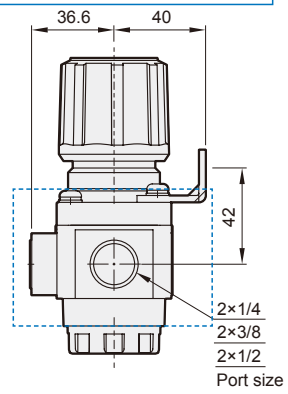
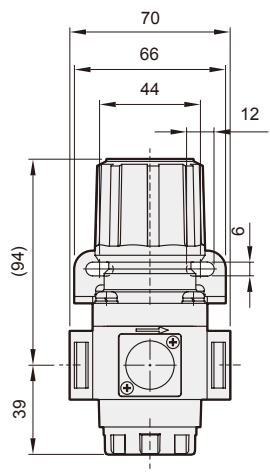
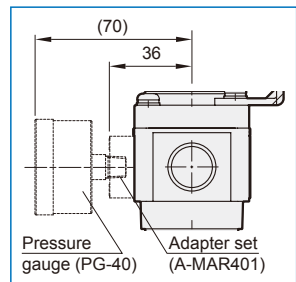
- * The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.
- * Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
- * The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

(Option) ACCESSORIES

Type	Pressure gauge	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20)	P: Pressure switch (MPS series)
	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401)	
H: High pressure type	A: Gauge adapter set (A-MAR401)	-

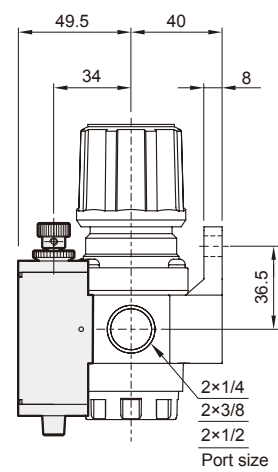
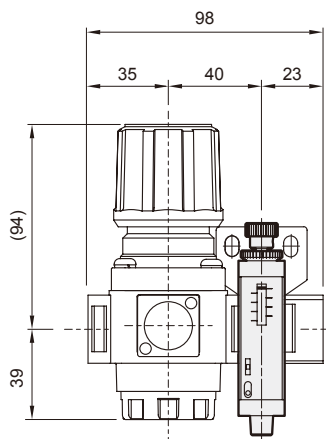
- * PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
- * Specification (W) gauge adapter set (A-MAR302).
- * Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

Accessories

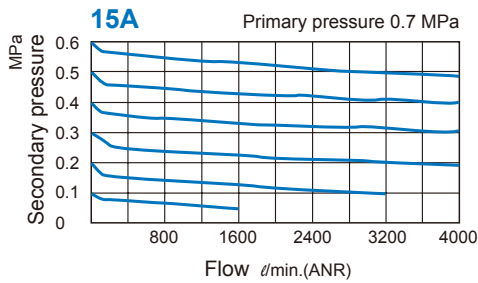
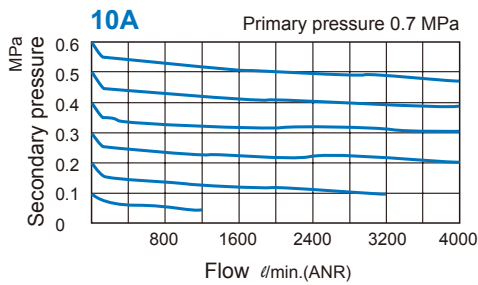
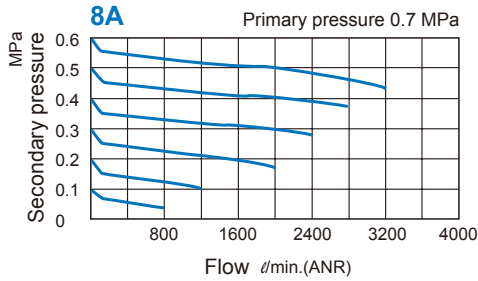


MAR401-P

MPS Series pneumatic pressure switch

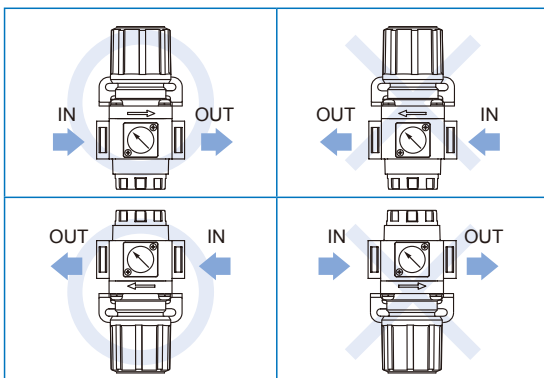


Flow feature

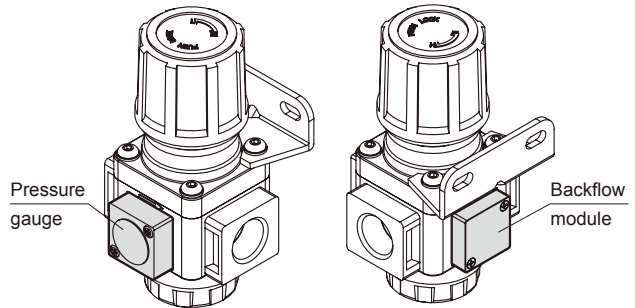


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

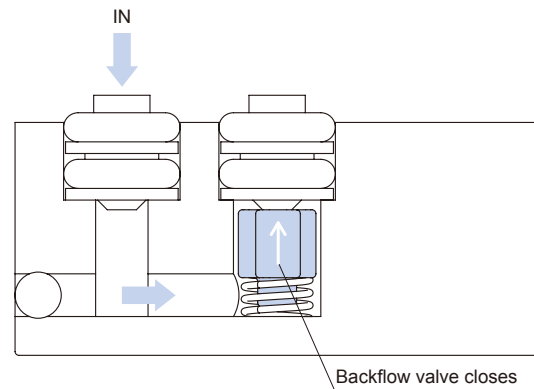


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

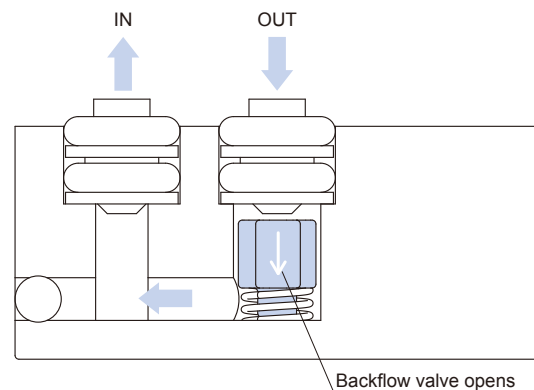
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



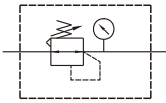
MAR403 series

PRESSURE REGULATOR

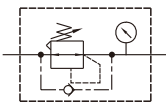


Option: MP41

Symbol



Standard



Backflow

Specification

Model	MAR403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	450 g		

Order example

MAR403 K - 8A - □ - □ - E1 - □

MODEL

Blank: Standard
K: Backflow function

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

EXHAUST MECHANISM

Blank: Relieving type
Q: Non-relieving type

(Option) PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

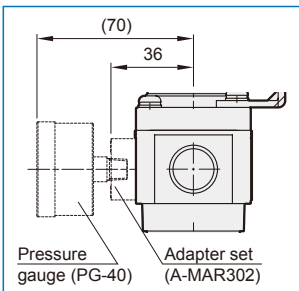
PORT THREAD

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

(Option) ACCESSORIES

Pressure gauge	Pressure switch
Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	P: Pressure switch (MPS series)

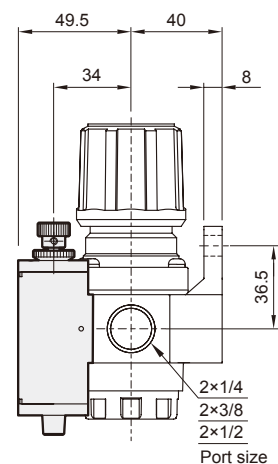
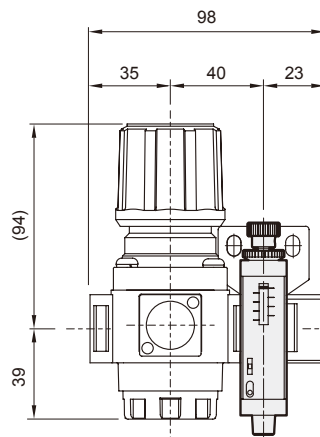
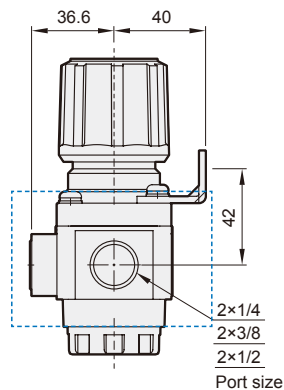
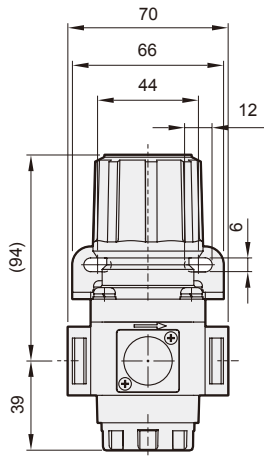
Accessories



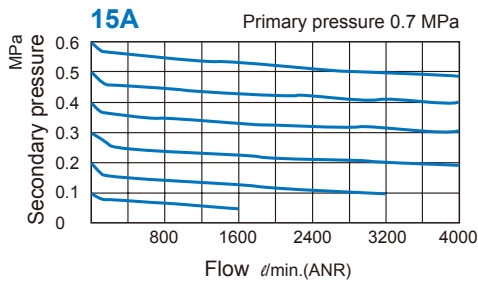
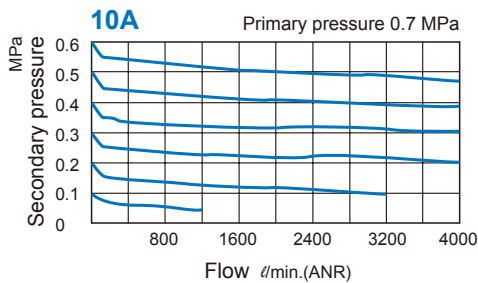
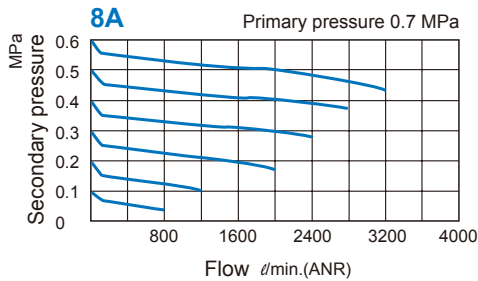
- * The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.
- * Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
- * The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.
- * PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
- * Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

MAR403-P

MPS Series
pneumatic pressure switch

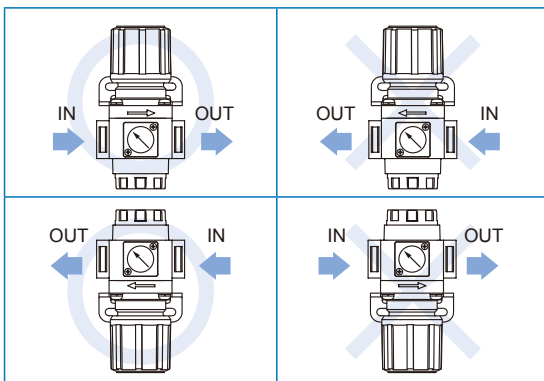


Flow feature

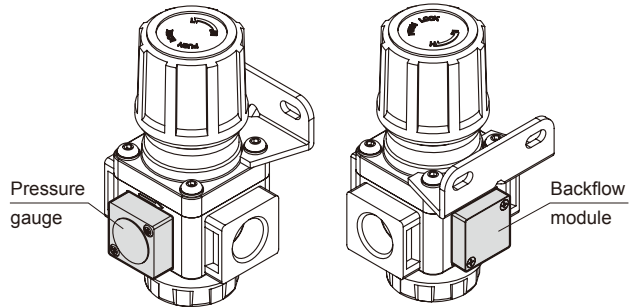


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

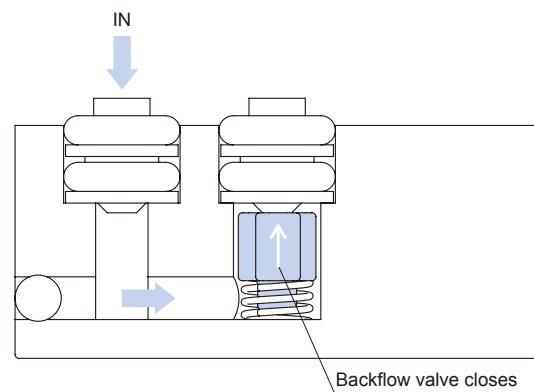


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

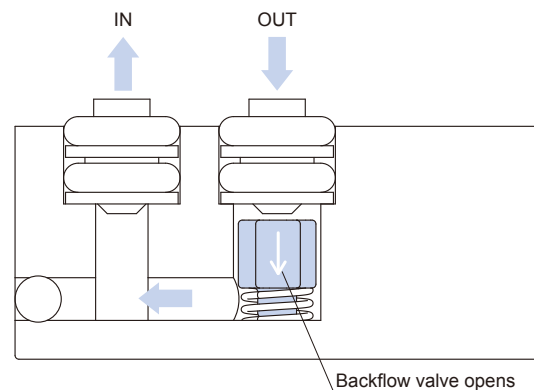
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



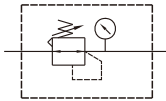
MAR501 series

PRESSURE REGULATOR



Option: **MP41**

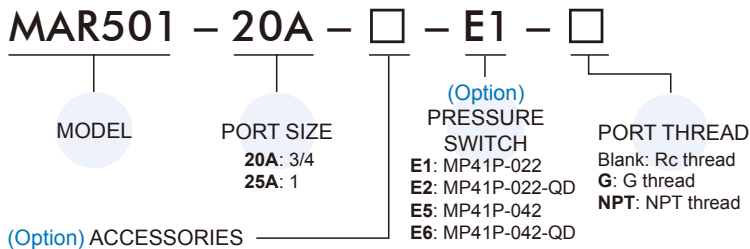
Symbol



Specification

Model	MAR501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Max. operating pressure	1.5 MPa	
Proof pressure	2 MPa	
Regulated pressure range	0.05~0.85 MPa	
Repeatability	±7% F.S.	
Ambient temperature	- 5~+60°C (No freezing)	
Attachment	Pressure gauge(PG-20),L-type bracket	
Weight	1460 g	

Order example



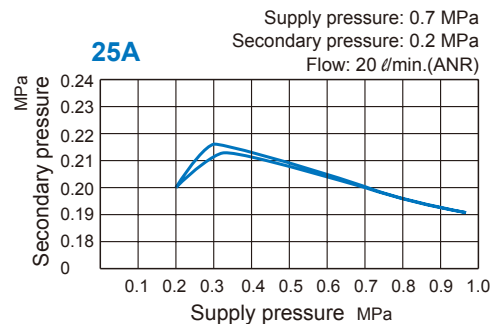
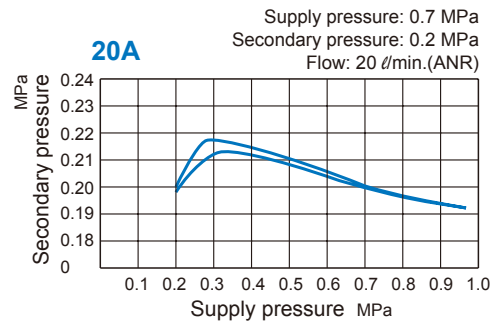
(Option) ACCESSORIES

Pressure gauge	Panel nuts
Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) A: Gauge adapter set (A-MAR302)	J: Panel nuts

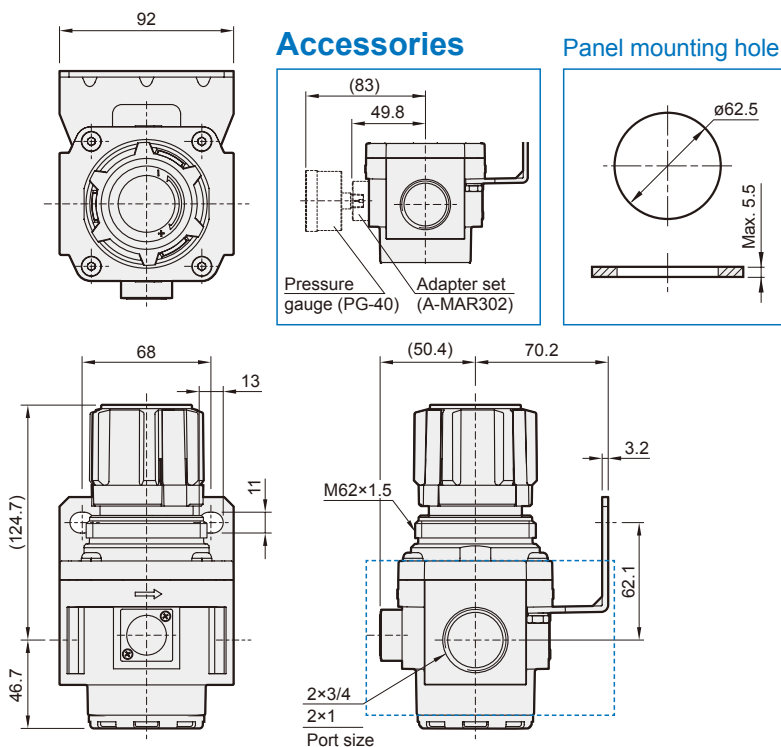
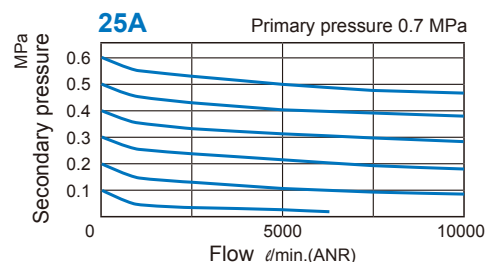
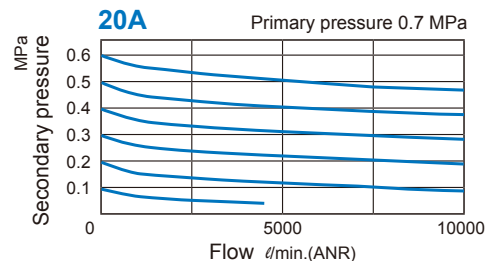
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

Pressure characteristics

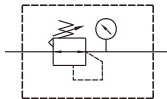


Flow feature





Symbol



- MAR900 reducing the system pressure to a desired level and maintain it at a constant level despite change in inlet pressure and changes in downstream flow requirements.

Specification

Model	MAR900
Bore No.	40A
Port size	1 1/2
Medium	Air
Max. operating pressure	2.1 MPa
Regulated pressure range	0.09~0.86 MPa
Ambient temperature	0~+80°C (No freezing)
Standard nominal flow rate(*)	11000 ℓ/min
Attachment	Pressure gauge (PG-50)
Weight	1208 g

* Flow is at 1 MPa supply pressure and 0.1 MPa pressure drop of 0.6 MPa of secondary pressure.

Order example

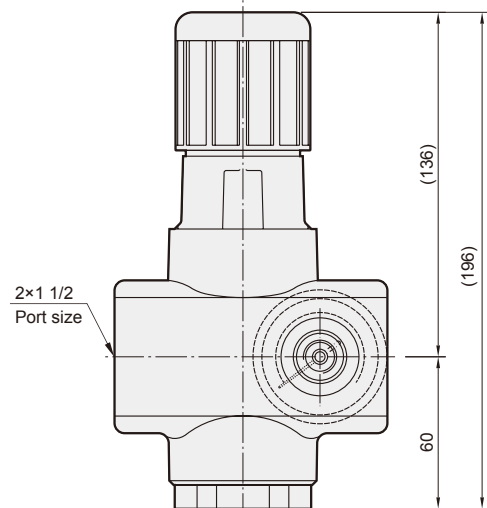
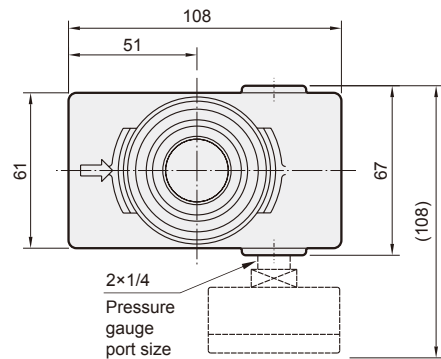
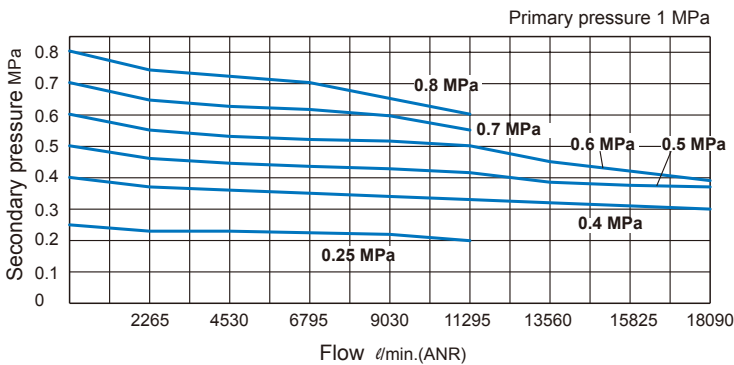
MAR900 – 40A – □

MODEL

PORT SIZE
40A: 1 1/2

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Flow feature

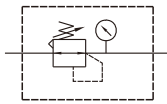


MAR901 series Pilot operated

PRESSURE REGULATOR



Symbol



- MAR901 can be installed at any point in the compressed air system without regard to accessibility ensuring accurate pressure regulation over a wide range of air flows upto 56640 ℓ /min

Specification

Model	MAR901
Bore No.	50A
Port size	2
Medium	Air
Max. operating pressure	3.1 MPa
Regulated pressure range	Upto 1.75 MPa (with the help of a pilot regulator)
Ambient temperature	0~+80°C (No freezing)
Standard nominal flow rate(*)	59000 ℓ /min
Attachment	Pressure gauge (PG-50)
Weight	3055 g

* Flow is at 1 MPa supply pressure and 0.1 MPa pressure drop of 0.6 MPa of secondary pressure.

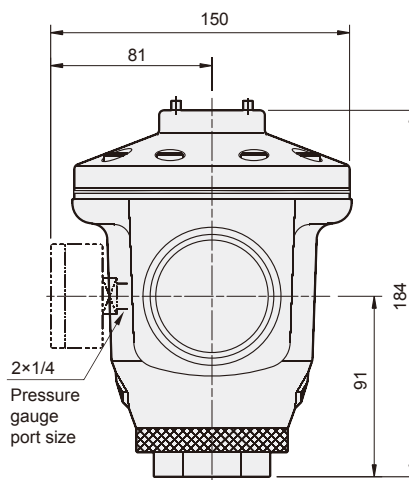
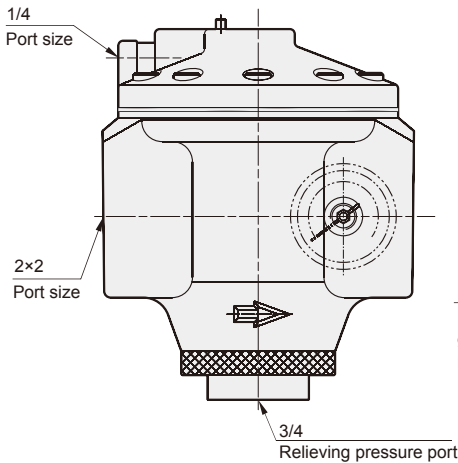
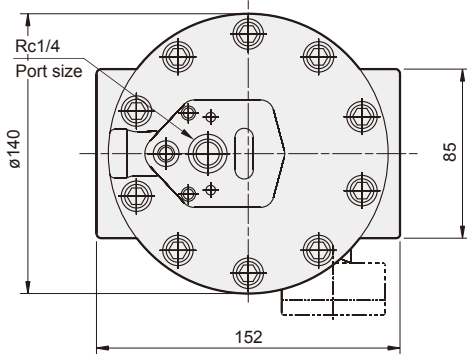
Order example

MAR901 – 50A – □

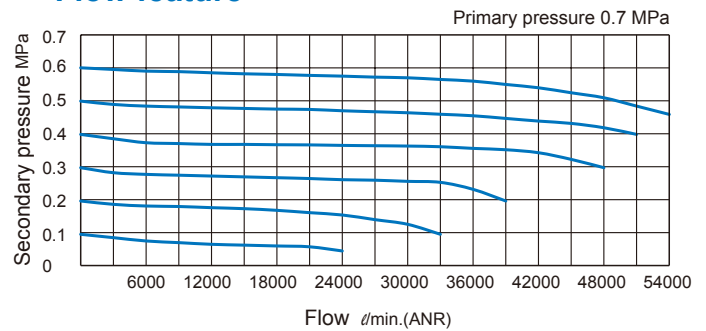
MODEL

PORT SIZE
50A: 2

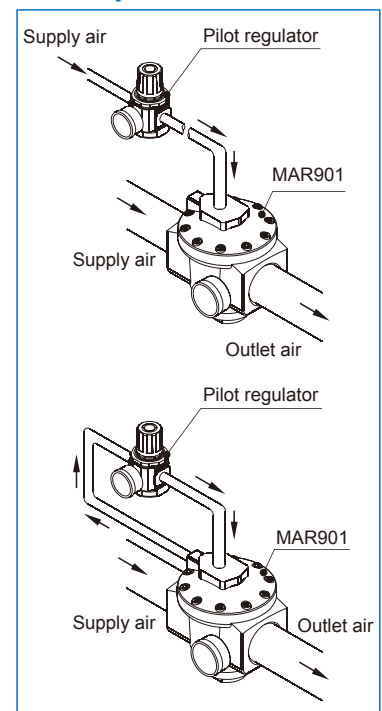
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread



Flow feature



Pilot operation



MAHR200 series

PRESSURE REGULATOR



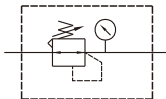
Feature

High pressure type can regulate up to 2.7 MPa.

Specification

Model	MAHR200
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	3.5 MPa
Proof pressure	5 MPa
Regulated pressure range	Standard: 0~1 MPa
	High pressure: 0~2.7 MPa
Ambient temperature	0~+60°C (No freezing)
Attachment	Pressure gauge (PG-40W)
Weight	250 g

Symbol



Order example

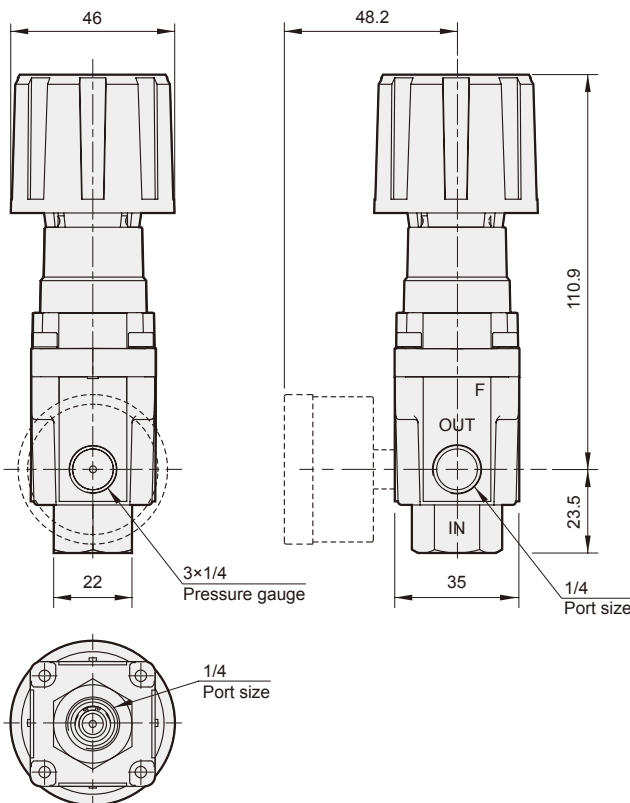
MAHR200 – 8A – □ – □

MODEL

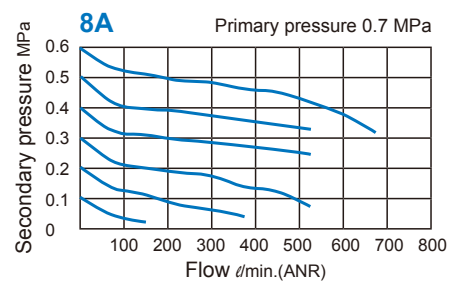
PORT SIZE
8A: 1/4

Blank: Standard type (Gray cap)
H: High pressure + External pressure gauge (PG-40W-30K) (Red cap)

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread



Flow feature



MAR300LK series

HAND-HELD REGULATOR



Symbol

Hand-held regulator could be directly assembled with pneumatic tools. According to the user's applications, you can regulate the pressure of pneumatic tool.

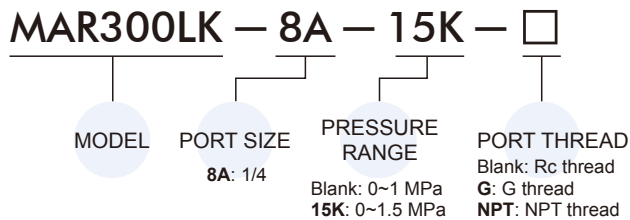
Feature

- Design: No convex shaft, small size and high transportability. Anodized aluminum body to achieve lightweight. (80g around)
- The outlet pressure can be observed through the scale of adjustment knob to determine. The lock mechanism can prevent rotation by accidentally.
- The unique structure of adjustment knob enables the pressure regulation to be completed within one turning round.
- Outlet pressure can be directly exhausted by turning back the adjustment knob.

Specification

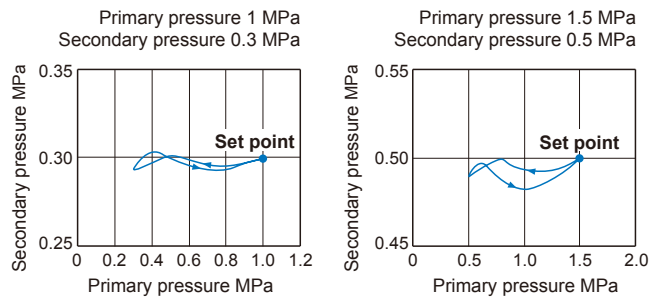
Model	MAR300LK
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1 MPa, 15K: 1.5 MPa
Proof pressure	3.75 MPa
Set pressure range	0.3~0.9 MPa
Ambient temperature	0~+60°C (No freezing)
Weight	80 g

Order example

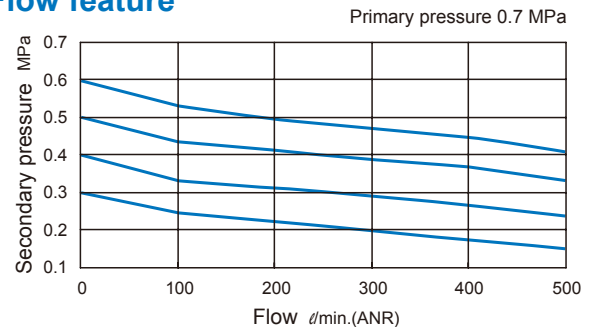


Pressure feature

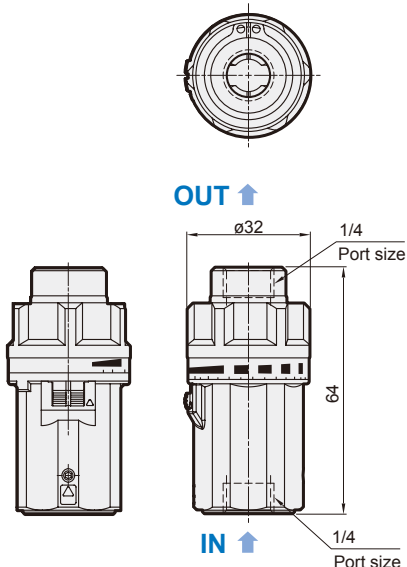
* The variation in the secondary pressure, with reference to the change in the primary pressure.



Flow feature



Pressure regulation

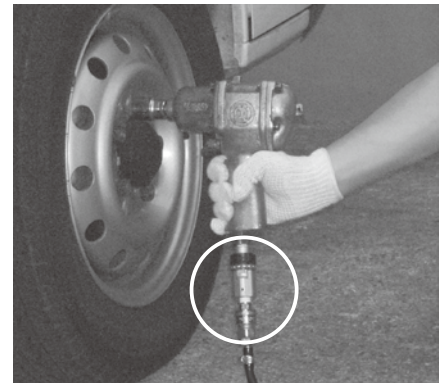
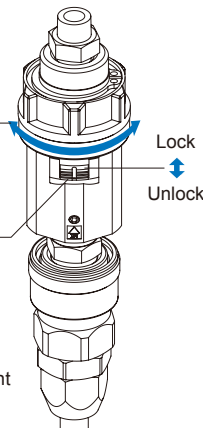


Turn the adjustment knob to regulate the pressure

Please lock the knob after regulating the pressure

Under 1.0 MPa
General Industrial plant

Under 1.5 MPa
Automobile maintenance plant

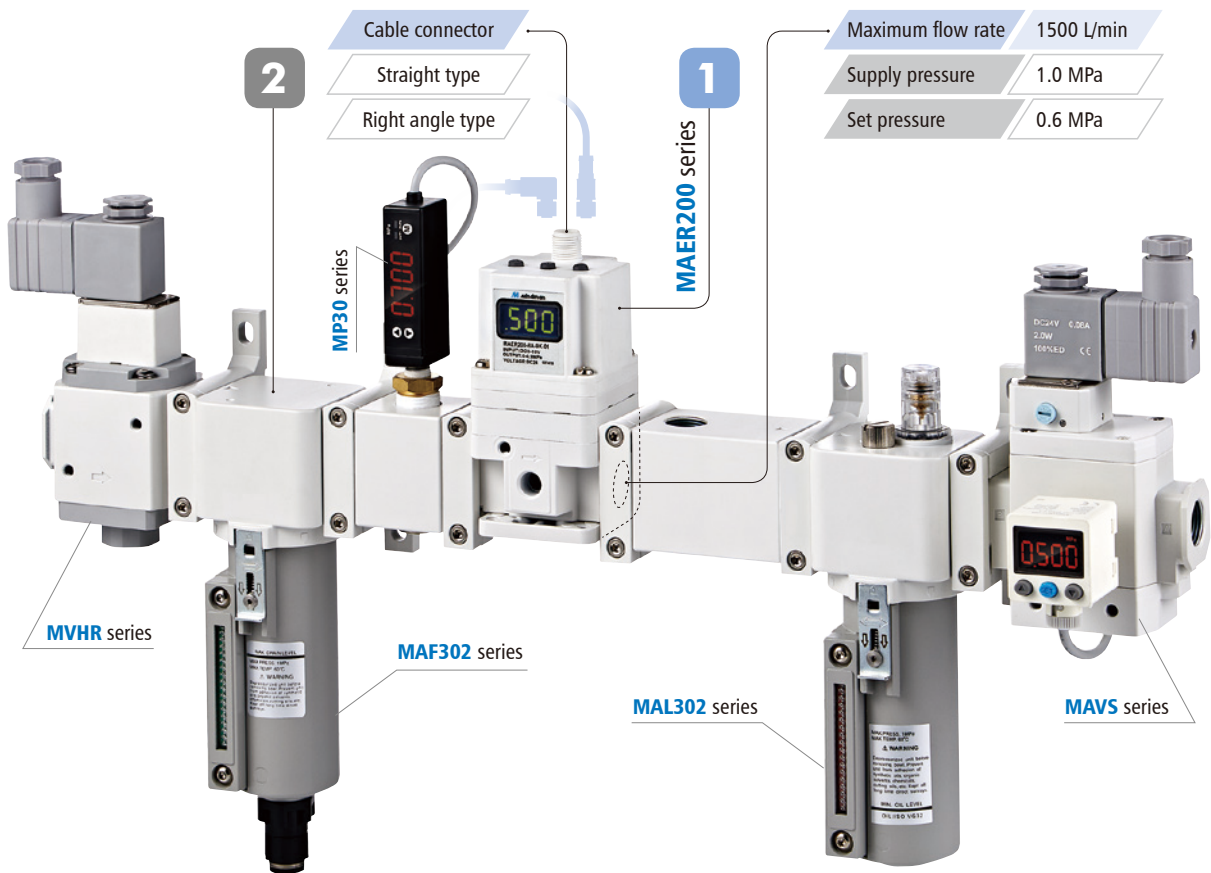


- The pressure regulation during painting.
- The pressure regulation for nail gun.
- Torque management for operating air.

- 1 Stepless control**
Stepless control of air pressure proportional to an electrical signal.
- High precision pressure control**
Achieve high precision pressure control with microcomputer PID.
- Certification** Comply with IP65 and CE certification.

- 2 Compatible with modular**
MAER200 can be assembled with MA**302 series.

Regulator Performance	
Linearity	±1% less (F.S.)
Hysteresis	±0.5% less (F.S.)
Repeatability	±0.5% less (F.S.)
Sensitivity	±0.2% less (F.S.)



Energy saving piping

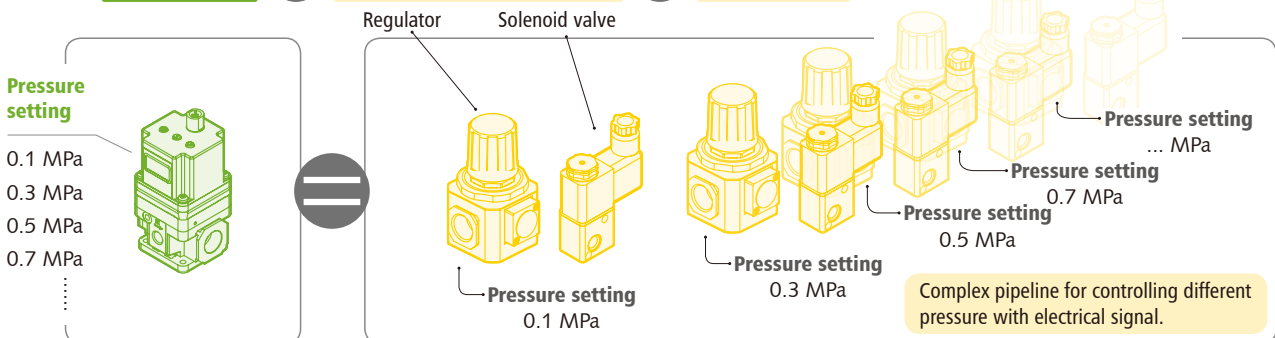
Simplify complex pipeline for controlling different pressure.
Space saving, Reduce cost, Energy saving.

VS

Tradition piping

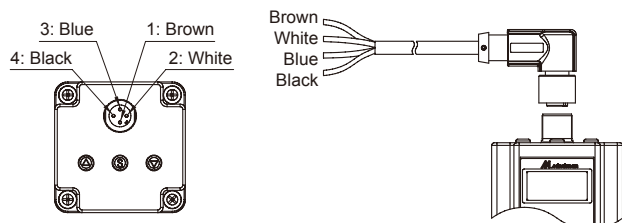
Tradition piping for multi-stage air pressure.

$$\text{MAER} = \text{MAR} + \text{MV}^* \times n \text{ SET}$$



Wiring

Connect the cable to the connector on the body with the wiring arranged as shown below.



Input signal:

Current, voltage signal type

1	Brown	Power supply
2	White	Input signal
3	Blue	GND(COMMON)
4	Black	Monitor output

Input signal:

Preset input type

1	Brown	Power supply
2	White	Input signal 1
3	Blue	GND(COMMON)
4	Black	Input signal 2

* The cables are available in both straight type and right angle type. A right angle type connector is attached facing left (towards the SUP port). The direction of the straight type arrow is aligned with socket latch.

Warning

- 1 The color of connector pins and cable conductors must be checked when wiring. Check wire color with handling precaution, since improper wire connection leads to destruction/failure and malfunction.
- 2 When the cable plug is connected to the socket of the body, please correctly align the pins with the socket latch, and then slowly lock it downwards.
Do not force to lock, it may damage the cable plug or casing, causing malfunction or abnormality.
- 3 Do not use power voltage exceeding specifications. The product could malfunction or catch fire if voltage exceeding the working range is applied.
- 4 Short-circuiting the load could result in rupture or fire.

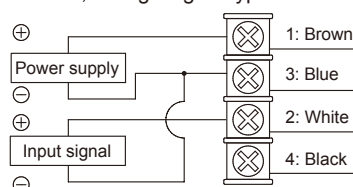
Caution

- 5 The connection between the cable plug and the wire is weak. Excessive bending may shorten the life of the plug set, causing breakage or damage.
- 6 If you need an anti-bending cable, please contact the sales.

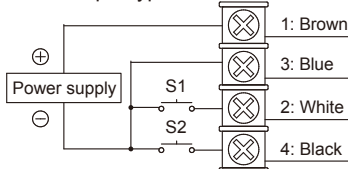
Wiring diagrams

Connect the cable to the connector on the body with the wiring arranged as shown below.

Current, voltage signal type

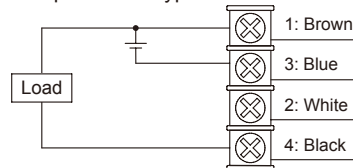


Preset input type

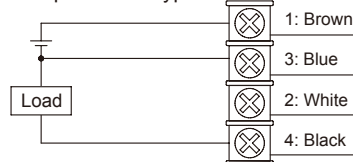


Monitor output wiring diagram

Switch output – NPN type

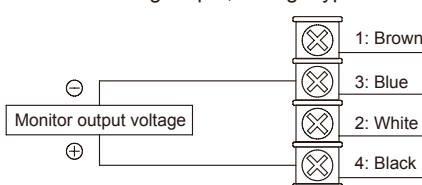


Switch output – PNP type

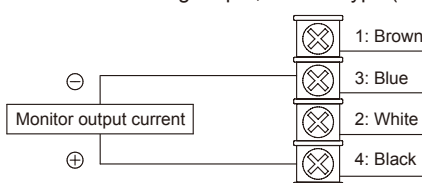


* NPN / PNP output type does not contain overcurrent protection and an error warning display, so the loop current should not exceed 160mA to avoid burning.

DC1~5V Analog output, Voltage type



DC4~20mA Analog output, Current type (source type)



AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Operating environment

⚠️ Caution

- 1 Avoid using this regulator where it will be subject to direct sunlight, water or oil, etc.
- 2 Use in place where the temperature changes drastically or at high humidity may cause damage due to dew condensation in the product.

Air supply

⚠️ Caution

- 1 Use clean compressed air that does not contain corrosive gas. Poor air quality adversely affects function and life.
- 2 For the pneumatic source, use cleaned air from which the solid, water and oil contents were eliminated sufficiently, using an air dryer, filter and oil mist filter. Recommend selecting a filtration precision of 5µm or less.
- 3 Do not use a lubricator on the supply side of this product, the lubricated air might cause malfunction. When lubrication of terminal equipment is necessary, connect a lubricator on the output side of the equipment and set a check valve. When the secondary pressure is lowered with an input signal, the secondary air passes through the product and is discharged from the EXH port. Contamination on the secondary piping and the inside of the load will have an adverse effect on performance, etc. Keep the inside of the piping as clean as possible.
- 4 Tighten pipes with the appropriate torque to prevent air leakage and screw damage. First tighten the screw by hand to prevent damage to screw threads, then use a tool.
- 5 Tighten pipes with the appropriate torque. Pipes must be connected with the appropriate torque to prevent air leakages and screw damage. First tighten the screw by hand to prevent damage to screw threads, then use a tool.

Handling

⚠️ Caution

- 1 If supply pressure to this product is interrupted while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the product may be shortened, shut off the power supply also when supply pressure is shut off.
- 2 IF electric power is shut off while pressure is being applied, pressure will be retained on the output side. However, this output pressure is held only temporarily and is not guaranteed.
- 3 The product characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.
- 4 Refer to the operation manual included with the product for details on its handling.
- 5 When the appliance set standby with 0 kPa input, please input an offset signal of residual pressure. If not, the inner solenoid valve will overaction to cut down the product lifespan.
- 6 Even when pressure is set to 0 MPa, secondary side pressure

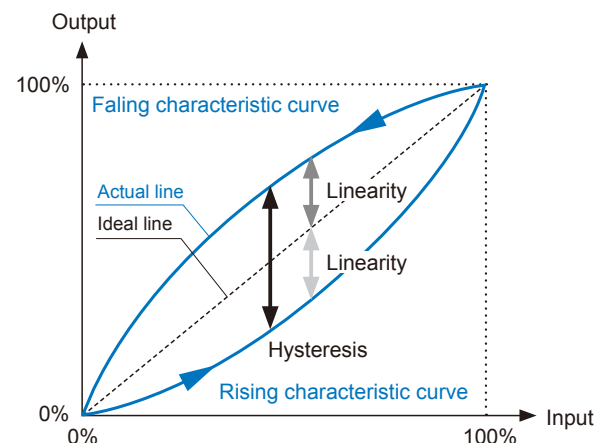
will not be completely released with less than 1%F.S. remaining. If precisely 0 MPa is required, bleed the secondary side or install a 3-way valve on the secondary side to switch the secondary side to atmospheric pressure.

⚠️ Warning

- 7 Do not use input signal exceeding specifications. This product could malfunction fire if input signal exceeding the working range is applied.
- 8 This product is adjusted for each specification at the time of shipment from the factory. Disassembling and reformation are prohibited, as this way might lead to malfunction.
- 9 If an abnormality occurs during operation, immediately turn off the power and air pressure and stop using it.

Terms

- 1 **Proof pressure:** The value of the maximum pressure that the device can endure and not to malfunction.
- 2 **Setting pressure range:** The range of the controllable pressures. Control is stopped when the input signal becomes 1% F.S. or lower.
Note. This is different from the accuracy guarantee range. See the item of linearity and hysteresis side.
- 3 **Linearity:** The error of the linear output relative to the ideal straight line, i.e. the accuracy of the analog output. It is usually expressed as a percentage compared to the entire measurement range (Full Scale: F.S.), such as 1% F.S..
- 4 **Hysteresis:** Hysteresis is the maximum difference between the rising curve and the falling curve when the input signal is varied from 0% to 100% and 100% to 0%, indicated by the percentage relative to the full scale.
- 5 **Repeatability:** Repeatability is the maximum deviation of control pressure measured when the same input signal is applied repeatedly in a short time and under the same operating conditions. Repeatability is indicated by the percentage relative to the full scale.
- 6 **Sensitivity:** Sensitivity is the minimum value of the input signal that changes the control pressure, indicated by the percentage relative to the full scale.
- 7 **Temperature characteristics:** The difference of the control pressure level made by 1°C difference of the ambient temperature (with reference temperature 25°C) is converted by calculation.

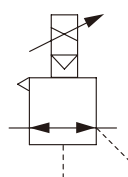




Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- MAER200 can be assembled with MA**302 series.
- Achieve high precision pressure control with microcomputer PID.
- Maximum flow rate 1500 L/min (Supply pressure 1.0 MPa, Set pressure 0.6 MPa).
- Comply with CE certification.

Symbol



Specification

Model		MAER200		
Pressure range		1K	5K	9K
Bore No.		8A, 10A		
Port size		1/4, 3/8		
Medium		Air		
Proof pressure		0.3 MPa	1.5 MPa	
Ambient temperature		+5~+50°C (No condensation)		
Min. supply pressure		Set pressure +0.1 MPa		
Max. supply pressure		0.2 MPa	0.7 MPa	1 MPa
Setting pressure range (*1)		0.005~0.1 MPa	0.005~0.5 MPa	0.009~0.9 MPa
Power consumption	Voltage	DC24V±10%		
	Current	DC24V: 0.1A or less		
Signal input	Current type	DC4~20 mA		
	Voltage type	DC0~5V, DC0~10V		
	Preset input (*2)	4 points		
Input impedance	Current type	≤ 430Ω		
	Voltage type	Approx. ≤ 3kΩ		
	Preset type	Approx. ≤ 100kΩ		
Signal output (Monitor output)	Analog output	Current type DC4~20mA (Load impedance 600Ω or less)		
		Voltage type DC1~5V (Load impedance 500Ω or above)		
	Switch output	NPN,PNP: Max. 24V, 160mA		
Linearity		Within ±1% (F.S.)		
Hysteresis		Within 0.5% (F.S.)		
Repeatability		Within ±0.5% (F.S.)		
Sensitivity		Within 0.2% (F.S.)		
Temperature characteristics		Within ±0.2% (F.S.)/°C		
Output pressure display (*3)	Precision	±2% F.S. ±1 digit		
	Min. unit	MPa:0.001, kgf/cm ² :0.01, bar:0.01, psi:0.1, kPa:1		
Enclosure		Equivalent to IP65		
Weight		Main: 360 g; Bracket: Approx. 86g(B1) , 80g(B2); Cable connector: Approx. 55g(1m) , 130g(3m)		

*1. Minimum setting pressure is equal to 1% F.S..

*2. For safety reasons, it is recommended that one of the preset pressures be set to 0 MPa.

*3. Linearity setting and preset pressure setting value both are set by the minimum unit of the output pressure display.

*4. The above characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.

*5. The above characteristics apply for a control pressure of 10% to 90% when power voltage is 24 VDC, ambient temperature is 25±3°C, no-loading and working pressure is maximum control pressure.

MAER200 Order example & Capacity



AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

mindman

Order example

MAER200 – 8A – 9K – 1 1 1 – B1 S1 – □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8

PRESSURE RANGE

1K: 0.1 MPa
5K: 0.5 MPa
9K: 0.9 MPa

BRACKET

Blank: Without
B1: L type
B2: Flat type

CABLE CONNECTOR

Blank: Without
S1: Straight 1m
S3: Straight 3m
L1: Right angle 1m
L3: Right angle 3m

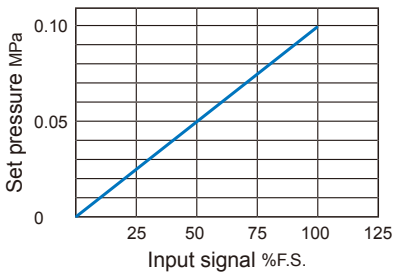
PORT THREAD

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

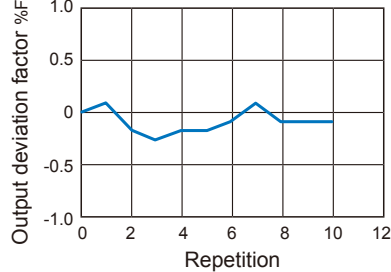
SIGNAL INPUT	SIGNAL OUTPUT	PRESSURE DISPLAY UNIT
1: Current DC4~20mA 2: Voltage DC0~10V 3: Voltage DC0~5V	1: Analog output DC1~5V 2: Switch output NPN 3: Switch output PNP 4: Analog output DC4~20mA (Source type)	1: MPa 2: kgf/cm ² 3: bar 4: psi 5: kPa
40: Preset input	–	

MAER200-1K

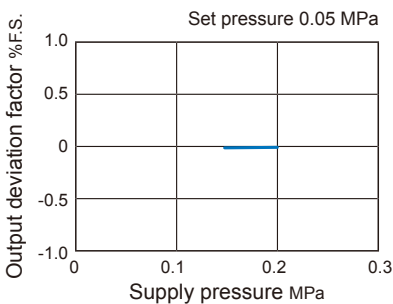
Linearity



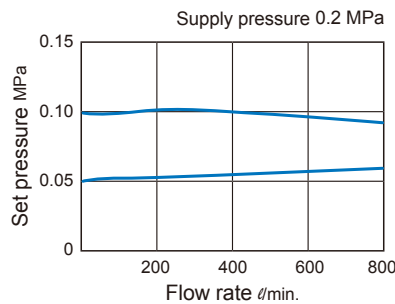
Repeatability



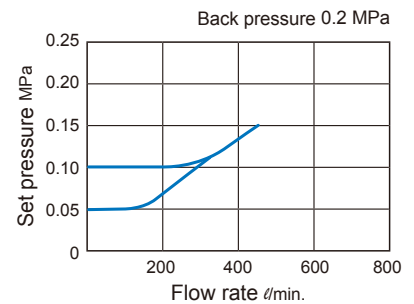
Pressure characteristics



Flow rate characteristics



Relief flow characteristics



MAER200 Capacity

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Unit

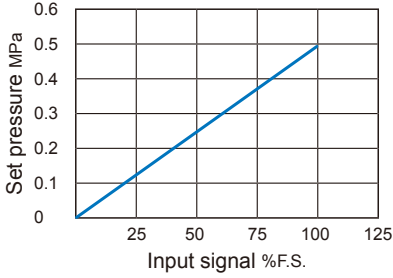
Pressure Switch

Auxiliary Equipment

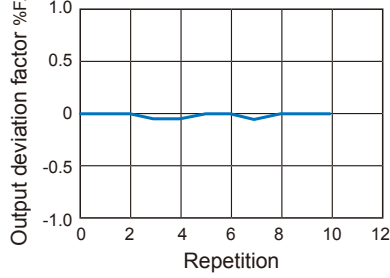
PISCO®

MAER200-5K

Linearity

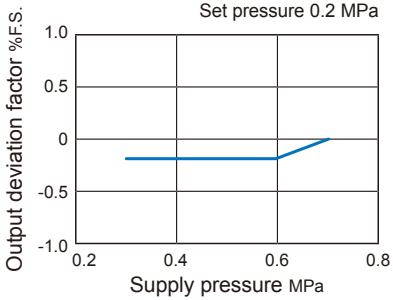


Repeatability



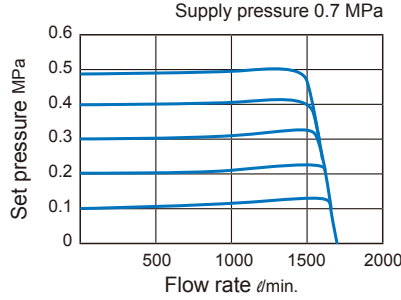
Pressure characteristics

Set pressure 0.2 MPa



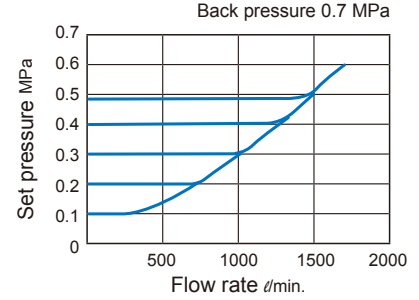
Flow rate characteristics

Supply pressure 0.7 MPa



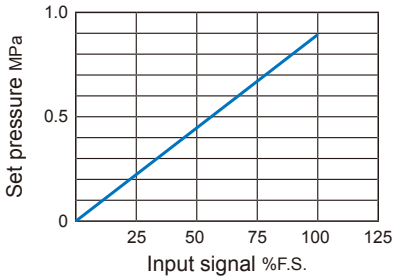
Relief flow characteristics

Back pressure 0.7 MPa

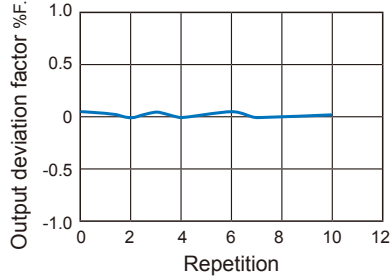


MAER200-9K

Linearity

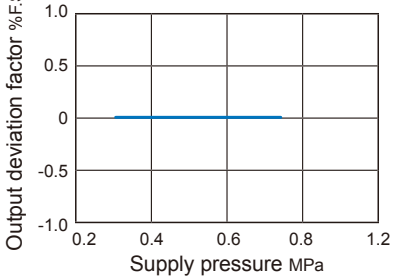


Repeatability



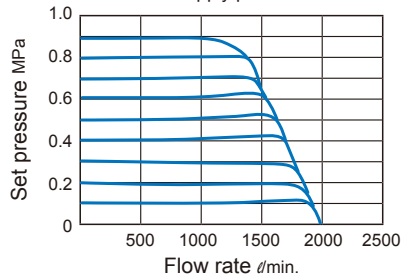
Pressure characteristics

Set pressure 0.4 MPa



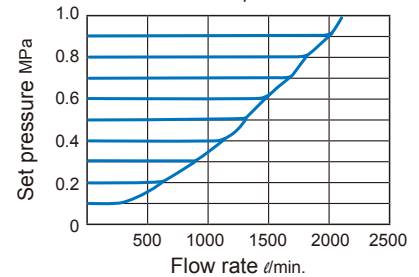
Flow rate characteristics

Supply pressure 1.0 MPa



Relief flow characteristics

Back pressure 1.0 MPa



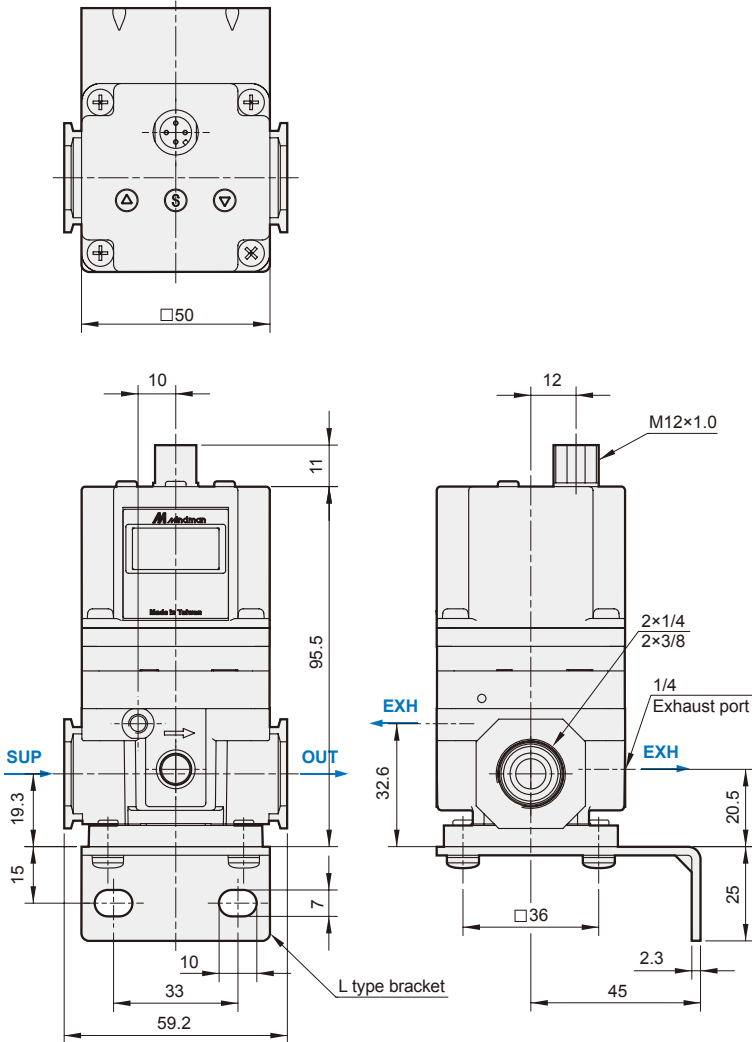
MAER200 Dimensions

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)



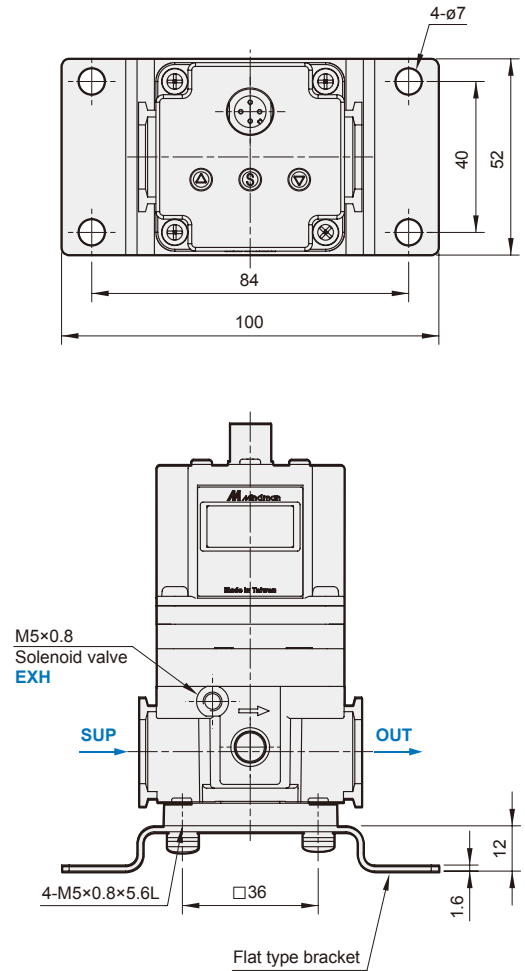
MAER200-B1

L type bracket



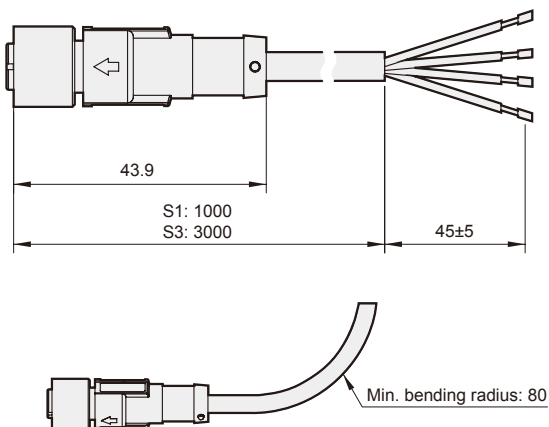
MAER200-B2

Flat type bracket



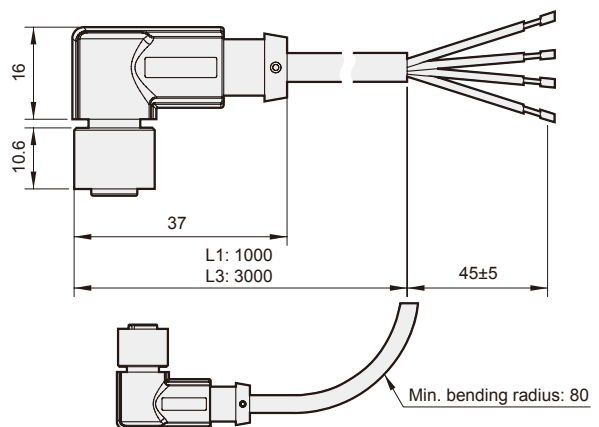
MAER200-S1/S3

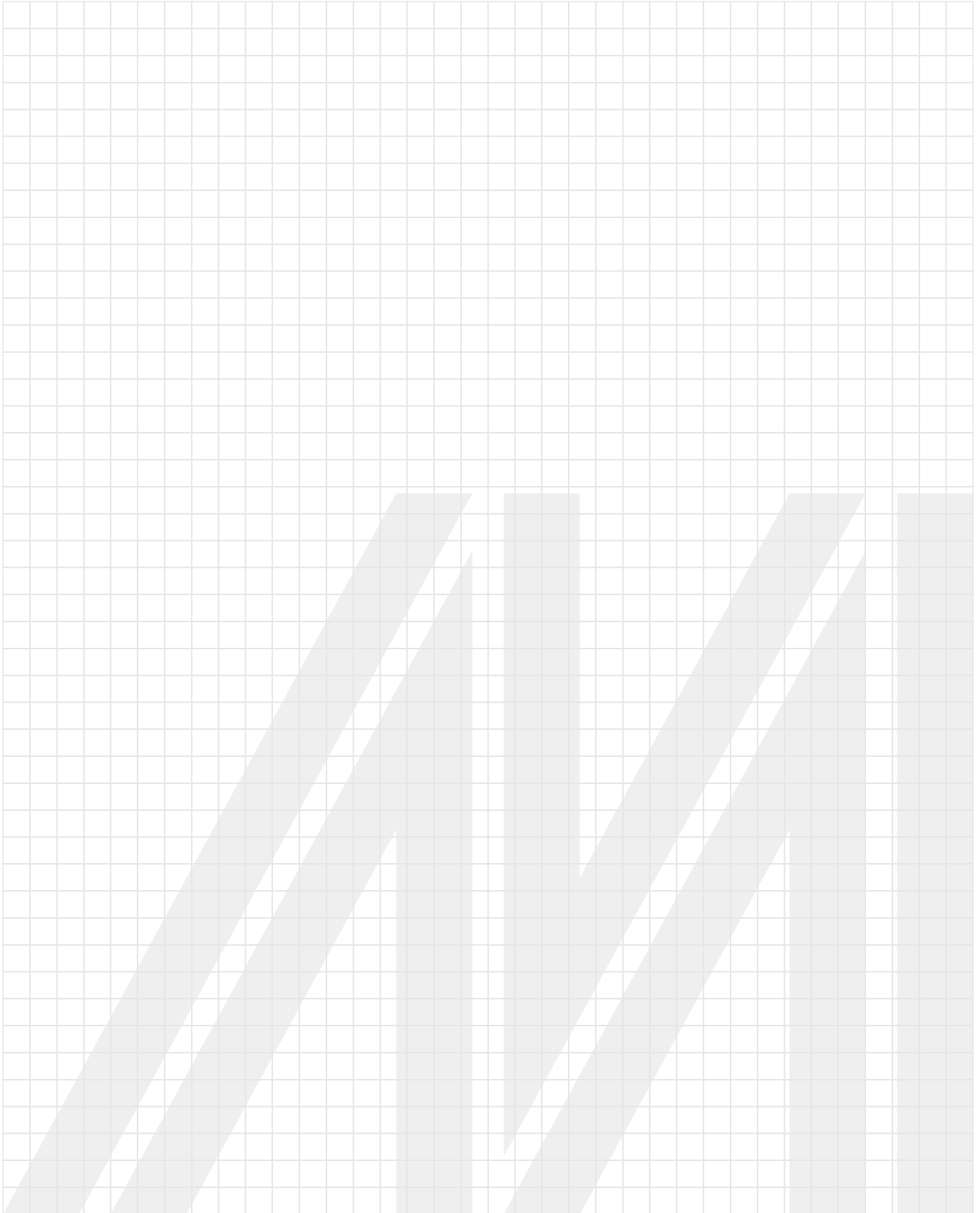
Straight cable connector



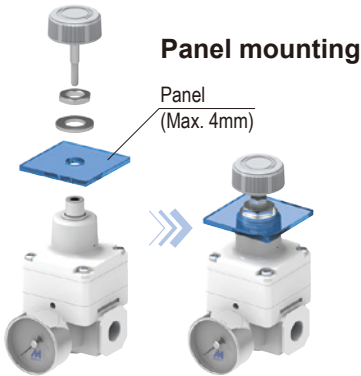
MAER200-L1/L3

Angle cable connector





PRECISION REGULATOR MAIR



Panel mounting

Panel
(Max. 4mm)

REGULATOR PERFORMANCE

Sensitivity: $\pm 0.2\%$ F.S.
 Repeatability: $\pm 0.5\%$ F.S.
 Set pressure range: 0.005~0.8 MPa

BRACKET

Convenient design, quick mounted bracket, can also be installed on the panel.

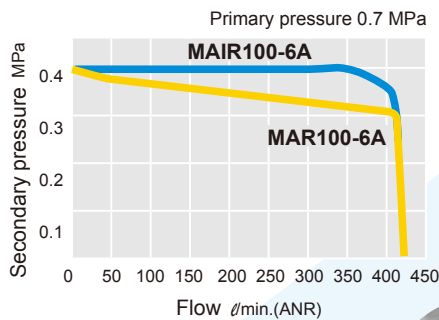


COMPATIBLE with MODULAR

MAIR200 can be assembled with MAF302D/M.

STABLE OUTPUT PRESSURE

Compared with the MAR series, low pressure drop problem, better flow characteristics.

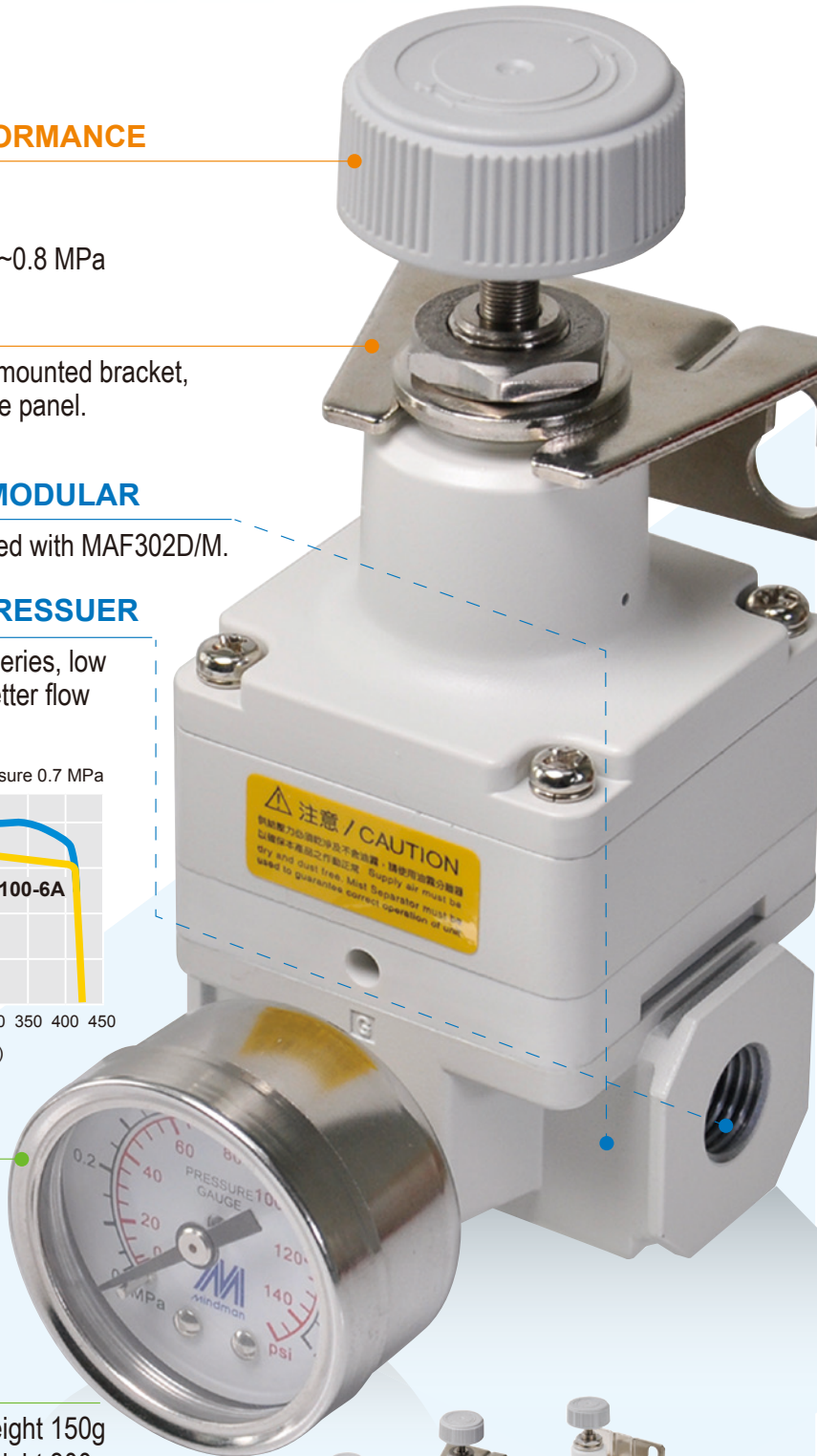


PRESSURE GAUGE

Pressure gauge can be mounted digital pressure switch.

COMPACT & LIGHTWEIGHT

MAIR100 width 35mm, weight 150g
 MAIR200 width 50mm, weight 300g
 MAIR300 width 68mm, weight 875g



MAIR100 MAIR200 MAIR300

Air Supply

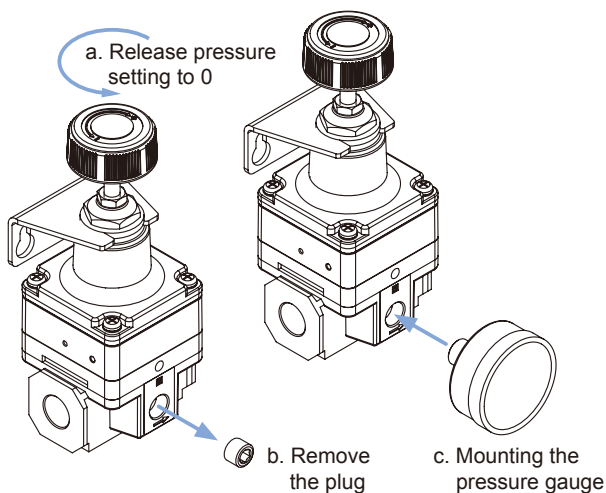
⚠️ Caution

- 1 If the air supply line contains drain or particulate, etc., the primary pressure fixed throttle can become clogged leading to malfunction, and therefore, be sure to use an air filter (MAF or MAM*) & mist separator.
- 2 Never use a lubricator on the primary side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the secondary side.

Maintenance

⚠️ Warning

- 1 When to be during maintenance, first reduce the precision regulator set pressure to zero, and completely shut off the supply pressure.
- 2 When a pressure gauge is to be mounted, remove the plug after reducing the regulator pressure set pressure to zero. (Step a→b→c)



MAIR300 Product Precautions

⚠️ Caution

- 1 The primary pressure is relatively high (approx. 0.5 MPa or more), the set pressure is low (approx. 0.1 MPa or less), and when operated with the secondary side released to the atmosphere, there may be pulsations in the setting pressure. In this kind of situation, operate with the primary pressure reduced as much as possible, or increase the set pressure somewhat and restrict the secondary side line (add and adjust a stop valve, etc.)
- 2 When used for the purpose of a relief function, and capacity of the precision regulator is large, the exhaust sound will be loud when being relieved. the operation with a silencer (MSR*) mounted on the exhaust port (EXH port). (Silencer refer to Other Auxiliary Equipment)

Operation

⚠️ Caution

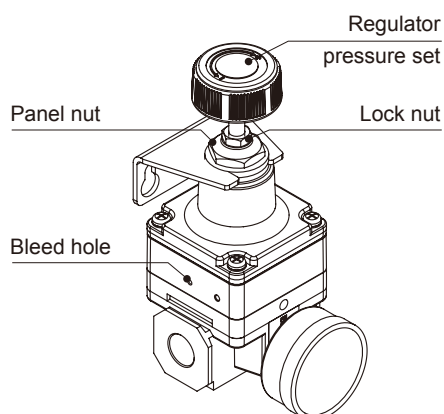
- 1 Do not use a precision regulator outside the range of its specifications as this can cause failure. (Refer to specifications.)
- 2 When mounting is performed, make connections while confirming port direction (indications).
- 3 Screw a panel nut with the proper torque when mounting onto a panel. (be listed as follows)

Model	MAIR100	MAIR200	MAIR300
Torque (kgf)	12.5	21	21

Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive.

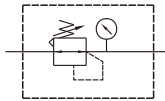
⚠️ Warning

- 4 If a directional switching valve (solenoid valve, mechanical valve, etc.) is mounted on the primary side of the the precision regulator and repeatedly switched ON and OFF, wear of the nozzle/diaphragm section will be accelerated and a discrepancy in the setting value may occur. Therefore, avoid using a directional switching valve on the primary side. In the event a directional switching valve will be used, install it on the secondary side of the precision regulator.
- 5 Air is normally released from the bleed hole (the hole on the side of the body's mid-section). This is a necessary consumption of air based on the construction of the precision regulator, and is not an abnormality.
- 6 In order to avoid operation mistakes, make sure to tighten the lock nut after pressure adjustment.





Symbol



Specification

Model	MAIR100
Bore No.	6A
Port size	1/8
Medium	Air
Max. operating pressure	1 MPa
Min. operating pressure	Setting pressure+0.05 MPa
Proof pressure	1.5 MPa
Regulated pressure range	2K: 0.005~0.2 MPa
	4K: 0.01~0.4 MPa
	8K: 0.01~0.8 MPa
Sensitivity	0.2% F.S.
Repeatability	±0.5% F.S.
Air consumption (*)	4.4 ℓ/min(ANR) F.S.
Ambient temperature	- 5~+60°C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-33S)
Weight	150 g

Order example

MAIR100 - 6A - 2K - C - □

MODEL

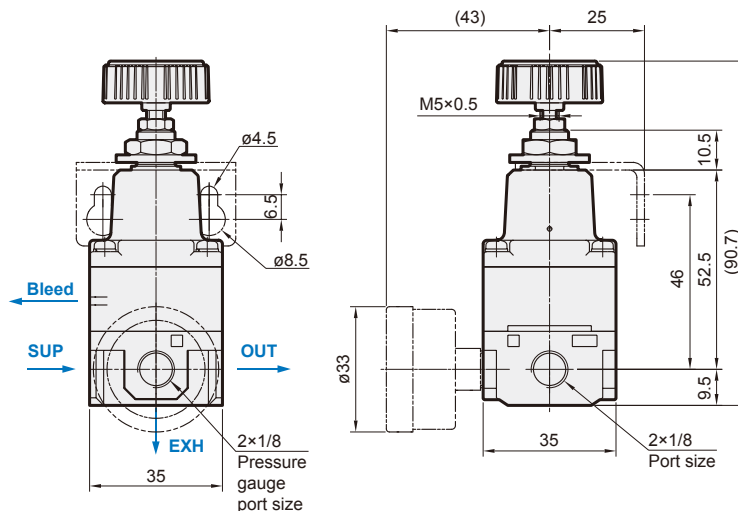
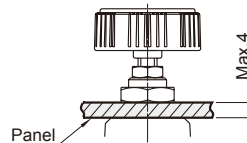
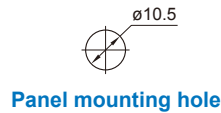
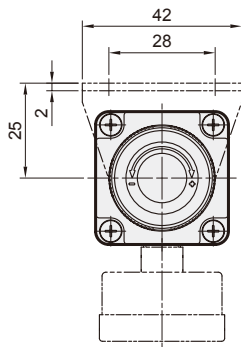
PORT SIZE
6A: 1/8

ADJUSTABLE PRESS. RANGE
2K: 0.005~0.2 MPa
4K: 0.01~0.4 MPa
8K: 0.01~0.8 MPa

Blank: Without pressure gauge
C: Pressure gauge (PG-33S)

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* For supply pressure 1 MPa.

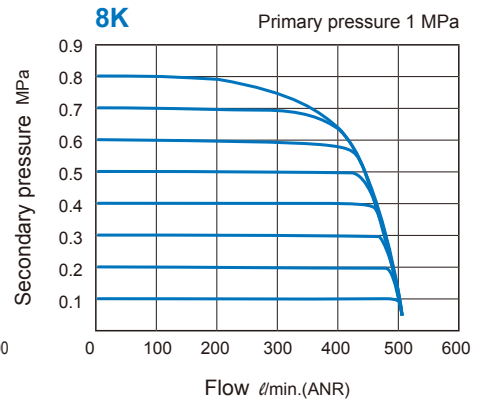
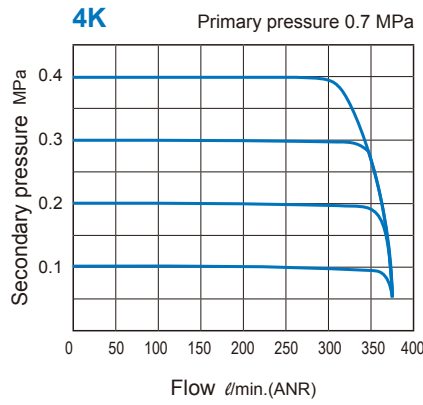
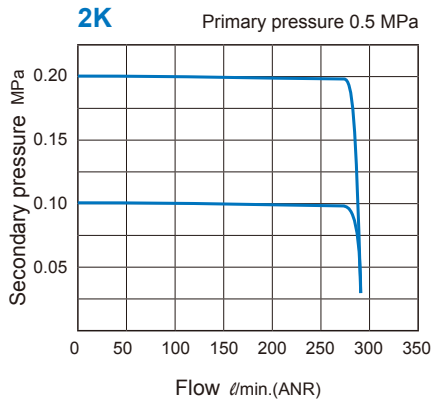


MAIR100 Capacity

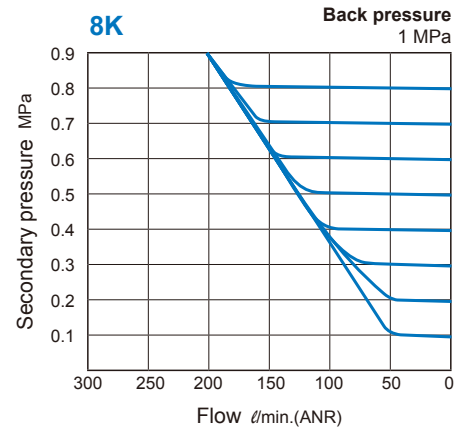
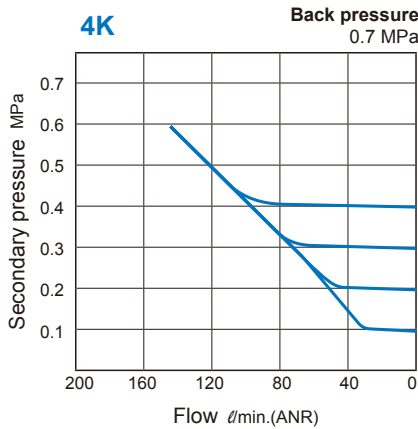
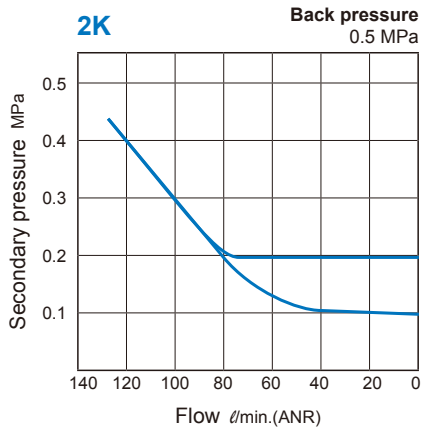
AIR UNIT (PRECISION REGULATOR)



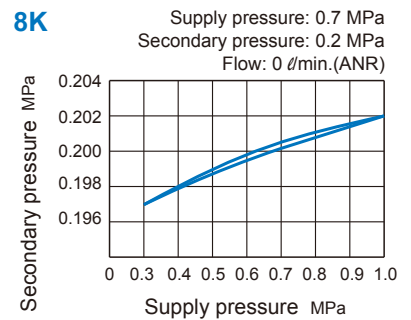
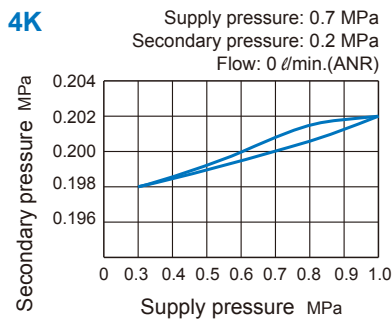
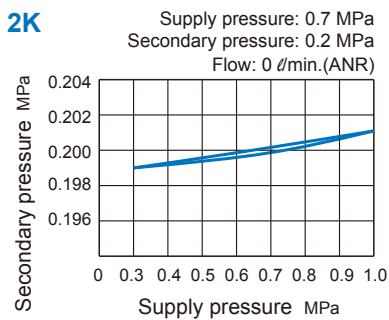
Flow feature



Relief characteristics

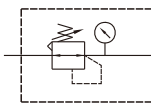


Pressure characteristics





Symbol



Specification

Model	MAIR200
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1 MPa
Min. operating pressure	Setting pressure+0.05 MPa
Proof pressure	1.5 MPa
Regulated pressure range	2K: 0.005~0.2 MPa
	4K: 0.01~0.4 MPa
	8K: 0.01~0.8 MPa
Sensitivity	0.2% F.S.
Repeatability	±0.5% F.S.
Air consumption(*)	4.4 ℓ/min(ANR) F.S.
Ambient temperature	- 5~+60°C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-40S)
Weight	300 g

Order example

MAIR200 – 8A – 2K – C – □

MODEL

PORT SIZE

8A: 1/4

ADJUSTABLE PRESS. RANGE

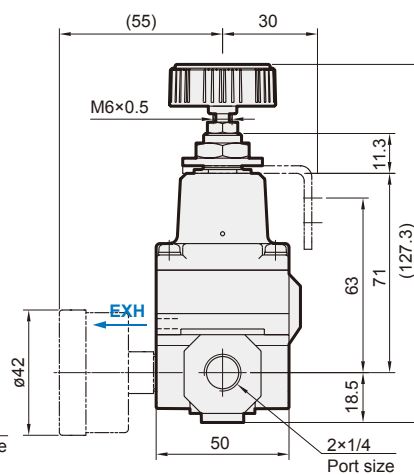
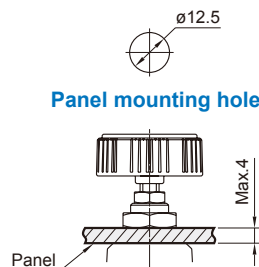
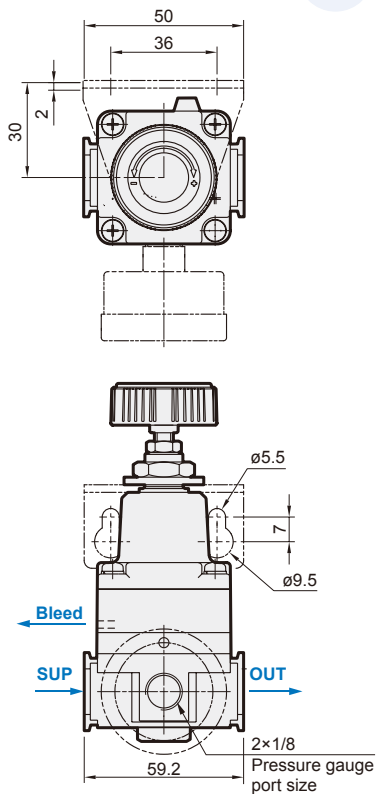
2K: 0.005~0.2 MPa
4K: 0.01~0.4 MPa
8K: 0.01~0.8 MPa

PORT THREAD

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

Blank: Without pressure gauge
C: Pressure gauge (PG-40S)

* For supply pressure 1 MPa.

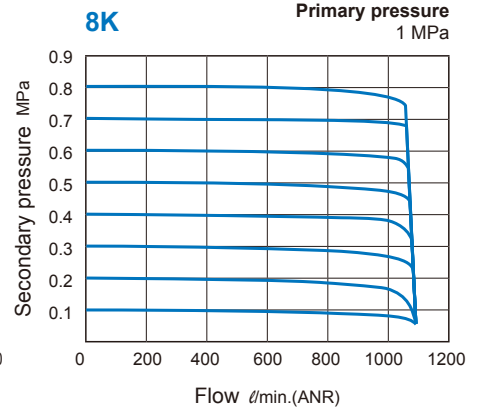
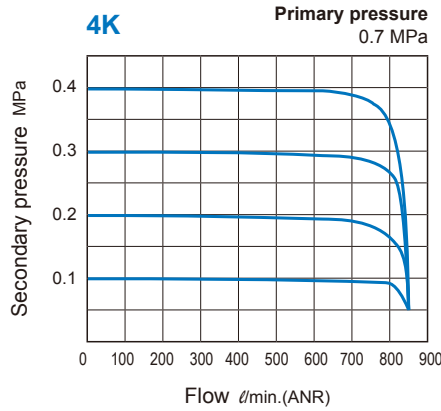
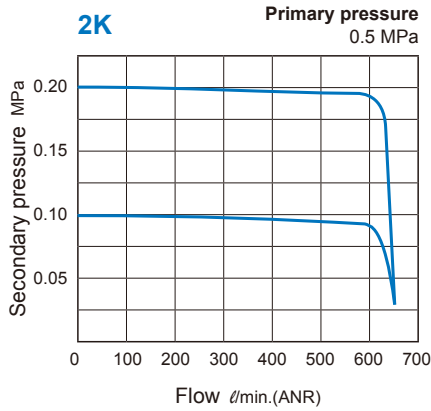


MAIR200 Capacity

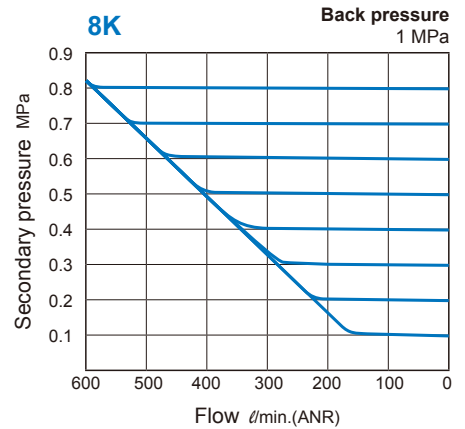
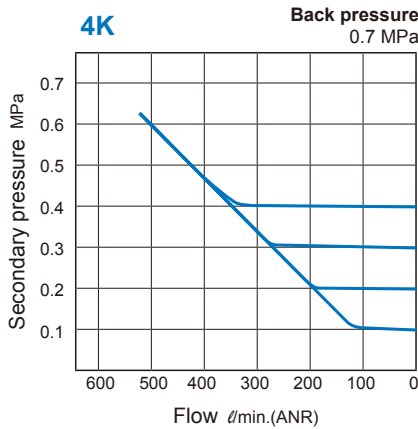
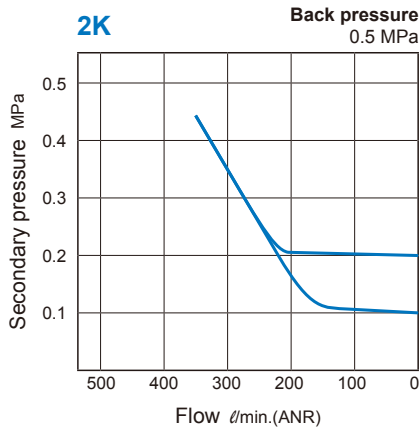
AIR UNIT (PRECISION REGULATOR)



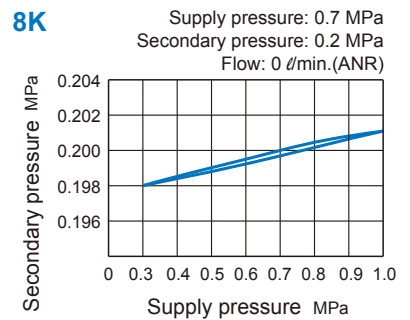
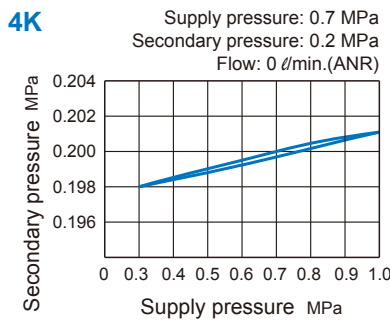
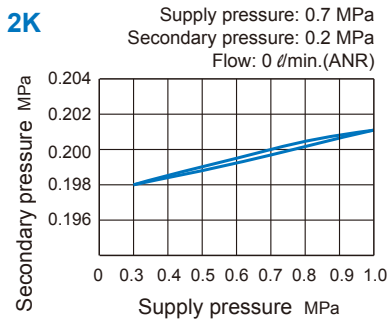
Flow feature



Relief characteristics



Pressure characteristics



MAIR300 series

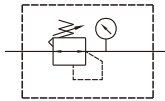
AIR UNIT (PRECISION REGULATOR)



mindman



Symbol



Specification

Model	MAIR300		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Min. operating pressure	Setting pressure +0.1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	2K: 0.005~0.2 MPa		
	4K: 0.01~0.4 MPa		
	8K: 0.01~0.8 MPa		
Sensitivity	0.2% F.S.		
Repeatability	±0.5% F.S.		
Air consumption(*)	11.5 ℓ/min(ANR) F.S.		
Ambient temperature	- 5~+60°C (No freezing)		
Attachment	Bracket		
Option	Pressure gauge (PG-40S)		
Weight	875 g		

Order example

MAIR300 — 8A — 2K — C — □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

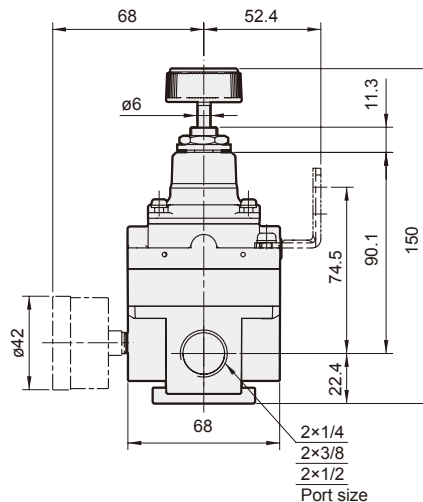
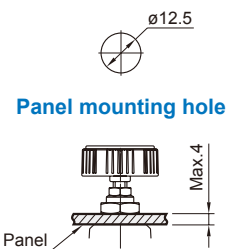
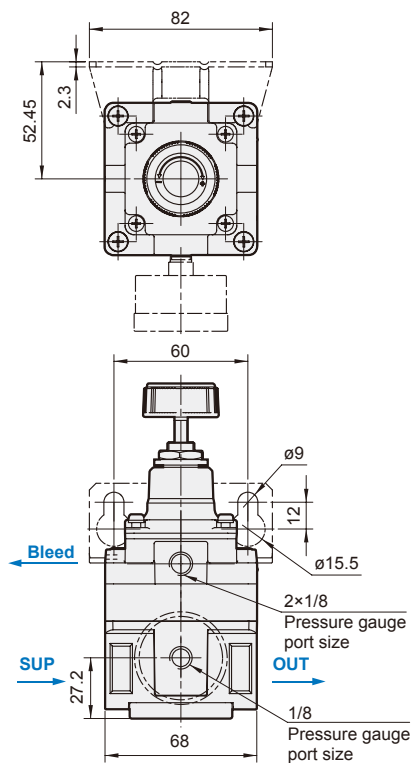
ADJUSTABLE PRESS. RANGE

2K: 0.005~0.2 MPa
4K: 0.01~0.4 MPa
8K: 0.01~0.8 MPa

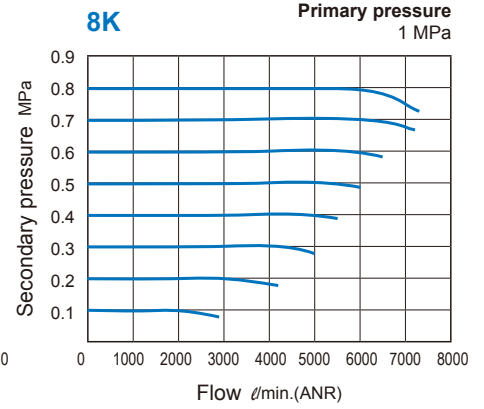
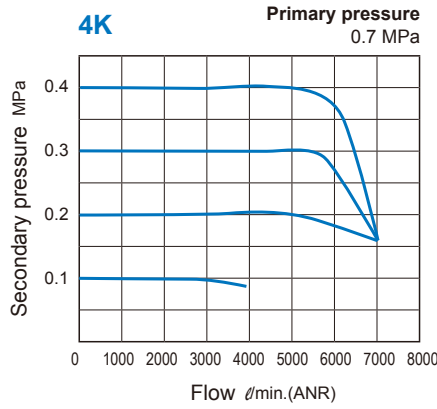
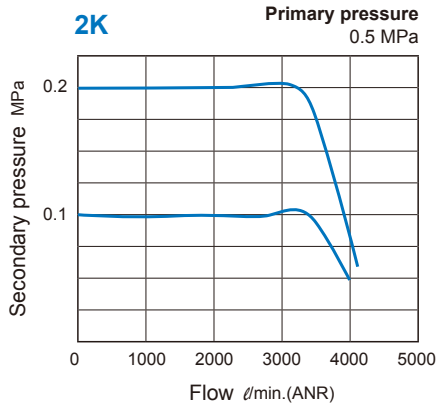
PORT THREAD

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

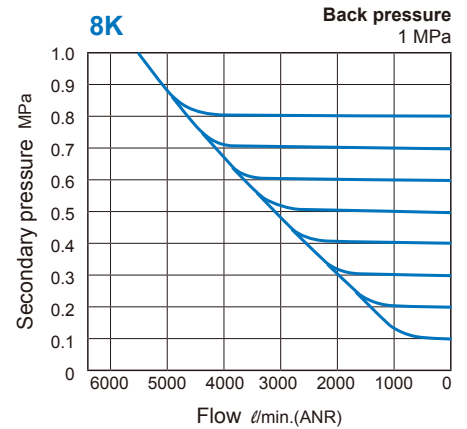
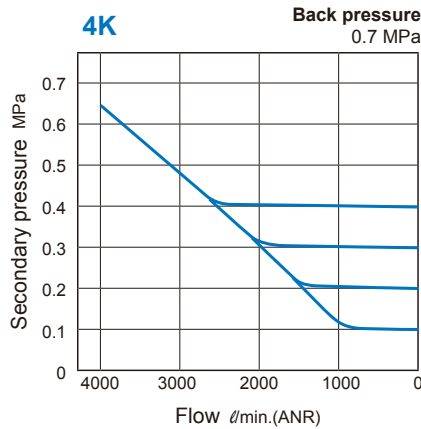
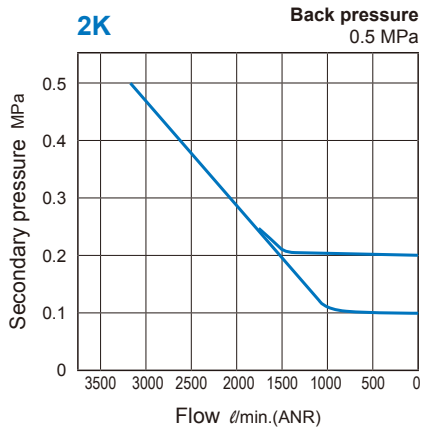
Blank: Without pressure gauge
C: Pressure gauge (PG-40S)



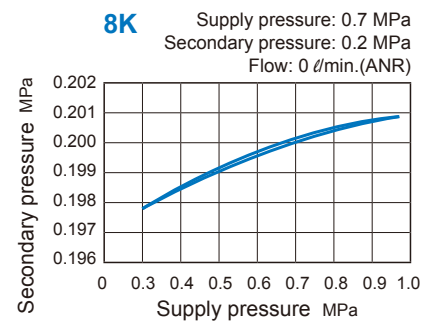
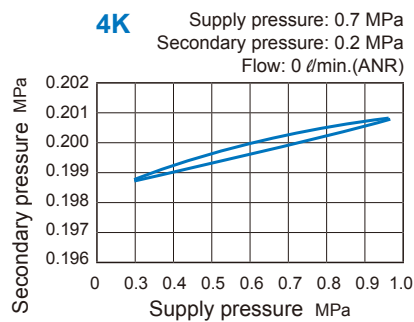
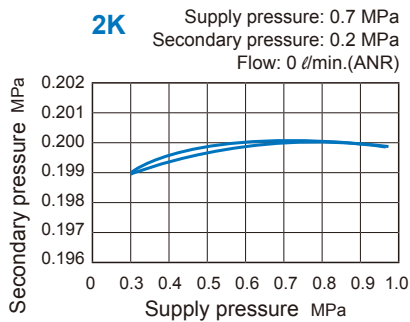
Flow feature



Relief characteristics



Pressure characteristics

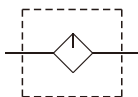


MAL200 series

AIR UNIT (L.UNIT)



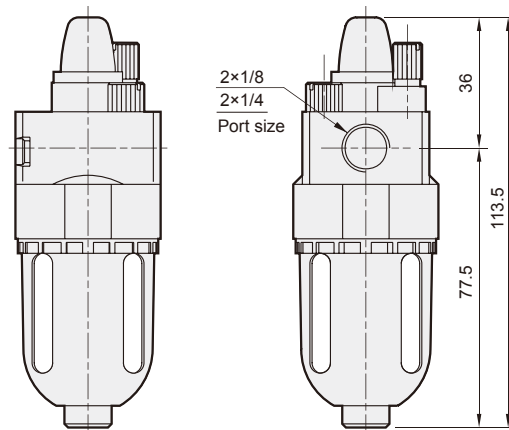
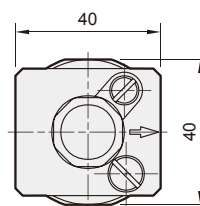
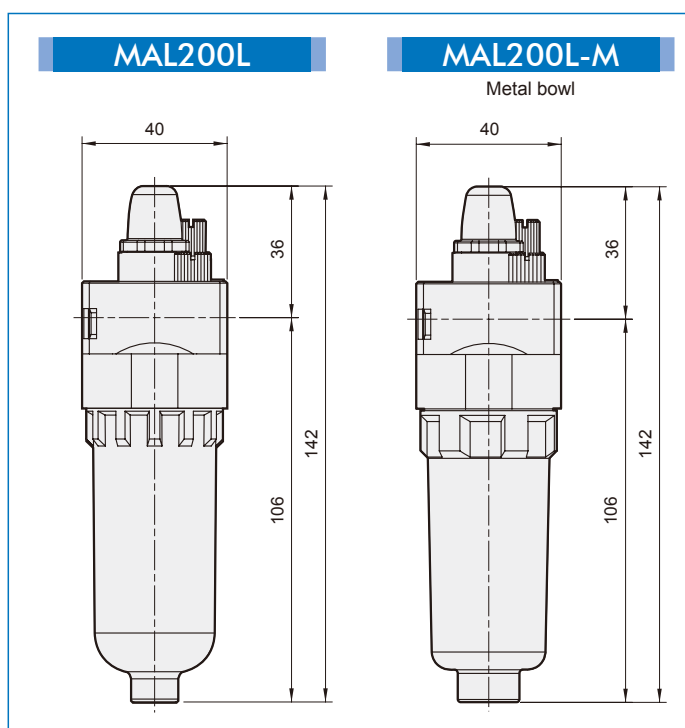
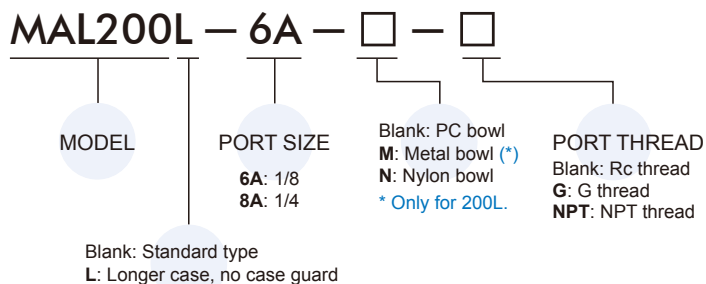
Symbol



Specification

Model	MAL200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Lubricating oil capacity	20 c.c , 35 c.c (MAL200L)	
Min. Flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Weight	150 g, 130 g (MAL200L)	

Order example

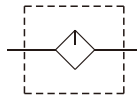


MAL302 series

AIR UNIT (L.UNIT)



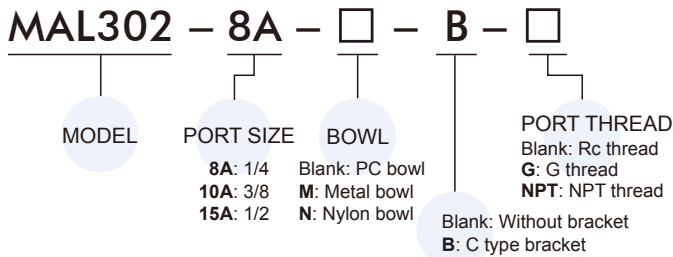
Symbol



Specification

Model	MAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Lubricating oil capacity	65 c.c		
Min. Flow for oil drip	50 ℓ/min	60 ℓ/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	345 g		

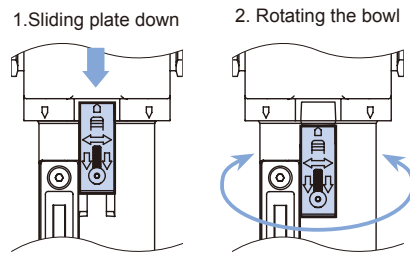
Order example



Caution

Metal bowl

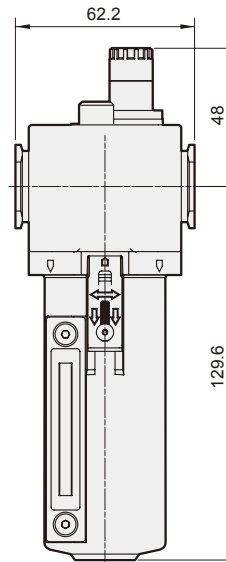
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the bowl will be scratched.



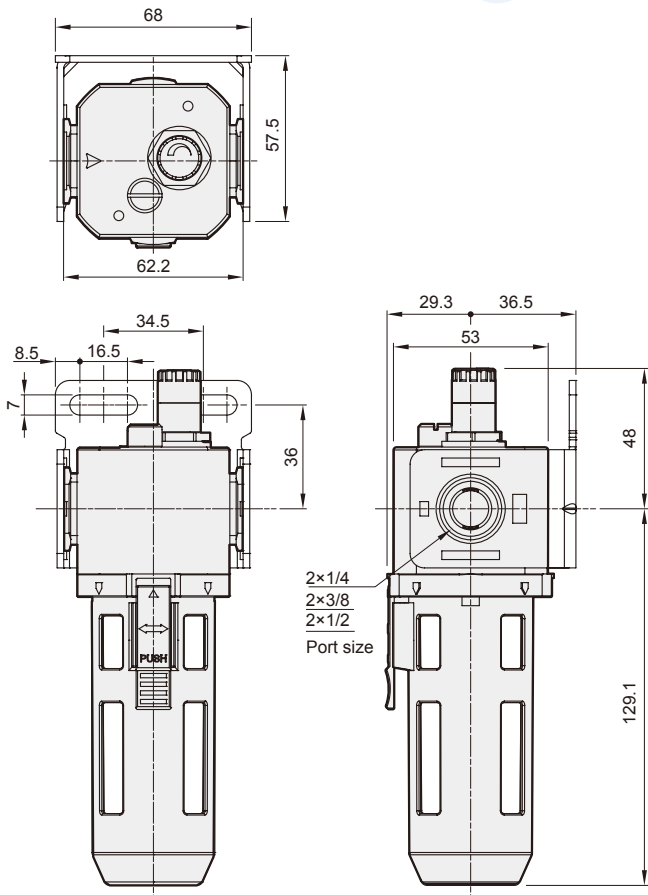
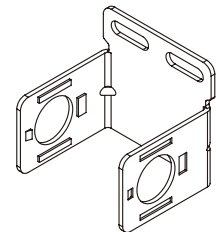
Option accessories

MAL302-M

Metal bowl



C type bracket

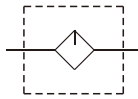


MAL401 series

AIR UNIT (L.UNIT)



Symbol



Specification

Model	MAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Lubricating oil capacity	200 c.c		
Max. flow rate (*) ℓ/min	1200	2000	2100
Min. Flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	545 g		

* Flow is at pressure P=0.7 MPa with pressure drop ΔP=0.03 MPa. (ANR)

Order example

MAL401 - 8A - □ - B - □

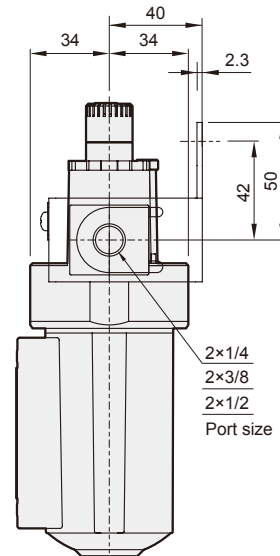
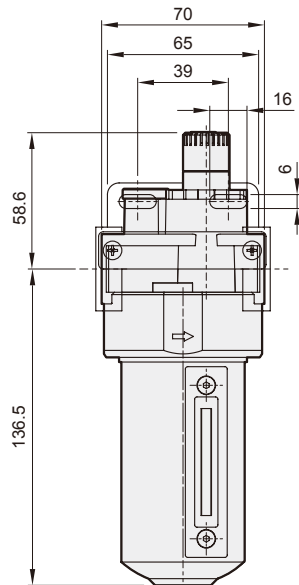
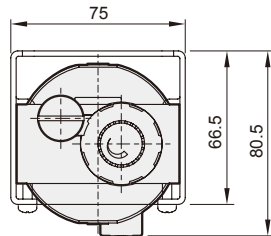
MODEL PORT SIZE EXTERIOR COLOR PORT THREAD

8A: 1/4 Blank: Black & silver Blank: Rc thread

10A: 3/8 W: Gray & white G: G thread

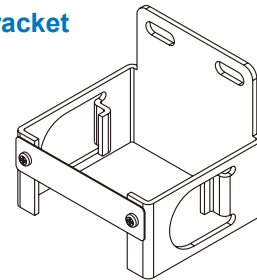
15A: 1/2 NPT: NPT thread

Blank: Without bracket
B: C type bracket



Option accessories

C type bracket



MAL403 series

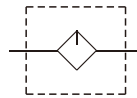
AIR UNIT (L.UNIT)



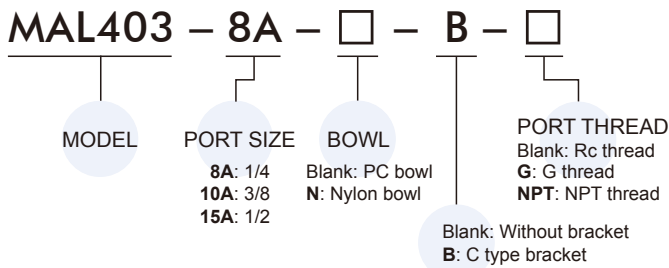
Specification

Model	MAL403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Lubricating oil capacity	200 c.c		
Min. Flow for oil drip	30 l/min	65 l/min	80 l/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	410 g		

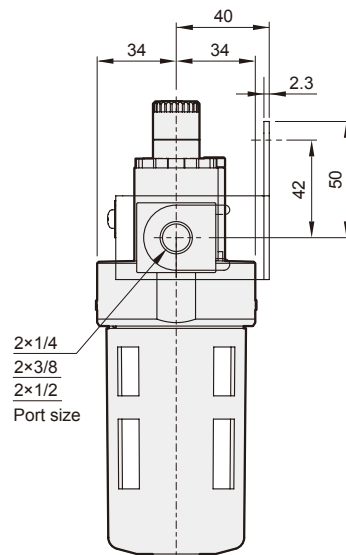
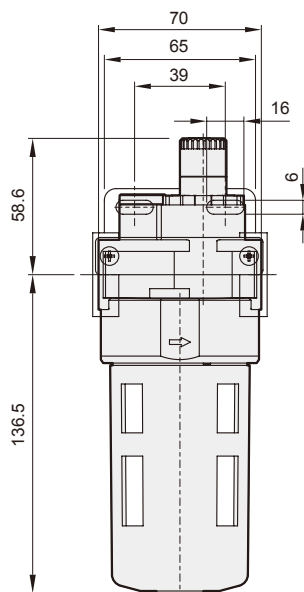
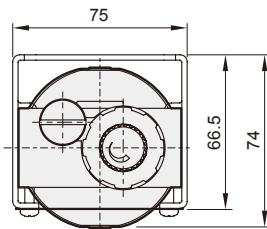
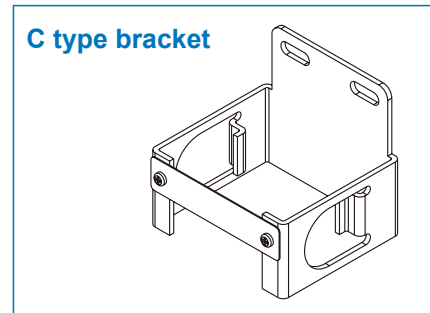
Symbol



Order example

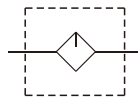


Option accessories





Symbol



Specification

Model	MAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range	PC, Nylon bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	PC, Nylon bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Lubricating oil capacity	200 c.c	
Min. Flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Weight	PC, Nylon bowl: 1260 g	
	Metal bowl: 1380 g	

Order example

MAL501 - 20A - □ - B - □

MODEL

PORT SIZE

BOWL

PORT THREAD

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

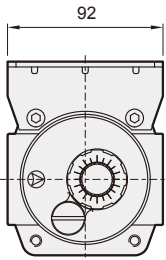
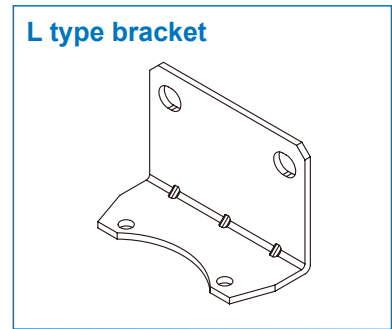
Blank: Without bracket
B: L type bracket

20A: 3/4
25A: 1

Blank: PC bowl
N: Nylon bowl
M: Metal bowl

Option accessories

L type bracket



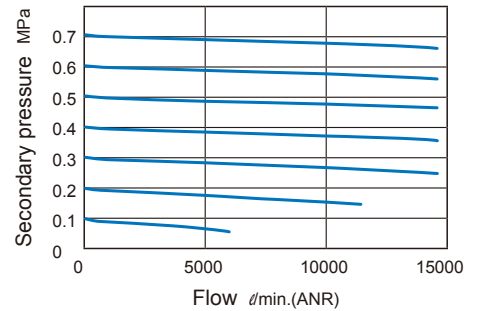
MAL501-M

Metal bowl

Flow feature

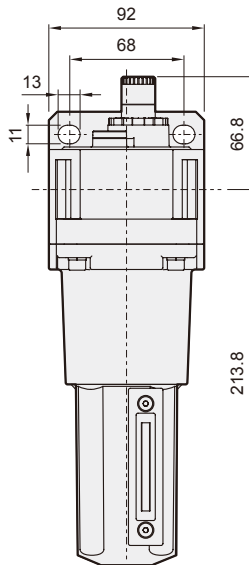
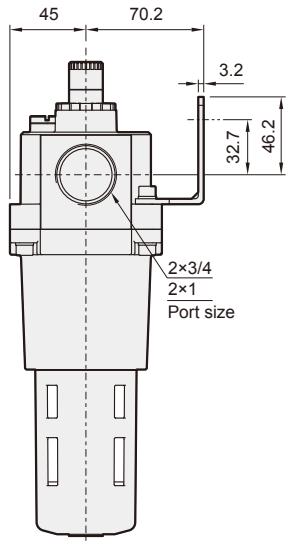
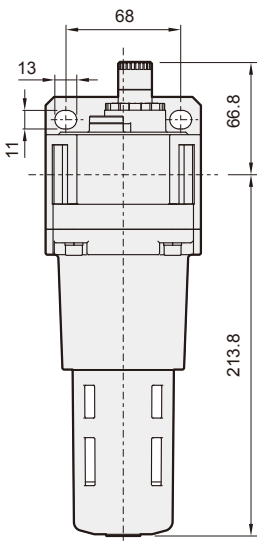
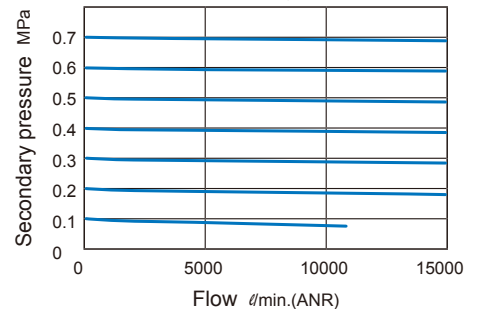
20A

Primary pressure 0.7 MPa



25A

Primary pressure 0.7 MPa

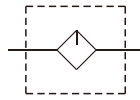


MAL900 series

AIR UNIT (L.UNIT)



Symbol



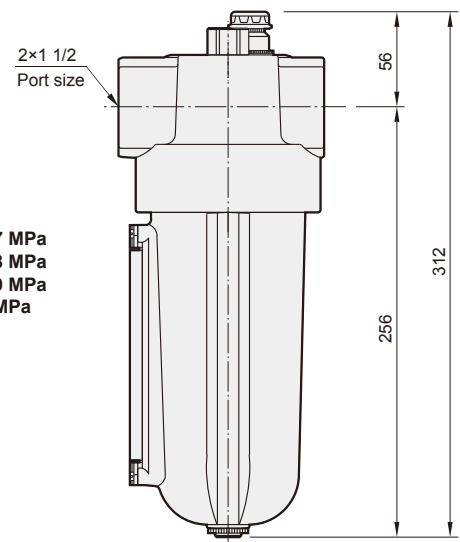
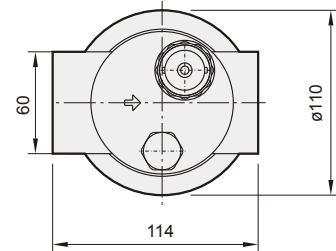
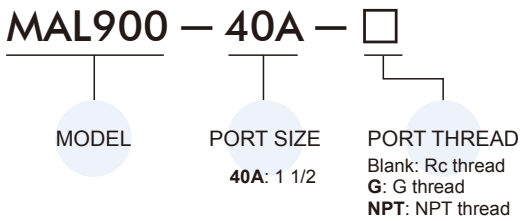
- MAL900 is useful to lubricate air tools, cylinders, valves, air motors and other air driven devices.

Specification

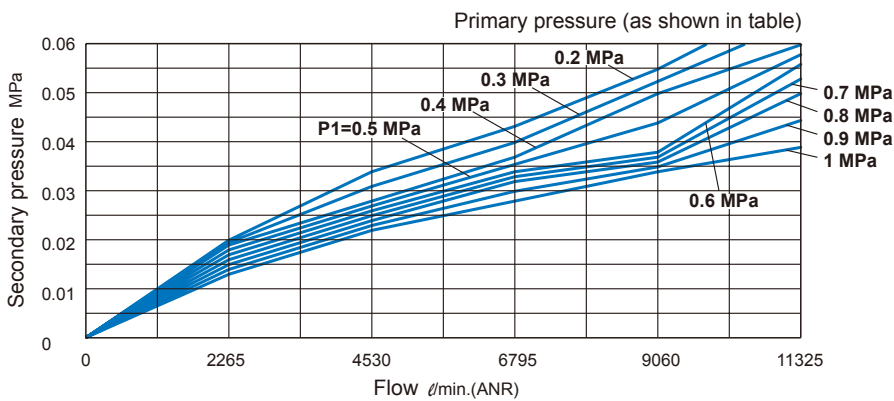
Model	MAL900
Bore No.	40A
Port size	1 1/2
Medium	Air
Max. operating pressure	1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Lubricating oil capacity	1000 c.c
Min. Flow for oil drip	204 ℓ /min
Recommended lubricating oil	Turbine oil ISO-VG32
Standard nominal flow rate (*)	12000 ℓ /min
Weight	1766 g

* Flow is at pressure P=0.6 MPa with pressure drop $\Delta P=0.1$ MPa.

Order example



Flow feature

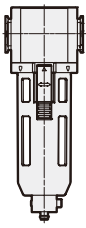


MA*302 / 401 / 501* series



AIR UNIT (AIR /MIST / MICRO MIST FILTER)

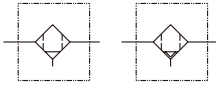
mindman



Air filter

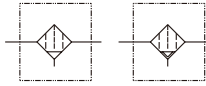
- D** 0.3 μm
- M** 0.01 μm

MAF302D



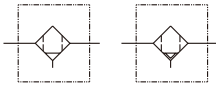
Auto drain type

MAF302M



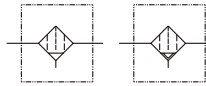
Auto drain type

MAF501D

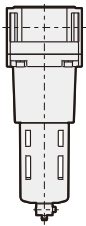


Auto drain type

MAF501M



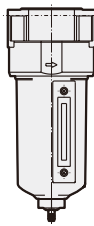
Auto drain type



Air filter

- D** 0.3 μm
- M** 0.01 μm

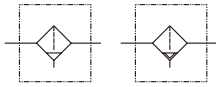
Model	Air filter 5 μm	Mist filter 0.3 μm	Micro mist filter 0.01 μm	Regulator
MAF302D		●		
MAF302M			●	
MAF501D		●		
MAF501M			●	
MAF401A	●			
MAF401D		●		
MAF401M			●	
MAFF401AD	●	●		
MAFF401DM		●	●	
MAFRF401	●	●		●
MATFR401	●	●	●	●



Air filter

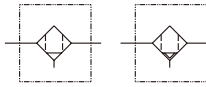
- A** 5 μm
- D** 0.3 μm
- M** 0.01 μm

MAF401A



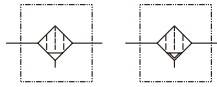
Auto drain type

MAF401D



Auto drain type

MAF401M



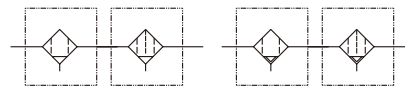
Auto drain type

MAFF401AD

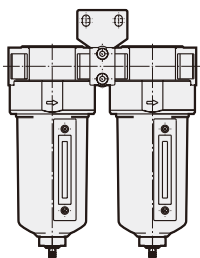


Auto drain type

MAFF401DM



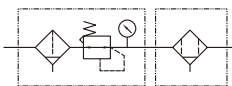
Auto drain type



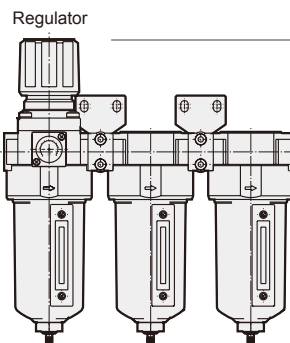
Air filter Mist filter

- AD** 5 μm + 0.3 μm
- DM** 0.3 μm + 0.01 μm

MAFRF401

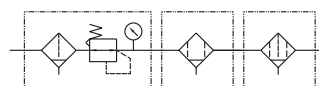


Auto drain type

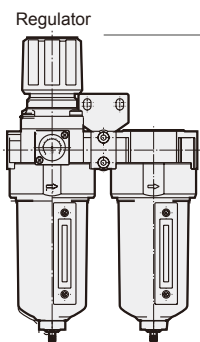


Air filter Mist filter Micro mist filter
5 μm + 0.3 μm + 0.01 μm

MATFR401



Auto drain type



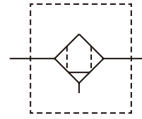
Air filter Mist filter
5 μm + 0.3 μm

MAF302D / M series

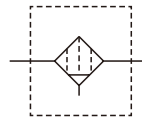
AIR UNIT (MIST / MICRO MIST FILTER)



Symbol



D: 0.3µm



M: 0.01µm

- MA302D is designed for removal of foreign matter as well as oil mist (Element: 0.3µm)
- MA302M is designed for removal of foreign matter as well as oil mist (Element: 0.01µm)

Specification

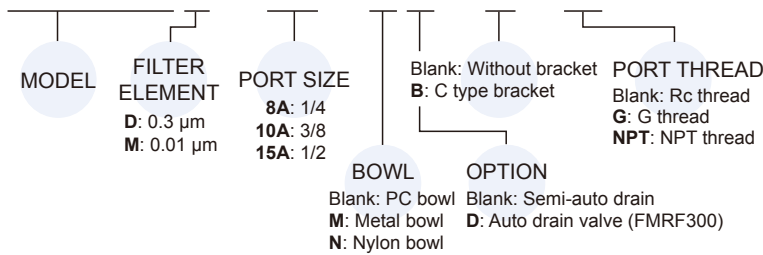
Model	MAF302D/M		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	0.3 µm, 0.01 µm		
Drain capacity	35 cm ³		
Weight	365 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

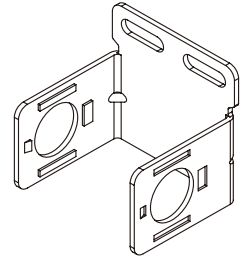
Order example

MAF302D – 8A – ND – B – □



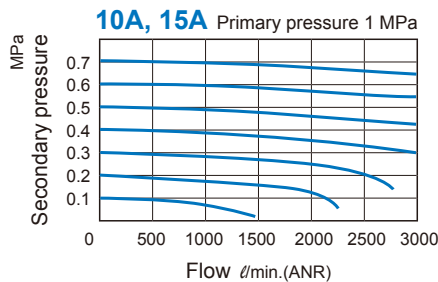
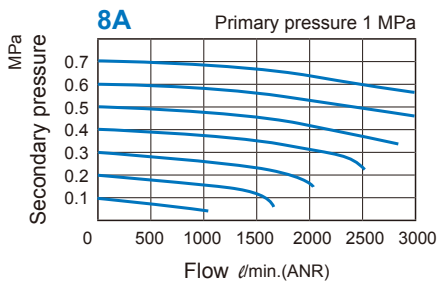
Option accessories

C type bracket

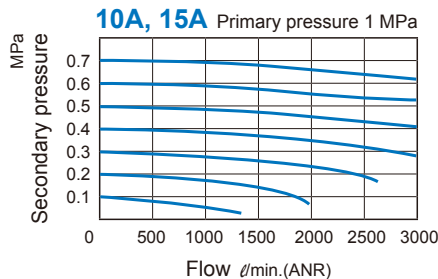
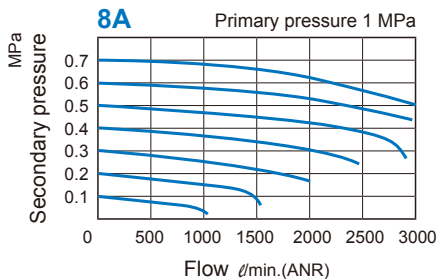


Flow feature

MAF302D (Filter element: 0.3 µm)



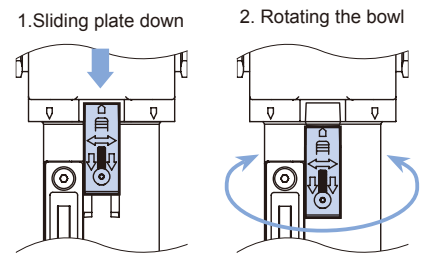
MAF302M (Filter element: 0.01 µm)



Caution

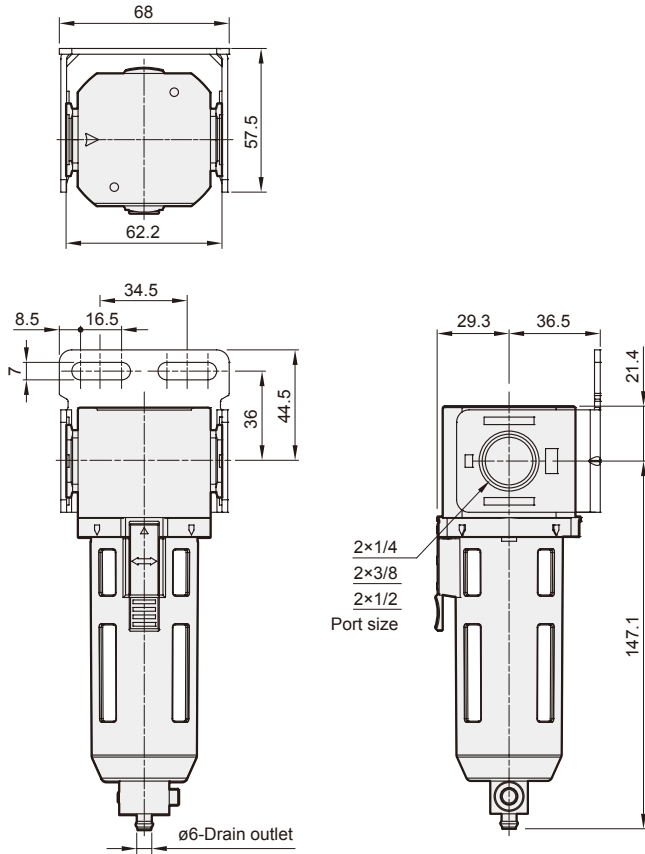
Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.



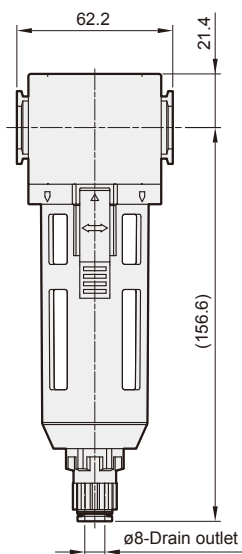
MAF302D / M Dimensions

AIR UNIT (MIST / MICRO MIST FILTER)



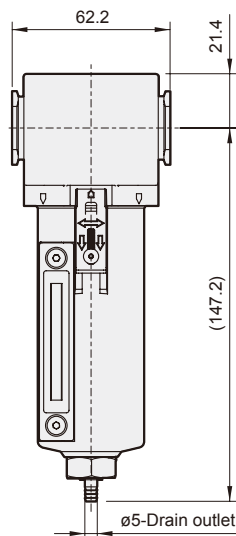
MAF302D/M-D

Auto drain valve



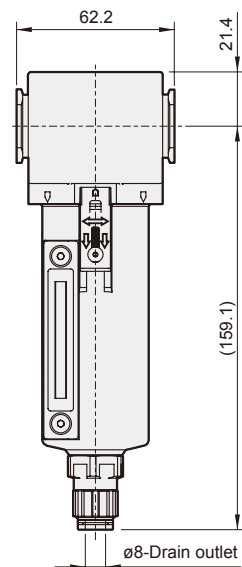
MAF302D/M-M

Metal bowl



MAF302D/M-MD

Metal bowl + Auto drain valve

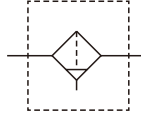


MAF401 A / D / M series

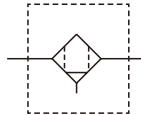
AIR UNIT (AIR / MIST / MICRO MIST FILTER)



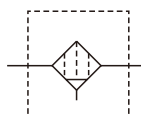
Symbol



A: 5µm



D: 0.3µm



M: 0.01µm

- MAF401A is designed for draining and removal of foreign matter. (Element: 5µm)
- MAF401D/M is designed for removal of foreign matter as well as oil mist (Element: 0.3µm / 0.01µm)

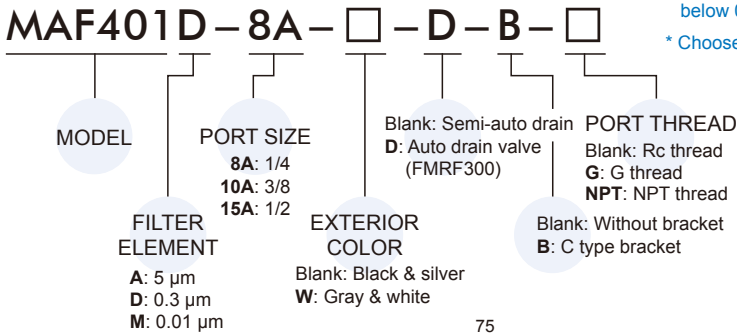
Specification

Model	MAF401A/D/M		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	5 µm, 0.3 µm, 0.01 µm		
Drain capacity	70 cm ³		
Weight	480 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

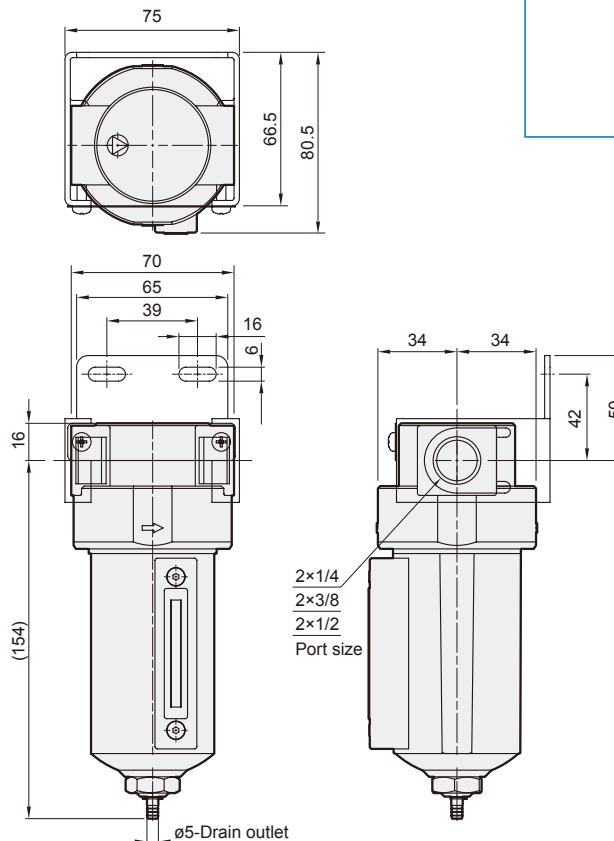
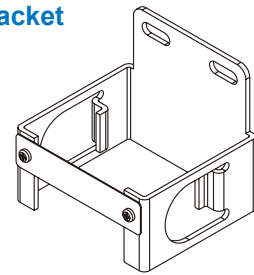
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example



Option accessories

C type bracket



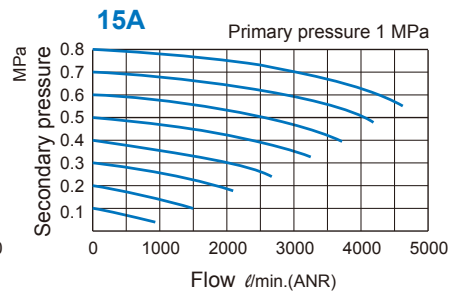
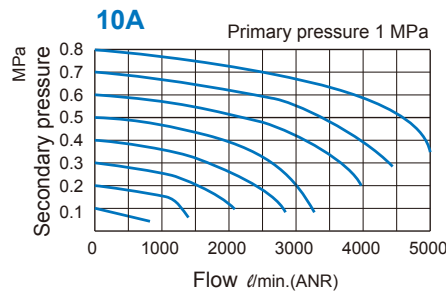
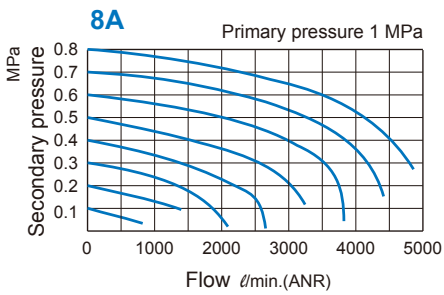
MAF401 A / D / M Capacity

AIR UNIT (AIR / MIST / MICRO MIST FILTER)

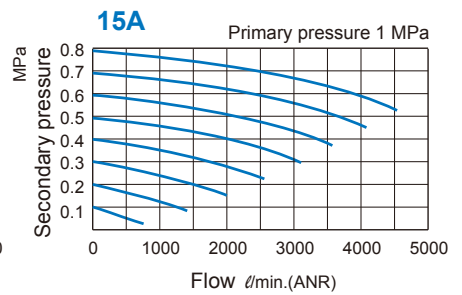
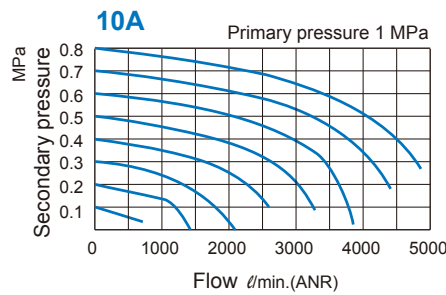
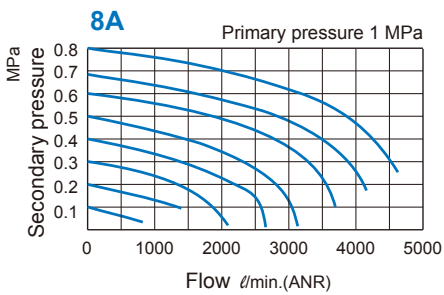


Flow feature

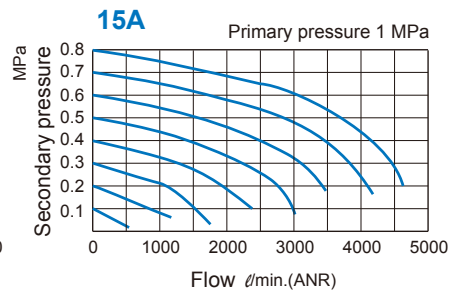
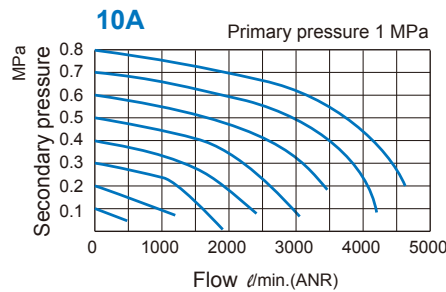
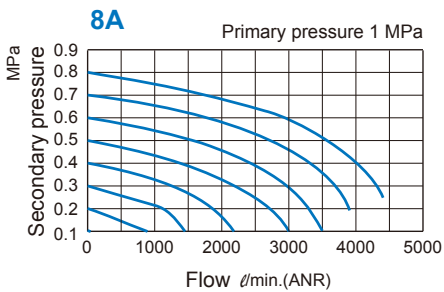
MAF401A (Filter element: 5 μm)



MAF401D (Filter element: 0.3 μm)



MAF401M (Filter element: 0.01 μm)



MAFF401 AD / DM series

AIR UNIT (AIR / MIST / MICRO MIST FILTER)



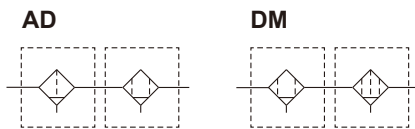
Specification

Model	MAFF401AD	MAFF401DM
Bore No.	8A, 10A, 15A	
Port size	1/4, 3/8, 1/2	
Medium	Air	
Operating pressure range (*)	0.05~1.5 MPa	
Proof pressure	2 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	5 μm+0.3 μm	0.3 μm+0.01 μm
Attachment	L type bracket	
Weight	1133 g	

* Standard unit contains semi-auto drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MAFF401AD-8A-□-D-B-□

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

FILTER ELEMENT

AD: 5 μm+0.3 μm
DM: 0.3 μm+0.01 μm

EXTERIOR COLOR

Blank: Black & silver
W: Gray & white

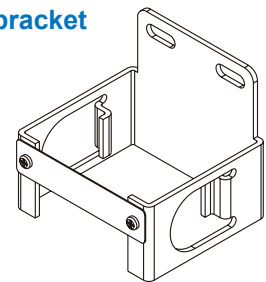
Blank: Semi-auto drain
D: Auto drain valve (FMRF300)

Blank: L type bracket
B: C type bracket

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Option accessories

C type bracket

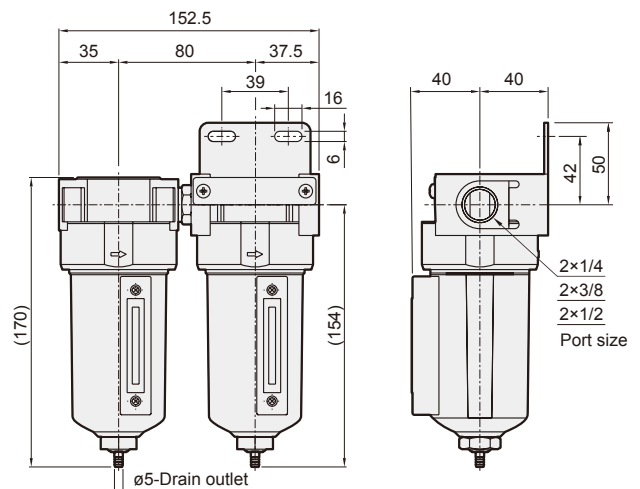
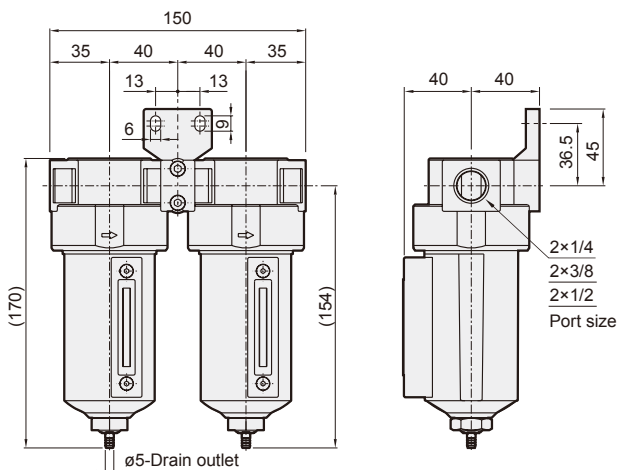


MAFF401**

L type bracket

MAFF401-B**

C type bracket



MAFRF401 series

AIR UNIT (F.R.UNIT)



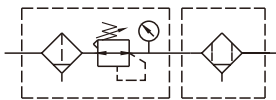
Specification

Model	MAFRF401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	5 μm+0.3 μm		
Attachment	Pressure gauge (PG-20), L type bracket		
Weight	1453 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



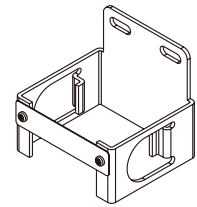
Order example

MAFRF401AD - 8A - [] - HA[] - E1 - B - []

- MODEL**
- FILTER ELEMENT**
AD: 5 μm+0.3 μm
- PORT SIZE**
8A: 1/4
10A: 3/8
15A: 1/2
- EXTERIOR COLOR**
Blank: Black & silver
W: Gray & white
- (Option) PRESSURE SWITCH**
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD
* Refer to page 5-13 for MP41.
- PORT THREAD**
Blank: Rc thread
G: G thread
NPT: NPT thread
- Blank: L type bracket**
B: C type bracket

Option accessories

C type bracket



(Option) ACCESSORIES

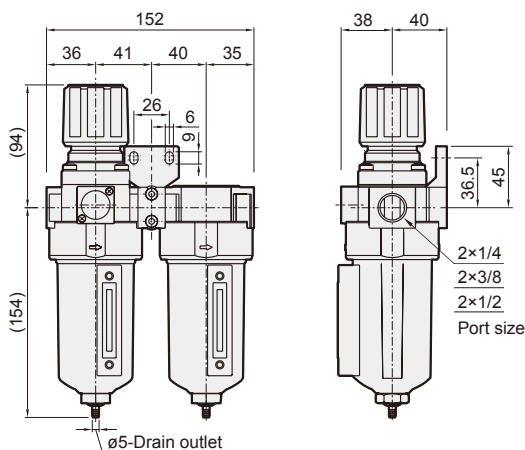
Type	Pressure gauge	Drain valve
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-MAR302).

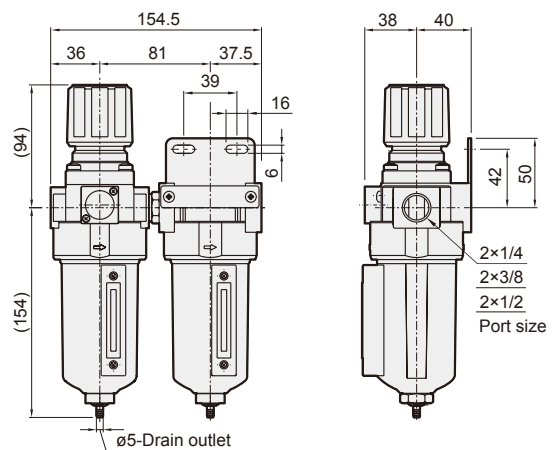
MAFRF401AD

L type bracket



MAFRF401AD-B

C type bracket



MATFR401 series

AIR UNIT (F.R.UNIT)



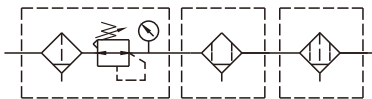
Specification

Model	MATFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 Mpa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	5 μm+0.3 μm+0.01 μm		
Attachment	Pressure gauge (PG-20), L type bracket		
Weight	2106 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MATFR401 - 8A - □ - HA□ - E1 - B - □

MODEL

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR

Blank: Black & silver
W: Gray & white

(Option)
PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-13 for MP41.

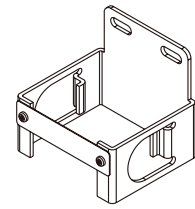
PORT THREAD

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

Blank: L type bracket
B: C type bracket

Option accessories

C type bracket



(Option) ACCESSORIES

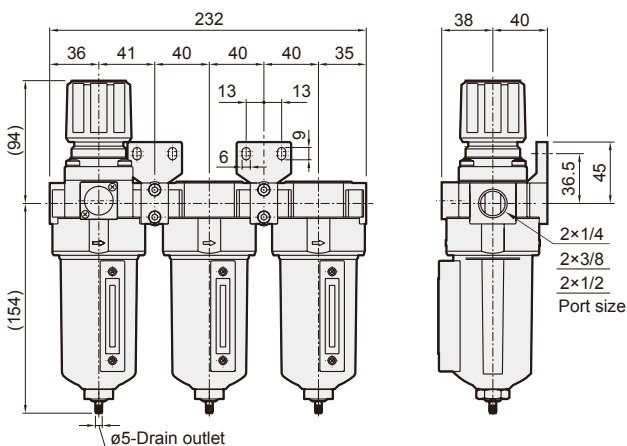
Type	Pressure gauge	Drain valve
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) A: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-MAR302).

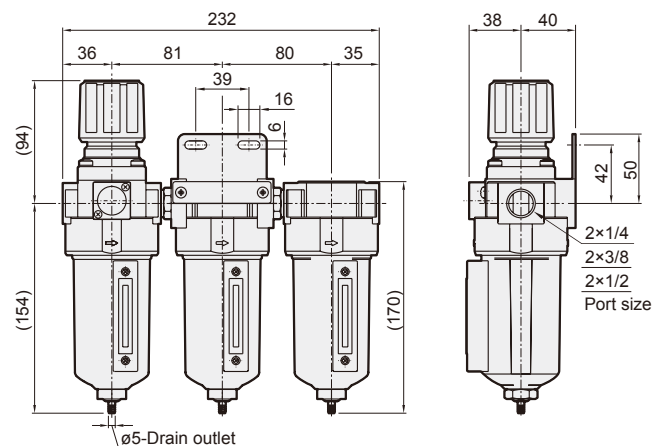
MATFR401

L type bracket



MATFR401-B

C type bracket



MAF501D / M series

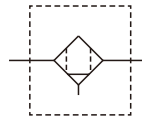
AIR UNIT (MIST / MICRO MIST FILTER)



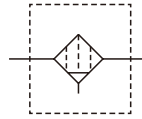
mindman



Symbol



D: 0.3μm



M: 0.01μm

Specification

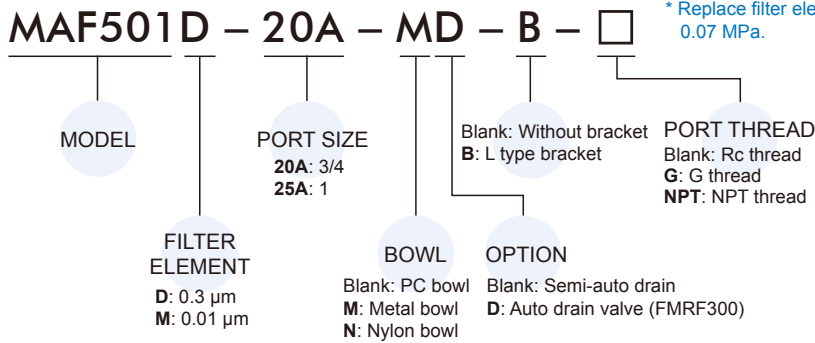
Model	MAF501D/M	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	0.3 μm, 0.01 μm	
Drain capacity	Nylon bowl, PC bowl: 75 cm ³	
	Metal bowl: 70 cm ³	
Weight	Nylon bowl, PC bowl: 1180g	
	Metal bowl: 1300g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

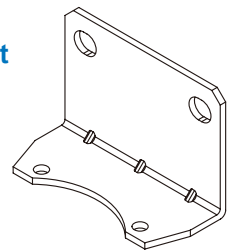
* Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Order example



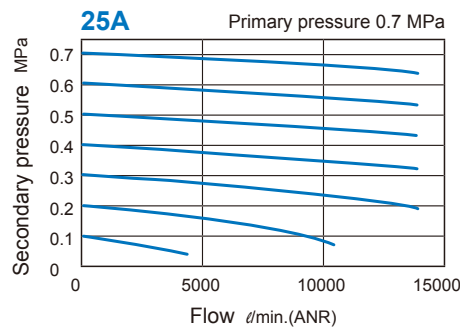
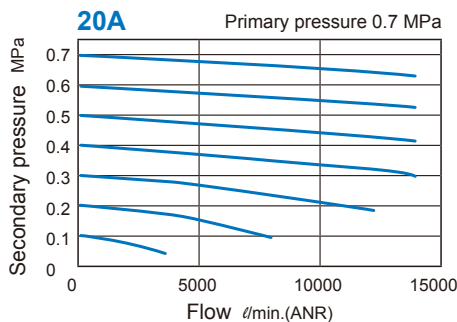
Option accessories

L type bracket

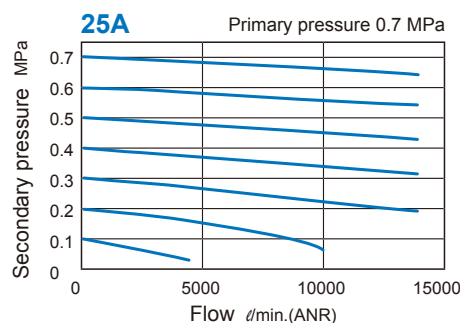
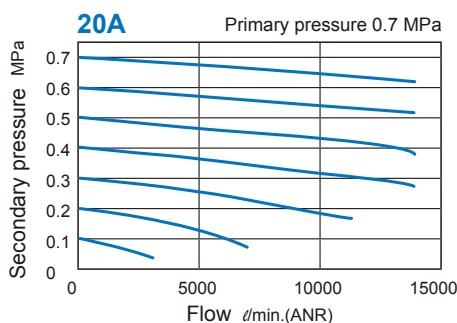


Flow feature

MAF501D (Filter element: 0.3 μm)



MAF501M (Filter element: 0.01 μm)



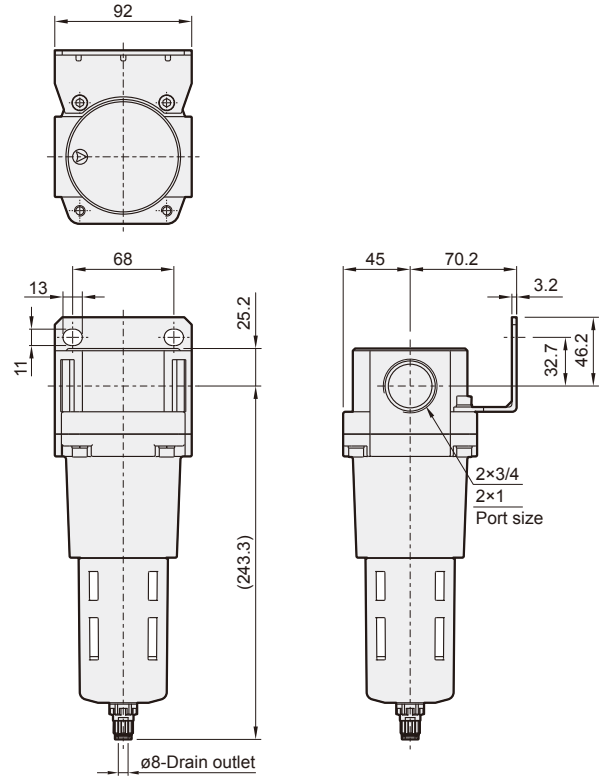
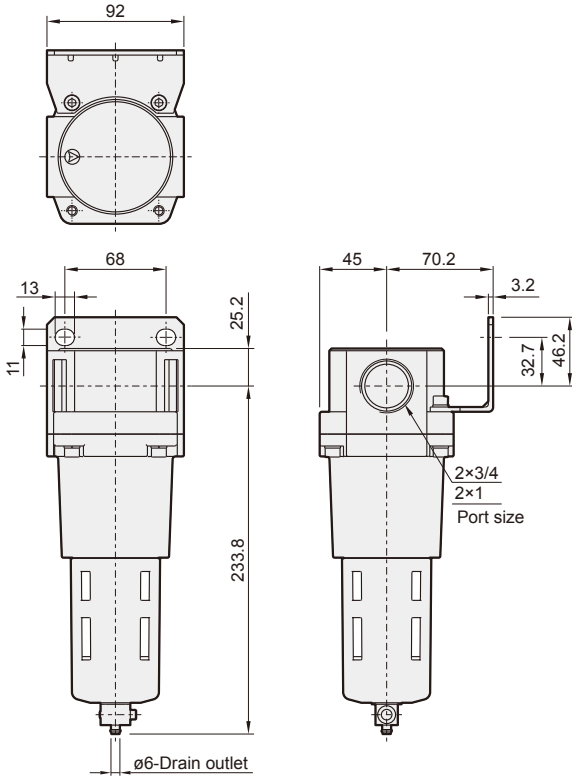
MAF501D / M Dimensions

AIR UNIT (MIST / MICRO MIST FILTER)



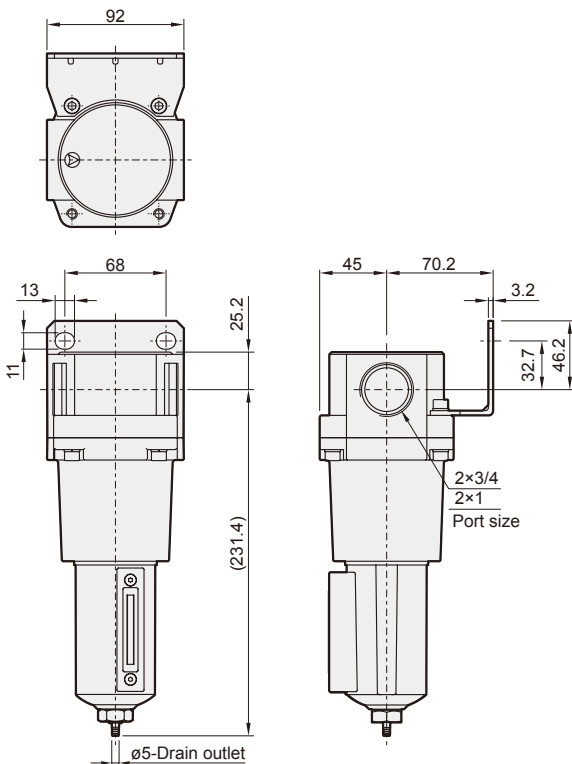
MAF501D/M-D

Auto drain valve



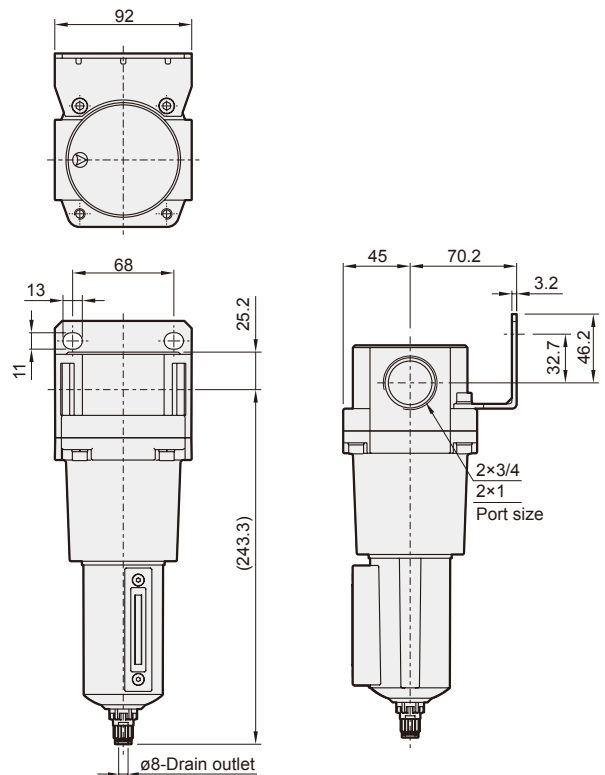
MAF501D/M-M

Metal bowl



MAF501D/M-MD

Metal bowl + auto drain valve



WATER SEPARATOR

PRECISION FILTER

MAM G

MAM B D M F

MAMG

EWS

Water separator

Removal rate 99%±1

Separating the water droplet with a special filtration in the compressed air. * cannot remove moisture.



MAMB

E3

3 μm

Filtration efficiency 99%

Removing the impurities which the particles are bigger than 3μm in compressed air, and extending the life of precision filter in the down-stream, then preventing trouble with the equipment.



MAMD

E03

0.3 μm

Filtration efficiency 99.9%

Removing the oil mist and impurities which the particles are bigger than 0.3μm in compressed air.



MAMM

E001

0.01 μm

Filtration efficiency 99.9%

Removing the oil mist and impurities which the particles are bigger than 0.01μm in compressed air. The filter can be applied to requirement of high purity and extremely low oil mist.



MAMF

E001D

0.01 μm + Deodorization

Filtration efficiency 99.9%

Adsorbing the odor and efficiently removing oil mist with an activated carbon element in compressed air. The filter can be applied to requirement of high purity and oil-free, such as precision painting operations or food and medical equipment.

* Assembling a MAMD series as pre-filter to extend the life of activated carbon.



Body & Port size

[Rc, G, NPT thread]

MAM*25 1/4, 3/8

MAM*35 3/8, 1/2

MAM*45 1/2, 3/4

MAM*55 3/4, 1

Model & Filter element

Water separator

MAMG

Precision filter

MAMB 3 μm

MAMD 0.3 μm

MAMM 0.01 μm

MAMF 0.01 μm + Deodorization

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.
(E001D every 6 months)





(Option)

Differential pressure indicator

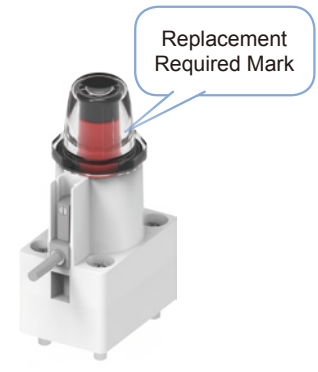
Double-check with a **Sensor Switch** and an indicator to achieve preventative maintenance.

⚠ Caution This product can't be operated in a location in which pulsations frequently occur.

Operation image



Initial (No clogging)



Replacement recommended

An indicator that can confirm intuitively.
 A clear cover and colorful lamp enables high visibility.
 A mark that help you know when it is time to replace the filter element.

Sensor switch (Option)



RDFE(V)
Solid state output, Normally open
Operating voltage: 5~30V DC
Switching current: 50mA max.

* Sensor switch specification please refer to page 6-12.

A hint for preventative maintenance

Generally speaking, the filter element should be replaced about once a year. This is just a guideline. The air cleanliness of the secondary side depends on working conditions. To keep your system at optimal conditions, we recommend that **you replace your filter elements regularly / follow the Replacement mark**



Modular combination example (Option)

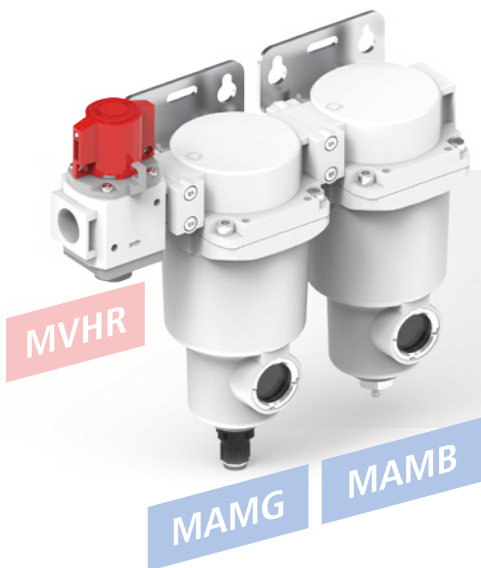
Model	Joiner set	Air unit	Shutoff valve	Soft start-up valve
MAM*25	BS-MACP403	MA*401-W	MVHR400	MAVS400
MAM*35		MA*403	MVHT400	
MAM*45	BS-MACP501	MA*501	—	—
MAM*55				

- Space-saving
- Various combinations available
- Easy assembly (DIY)

EXAMPLE

MAMG35 + **MAMB35** + **MAVS400**
 Water separator 3 μm Shutoff valve

Applicable to the dangerous pneumatic machinery. The valve will control the pressure to increase gradually when the air supply start up, which avoids the accident and machinery damage caused by the sudden action of the actuators.



EXAMPLE

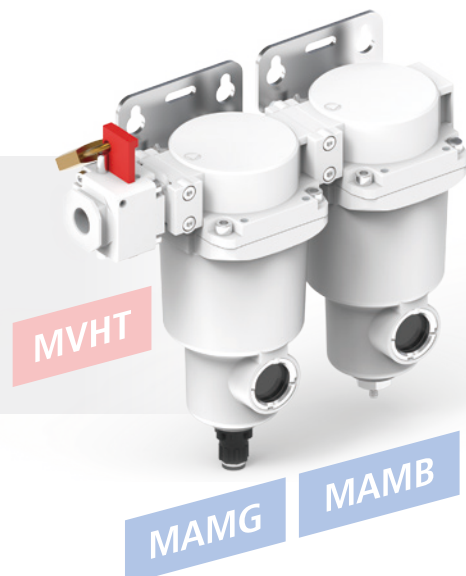
MVHR400 + **MAMG35** + **MAMB35**
 Shutoff valve Water separator 3 μm

Applicable to the pneumatic circuit to switch the air supply on and off promptly and release residual pressure while the valve is off.

EXAMPLE

MVHT400 + **MAMG35** + **MAMB35**
 Shutoff valve Water separator 3 μm

Applicable to the pneumatic circuit to switch the air supply on and off promptly and release residual pressure while the valve is off.




EXAMPLE
MAMG45 + MAMB45

Water separator

3 μm

Applicable to the main line of the pneumatic circuit or the instance of low compressed air quality demand. For example, the main circuit of the pneumatic system in the factory.

MAMG

MAMB

EXAMPLE
MAMB45 + MAMD45 + MAMM45

3 μm

0.3 μm

0.01 μm

Applicable to the instance of high compressed air quality demand. For example, food processing industry and pharmaceutical plant.



MAMB

MAMD

MAMM


EXAMPLE
MAMG55 + MAMB55 + MAR501

Water separator

3 μm

Regulator

Applicable to the instance of pressure regulation requirement. For example, automation industry and machine tool.

MAMG

MAMB

MAR

EXAMPLE
MAMG55 + MAMB55 + MAL501

Water separator

3 μm

Lubricator

Applicable to the instance of lubrication requirement. For example, automation industry and machine tool.



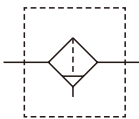
MAMG

MAMB

MAL

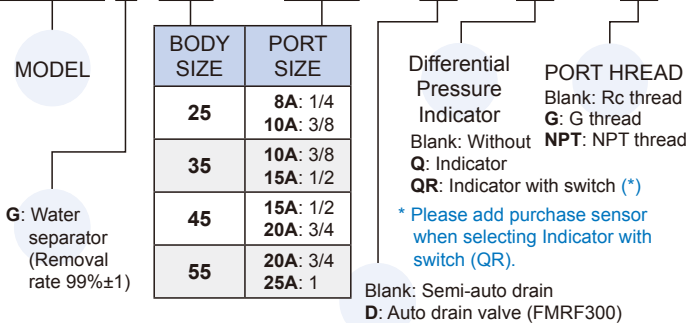


Symbol

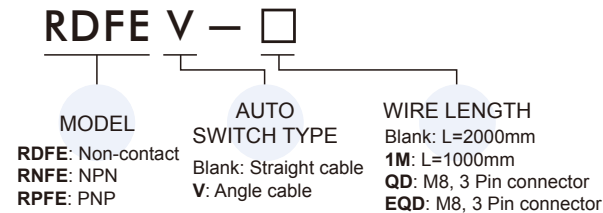


Order example

MAMG 45 – 15A – D – Q – □



Order example of sensor switch



MAMG series Water removal rate

Condition of inlet air	
Temperature (°C)	34.2
Pressure (MPa)	0.6
Liquid water content (g/m ³)	106.8
Water removal rate (%)	99±1

$$\text{Water removal rate (\%)} = \frac{\text{Removed water (water droplet) g}}{\text{Inflowed water (water droplet) g}} \times 100$$

* Water separator can remove water droplets, but it cannot remove moisture.

Dimensions * Please refer to page 4-126.

Features

Separating the water droplet with a special filtration in the compressed air. * cannot remove moisture.

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Specification

Model	MAMG							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	– 5~+60°C (No freezing)							
Filter element	Water separator (Removal rate 99%±1)							
Attachment	L-type bracket							
Sensor switch	RD FE(V) (Refer to page 6-12)							
Weight	610 g	870 g	1450 g	2250 g				

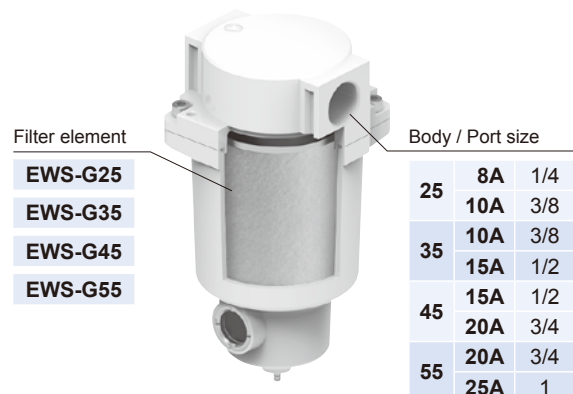
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Selector table – Filter element

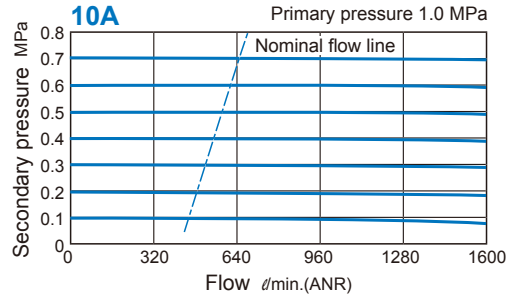
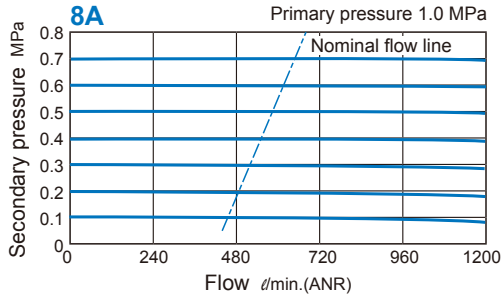
Model	Port size	Filter element	Nominal * flow capacity l/min(ANR)	Symbol for order
MAMG25	1/4, 3/8	Water separator (removal rate 99%±1)	650	EWS-G25
MAMG35	3/8, 1/2		1350	EWS-G35
MAMG45	1/2, 3/4		2100	EWS-G45
MAMG55	3/4, 1		3600	EWS-G55

* Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.

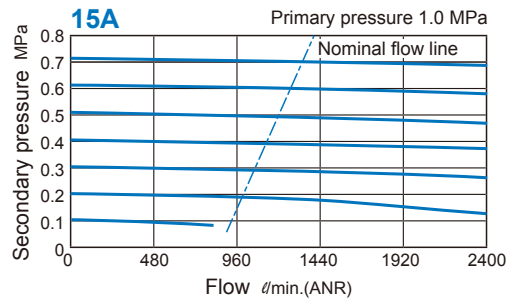
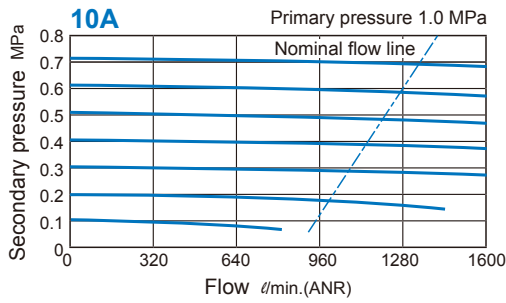


! If flow rate is over nominal flow capacity, may not meet the specifications of the product.

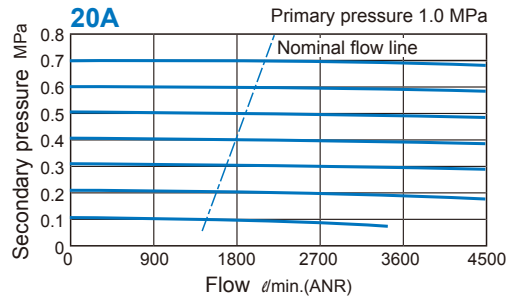
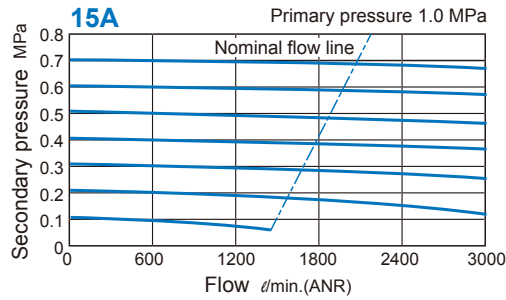
MAMG25



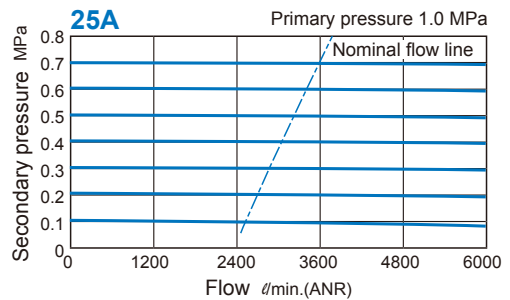
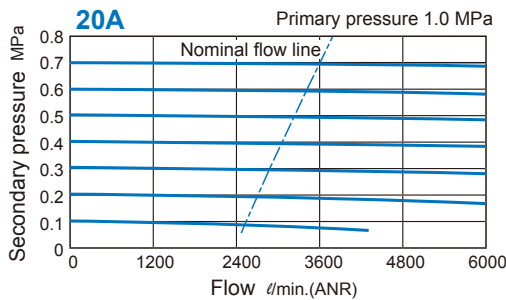
MAMG35



MAMG45



MAMG55

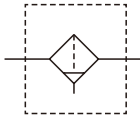


MAMB series 3 μm

AIR UNIT (MAIN LINE FILTER)



Symbol



Features

Removing the impurities which the particles are bigger than 3μm in compressed air, and extending the life of precision filter in the down-stream, then preventing trouble with the equipment.

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

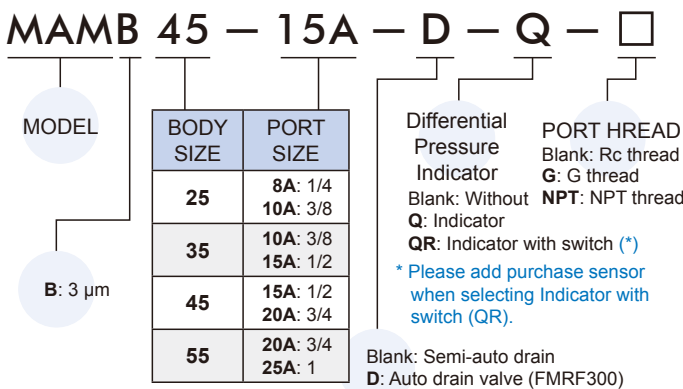
Specification

Model	MAMB							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	- 5~+60°C (No freezing)							
Filter element	3 μm							
Attachment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 6-12)							
Weight	610 g		870 g		1450 g		2250 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example



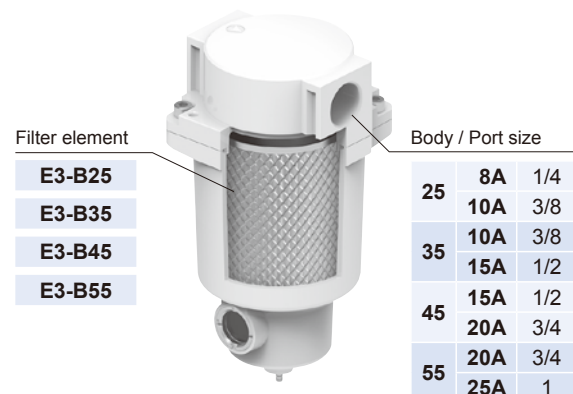
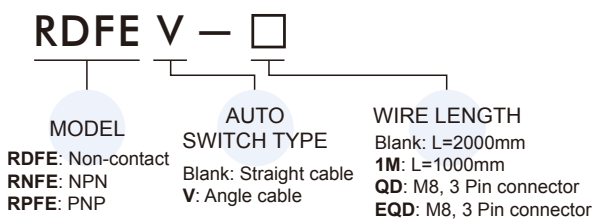
Selector table – Filter element

Model	Port size	Filter element *1	Nominal*2 flow capacity l/min(ANR)	Symbol for order
MAMB25	1/4, 3/8	E3: 3μm (filtration efficiency 99%)	650	E3-B25
MAMB35	3/8, 1/2		1350	E3-B35
MAMB45	1/2, 3/4		2100	E3-B45
MAMB55	3/4, 1		3600	E3-B55

*1. Tested according to ISO8573.

*2. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.

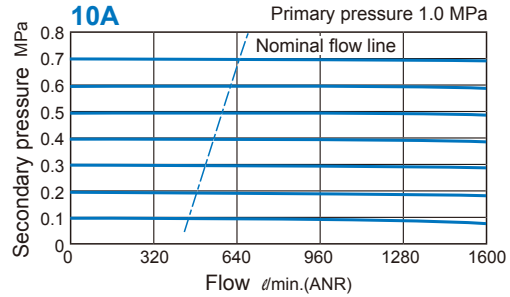
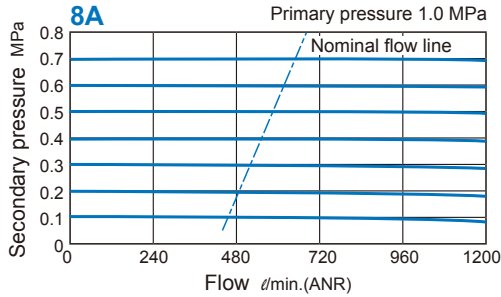
Order example of sensor switch



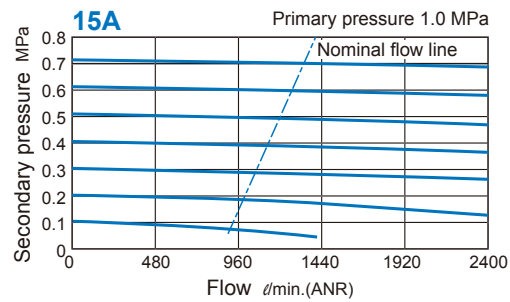
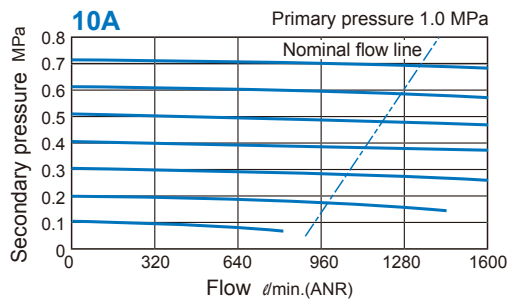
Dimensions * Please refer to page 4-126.

! If flow rate is over nominal flow capacity, may not meet the specifications of the product.

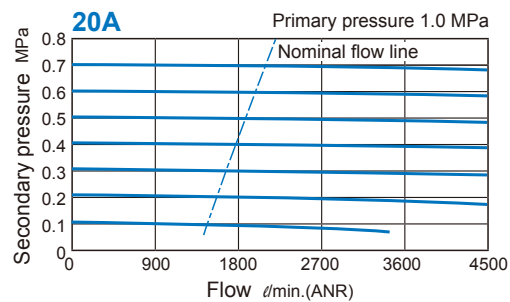
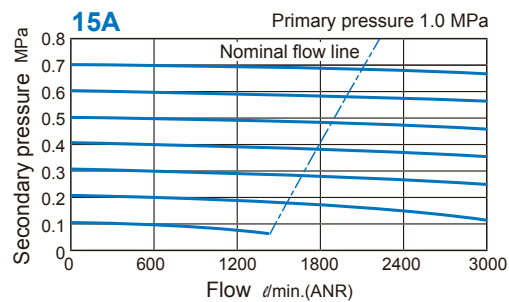
MAMB25



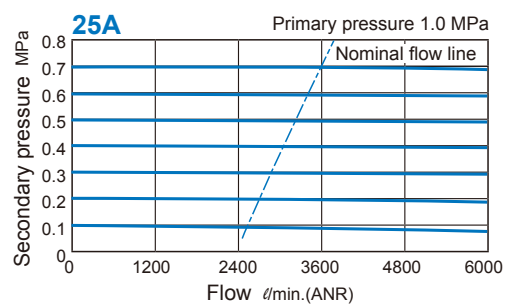
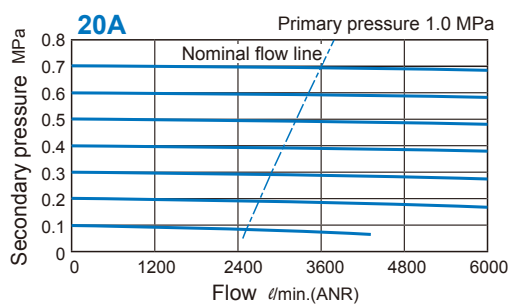
MAMB35



MAMB45



MAMB55



MAMD series 0.3 μm

AIR UNIT (MIST FILTER)



Features

Removing the oil mist and impurities which the particles are bigger than 0.3μm in compressed air.

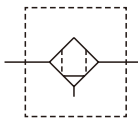
Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Specification

Model	MAMD							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating pressure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	- 5~+60°C (No freezing)							
Filter element	0.3 μm							
Attachment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 6-12)							
Weight	610 g		870 g		1450 g		2250 g	

Symbol



Order example

MAMD 45 – 15A – D – Q – □

MODEL: MAMD

BODY SIZE: 45

PORT SIZE: 15A: 1/2

Differential Pressure Indicator: Blank: Without Indicator, Q: Indicator, QR: Indicator with switch (*)

PORT THREAD: Blank: Rc thread, G: G thread, NPT: NPT thread

D: 0.3 μm

Blank: Semi-auto drain, D: Auto drain valve (FMRF300)

BODY SIZE	PORT SIZE
25	8A: 1/4 10A: 3/8
35	10A: 3/8 15A: 1/2
45	15A: 1/2 20A: 3/4
55	20A: 3/4 25A: 1

Selector table – Filter element

Model	Port size	Filter element *1	Residual oil content *2	Nominal*3 flow capacity l/min(ANR)	Symbol for order
MAMD25	1/4, 3/8	E03: 0.3μm (filtration efficiency 99.9%)	< 0.1 mg/m ³	650	E03-D25
MAMD35	3/8, 1/2			1350	E03-D35
MAMD45	1/2, 3/4			2100	E03-D45
MAMD55	3/4, 1			3600	E03-D55

*1. Tested according to ISO8573.

*2. Tested according to ISO12500-1, inlet concentration 10mg/m³

*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nominal flow capacity, may not meet the specifications of the product.

Order example of sensor switch

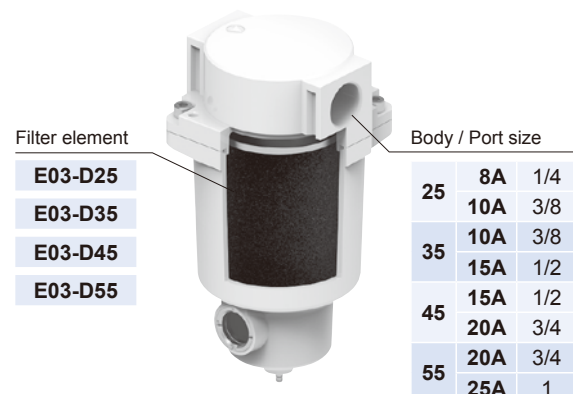
RDFE V – □

MODEL: RDFE

AUTO SWITCH TYPE: Blank: Straight cable, V: Angle cable

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

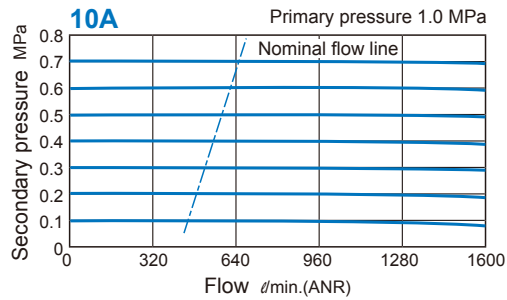
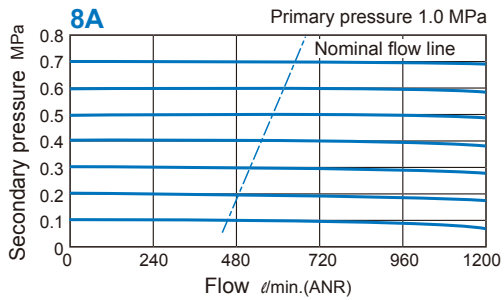
RDFE: Non-contact
RNFE: NPN
RPFE: PNP



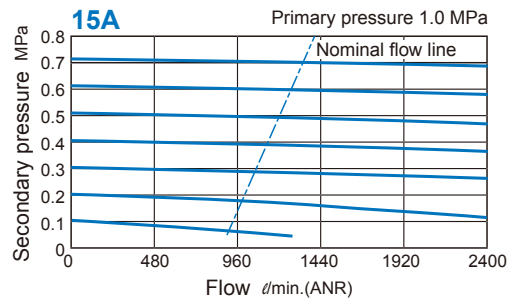
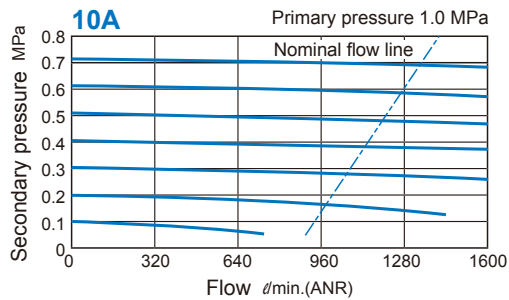
Dimensions * Please refer to page 4-126.

! If flow rate is over nominal flow capacity, may not meet the specifications of the product.

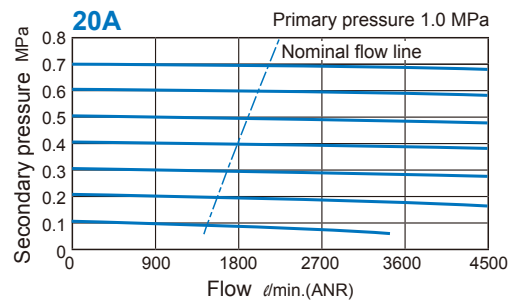
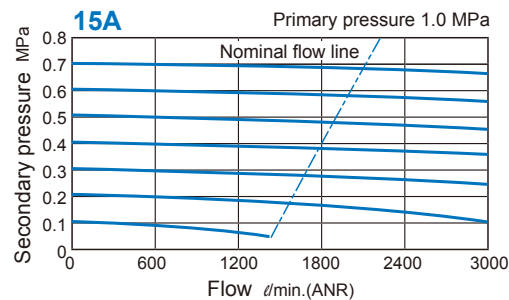
MAMD25



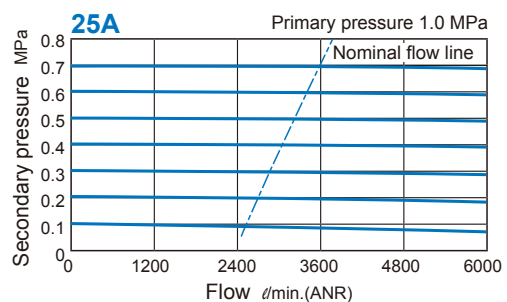
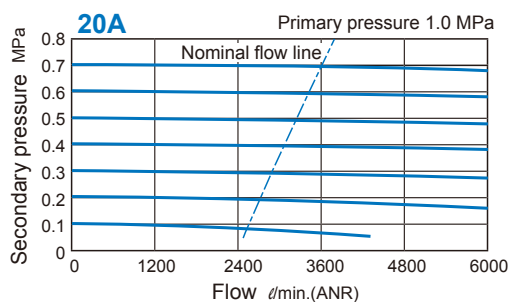
MAMD35



MAMD45



MAMD55



MAMM series 0.01 μm

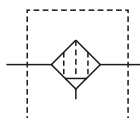
AIR UNIT (MICRO MIST FILTER)



mindman



Symbol



Features

Removing the oil mist and impurities which the particles are bigger than 0.01μm in compressed air. The filter can be applied to requirement of high purity and extremely low oil mist.

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

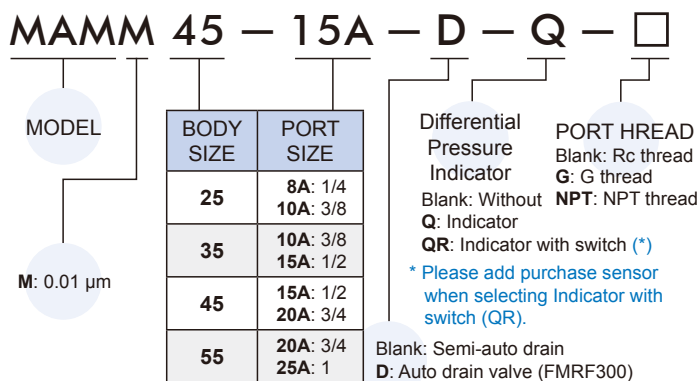
Specification

Model	MAMM							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating pressure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	- 5~+60°C (No freezing)							
Filter element	0.01 μm							
Attachment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 6-12)							
Weight	610 g		870 g		1450 g		2250 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example



Selector table – Filter element

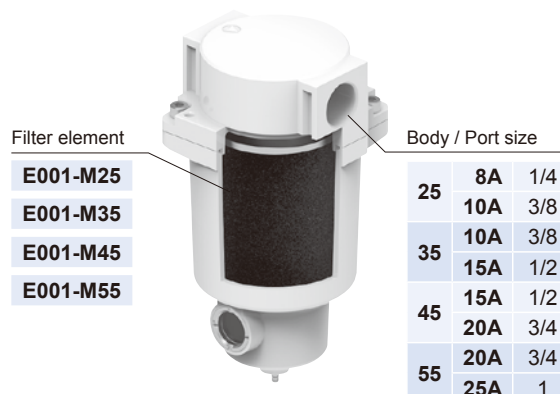
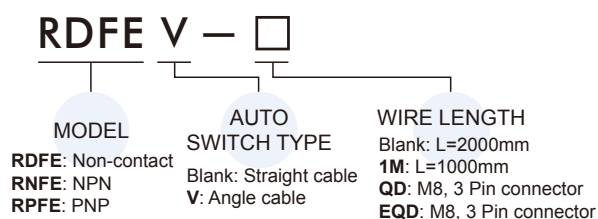
Model	Port size	Filter element *1	Residual oil content *2	Nominal flow capacity l/min(ANR) *3	Symbol for order
MAMM25	1/4, 3/8	E001: 0.01μm (filtration efficiency 99.9%)	< 0.01 mg/m ³	500	E001-M25
MAMM35	3/8, 1/2			1000	E001-M35
MAMM45	1/2, 3/4			2000	E001-M45
MAMM55	3/4, 1			3600	E001-M55

*1. Tested according to ISO8573.

*2. Tested according to ISO12500-1, inlet concentration 10mg/m³

*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nominal flow capacity, may not meet the specifications of the product.

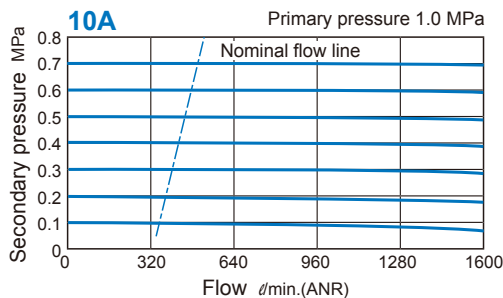
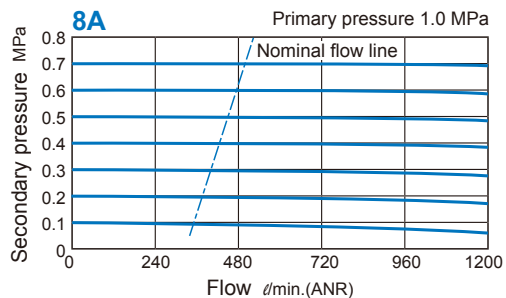
Order example of sensor switch



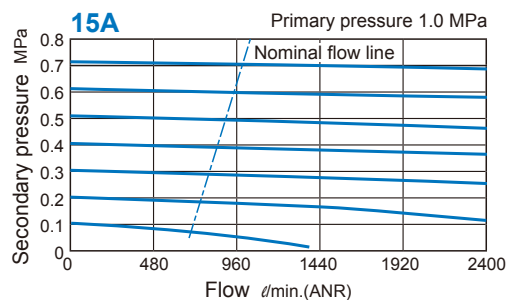
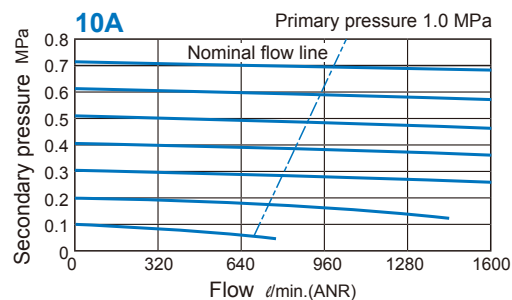
Dimensions * Please refer to page 4-126.

! If flow rate is over nominal flow capacity, may not meet the specifications of the product.

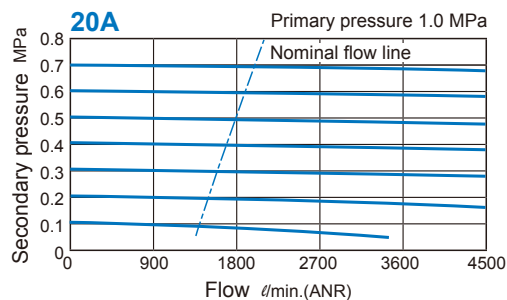
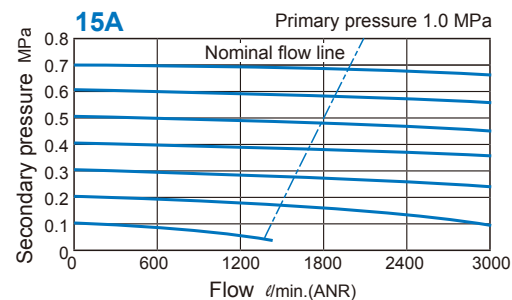
MAMM25



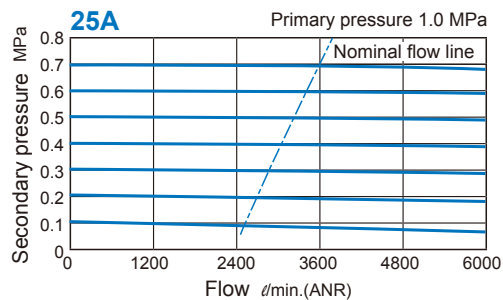
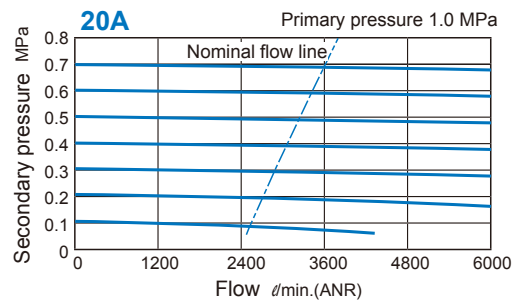
MAMM35



MAMM45



MAMM55



MAMF series 0.01 μm + Deodorization

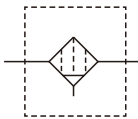
AIR UNIT (ODOR REMOVAL FILTER)



mindman



Symbol



Order example

MAMF 45 – 15A – D – Q – □

MODEL	BODY SIZE	PORT SIZE	Differential Pressure Indicator	PORT THREAD
MAMF	25	8A: 1/4 10A: 3/8	Blank: Without Q: Indicator QR: Indicator with switch (*)	Blank: Rc thread G: G thread NPT: NPT thread
	35	10A: 3/8 15A: 1/2		
	45	15A: 1/2 20A: 3/4		
	55	20A: 3/4 25A: 1		

Blank: Semi-auto drain
D: Auto drain valve (FMRF300)

F: 0.01 μm + Deodorization (*)
* Assembling a MAMD series as pre-filter of activated carbon.

Order example of sensor switch

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

Features

Adsorbing the order and efficiently removing oil mist with an activated carbon element in compressed air. The filter can be applied to requirement of high purity and oil-free, such as precision painting operations or food and medical equipment.

* Assembling a MAMD series as pre-filter to extend the life of activated carbon.

Maintenance

Replace filter element at least every 6 months or when pressure drop reaches 0.07 MPa.

Specification

Model	MAMF							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*1)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	- 5~+60°C (No freezing)							
Filter element	0.01μm+Deodorization (*2)							
Attchment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 6-12)							
Weight	610 g		870 g		1450 g		2250 g	

*1. Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

*2. Assembling a MAMD series as pre-filter to extend the life of activated carbon.

Selector table – Filter element

Model	Port size	Filter element *1	Residual oil content *2	Nominal*3 flow capacity l/min(ANR)	Symbol for order
MAMF25	1/4, 3/8	E001D: 0.01μm + Deodorization (filtration efficiency 99.9%)	< 0.005 mg/m ³	500	E001D-F25
MAMF35	3/8, 1/2			1000	E001D-F35
MAMF45	1/2, 3/4			2000	E001D-F45
MAMF55	3/4, 1			3600	E001D-F55

*1. Tested according to ISO8573.

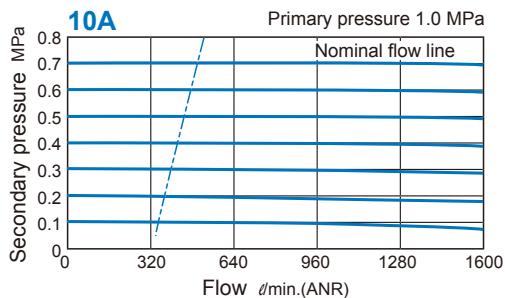
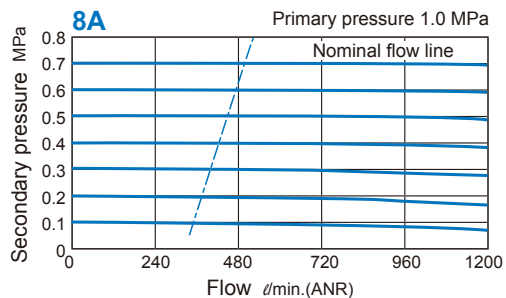
*2. Tested according to ISO12500-1, inlet concentration 10mg/m³

*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.

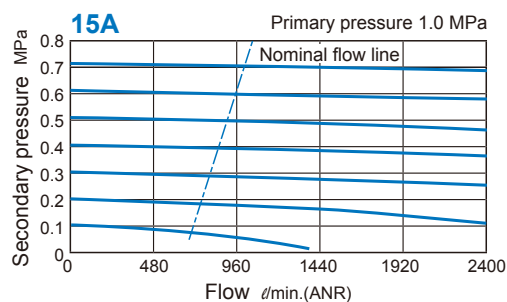
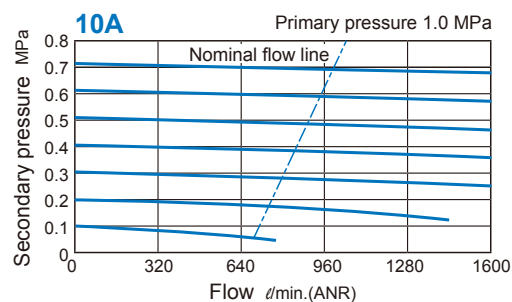
Filter element	Body / Port size		
E001D-F25	25	8A	1/4
E001D-F35	35	10A	3/8
E001D-F45	45	15A	1/2
E001D-F55	55	20A	3/4
		25A	1

! If flow rate is over nominal flow capacity, may not meet the specifications of the product.

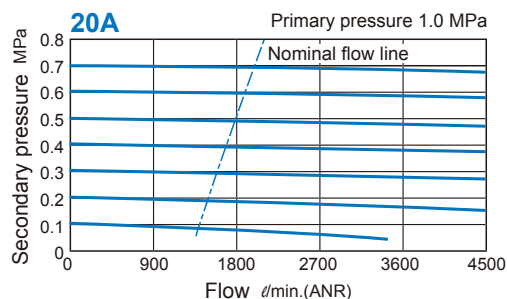
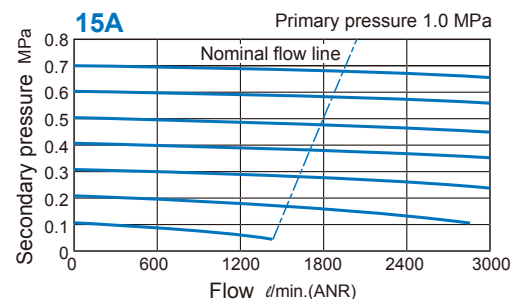
MAMF25



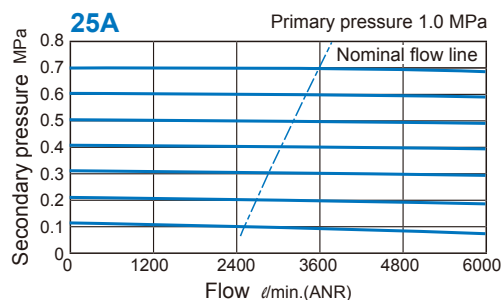
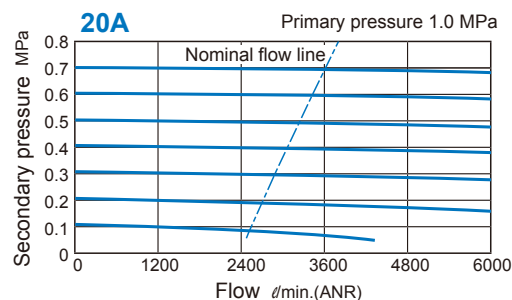
MAMF35

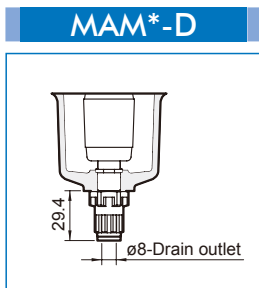
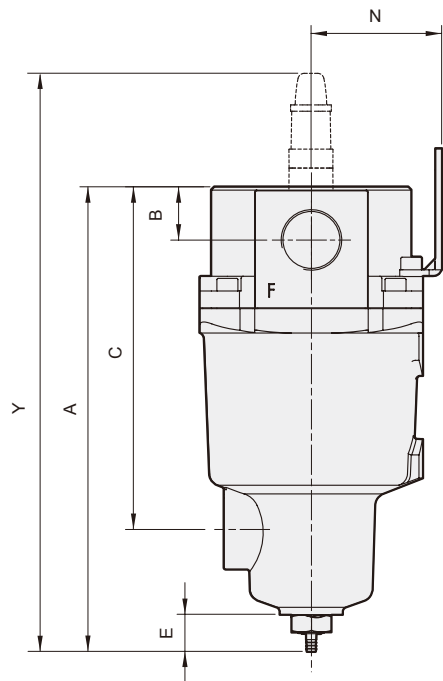
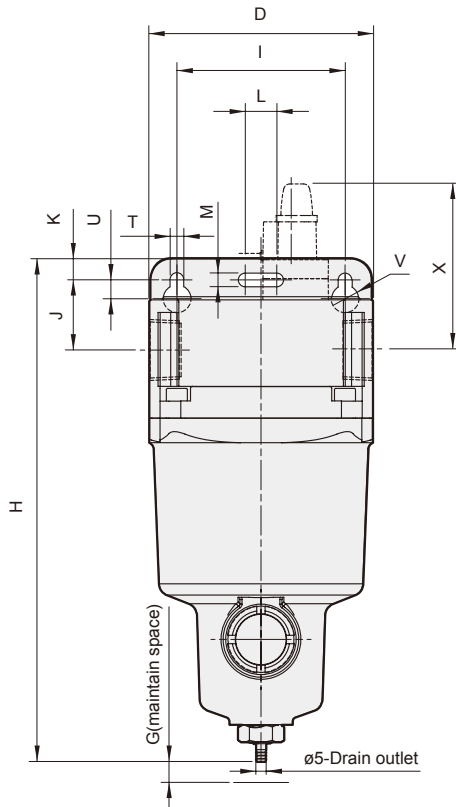
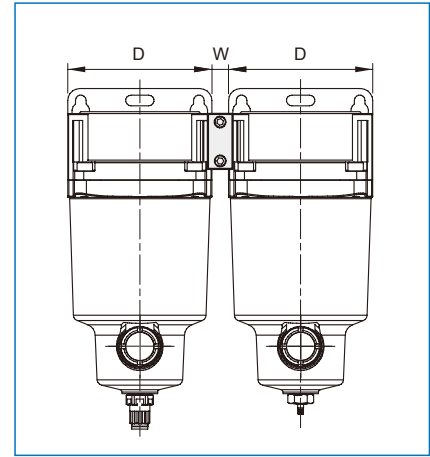
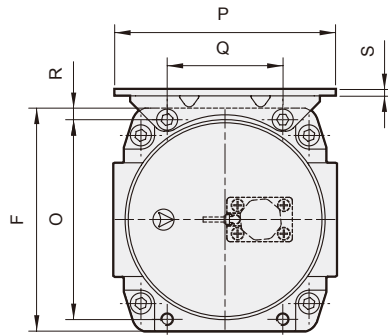


MAMF45



MAMF55



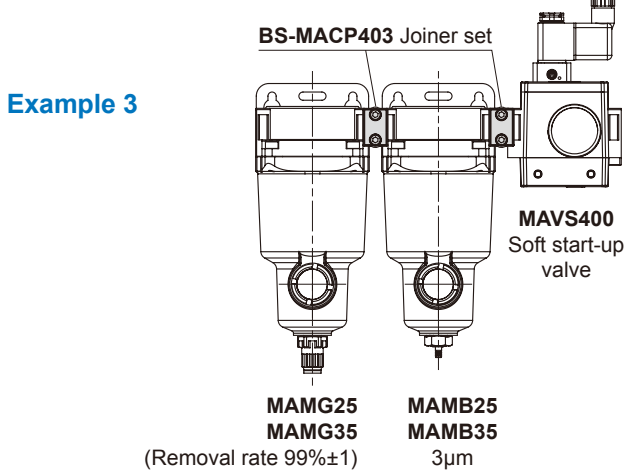
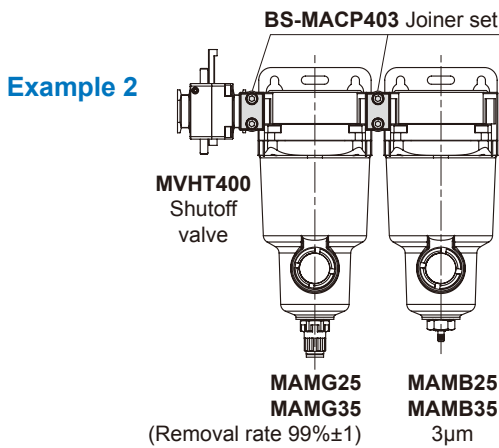
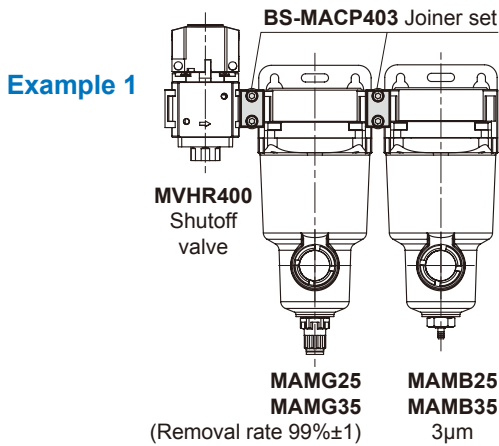


Code Model	Port size	A	B	C	D	E	F	G	H	I	J	K	T	U	L	M	V	N	O	P	Q	R	S	W	X	Y
MAM*25	1/4", 3/8"	171.6	16.5	113.5	76	17.6	76	10	187.1	66	24	8	6	6	6	6	10	47	68.5	80	35	3.8	2	10	71.5	226.6
MAM*35	3/8", 1/2"	199.1	16.5	141	90	17.6	90	10	218.6	80	28	8	7	7	7	7	12	53.4	80.5	95	44	4.8	2.3	10	71.5	254.1
MAM*45	1/2", 3/4"	221.1	25.2	163	106	17.6	106	10	236.9	90	31	10	9	9	9	9	15	62	95	111	55	5.5	3.2	14	80.2	276.1
MAM*55	3/4", 1"	256.1	25.2	198.5	122	17.6	122	10	275.6	100	34.7	10	9	9	15	9	15	72	106	122	63	8	3.2	14	80.2	311.1

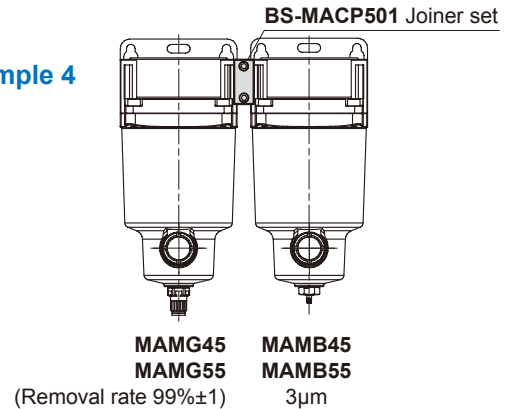
Available components (Option)

Model	Joiner set	Air unit	Shutoff valve	Soft start-up valve
MAM*25	BS-MACP403	MA*401-W	MVHR400	MAVS400
MAM*35		MA*403	MVHT400	
MAM*45	BS-MACP501	MA*501	-	-
MAM*55				

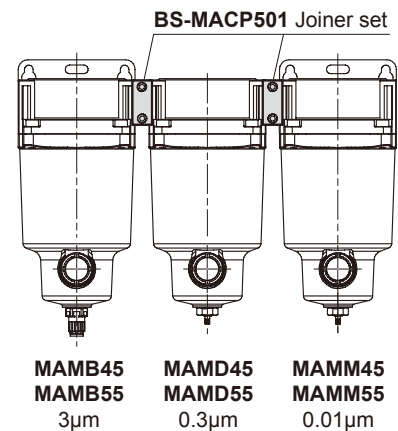
- Space-saving.
- Various combinations available.
- Easy assembly (DIY).



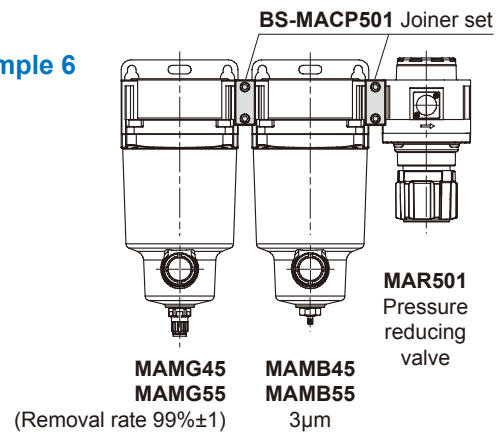
Example 4



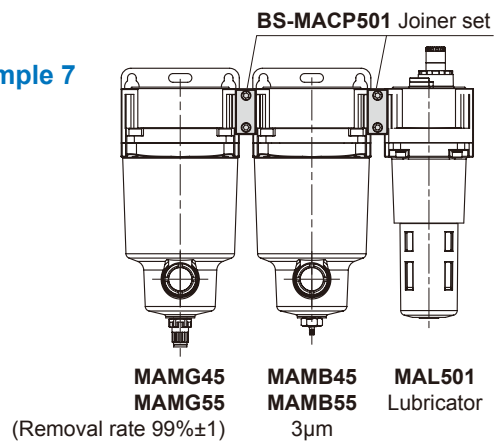
Example 5

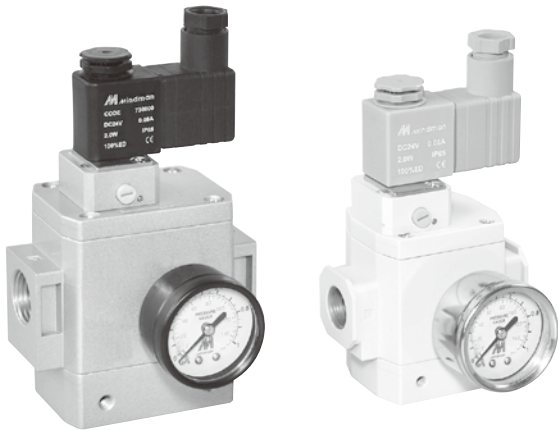


Example 6



Example 7





- Start-up valve for low speed air supply to gradually raise initial pressure in an air system and for quick exhaust by cutting off air supply.
- Combination with modular type air units (F.R.L. unit).
- Adaptor possess smooth pressure relief is optional.

Specification

Model	MAVS200	MAVS300	MAVS400
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.25~1 MPa		
Effective orifice	1(P)→2(A)	20 mm ²	37 mm ²
	2(A)→3(R)	24 mm ²	49 mm ²
Ambient temperature	0~+60°C		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Option	Pressure gauge (PG-40), L type bracket		
Weight	450 g	520 g	800 g

Order example

MAVS400 - 15A - 1 - □ - B - AC110 - L - □

MODEL

200
300
400

PORT SIZE

8A: 1/4 (for 200 type)
10A: 3/8 (for 300 type)
15A: 1/2 (for 400 type)

BRACKET

Blank: Without
B: L type bracket

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD

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

PRESSURE GAUGE

Blank: Without pressure gauge
C: Pressure gauge (PG-40)

Blank: DIN connector

L: DIN connect with LED indicator
E: Explosion protection (Table 1)

(E type use black coil)

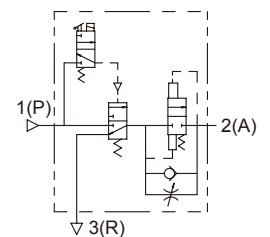
EXTERIOR COLOR (*)

1: Silver (for air unit 401 series)

3: Cool gray (for air unit 401-W, 403 series)

* MAVS200/300 only have cool gray, if selected MAVS200/300 type can skip this option.

Symbol



Order example of Adaptor

MAVS400 - F - □

MODEL

200
300
400

ADAPTOR
with smooth
pressure
relief

PORT THREAD

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

* By using the adaptor with smooth pressure relief, when air supplied from valve is off, the air inside the body will be released smoothly and safely. (The exhausting duration will be around 40 seconds for 10L volume)

Table 1

Property for explosion-proof type

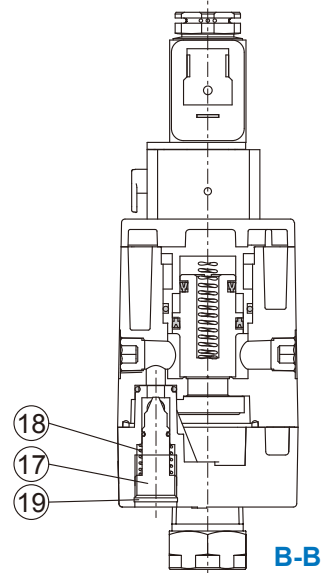
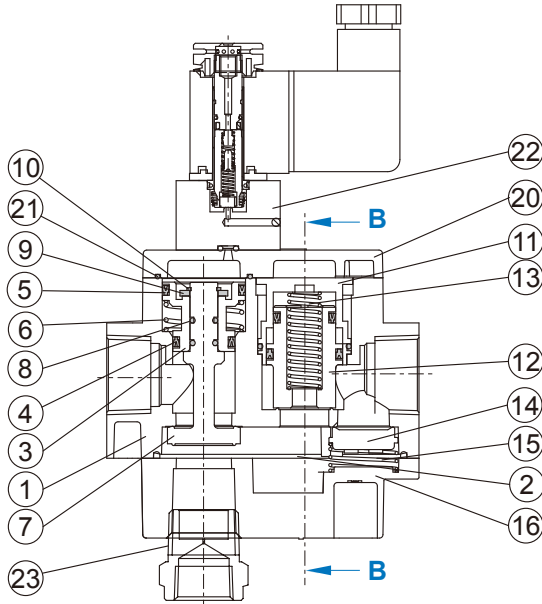
Anti-explosion class	EEx m II T4
Voltage	AC110V, 220V.(50/60)Hz, DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Piping note

When the air current is restricted or insufficient pressure, the main valve will not function / switch normally and it could cause air to leak from the R port.

The total effective orifice of the piping material and component on the P port side:

MAVS200	Total effective orifice ≥5mm ²
MAVS300	Total effective orifice ≥22mm ²
MAVS400	Total effective orifice ≥35mm ²

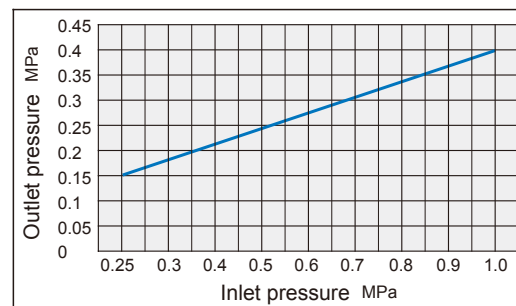


Material

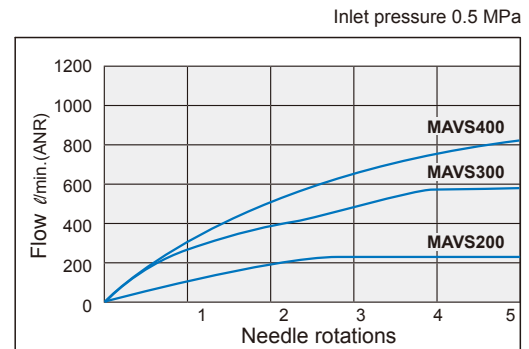
No.	Part name	Material
1	Body	Aluminum alloy
2	Body packing	NBR
3	Piston A	Aluminum alloy
4	Seal ring	NBR
5	Rod packing	NBR
6	Piston A spring	SWP
7	Main valve assembly	Copper+NBR
8	O-ring	NBR
9	Washer	SPC
10	Snap ring	Spring steel
11	Piston guide assembly	Aluminum alloy
12	Piston B	Copper+NBR
13	Piston B spring	Stainless steel
14	Check valve	Copper+NBR
15	Check valve spring	Stainless steel
16	Cap	Aluminum alloy
17	Needle valve	Copper
18	Needle valve spring	SWP
19	Snap ring	Spring steel
20	Cover	Aluminum alloy
21	Cover ring	NBR
22	Pilot valve assembly	-
23	Adaptor with smooth pressure relief	Aluminum alloy

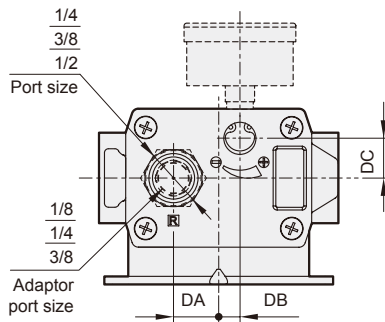
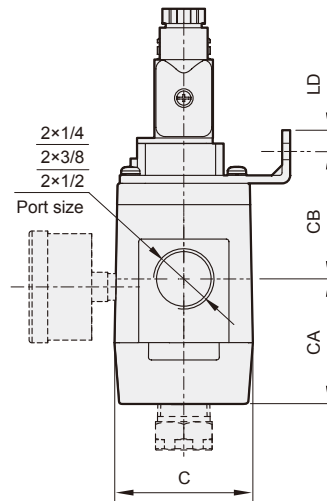
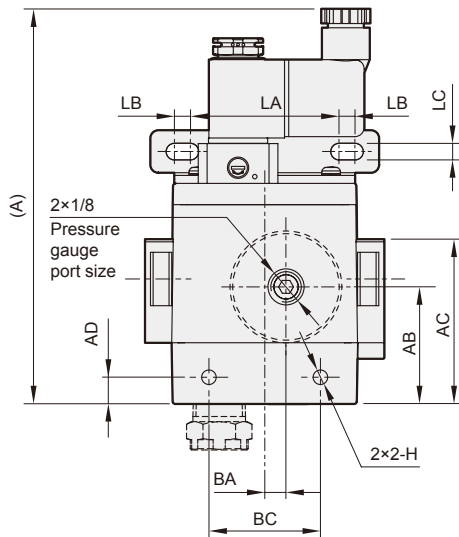
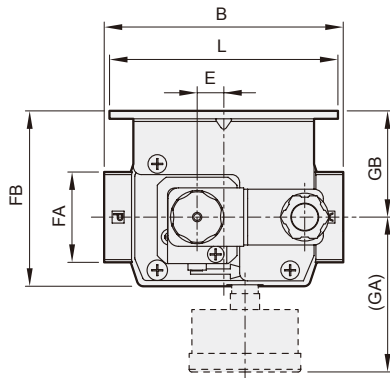
Flow feature

Piston B switching pressure (Close→Open)



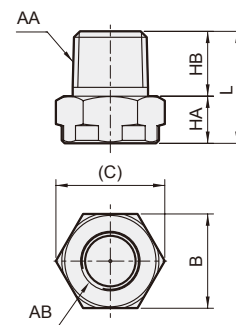
Needle valve flow characteristics





MAVS*-F

Adaptor with smooth pressure relief



Code Model	A	AB	AC	AD	B	BA	BC	C	CA	CB	DA	DB	DC
200	126.6	31	41.2	7.5	66	5	29	39.6	31.2	40.2	11	5	11
300	134	34	50.5	8.5	78	5	28	47.6	36	31.9	14	5	14
400	149	44	62	10	90	8	42	52	47	48	17	8	15

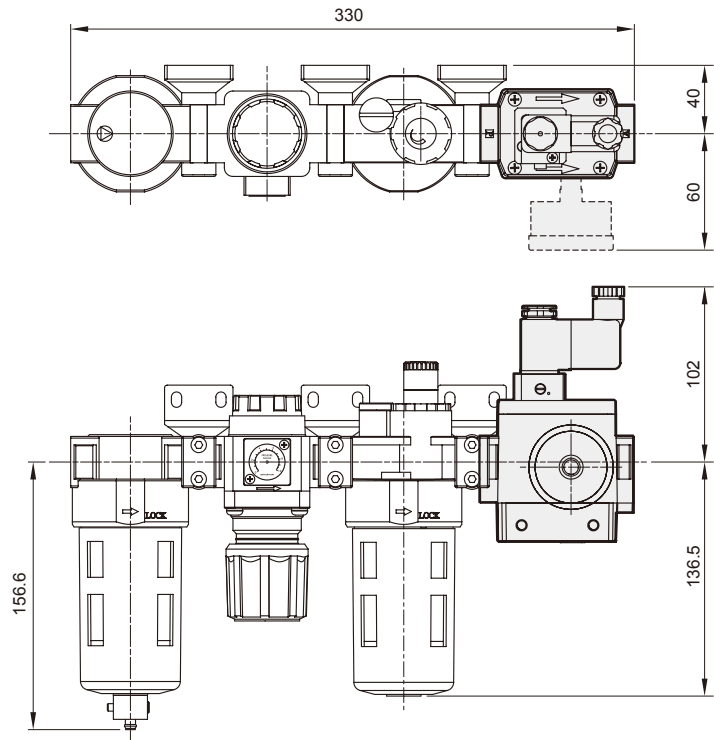
Code Model	E	FA	FB	GA	GB	H	L	LA	LB	LC	LD
200	8.9	35	47.3	53.8	27.5	M4×0.7×4.5 dp	68	50	3.5	4.3	7
300	11	29	56.3	55	32.5	M5×0.8×5 dp	76	55	5	5.2	8
400	10	34	66	60	40	M6×1.0×6 dp	86	56	6	6.2	8

Code Model	AA	AB	B	C	HA	HB	L	Weight
200	R1/4	Rc1/8	16	18.5	8	11	19	6 g
200-N	NPT1/4	NPT1/8	16	18.5	8	15.1	23.1	7 g
200-G	G1/4	G1/8	19	21.9	8	7	15	7 g
300	R3/8	Rc1/4	19	21.9	11	12	23	11 g
300-N	NPT3/8	NPT1/4	19	21.9	11	15.2	26.2	12 g
300-G	G3/8	G1/4	25	28.9	11	8.5	19.5	15 g
400	R1/2	Rc3/8	22	25.4	11	15	26	15 g
400-N	NPT1/2	NPT3/8	22	25.4	11	19.8	30.8	17 g
400-G	G1/2	G3/8	27	31.2	11	11.5	22.5	19 g

Combination with air units (F.R.L. unit)

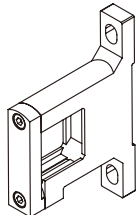
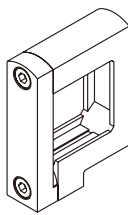
Air unit (F.R.L.)		Valve
MA**302		MAVS300
MA**401	MA**403	MAVS400

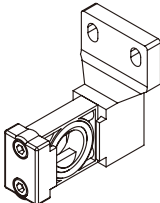
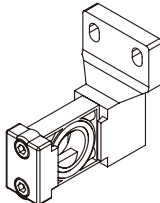
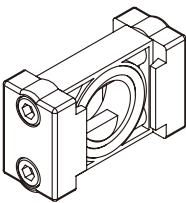
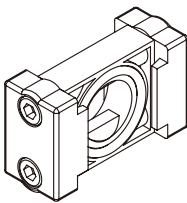
EX: MACT403+MAVS400



Bracket / Joiner set

BT: T type bracket/ BL: L type bracket/ BS: Joiner set

Order example	BT-MACP302	BS-MACP302
Pictures		
Applicable model	MACP302, MACT302	MACP302, MACT302

Order example	BL-MACP401	BL-MACP403	BS-MACP401	BS-MACP403
Pictures				
Applicable model	MACP401, MACT401	MACP401-W, MACT401-W MACP403, MACT403	MACP401, MACT401	MACP401-W, MACT401-W MACP403, MACT403



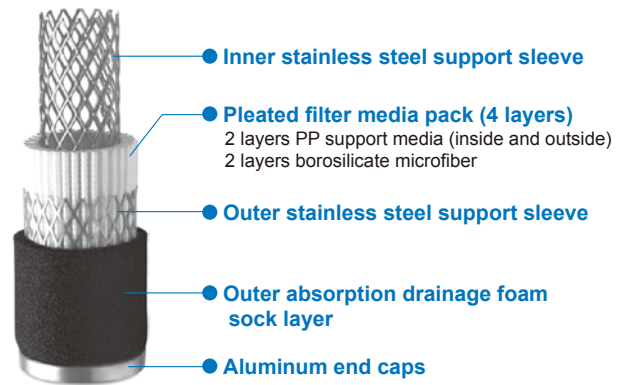
Features

Air filter engineering original imported top quality filter element 98% voids volume provides long life time with lowest operating cost. Pleated media provides far more filter surface, therefore more dirt holding capacity, lower diff. pressure and lower running cost compare to conventional wrapped element designs.

A. Filter media: AFE uses high performance borosilicate microfiber with 98% void volume. The pleated design assures the highest possible filtration area within the element geometry to provide low operating cost.

B. End cap: An O-ring sealed alumina end cap for the highest possible operating temperature together with tie rod construction provides highest possible security against pressure spikes in the compressed air system.

C. Stainless steel support sleeves: Inner and outer SS support sleeves for supporting the filter media, incl. a mechanical pre-separation.



Order example

MJF – CP – 60FP – D – G

MODEL

MJF (Ported)
MJL (Flanged)

CODE

10F~150F (Ported)
200L~1250L (Flanged)

OPTION

D: Auto drain (*)
G: Differential pressure gauge

GRADE

CP: Coarse pre-filtration
TU: General filtration
AH: High performance filtration
HC: Activated carbon filter

CUSTOMIZE

P: Stainless steel
H1: High pressure (11~20barG)
H2: High pressure (21~30barG)
H3: High pressure (31~40barG)
H4: High pressure (41~50barG)

* H1~H4 high pressure can not choose D: Auto drain.

Refrigeration dryer

C – NF1E

REPLACEMENT ELEMENT

GRADE

C: Coarse Pre-filtration
T: General filtration
A: High performance filtration
H: Activated carbon filter

Features (Grades)

Filtration grade	CP	TU	AH	HC
Features	Coarse Pre-filtration	General filtration	High performance filtration	Activated carbon filter
Oil removal mg/m ³	n/a	0.1	0.01	0.003
Particle removal micron μ	3.0 μ	1.0 μ	0.01 μ	n/a

Correction factor

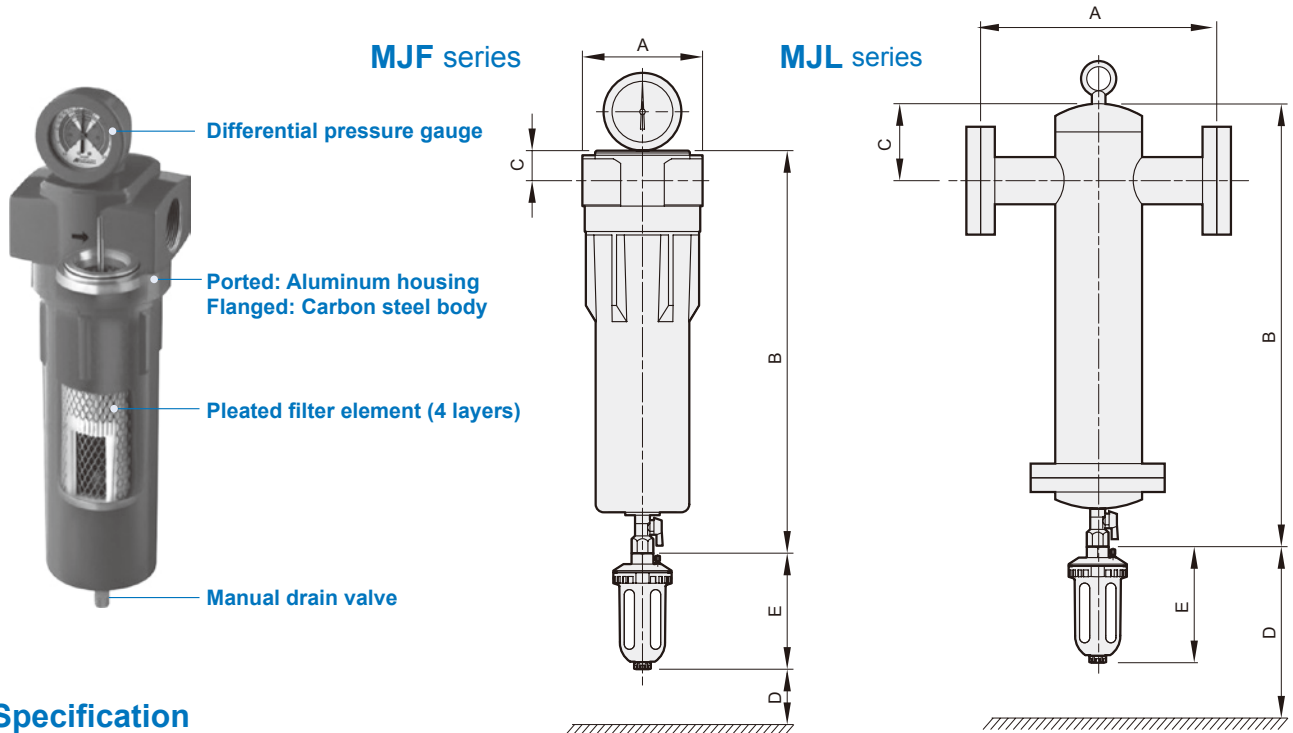
Inlet pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
Correction factor	0.25	0.38	0.50	0.65	0.75	0.88	1.0	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13

MJF / MJL Dimensions (Grade)-10F~(Grade)-1250L



HIGH EFFICIENCY COMPRESSED AIR FILTER

mindman



Specification

Filter model		Max. capacity		Connection	Oper. pressure	Dimension (mm)					N.W.	Replacement element Model×Q'ty
		Nm ³ /min	SCFM			inch	barG	A	B	C			D	E	kg
MJF Series (Ported)	(Grade)-10F	1.6	56	Rc1/2"	16	87	303	24	180	200	1.3	NF1E×1
	(Grade)-15F	2.4	84	Rc3/4"	16	87	303	24	180	200	1.3	NF1E×1
	(Grade)-25F	3.6	127	Rc1"	16	130	325	43	190	200	3.6	NF2E×1
	(Grade)-40F	5.5	194	Rc1 1/2"	16	130	325	43	190	200	3.6	NF2E×1
	(Grade)-60F	8.1	285	Rc1 1/2"	16	130	740	43	430	200	6.7	NF3E×1
	(Grade)-100F	15	529	Rc2"	16	163	762	55	590	200	8.9	NF4E×1
	(Grade)-150F	25	882	Rc2 1/2"	16	163	1017	55	700	200	11.0	NL1E×1
MJL Series (Flanged)	(Grade)-200L	30	1059	3"FL	10	350	1120	116	680	200	45	NL1E×1
	(Grade)-400L	60	2118	4"FL	10	510	1330	150	680	200	70	NL1E×2
	(Grade)-700L	90	3177	6"FL	10	600	1450	195	680	200	110	NL1E×3
	(Grade)-900L	120	4236	6"FL	10	600	1460	195	680	200	150	NL1E×4
	(Grade)-1250L	150	5295	8"FL	10	750	1600	195	680	200	240	NL1E×5

Operating scope: • Max. operating temp: 60°C(High temp. is also available) • Max. differential pressure: 0.6barG

Material: Ported: • Aluminum • Flanged: Carbon steel

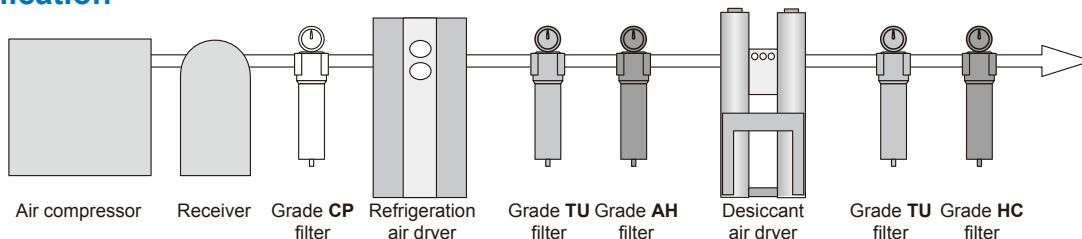
Optional: • Auto drain: "D" (Pressure is higher than 10 barG needs prior notice) • Differential pressure gauge:"G"

Customize: • Stainless steel: "P" • High pressure: H1(11~20barG); H2(21~30barG); H3(31~40barG); H4(41~50barG)

Element Replacement: Replace every 1 year or earlier if the differential pressure gauge changes to red. Activated carbon elements should be changed after 1000 hours operation. All filter elements only guaranteed under operating scope.

Ordering Example: AH High efficiency oil removal filter with a max. capacity of 30Nm³/min, internal auto drain and differential pressure gauge. would be configured as : **MJL-AH-200L-D-G. A-NL1E** for element model. (Equip with "D" or "G". **MJF** series model number printed on name plate without **-D-G**, **MJL** series model number with **-D-G**)

Application



Note: 1. Grade TU filters after desiccant air dryer is for particle removal. Must be installed reversely and auto drain is unnecessary.
2. Grade HC filters is for oil vapor and odor removal. Auto drain and differential pressure gauge are not required.



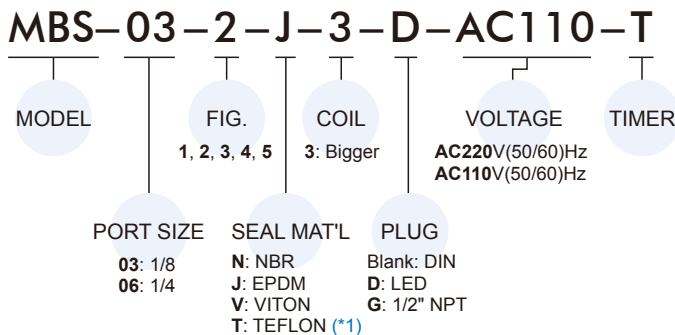
General description

- The Digital Condensation Removal Timer is a compact, modular timer valve combination specifically designed for air line condensation removal. This digital timer is compatible with MBS/MCS/MBD series valve size to obtain an optimal system.
- This device easily programmed by two press-keys and a LCD display.

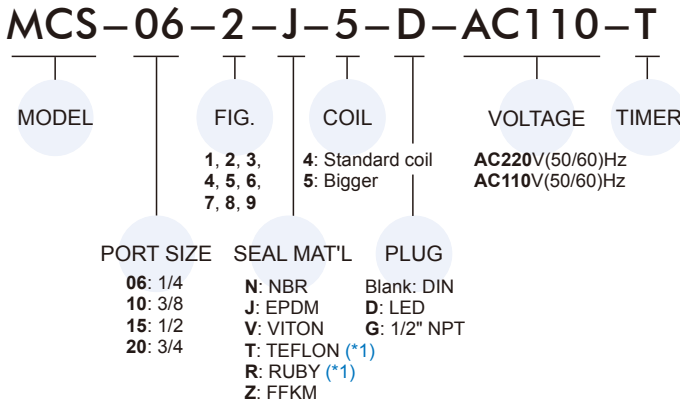
Notes

- Timer is water and dust protected to IP65 when installed properly to a coil and connector with provided M3 screw.
- See manual for all operation options.

Order example * MBS specifications please refer to page 2-5.

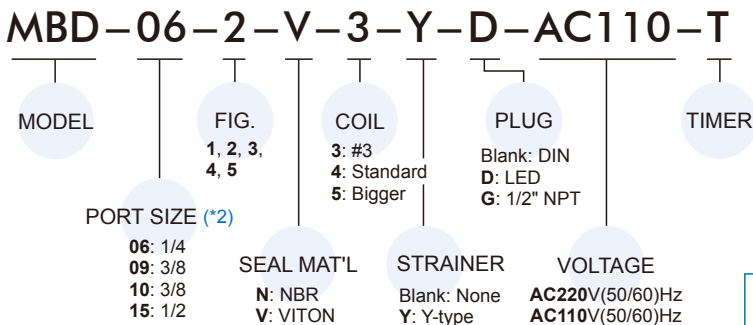


* MCS specifications please refer to page 2-6.



*1. When the seal material is (T) Teflon or (R) RUBY, the valve has slight leakage, not suitable for vacuum.

* MBD specifications please refer to mindman web.



*2. Bore size (06) and (09) can only apply with coil No.3.
Bore size , (10) and (15) can only apply with coil No.4 and No.5.

Specification

Valve type	Bore size	Orifice (mm)
MBS-03	03(1/8)	1~2.4
MBS-06	06(1/4)	1~2.4
MCS-06	06(1/4)	1.6~10
MCS-10	10(3/8)	1.6~10
MCS-15	15(1/2)	1.6~10
MCS-20	20(3/4)	1.6~10
MBD-06	06(1/4)	1.6~3.5
MBD-09	09(3/8)	1.6~3.5
MBD-10	10(3/8)	2.5~5.5
MBD-15	15(1/2)	2.5~5.5

Time adjustment

Time ranges: OFF 0~99 mins.
ON 0~59 sec.

Digital display

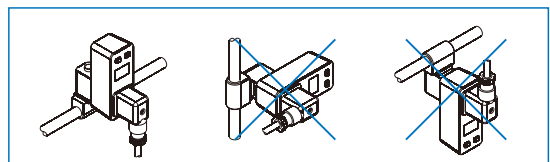
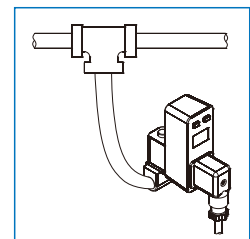
Count down ON and OFF times.

Reset timing: Press both buttons simultaneously for 2 seconds
(Reset timing only. Settings will remain the same.)

- | | |
|---------------------------------|---------------------------------|
| 1. Press SET for 2 seconds | 5. Press SET |
| 2. Press ADJ to adjust ON time | 6. Press ADJ to adjust OFF time |
| 3. Press SET | minutes |
| 4. Press ADJ to adjust OFF time | 7. Press SET |
| | seconds |



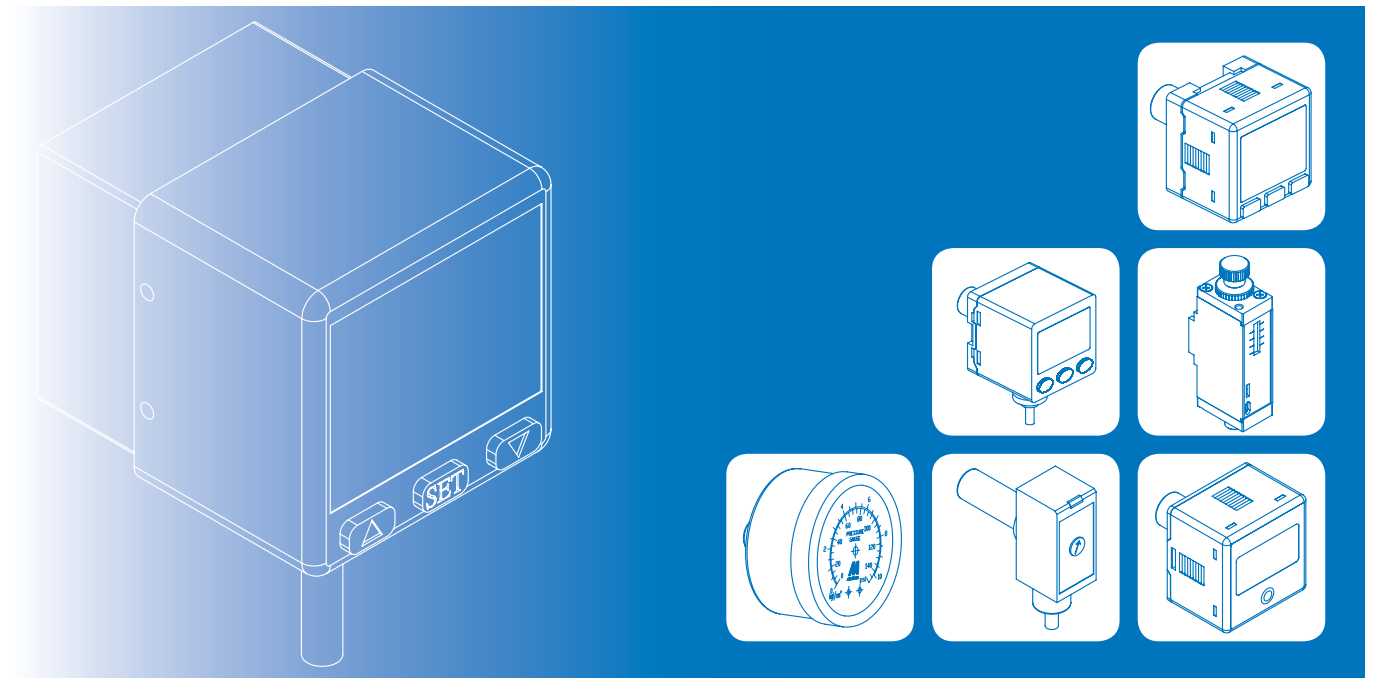
Installation

















PRESSURE SWITCH



	Selector Table	5-2
	PNEUMATIC PRESSURE SWITCH	
MP*	MP1	5-6
	MP10	5-8
	MP30	5-11
	MP41	5-13
	MP43	5-19
	MP45	5-22
	MP47	5-26
	MP50	5-30
	MP70	5-34
	MPS	5-38
	DIGITAL PRESSURE GAUGE	
	MPG-60	5-39
	PRESSURE GAUGE	
PG	PG	5-41
	DIGITAL FLOW SENSOR	
MF*	MF01 New	5-42
	FLOW & PRESSURE SENSOR	
	MFP01 New	5-45

Selector table

- Standard type
- ① Standard type (for MP41)
- ② Extra purchase (T8 bracket: Rc1/4 + Fitting: R1/4 → Rc1/8)
- ③ Extra purchase (Gauge adapter set)
- ④ Extra purchase (Gauge adapter set + Fitting: R1/8 → Rc1/4)

Model		Pneumatic pressure switch		High precision digital pressure switch							Pneumatic pressure switch
		MP1	MP10-F1	MP30	MP41	MP43	MP45	MP47	MP50	MP70	MPS
Pictures											
Model	Port size	R1/8	R1/8	R1/8	—	R1/8	R1/8	R1/8	R1/4	R1/8	R1/8
MACP200	Rc1/8					●	●	●		●	
MACP300*	Rc1/8	②	②	②		●	●	●		●	②
MACP302	—	②	②	②	①	③	③	③	④	③	②
MACP400	Rc1/4								●		
MACP401	—	②	②	②	①	③	③	③	④	③	●
MACP402	Rc1/4								●		
MACP403	—	②	②	②	①	③	③	③	④	③	●
MACP501	—	②	②	②	①	③	③	③	④	③	②
MACC300	Rc1/8					●	●	●		●	
MACT200	Rc1/8					●	●	●		●	
MACT300*	Rc1/8	②	②	②		●	●	●		●	②
MACT302	—	②	②	②	①	③	③	③		③	②
MACT400	Rc1/4								●		
MACT401	—	②	②	②	①	③	③	③	④	③	●
MACT402	Rc1/4								●		
MACT403	—	②	②	②	①	③	③	③	④	③	●
MACT501	—	②	②	②	①	③	③	③	④	③	②
MAFR200	Rc1/8					●	●	●		●	
MAFR300*	Rc1/8					●	●	●		●	
MAFR302	—	②	②	②	①	③	③	③		③	②
MAFR400	Rc1/4								●		
MAFR401	—				①	③	③	③		③	
MAFR402	Rc1/4								●		
MAFR403	—				①	③	③	③		③	
MAFR501	—				①	③	③	③		③	
MAR200	Rc1/8					●	●	●		●	
MAR201	Rc1/8					●	●	●		●	
MAR300	Rc1/8					●	●	●		●	
MAR301	Rc1/8					●	●	●		●	
MAR302	—	②	②	②	①	③	③	③		③	②
MAR400	Rc1/4								●		
MAR401	—				①	③	③	③		③	
MAR402	Rc1/4								●		
MAR403	—				①	③	③	③		③	
MAR501	—				①	③	③	③		③	

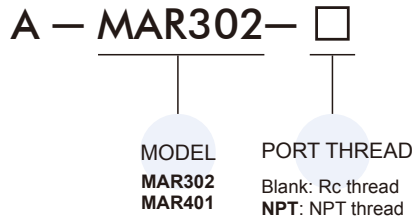
* 300L specification is the same as the 300 series.

● Standard type ③ Extra purchase (Gauge adapter set)

Model		Digital pressure gauge	Pressure gauge
		MPG-60	PG
Pictures			
Model	Port size	R1/8	—
MACP200	Rc1/8	●	●
MACP300*	Rc1/8	●	●
MACP302	—	③	③
MACP400	Rc1/4		●
MACP401	—	③	③
MACP402	Rc1/4		
MACP403	—	③	③
MACP501	—	③	③
MACC300	Rc1/8	●	●
MACT200	Rc1/8	●	●
MACT300*	Rc1/8	●	●
MACT302	—	③	③
MACT400	Rc1/4		●
MACT401	—	③	③
MACT402	Rc1/4		
MACT403	—	③	③
MACT501	—	③	③
MAFR200	Rc1/8	●	●
MAFR300*	Rc1/8	●	●
MAFR302	—	③	③
MAFR400	Rc1/4		●
MAFR401	—	③	③
MAFR402	Rc1/4		
MAFR403	—	③	③
MAFR501	—	③	③
MAR200	Rc1/8	●	●
MAR201	Rc1/8	●	●
MAR300	Rc1/8	●	●
MAR301	Rc1/8	●	●
MAR302	—	③	③
MAR400	Rc1/4		●
MAR401	—	③	③
MAR402	Rc1/4		
MAR403	—	③	③
MAR501	—	③	③

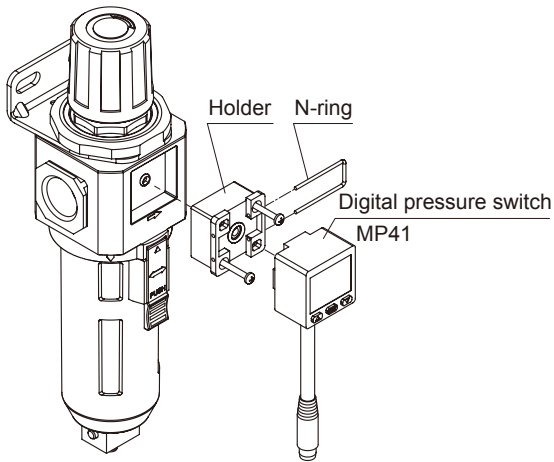
* 300L specification is the same as the 300 series.

Order example of gauge adapter set

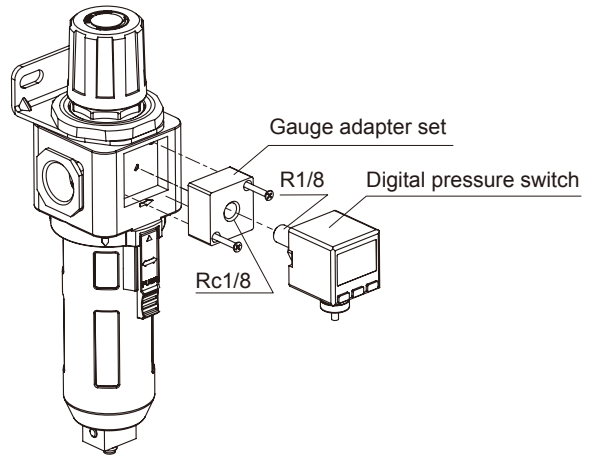


Order example	Applicable model
A — MAR302 — □	MAR302, MAFR302
A — MAR401 — □	MAR401, MAFR401
A — MAR302 — □ (With 302 shared)	MAR401-W, MAFR401-W MAR403, MAFR403 MAR501, MAFR501

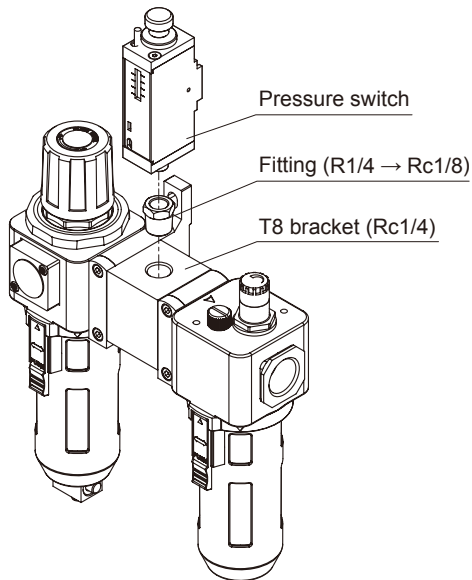
1 Standard type (for MP41)



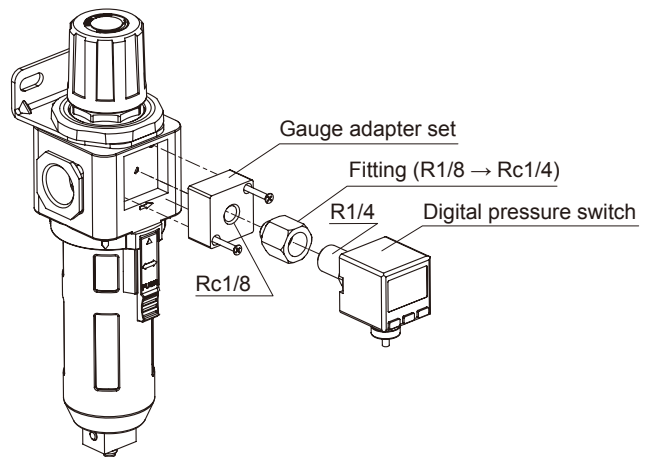
3 Extra purchase (Gauge adapter set)



2 Extra purchase (T8 bracket + Fitting)

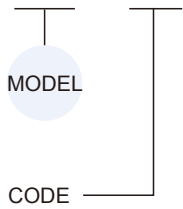


4 Extra purchase (Gauge adapter set + Fitting)



Mounting accessories (Option)

MP – A1



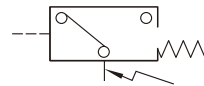
Model Code		High precision digital pressure switch							Digital pressure gauge	Digital flow sensor		
		MP10	MP30	MP41	MP43	MP45	MP47	MP50	MP70	MPG-60	MF01	MFP01
A1	Mounting bracket (BT-1)					●						
A5	Mounting bracket (BT-5)									●		
A6	Mounting bracket (BT-6)									●		
A10	Mounting bracket (BT-10)					●		●				
A11	Mounting bracket (BT-11)					●		●				
A12	Mounting bracket (BT-12)				●				●			
A13	Mounting bracket (BT-13)				●				●			
A17	Mounting bracket (BT-17)					●						
A22	Mounting bracket (BT-22)						●					
A23	Mounting bracket (BT-23)						●					
A26	Mounting bracket (BT-26)										●	●
B2	Panel adapter (PA-C)				●		●		●	●		
B3	Panel adapter (PA-E)					●		●				
C2	Panel adapter + Front protective lid (PA-D)				●		●		●	●		
C3	Panel adapter + Front protective lid (PA-F)					●		●				
D1	M8,4 Pin female connector (M84R-W0085-2M)		●	●								
D2	M8,3 Pin female connector (M83R-W0114-2M)	●										



Features

- High Repeatability : $\leq \pm 1\%$ F.S.
- Quick response : 5ms.
- Hysteresis adjustable.
- Low cost.

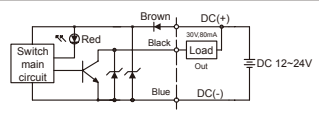
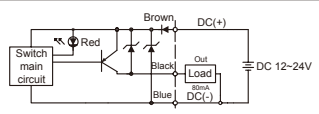
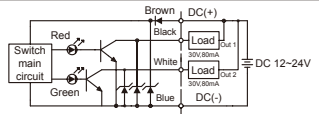
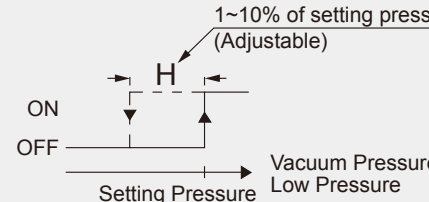
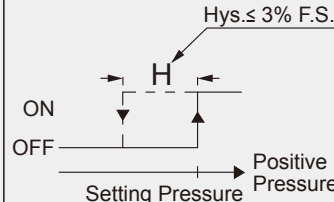
Symbol



Specification

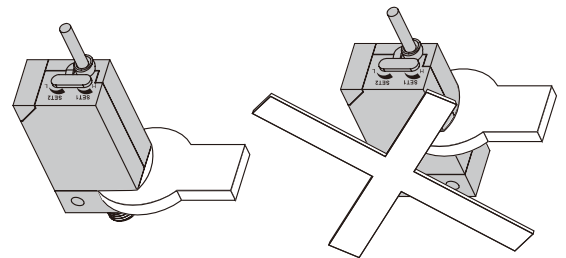
Model	MP1-1 (Vacuum)	MP1-2 (Low pressure)	MP1-3 (Positive)
Operating /Setting pressure range	-101 to 0 kPa	0 to 100 kPa	0 to 1 MPa
Allowable pressure	300 kPa		1.5 MPa
Fluid	Filtered air, Non-corrosive/ Non-flammable gas		
Power supply voltage	12 to 24V DC $\pm 10\%$, Ripple (P-P) 10% or less		
Response time	5ms or less		
Repeatability	$\pm 1\%$ F.S.		
Current consumption	1 NPN or 1 PNP output: 21mA max., 2 NPN output: 35mA max.		
Environment	Enclosure	IP40	
	Ambient temp. range	Operation: 0 ~ 50°C, storage : -20 ~ 60°C (No condensation or freezing)	
	Ambient humidity range	Operation/ Storage: 35 ~ 85% RH (No condensation)	
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)	
	Insulation resistance	50M Ω min. (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z	
	Shock	980m/s ² (100G), 3 times each in direction of X, Y and Z	
Temperature characteristic	$\pm 3\%$ F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	R1/8",M5; NPT1/8",M5; G1/8",M5		
Lead wire	Oil-resistance cable (0.18mm ²)		
Weight	Approx. 50 g (with 1M lead wire)		

Output specification

Model	MP1-□-01	MP1-□-02	MP1-□-03
Connect diagram			
Output method	NPN open collector 30V 80mA	PNP open collector 80mA	NPN open collector 30V 80mA
Hysteresis	1~10% of setting pressure (Adjustable)		3% F.S. or less (Fixed)
Setting points	1Point		2Point
Operation indicating lamp	Light at ON (Red)		Light at ON (out1 Red, out2 Green)
Hysteresis adjustable (Output hysteresis "H" is user adjustable)			

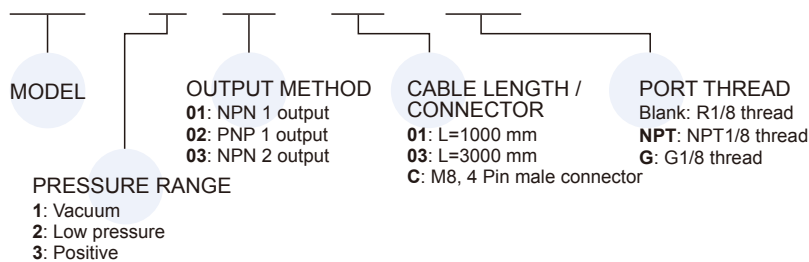
Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.

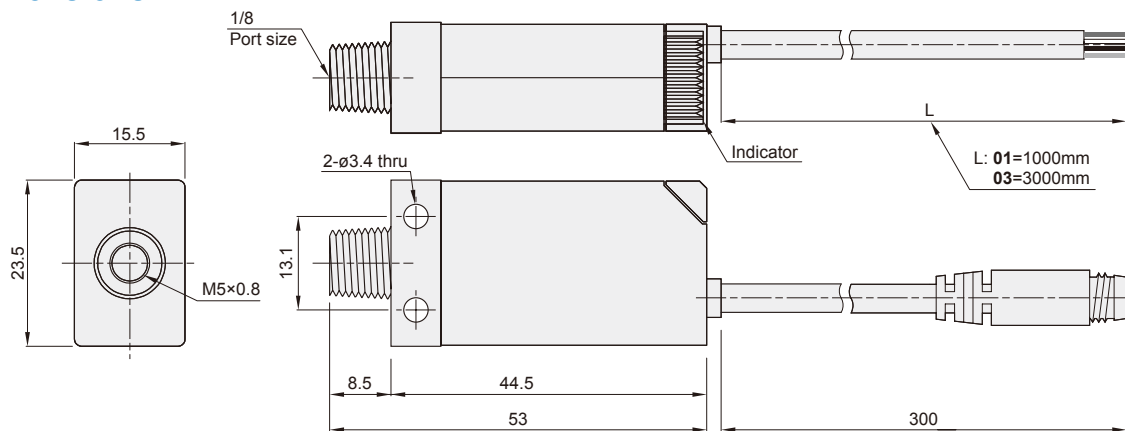


Order example

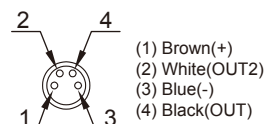
MP1 — 1 — 01 — 01 — NPT



Dimensions

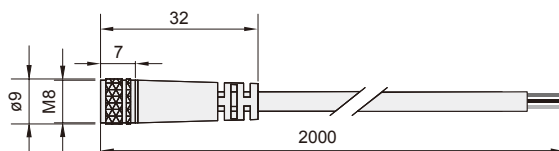


QD Pinout



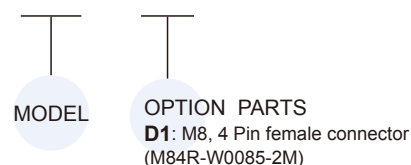
Optional part dimensions

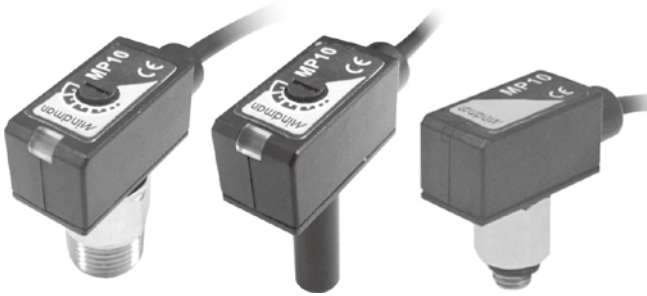
M8, 4 Pin female connector
Model: **MP-D1**



Mounting accessories (Option)

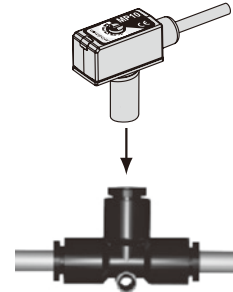
MP — D1





Features

- Simple installation, plug-in port or thread-in fitting.
- Compact size: 26×10×10.4 mm.
- Setting pressure range.
 - Switch: Vacuum (0~ -101.3 kPa)
 - Positive (0~0.6 MPa)
 - Analog: Compound (-100~100 kPa)
 - Compound (-101~500 kPa)
 - Low (0~100 kPa)
 - Vacuum (0~-101.3 kPa)
 - Positive (0~1.0 MPa)
- Low cost.



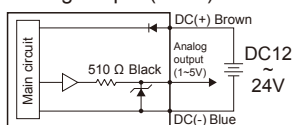
Specification

Model	MP10C	MP10L	MP10V	MP10R	MP10P	MP10V	MP10P	MP10A	MP10B
Output method	01					02 / 04		-	
Type	Analog					Switch		-	
Setting pressure range	-100~100 kPa	0~100 kPa	-101.3 ~0 kPa	-101~500 kPa	0~1.0 MPa	-101.3~0 kPa	0~0.6 MPa	-0.1~0.6 MPa	
Withstand pressure	0.2 MPa			1.5 MPa		0.6 MPa	1.5 MPa	1.5 MPa	
Fluid	Filtered air, Non-corrosive / Non-flammable gas								
Power supply voltage	12 to 24V DC (5% ripple voltage)					10.8 to 30V DC (include ripple voltage)		12 to 24V DC±10% Ripple(P-P) 10% or less	
Load / Leak current	-					80mA max. (Load)		5~40mA / ≤ 1mA	
Internal voltage drop	-					≤ 0.8V		≤ 5V	
Current consumption	10mA max.					-		-	
Analog output	1~5V ± 1% F.S. / Linearity ± 0.5% F.S.					-		-	
Sensor type	-					NPN or PNP		Present press. ≥ Set press.: ON	Present press. < Set press.: OFF
Output short circuit protection	-					Yes		None	
Setting method	-					Adjusting by VR			
Response time	-					Approx. 1ms			
Repeatability	-					±1% F.S.			
Hysteresis	-					≤ 3% F.S. max.		≤ 4% F.S.	
Indicator	-					Red LED turns ON			
Enclosure	IP 40								
Temperature characteristic	≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C					≤±3% F.S. of detected pressure (25°C) at temp. Range of 0~50°C			
Ambient temp. range	Operation: 0 ~ 50°C, storage: -20 ~70°C (No condensation or freezing)					Operation: 0 ~ 60°C, storage: -20 ~70°C (No condensation or freezing)			
Ambient humidity range	Operation / Storage: 35~85% RH (No condensation)								
Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z								
Shock	980m/s ² (100G), 3 times each in direction of X, Y and Z								
Port size	ø4mm, ø6mm, R1/8, NPT1/8, G1/8, M5								
Lead wire	Oil-resistance cable, 3 wires (0.18mm ²), ø2.6mm							Oil-resistance cable, 2 wires (0.18mm ²), ø2.6mm	
Weight	Approx. 50 g (with 3 meter lead wire)								

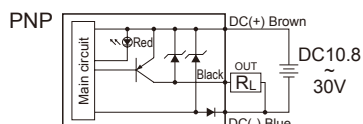
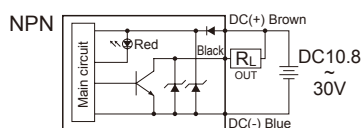
Circuit wiring diagram

MP10□-01

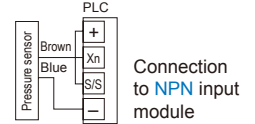
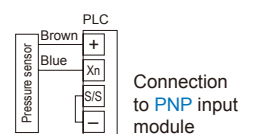
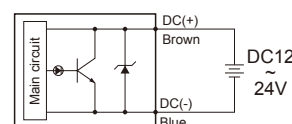
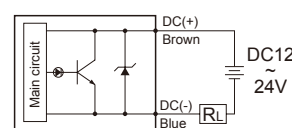
Analog Output (1~5V)



MP10□-02/04



MP10A / MP10B

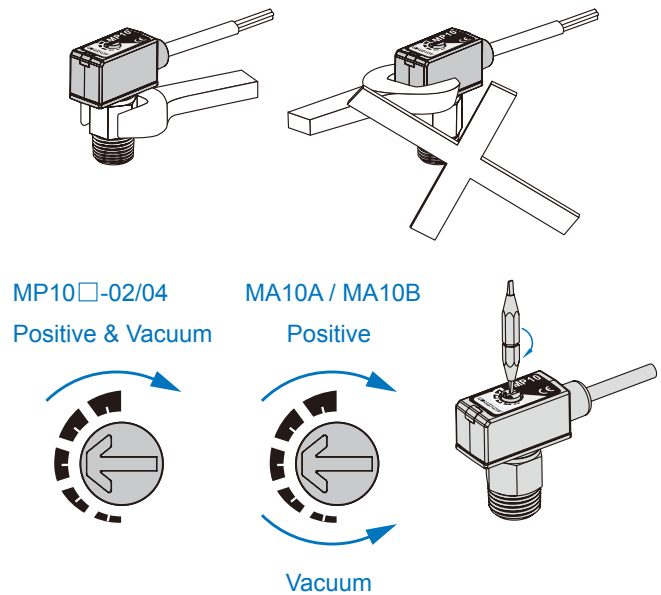


Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.

How to set pressure

- Use the pressure setting trimmer to set "ON" pressure. Rotate clockwise to increase pressure setpoint. Rotate counter-clockwise to decrease pressure setpoint.
- Use appropriate size screwdriver for the setting trimmers. Gently turn the screwdriver to make adjustments. To prevent damage to the Pressure setting trimmer, DO NOT force the trimmer when it comes to a stop.



Order example

MP10P - 01 - R4 - □

MODEL	OUTPUT METHOD
C: Compound (-100~100 kPa)	01: Analog output (1~5V)
R: Compound (-101~500 kPa)	
L: Low (0~100 kPa)	
V: Vacuum (0~ -101.3 kPa)	
P: Positive (0~1.0 MPa)	02: NPN output 04: PNP output
V: Vacuum (0~ -101.3 kPa)	
P: Positive (0~0.6 MPa)	
A: Switch turns ON when the pressure is larger than setting pressure	
B: Switch turns OFF when the pressure is larger than setting pressure.	

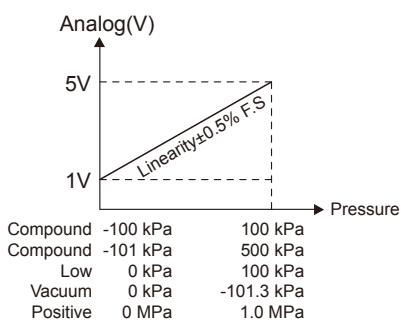
CABLE LENGTH / CONNECTOR
Blank: With 3 meter cable
C: With M8, 3 Pin male connector

PRESSURE PORT

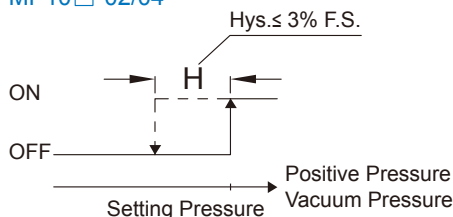
	R4	R6	F1 / F2 / F3	M5
Drawing				
Port size	R4: $\varnothing 4\text{mm}$	R6: $\varnothing 6\text{mm}$	F1: R1/8", M5x0.8 F2: NPT1/8", M5x0.8 F3: G1/8", M5x0.8	M5: M5x0.8

Output type

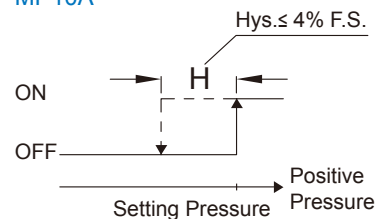
MP10□-01 Analog Output (1~5V)



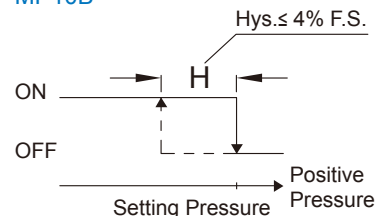
MP10□-02/04



MP10A

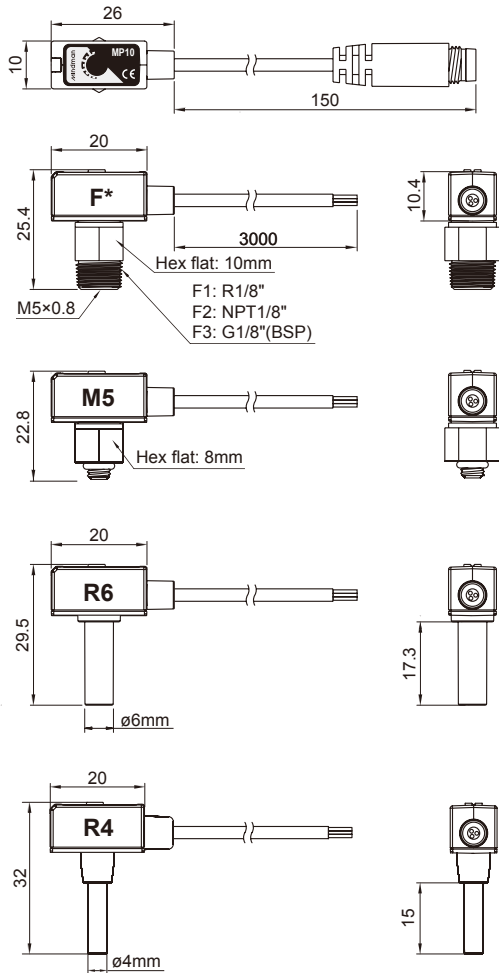


MP10B



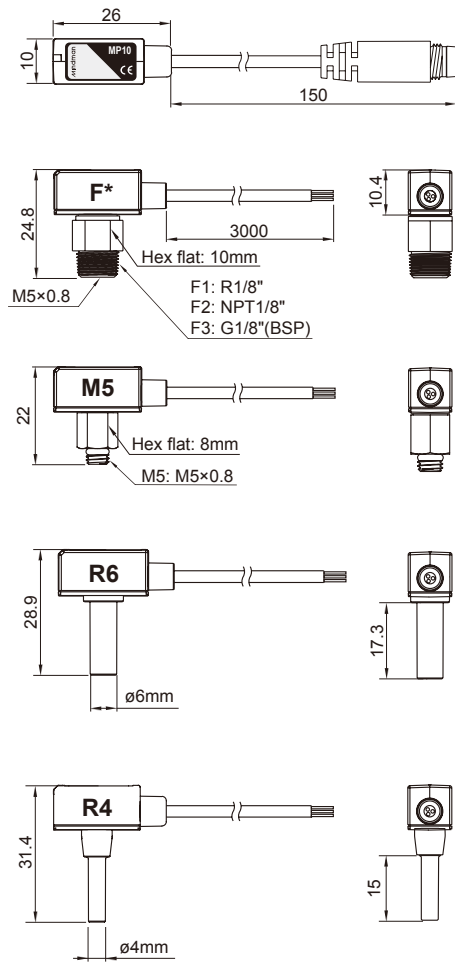
Dimensions

MP10□-02/04 / MA10A / MA10B



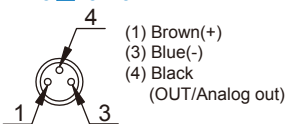
MP10□-01

Unit: mm

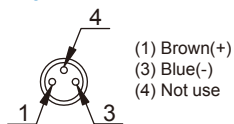


QD Pinout

MP10□-02/04

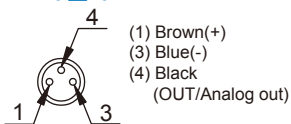


MP10A/B



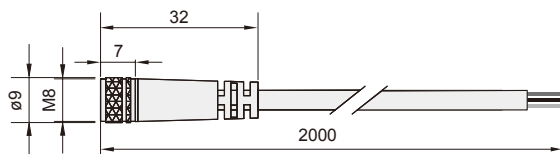
QD Pinout

MP10□-01



Optional part dimensions

M8, 3 Pin female connector
Model: **MP-D2**



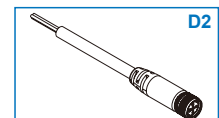
Mounting accessories (Option)

MP - D2

MODEL

OPTION PARTS

D2: M8, 3 Pin female connector (M83R-W0114-2M)





Features

- Pressure range: Compound -100.0~100 kPa
Positive 0~1 MPa
Vacuum 0~-101.3 kPa.
- 2 switch output & one analog output.
- Hysteresis adjustable.
- High accuracy and Resolution.
- Low cost.

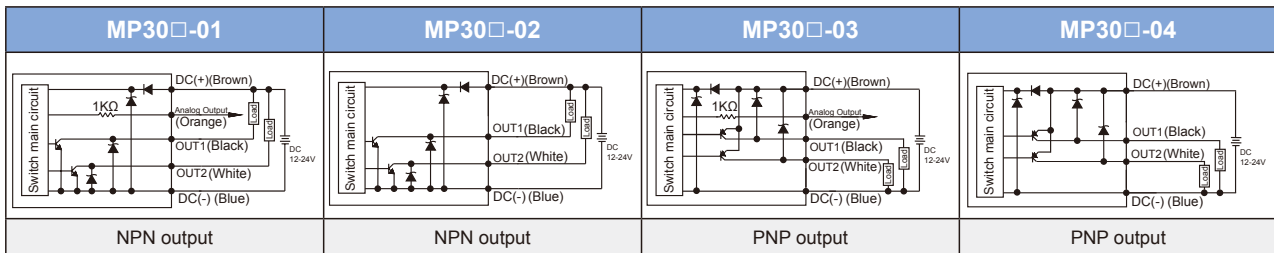
Specification

Model		MP30C (Compound)	MP30V (Vacuum)	MP30P (Positive)
Rated pressure range		-100.0~100.0 kPa	-101.3 ~0.0 kPa	0.0 ~ 1.0 MPa
Operating / Setting pressure range		-100.0~100.0 kPa	-101.3~10.0 kPa	-0.1 ~ 1.0 MPa
Allowable pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa	0.1		—
	MPa	—		0.001
	kgf/cm ² , bar	0.001		0.01
	psi	0.01		0.1
	InHg	0.1		—
	mmHg	1		—
	mmH ₂ O	0.1		—
Power supply voltage		12 to 24V DC±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 60mA		
Switch output		NPN or PNP open collector 2 outputs Max. load current : 100mA Max. supply voltage: NPN, 30V DC; PNP, 24V DC Residual voltage : ≤1V		
Repeatability (Switch output)		±0.2% F.S. ±1digit		
Hysteresis	Hysteresis mode	Adjustable		
	Window comparator mode	Fixed (3 digits)		
Response time		≤2.5ms (chattering-proof function: 24ms, 192ms and 768ms selections)		
Output short circuit protection		Yes		
7 segment LED display		3 1/2 digit LED display (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Indicator		Green LED (OUT1), Red LED (OUT2)		
Analog output <i>*(Only type MP30□-01, MP30□-03)</i>		Output voltage: 1 to 5V±5% F.S. (within rated pressure range) Linearity: ±1% F.S.	Output voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S.	
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage: -20 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	980m/s ² (100G), 3 times each in direction of X, Y and Z		

Specification

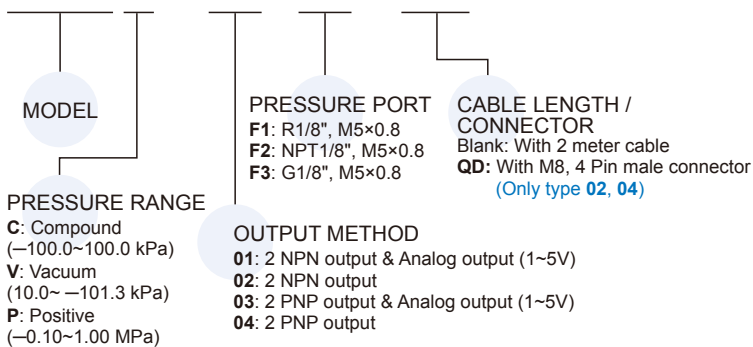
Model	MP30C (Compound)	MP30V (Vacuum)	MP30P (Positive)
Temperature characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1: R1/8", M5×0.8; F2: NPT1/8", M5×0.8; F3: G1/8", M5×0.8		
Lead wire	Oil-resistance cable (0.15mm ²)		
Weight	Approx. 67 g (with 2 meter lead wire), Approx. 35 g (with M8 4Pin male connector)		

Output circuit wiring graph

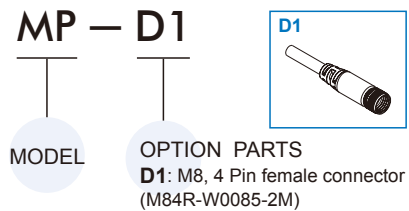


Order example

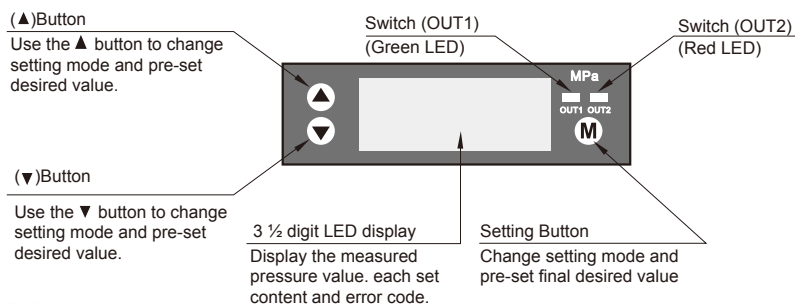
MP30C – 01 – F1 – QD



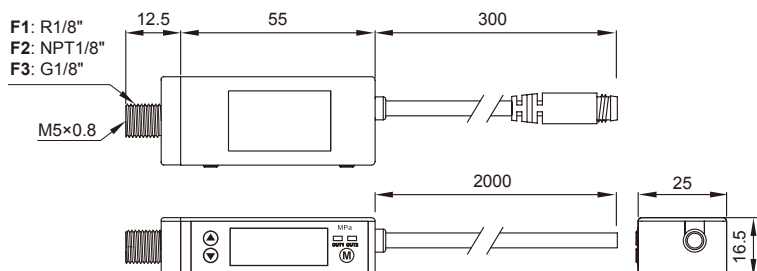
Mounting accessories (Option)



Panel instructions

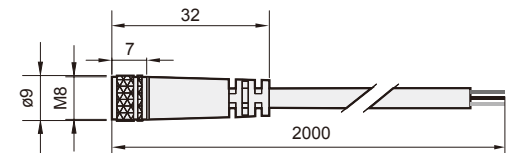


Dimensions

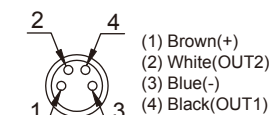


Optional part dimensions

M8, 4 Pin female connector
 Model: **MP-D1**



QD Pinout





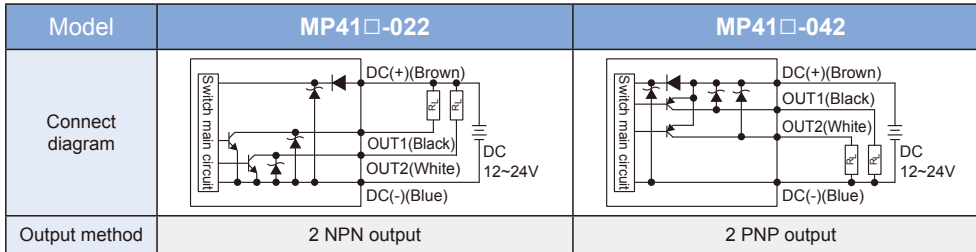
Features

- Hysteresis adjustable.
- High accuracy and Resolution.
- Low cost.
- Pressure unit selectable: kPa, MPa, kgf/cm², bar, psi, inHg, mmHg.

Specification

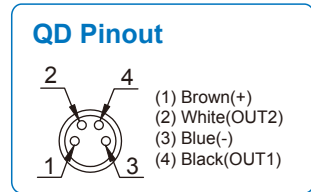
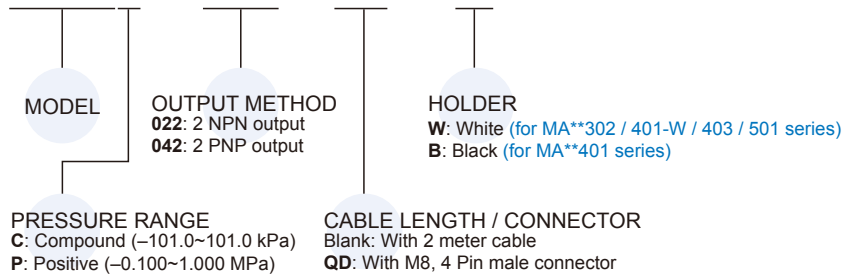
Model		MP41C (Compound)	MP41P (Positive)
Rated pressure range		– 100.0 ~ 100.0 kPa	0.0 ~ 1.0 MPa
Setting pressure range		– 101.0 ~ 101.0 kPa	– 0.1 ~ 1.0 MPa
Withstand pressure		300 kPa	1.5 MPa
Fluid		Air, Non-corrosive gases, incombustible gases	
Set pressure resolution	kPa / MPa	0.1 / –	– / 0.001
	kgf/cm ² / bar	0.001	0.01
	psi	0.01	0.1
	inHg / mmHg	0.1 / 1	–
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		≤ 40mA (With no load)	
Switch output	Output type	2 NPN or 2 PNP open collector	
	Max. load current	125mA	
	Max. supply voltage	30V DC (at NPN output), 24V DC (at PNP output)	
	Residual voltage	≤1.5V	
Response time		Chattering-proof function: 50ms, 250ms, 500ms, 1000ms, 2000ms, 3000ms selections	
Output short circuit protection		Yes	
Display	LCD display	Two color(Red/Green) main & unit display, Orange sub-display (Sampling rate: 5 times/1sec.)	
	Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2	
	Updates time	Adjustable	
	Indicator accuracy	≤±2% F.S. ±1 digit (ambient temperature: 25 ± 3°C)	
Repeatability (Switch output)		≤± 0.2% F.S. ±1digit	
Environment	Enclosure	IP40	
	Ambient temp. range	Operation: 0 ~ 50°C, storage : – 10 ~ 60°C (No condensation or freezing)	
	Ambient humidity range	35 ~ 85% RH (No condensation)	
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)	
	Insulation resistance	50M Ω min. (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm or 10G,10Hz-150Hz-10Hz scan for 1 minute, two hours each direction of X,Y and Z	
	Shock	100m/s ² (10G),3 times each in direction of X,Y and Z	
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C	
Lead wire		Oil-resistance cable (0.15mm ²)	
Weight		Approx. 65 g (with 2 meter lead wire), Approx. 30g (with male connector)	

Output circuit wiring graph



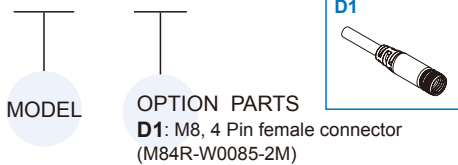
Order example

MP41P – 022 – QD – W

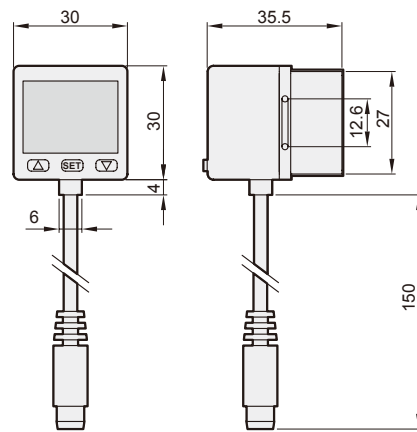


Mounting accessories (Option)

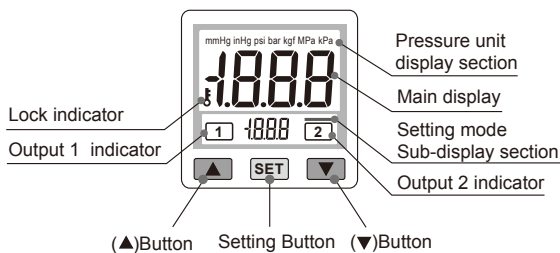
MP – D1



Dimensions



Panel instructions

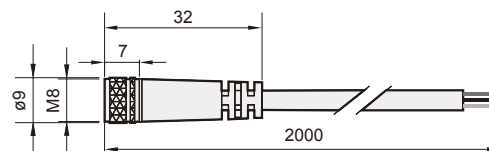


Applicable model

Series	302 / 403 / 501	401
F.R.L.Unit	MACP302 / 403 / 501	MACP401
F.R.L.Unit	MACT302 / 403 / 501	MACT401
F.R.Unit	MAFR302 / 403 / 501	MAFR401
R. Unit	MAR302 / 403 / 501	MAR401
F.R.Unit	—	MAFRF401
F.R.Unit	—	MATFR401

Optional part dimensions

M8, 4 Pin female connector
Model: **MP-D1**

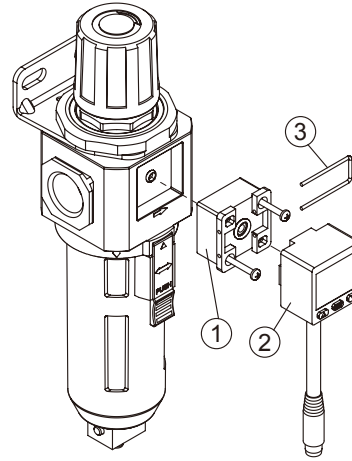


MP41 With MA**302

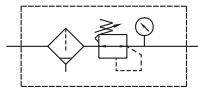
HIGH PRECISION DIGITAL PRESSURE SWITCH



Mounting procedures



Symbol



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR302 — 8A — □□ — E1 — □ — G

MODEL
MACP302
MACT302
MAFR302
MAR302

BORE SIZE
8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

FILTER ELEMENT
Blank: 5µm
40u: 40µm

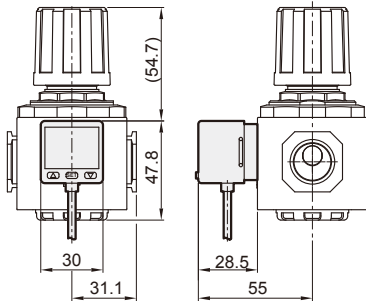
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option) ACCESSORIES

Bowl	Drain valve (*)
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* Not applicable to **MAR302**

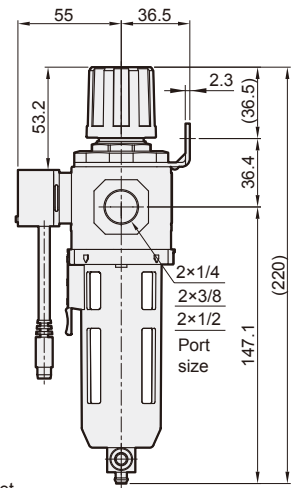
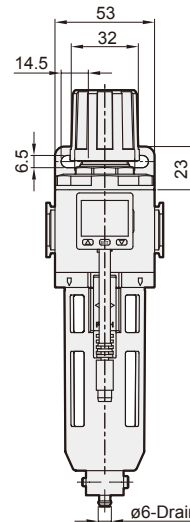
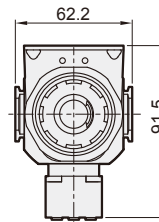
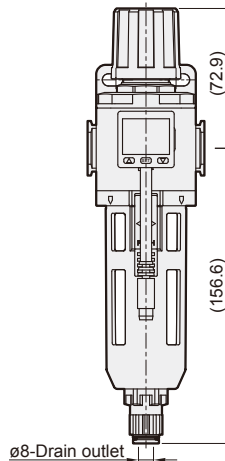
MAR302



MAFR302

MAFR302-D

Auto drain valve
Operating pressure range
0.15~1 MPa

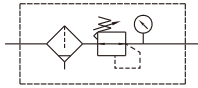


MP41 With MA**401

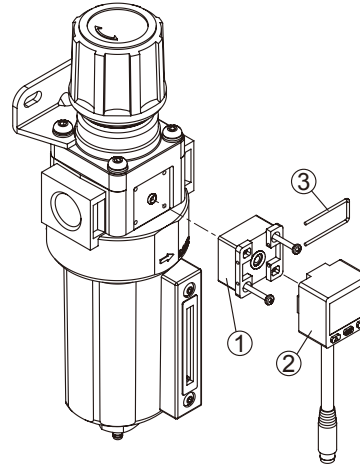
HIGH PRECISION DIGITAL PRESSURE SWITCH



Symbol



Mounting procedures



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR401 — 8A — □ — □ — E1 — □ — G

MODEL
MACP401
MACT401
MAFR401
MAR401

EXTERIOR COLOR
Blank: Black & Silver
W: Gray & white

PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

FILTER ELEMENT
Blank: 40μm
5u: 5μm

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

BORE SIZE (Option) ACCESSORIES

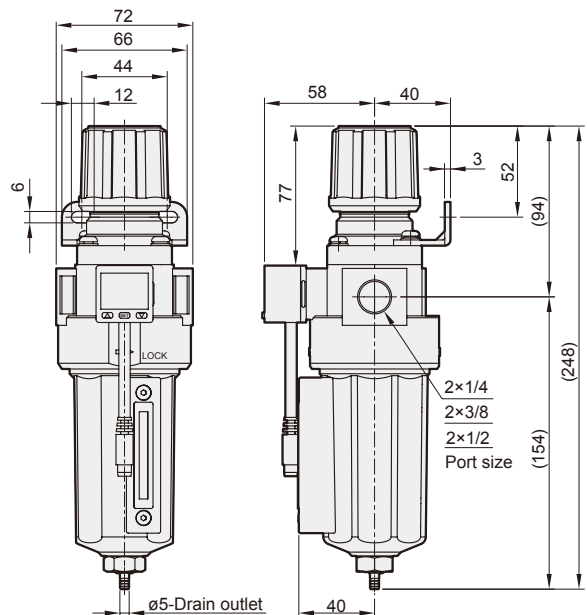
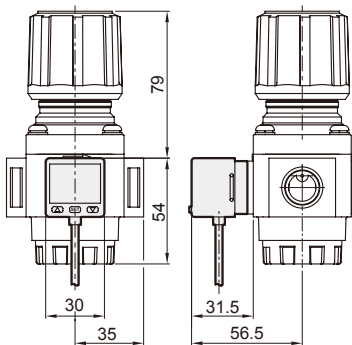
8A: 1/4
10A: 3/8
15A: 1/2

Bowl	Drain valve (*)
Blank: Metal bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* Not applicable to MAR401

MAFR401

MAR401

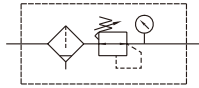


MP41 With MA**403

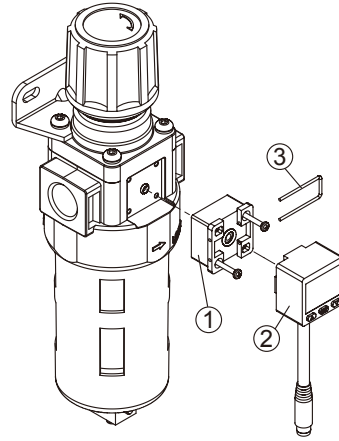
HIGH PRECISION DIGITAL PRESSURE SWITCH



Symbol



Mounting procedures



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR403 - 8A - □□ - E1 - □ - G

MODEL
MACP403
MACT403
MAFR403
MAR403

BORE SIZE
8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

FILTER ELEMENT
Blank: 40µm
5u: 5µm

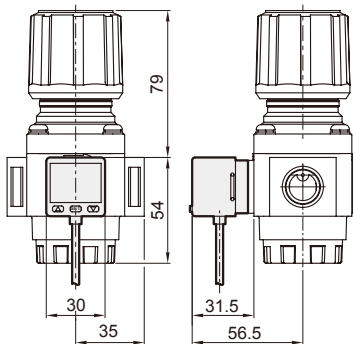
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option) ACCESSORIES

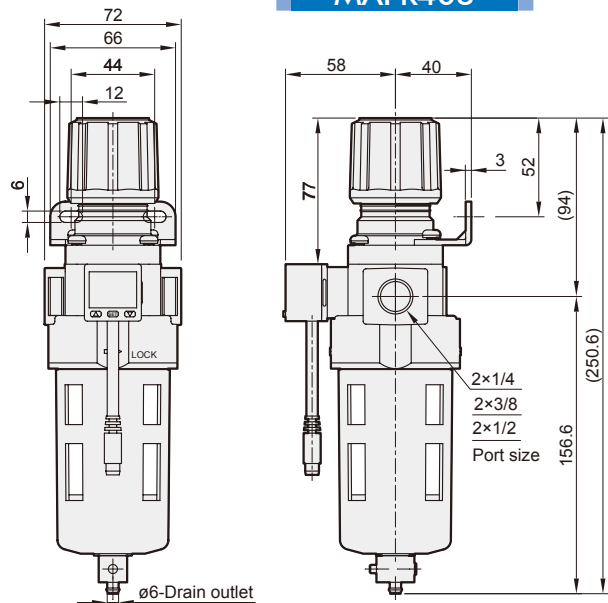
Bowl	Drain valve (*)
Blank: PC bowl N: Nylon bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* Not applicable to MAR403

MAR403



MAFR403

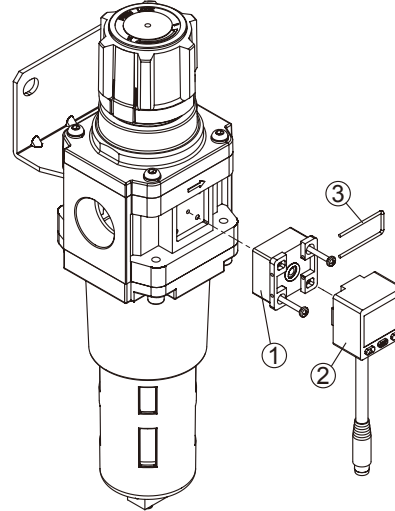


MP41 With MA**501

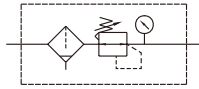
HIGH PRECISION DIGITAL PRESSURE SWITCH



Mounting procedures



Symbol



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR501 - 8A - □□ - E1 - G

MODEL

MACP501
MACT501
MAFR501
MAR501

BORE SIZE

20A: 3/4
25A: 1

(Option) ACCESSORIES

Bowl	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300) * Not applicable to MAR501

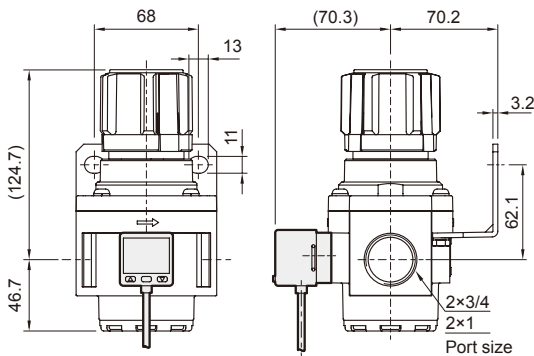
PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

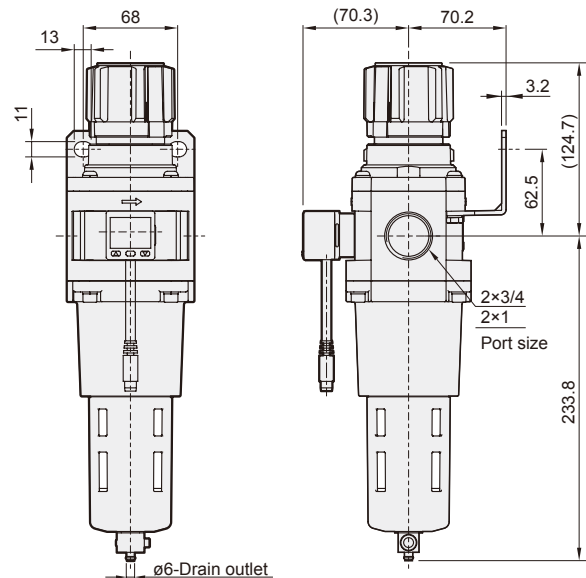
PORT THREAD

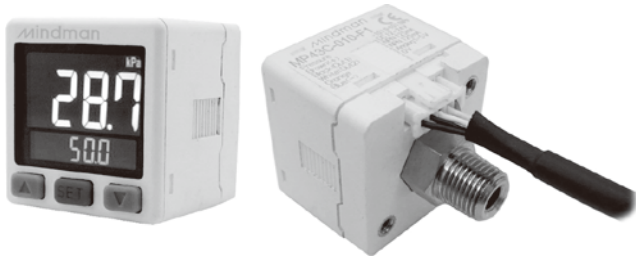
Blank: Rc thread
G: G thread
NPT: NPT thread

MAR501



MAFR501





Features

- 3 color digital LCD display.
- Copy function.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, mmHg, inHg.
- Dual LCD display allow setting value to be displayed.
- Key lock indicator.
- Max. 20% energy saving.

Specification

Model		MP43C (Compound)	MP43V (Vacuum)	MP43P (Positive)
Rated pressure range		-100.0~100.0 kPa	-101.3 ~0.0 kPa	0 ~ 1.0 MPa
Set pressure range		-101.0~101.0 kPa	-101.3 ~ 10.0 kPa	-0.1 ~ 1.0 MPa
Withstand pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa / MPa	0.1 / —		— / 0.001
	kgf/cm ² / bar	0.001		0.01
	psi	0.01		0.1
	mmHg	1		—
	InHg	0.1		—
Power supply voltage		12 to 24V DC ± 10%, Ripple (P-P) 10% or less		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤1.5V		PNP: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V
Repeatability (Switch output)		± 0.2% F.S. ±1digit		
Hysteresis Hysteresis mode / Window comparator mode		Adjustable(*1)		
Response time		≤2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LCD display		2 color(Red/Green) main & unit display, Orange sub-dispaly (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2		
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5%F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
Analog output (Current Output) (*3)		Output Current: 4 to 20mA ±2.5%F.S. (within rated pressure range); Linearity: ±1% F.S. Max. load impedance: 300Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω		
Enclosure		IP40		
Ambient temp. range		Operation: 0 ~ 50°C, storage : -10~ 60°C (No condensation or freezing)		
Ambient humidity range		Operation/Storage: 35 ~ 85% RH (No condensation)		
Withstand voltage		1000V AC in 1-min. (between case and lead wire)		
Insulation resistance		50M Ω (at 500V DC, between case and lead wire)		
Vibration		Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
Shock		100m/s ² (10G), 3 times each in direction of X, Y and Z		

(Continued)

MP43 Dimensions



HIGH PRECISION DIGITAL PRESSURE SWITCH

Specification

Model	MP43C (Compound)	MP43V (Vacuum)	MP43P (Positive)
Temperature characteristic	±2.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1: R1/8, M5×0.8; F2: NPT1/8, #10~32UNF; F3: G1/8, M5×0.8		
Lead wire	Oil-resistance cable (0.15mm ²)		
Weight	Approx. 80g (with 2 meter lead wire)		

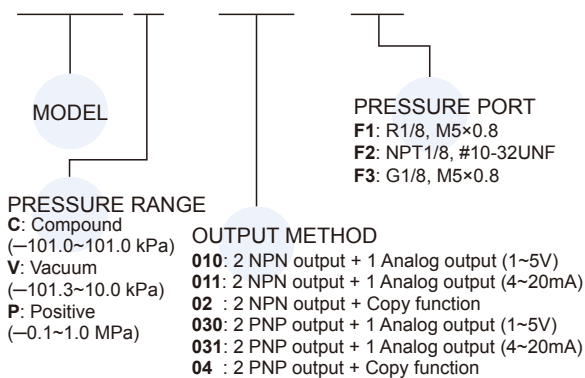
- *1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.
- *2. If analog voltage output is selected, the analog current output cannot be selected at the same time.
- *3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

Output circuit wiring graph

Model	MP43□-010	MP43□-011	MP43□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function
Model	MP43□-030	MP43□-031	MP43□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

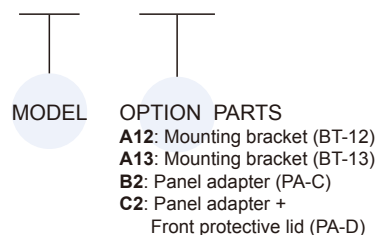
Order example

MP43C – 010 – F1

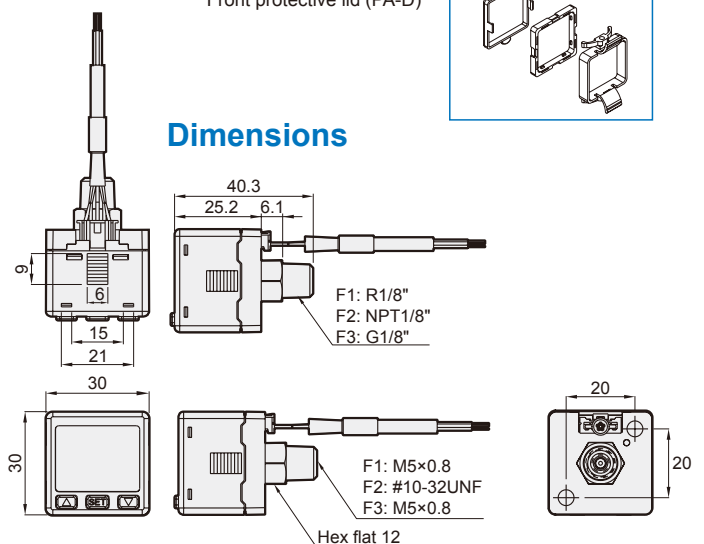


Mounting accessories (Option)

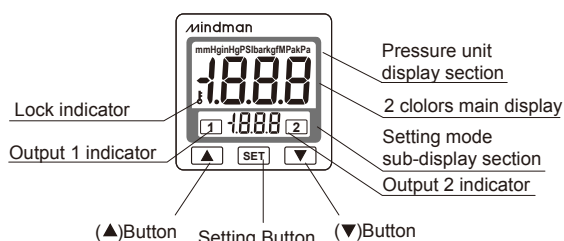
MP – A12



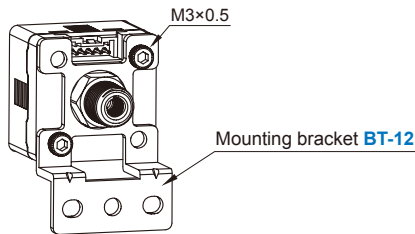
Dimensions



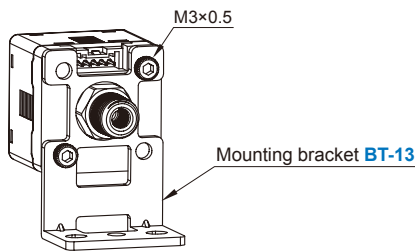
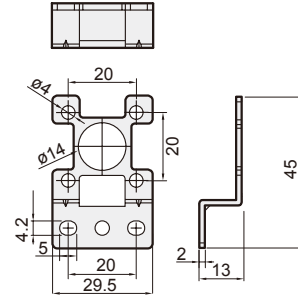
Panel instructions



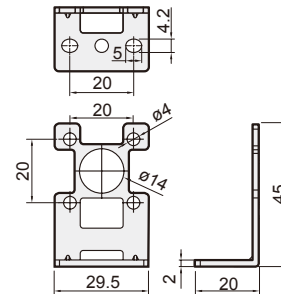
Mounting bracket



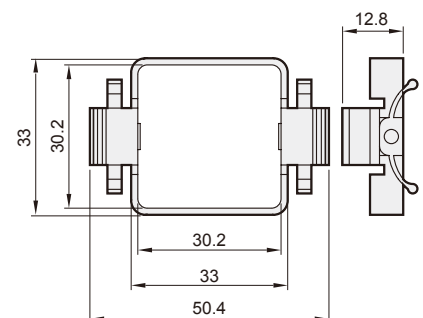
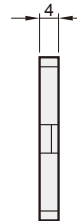
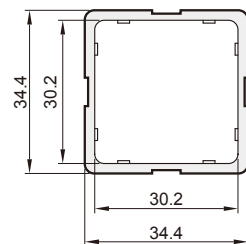
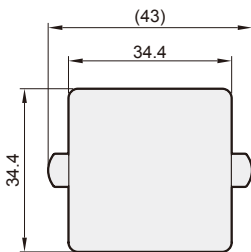
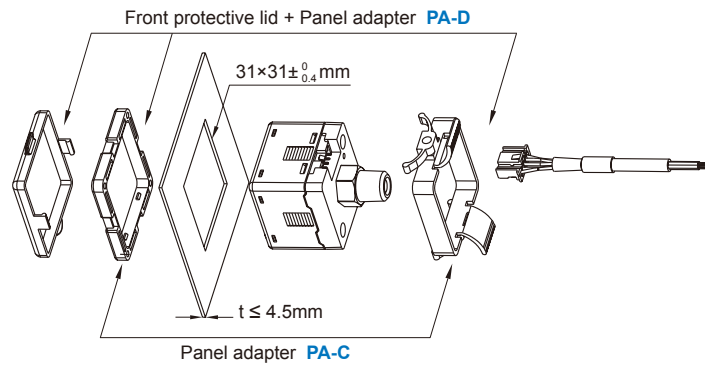
BT-12



BT-13



Panel type





Features

- IP65
- Copy setting.
- 2 NPN / PNP open collector + analog output (1~5V or 4~20mA).
- 2-color digital LCD display..
- Repeatability $\pm 0.2\%$ F.S. ± 1 digit.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg.

Specification

Model		MP45P (Positive)	MP45V (Vacuum)	MP45C (Compound)
Rated pressure range		0 ~ 1.0 MPa	- 101.3 ~ 0.0 kPa	- 100.0~100.0 kPa
Setting pressure range		- 0.1 ~ 1.0 MPa	- 101.3 ~ 10.0 kPa	- 101.0~101.0 kPa
Withstand pressure		1.5 MPa	300 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa, MPa	- / 0.001	0.1 / -	
	kgf/cm ² / bar	0.01	0.001	
	psi	0.1	0.01	
	InHg	-	0.1	
Power supply voltage		12 to 24V DC $\pm 10\%$, Ripple (P-P) 10% or less (UL class 2)		
Current consumption		$\leq 40\text{mA}$ (With no load)		
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : $\leq 1.5\text{V}$	NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : $\leq 1.5\text{V}$	
Repeatability (Switch output)		$\pm 0.2\%$ F.S. ± 1 digit		
Hysteresis Hysteresis mode / Window comparator mode		Adjustable (*1)		
Response time		$\leq 2.5\text{ms}$ (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
LCD display		3 ½ digit, 7 segment (Red/Green)		
Indicator accuracy		$\pm 2\%$ F.S. ± 1 digit (Ambient temperature: $25 \pm 3^\circ\text{C}$)		
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2		
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V $\pm 2.5\%$ F.S. (within rated pressure range) Linearity: $\pm 1\%$ F.S. Output impedance: about 1k Ω		
Analog output (Voltage Output) (*3)		Output Current: 4 to 20mA $\pm 2.5\%$ F.S. (within rated pressure range) Linearity: $\pm 1\%$ F.S. Max. load impedance: 250 Ω at power supply of 12V, 600 Ω at power supply of 24V Min. load impedance: 50 Ω		
Environment	Enclosure	IP65		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : -10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50M Ω (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s ² (10G),3 times each in direction of X, Y and Z		

(Continued)

Specification

Model	MP45P (Positive)	MP45V (Vacuum)	MP45C (Compound)
Temperature characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1(C):R1/8, M5; F2(C):NPT1/8, #10~32UNF; F3(C):G1/8(BSPP), M5		
Lead wire	Oil-resistance cable (0.15mm ²)		
Weight	Port F1~F3 approx. 86g; Port F1C~F3C approx. 114g (with 2 meter lead wire)		

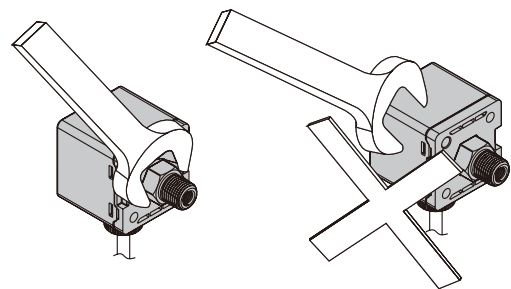
- *1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.
- *2. If analog voltage output is selected, the analog current output cannot be selected at the same time.
- *3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

Output circuit wiring graph

Model	MP45□-010	MP45□-011	MP45□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function
Model	MP45□-030	MP45□-031	MP45□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

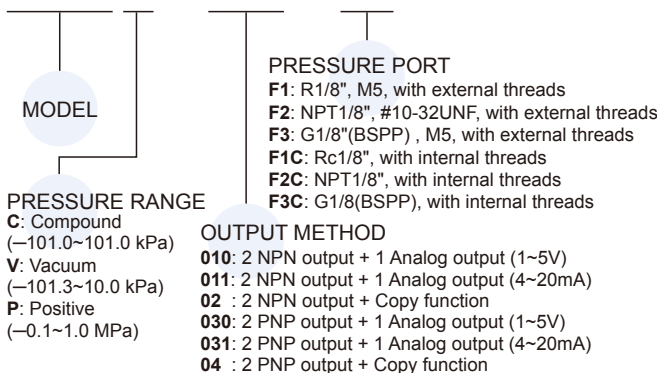
Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.



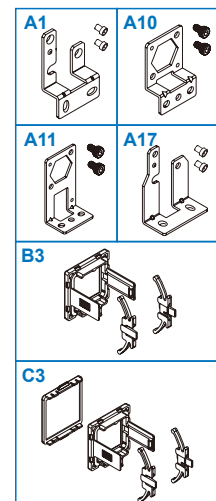
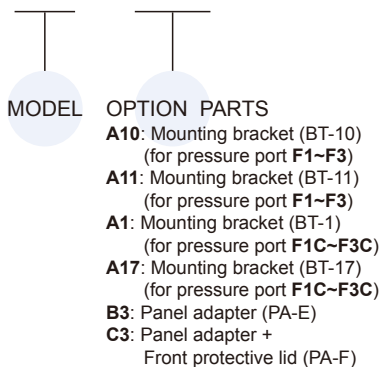
Order example

MP45C – 010 – F1



Mounting accessories (Option)

MP – A10



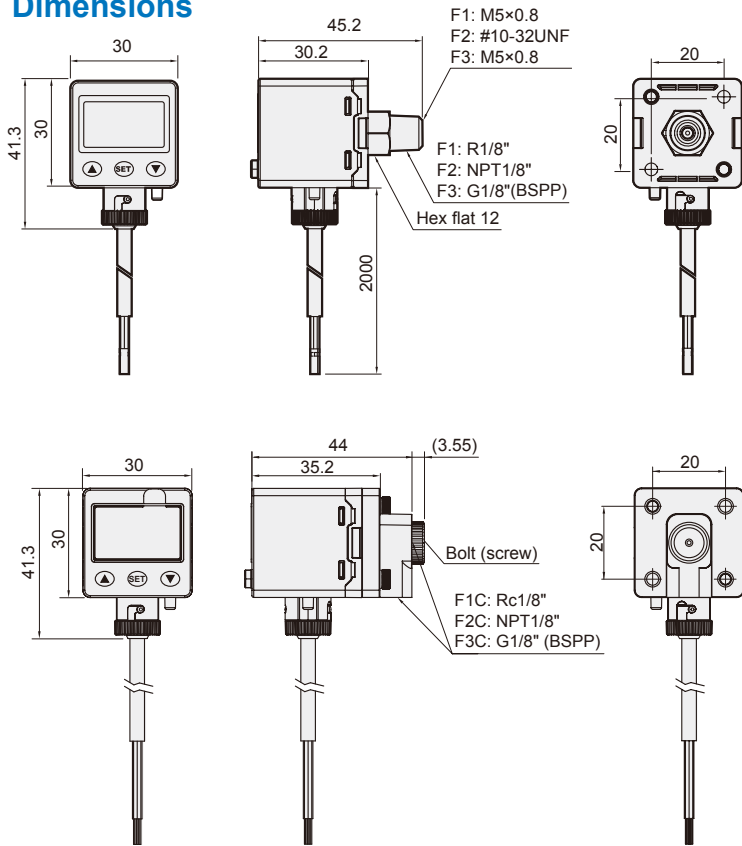
MP45 Dimensions



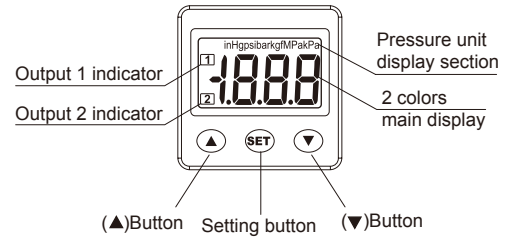
HIGH PRECISION DIGITAL PRESSURE SWITCH

Mindman

Dimensions

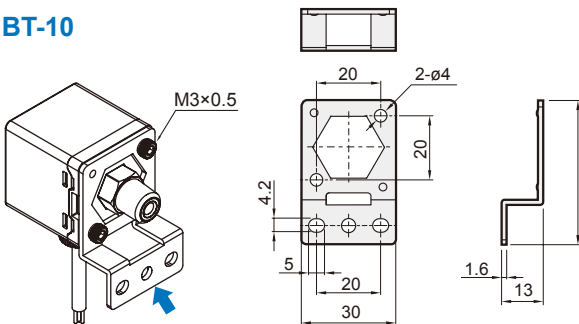


Panel instructions

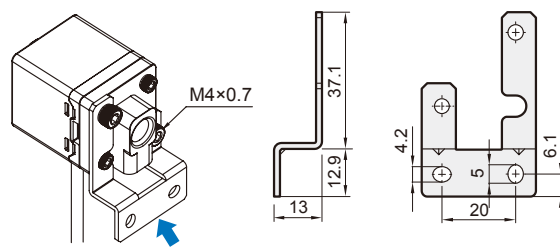


Mounting bracket

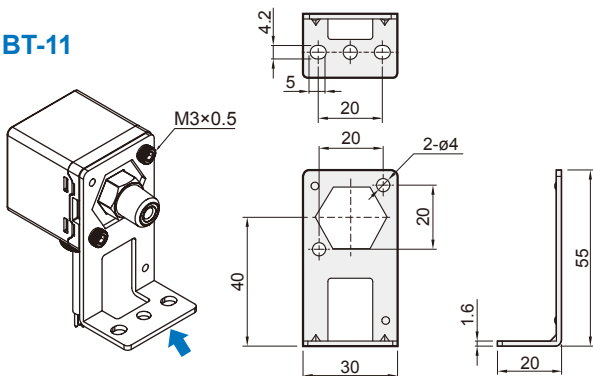
BT-10



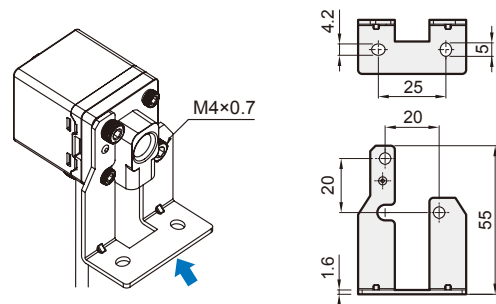
BT-1



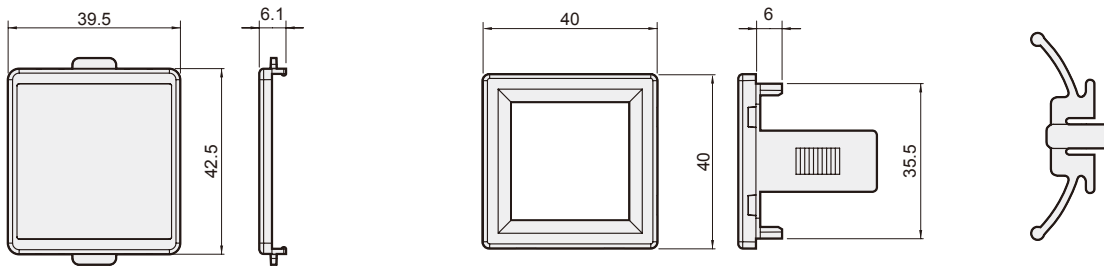
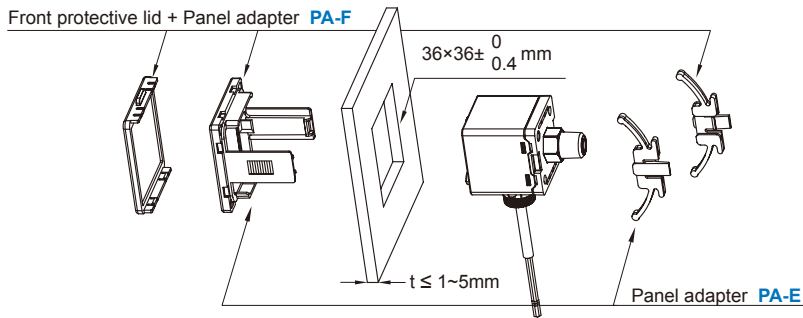
BT-11



BT-17

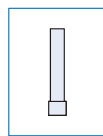
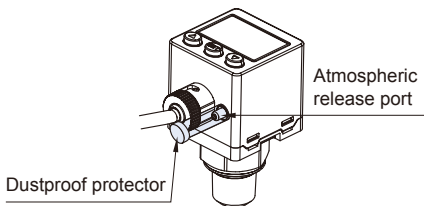


Panel type



Accessory

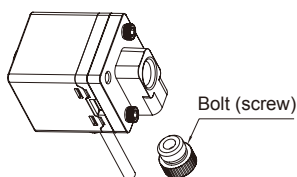
IP65 protector



Caution

This device must be installed to maintain IP 65 (Dust and splash proof) enclosure rating.

Accessory for pressure port F1C ~ F3C



1. This product has two inlet pressure ports, select the one most convenient for installation.
2. Please plug the unused inlet port with supplied port plug. Use seal tape to prevent pressure leak.



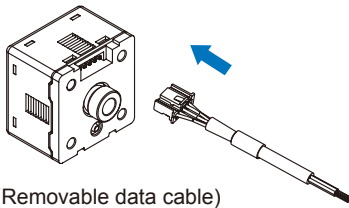
Features

- 3-color digital LCD display.
- Main/Sub-Display, 4 digits 7 segment LCD display.
- Programmable pressure unit : kPa 、 MPa 、 kgf/cm² 、 bar 、 psi 、 inHg 、 mmHg.
- Dual LCD display allows setting value to be displayed.
- Key lock indicator.
- Power-save mode.
- Fine adjustment mode.

Features highlight

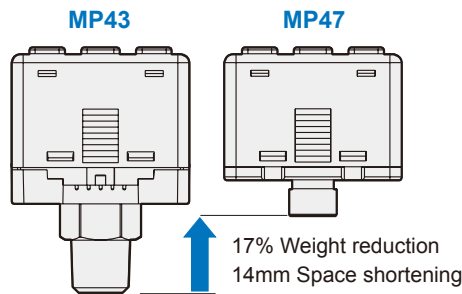
Quick installation

- Save installation time.
- Easy removal.



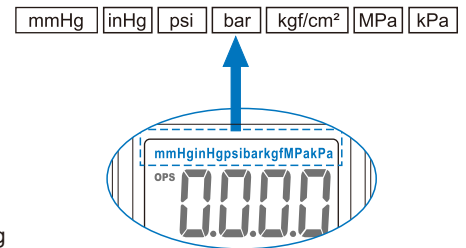
Compact design

- Compared with similar products, approx. 35% shorter.



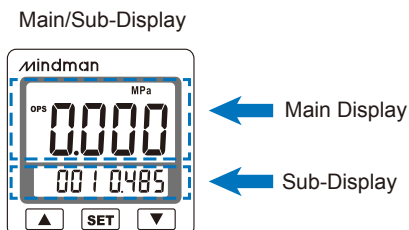
Easy unit identification

- Conversion unit is on display and easy to read.



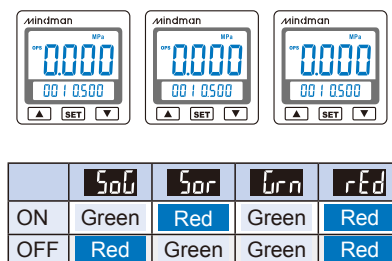
Setting Value Easy Indication

- User can easily observe the setting value from sub-display.



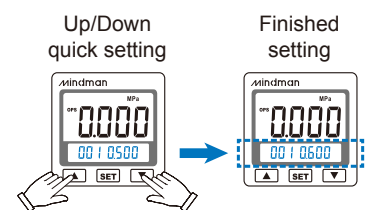
2-Color Main display

- User programmable color mode, for different setting conditions.



OPS Quick Setting

- Sub-display allows changing the parameter directly, reduce setting step by 3/4.



MP47 Specification



HIGH PRECISION DIGITAL PRESSURE SWITCH

mindman

Specification

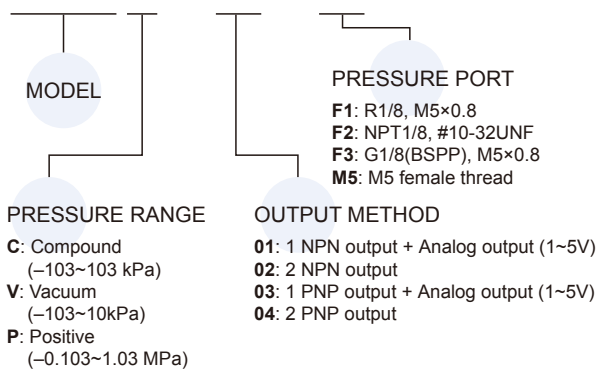
Model		MP47C (Compound)	MP47V (Vacuum)	MP47P (Positive)
Rated pressure range		-100 ~ 100 kPa	-101.3 ~ 0 kPa	-0.1 ~ 1.0 MPa
Setting pressure range		-103 ~ 103 kPa	-103 ~ 10 kPa	-0.103 ~ 1.03 MPa
Allowable pressure		500 kPa		1.5 MPa
Medium		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa	0.1		—
	MPa	—		0.001
	kgf/cm ² / bar	0.001		0.01
	psi	0.01		0.1
	InHg / mmHg	0.1 / 1		—
Power supply voltage		12~24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 30mA (With no load)		
Switch output		NPN: open collector outputs Max. load current: 80mA Max. supply voltage: 30V DC Residual voltage: ≤ 1V	PNP: open collector outputs Max. load current: 80mA Max. supply voltage: 24V DC Residual voltage: ≤ 1V	
Repeatability(Switch output)		±0.3% F.S. ±1 digit		
Hysteresis	One point set mode	Adjustable (Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.)		
	Hysteresis mode			
	Window comparator mode			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms selectable)		
Output short circuit protection		Yes		
Display	Display	2 color (Red/Green) main & unit display, Orange sub-display (Sampling rate: 0.2, 0.5, 1 sec./time selectable)		
	Indicator accuracy	±1% F.S. ±1 digit (ambient temperature: 25 ± 3°C)		
	Switch ON Indicator	Orange Indicator OUT		
Analog output (within rated pressure range) (Voltage Output)		Output Voltage: 1 to 5V ±2.5% F.S. Linearity: ±1% F.S. Output impedance: about 1kΩ	Output Voltage: 0.6 to 5V 2.5% F.S. Linearity: ±1% F.S. Output impedance: about 1kΩ	
Environment	Enclosure classification	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, Storage : -10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-150Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±2% F.S. of detected pressure 25°C at temp. Range of 0~50°C		
Port size		F1: R1/8", M5×0.8; F2: NPT1/8", #10-32UNF; F3: G1/8"(BSPP), M5×0.8; M5 female thread		
Lead wire		Oil-resistance cable (0.15mm ²)		
Weight		Approx. 67g (with 2 meter lead wire)		

Output circuit wiring graph

Model	MP47□-01	MP47□-03
Connect diagram		
Output method	1 NPN + Analog output (1~5V) (0.6~5V only positive)	1 PNP + Analog output (1~5V) (0.6~5V only positive)
Model	MP47□-02	MP47□-04
Connect diagram		
Output method	2 NPN output	2 PNP output

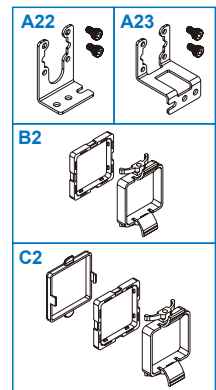
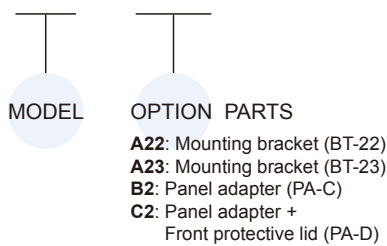
Order example

MP47C – 01 – F1

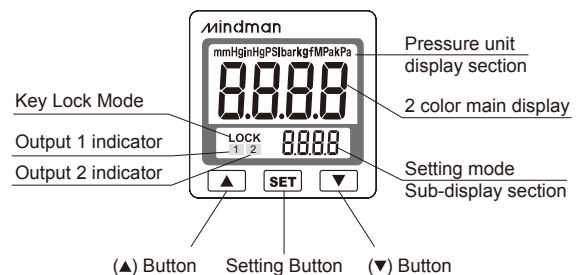


Mounting accessories (Option)

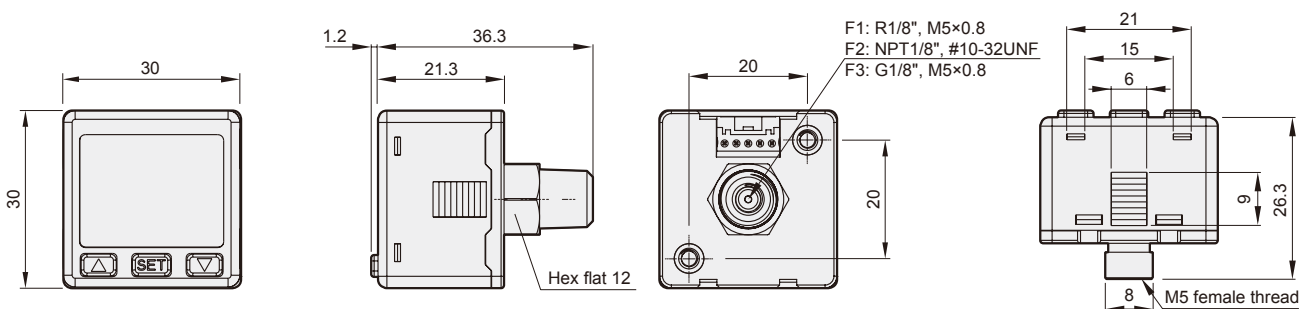
MP – A22



Panel instructions

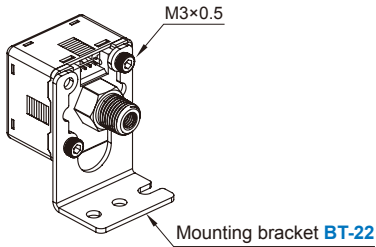


Dimensions

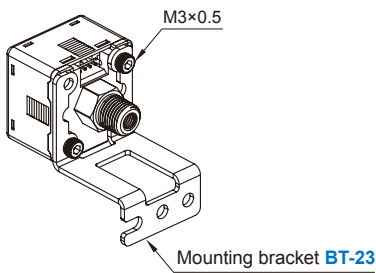
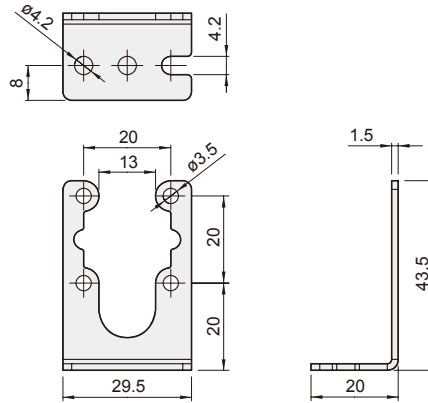


Mounting accessories

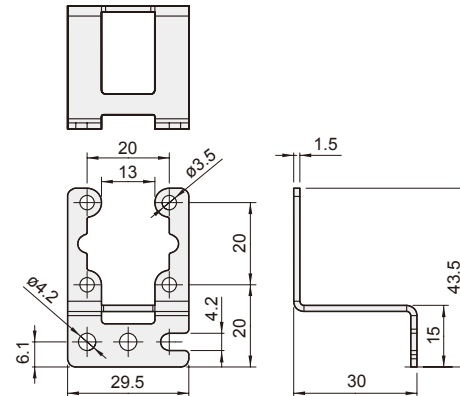
Mounting bracket



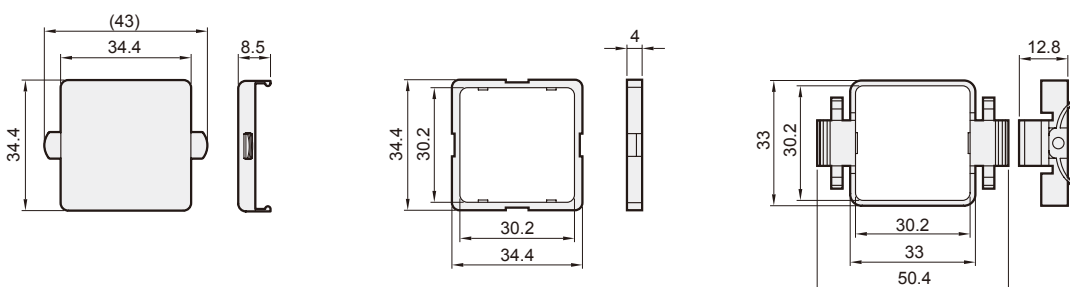
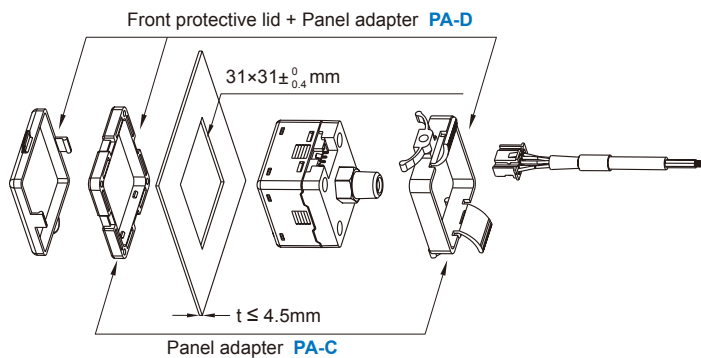
BT-22



BT-23



Panel type





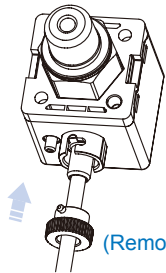
Features

- 2 color digital LCD display.
- Copy function.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg.
- Sensor parts & fitting parts: Stainless steel 316L.
- Corrosive fluid or gas available.
- IP65 enclosure.

Features highlight

Quick installation

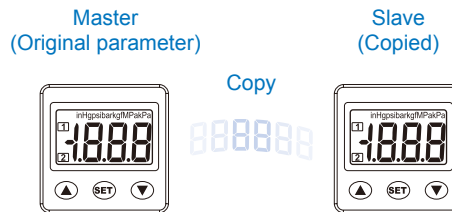
- Save installation time.
- Easy removal.



(Removable data cable)

Copy setting

- Reduce setting time.
- Avoid setting errors.

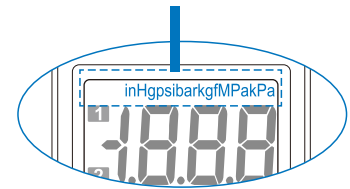


Can copy the setting value from master to slave sensor.

Easy unit identification

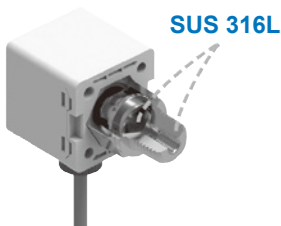
- Conversion unit is on display and easy to read.

inHg | psi | bar | kgf/cm² | MPa | kPa



Applicable for corrosive fluid or gas

- Sensor parts & fitting parts are SUS 316L, applicable for corrosive fluid or gas equipment.



2-Color display

- User programmable color mode, for different setting conditions.



	SoW	SoR	Orn	reD
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

IP65 enclosure

- Protected against water and dust splash from all directions.



Specification

Model	MP50P (Positive)	MP50H (High)	MP50V (Vacuum)	MP50C (Compound)
Rated pressure range	0 ~ 1.0 MPa	0.0 ~ 2.0 MPa	0.0 ~ - 101.3 kPa	- 100.0 ~ 100.0 kPa
Setting pressure range	- 0.1 ~ 1.0 MPa	- 0.1 ~ 2.0 MPa	10.0 ~ - 101.3 kPa	- 101.0 ~ 101.0 kPa
Allowable pressure	3 MPa		300 kPa	
Fluid	Fluids do not corrode stainless steel 316L			
Set pressure resolution	KPa	—	—	0.1
	MPa	0.001	0.001(~1.999) / 0.01(2.00~)	—
	kgf/cm ² / bar	0.01	0.01(~19.99) / 0.1(20.0~)	0.001
	psi	0.1	0.1(~199.9) / 1(200~)	0.01
	InHg	—	—	0.1
Power supply voltage	12 to 24V DC ±10%, Ripple (P-P) 10% or less			
Current consumption	≤ 40mA (With no load)			
Switch output	NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤1.5V		PNP: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V	
Repeatability (Switch output)	± 0.3% F.S. ±1 digit			
Hysteresis mode	One point set/ Hysteresis / Window comparator	Adjustable (*1)		
Response time	≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)			
Output short circuit protection	Yes			
Display	3 ½ digit, 7 segment (Red/Green)			
Indicator accuracy	±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)			
Switch ON Indicator	Orange (1 & 2 indicator) OUT1 / OUT2			
Analog output (Voltage Output) (*2)	Output Voltage: 1 to 5V ±2.5%F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ			
Analog output (Current) Output (*3)	Output Current: 4 to 20mA ≤±2.5%F.S. (within rated pressure range); Linearity: ±1% F.S. Max. load impedance: 250Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω			
Environment	Enclosure classification	IP65		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : -10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	250V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic	±3% F.S. of detected pressure (25°C) at temp. range of 0 ~ 50°C			
Port size	F1: R1/4, M5; F2: NPT1/4", #10-32 UNF; F3: G1/4"(BSPP), M5			
Lead wire	Oil-resistance cable (0.15mm ²)			
Weight	Approx. 110 g (Rear ported), Approx. 145 g (Bottom ported)			

*1. Hysteresis value is adjustable within 1~8 digits for one point set and window comparator mode.

*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.

*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

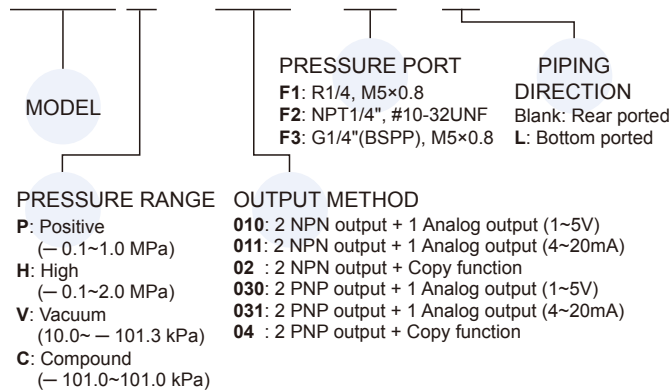
*4. G port O-ring material is NBR. If any special request, please contact us.

Output circuit wiring graph

Model	MP50□-010	MP50□-011	MP50□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function
Model	MP50□-030	MP50□-031	MP50□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

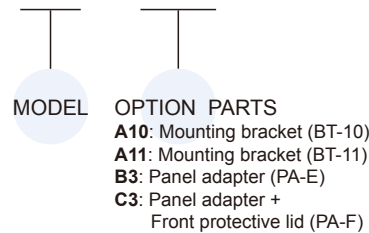
Order example

MP50C - 010 - F1 - □

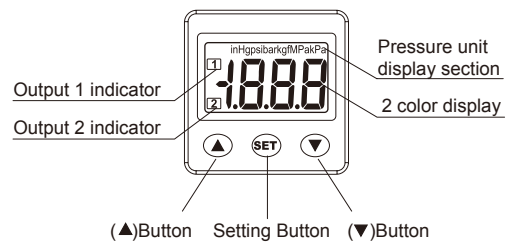


Mounting accessories (Option)

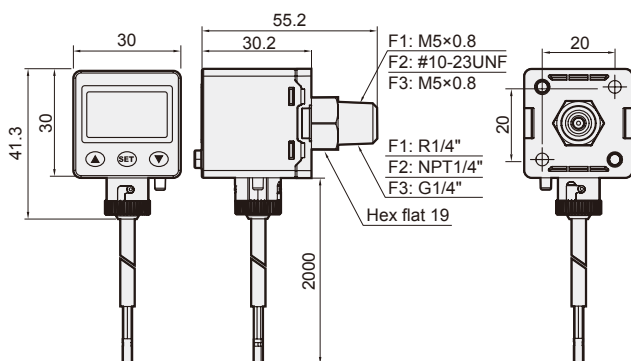
MP - A10



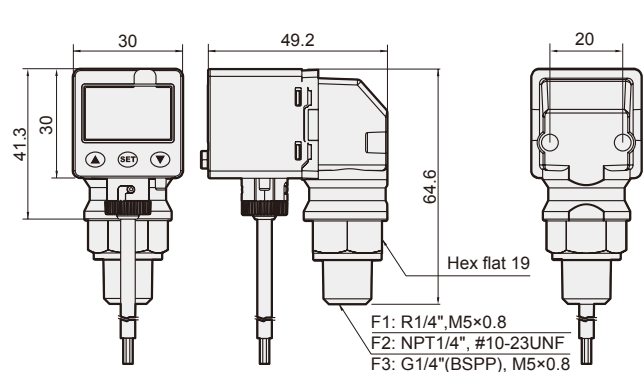
Panel instructions



Dimensions (Rear ported)

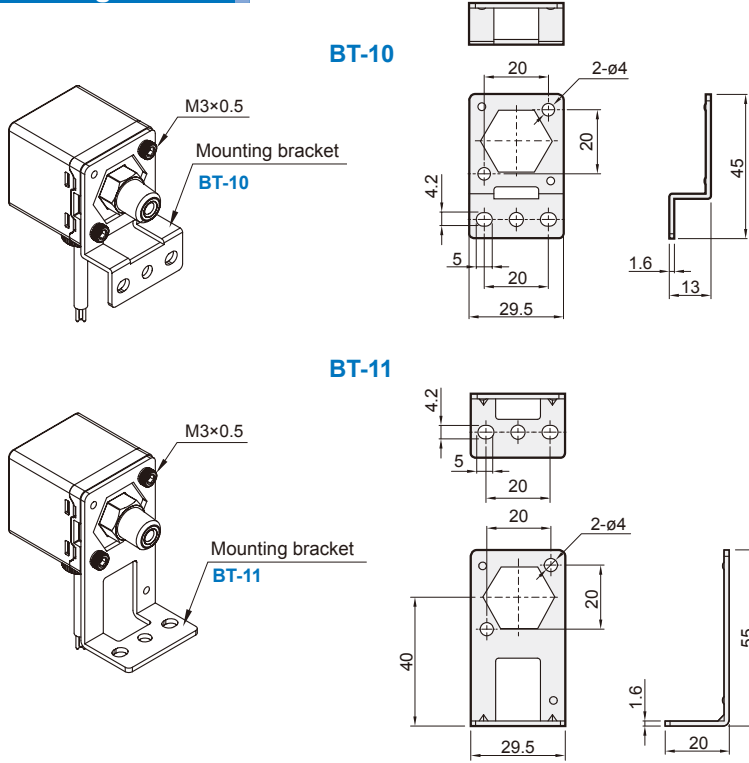


(Bottom ported)

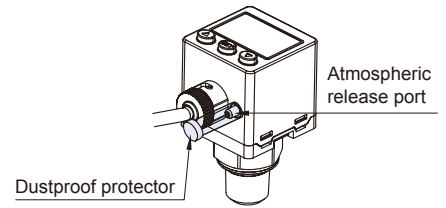


Mounting accessories

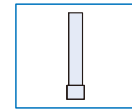
Mounting bracket



Dustproof protector

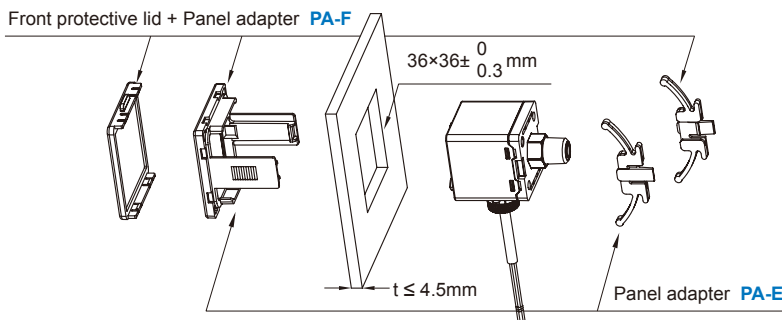


Caution

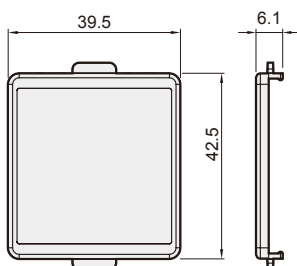


This device must be installed to maintain IP 65 (Dust and splash proof) enclosure rating.

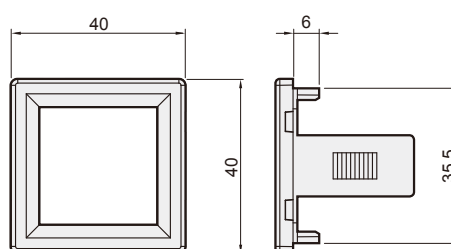
Panel type



Front protective lid



Panel adapter



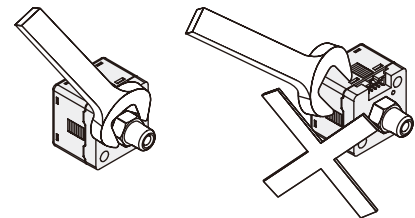


Features

- Smart pressure sensor.
- Remote control. Real-time monitoring.
- RS-485 modbus RTU / ASCII.
- 4 digit, 7 segment LCD display.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg, mmHg.
- IP40 enclosure.

Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.



Features highlight

Station setting display

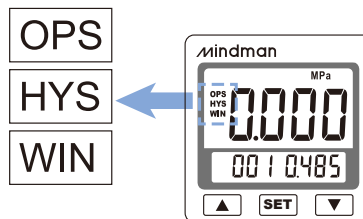
- Provide 0~255 station to set the sensor.



ID number display

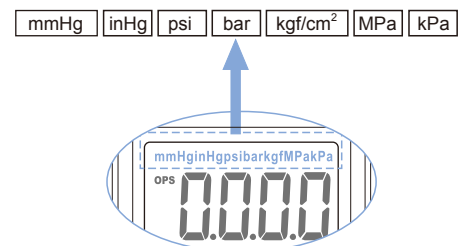
Modes display

- 3 modes show on the screen.



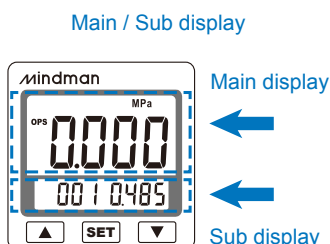
Easy unit identification

- Conversion unit is on display and easy to read.



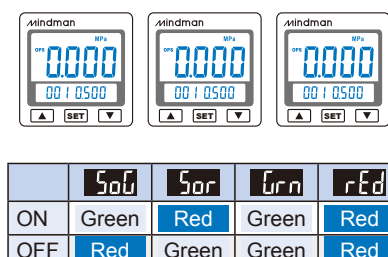
Setting value easy indication

- User can easily observe the setting value from sub display.



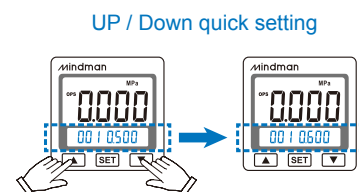
2 color display

- User programmable color mode, for different setting conditions.



OPS quick setting

- Sub display allows changing the parameter directly, reduce setting step by 3/4.



Specification

Model		MP70P (Positive)	MP70V (Vacuum)	MP70C (Compound)
Rated pressure range		0 ~ 1.0 MPa	- 101.3~0.0 kPa	- 100.0~100.0 kPa
Setting pressure range		- 0.10 ~ 1.0 MPa	- 101.3 ~10.0 kPa	- 101.0~101.0 kPa
Withstand pressure		1.5 MPa	500 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa, MPa	- / 0.001	0.1 / -	
	kgf/cm ² / bar	0.01	0.001	
	psi	0.1	0.01	
	InHg	-	0.1	
	mmHg	-	1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 1 output Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: ≤1.5V		PNP: open collector 1 output Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≤1.5V
Repeatability (Switch output)		± 0.2% F.S. ±1 digit		
Hysteresis Hysteresis mode / Window comparator mode		Adjustable (*1)		
Response time		≤ 2.5ms (*2)		
Output short circuit protection		Yes		
7 segment LCD display		Two color (Red/Green) main & unit display, Orange sub display (Sampling rate: 0.2, 0.5, 1 seconds/time selectable)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 indicator) OUT1		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : -10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±2.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Communication interface		RS-485		
Port size (Male / Female thread)		F1: R1/8", M5; F2: NPT1/8", #10-32 UNF; F3: G1/8"(BSP), M5		
Lead wire		Oil-resistance cable (0.15mm ²)		
Weight		Approx. 80 g (with 2 meter lead wire)		

*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.

*2. Chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms, 2000ms and 5000ms selectable.

Output circuit wiring graph

Model	MP70□-02-□	MP70□-04-□
Connect diagram		
Output method	NPN output + RS485	PNP output + RS485

Order example

MP70C — 02 — F1

MODEL

PRESSURE PORT
(Male/ Female thread)
F1: R1/8", M5×0.8
F2: NPT1/8", #10-32UNF
F3: G1/8", M5×0.8

PRESSURE RANGE
C: Compound
(-101.0~101.0 kPa)
V: Vacuum
(10.0~ -101.3 kPa)
P: Positive
(-0.1~1.0 MPa)

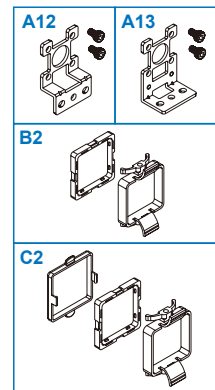
OUTPUT METHOD
02 : 1 NPN output + RS485
04 : 1 PNP output + RS485

Mounting accessories (Option)

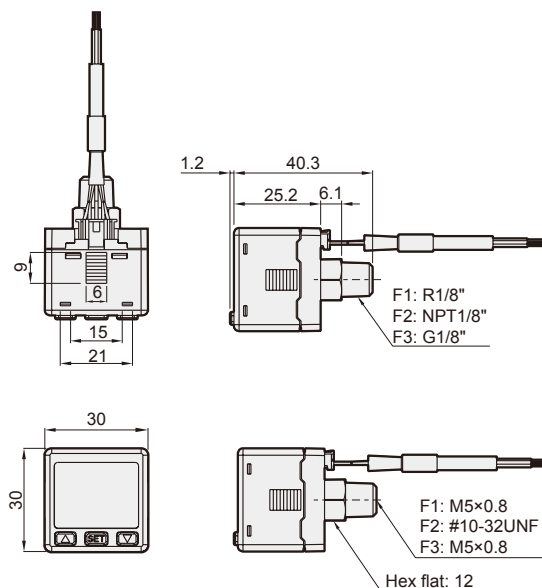
MP — A12

MODEL

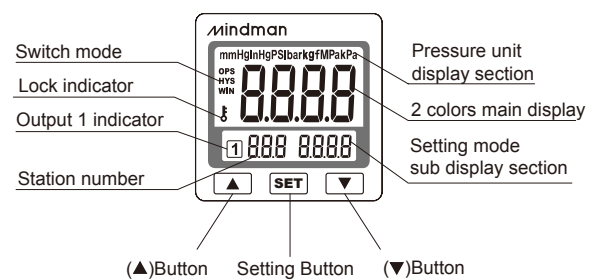
OPTION PARTS
A12: Mounting bracket (BT-12)
A13: Mounting bracket (BT-13)
B2: Panel adapter (PA-C)
C2: Panel adapter +
Front protective lid (PA-D)



Dimensions

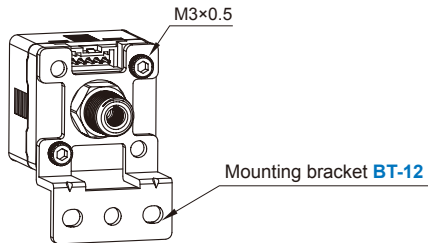


Panel instructions

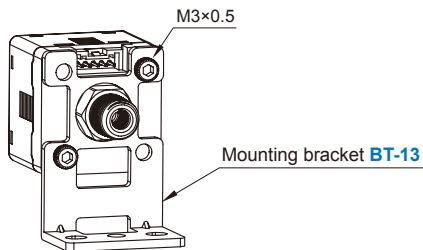
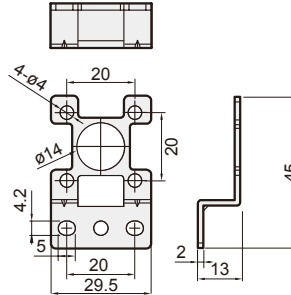


Mounting accessories

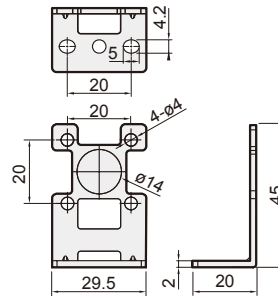
Mounting bracket



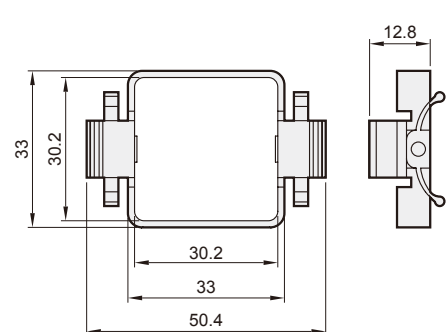
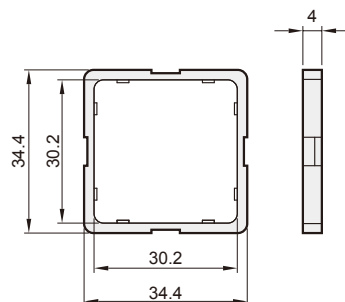
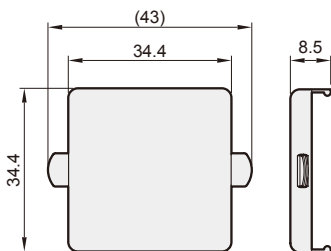
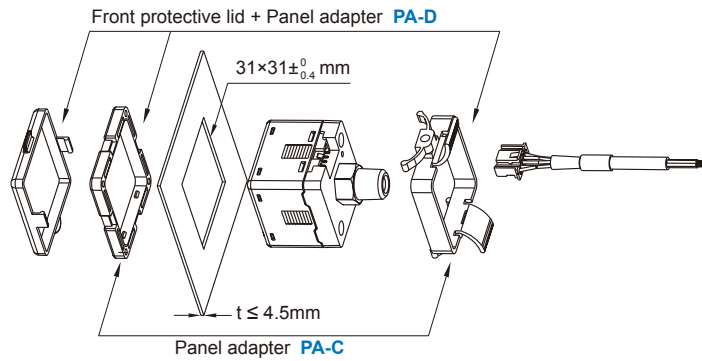
BT-12



BT-13

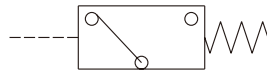


Panel type





Symbol



Specification

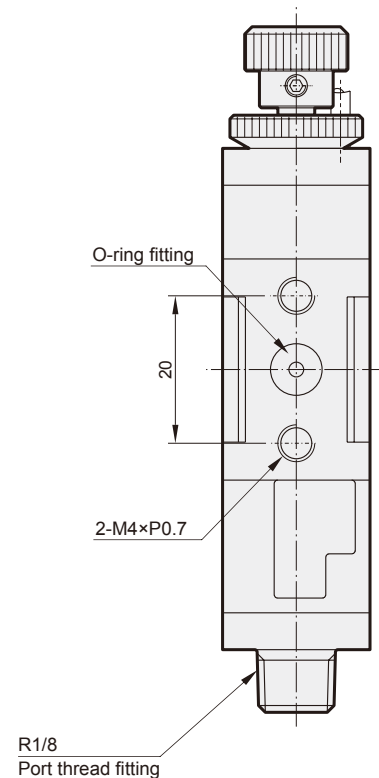
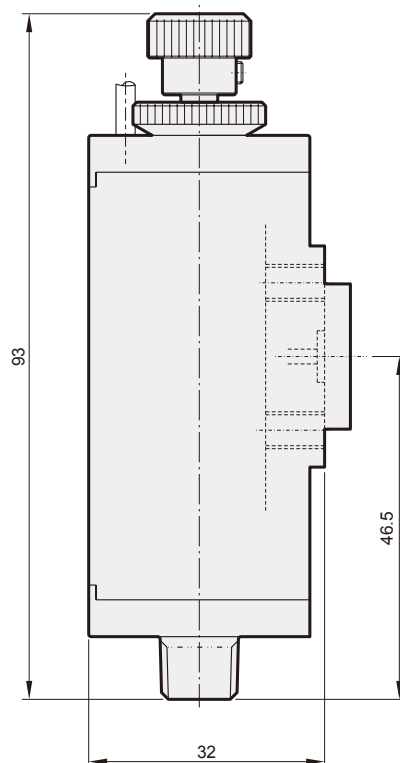
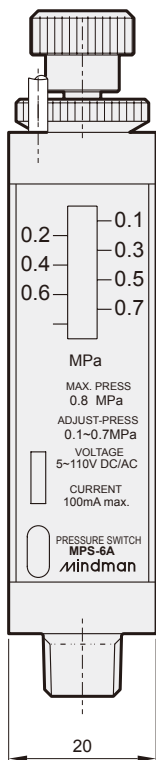
Model	MPS-6A	MPS-6A-R
Fitting method	R1/8 (for port thread fitting)	O-ring: S4 (for O-ring fitting)
Ambient temperature	-5~+60°C (No freezing)	
Max. operating pressure	0.8 MPa	
Proof pressure	1 MPa	
Pressure setting range	0.1~0.7 MPa	
Operation output	Normal open ON (Red led lighting up) above value	
Sensor switch	RCE2 Reed switch / Normal open Voltage range: 5~110V DC/AC Max. Current: 100mA	
Weight	185 g	189 g

Order example

MPS — 6A — R

MODEL

Blank: by prot thread fitting
R: by O-ring fitting



MPG-60 series

DIGITAL PRESSURE GAUGE



Features

- 6 user programmable pressure units (kPa, MPa, kgf/cm², psi, bar, mmHg) available.
- Battery powered.
- Easy / fast read out with digital display.
- Power saving mode.
- Back light option.
- IP65 enclosure, dust and splash-proof.

Specification

Model	Vacuum		Positive	
	MPG-60V	MPG-60V-L	MPG-60P	MPG-60P-L
Rate / display pressure range	0 ~ -101 kPa / 10 ~ -101 kPa		0 ~ 1 MPa / -0.1 ~ 1 MPa	
Proof pressure	300 kPa		1.5 MPa	
Fluid	Filtered air, Non-corrosive gases, incombustible gases			
Set pressure resolution	kPa / MPa	1 / —	— / 0.001	
	kgf/cm ² / bar	— / 0.01	0.01	
	psi	0.1	0.1	
	mmHg	1	—	
Battery / Battery replaceable	CR 2032 lithium / Yes			
Battery life	3 years (5 times/day)	1 years (5 times/day)	3 years (5 times/day)	1 year (5 times/day)
Low-power indicator	Yes			
Back light	No	Yes	No	Yes
Turn-on interval	Display turn off after 60 sec.			
Sampling rate	2 Hz (2 times/sec.)			
Programmable pressure unit	psi, bar mmHg, kPa user selectable		psi, bar, kgf/cm ² , MPa user selectable	
Repeatability	≤ ±1% F.S. ±1digit		≤ ±0.2% F.S. ±1digit	
LCD display	7 segment, 3 1/2 digit			
Indicator accuracy	≤ ±2% F.S. ±1 digit (Ambient temperature: 25 ±3 °C)			
Environment	Enclosure	IP65 (Air tube must be installed to maintain IP65)		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : -10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C			
Weight	Approx. 40 g			

Order example

MPG — 60 P — L — F1

MODEL

PRESSURE RANGE
V: Vacuum
P: Positive

PRESSURE PORT

F1: R1/8", M5
F2: NPT1/8", #10-32 UNF
F3: G1/8", M5
F4: R1/4", M5
F5: NPT1/4", #10-32 UNF
F6: G1/4", M5

BACK LIGHT

Blank: Back light unavailable
L: Back light available

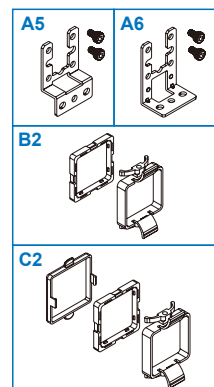
Mounting accessories (Option)

MP — A5

MODEL

OPTION PARTS

A5: Mounting bracket (BT-5)
A6: Mounting bracket (BT-6)
B2: Panel adapter (PA-C)
C2: Panel adapter +
Front protective lid (PA-D)

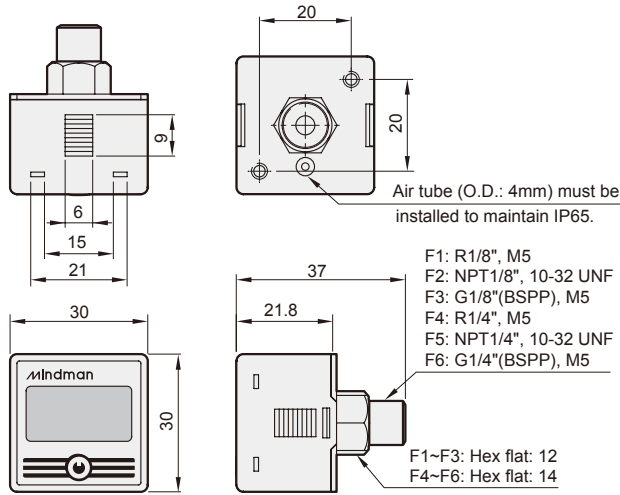


MPG-60 Dimensions

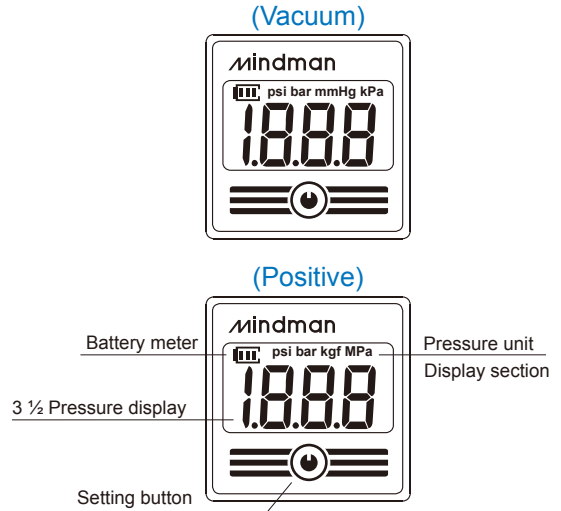
DIGITAL PRESSURE GAUGE



Dimensions

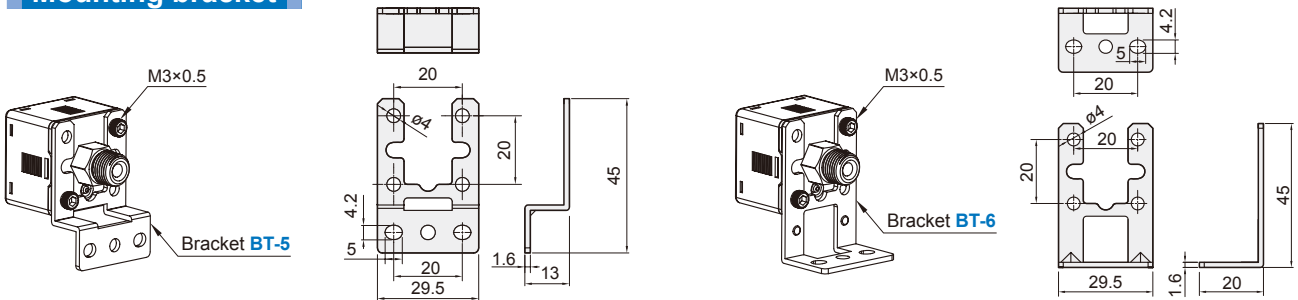


Panel instructions

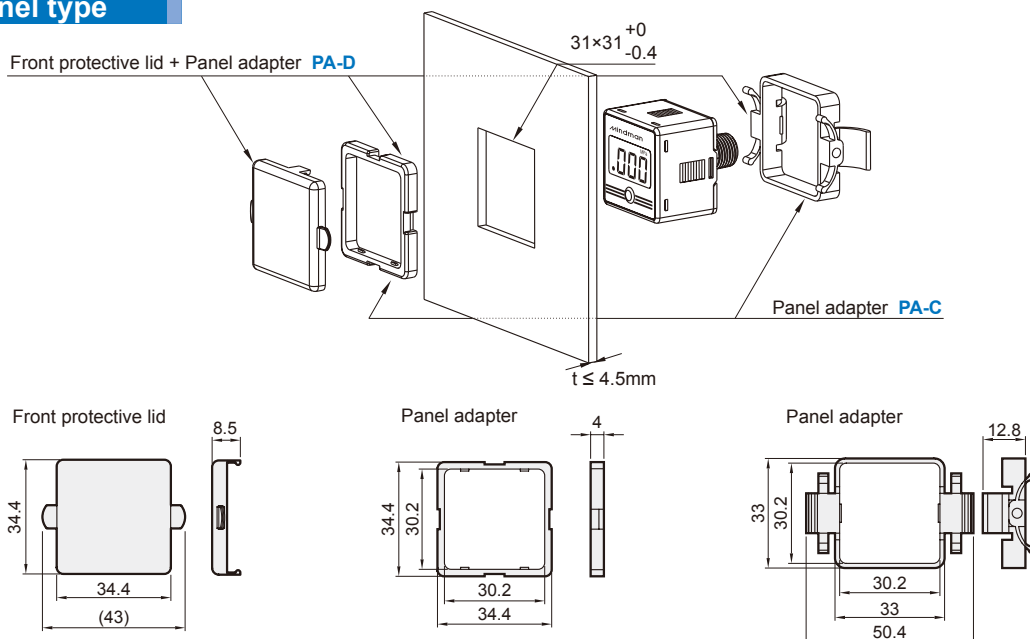


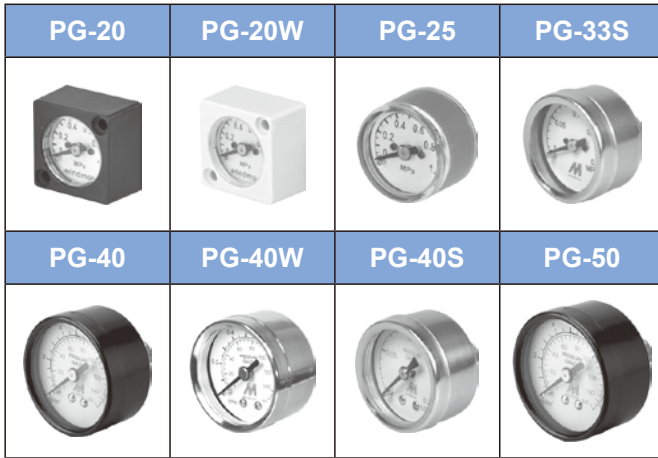
Mounting accessories

Mounting bracket



Panel type





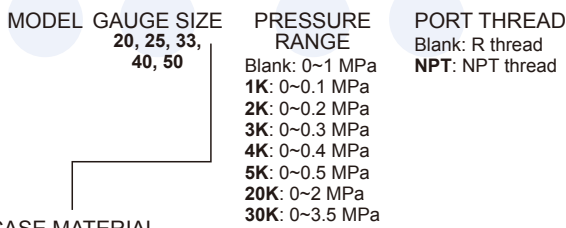
Specification

Model	PG-20	PG-25	PG-33	PG-40	PG-50
Bore No.	—	—	6A	6A	8A
Port size	—	1/16	1/8	1/8	1/4
Medium	Air				
Operating pressure range	By order specifications				
Proof pressure	The max. scale of gauge times 1.2				
Precision	±4% F.S.		ASME B class		
Ambient temperature	-5~+60°C (No freezing)				
Weight	11 g	17 g	34 g	54 g	108 g

* Please consult us if out of specification.

Order example

PG - 40 S - 1K - NPT



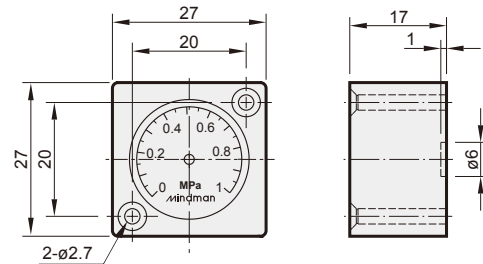
CASE MATERIAL

Code Model	W	S	Note
PG-20	○	○	W(White)
PG-25			
PG-33		○	
PG-40	○	○	W(Electroplating)
PG-50	○		

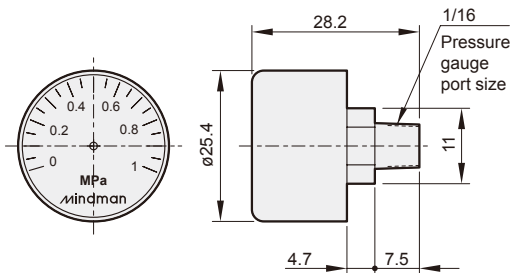
* Blank: Standard type (Black)
PG-25 standard type (Gray)
* S: Stainless steel

Code Model	1K	2K	3K	4K	5K	20K	30K
PG-20	○	×	×	×	×	×	×
PG-20W	○	×	×	×	×	×	×
PG-25	○	×	×	×	×	×	×
PG-33S	○	×	○	×	×	×	×
PG-40	○	○	○	○	○	○	×
PG-40W	○	○	○	○	○	○	○
PG-40S	○	×	○	×	×	×	×
PG-50	○	×	×	×	×	×	×

PG-20

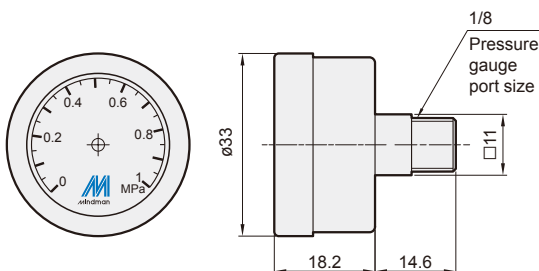


PG-25

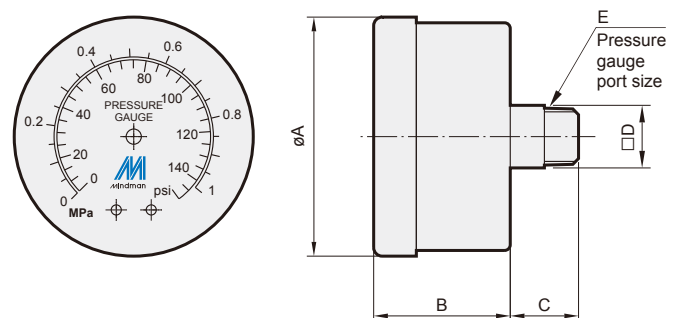


PG-33S

*Only for SUS case.



PG-40 / 50



Code Model	A	B	C	D	E
PG-40	42	25	15	11	1/8
PG-50	53	26.5	22.5	14	1/4



Feature

- Display can be vertically inverted. To set and watch monitor easily.
- 3-Color & 7 segment LCD display.
- 8 digit accumulated flow rate display.
- Real-time monitoring.
- RS-485 Modbus RTU.

Specification

Model		005	010	050	100	500	101	201	
Fluid		Dry air, N ₂ , Non-corrosive / Non-flammable gas							
Sensor element	Flow	Measured flow rate range							
	Flow direction	Unidirection							
Display	Display	4 digital (Flow) / 8 digital (Accumulated flow), 7 segment LCD display (Red / Green / Orange)							
	Instant flow rate	Display range	0 ~ 500 mL/min	0 ~ 1000 mL/min	0 ~ 5.00 L/min	0 ~ 10.00 L/min	0 ~ 50.0 L/min	0 ~ 100.0 L/min	0 ~ 200 L/min
		Min. setting scale	LPM	1 mL/min	0.01 L/min	0.1 L/min	1 L/min		
	Accumulated Flow	Display range	99999999 mL	999999.99 L	9999999.9 L	99999999 L			
		Min. Setting Scale *1	1 mL	0.01 L	0.1 L	1 L			
			0.01 ft ³	0.1 ft ³	1 ft ³				
Accuracy	Flow	Guaranteed range	2 ~ 100 % F.S.						
		Indicator accuracy	± 3 % F.S. ± 1 digit *2						
		Analog output accuracy	± 5 % F.S. *2						
		Repeatability	± 1 % F.S. ± 1 digit *3						
		Linearity	± 3 % F.S. *3						
		Temp. characteristic	± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C, 35~ 50 °C) (compare with *3)						
		Pressure characteristic	± 5 % F.S. ± 1 digit *4						
Switch output	Switch output	2 NPN : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 28 V DC Voltage Drop : ≤ 1.5 V				2 PNP : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 24 V DC Voltage Drop : ≤ 1.5 V			
	Response time	800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms selectable)							
	Output mode	Hysteresis Mode, Window Comparator Mode, Accumulated Output, Accumulated Pulse Output							
	Hysteresis	Adjustable							
	Output short circuit protection	Yes							
	Accumulated pulse output *1	5 mL/Pulse	10 mL/Pulse	0.05 L/Pulse	0.1 L/Pulse	0.5 L/Pulse	1 L/Pulse	2 L/Pulse	
	0.02 ft ³ /Pulse	0.04 ft ³ /Pulse	0.2 ft ³ /Pulse	0.4 ft ³ /Pulse	2 ft ³ /Pulse	4 ft ³ /Pulse	7 ft ³ /Pulse		

(Continued)

Specification

Model		005	010	050	100	500	101	201
Analog output	Voltage output	Voltage output range : 1 ~ 5 V ; Output impedance : 1 KΩ						
	Current output	Current output range : 4 ~ 20 mA ; Load impedance : ≤ 300 Ω						
	Response time	≤ 100 ms						
External input		Non-voltage input, < 0.4 V, ≥ 30 ms						
Communication interface		RS-485 *5						
Power	Power supply voltage	12 ~ 24 V DC ± 10 % , Ripple (P-P) ≤ 10 %						
	Current consumption	≤ 50 mA						
Environment	Working pressure range	-0.09~0.7 MPa						
	Withstand pressure	1 MPa						
	Enclosure	IP40						
	Working Fluid Temp.	0 ~ 50 °C (No condensation or freezing)						
	Ambient Temp. Range	Operation : 0 ~ 50 °C ; Storage : -10 ~ 60 °C (No condensation or freezing)						
	Ambient Humidity Range	Operation / Storage : 35 ~ 85 % R.H. (No condensation)						
	Insulation Resistance	≥ 50 MΩ (500 V DC, between case and lead wire)						
	Withstand Voltage	1000 V AC in 1-min (between case and lead wire)						
	Vibration	Total amplitude 1.5 mm or 10 G, 10 Hz ~ 55 Hz ~ 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z						
	Shock	100 m/s ² (10 G), 3 times each in direction of X, Y and Z						
EMC		IEC 61000-6-2, IEC 61000-6-4						
Lead wire		ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 6 cores						
Port Size	ø6 mm quick-fitting	•	•	•	•	•		
	ø8 mm quick-fitting						•	•
Weight (with 2 meter lead wire)		Approx. 107 g (ø6 port) ; Approx. 110.5 g (ø8 port)						

*1. When the display unit is CFM, ft³, ft³/pulse, the actual flow is the display value×10⁻².

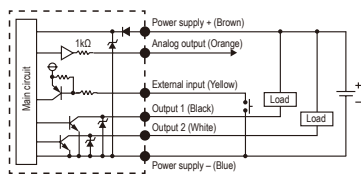
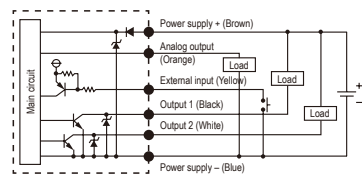
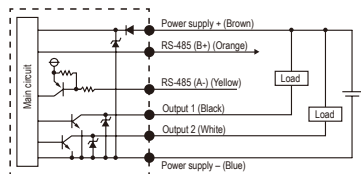
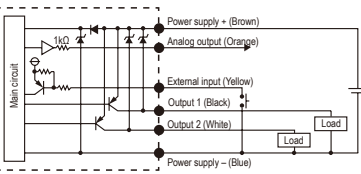
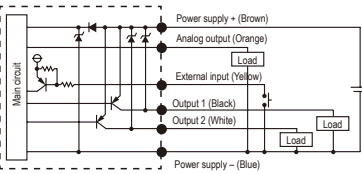
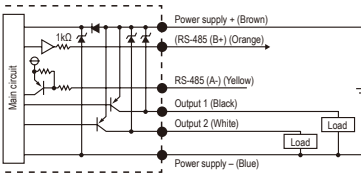
*2. Condition: Inlet pressure: 300 kPa, Outlet pressure: 1 atmospheric pressure, 25 °C

*3. Condition: Outlet pressure: 1 atmospheric pressure, 25 °C.

*4. -0.09 ~ 0.7 MPa, Outlet pressure: 1 atmospheric pressure, 25 °C.

*5. This function only available for Output Specification -02 and -04.

Output circuit wiring graph

Model	MF01-□-010	MF01-□-011	MF01-□-02
Connect diagram			
Output method	NPN output / Analog voltage output / External input	NPN output / Analog current output / External input	NPN output / RS-485 MODBUS mode
Model	MF01-□-030	MF01-□-031	MF01-□-04
Connect diagram			
Output method	PNP output / Analog voltage output / External input	PNP output / Analog current output / External input	PNP output / RS-485 MODBUS mode

Order example

MF01 - 005 - 010 - R6

MODEL

FLOW RATE RANGE

005: 500 (ml/min)
010: 1000 (ml/min)
050: 5 (l/min)
100: 10 (l/min)
500: 50 (l/min)
101: 100 (l/min)
201: 200 (l/min)

OUTPUT SPEC.

010: 2 NPN output + Analog output 1 ~ 5 V
011: 2 NPN output + Analog output 4 ~ 20 mA
02 : 2 NPN output + RS485
030: 2 PNP output + Analog output 1 ~ 5 V
031: 2 PNP output + Analog output 4 ~ 20 mA
04 : 2 PNP output + RS485

PORT SIZE

R6: $\phi 6$ mm, for flow rate range 005, 010, 050, 100, 500.
R8: $\phi 8$ mm, for flow rate range 101, 201.

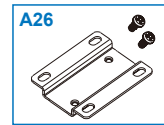
Mounting accessories

MP - A26

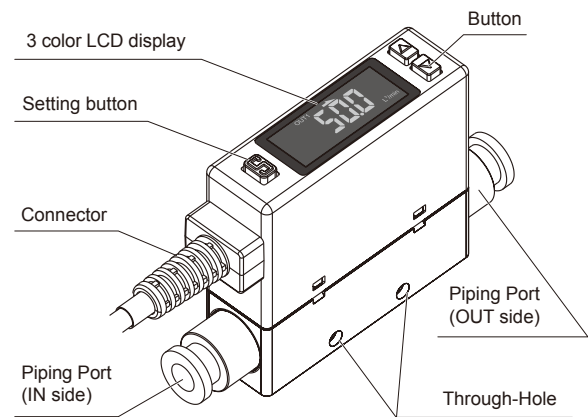
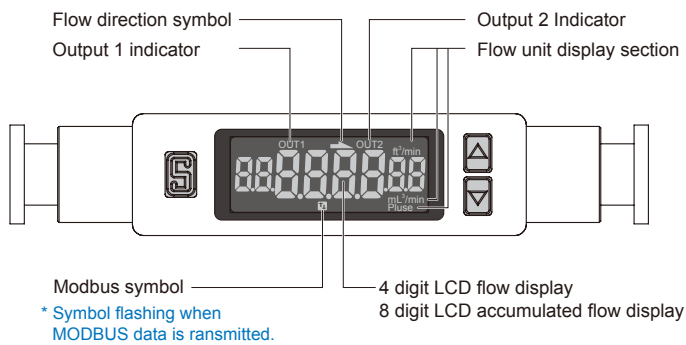
MODEL

OPTION PARTS

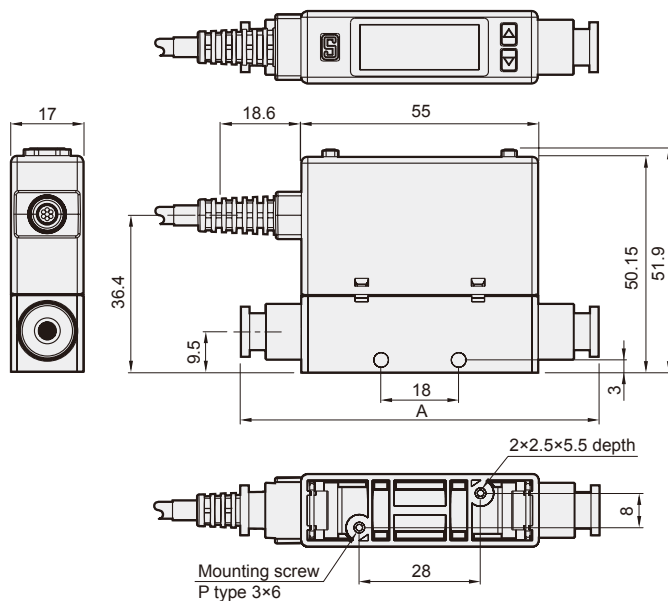
A26: Mounting bracket (BT-26)



Name and functions of individual parts



Dimensions

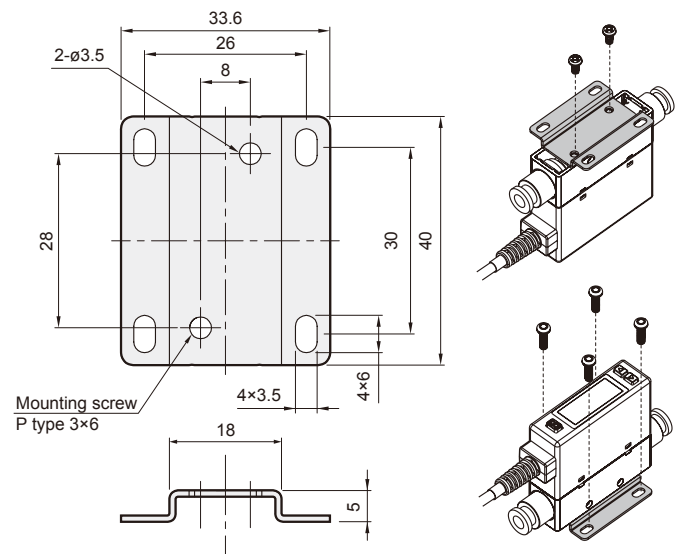


Code Tube I.D.	A (mm)
$\phi 8$	92.1
$\phi 6$	82.9

Mounting accessories

Unit: mm

BT-26





Feature

- Cost control, User-friendly, High performance.
- Dry air, N₂.
- RS-485 MODBUS control.
- 2-in-1 design: Pressure and flow rate simultaneous monitoring.
- Accumulated flow rate display at a glance.
- Multiple output function: Digital display, switch output, analog output, accumulated pulse output.
- Wide range of flow rates.

Specification

Model		005	010	050	100	500	101	201	
Fluid		Dry air, N ₂ , Non-corrosive / Non-flammable gas							
Sensor element	Flow	Measured flow rate range							
	Flow direction	Unidirection							
	Pressure	Rated pressure range							
Display		4 digital × 4 digital, 7 segment LCD display (Red / Green / Orange)							
Instant flow rate	Display range	0 ~ 500 mL/min	0 ~ 1000 mL/min	0 ~ 5.00 L/min	0 ~ 10.00 L/min	0 ~ 50.0 L/min	0 ~ 100.0 L/min	0 ~ 200 L/min	
	Min. setting scale	1 mL/min		0.01 L/min		0.1 L/min		1 L/min	
Accumulated Flow	Display range	99999999 mL		999999.99 L		9999999.9 L		99999999 L	
	Min. Setting Scale *1	1 mL		0.01 L		0.1 L		1 L	
		0.01 ft ³		0.1 ft ³		1 ft ³			
Pressure Display	Display range	-100 ~ 1000 kPa							
	kPa	1							
	Min. Setting Scale	0.01							
	kgf/cm ²	0.01 / 0.1							
Accuracy	Flow	Guaranteed range	2 ~ 100 % F.S.						
		Indicator accuracy	± 3 % F.S. ± 1 digit *2						
		Analog output accuracy	± 5 % F.S. *2						
		Repeatability	± 1 % F.S. ± 1 digit *3						
		Linearity	± 3 % F.S. *3						
	Temp. characteristic	± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C, 35 ~ 50 °C) (compare with *3)							
	Pressure	Pressure characteristic	± 5 % F.S. ± 1 digit *4						
Guaranteed range		0 ~ 100 % F.S.							
Indicator accuracy		± 2 % F.S. ± 1 digit *5							
Analog output accuracy		± 2.5 % F.S. *5							
Repeatability		± 0.2 % F.S. ± 1 digit *5							
Linearity	± 1 % F.S. *5								
Temp. characteristic	± 2 % F.S. (compare with *5)								

(Continued)

Specification

Model		005	010	050	100	500	101	201	
Switch output	Switch output	2 NPN : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 28 V DC Voltage Drop : ≤ 1.5 V				2 PNP : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 24 V DC Voltage Drop : ≤ 1.5 V			
	Response time	Flow	800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms selectable)						
		Pressure	2.5 ms (25 ms, 100 ms, 250 ms, 500 ms, 1000 ms, 1500 ms selectable)						
	Output mode	Flow	Hysteresis Mode, Window Comparator Mode, Accumulated Output, Accumulated Pulse Output						
		Pressure	One Point Set Mode, Hysteresis Mode, Window Comparator Mode						
	Hysteresis	Adjustable							
	Output short circuit protection	Yes							
Accumulated pulse output *1		5 mL/Pulse	10 mL/Pulse	0.05 L/Pulse	0.1 L/Pulse	0.5 L/Pulse	1 L/Pulse	2 L/Pulse	
		0.02 ft ³ /Pulse	0.04 ft ³ /Pulse	0.2 ft ³ /Pulse	0.4 ft ³ /Pulse	2 ft ³ /Pulse	4 ft ³ /Pulse	7 ft ³ /Pulse	
Analog output	Voltage output	Voltage output range : 1 ~ 5 V *6 ; Output impedance : 1 KΩ							
	Current output	Current output range : 4 ~ 20 mA *6 ; Load impedance : ≤ 300 Ω							
	Response time	Pressure : ≤ 50 ms ; Flow : ≤ 100 ms							
External input	Non-voltage input, < 0.4 V, ≥ 30 ms								
Communication interface	RS-485 *7								
Power	Power supply voltage	12 ~ 24 V DC ± 10 % , Ripple (P-P) ≤ 10 %							
	Current consumption	≤ 50 mA							
Environment	Withstand Pressure	1000 kPa							
	Enclosure	IP40							
	Working Fluid Temp.	0 ~ 50 °C (No condensation or freezing)							
	Ambient Temp. Range	Operation : 0 ~ 50 °C ; Storage : -10 ~ 60 °C (No condensation or freezing)							
	Ambient Humidity Range	Operation / Storage : 35 ~ 85 % R.H. (No condensation)							
	Insulation Resistance	≥ 50 MΩ (500 V DC , between case and lead wire)							
	Withstand Voltage	1000 V AC in 1-min (between case and lead wire)							
	Vibration	Total amplitude 1.5 mm or 10 G, 10 Hz ~ 55 Hz ~ 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z							
	Shock	100 m/s ² (10 G), 3 times each in direction of X, Y and Z							
EMC	IEC 61000-6-2, IEC 61000-6-4								
Lead wire	ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 6 cores								
Port Size	ø6 mm quick-fitting	●	●	●	●	●			
	ø8 mm quick-fitting						●	●	
Weight (with 2 meter lead wire)	Approx. 107 g (ø6 port) ; Approx. 110.5 g (ø8 port)								

*1. CFM (ft³/min*10⁻²) and ft³*10⁻²

*2. Condition: Inlet pressure: 300 kPa , Outlet pressure: 1 atmospheric pressure, 25 °C

*3. Condition: Outlet pressure: 1 atmospheric pressure, 25 °C

*4. -90 ~ 800 kPa, Outlet pressure: 1 atmospheric pressure, 25 °C

*5. Outlet flow rate = 0 L/min, 25 °C

*6. PWM output, corresponding to pressure sensor 0 ~ 1000 kPa

*7. This function only available for Output Specification -02 and -04

MFP01 Order example

FLOW & PRESSURE SENSOR



Output circuit wiring graph

Model	MFP01-□-010	MFP01-□-011	MFP01-□-02
Connect diagram			
Output method	NPN output / Analog voltage output / External input	NPN output / Analog current output / External input	NPN output / RS-485 MODBUS mode
Model	MFP01-□-030	MFP01-□-031	MFP01-□-04
Connect diagram			
Output method	PNP output / Analog voltage output / External input	PNP output / Analog current output / External input	PNP output / RS-485 MODBUS mode

Order example

MFP01 - 005 - 010 - R6

MODEL

FLOW RATE RANGE

- 005: 500 (ml/min)
- 010: 1000 (ml/min)
- 050: 5 (l/min)
- 100: 10 (l/min)
- 500: 50 (l/min)
- 101: 100 (l/min)
- 201: 200 (l/min)

OUTPUT SPEC.

- 010: 2 NPN output + Analog output 1 ~ 5 V
- 011: 2 NPN output + Analog output 4 ~ 20 V
- 02 : 2 NPN output + RS485
- 030: 2 PNP output + Analog output 1 ~ 5 V
- 031: 2 PNP output + Analog output 4 ~ 20 V
- 04 : 2 PNP output + RS485

PORT SIZE

- R6: ø6 mm, for flow rate range 005, 010, 050, 100, 500.
- R8: ø8 mm, for flow rate range 101, 201.

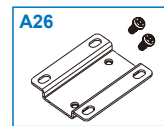
Mounting accessories

MP - A26

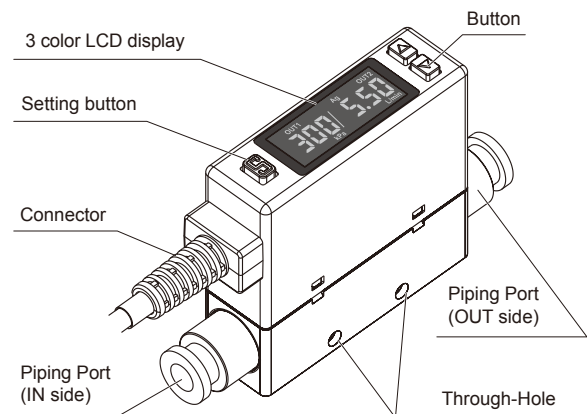
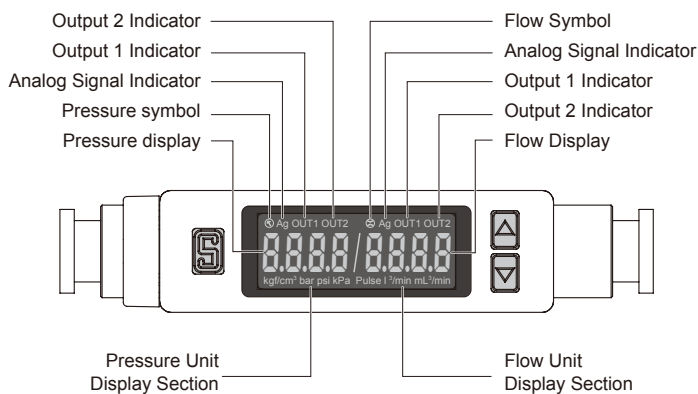
MODEL

OPTION PARTS

- A26: Mounting bracket (BT-26)

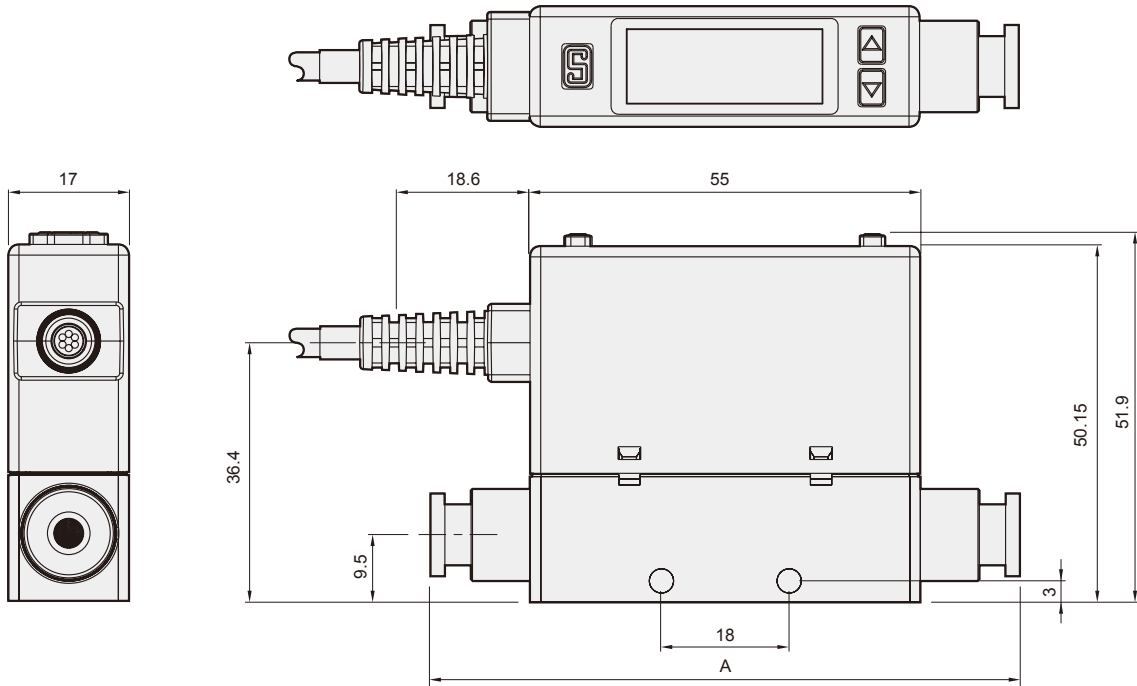


Name and functions of individual parts

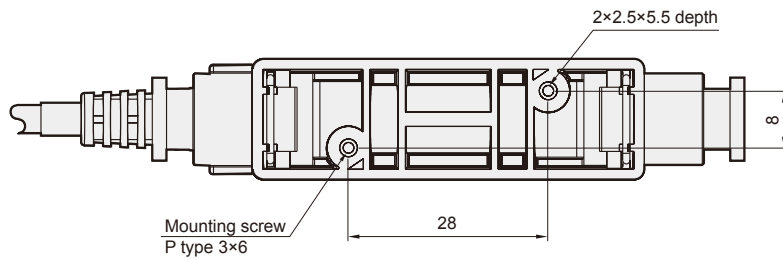


MFP01 Dimensions

FLOW & PRESSURE SENSOR



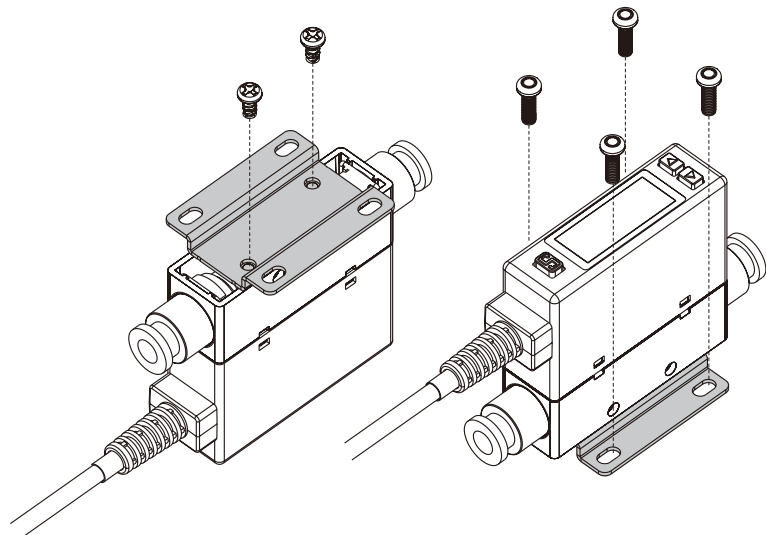
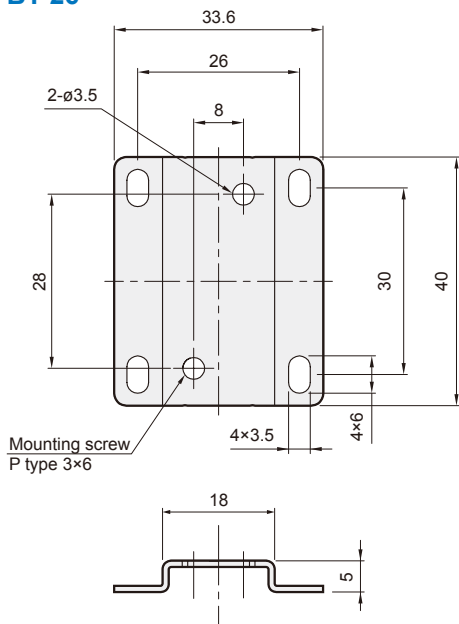
Code Tube I.D.	A (mm)
ø8	92.1
ø6	82.9

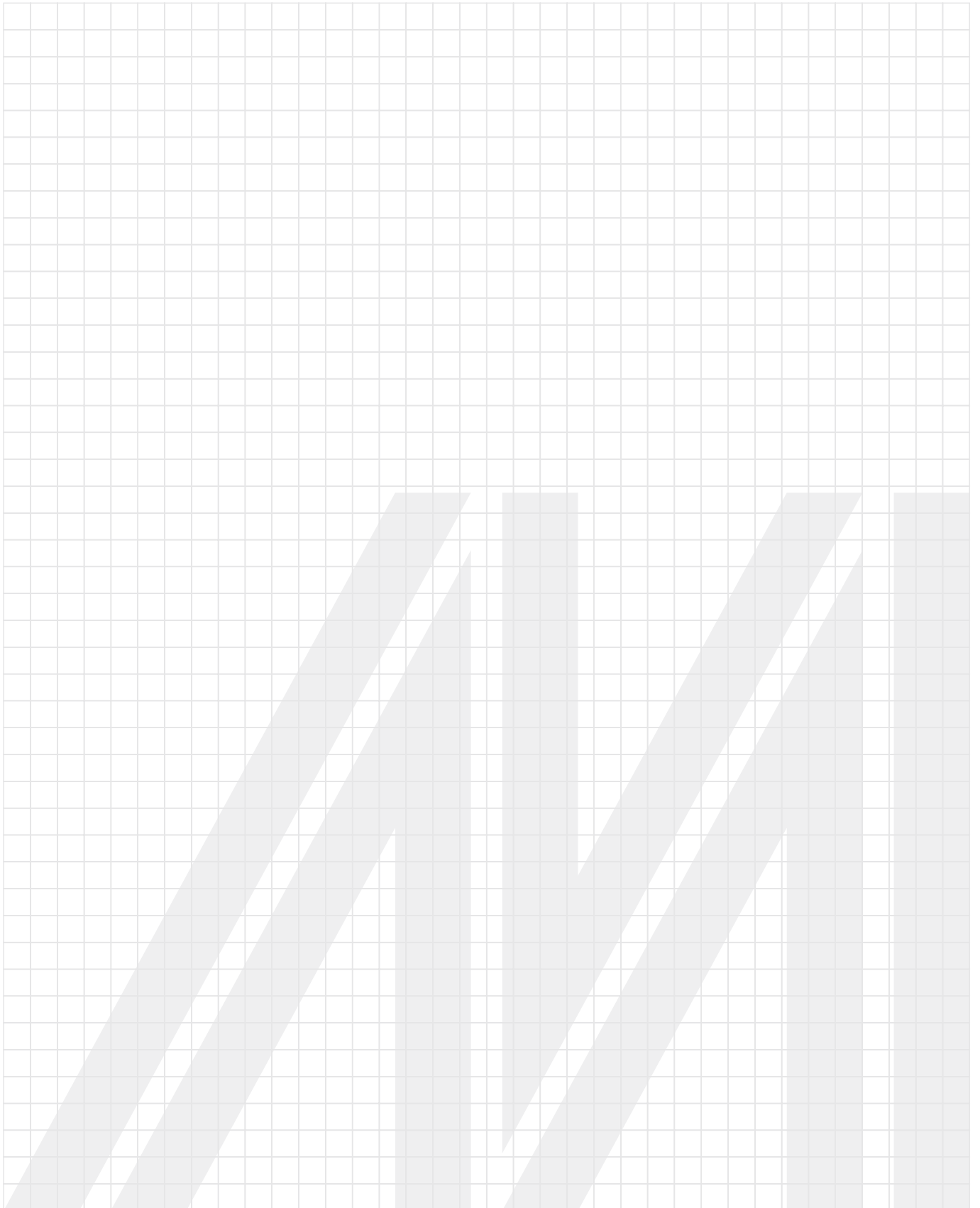


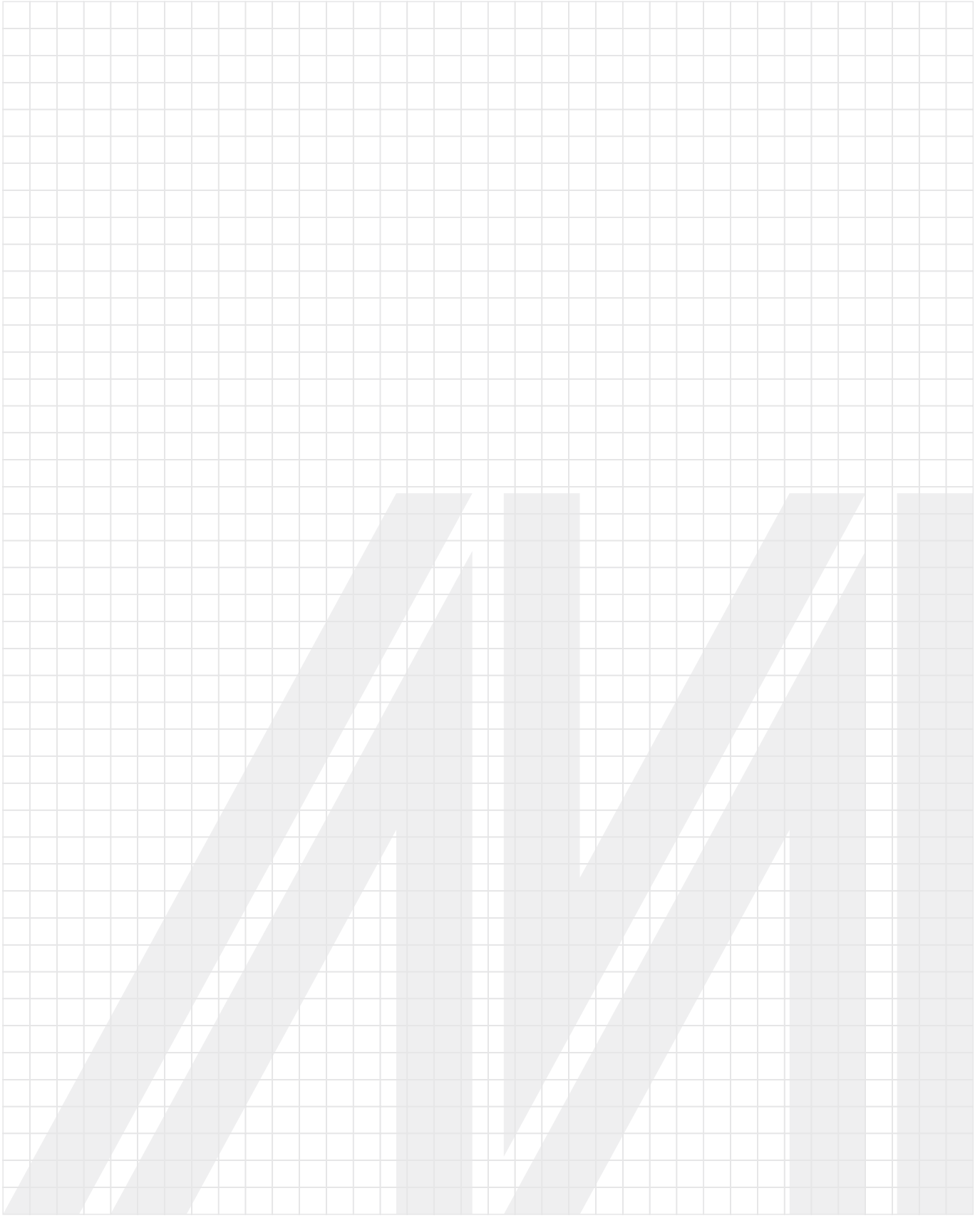
Mounting accessories

Unit: mm

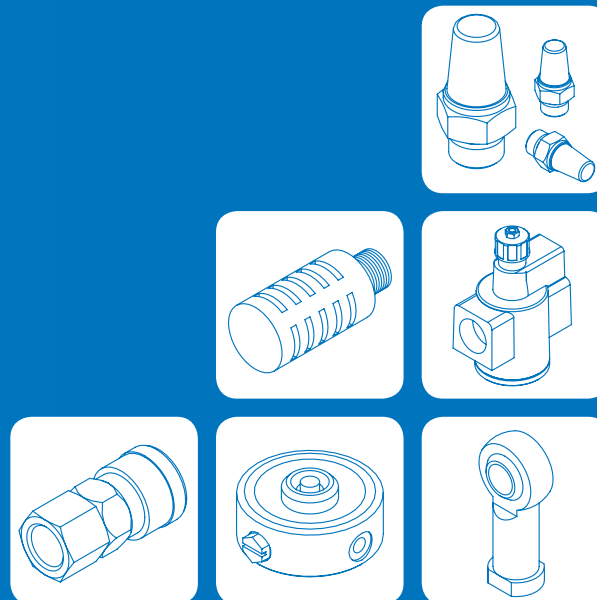
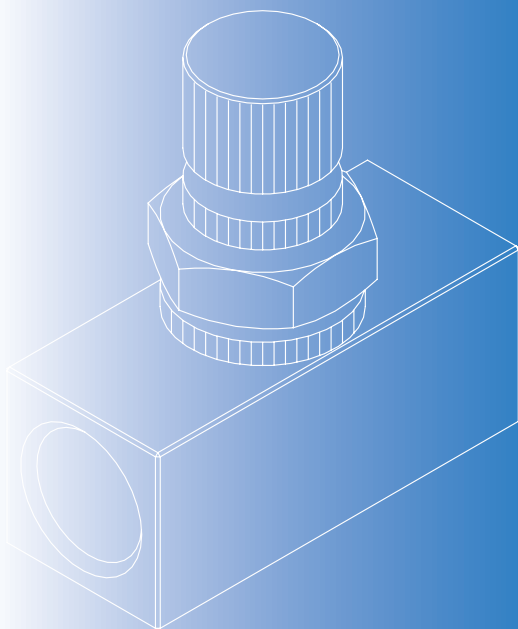
BT-26







AUXILIARY EQUIPMENT



	EXHAUST CLEANER	
MEF300	.....	6-2
	SILENCER	
MSR*	PLASTIC SILENCER	6-2
MSLE	PLASTIC SILENCER	6-3
MSL	BRASS SILENCER	6-4
	CHECK VALVE	
MJBV	.....	6-4
	SILENCER THROTTLE VALVE	
MSLC2	.....	6-4
MSLC	.....	6-5
	FLOW CONTROL VALVE	
MSC	100	6-6
	200 / 300	6-7
	500 / 600	6-8
	QUICK EXHAUST VALVE	
MVQE	.....	6-9
	SHUTTLE VALVE	
MVAS	.....	6-11
	SENSOR SWITCH	
RDFE	.....	6-12
	CABLE WITH CONNECTOR	
M8	M83R-F New	6-13
M12	M125R-WB New	6-14
	M124R-FA New	6-15
	M124R-MD / RJD New	6-16

	CONNECTOR	
M8	M83C-M New	6-17
M12	M124C-MA / MD New	6-18
	PU TUBE	
UM	.....	6-19
UML	.....	6-20
	STAINLESS FITTING	
MNS*	.....	6-21
	COUPLER	
MS*	SOCKET	6-22
MP*	PLUG	6-23
	JET COOLER	
MJC	.....	6-24
	VACUUM GENERATOR	
MVVA	.....	6-27
	NO CONTACT TRANSFER	
MHPSC	.....	6-29

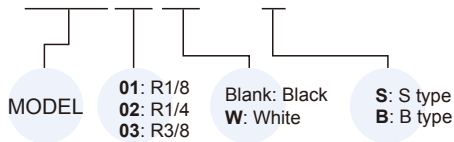
MSR*/MEF300 series

PLASTIC SILENCER / EXHAUST CLEANER



Order example

MSR01W — S

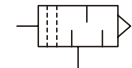


Order example

MEF300 — 03



Symbol

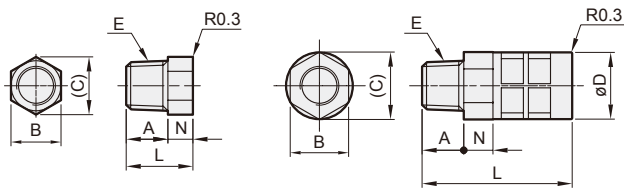


Specification

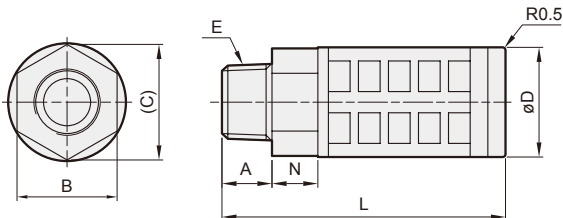
Model	MSR*
Medium	Air
Operating pressure range	0~0.9 MPa
Ambient temperature	0~+60°C

MSR01-S

MSR02-S



MSR*-B



MSR*-*

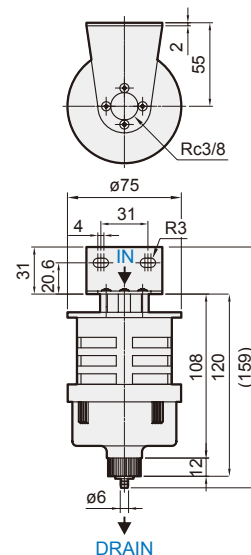
Model	Code Port size	A	B	C	D	E	L	N
MSR01-S	R1/8	10	10	11.5	—	R1/8	16	6
MSR01-B	R1/8	7	14	16.2	16	R1/8	33	7
MSR02-S	R1/4	10	14	16.2	16	R1/4	36	7
MSR02-B	R1/4	10	17	19.6	20.3	R1/4	63	8.5
MSR03-B	R3/8	12	24	26.2	26.3	R3/8	67.5	11

Specification

Model	MEF300
Port size	Rc3/8
Medium	Air
Operating pressure range	0~0.9 MPa
Filter element	6 μm
Ambient temperature	0~+60°C

Features

- The MEF300 can remove oil mist and dust in exhaust air for keeping environment clean.





Order example

MSLE — 01 — 70

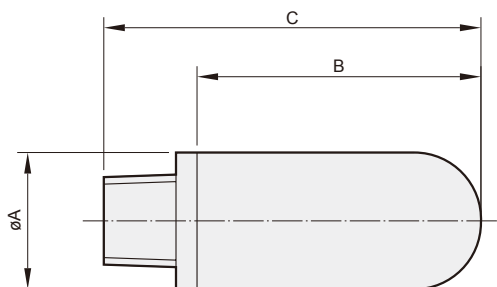
MODEL

PORT SIZE

PORE SIZE

- 01: R1/8
- 02: R1/4
- 03: R3/8
- 04: R1/2
- 06: R3/4
- 06D: R3/4 (Double layer)
- 08: R1

70: 70 μ



Features

- Porous polyethylene moulded body allows high flow with low noise.
- Wide range of connecting threads available to screw into exhaust port of control valve.
- High noise reduction.

■ Significant noise reduction & high air flow

With double layer design, significant noise reduction and high air flow can be achieved at the same time.

■ Easy installation

With different adapter, silencers screw directly to the exhaust port.

■ High working pressures

Working pressures up to 1 MPa.

■ Chemical resistance

High chemical resistance & Rust free.

■ Maintenance free

Oil and water are not able to affect polyethylene silencers.

Specification

Model	MSLE
Medium	Air
Operating pressure	1 MPa
Ambient temperature	0~+60°C

Model	Code Port size	A	B	C
MSLE-01	R1/8	15.6	27.3	37.3
MSLE-02	R1/4	19	30.5	43.3
MSLE-03	R3/8	25	53	69
MSLE-04	R1/2	25	62.5	78.5
MSLE-06	R3/4	38	108.4	132.4
MSLE-06D	R3/4	50	107	127
MSLE-08	R1	50	107	139

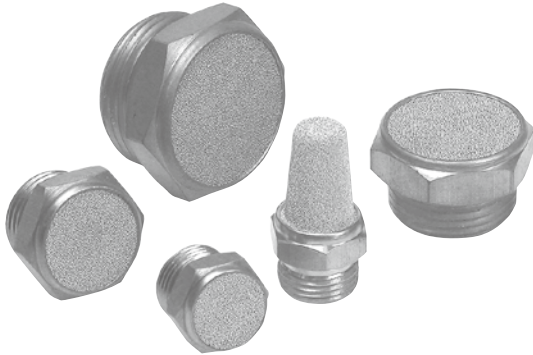
- MSLE-04-70 means a R1/2 silencer with 70 μ porous body.
- MSLE-06D-70 means a R3/4 double layer silencer with 70 μ porous body.
- Port size out of specification is also available.

MSL / MSLC2 / MJBV series



BRASS SILENCER / SILENCER THROTTLE VALVE / CHECK VALVE

mindman



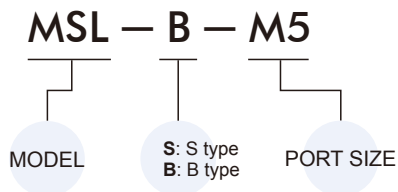
MSL-B

Model	A	CH	D1	D2	F	H	L	N
MSL-B-M5	M5	8	5	4	5	19	12	3
MSL-B-01	R1/8	12	8	7	6	24	14	4
MSL-B-02	R1/4	16	12	10	8	30	18	4
MSL-B-03	R3/8	18	14	11	9	35	21	5
MSL-B-04	R1/2	24	19	15	10	44	28	6
MSL-B-06	R3/4	30	25	20	10	50	32	8
MSL-B-08	R1	36	30	25	12	62	43	8

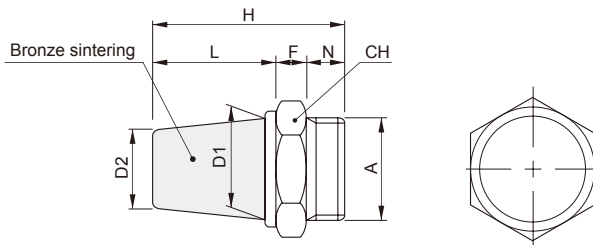
MSL-S

Model	A	CH	F	L	N
MSL-S-M5	M5	8	5	9.5	3
MSL-S-01	R1/8	12	6	12	4
MSL-S-02	R1/4	17	8	15	4
MSL-S-03	R3/8	19	9	17	5
MSL-S-04	R1/2	24	10	18.5	6
MSL-S-06	R3/4	30	10	21	8
MSL-S-08	R1	36	12	23	8

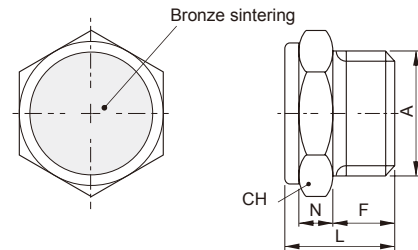
Order example



MSL-B

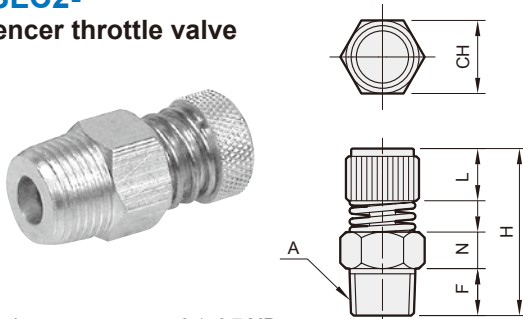


MSL-S



MSLC2-*

Silencer throttle valve

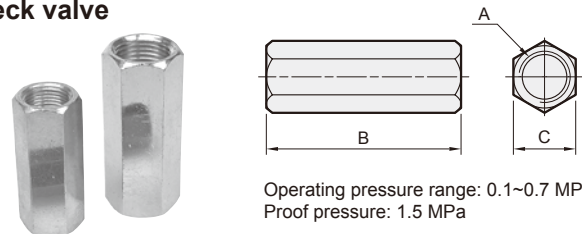


Operating pressure range: 0.1~0.7 MPa
Proof pressure: 1.5 MPa

Model	A	CH	F	H		L	N
				Min.	Max.		
MSLC2-01	R1/8	12	6	28	30	9	7
MSLC2-02	R1/4	14	9	31	35	10	7
MSLC2-03	R3/8	19	10	35.5	39	10	10
MSLC2-04	R1/2	22	10	36.5	40	10	10

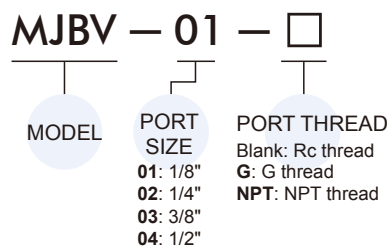
MJBV-*

Check valve

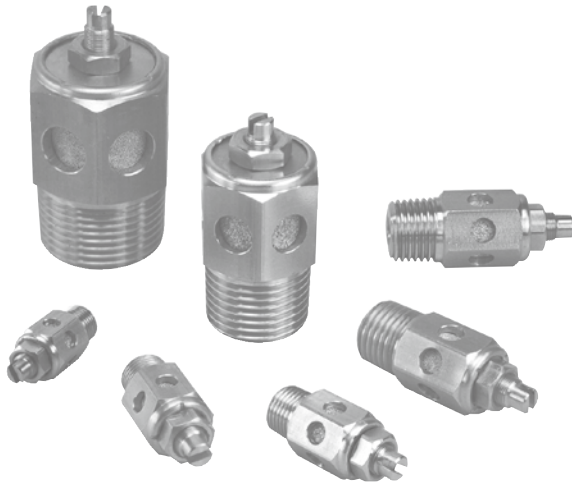


Operating pressure range: 0.1~0.7 MPa
Proof pressure: 1.5 MPa

Order example



Model	A	B	C
MJBV-01	1/8"	41	14
MJBV-02	1/4"	50	16
MJBV-03	3/8"	52	21
MJBV-04	1/2"	62.5	25



Specification

Model	MSLC					
Bore No.	01	02	03	04	06	08
Port size	1/8	1/4	3/8	1/2	3/4	1
Medium	Air					
Operating pressure	0~2.1 MPa					
Proof pressure	2.1 MPa					
Ambient temperature	+2~+140°C					
Weight (g)	18	30	44	72	119	188

Order example

MSLC — 02 — C — NPT

MODEL

PORT SIZE

PORT THREAD

01: 1/8
02: 1/4
03: 3/8
04: 1/2
06: 3/4
08: 1

BODY MATERIAL

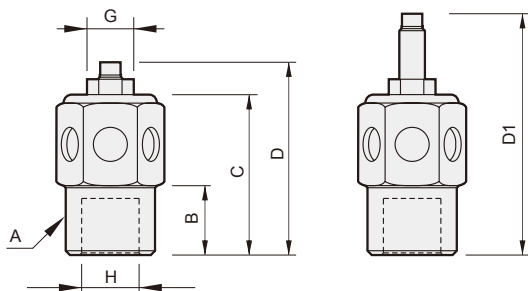
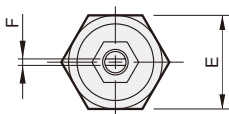
C: Brass (#C3604)
S: Stainless steel (#304)

Blank: R thread
G: G thread
NPT: NPT thread

R thread

Code Model	A	B ±0.20	C ±0.50	D ±0.50	D1 ±0.50	E ±0.20	F ±0.20	G	H ±0.20
MSLC-01	R1/8	6.9	21.0	28.3	37.2	12	1.2	9	3.5
MSLC-02	R1/4	10.5	28.5	37.0	48.0	14	1.2	9	5.0
MSLC-03	R3/8	12.5	30.0	38.4	50.0	17	1.2	11	7.0
MSLC-04	R1/2	16.0	37.7	45.3	56.7	22	1.2	11	9.5
MSLC-06	R3/4	16.9	42.5	50.4	67.3	27	1.2	11	13.0
MSLC-08	R1	20.3	46.6	54.5	70.2	34	1.2	11	17.5

Dimensions

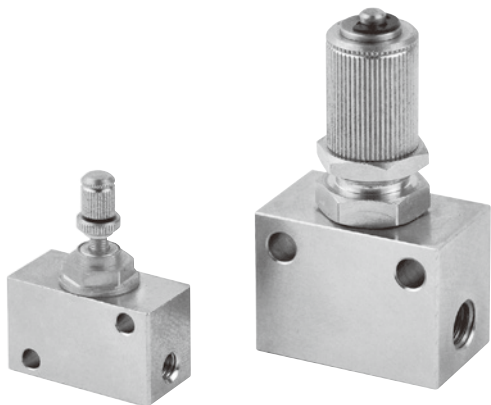


G thread

Code Model	A	B ±0.20	C ±0.50	D ±0.50	D1 ±0.50	E ±0.20 S.S #304	E ±0.20 Brass	F ±0.20	G	H ±0.20
MSLC-01	G1/8	5.3	21.0	28.3	37.2	12	12	1.5	9	5.2
MSLC-02	G1/4	8.6	28.5	37.0	48.0	17	16	1.5	9	5.2
MSLC-03	G3/8	10.6	30.0	38.4	50.0	19	18	1.5	11	9.4
MSLC-04	G1/2	14.1	37.7	45.3	56.7	24	24	1.5	11	13.4
MSLC-06	G3/4	14.1	42.5	50.4	67.3	30	30	1.5	11	17.5
MSLC-08	G1	17.6	46.6	54.5	70.2	36	36	1.5	11	22.6

NPT thread

Code Model	A	B ±0.20	C ±0.50	D ±0.50	D1 ±0.50	E ±0.20	F ±0.20	G	H ±0.20
MSLC-01	NPT1/8	6.9	21.0	28.3	37.2	12	1.2	9	5.2
MSLC-02	NPT1/4	10.5	28.5	37.0	48.0	14	1.2	9	5.2
MSLC-03	NPT3/8	12.5	30.0	38.4	50.0	17	1.2	11	9.4
MSLC-04	NPT1/2	16.0	37.7	45.3	56.7	22	1.2	11	13.4
MSLC-06	NPT3/4	16.9	42.5	50.4	67.3	27	1.2	11	17.5
MSLC-08	NPT1	20.3	46.6	54.5	70.2	34	1.2	11	22.6



Specification

Model	MSC100	
Bore No.	M3	M5
Port size	M3×0.5	M5×0.8
Medium	Air	
Operating pressure range	0.1~0.7 MPa	
Proof pressure	1 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Flow (ℓ/min)	Free flow	20
	Controlled flow	20
Number of needle rotations	6	8
Weight	3 g	34 g

* Supply pressure: 0.5 MPa, Temperature: 20°C

Order example

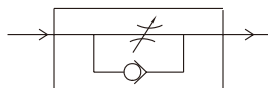
MSC100 — M5

MODEL

PORT SIZE

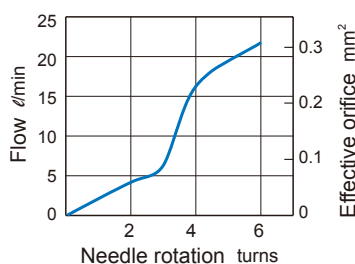
M3: M3×0.5
M5: M5×0.8

Symbol

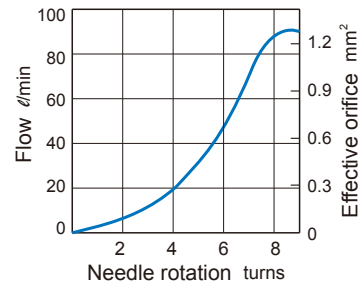


Flow features

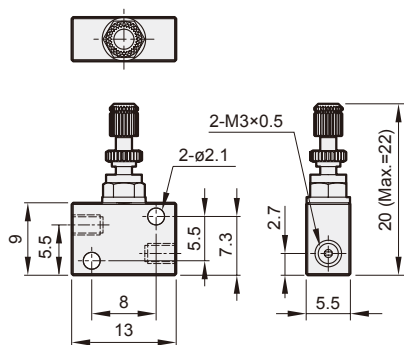
MSC100-M3



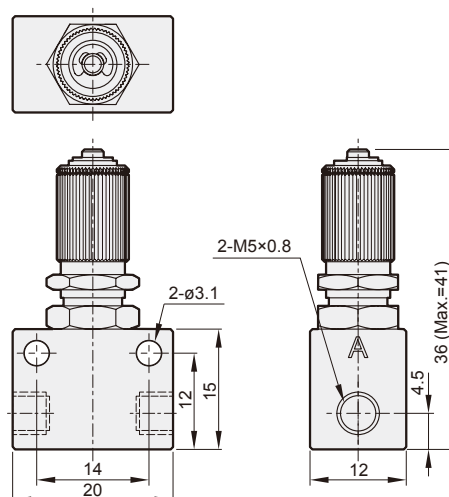
MSC100-M5



MSC100-M3

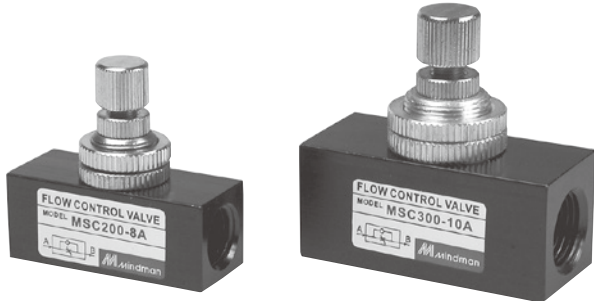


MSC100-M5

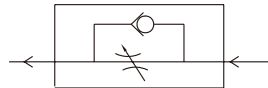


MSC200 / 300 series

FLOW CONTROL VALVE



Symbol



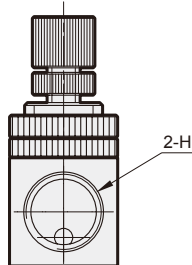
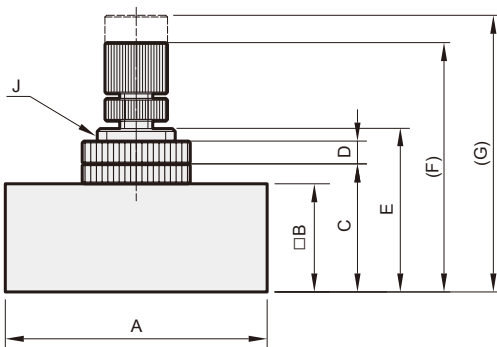
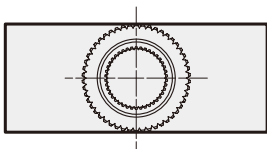
Order example

MSC200 – 6A – G

MODEL
MSC200
MSC300

PORT SIZE
6A: Rc1/8
8A: Rc1/4
10A: Rc3/8
15A: Rc1/2

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread



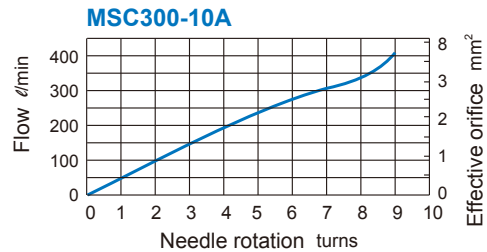
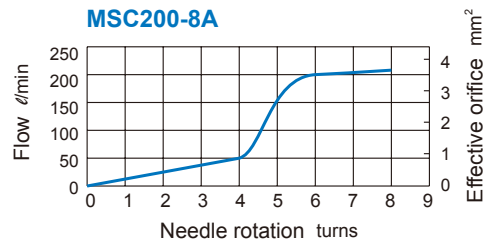
Code Model	A	B	C	D	E	F	G	H	J
MSC200	6A	46	19	22.5	4	28.7	43.8	48.6	Rc1/8 M14×1.25
	8A	46	19	22.5	4	28.7	43.8	48.6	Rc1/4 M14×1.25
MSC300	10A	56	25.4	30	4	37	53.7	62.5	Rc3/8 M18×1.0
	15A	56	25.4	30	4	37	53.7	62.5	Rc1/2 M18×1.0

Specification

Model	MSC200		MSC300		
	6A	8A	10A	15A	
Bore No.	6A	8A	10A	15A	
Port size	Rc1/8	Rc1/4	Rc3/8	Rc1/2	
Medium	Air				
Operating pressure range	0~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Flow (ℓ/min)	Free flow	200	200	400	430
	Controlled flow	150	100	300	400
Number of needle rotations	8		9		
Weight	72 g		130 g		

* Supply pressure: 0.5 MPa, Temperature: 20°C

Flow features

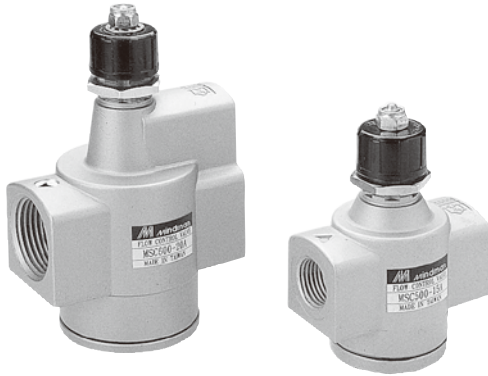


MSC500 / 600 series

FLOW CONTROL VALVE



Mindman



Specification

Model	MSC500		MSC600		
	Bore No.	15A	20A	20A	25A
Port size	Rc1/2	Rc3/4	Rc3/4	Rc1	
Medium	Air				
Operating pressure range	0~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Effective orifice (mm ²)	Free flow	116	154	164	230
	Controlled flow	106	123	151	258
Weight	406 g	400 g	767 g	721 g	

* Supply pressure: 0.5 MPa, Temperature: 20°C

Order example

MSC500 — 20A — G

MODEL

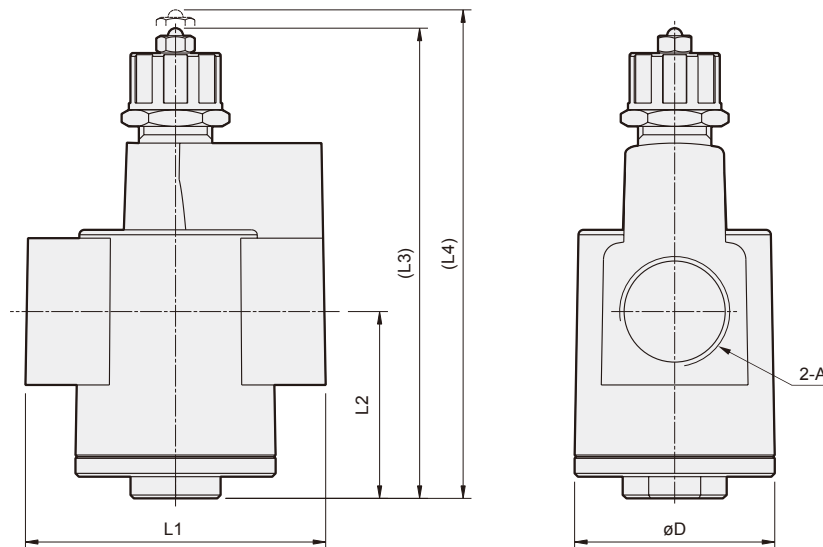
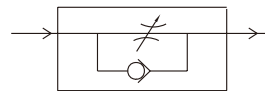
PORT SIZE

PORT THREAD

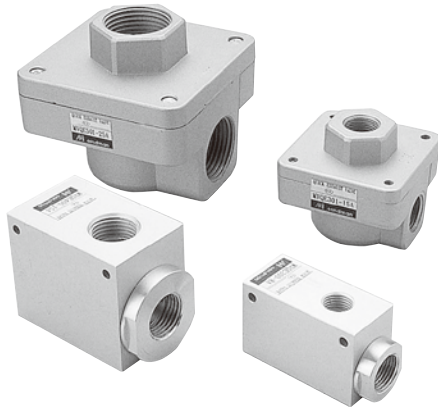
15A: Rc1/2
20A: Rc3/4
25A: Rc1

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

Symbol



Code Model	A	D	L1	L2	L3	L4	
MSC500	15A	Rc1/2	48	74	43	105	115
	20A	Rc3/4	48	74	43	105	115
MSC600	20A	Rc3/4	60	90	56	148	158
	25A	Rc1	60	90	56	148	158



Order example

MVQE300 – 10A – G

MODEL

STYLE

0: Lip (6A-15A)
1: Diaphragm (10A-25A)

PORT THREAD

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

BODY SIZE

1: 1/8
3: 3/8
4: 1/2
5: 3/4

PORT SIZE

Port size	Applicable series
6A Rc1/8	MVQE100
8A Rc1/4	MVQE300
10A Rc3/8	MVQE300, MVQE301
15A Rc1/2	MVQE301, MVQE400
20A Rc3/4	MVQE501
25A Rc1	

Features

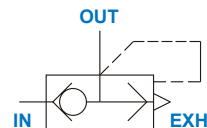
- This unit makes it possible to achieve increased piston speeds on the exhaust stroke with single acting and double acting cylinders.

Specification

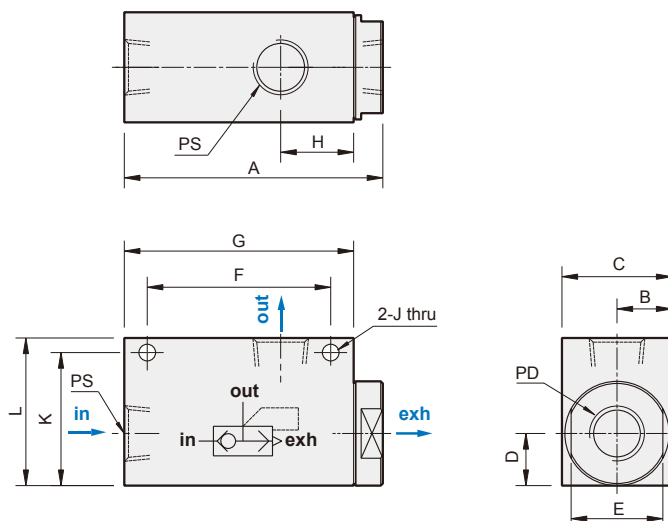
Model	MVQE
Medium	Air
Operating pressure range	0.1~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)

Model	Port size	Effective orifice(mm ²)		Weight
		IN→OUT	OUT→EXH	
MVQE-100-6A	Rc1/8	9	19	40 g
MVQE-300-8A	Rc1/4	24	31	100 g
MVQE-300-10A	Rc3/8	25	33	80 g
MVQE-301-10A	Rc3/8	60	70	230 g
MVQE-301-15A	Rc1/2	110	110	212 g
MVQE-400-15A	Rc1/2	46	46	240 g
MVQE-501-20A	Rc3/4	135	180	765 g
MVQE-501-25A	Rc1	176	187	695 g

Symbol

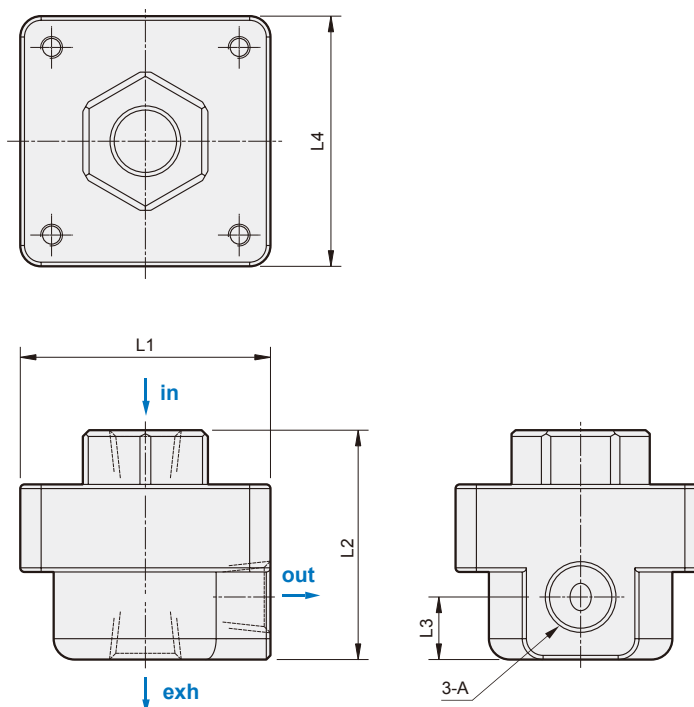


MVQE100/300/400



Code Model	A	B	C	D	E	F	G	H	J	K	L	PS	PD	
MVQE100	6A	40	8.25	16.5	9	14	26	35	12	ø3.4	22.6	26	Rc1/8	Rc1/8
	8A	62	13.2	26.4	13	22	45	55	17.5	ø4	29.5	35.4	Rc1/4	Rc3/8
MVQE300	10A	62	13.2	26.4	13	22	45	55	17.5	ø4	29.5	35.4	Rc3/8	Rc1/8
	15A	69	20	40	20	36	51	62	20	ø4	46	52	Rc1/2	Rc1/2

MVQE301/501



Code Model	A	L1	L2	L3	L4	
MVQE301	10A	Rc3/8	60	55	15	60
	15A	Rc1/2	60	55	15	60
MVQE501	20A	Rc3/4	90	82.5	23	90
	25A	Rc1	90	82.5	23	90



Features

- This valve has two input inlets(E1,E2) and can be controlled in different position.
- First activated position can get through to output signal(A).

Specification

Model	MVAS	
Bore No.	6A	8A
Port size	Rc1/8	Rc1/4
Medium	Air	
Operating pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Effective orifice	11.5 mm ²	30.5 mm ²
Ambient temperature	-15~+60°C (No freezing)	
Weight	43 g	119 g

Order example

MVAS — 6A — G

MODEL

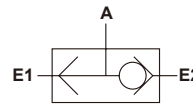
PORT SIZE

PORT THREAD

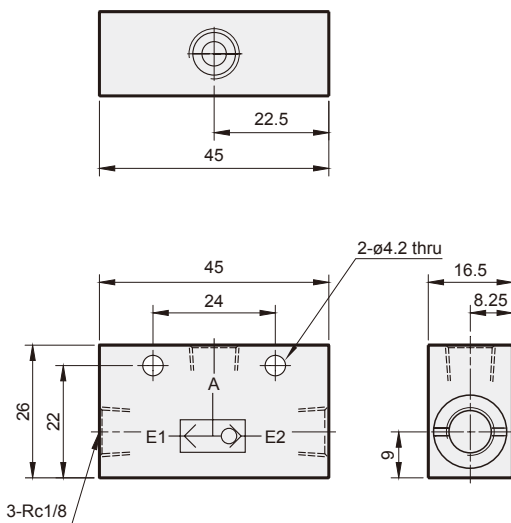
6A: Rc1/8
8A: Rc1/4

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

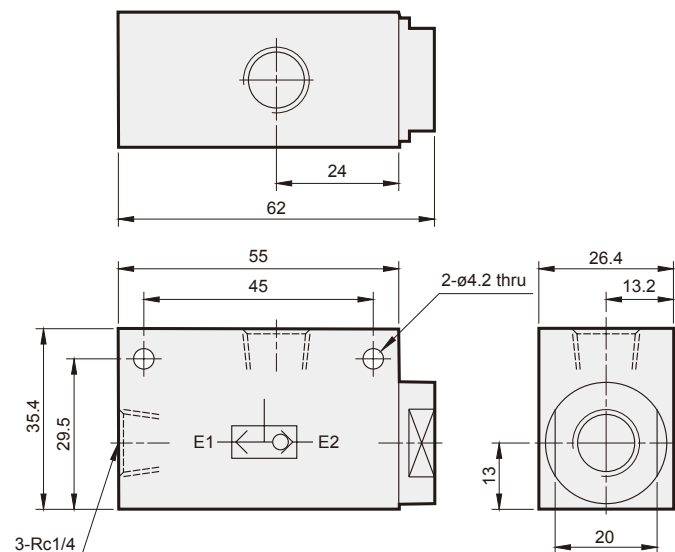
Symbol



MVAS-6A

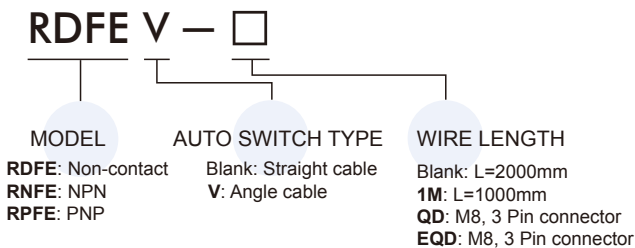


MVAS-8A





Order example * Special order is available.



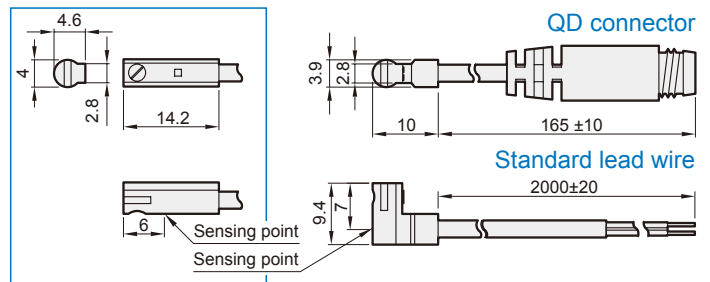
Assembling style

Applicable model	Mounting clamp
MAM*, MCJU, MCFB, MCMJP, MCDJ, MSBE, MCRJ-S, MCRQ, MCRQ-S, MCHC-6, MCHD, MCHH, MCHU, MCHS, MCHX, MCHG2, MCHJ, MCHY, MEQI	

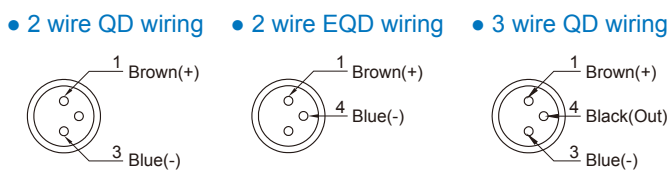
Dimension

Straight cable

Angle cable



Wiring of the QD



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	∅2.6, 2C, PVC	∅2.6, 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 9-3~4.

M83R-F series

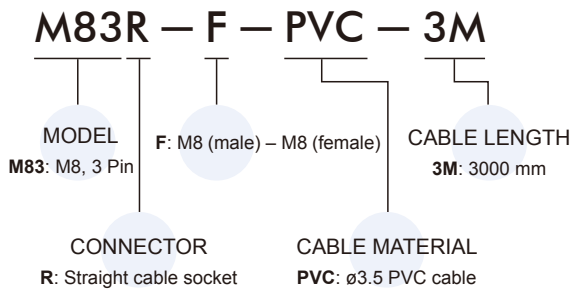
CABLE WITH CONNECTOR / M8 (MALE) – M8 (FEMALE)



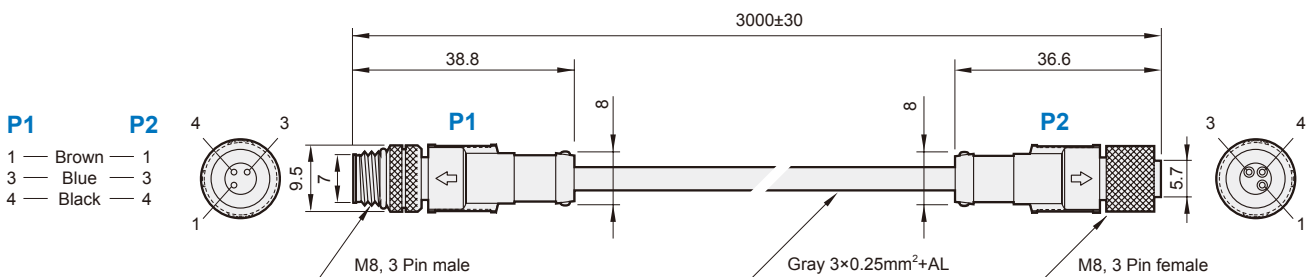
Specification

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



Dimension



M125R-WB series



CABLE WITH CONNECTOR / M12 (FEMALE) – LEAD WIRE

mindman

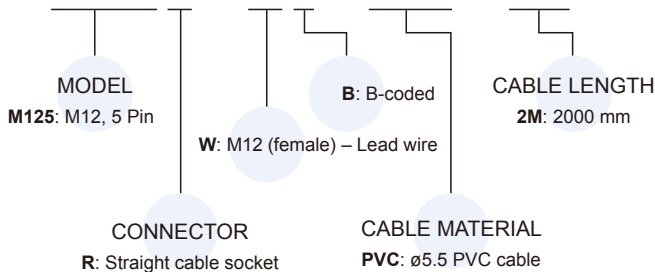


Specification

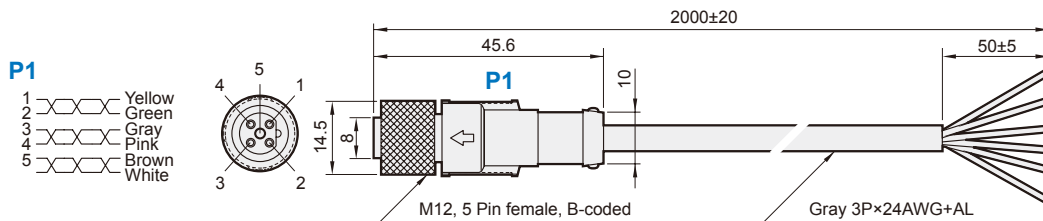
Model	M125R-WB
Female pin out	
Number of contacts	5
Rated voltage	125V DC/AC
Rated current	3A
Contact material	Brass (Au plating)
Contact bearer material	PVC
Housing color	Gray
Cable material	ø5.5, PVC
Cable color	Gray
Temperature	-20°C~+60°C (No freezing)
Cable conductor	0.25mm ² / 24AWG
Protection class of contact	IP 67

Order example

M125R – WB – PVC – 2M



Dimension



M124R-FA series



CABLE WITH CONNECTOR / M12 (MALE) – M12 (FEMALE)

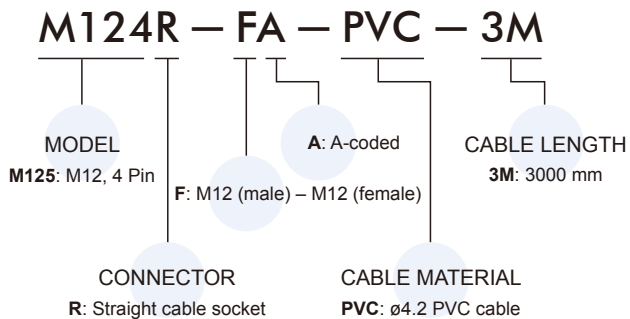
mindman



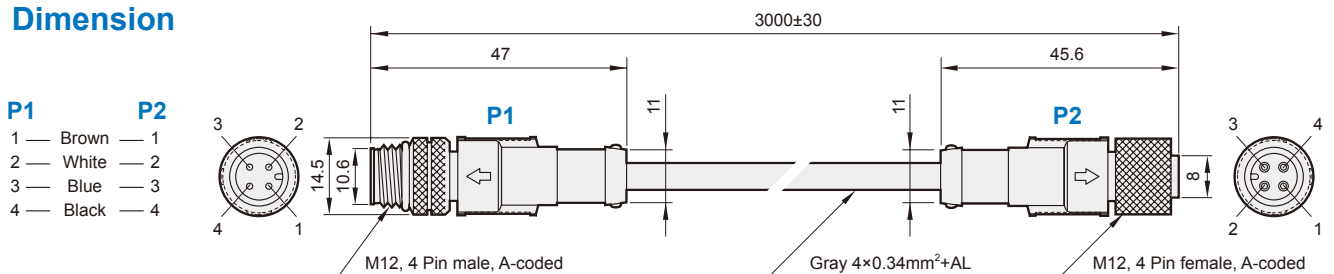
Specification

Model	M124R-FA	
Female pin out		
Number of contacts	4	4
Rated voltage	125V DC/AC	
Rated current	3A	
Contact material	Brass (Au plating)	
Contact bearer material	PVC	
Housing color	Gray	
Cable material	ø4.2, PVC	
Cable color	Gray	
Temperature	-20°C~+60°C (No freezing)	
Cable conductor	0.34mm ² / 22AWG	
Protection class of contact	IP 67	

Order example



Dimension



M124R-*D series

COMMUNICATION CABLE (EtherNet/IP)



mindman

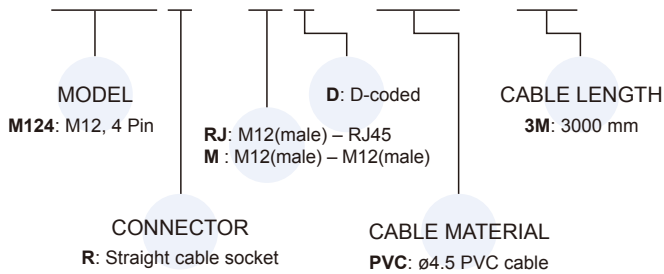


Specification

Model	M124R-RJD		M124R-MD	
Female pin out				
Number of contacts	4	8	4	4
Rated voltage	30V DC/AC			
Rated current	0.5A			
Contact material	Brass (Au plating)			
Contact bearer material	PVC			
Housing color	Gray			
Cable material	ø4.5, PVC			
Cable color	Gray			
Temperature	-20°C~+60°C (No freezing)			
Cable conductor	0.14mm ² / 26AWG			
Protection class of contact	IP67	IP20	IP67	IP67

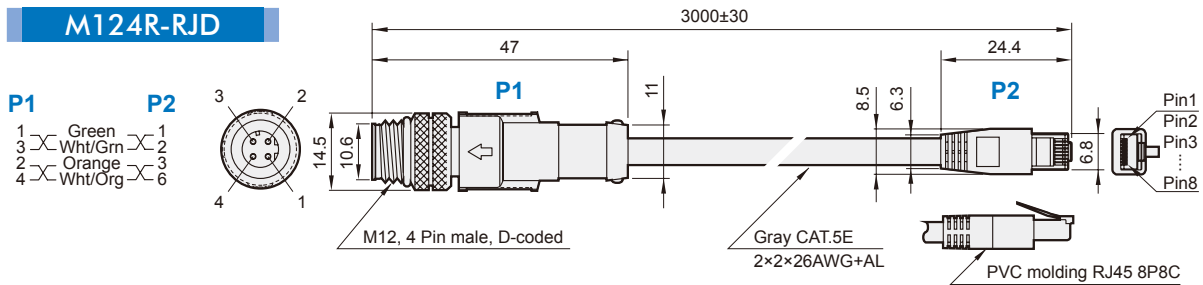
Order example

M124R — RJD — PVC — 3M

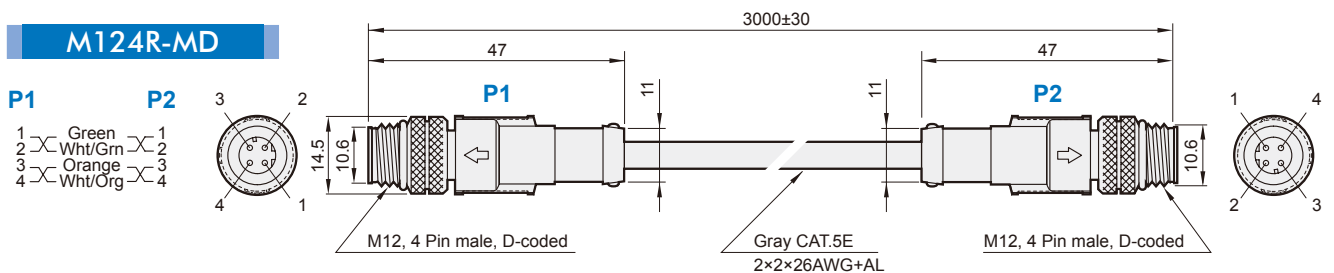


Dimension

M124R-RJD



M124R-MD



M83C-M series

CONNECTOR / M8 (MALE)

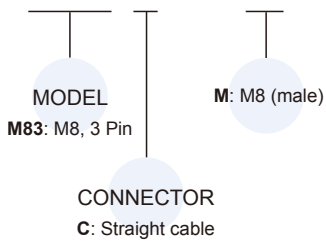


Specification

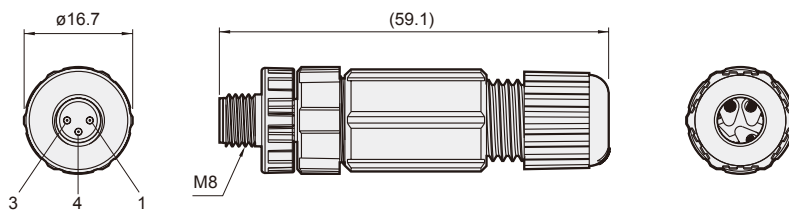
Model	M83C-M
Male pin out	
Number of contacts	3
Rated voltage	60V DC/AC
Rated current	5A
Temperature	-40°C~+105°C (No freezing)
Protection class of contact	IP 67
Suitable for AWG	20~26AWG
Seals for cable OD	ø4.5 mm ~ ø6.5 mm
Housing material	Nylon

Order example

M83 C - M



Dimension



M124C-M* series

CONNECTOR / M12(MALE)



mindman



Specification

Model	M124C-MA	M124C-MD
Male pin out		
Number of contacts	4	4
Code	A	D
Rated voltage	250V DC/AC	
Rated current	4A	
Temperature	-40°C~+105°C (No freezing)	
Protection class of contact	IP 67	
Suitable for AWG	22AWG	
Seals for cable OD	ø4 mm ~ ø8 mm	
Housing material	Nylon	

Order example

M124 C — M D

MODEL
M124: M12, 4 Pin

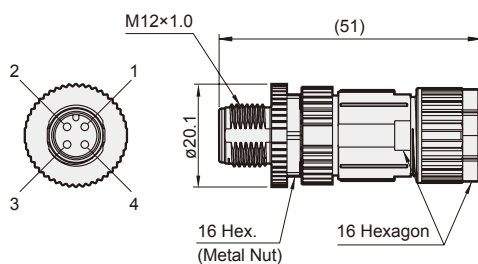
M: M12 (male)
A: A-coded
D: D-coded

CONNECTOR
C: Straight cable

Dimensions

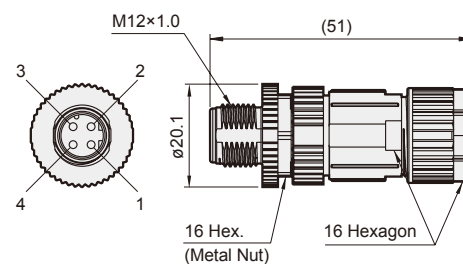
M124C-MA

A-coded



M124C-MD

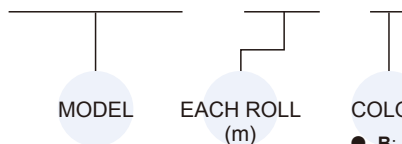
D-coded





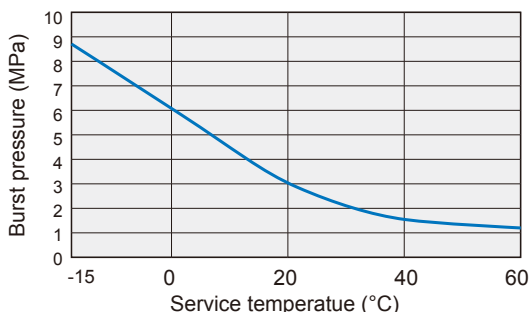
Order example

UM0425 – 100 – B



- MODEL** **EACH ROLL (m)** **COLOR**
- B: Black
 - BU: Blue
 - CB: Transparent blue
 - O: Orange
 - G: Green
 - Y: Yellow
 - R: Red
 - T: Transparent

Burst pressure curve (Reference value)



Specification

Model	UM*
Medium	Air
Max. pressure range	116 psi (0.8 MPa)(65%RH at 20°C) (*1)
Working vacuum	-29.5in.Hg (-100 kPa)
Ambient temperature	-5~+140°F(-15~+60°C) (No freezing)

* 1. Max. pressure range is the value at 65% RH at 20°C. When using on other temperatures, please take enough safety value judging from the burst pressure curve on the left. When the tube is applied to moving parts with vibration and bend, the temperature might rise due to self-heat generation due to molecule heat generation and lead to breakage of the tube.

Mindman brand PU tube

Model	ID×OD (mm)	Each roll (m)	Available color
UM0425	2.5×4	100	B, BU, CB, O, G, Y, R, T
UM0640	4×6	100	B, BU, CB, O, G, Y, R, T
UM0850	5×8	100	B, BU, CB, O, G, Y, R, T
UM1065	6.5×10	100	B, BU, CB, O, G, Y, R, T
UM1280	8×12	100	B, BU, CB, O, G, Y, R, T

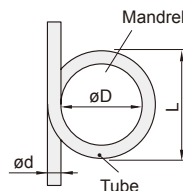
Available color
 ● Black(B), ● Blue(BU), ● Transparent blue(CB), ● Orange(O), ● Green(G), ● Yellow(Y), ● Red(R), ○ Transparent(T)

Measurement of minimum bending radius and minimum mounting radius

Model	Min. bending radius (mm)	Min. mounting radius (mm)	Weight (g/m)
UM0425	10	15	9
UM0640	15	23	19
UM0850	15	23	36
UM1065	20	30	54
UM1280	30	45	74

Minimum bending radius (JIS method)

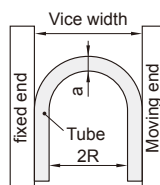
JIS method (based on JIS B8381)
 The mandrel radius is measured when the tube is tightly wound around mandrel (round bar) and the deforming ratio becomes 25%.
 Measurement condition: 20°C, 65%RH



$$N = 1 - \frac{L - D}{2d} \times 100$$

N=deforming ratio (%) standard value less than 25%
 d=Tube diameter (mm)
 L=Measurement amount (mm)
 D=Mandrel diameter (mm)

Minimum mounting radius (Vice method)

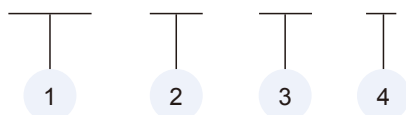


- Fix the tube as shown on the left and bring moving end close to fixed end gradually.
- Measure R when "a" dimension deforms 25% from initial value.



Order example

UML - 06 - 10 - B



1. Name of tube

2. Tube dia.

Code	03	04	06	08	10	12
O.D. (mm)	ø3	ø4	ø6	ø8	ø10	ø12

3. Tube length

Code	1	2	3	5	7	10	14	20
Dimension(m)	1	2	3	5	7	10	14	20
Tube O.D.	ø3mm	○	○	○	○	○	○	○
	ø4mm		○	○	○	○	○	○
	ø6mm		○	○	○	○	○	○
	ø8mm			○	○	○	○	○
	ø10mm				○	○	○	○
	ø12mm					○	○	○

4. Tube color

△ Make to order product

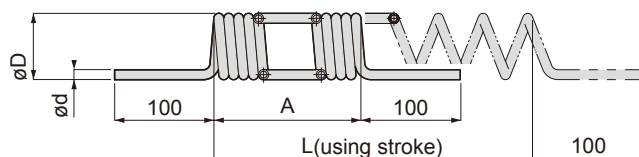
Code	B	R	O	YB	Y
Color	●	●	●	●	●
	Black	Red	Orange	Ocher	Yellow
UML	○	△	△	△	△
Code	G	BU	CB	C	W
Color	●	●	●	○	○
	Green	Blue	Clean blue	Transparent	Milky white
UML	△	△	△	△	△

Specification

Model	UML
Medium	Air
Operating pressure range	0.8 MPa (20°C 65%RH) *1,2
Working vacuum	-100 kPa
Ambient temperature	-15~+60°C (No freezing)

- *1. The value of max. operating pressure is measured at 20°C and 65%RH. When Tubes are used in different conditions, consider a safety ratio of the pressure with an enough margin, referring to Burst Pressure Curve.
- *2. When Tubes are frequently swung and bent, there is a possibility of generating heat between molecules and damaging the products.

UML Polyurethane coiling tube



Model	ød	A	øD	L
UML03-1	3	70	16	210
UML03-2	3	150	16	450
UML03-3	3	230	16	700
UML03-5	3	390	16	1200
UML04-2	4	120	24	360
UML04-3	4	180	24	540
UML04-5	4	350	24	1100
UML04-7	4	480	24	1500
UML04-10	4	700	24	2100
UML04-14	4	1040	24	3200
UML04-20	4	1450	24	4400
UML06-2	6	160	30	500
UML06-3	6	230	30	700
UML06-5	6	430	30	1300
UML06-7	6	620	30	1900
UML06-10	6	910	30	2800
UML06-14	6	1300	30	3900
UML06-20	6	1850	30	5600
UML08-3	8	250	42	750
UML08-5	8	390	42	1200
UML08-7	8	540	42	1700
UML08-10	8	770	42	2400
UML08-14	8	1045	42	3200
UML08-20	8	1550	42	4700
UML10-5	10	330	58	1000
UML10-7	10	470	58	1400
UML10-10	10	680	58	2100
UML10-14	10	970	58	3000
UML10-20	10	1380	58	4200
UML12-5	12	310	72	1000
UML12-7	12	450	72	1400
UML12-10	12	660	72	2000
UML12-14	12	920	72	2800
UML12-20	12	1320	72	4000



Features

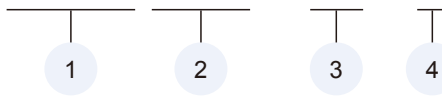
- All materials are made of SUS304 / SUS316, which is highly resistant to corrosion, making this series suitable for not only chemical industries but also for airtight special environments (Medical, semiconductor, food, etc.)
- The tube insert part is tightened by a cap nut, ensuring a tight and stable tube.

Specification

Model	MNS*
Medium	Air, water
Max. pressure range	Depending on service range of tube
Working vacuum	-29.8in.Hg (-100 kPa)
Ambient temperature	Depending on service range of tube

Order example

MNSC 0425 – 01 – S



1. Model

2. Tube dia. (øO.D. / øI.D.) mm

Code	0420	0425	0640	0860	1080	1290	1210
O.D.	ø4	ø4	ø6	ø8	ø10	ø12	ø12
I.D.	ø2	ø2.5	ø4	ø6	ø8	ø9	ø10


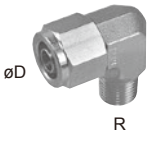
Code	1/4	5/16	3/8	1/2
O.D.	ø6.35	ø7.94	ø9.53	ø12.7
I.D.	ø4.57	ø6	ø6.99	ø9.56




3. Thread size

Code	01	02	03	04
R	R1/8	R1/4	R3/8	R1/2
Rc	Rc1/8	Rc1/4	Rc3/8	Rc1/2

4. Material

Code	–	S
Material	SUS304	SUS316

MNSC	MNSL
Straight	Elbow
	
Model MNSC øD-R	Model MNSL øD-R
MNSC0420-01	MNSL0420-01
MNSC0420-02	MNSL0420-02
MNSC0425-01	MNSL0425-01
MNSC0425-02	MNSL0425-02
MNSC0640-01	MNSL0640-01
MNSC0640-02	MNSL0640-02
MNSC0640-03	MNSL0640-03
MNSC0860-01	MNSL0860-01
MNSC0860-02	MNSL0860-02
MNSC1080-02	MNSL1080-02
MNSC1080-03	MNSL1080-03
MNSC1080-04	MNSL1080-04
MNSC1290-02	MNSL1290-02
MNSC1290-03	MNSL1290-03
MNSC1290-04	MNSL1290-04
MNSC1210-02	MNSL1210-02
MNSC1210-03	MNSL1210-03
MNSC1210-04	MNSL1210-04
MNSC1/4-01	MNSL1/4-01
MNSC1/4-02	MNSL1/4-02
MNSC1/4-03	MNSL1/4-03
MNSC5/16-01	MNSL5/16-01
MNSC5/16-02	MNSL5/16-02
MNSC5/16-03	MNSL5/16-03
MNSC3/8-02	MNSL3/8-02
MNSC3/8-03	MNSL3/8-03
MNSC3/8-04	MNSL3/8-04
MNSC1/2-02	MNSL1/2-02
MNSC1/2-03	MNSL1/2-03
MNSC1/2-04	MNSL1/2-04

MNSU	MNSV	MNSE
Union straight	Union elbow	Union tee
		
Model MNSU øD	Model MNSV øD	Model MNSE øD
MNSU0420	MNSV0420	MNSE0420
MNSU0425	MNSV0425	MNSE0425
MNSU0640	MNSV0640	MNSE0640
MNSU0860	MNSV0860	MNSE0860
MNSU1080	MNSV1080	MNSE1080
MNSU1290	MNSV1290	MNSE1290
MNSU1/4	MNSV1/4	MNSE1/4
MNSU5/16	MNSV5/16	MNSE5/16
MNSU3/8	MNSV3/8	MNSE3/8
MNSU1/2	MNSV1/2	MNSE1/2

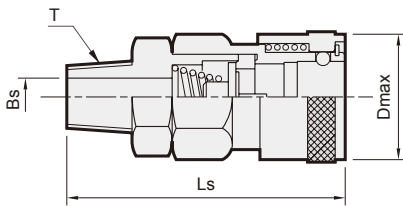
MSM



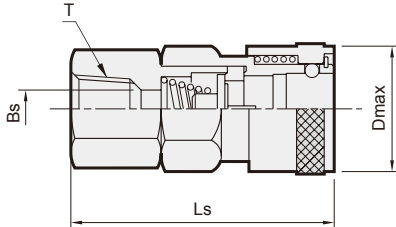
MSM-A (one touch type)



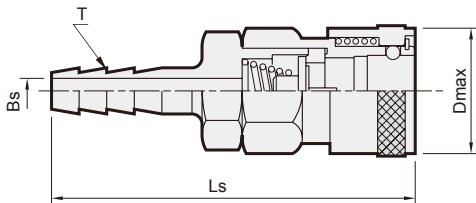
MSM (Male screw)



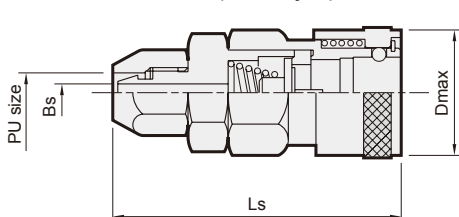
MSF (Female screw)



MSH (Hose screw)



MSP (Nut style)



Order example

MSM — 20 — A — S

MODEL

20
30
40

MATERIAL

S: Steel
B: Brass

Blank: Standard type
A: One touch type

MSM	
MSF	
MSH	
MSP	

Model	Screw size T	Dimension (mm)			Weight (g)	
		Bs	D _{max}	Ls	Steel	Brass
MSM-20	R1/4	ø7.5	ø25	55.5	95	104
MSM-30	R3/8	ø7.5	ø25	57.5	100	109
MSM-40	R1/2	ø9	ø25	59.5	110	117

Model	Screw size T	Dimension (mm)			Weight (g)	
		Bs	D _{max}	Ls	Steel	Brass
MSF-20	Rc1/4	ø7.5	ø25	52.5	104	110
MSF-30	Rc3/8	ø7.5	ø25	54.5	103	111
MSF-40	Rc1/2	ø9	ø25	54.5	122	131

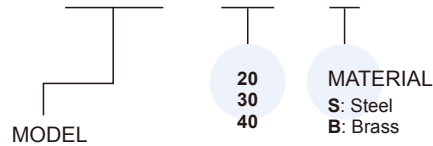
Model	Hose size T	Dimension (mm)			Weight (g)	
		Bs	D _{max}	Ls	Steel	Brass
MSH-20	5/16"Hose	ø5	ø25	72.5	95	104
MSH-30	3/8"Hose	ø7.5	ø25	76.5	100	106
MSH-40	1/2"Hose	ø9	Hex 26/30	78.5	110	117

Model	PU size ID×OD (mm)	Dimension (mm)			Weight (g)	
		Bs	D _{max}	Ls	Steel	Brass
MSP-20	5×8	ø4	ø25	56.5	100	106
MSP-30	6.5×10	ø5	ø26	58	110	116
MSP-40	8×12	ø6	ø26	59	110	116



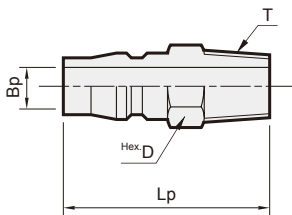
Order example

MPM — 20 — S

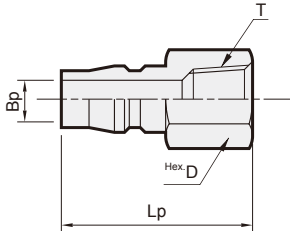


MODEL	Diagram
MPM	
MPF	
MPH	
MPP	

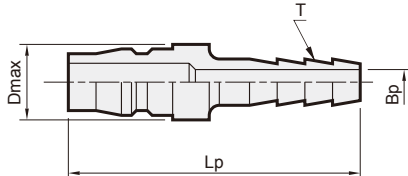
MPM (Male screw)



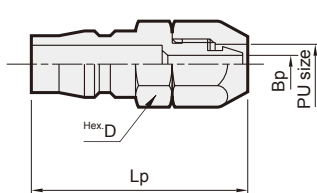
MPF (Female screw)



MPH (Hose screw)



MPP (Nut style)



Model	Screw size T	Dimension (mm)			Weight (g)	
		Bp	Hex. D	Lp	Steel	Brass
MPM-20	R1/4	ø7.5	Hex. 14/16.2	41	25	27
MPM-30	R3/8	ø7.5	Hex. 17/19.6	43	40	45
MPM-40	R1/2	ø7.5	Hex. 21/24.2	46	65	70

Model	Screw size T	Dimension (mm)			Weight (g)	
		Bp	Hex. D	Lp	Steel	Brass
MPF-20	Rc1/4	ø7.5	Hex. 17/19.6	38	30	32
MPF-30	Rc1/8	ø7.5	Hex. 21/24.2	41	45	48
MPF-40	Rc1/2	ø7.5	Hex. 26/30	43	65	70

Model	Hose size T	Dimension (mm)			Weight (g)	
		Bp	D max.	Lp	Steel	Brass
MPH-20	5/16"Hose	ø5	ø16	58	27	29
MPH-30	3/8"Hose	ø7.5	ø16	62	35	38
MPH-40	1/2"Hose	ø7.5	ø18	64	50	55

Model	PU size ID×OD (mm)	Dimension (mm)			Weight (g)	
		Bp	Hex. D	Lp	Steel	Brass
MPP-20	5×8	ø4	Hex. 14/16.2	42.5	30	33
MPP-30	6.5×10	ø5	Hex. 16/18.2	44.5	40	43
MPP-40	8×12	ø6	Hex. 17/19.2	45	40	43

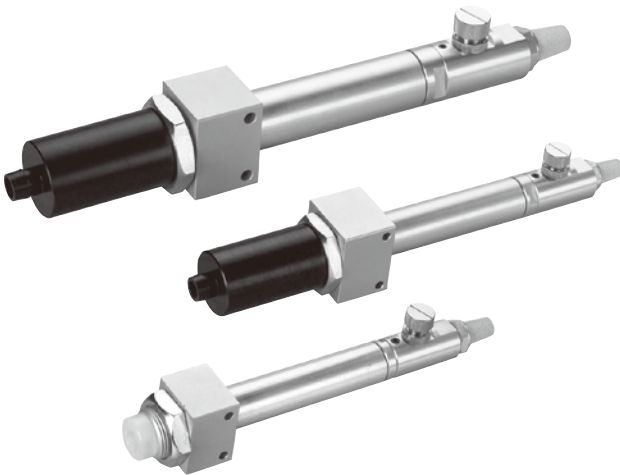
1 Compressed air supply only

2 No electricity

3 Long life

4 User friendly

5 Two models



Features

- Jet out cooler air maximum 60°C(max. temp. drop) lower than the inlet air only by supplying compressed air.
- Uses the theory of vortex, no moving parts are used in the construction, hence long life sustainability.
- Does not require coolant or an electrical source, utilises the high speed flow of compressed air for generating cool air from hot air. Ideal for applications where rapid cooling is required, (ie) Spot Welding.
- Can produce consistent supply of cool air even when the supply in is 40 Degrees C. By changing air consumption you can simply change the cooling temperature.

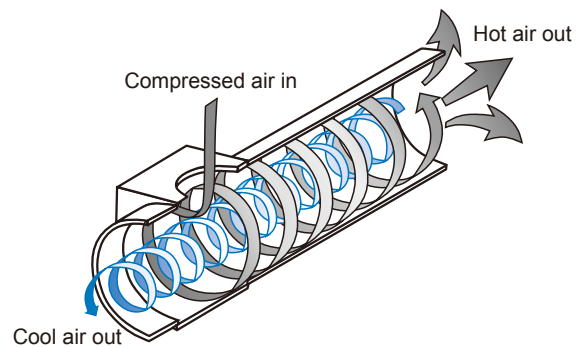
Order example

MJC – 150K – S – □

MODEL
MJC-150K
MJC-300K
MJC-450K
MJC-600K

ACCESSORY
Blank: Standard type
S: Silencer
Decrease 8-12dB
(Based on the flow rate)

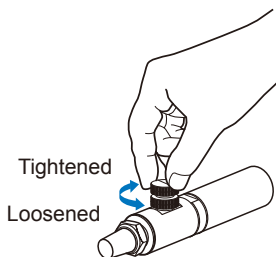
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread



Cool air adjustment

Temperature drop 60°C

- Rapid temperature drop.
- Panel mounting option available.
- Can be fitted with silencer on cold side, thus reducing noise.
- Can be piped on the hot side.



Adj. screw(up)
Adj. nut (down)

* When the adj. screw has set,
lock the adj. nut.

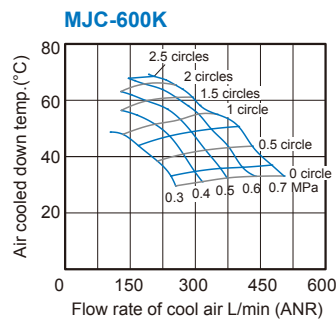
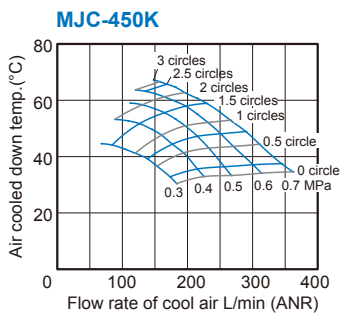
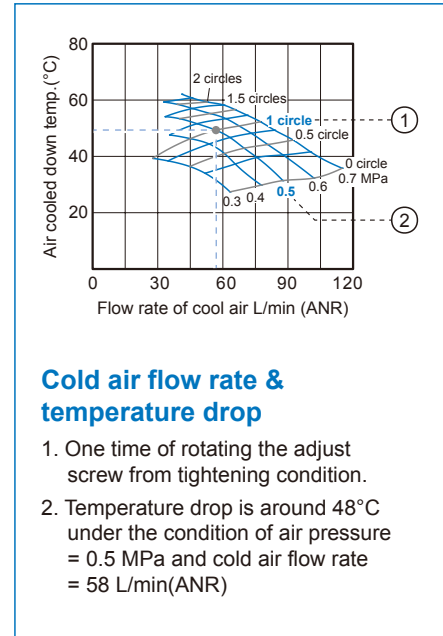
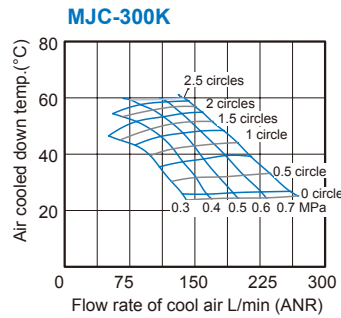
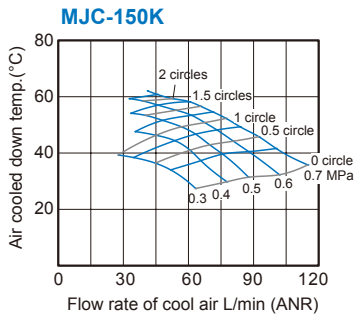
Specification

Model	Working pressure (MPa)	Max. temp. drop (°C)	Cool air out port	Weight (kg)
MJC-150K	0.3~0.7	60	Rc1/8	0.25
MJC-300K	0.3~0.7	60	Rc1/4	0.30
MJC-450K	0.3~0.7	60	Rc3/8	0.60
MJC-600K	0.3~0.7	60	Rc3/8	0.60

*The max. temp. drop is the difference in temp. between the input and the output.

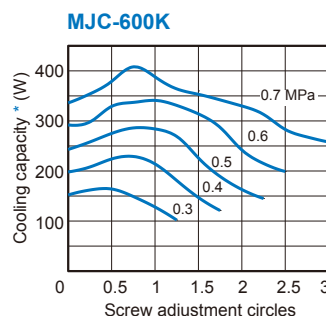
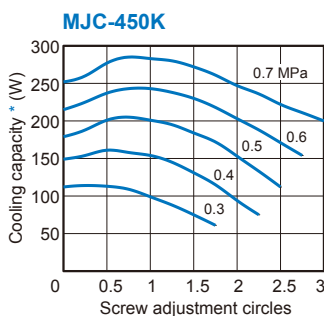
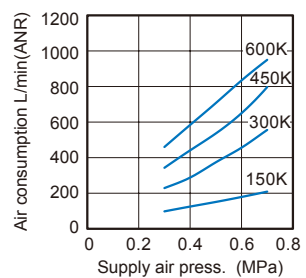
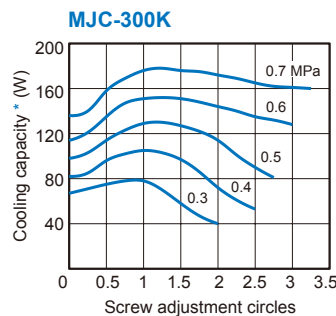
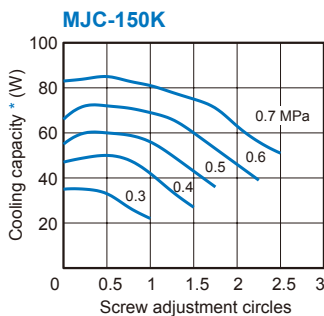
Temperature drop of cool air

Graph description (MJC-150K)



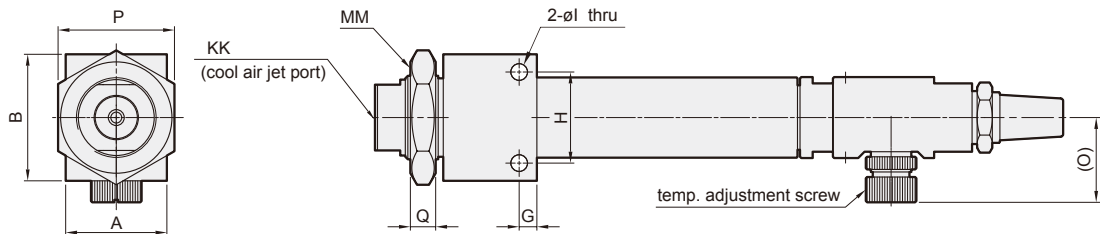
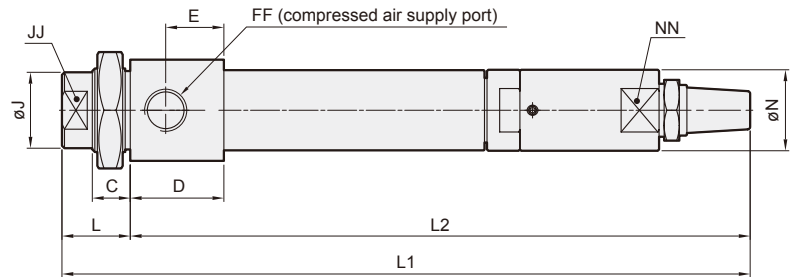
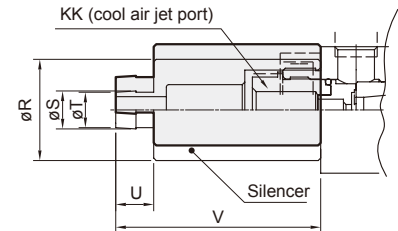
Cooling capacity * The heat quantity which is able to be absorbed (cooling).

Air consumption



MJC-**K*

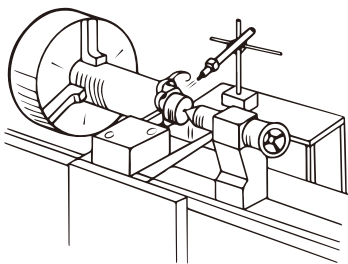
Silencer (option)



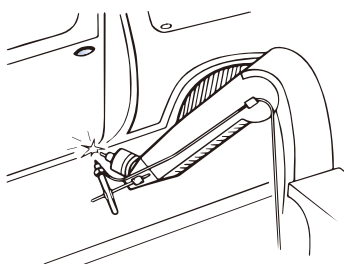
Code Model	A	B	C	D	E	FF	G	H	I	J	JJ	KK	L	L1	L2	MM	N	NN	O	P	Q	R	S	T	U	V
150K	30	35	13	24	15	Rc1/8	5	24	4.5	20	17	Rc1/8	21	198	177	M24×1.5	20	18	22	32	7	30	11	10	10	60
300K	35	40	15	28	17	Rc1/4	5	30	4.5	22	19	Rc1/4	23	204	181	M27×1.5	22	19	22	36	7	32	13	12	10	63
450K / 600K	40	50	15	37	23	Rc3/8	7	36	6.6	30	26	Rc3/8	27	272	245	M33×1.5	32	27	31	46	10	40	15	14	15	81

Application

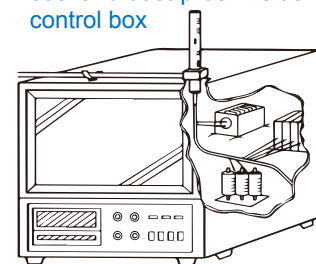
Plastic machining cool



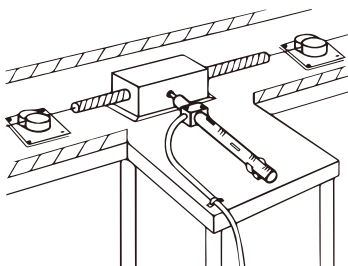
Spot welding cool



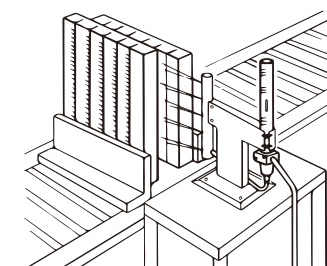
Monitoring camera case cool and dust-proof inside control box



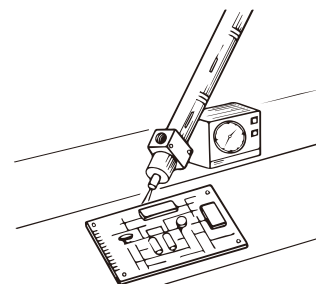
Wire cut harden

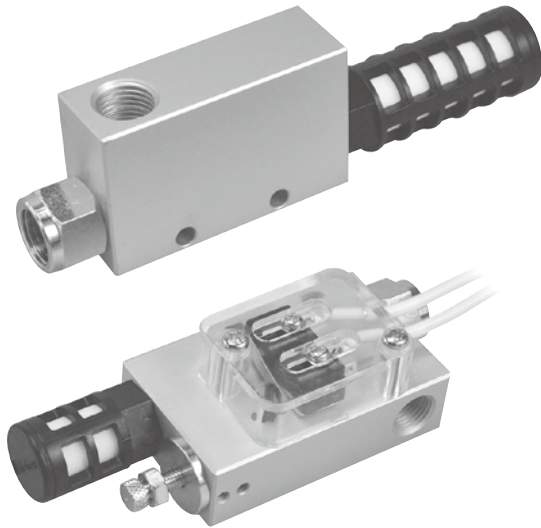


Adherent quick cool



Welding quick cool

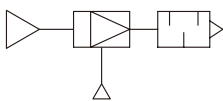




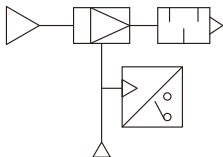
Specification

Model	MVVA-10	MVVA-15	MVVA-20	
Nozzle dia.	1.0 mm	1.5 mm	2.0 mm	
Port size	G1/8	G1/4	G3/8	
Medium	Air			
Operating pressure range	0.1~0.6 MPa			
Ambient temperature	0~+60°C (No freezing)			
Final vacuum	-91.8 kPa (-690mmHg)			
Suction flow	32 ℓ/min	63 ℓ/min	130 ℓ/min	
Air consumption	76 ℓ/min	100 ℓ/min	185 ℓ/min	
Supply pressure	0.5 MPa			
Signal setting range	SJ type	-20.0 ~ -53 kPa (-150 ~ -400 mm Hg)		
	EV type	-100 ~ 100 kPa (-757.5 ~ 757.5 mm Hg)		
Lubricator	Not required			
Weight	Standard type	84 g	126 g	294 g
	SJ type	110 g	158 g	321 g
	EV type	162 g	197 g	353 g

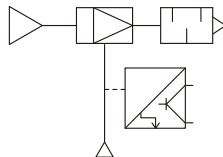
Symbol



SJ



EV*



Order example

MVVA - 10 - SJ

MODEL

NOZZLE DIA.

TYPE

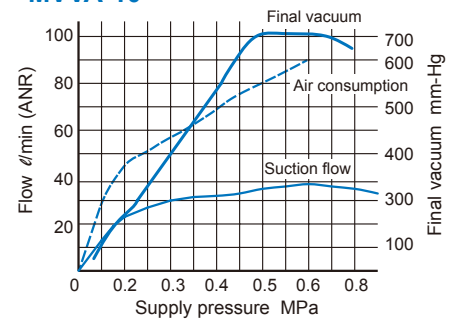
10: 1.0 mm
15: 1.5 mm
20: 2.0 mm

Blank	Standard type
SJ	Adjustable switch
EV*	Pressure switch
EV1: MP41C-022	
EV5: MP41C-042	
EV6: MP41C-042-QD	

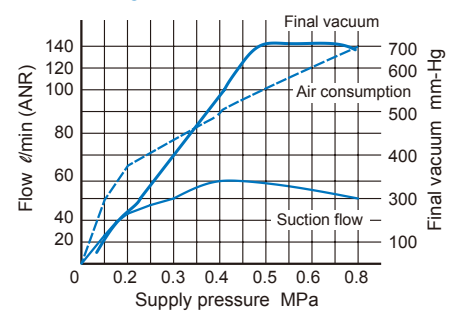
* Refer to page 5-13 for MP41.

Vacuum characteristics

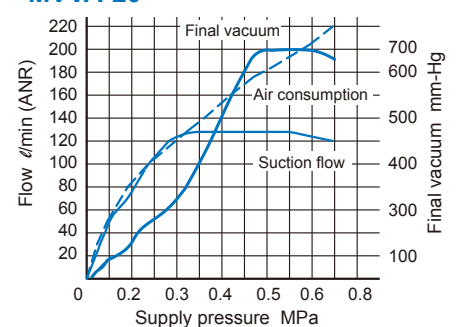
MVVA-10



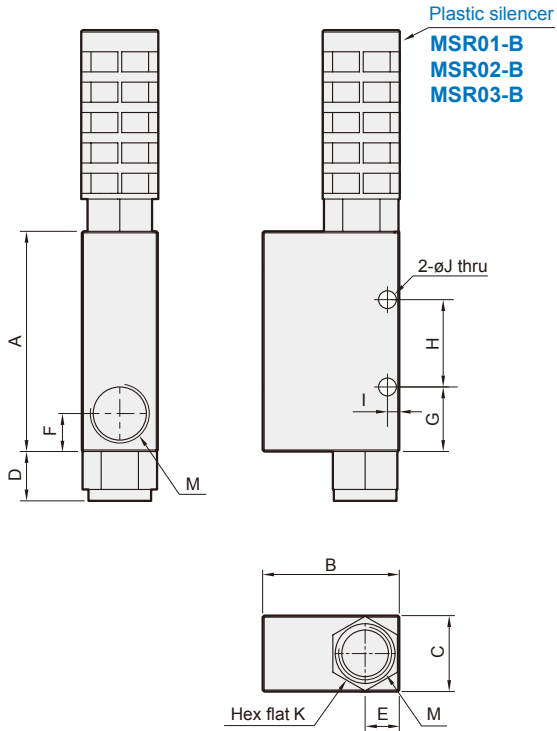
MVVA-15



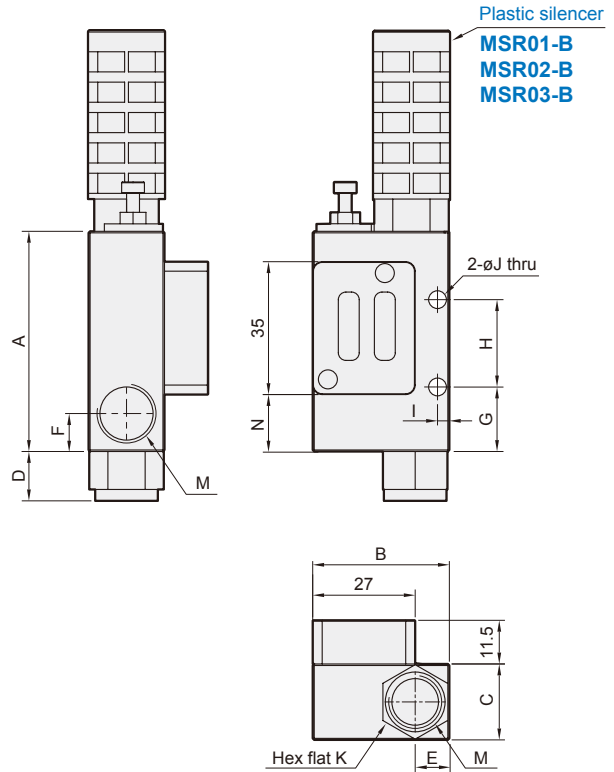
MVVA-20



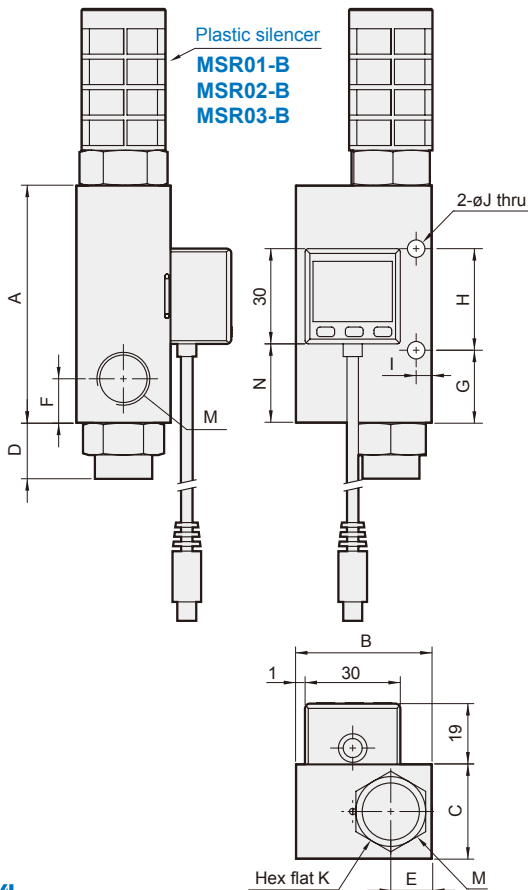
MVVA-**-**



MVVA-**-SJ

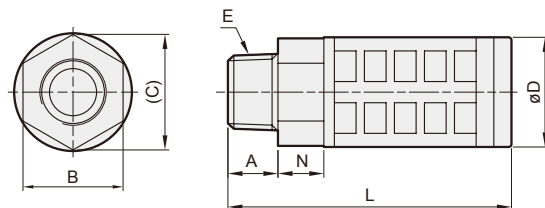


MVVA-**-EV*



Code Model	A	B	C	D	E	F	G	H	I	J	K	N	M
MVVA-10	55	34	15.5	10	9	8	13	18	3	4.3	14	—	G1/8
MVVA-10-SJ	55	34	15.5	10	9	8	13	18	3	4.3	14	10.5	G1/8
MVVA-10-EV*	55	40	16	10	9	8	13	18	3	4.3	14	20	G1/8
MVVA-15	58	36	20	13	10.5	10	17	23	3.5	4.3	17	—	G1/4
MVVA-15-SJ	58	36	20	13	10	10	17	23	3.5	4.3	17	14	G1/4
MVVA-15-EV*	58	39	20	13	10.5	10	17	23	3.5	4.3	17	20	G1/4
MVVA-20	75	43	30	18	13	14	23	32	5	5.5	22	—	G3/8
MVVA-20-SJ	75	43	30	18	13	14	23	32	5	5.5	22	30.5	G3/8
MVVA-20-EV*	75	43	30	18	13	14	23	32	5	5.5	22	25	G3/8

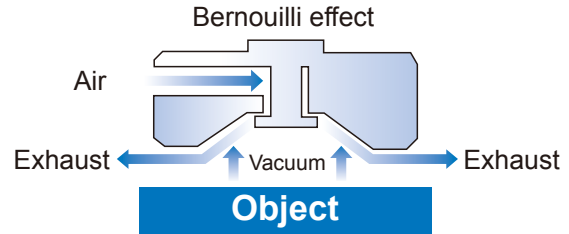
MSR*-B



Code Model	A	B	C	D	E	L	N
MSR01-B	7	14	16.2	16	R1/8	33	7
MSR02-B	10	17	19.6	20.3	R1/4	63	8.5
MSR03-B	12	24	26.2	26.3	R3/8	67.5	11



Principle



The principle of these prehension is based on the exploitation of the Bernoulli effect. A positive pressure is applied through form adequate (Insert + curve). The exhaust of this air goes through of low pressure and gets a vacuum aspiring any kind of object.

Order example

MHPSC – 20 – CD

MODEL

SIZE

TYPE

20
30
40
60

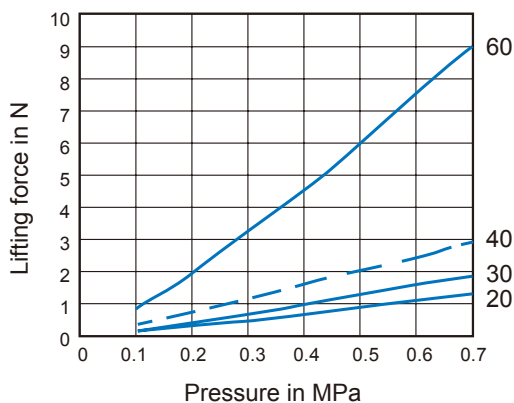
CD: For CD or DVD
(Only with size 40)
CI: With 3 rubber absorber
U: Smooth surface
(Only with size 40)

Specification

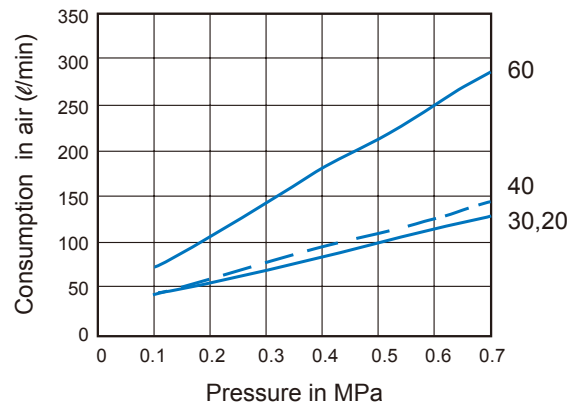
Model	MHPSC			
Size	20	30	40	60
Port size	M3	M5	M5	M5
Medium	Dry air filter 40 μ			
Consumption in air (*) l/min	100	100	110	210
Lifting force (*) in N	0.9	1.3	2	6
Operating pressure range	0.2~0.7 MPa			
Ambient temperature	+5~+60°C			
Level of noise	25dB			
Material	Aluminum A5056 and stainless steel			
Weight	10 g	30 g	54 g	124 g

* Indicative value for sizes 20 and 30: Pressure of 0.5 MPa with an air supply by tube $\varnothing 2,5 \times 4$ length: 1m. for sizes 40 and 60: Pressure of 0.5 MPa with an air supply by tube $\varnothing 4 \times 6$ length: 1m.

Lifting force

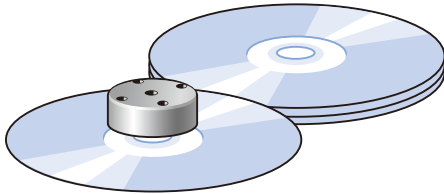


Consumption in air

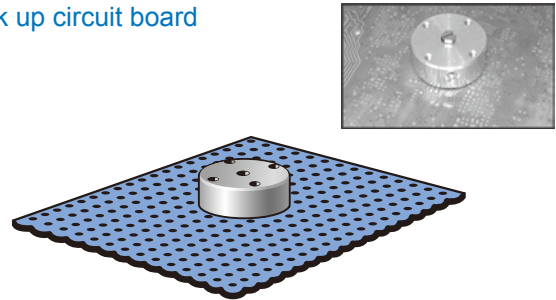


NO CONTACT TRANSFER

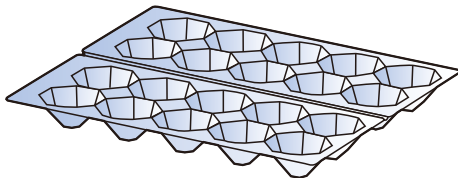
- Transfer disc, CD, DVD



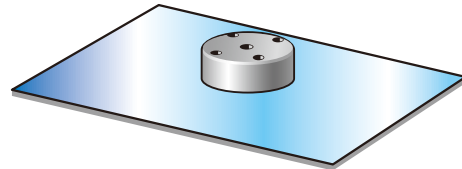
- Pick up circuit board



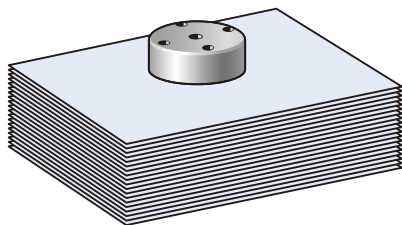
- Eggs or fruits packaging



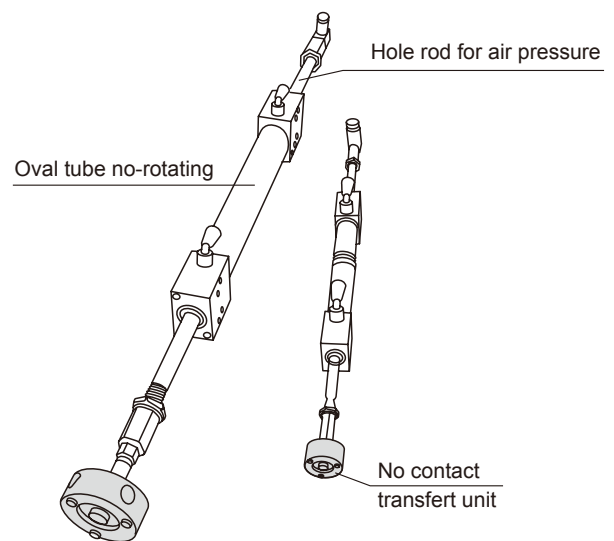
- Glass sheet leave
(no mark on the face)



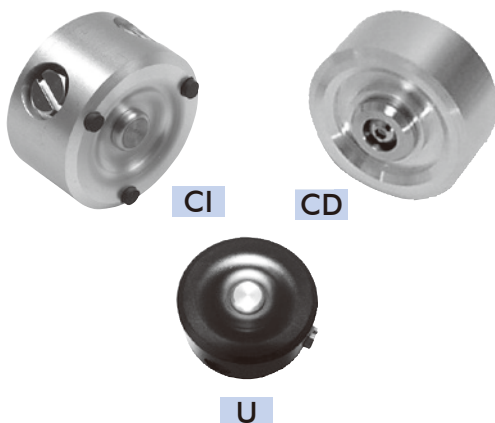
- Paper sheet with small thickness.
(Transfer sheet by sheet)



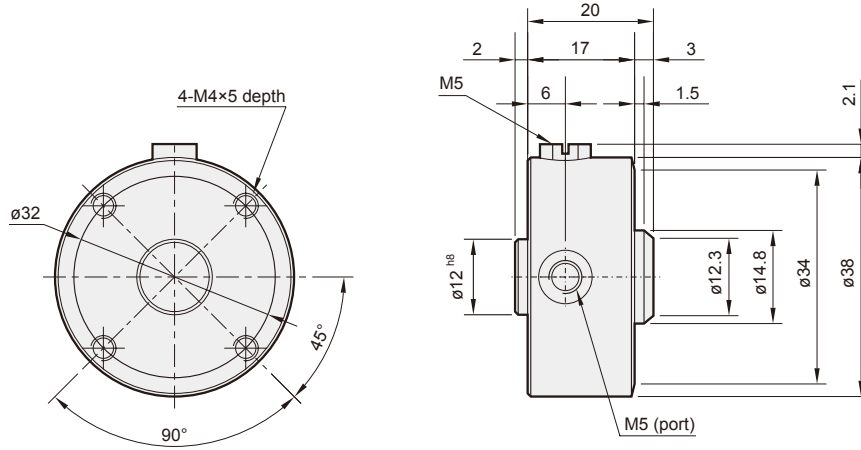
- Handling of object on concave or convex surface. Handling of biscuit, wafer, paste, pastry making, membrane, sponge, textile, mirror, etc...



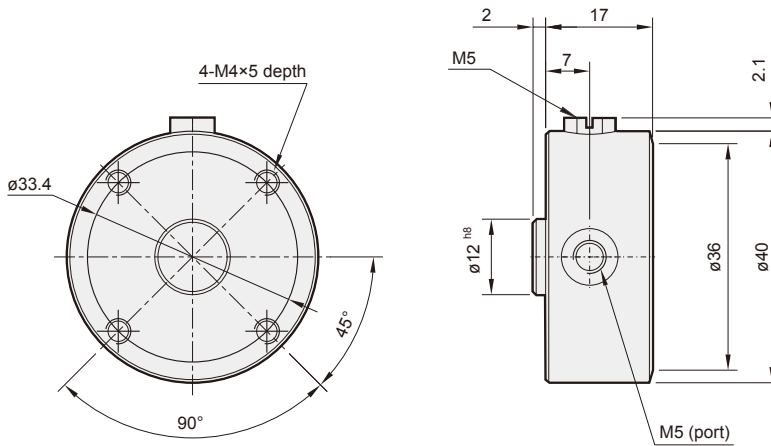
Type



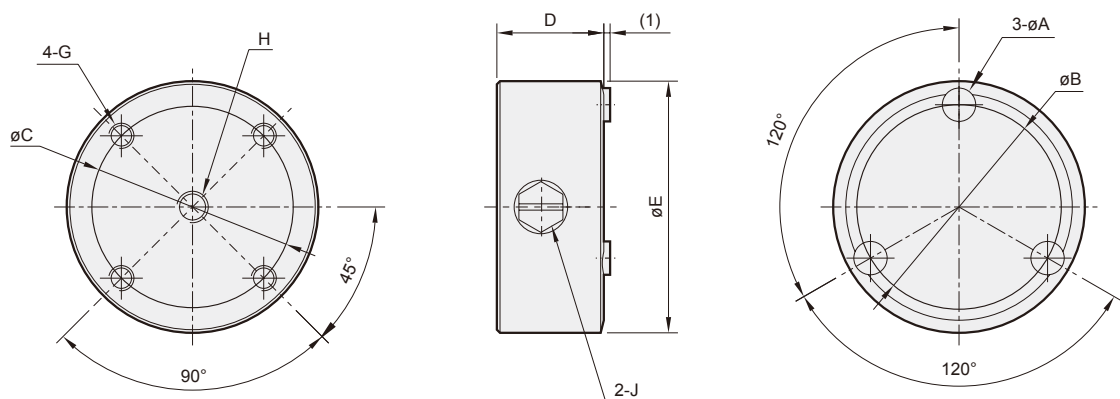
MHPSC-40CD Using for CD ro DVD (with centering part)



MHPSC-40U Smooth surface with treatment



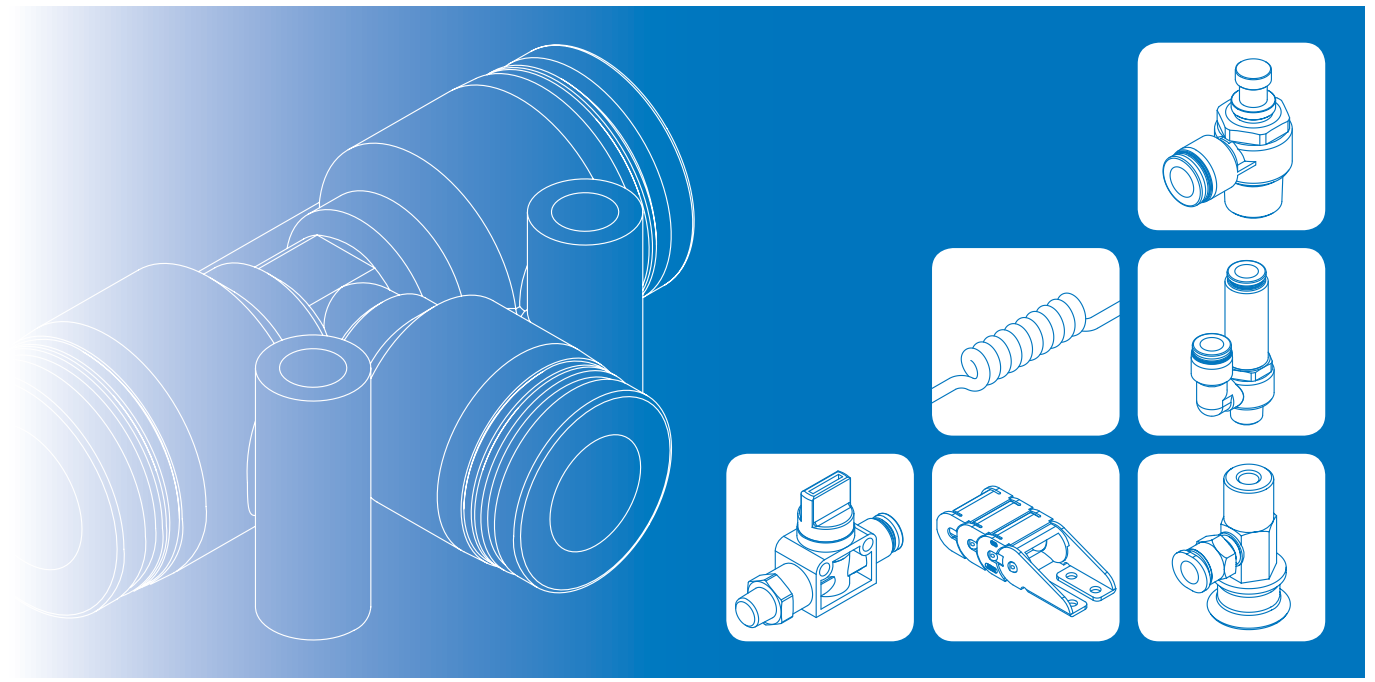
MHPSC-**CI Prehensor with three points of contact



Code Model	A	B	C	D	E	G	H	J
20	2.2	16.6	14	12	20	M4x5	M3	Plug M3
30	3.4	24.4	22	17	30	M4x10	M5	Plug M5
40	5.3	32.5	32	17	40	M4x10	M5	Plug M5
60	5.3	48.8	44	17	60	M4x10	M5	Plug M5



PISCO® PRODUCTS



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Information



**Answering customer's
needs with its originality and
high-quality products.**

PISCO supplies wide variety of pneumatic equipment
supporting all industrial activity.
Not only standard products, but also custom-made products
are flexibly coped with.

**PISCO's Quality Policy
To win customer's trust and satisfaction.**

ISO 9001 certified (1994.9)
[International standards for quality assurance]



**Environmental Policy – Slogan
PISCO, Doing its best to Help Keep the Earth Health !**

ISO 14001 certified (1998.9)
[Environmental management systems]

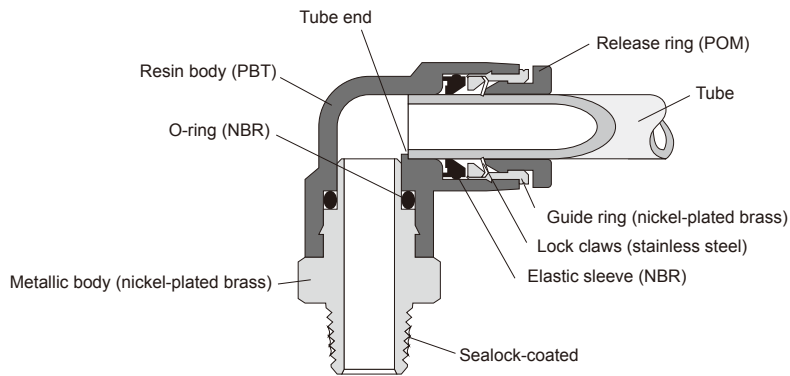


Maintaining basic functions, this low-cost quick-fitting joint achieves high-cost performance.



- The tube fitting comes in a wide variety of tube and thread sizes.
- Even after installation the direction of the tubing can be changed freely (Elbow, Long Elbow, Universal Elbow, etc.).

Construction



Specification

Type	Fitting
Fluid admitted	Air, water (conditional) (*1, *2, *3)
Max. service pressure	0.9 MPa
Negative pressure	-100 kPa (-750mmHg)
Service temperature range	0 ~ 60°C

*1. When it is used with water, please make sure that surge pressure is lower than Max. service pressure range.

*2. Fresh water is applicable. Please make an inquiry for other fluid uses.

*3. When it is used with water, be sure to install the insert ring.

Order example

PC 1/4 – N1 U T

MODEL

HEXAGON FLAT-TO-FLAT SPECIFICATION
 Blank: Hexagon flat-to-flat mm spec.
 U: Hexagon flat-to-flat inch spec. (NPT)

THREAD SIZE (R) OR TUBE DIA. (øD)

	Metric thread	Taper pipe thread			
Code	M5	01	02	03	04
Size	M5×0.8	R1/8	R1/4	R3/8	R1/2
	Unified fine thread	American standard taper pipe thread			
Code	U10	N1	N2	N3	N4
Size	10-32UNF	NPT1/8	NPT1/4	NPT3/8	NPT1/2

TUBE DIA. (øD) OR THREAD SIZE (R)

	mm size				
Code	4	6	8	10	12
Dia. (mm)	4	6	8	10	12
	inch size				
Code	5/32	1/4	5/16	3/8	1/2
Dia. (inch)	5/32	1/4	5/16	3/8	1/2

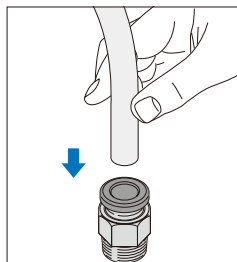
Connection and disconnection

1. How to fit and release tubing

(1) Tube insertion

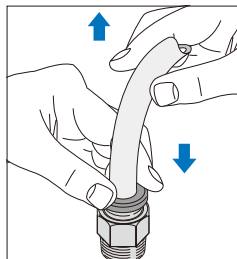
Simply insert a tubing to the tube end of Tube Fitting. The lock claws automatically fix the tubing, and the elastic sleeve seals the tube surrounding.

Please refer to "2. Cautions on the fitting of tube" in "Common Safety Instructions for Quick-Fitting Joint" for other instructions.



(2) Tube release

In case of releasing the tube, push the release ring. The lock claws open and the tube can be released. Before releasing the tube, make certain that the pressure inside the tube is zero pressure.

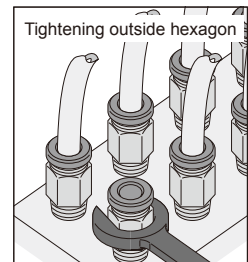


2. How to tighten the screw

For the type of tightening outside hexagon, apply a spanner or an impact wrench.

For the type of tightening inside hexagon (This enables to space Tube Fittings closer), apply a Hex Keys. (Please refer to the text for detail.)

Please refer to Table 3 Tightening Torque, Sealock color and Gasket Material in "4. Cautions on the installation of joint body" in "Common Safety Instructions for Quick-Fitting Joint".



⚠ Detailed safety instructions

Before using the PISCO device, be sure to read the "Safety Instructions", "Common Safety Instructions for Products Listed in This Manual" on page 7-20 to 22 and "Common Safety Instructions for Quick-Fitting Joint" on page 7-23 to 24.

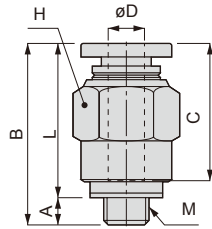
Warning

1. When the fluid admitted is water, do not use the PISCO device unless the application satisfies all the conditions required in specifications, Otherwise damage may be caused to the joint body, the tube may come off or leakage may result.

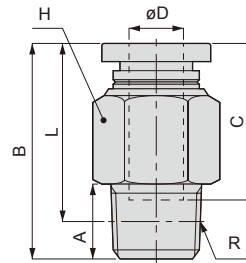
PC
Straight



Appearance dimension for metric thread



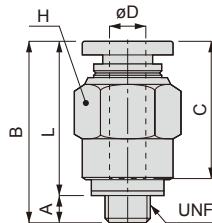
Appearance dimension for taper pipe thread (R)



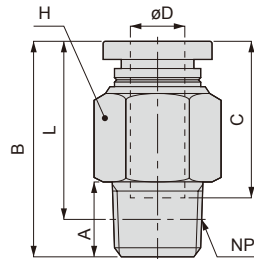
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L	C	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PC4-M5T	4	M5×0.8	3	20	17	14.9	10	6.2	1.8	1.9	0.10
PC4-01T		R1/8	8	21				8.2	3	5.3	0.29
PC6-M5T	6	M5×0.8	3	21.1	19.1	17	12	9.2	1.8	1.9	0.10
PC6-01T		R1/8	8	22.6	18.6			9.1	4.6	12.5	0.68
PC6-02T		R1/4	11	24.6	18.5			17.2			
PC8-01T	8	R1/8	8	27.9	23.9	18.2	14	15.5	6	20	1.08
PC8-02T		R1/4	11	26.6	20.6			15.6	7		
PC8-03T		R3/8	12	23.9	17.6			23.6			
PC10-02T	10	R1/4	11	29.8	23.8	20.7	17	20.5	8.5	35	1.90
PC10-03T		R3/8	12	29.3	23			26			
PC12-03T	12	R3/8	12	31.9	25.6	23.3	21	35.7	11	59	3.20
PC12-04T		R1/2	15	33.9	25.7			50.1			

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)

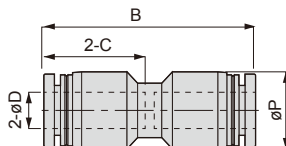


Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	C	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv	
PC5/32-U10UT	5/32	No.10-32UNF	3	20	17	14.9	7/16	6.2	1.8	1.9	0.10	
PC5/32-N1UT		NPT1/8	8	21	16.9			8.2	3	5.3	0.29	
PC5/32-N2UT		NPT1/4						16.5				
PC1/4-U10UT	1/4	No.10-32UNF	3	22.1	19.1	17	1/2	9	1.8	1.9	0.10	
PC1/4-N1UT		NPT1/8	8	22.6	18.4			9/16	17.2	4.6	12.5	0.68
PC1/4-N2UT		NPT1/4	11	24.6	18.8							
PC1/4-N3UT		NPT3/8	12	23.6	17.5			11/16	27.8	4		
PC5/16-N1UT	5/16	NPT1/8	8	27.9	23.8	18.2	9/16	15.5	6	20	1.08	
PC5/16-N2UT		NPT1/4	11	26.6	20.8			15.6	7			
PC5/16-N3UT		NPT3/8	12	23.9	17.8			23.6				
PC3/8-N1UT	3/8	NPT1/8	8	30.3	26.2	20.7	11/16	25.5	6	23	1.90	
PC3/8-N2UT		NPT1/4	11	29.8	24			20.5	8.5	35		
PC3/8-N3UT		NPT3/8	12	29.3	23.2			26				
PC3/8-N4UT		NPT1/2	15	30.3	22.2			7/8	52.2			
PC1/2-N2UT	1/2	NPT1/4	11	35.7	29.9	23.1	7/8	47.9	8.5	35	1.90	
PC1/2-N3UT		NPT3/8	12	31.9	25.8	23.3		35.7	11	59	3.20	
PC1/2-N4UT		NPT1/2	15	33.9				50.1				

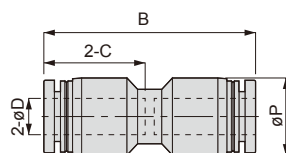
PU

Union Straight



Unit: mm

Model	øD (Tube dia.)	B	C	øP	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PU4T	4	30.8	14.9	10	4.9	2.8	3.8	0.21
PU6T	6	34.9	17	12.5	6.8	4.3	11.4	0.62
PU8T	8	37.8	18.4	14.5	9.3	5.9	25.4	1.38
PU10T	10	41.4	20.2	17.5	15.5	8.3	36.7	1.99
PU12T	12	47.8	23.4	21	22.6	9.9	47.4	2.57

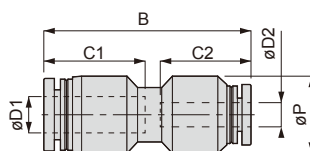


Unit: mm

Model	øD (Tube dia.)	B	C	øP	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PU5/32T	5/32	30.8	14.9	10	4.9	2.8	3.8	0.21
PU1/4T	1/4	34.9	17	12.5	6.8	4.3	11.4	0.62
PU5/16T	5/16	37.8	18.4	14.5	9.3	5.9	25.4	1.38
PU3/8T	3/8	41.4	20.2	17.5	15.5	8.3	36.7	1.99
PU1/2T	1/2	47.8	23.4	21	22.6	9.9	47.4	2.57

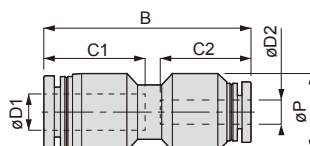
PG

Unequal Union
Straight



Unit: mm

Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PG6-4T	6	4	34.4	17	14.9	12.5	6.6	2.8	4.9	0.27
PG8-6T	8	6	37.9	18.4	17	14.5	8.8	4.3	6.3	0.34
PG10-8T	10	8	41.1	20.2	18.4	17.5	13.9	5.9	28.8	1.56
PG12-10T	12	10	47.6	23.4	20.2	21	21.7	8.3	39.9	2.16



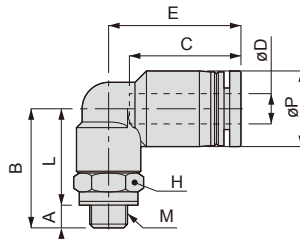
Unit: mm

Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PG1/4-5/32T	1/4	5/32	34.4	17	14.9	12.5	6.6	2.8	4.9	0.27
PG5/16-1/4T	5/16	1/4	37.9	18.4	17	14.5	8.8	4.3	6.3	0.34
PG3/8-5/16T	3/8	5/16	41.1	20.2	18.4	17.5	13.9	5.9	28.8	1.56
PG1/2-3/8T	1/2	3/8	47.6	23.4	20.2	21	21.7	8.3	39.9	2.16

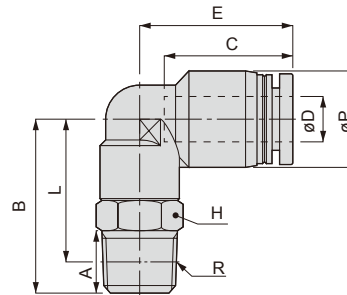
PL
Elbow



Appearance dimension for metric thread



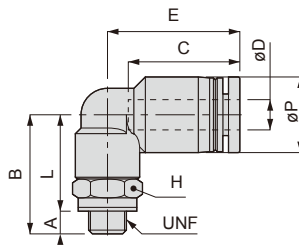
Appearance dimension for taper pipe thread (R)



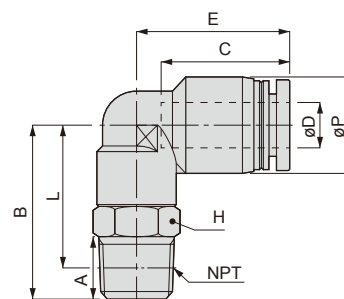
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PL4-M5T	4	M5×0.8	3	16	13	17.7	14.9	10	8	5.7	2.4	3.7	0.20
PL4-01T		R1/8	8	22	18	18.7			10	10.9	2.8	4.5	0.24
PL6-M5T	6	M5×0.8	3	19.5	16.6	20.3	17	12.5	10	13	1.8	1.5	0.08
PL6-01T		R1/8	8	22.5	18.5				11.9	4	9	0.49	
PL6-02T		R1/4	11	28	22				21.8	14	20	4.3	10	0.54
PL8-01T	8	R1/8	8	23	19	22.7	18.4	14.5	12	13.7	6	18.8	1.02
PL8-02T		R1/4	11	28	22	23.7			14	21.5	6.4	23.5	1.27
PL8-03T		R3/8	12	31	24.7	24.7			17	34.5	6.4	20.3	1.10
PL10-02T	10	R1/4	11	28.5	22.5	26	20.2	17.5	14	24.7	7.5	29.5	1.60
PL10-03T		R3/8	12	32	25.7	27			17	37.7	8.2	32.1	1.74
PL12-03T	12	R3/8	12	32.5	26.2	29.7	23.4	21	17	41.4	9	43	2.33
PL12-04T		R1/2	15	36.5	28.3				21				

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv	
PL5/32-U10UT	5/32	No.10-32UNF	3	16	13	17.7	14.9	10	5/16	5.7	2.4	3.7	0.20	
PL5/32-N1UT		NPT1/8	8	22	17.9	18.7			7/16	10.9	2.8	4.5	0.24	
PL5/32-N2UT		NPT1/4			17.4	17.9			21.2					
PL1/4-U10UT	1/4	No.10-32UNF	3	19.5	16.6	20.3	17	12.5	7/16	13	1.8	1.9	0.10	
PL1/4-N1UT		NPT1/8	8	22.5	18.4				11.9	4	9	0.49		
PL1/4-N2UT		NPT1/4	11	28	22.2				21.8	14	20	4.3	10	0.54
PL1/4-N3UT		NPT3/8	12	30	23.4									
PL5/16-N1UT	5/16	NPT1/8	8	23	18.9	22.7	18.4	14.5	1/2	13.7	6	18.8	1.02	
PL5/16-N2UT		NPT1/4	11	28	22.2	23.7			9/16	21.5	6.4	23.5	1.27	
PL5/16-N3UT		NPT3/8	12	31	24.9	24.7			11/16	34.5	6.4	20.3	1.10	
PL3/8-N1UT	3/8	NPT1/8	8	28	23.4	27	20.2	17.5	9/16	31.4	6	18.8	1.02	
PL3/8-N2UT		NPT1/4	11	28.5	22.7	26			9/16	24.7	7.5	29.5	1.60	
PL3/8-N3UT		NPT3/8	12	32	25.9	27			17.5	11/16	37.7	8.2	32.1	1.74
PL3/8-N4UT		NPT1/2	15	36	27.4									
PL1/2-N2UT	1/2	NPT1/4	11	26.2	26.2	29.7	23.4	21	9/16	42.6	9	43	2.33	
PL1/2-N3UT		NPT3/8	12	32.5	26.4				11/16	41.4				
PL1/2-N4UT		NPT1/2	15	36.5	28.4				7/8					

TUBE FITTING

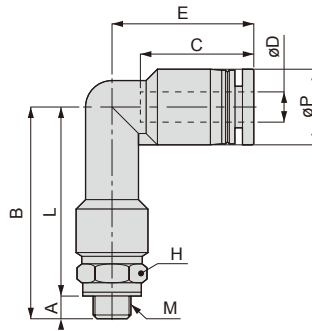
mindman

PLL

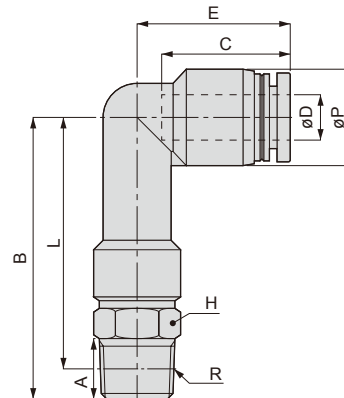
Long Elbow



Appearance dimension for metric thread



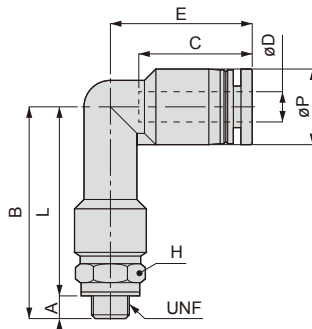
Appearance dimension for taper pipe thread (R)



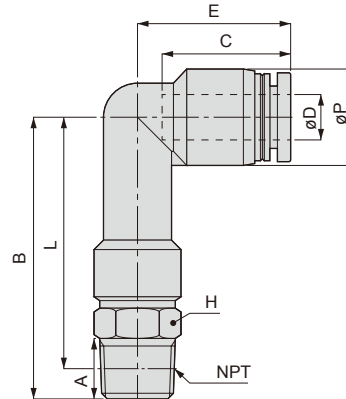
Unit: mm

Model	∅D (Tube dia.)	M/R	A	B	L	E	C	∅P	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PLL4-M5T	4	M5×0.8	3	28	25	18.7	14.9	10	8	6.7	2.4	3.5	0.19
PLL4-01T		R1/8	8	34	30				10	12	2.8	4.3	0.23
PLL6-01T	6	R1/8	8	37	33	20.3	17	12.5	10	13.4	4	7.9	0.43
PLL6-02T		R1/4	11	42.5	36.5				14	22.9	4.3	10.4	0.56
PLL8-01T	8	R1/8	8	39.5	35.5	22.7	18.2	14.5	12	17	6	18.5	1.00
PLL8-02T		R1/4	11	44.5	38.5				14	24.8	6.5	19.3	1.05
PLL8-03T		R3/8	12	47.5	41.2				17	39.1		19.2	1.04
PLL10-02T	10	R1/4	11	48	42	26	20.7	17.5	14	28.8	7.5	27.8	1.51
PLL10-03T		R3/8	12	51.5	45.2				17	43	8.3	31.8	1.72
PLL12-03T	12	R3/8	12	55.5	49.2	29.7	23.3	21	17	47.1	9	43.5	2.36
PLL12-04T		R1/2	15	59.5	51.3								

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)

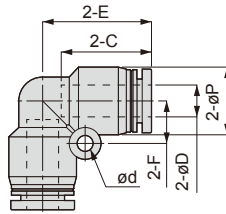


Unit: mm

Model	∅D (Tube dia.)	UNF/NPT	A	B	L	E	C	∅P	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PLL5/32-U10UT	5/32	No.10-32UNF	3	28	25	18.7	14.9	10	5/16	6.7	2.4	3.5	0.19
PLL5/32-N1UT		NPT1/8	8	34	29.9				7/16	12	2.8	4.3	0.23
PLL1/4-N1UT	1/4	NPT1/8	8	37	32.9	20.3	17	12.5	7/16	13.4	4	7.9	0.43
PLL1/4-N2UT		NPT1/4	11	42.5	36.7				9/16	22.9	4.3	10.4	0.56
PLL5/16-N1UT	5/16	NPT1/8	8	39.5	35.4	22.7	18.2	14.5	1/2	17	6	18.5	1.00
PLL5/16-N2UT		NPT1/4	11	44.5	38.7				9/16	24.8	6.5	19.3	1.05
PLL5/16-N3UT		NPT3/8	12	47.5	41.4				11/16	39.1		19.2	1.04
PLL3/8-N2UT	3/8	NPT1/4	11	48	42.2	26	20.7	17.5	9/16	28.8	7.5	27.8	1.51
PLL3/8-N3UT		NPT3/8	12	51.5	45.4				11/16	43	8.3	31.8	1.72
PLL1/2-N3UT	1/2	NPT3/8	12	55.5	49.4	29.7	23.3	21	11/16	47.1	9	43.5	2.36
PLL1/2-N4UT		NPT1/2	15	59.5	51.4				7/8				

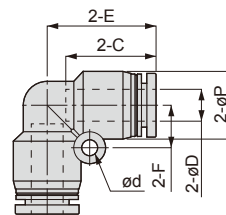
PV

Union Elbow



Unit: mm

Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PV4T	4	17.2	14.9	10	7	3.2	5.3	2.8	3.5	0.19
PV6T	6	20.5	17	12.5	8	3.2	7.5	4.3	8.7	0.47
PV8T	8	22.9	18.4	14.5	9.5	3.2	10.4	5.9	18.6	1.01
PV10T	10	26.2	20.2	17.5	11	4.2	17.4	8.3	28.4	1.54
PV12T	12	30.5	20.4	21	12.5	4.2	24.8	8.9	40.6	2.20

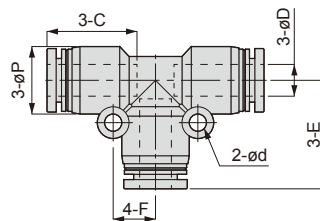


Unit: mm

Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PV5/32T	5/32	17.2	14.9	10	7	3.2	5.3	2.8	3.5	0.19
PV1/4T	1/4	20.5	17	12.5	8	3.2	7.5	4.3	8.7	0.47
PV5/16T	5/16	22.9	18.4	14.5	9.5	3.2	10.4	5.9	18.6	1.01
PV3/8T	3/8	26.2	20.2	17.5	11	4.2	17.4	8.3	28.4	1.54
PV1/2T	1/2	30.5	20.4	21	12.5	4.2	24.8	8.9	40.6	2.20

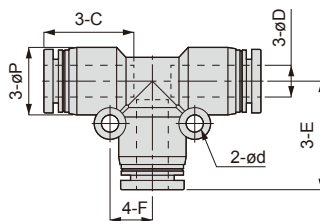
PE

Union Tee



Unit: mm

Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PE4T	4	17.2	14.9	10	7	3.2	8	2.8	4	0.22
PE6T	6	20.5	17	12.5	8	3.2	11.2	4.3	11.3	0.61
PE8T	8	22.9	18.4	14.5	9.5	3.2	15.7	5.9	25.5	1.38
PE10T	10	26.2	20.2	17.5	11	4.2	25.5	8.3	37.5	2.03
PE12T	12	30.5	20.4	21	12.5	4.2	36.7	9.9	47.3	2.56



Unit: mm

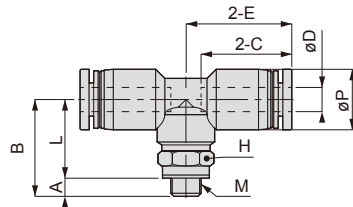
Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PE5/32T	5/32	17.2	14.9	10	7	3.2	8	2.8	4	0.22
PE1/4T	1/4	20.5	17	12.5	8	3.2	11.2	4.3	11.3	0.61
PE5/16T	5/16	22.9	18.4	14.5	9.5	3.2	15.7	5.9	25.5	1.38
PE3/8T	3/8	26.2	20.2	17.5	11	4.2	25.5	8.3	37.5	2.03
PE1/2T	1/2	30.5	20.4	21	12.5	4.2	36.7	9.9	47.3	2.56

PB

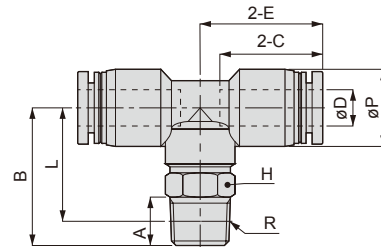
Branch Tee



Appearance dimension for metric thread



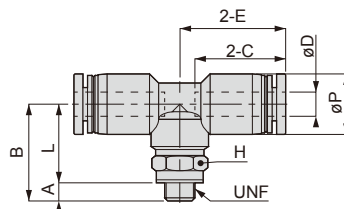
Appearance dimension for taper pipe thread (R)



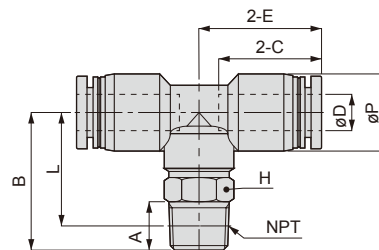
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PB4-M5T	4	M5×0.8	3	16	13	17.7	14.9	10	8	8.2	2.4	3.6	0.20
PB4-01T		R1/8	8	22	18	18.7			10	13.3	2.8	6.1	0.33
PB6-01T	6	R1/8	8	22.5	18.5	20.3	17	12.5	10	15.2	4	10.2	0.55
PB6-02T		R1/4	11	28	22	21.8			14	23.5	4.3	13	0.70
PB8-01T	8	R1/8	8	23	19	22.7	18.2	14.5	12	18.3	6.4	23.8	1.29
PB8-02T		R1/4	11	28	22	23.7			14	25.9		34.3	1.86
PB8-03T		R3/8	12	31	24.7	24.7			17	39.3		33	1.79
PB10-02T	10	R1/4	11	28.5	22.5	26	20.7	17.5	14	32.6	7.5	37.3	2.02
PB10-03T		R3/8	12	32	25.7	27			17	45.8	8.2	46.4	2.51
PB12-03T	12	R3/8	12	32.5	26.2	29.7	23.3	21	17	52.7	9	45.6	2.47
PB12-04T		R1/2	15	36.5	28.3				21				

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



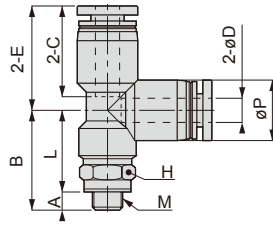
Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PB5/32-U10UT	5/32	No.10-32UNF	3	16	13	17.7	14.9	10	5/16	8.2	2.4	3.6	0.20
PB5/32-N1UT		NPT1/8	8	22	17.9	18.7			7/16	13.3	2.8	6.1	0.33
PB1/4-N1UT	1/4	NPT1/8	8	22.5	18.4	20.3	17	12.5	7/16	15.2	4	10.2	0.55
PB1/4-N2UT		NPT1/4	11	28	22.2	21.8			9/16	23.5	4.3	13	0.70
PB5/16-N1UT	5/16	NPT1/8	8	23	18.9	22.7	18.2	14.5	1/2	18.3	6.4	23.8	1.29
PB5/16-N2UT		NPT1/4	11	28	22.2	23.7			9/16	25.9		34.3	1.86
PB5/16-N3UT		NPT3/8	12	31	24.9	24.7			11/16	39.3		33	1.79
PB3/8-N2UT	3/8	NPT1/4	11	28.5	22.7	26	20.7	17.5	9/16	32.6	7.5	37.3	2.02
PB3/8-N3UT		NPT3/8	12	32	25.9	27			11/16	45.8	8.2	46.4	2.51
PB1/2-N3UT	1/2	NPT3/8	12	32.5	26.4	29.7	23.3	21	11/16	52.7	9	45.6	2.47
PB1/2-N4UT		NPT1/2	15	36.5	28.4				7/8				

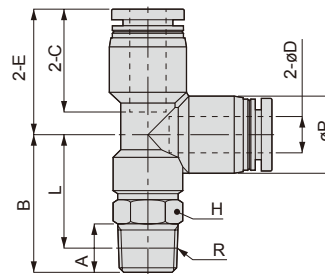
PD
Run Tee



Appearance dimension for metric thread



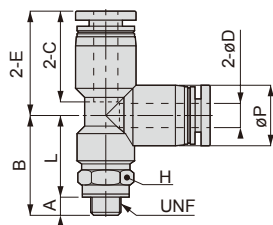
Appearance dimension for taper pipe thread (R)



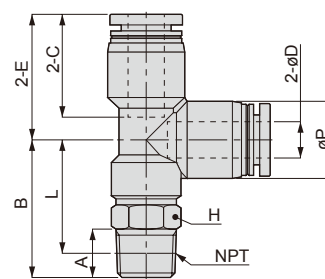
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PD4-M5T	4	M5×0.8	3	16.5	13.5	17.2	14.9	10	8	8.2	2.4	3.4	0.18
PD4-01T		R1/8	8	23	19				10	13.3	2.8	5.2	0.28
PD6-01T	6	R1/8	8	22.8	18.8	20.5	17	12.5	10	15.2	4	10.4	0.56
PD6-02T		R1/4	11	28.3	22.2				14	23.3	4.3	13	0.70
PD8-01T	8	R1/8	8	23	19	22.9	18.4	14.5	12	18.4	6	24.3	1.32
PD8-02T		R1/4	11	28.8	22.8				14	26.1	6.5	33.4	1.81
PD8-03T		R3/8	12	31.5	25.2				17	39		32.3	1.75
PD10-02T	10	R1/4	11	28.5	22.5	26.2	20.2	17.5	14	32.5	7.5	38.2	2.07
PD10-03T		R3/8	12	32	25.7				17	45.7	8.3	46.6	2.53
PD12-03T	12	R3/8	12	33	26.7	30.5	23.4	21	17	53	9	45.9	2.49
PD12-04T		R1/2	15	37	28.8				21				

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



Unit: mm

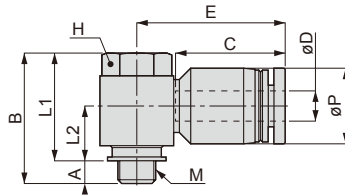
Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PD5/32-U10UT	5/32	No.10-32UNF	3	16.5	13.5	17.2	14.9	10	5/16	8.2	2.4	3.4	0.18
PD5/32-N1UT		NPT1/8	8	22	18.9	7/16			13.3	2.8	5.2	0.28	
PD1/4-N1UT	1/4	NPT1/8	8	22.8	18.6	20.5	17	12.5	7/16	15.2	4	10.4	0.56
PD1/4-N2UT		NPT1/4	11	28.3	22.5	9/16			23.3	4.3	13	0.70	
PD5/16-N1UT	5/16	NPT1/8	8	23	18.9	22.9	18.4	14.5	1/2	18.4	6	24.3	1.32
PD5/16-N2UT		NPT1/4	11	28.8	23	9/16			26.1	6.5	33.4	1.81	
PD5/16-N3UT		NPT3/8	12	31.5	25.4	11/16			39		32.3	1.75	
PD3/8-N2UT	3/8	NPT1/4	11	28.5	22.7	26.2	20.2	17.5	9/16	32.5	7.5	38.2	2.07
PD3/8-N3UT		NPT3/8	12	32	25.9	11/16			45.7	8.3	46.6	2.53	
PD1/2-N3UT	1/2	NPT3/8	12	33	26.9	30.5	23.4	21	11/16	53	9	45.9	2.49
PD1/2-N4UT		NPT1/2	15	37	28.9				7/8				

PH

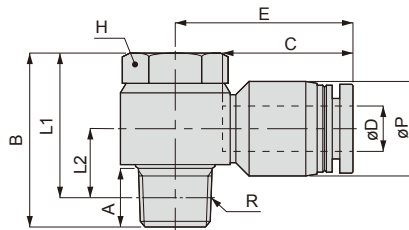
Single Banjo



Appearance dimension for metric thread



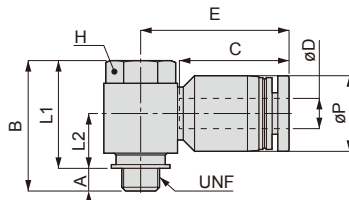
Appearance dimension for taper pipe thread (R)



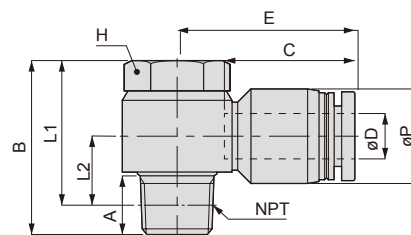
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L1	L2	E	C	øP	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PH4-M5T	4	M5×0.8	3	17.1	14.1	7.1	19.9	14.9	10	8	7.5	2.4	2.6	0.14
PH4-01T		R1/8	8	24.7	20.7	10.7	21.4			12	17.8	2.8	4.1	0.22
PH6-01T	6	R1/8	8	24.7	20.7	10.9	23.5	17	12.5	12	18.6	4.3	7.1	0.38
PH6-02T		R1/4	11	28.7	22.7	12.1	25.5			14	28.4	6.2	8.6	0.47
PH8-01T	8	R1/8	8	24.7	20.7	11.9	26.9	18.4	14.5	12	20.1	6	9.9	0.54
PH8-02T		R1/4	11	28.7	22.7	13.1	28.4			14	29.9	7	10.7	0.58
PH10-02T	10	R1/4	11	28.7	22.7	14.7	30.9	20.2	17.5	14	33	7.3	10.2	0.55
PH10-03T		R3/8	12	34.5	28.2	15.5	31.2			19	61	9	20.3	1.10
PH12-03T	12	R3/8	12	34.5	28.2	17.2	36.9	23.4	21	19	65	9	20.3	1.10
PH12-04T		R1/2	15	41.2	33	18.8	36.4			24	122		25	1.36

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



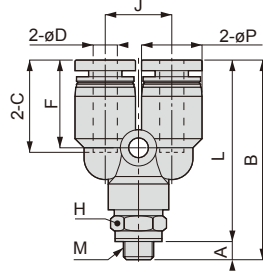
Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L1	L2	E	C	øP	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PH5/32-U10UT	5/32	No.10-32UNF	3	17.1	14.1	7.1	19.9	14.9	10	5/16	7.5	2.4	2.6	0.14
PH5/32-N1UT		NPT1/8	8	24.7	20.6	10.6	21.4			7/16	17.8	2.8	4.1	0.22
PH1/4-N1UT	1/4	NPT1/8	8	24.7	20.6	10.8	23.5	17	12.5	7/16	18.6	4.3	7.1	0.38
PH1/4-N2UT		NPT1/4	11	28.7	22.9	12.3	25.5			9/16	28.4	6.2	8.6	0.47
PH5/16-N1UT	5/16	NPT1/8	8	24.7	20.6	11.8	26.9	18.4	14.5	7/16	20.1	6	9.9	0.54
PH5/16-N2UT		NPT1/4	11	28.7	22.9	13.3	28.4			9/16	29.9	7	10.7	0.58
PH3/8-N2UT	3/8	NPT1/4	11	28.7	22.9	14.9	30.9	20.2	17.5	9/16	33	7.3	10.2	0.55
PH3/8-N3UT		NPT3/8	12	34.5	28.4	15.7	31.2			3/4	61	9	20.3	1.10
PH1/2-N3UT	1/2	NPT3/8	12	34.5	28.4	17.4	36.9	23.4	21	3/4	65	9	20.3	1.10
PH1/2-N4UT		NPT1/2	15	41.2	33.1	18.9	36.4			1	122		25	1.36

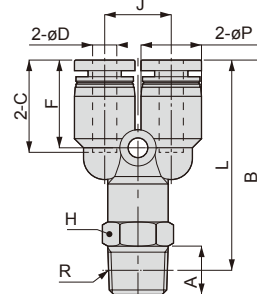
PX
Branch Y



Appearance dimension for metric thread



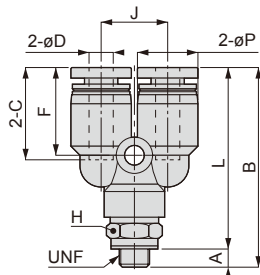
Appearance dimension for taper pipe thread (R)



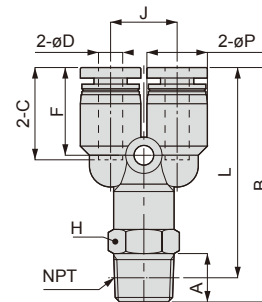
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L	ød	C	øP	F	J	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PX4-M5T	4	M5×0.8	3	32.9	29.9	3.2	14.9	10	14.2	11	8	8.7	2.1	3.4	0.18
PX4-01T		R1/8	8	38.4	34.4						10	13.4		4.7	0.25
PX6-01T	6	R1/8	8	41.3	37.3	3.2	17	12.5	15.8	12	10	15.9	4	10.3	0.56
PX6-02T		R1/4	11	51.8	45.7			4.2	14.5	17.3	14	14		26.2	5	9.9	0.54
PX8-01T	8	R1/8	8	47.7	43.7	4.2	18.4	14.5	17.2	14	12	19.9	5.4	20	1.08
PX8-02T		R1/4	11	51.7	45.7						14	27.2		23.6	1.28
PX8-03T		R3/8	12	58.1	51.8						17	44.4		7.3	36.5	1.98
PX10-02T	10	R1/4	11	56.4	50.4	4.2	20.2	17.5	19.5	18	14	35	7.5	35.9	1.95
PX10-03T		R3/8	12	58.4	52.1						17	47.7	8.3	42.5	2.30
PX12-03T	12	R3/8	12	60.6	54.3	4.2	23.4	21	22.2	20	17	55.3	8.9	45.7	2.48
PX12-04T		R1/2	15	64.6	56.4						21				

Appearance dimension for unified thread



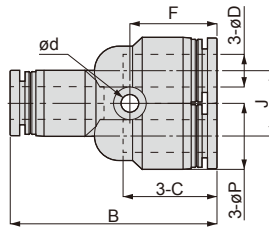
Appearance dimension for pipe thread general purpose (NPT)



Unit: mm

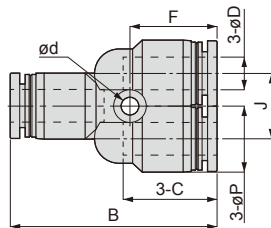
Model	øD (Tube dia.)	UNF/NPT	A	B	L	ød	C	øP	F	J	H (Hex.)	Weight (g)	Orifice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PX5/32-U10UT	5/32	No.10-32UNF	3	32.9	29.9	3.2	14.9	10	14.2	11	5/16	8.7	2.1	3.4	0.18
PX5/32-N1UT		NPT1/8	8	38.4	34.3						7/16	13.4		4.7	0.25
PX1/4-N1UT	1/4	NPT1/8	8	41.3	37.1	3.2	17	12.5	15.8	12	7/16	15.9	4	10.3	0.56
PX1/4-N2UT		NPT1/4	11	51.8	46			4.2	14.5	17.3	14	9/16		26.2	5	9.9	0.54
PX5/16-N1UT	5/16	NPT1/8	8	47.7	43.6	4.2	18.4	14.5	17.2	14	1/2	19.9	5.4	20	1.08
PX5/16-N2UT		NPT1/4	11	51.7	45.9						14	27.2		23.6	1.28
PX5/16-N3UT		NPT3/8	12	58.1	52						17	44.4		7.3	36.5	1.98
PX3/8-N2UT	3/8	NPT1/4	11	56.4	50.6	4.2	20.2	17.5	19.5	18	9/16	35	7.5	35.9	1.95
PX3/8-N3UT		NPT3/8	12	58.4	52.3						11/16	47.7	8.3	42.5	2.30
PX1/2-N3UT	1/2	NPT3/8	12	60.6	54.5	4.2	23.4	21	22.2	20	11/16	55.3	8.9	45.7	2.48
PX1/2-N4UT		NPT1/2	15	64.6	56.5						7/8				

PY
Union Y



Unit: mm

Model	øD (Tube dia.)	B	C	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PY4T	4	32.8	14.9	10	3.2	11	14.1	7.7	2.1	2.5	0.14
PY6T	6	37.7	17	12.5	3.2	12	15.8	10.8	4.1	8.7	0.47
PY8T	8	42.4	18.4	14.5	3.2	14	17.2	15.2	5.3	16.7	0.91
PY10T	10	48.4	20.2	17.5	4.2	18	19.5	25.3	8.1	33.1	1.79
PY12T	12	54.8	23.4	21	4.2	20	22.2	36.3	8.6	37.8	2.05

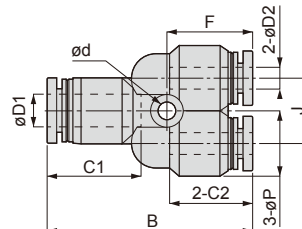


Unit: mm

Model	øD (Tube dia.)	B	C	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PY5/32T	5/32	32.8	14.9	10	3.2	11	14.1	7.7	2.1	2.5	0.14
PY1/4T	1/4	37.7	17	12.5	3.2	12	15.8	10.8	4.1	8.7	0.47
PY5/16T	5/16	42.4	18.4	14.5	3.2	14	17.2	15.2	5.3	16.7	0.91
PY3/8T	3/8	48.4	20.2	17.5	4.2	18	19.5	25.3	8.1	33.1	1.79
PY1/2T	1/2	54.8	23.4	21	4.2	20	22.2	36.3	8.6	37.8	2.05

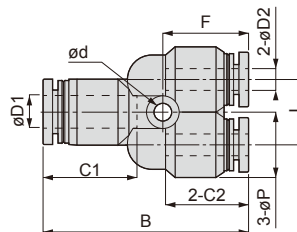
PW

Unequal Union Y



Unit: mm

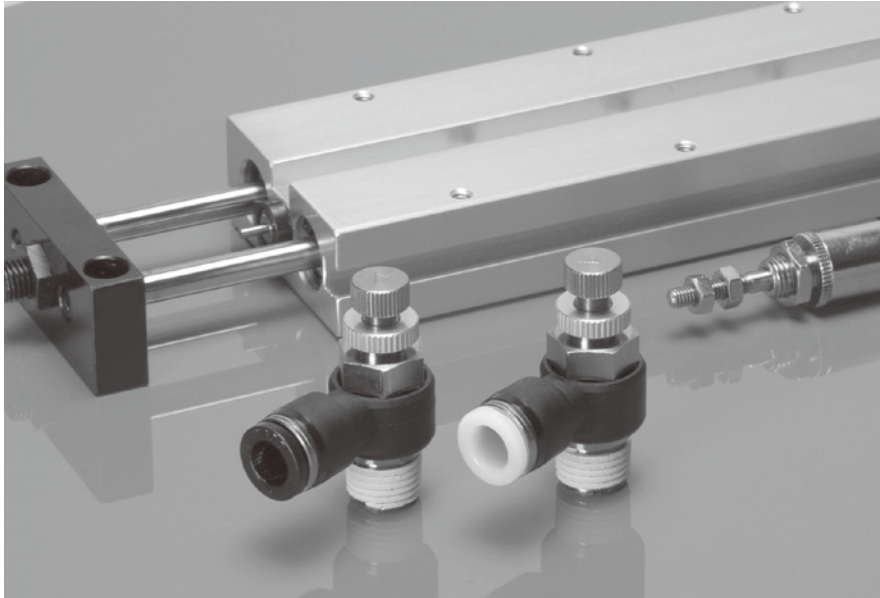
Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PW6-4T	6	4	37.2	17	14.9	12.5	3.2	12	15.2	10.4	3.8	4	0.22
PW8-6T	8	6	42.5	18.4	17	14.5	3.2	14	17.3	14.4	5.8	6.3	0.34
PW10-8T	10	8	48.1	20.2	18.4	17.5	4.2	18	19.2	22.2	8.2	22	1.19
PW12-10T	12	10	54.6	23.4	20.2	21	4.2	20	22	34.8	7.9	35.9	1.95



Unit: mm

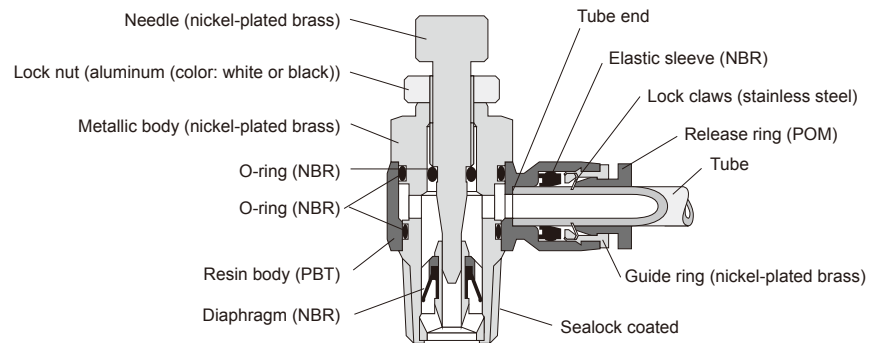
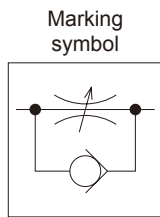
Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm ²)	Cv
PW1/4-5/32T	1/4	5/32	37.2	17	14.9	12.5	3.2	12	15.2	10.4	3.8	4	0.22
PW5/16-1/4T	5/16	1/4	42.5	18.4	17	14.5	3.2	14	17.3	14.4	5.8	6.3	0.34
PW3/8-5/16T	3/8	5/16	48.1	20.2	18.4	17.5	4.2	18	19.2	22.2	8.2	22	1.19
PW1/2-3/8T	1/2	3/8	54.6	23.4	20.2	21	4.2	20	22	34.8	7.9	35.9	1.95

Maintaining basic functions, this low-cost Speed controller achieves high-cost performance.



- The speed controller controls the operation speed of a driving device.
- The lead-out directions are free thanks to rotation of the resin body and joint.

Construction



Specification

Type	Fitting
Fluid admitted	Air
Max. service pressure	0.9 MPa
Check valve operating pressure	0.05 MPa
Service temperature range	0 ~+60°C

Order example

JSC 1/4 - N1 A U T

MODEL

HEXAGON FLAT-TO-FLAT SPECIFICATION

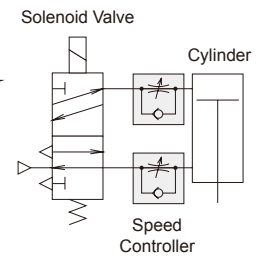
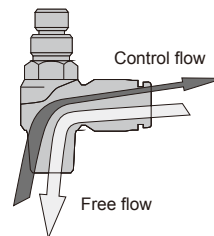
U: Hexagon flat-to-flat inch spec. (NPT)
Blank: Hexagon flat-to-flat mm spec.

CONTROL DIRECTION

A: Meter-out control (Color of lock nut: white (primary color)) (*1)
B: Meter-in control (Color of lock nut: black) (*2)

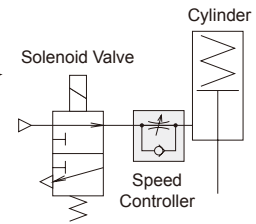
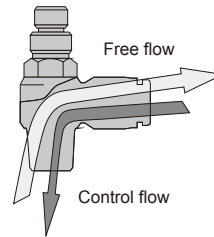
*1. Meter-out control

● The flow rate of air entering from the thread side can be controlled, whereas air entering from the joint side is not controlled.



*2. Meter-in control

● The flow rate of air entering from the joint side can be controlled, whereas air entering from the thread side is not controlled.



THREAD SIZE (R)

	Metric thread	Taper pipe thread			
Code	M5	01	02	03	04
Size	M5×0.8	R1/8	R1/4	R3/8	R1/2
	Unified fine thread	American standard taper pipe thread			
Code	U10	N1	N2	N3	N4
Size	10-32UNF	NPT1/8	NPT1/4	NPT3/8	NPT1/2

TUBE DIA. (øD)

	mm size				
Code	4	6	8	10	12
Dia. (mm)	4	6	8	10	12
	inch size				
Code	5/32	1/4	5/16	3/8	1/2
Dia. (inch)	5/32	1/4	5/16	3/8	1/2

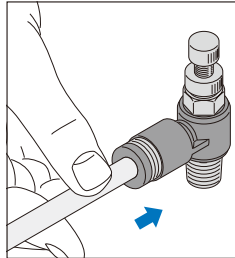
Connection and disconnection

1. How to fit and release tubing

(1) Tube insertion

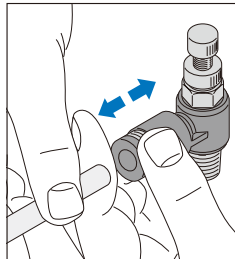
Simply insert a tubing to the end of Speed Controller. The lock claws automatically fix the tubing and the elastic sleeve seals the tube surround.

Please refer to "2. Cautions on the fitting of tube" in "Common Safety Instructions for Quick-Fitting Joint" for other instructions.



(2) Tube release

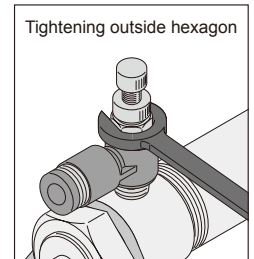
In case of releasing the tube, push the release ring. The lock claws open and the tube can be released. Before releasing the tube, make certain that the pressure inside the tube is zero.



2. How to tighten the screw

Tighten the outside hexagon by a spanner. (Please refer to the text for detail.)

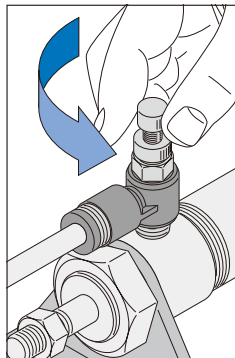
Please refer to "Table. Recommended Tightening Torque" in "1. Notes on installation" on "Common Safety Instructions for Controllers".



Speed adjustment

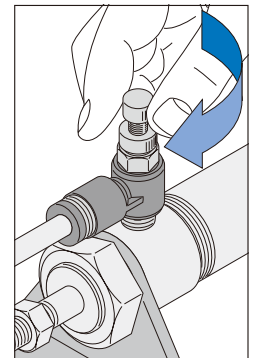
1. How to run the driving device faster

Turn the needle counterclockwise from fully closed position, and the driving device will run faster. Tighten the Lock nut at desirable speed in order to keep same speed.



2. How to run the driving device slower

Turn the needle clockwise, and the driving device will run slower. Tighten the Lock nut at desirable speed in order to keep same speed.



⚠ Detailed safety instructions

Before using the PISCO device, be sure to read the "Safety Instructions", "Common Safety Instructions for Products Listed in This Manual" on page 7-20 to 22 and "Common Safety Instructions for Controllers" on page 7-25.

Warning

1. Adjust the speed of the actuator by opening the needle gradually from the fully closed position. With the needle open, there are chances of the actuator flying out. Turn the needle clockwise to close or counterclockwise to open.
2. Do not subject the product with a rotatable resin to forcible swinging or rotation. Otherwise the body may suffer damage or develop leakage.

Caution

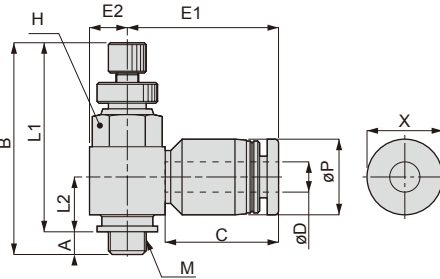
1. The Speed Controller is designed to tolerate some air flow at fully closed position. Therefore do not use it for applications that permits no air flow.

JSC

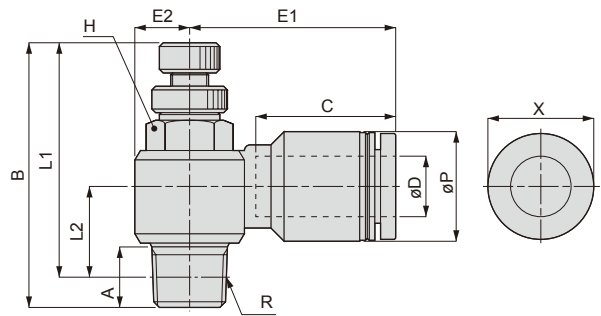
Elbow



Appearance dimension for metric thread



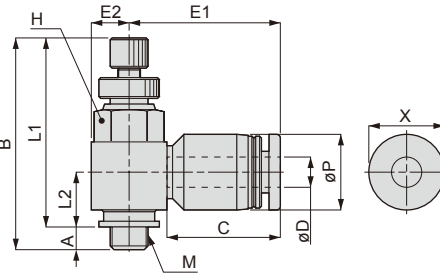
Appearance dimension for taper pipe thread (R)



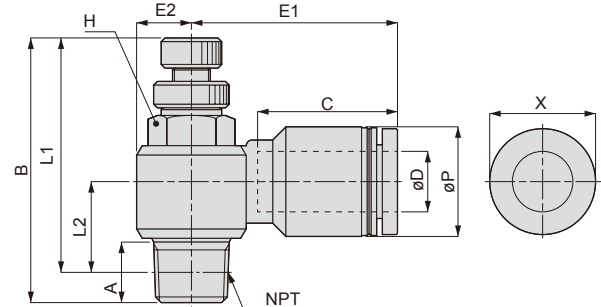
Unit: mm

Model	øD (Tube dia.)	M/R	A	B		L1		L2	øP	C	E1	E2	H (Hex.)	X	Weight (g)
				max	min	max	min								
JSC4-M5□T	4	M5×0.8	2.9	29.7	27	26.8	24.1	7.2	10	14.9	19.9	4.9	8	9.9	8.5
JSC4-01□T		R1/8	8	40.7	34.4	36.7	30.4	10.7			21.4	7.2	10		18
JSC6-M5□T	6	M5×0.8	2.9	29.7	27	26.8	24.1	8.4	12.5	17	24	4.9	8	11.8	9.5
JSC6-01□T		R1/8	8	40.7	34.4	36.7	30.4	10.9			23.5	7.2	10		19
JSC6-02□T		R1/4	11	47.8	41.4	41.8	35.4	12.2			25.5	9.2	14		36
JSC8-01□T	8	R1/8	8	40.7	34.4	36.7	30.4	11.9	14.5	18.1	26.9	7.2	10	13.8	20
JSC8-02□T		R1/4	11	47.8	41.4	41.8	35.4	13.2			28.4	9.2	14		38
JSC10-02□T	10	R1/4	11	47.8	41.4	41.8	35.4	14.8	17.5	20.2	30.9	9.2	14	16.8	41
JSC10-03□T		R3/8	12	53.7	46.5	47.3	40.1	16.7			31.2	11	19		68
JSC12-03□T		R3/8	12	53.7	46.5	47.3	40.1	18.4			36.9	11	19		71
JSC12-04□T	12	R1/2	15	59.3	52.3	51.1	44.1	19.7	21	23.4	36.4	14	24	19.8	108

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)

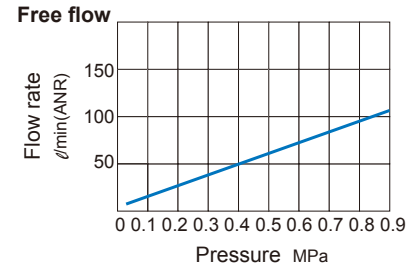
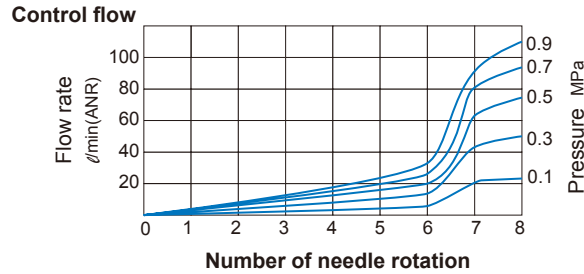


Unit: mm

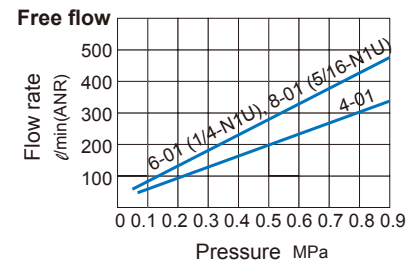
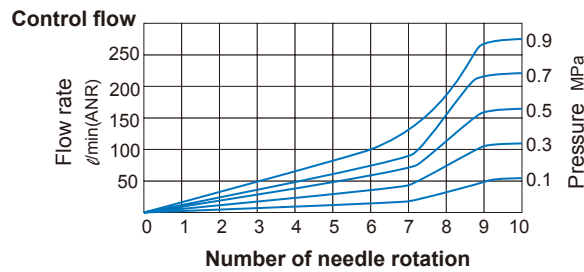
Model	øD (Tube dia.)	UBF/NPT	A	B		L1		L2	øP	C	E1	E2	H (Hex.)	X	Weight (g)
				max	min	max	min								
JSC5/32-U10□UT	5/32	No.10-32UNF	2.9	29.7	27	26.8	24.1	7.2	10	14.9	19.9	4.9	5/16	9.9	8.5
JSC5/32-N1□UT		NPT1/8	8	40.7	34.4	36.7	30.4	10.7			21.4	7.2	7/16		18
JSC1/4-U10□UT	1/4	No.10-32UNF	2.9	29.7	27	26.8	24.1	8.4	12.5	17	24	4.9	5/16	11.8	9.5
JSC1/4-N1□UT		NPT1/8	8	40.7	34.4	36.7	30.4	10.9			23.5	7.2	7/16		19
JSC1/4-N2□UT		NPT1/4	11	47.8	41.4	41.8	35.4	12.2			25.5	9.2	9/16		36
JSC5/16-N1□UT	5/16	NPT1/8	8	40.7	34.4	36.7	30.4	11.9	14.5	18.1	26.9	7.2	7/16	13.8	20
JSC5/16-N2□UT		NPT1/4	11	47.8	41.4	41.8	35.4	13.2			28.4	9.2	9/16		38
JSC3/8-N2□UT	3/8	NPT1/4	11	47.8	41.4	41.8	35.4	14.8	17.5	20.2	30.9	9.2	9/16	16.8	41
JSC3/8-N3□UT		NPT3/8	12	53.7	46.5	47.3	40.1	16.7			31.2	11	3/4		68
JSC1/2-N3□UT	1/2	NPT3/8	12	53.7	46.5	47.3	40.1	18.4	21	23.4	36.9	11	3/4	19.8	71
JSC1/2-N4□UT		NPT1/2	15	59.3	52.3	51.1	44.1	19.7			36.4	14	1		108

Characteristics

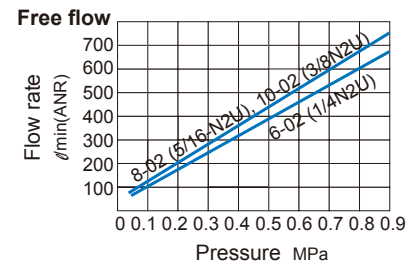
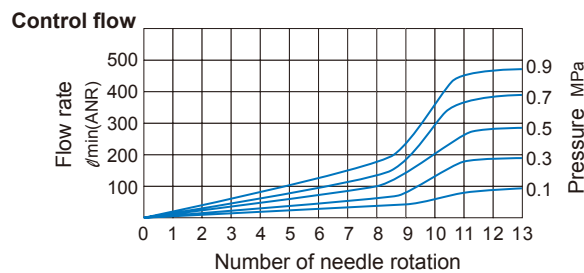
- JSC 4-M5□T
- 6-M5□T
- 5/32-U10□UT
- 1/4-U10□UT



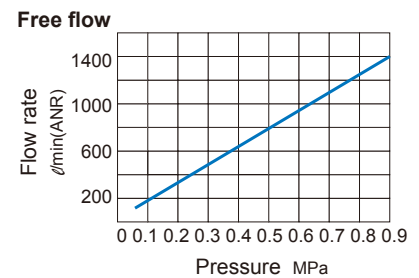
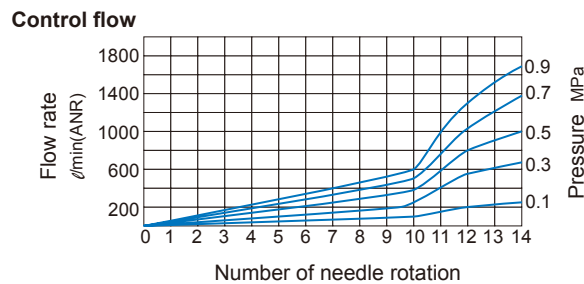
- JSC 4-01□T
- 6-01□T
- 8-01□T
- 5/32-N1□UT
- 1/4-N1□UT
- 5/16-N1□UT



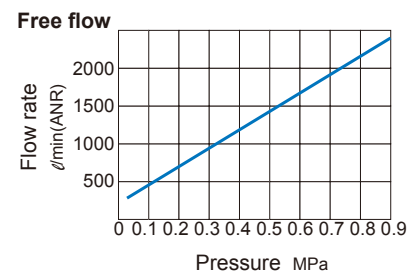
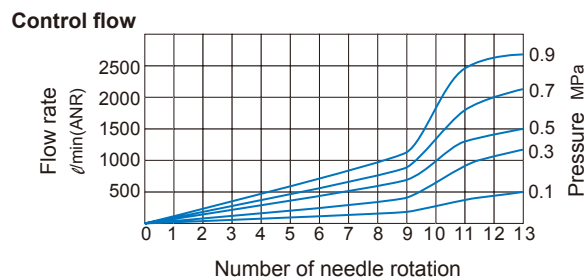
- JSC 6-02□T
- 8-02□T
- 10-02□T
- 1/4-N2□UT
- 5/16-N2□UT
- 3/8-N2□UT



- JSC 10-03□T
- 12-03□T
- 3/8-N3□UT
- 1/2-N3□UT



- JSC 12-04□T
- 1/2-N4□UT



These Safety Instructions aim to prevent injuries to human bodies and damage to properties by requiring proper use of PISCO devices.

Also the relevant requirements of ISO 4414 and JIS B8370 must be observed.

ISO 4414: Pneumatic fluid power... Recommendations for the application of equipment to transmission and control systems.

JIS B 8370: General standards for pneumatic systems

Safety instructions are classified into "Danger", "Warning" and "Caution", categories depending on the degree of danger or damage involved when the safety instructions are not complied with in handling the equipment.



Danger

Failure to heed the warning of apparent danger may result in death or serious injuries.



Warning

Failure to heed the warning of conditionally dangerous situations may result in death or serious injuries.



Caution

Failure to heed the warning of conditionally dangerous situations may result in minor or not too serious injuries or damage to properties.

* Safety Instructions are subject to change without advance notice.

PISCO products are designed and manufactured for use with general industrial machinery and equipment. Therefore be sure to observe the following safety instructions.

- ⚠ Danger**
- Do not use PISCO devices with the following equipment.
 - Equipment used for the sustenance or control of people's health or lives.
 - Equipment used for the movement or transport of people.
 - Equipment used specifically to ensure safety.

- ⚠ Warning**
- Avoid the following uses for PISCO devices.
 - Use under conditions not specified for the device
 - Use in any outdoor environment
 - Use in locations where the device is exposed to excessive vibration or shocks
 - Use in locations where the device is exposed to any corrosive gas, inflammable gas, chemicals, seawater, or vapor.
 - Certain PISCO devices, however, can be used in environments as described above. Therefore check on the specifications for the use of individual devices.
 - Do not disassemble or remodel the PISCO devices in such a way as may affect the basic structure, performance or function of them.
 - Carry out maintenance and checks of the PISCO devices only after turning power off, shutting air off and making certain that the pressure in the piping has dropped to zero.
 - Never touch the release ring of the Quick-Fitting Joint when there is pressure working on it. Touching may release the ring, which in turn may cause the tube to fall out.
 - Avoid too frequent switching of air pressure. Otherwise the device body may heat up to cause burns on you.
 - Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.
 - For applications in which the threaded side or the tube connection side is subject to vibration, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
 - For applications with hot water of 60 or above or thermal oil, use no other joints than Die Temperature Control Fitting. Heat or hydrolysis may damage the joint body.
 - For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.

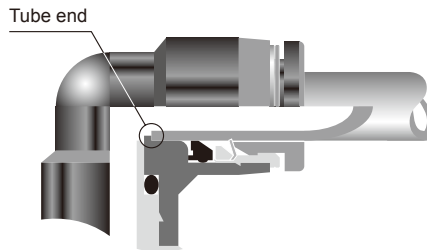
- ⚠ Caution**
- In installing the piping, be sure to remove dust or drainage from within the piping. Dust or drainage left unremoved may enter other equipment, thus causing troubles.
 - When using an ultrasoft tube to connect to a Quick-Fitting Joint, be sure to use an insert ring in the bore of the tube. Otherwise the tube may fall out to cause leakage.
 - When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified (Table 1).

Table 1. Tube O.D. tolerance

mm size	Nylon tube	Urethane tube	inch size	Nylon tube	Urethane tube
ø1.8 mm	—	±0.05mm	ø1/8	±0.0039in.	±0.0059in.
ø3 mm	—	±0.15mm	ø5/32	±0.0039in.	±0.0059in.
ø4 mm	±0.1mm	±0.15mm	ø3/16	±0.0039in.	±0.0059in.
ø6 mm	±0.1mm	±0.15mm	ø1/4	±0.0039in.	±0.0059in.
ø8 mm	±0.1mm	±0.15mm	ø5/16	±0.0039in.	±0.0059in.
ø10 mm	±0.1mm	±0.15mm	ø3/8	±0.0039in.	±0.0059in.
ø12 mm	±0.1mm	±0.15mm	ø1/2	±0.0039in.	±0.0059in.
ø16 mm	±0.1mm	±0.15mm	ø5/8	±0.0039in.	±0.0059in.

⚠ Caution 4. Cautions on the fitting of tube

- (1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.
- (2) When fitting a tube, refer to the dimensional specification of (Table 2). To prevent leaks, insert the tube to end (C) completely.



- (3) On completion of fitting, make certain that the tube does not come out at your pulling.

5. Cautions on the release of tube

- (1) Before releasing the tube, make certain that the pressure inside the tube is zero.
- (2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

6. Cautions on the installation of joint body

- (1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.
- (2) In tightening the screw, use the tightening torque recommended in (Table 2).
 - Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
 - Use of a torque lower than the recommended level may cause loose screw and leakage.
- (3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 2. Tightening torque, sealock color and gasket material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material
Metric thread	M3×0.5	0.7N·m (0.52lbf-ft)	—	SUS304, NBR
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)		
	M6×1.0	1.8 ~ 2.3N·m (1.33 ~ 1.70lbf-ft)		
	M6×0.75	0.8 ~ 1.0N·m (0.59 ~ 0.74lbf-ft)		POM (Polyacetal)
	M8×0.75	1.0 ~ 2.0N·m (0.74 ~ 1.48lbf-ft)		
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)		
Taper pipe thread	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)	White	—
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)		
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)		
	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)		
Unified thread	No.10~32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)	—	SUS304, NBR
Pipe thread General purpose (inch)	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)	Gray	—
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)		
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)		
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)		
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)		

7. Cautions on the removal of joint body

- (1) When removing the joint body, loosen it with a proper tool, using the outside or inside hexagon.
- (2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

- Warning**
1. Never use the Quick-Fitting Joint with fluids other than air or water (usable with some models). For applications with fluids other than air or water, contact PISCO for instructions.
 2. Never use joints other than Spatter Joint or Brass Joint where they are exposed to spatter. Otherwise spatter can cause fire.
 3. For applications in which the threaded side or the tube connection side is subject to vibration or rotation, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
 4. For applications with hot water of 60°C (140°F) or above or thermal oil, use no other joints than Die Temperature Control Fittings. Heat or hydrolysis may damage the joint body.
 5. For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.
 6. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.

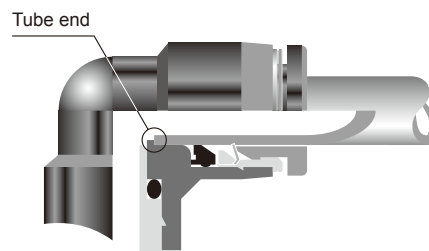
- Caution**
1. When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified in (Table 1).

Table 1. Tube O.D. tolerance

mm size	Nylon tube	Urethane tube	inch size	Nylon tube	Urethane tube
ø1.8 mm	—	±0.05mm	ø1/8	±0.0039in.	±0.0059in.
ø3 mm	—	±0.15mm	ø5/32	±0.0039in.	±0.0059in.
ø4 mm	±0.1mm	±0.15mm	ø3/16	±0.0039in.	±0.0059in.
ø6 mm	±0.1mm	±0.15mm	ø1/4	±0.0039in.	±0.0059in.
ø8 mm	±0.1mm	±0.15mm	ø5/16	±0.0039in.	±0.0059in.
ø10 mm	±0.1mm	±0.15mm	ø3/8	±0.0039in.	±0.0059in.
ø12 mm	±0.1mm	±0.15mm	ø1/2	±0.0039in.	±0.0059in.
ø16 mm	±0.1mm	±0.15mm	ø5/8	±0.0039in.	±0.0059in.

2. Cautions on the fitting of tube

- (1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.
- (2) When fitting a tube, refer to the dimensional specification of (Table 2). To prevent leaks, insert the tube to end (C) completely.
- (3) On completion of fitting, make certain that the tube does not come out at your pulling.



3. Cautions on the release of tube

- (1) Before releasing the tube, make certain that the pressure inside the tube is zero.
- (2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

Caution 4. Cautions on the installation of joint body

- (1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.
- (2) In tightening the screw, use the tightening torque recommended in (Table 2).
 - Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
 - Use of a torque lower than the recommended level may cause loose screw and leakage.
- (3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 2. Tightening torque, sealock color and gasket material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material
Metric thread	M3×0.5	0.7N·m (0.52lbf-ft)	—	SUS304, NBR
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)		
	M6×1.0	1.8 ~ 2.3N·m (1.33 ~ 1.70lbf-ft)		POM (Polyacetal)
	M6×0.75	0.8 ~ 1.0N·m (0.59 ~ 0.74lbf-ft)		
	M8×0.75	1.0 ~ 2.0N·m (0.74 ~ 1.48lbf-ft)		
M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)			
Taper pipe thread	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)	White	—
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)		
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)		
	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)		
Unified thread	No.10~32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)	—	SUS304, NBR
Pipe thread General purpose (inch)	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)	Gray	—
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)		
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)		
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)		
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)		

5. Cautions on the removal of joint body

- (1) When removing the joint body, loose it with a proper tool, using the outside or inside hexagon.
- (2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

- Warning**
1. Each device has its control direction, so check it is manual and by the mark on the device before use. Mistaking the control direction may cause injuries on the operator or damage to the equipment.
 2. Do not give tension, twist or bending to the controllers. Also, do not drop or give excessive shocks to them. Such careless handling can inflict damage to them.
 3. When the controller has a lock nut on it, tighten it by hand without using a tool. Tightening with a tool may damage the lock nut or the controller body. Also, incomplete may lead to a loose lock nut, which in turn may render the initial setting useless.
 4. Use clean air as the pressure source. Dust or sludge may upset the control setting.

- Caution**
1. **Notes on installation**
 - (1) Tighten with a proper tool, using hexagonal or knurled part.
 - (2) In tightening the screw, use the tightening torque recommended in the following table. Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks. Use of a torque lower than the recommended level may cause loose screw and leakage.

Table. Recommended tightening torque

■ Hexagonal part

Thread type	Thread size	Tightening torque
Metric thread	M3×0.5	0.7N·m (0.52lbf-ft)
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)
	M6×1.0	1.8 ~ 2.3N·m (1.33 ~ 1.70lbf-ft)
Taper pipe thread	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)
	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)
Unified thread	No.10~32UNF	1.5 ~ 1.9N·m (1.11 ~ 1.40lbf-ft)
Pipe thread General purpose (inch)	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)
Parallel pipe thread	G3/8	1/2 ~ 1 turn after hand-tightening
	G1/2	

■ Knurled part

Thread type	Thread size	Tightening torque
Metric thread	M5×0.8	1/6 turn after hand-tightening
	M6×1.0	
	M10×1.0	
Parallel pipe thread	G1/8	1/2 ~ 1 turn after hand-tightening
	G1/4	

2. Notes on removal

- (1) Loosen it with a proper tool, using the hexagonal or knurled part.
- (2) Remove sealant sticking to the thread on the mated equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

⚠ Thread and Tube Size Full Scale Chart

- If you do not know exact size of your equipment, confirm it by using reference table below.

Taper pipe thread & Pipe thread general purpose (inch)



Taper pipe thread	Size	R (Rc)1/8	R (Rc)1/4	R (Rc)3/8	R (Rc)1/2
	Code	01	02	03	04
Pipe thread General purpose (inch)	Size	NPT1/8	NPT1/4	NPT3/8	NPT1/2
	Code	N1	N2	N3	N4

Metric thread & Unified thread

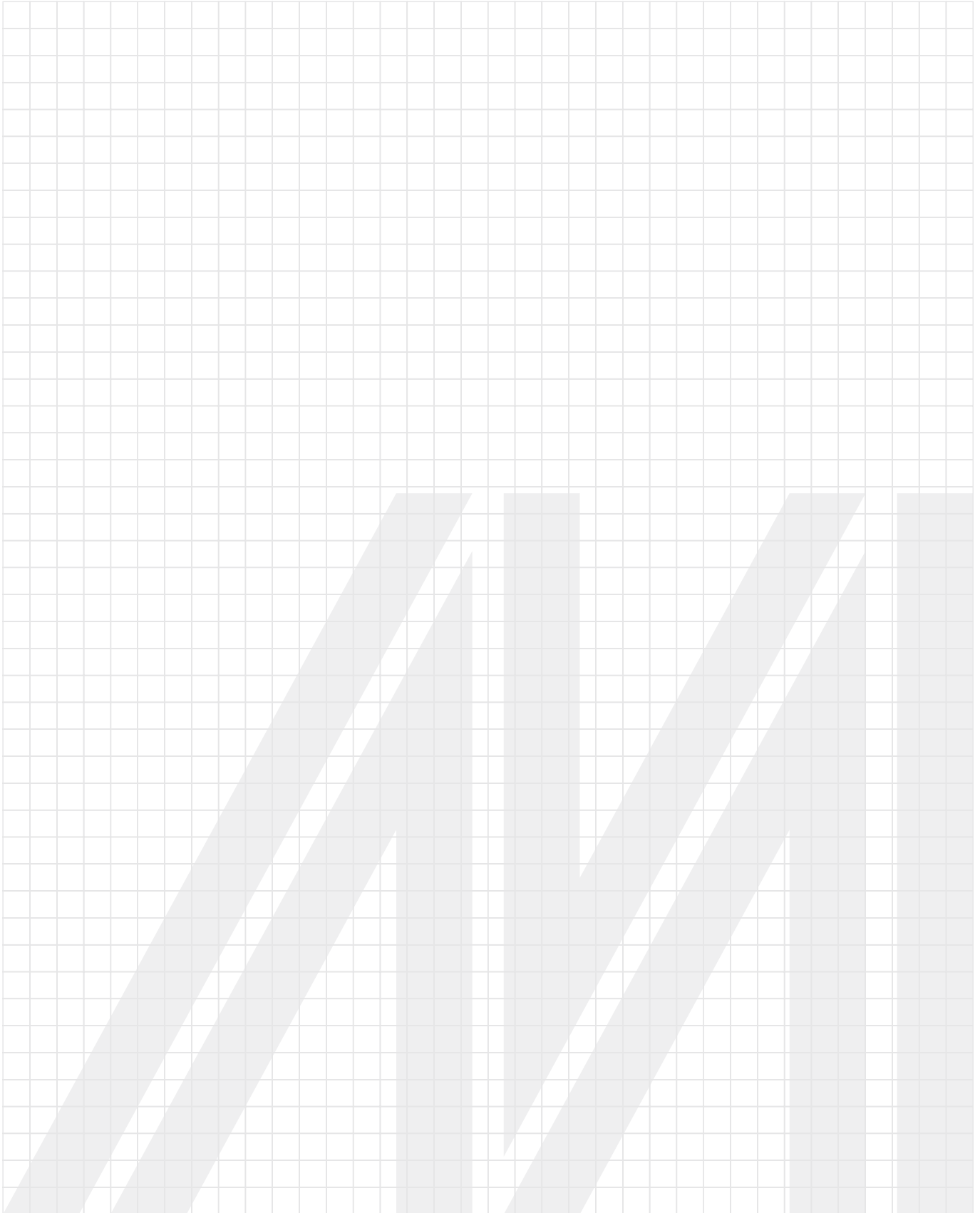


Metric thread	Size	M3×0.5	M5×0.8	M6×1.0	M8×0.75	M10×1.0	M12×1.0
	Code	M3	M5	M6	M8	—	—
Unified thread	Size	—	No.10-32UNF	—	—	—	—
	Code	—	U10	—	—	—	—

Tube diameter (mm size & inch size)



mm size	ø1.8	ø3	ø4	ø6	ø8	ø10	ø12	ø16
inch size	ø1/8	ø5/32	ø3/16	ø1/4	ø5/16	ø3/8	ø1/2	ø5/8





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E40	40u filter element	1	4-59	MAF302	filter	1	4-46
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JSC	speed controller	1	7-18	MAF501	filter	1	4-50
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LN02P	sensor switch	3	5-16	MAFR200	F.R. unit	1	4-34
LN03A	sensor switch	2	8-20	MAFR200L	F.R. unit	1	4-34
LN03P	sensor switch	3	5-16	MAFR302	F.R. unit	1	4-36
LN32H	sensor switch	3	5-17	MAFR401	F.R. unit	1	4-39
LN40R	sensor switch	3	5-18	MAFR403	F.R. unit	1	4-41
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M83C-M	connector	1	6-17	MAL302	L. unit	1	4-97
M83R-F	cable with connector	1	6-13	MAL401	L. unit	1	4-98
	cable with connector	2	8-22	MAL403	L. unit	1	4-99
	cable with connector	3	5-21	MAL501	L. unit	1	4-100
M83*	cable with connector	2	8-21	MAL900	L. unit	1	4-101
	cable with connector	3	5-20	MAMG	water separator	1	4-116
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Product Code List



ALL SERIES (Vol.1~3)

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MVB-156	multi connector system	1	1-98	MVSI-450	ISO-1 solenoid valve	1	1-48
MVBA-2100	booster regulator	2	8-49	MVSI-510	ISO-3 solenoid valve	1	1-53
MVBAT	booster regulator with air tank	2	8-51	MVSN-220	NAMUR solenoid valve	1	1-55
MVDA-80	2/2, 3/2 solenoid valve	1	1-84	MVSN-300	NAMUR solenoid valve	1	1-57
MVDA-120	2/2, 3/2 solenoid valve	1	1-86	MVSP-156	5/2, 5/3 solenoid valve	1	1-60
MVDC-220	6A-3/2 pilot valve	1	1-88	MVSP-188	5/2, 5/3 solenoid valve	1	1-65
MVE-100	Fieldbus system	1	1-103	MVSY-100	M3-5/2, 5/3 solenoid valve	1	1-69
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MVDY-100	3/2 pilot valve	1	1-90	MVSY-188	8A-5/2, 5/3 solenoid valve	1	1-79
MVFA	foot pedal valve	1	3-74	MVVA	vacuum generator	1	6-27
MVHA-2*	hand valve	1	3-51	MW			
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MVHA-4*	hand valve	1	3-52	PB	tube fitting	1	7-10
MVHA-41*	hand lever valve	1	3-54	PC	tube fitting	1	7-5
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MVHF-AP*	miniature pilot actuator	1	3-49	RCA	sensor switch	2	8-7
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MVHF-PB*	manual push button	1	3-50	RCB	sensor switch	2	8-9
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MVMA-260	8A-5/2 mechanical valve	1	3-22	RCE	sensor switch	2	8-11
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MVMB-250-2*,3**	8A-3/2 mechanical valve	1	3-31	RCE1E	sensor switch	2	8-12
MVMB-300-4*	10A-5/2 mechanical valve	1	3-34		sensor switch	3	5-7
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MVSC-220	6A, 8A-3/2, 5/2, 5/3 solenoid valve	1	1-5	RCM	sensor switch	2	8-15
MVSC-260	8A-5/2, 5/3 solenoid valve	1	1-10	RDA	sensor switch	2	8-7
MVSC-300	10A-3/2, 5/2, 5/3 solenoid valve	1	1-13		sensor switch	3	5-2
MVSC-460	15A-3/2, 5/2, 5/3 solenoid valve	1	1-23	RDB	sensor switch	2	8-9
MVSC1-150	M5-5/2 solenoid valve	1	1-17		sensor switch	3	5-4
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MVSC1-220	6A, 8A-3/2, 5/2, 5/3 solenoid valve	1	1-28		sensor switch	3	5-5
MVSE-260	8A-5/2, 5/3 solenoid valve	1	1-34	RDE	sensor switch	2	8-11
MVSE-300	10A-5/2, 5/3 solenoid valve	1	1-37		sensor switch	3	5-6
MVSE-500	15A-5/2 solenoid valve	1	1-40	RDEP	sensor switch	2	8-17
MVSE-510	15A-5/2 solenoid valve	1	1-42		sensor switch	3	5-10
MVSE-600	20A, 25A-5/2 solenoid valve	1	1-44	RDFE	sensor switch	1	6-12

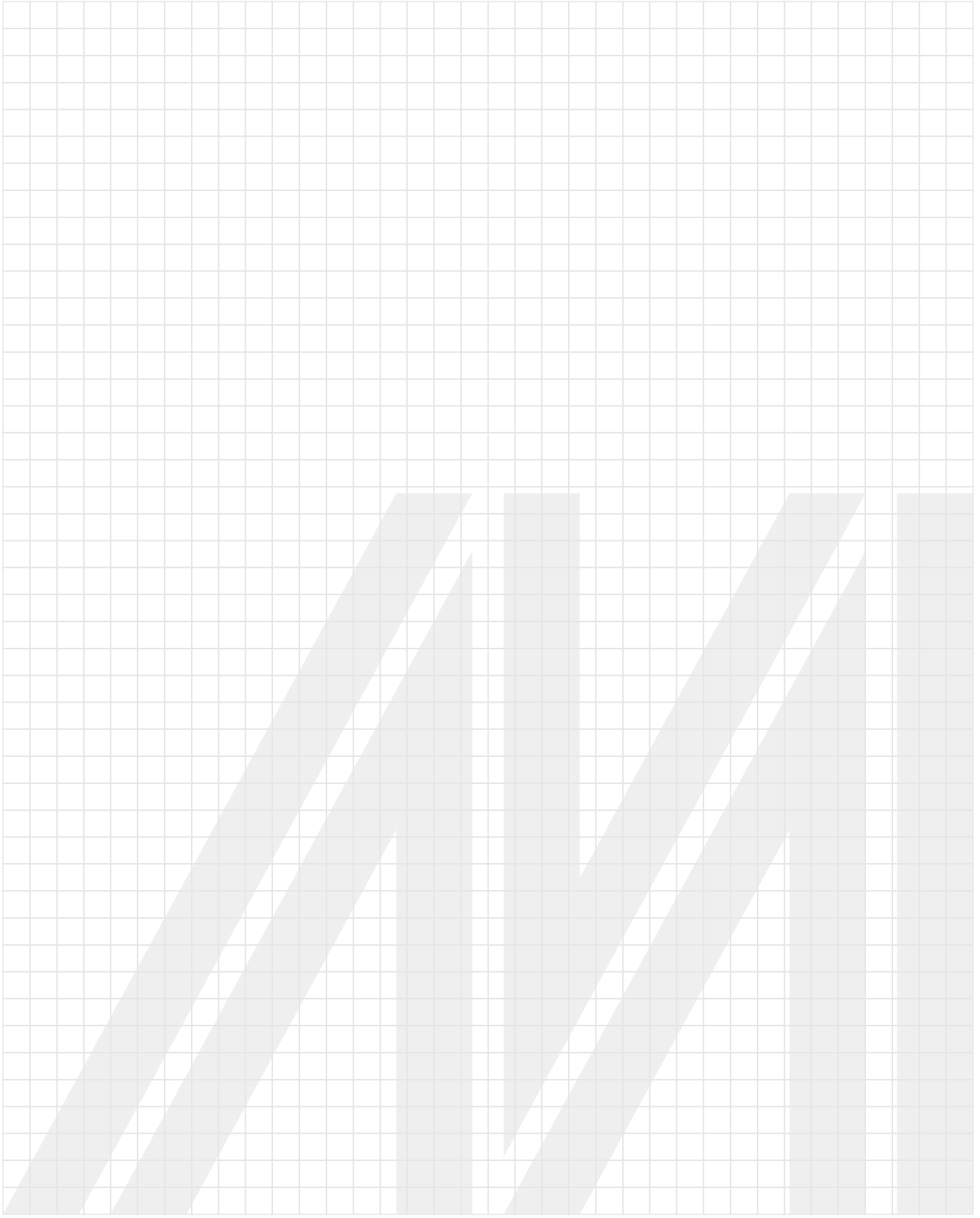
Product Code List



ALL SERIES (Vol.1 ~3)

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R							
RDFE	sensor switch	2	8-18	RPEE	sensor switch	3	5-7
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RDFEV	sensor switch	1	6-12		sensor switch	3	5-6
	sensor switch	2	8-18	RPFE	sensor switch	1	6-12
	sensor switch	3	5-11		sensor switch	2	8-18
RDGV	sensor switch	2	8-19	RPFE	sensor switch	3	5-11
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RDP8	proximity sensor	3	5-13		sensor switch	3	5-11
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	sensor switch	3	5-2		sensor switch	3	5-12
RNAE	sensor switch	2	8-7	RPI	sensor switch	2	8-13
	sensor switch	3	5-2		sensor switch	3	5-8
RNB	sensor switch	2	8-9	RPKD	sensor switch	3	5-14
	sensor switch	3	5-4	RPM	sensor switch	2	8-15
RNBE	sensor switch	2	8-9	RPME	sensor switch	2	8-15
	sensor switch	3	5-4	U			
RND	sensor switch	2	8-10	UM*	PU tube	1	6-19
	sensor switch	3	5-5	UML*	PU tube - coiling tube	1	6-20
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				
RPAAE	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				






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)

- 1 Do not use any of our products for the purpose of maintenance and care of human life or body.
- 2 Do not use any product in the condition or the environment other than stipulated in the specification or where the hazardous stuff exists.
- 3 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.
- 4 Disassembling and reassembling of products should be made by the personnel who has enough knowledge and experience.
- 5 Depressurize products before disassembling or reassembling.
- 6 Do not remodel the products.

WARNING

(Applies to all products on the catalogue)

- 1 When servicing, keep within the working pressure range and voltage.
- 2 At a place where water or oil drops and where is much dust, cover the equipment. Otherwise damage and trouble will be caused.
- 3 Do not operate if the fluid or atmosphere contains the substance which may cause corrosion. Otherwise damage and trouble will be caused.
- 4 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.
- 5 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)

- 1 When starting operation, pay the full attention to the cylinder's moving direction.
- 2 Do not put hands where the cylinder moves.
- 3 Please use a speed control valve to adjust the piston speed within the limited value in our catalogue.
- 4 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 point of cushioning structure.
- 5 The max. speed of cylinders usually uses the value of average speed times 1.4~1.5.
- 6 When the load on cylinder is large, we suggest to use ourter shock absorber - even the max speed is within the limited value.
- 7 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)

- 1 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.
- 2 Do not use filter or lubricator without a case guard.
- 3 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)

- 1 If necessary, use protection glove, protection glasses, and safety shoes to secure the safety when operating products.
- 2 For the easy maintenance, enough space around the product should be provided.
- 3 When mounting, flush inside thoroughly to remove chips from piping, and seal tape, rust and dusts, in order to prevent troubles such as air leak.
- 4 When screwing in the fittings, fasten with the tie torque of proper size to the connection size.
- 5 Use clean air. Equip an air filter near the equipment to remove drain, dusts and etc. Periodically remove drain from the filter.
- 6 Spindle oil and machine oil must not be used for lubrication, or the swelled packings will cause operation troubles.
- 7 Operation below the temperature 5°C must be paid the full attention since it may cause the freezing of drain.
- 8 Magnetic products such as disk card, tape, and tester must be kept away from the magnet-equipped cylinder and solenoid valve's solenoid part.
- 9 When the product is no longer available for operation or needed, discard in a proper way as an industrial waste.
- 10 Do not throw the product into fire. The product may explode or the toxic gas may be generated.

(Pneumatic Actuator)

- 1 Products should be mounted on the plane face. Mounting on the warped face causes poor accuracy, air leak and troubles.
- 2 Flaw or dent on the mounting part of the cylinder may make the uneven face.
- 3 The chafing parts of piston rod and guide rod must be free from flaw or dent. Otherwise packings got damaged and air will leak.
- 4 When the cylinder draws, be careful not to put yourself between the cylinder and the link bar at the top (Twin guide cylinder).
- 5 Products do not need lubrication since they are initially lubricated. For lubrication, use turbine oil first class (ISO VG32) or the equivalent.
- 6 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.
- 7 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.
- 8 Avoid the load over the switch's allowable maximum load.

(Pneumatic Valve. Pneumatic Accessories. Sensor Switch)

- 1 Flaw or dent on the mounting part of the cylinder may make the uneven face.
- 2 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.
- 3 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.
- 4 In the case of double solenoid valve, do not energize both solenoids.
- 5 Avoid the load over the switch's allowable maximum load.

Caution for safety

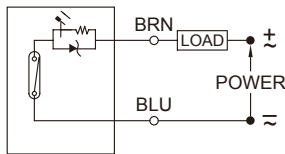
⚠️ SENSOR SWITCH

Technical information

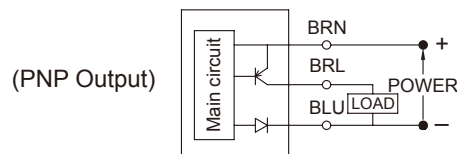
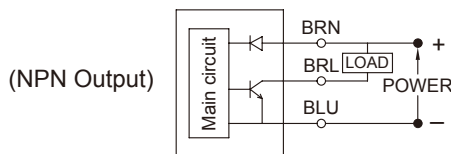
⚠️ WARNING

(Do not exceed specification, permanent damage to the sensor may occur.)

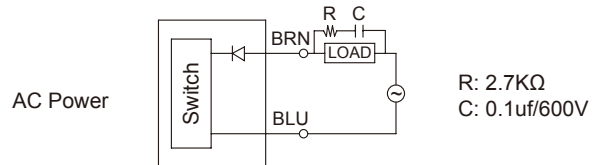
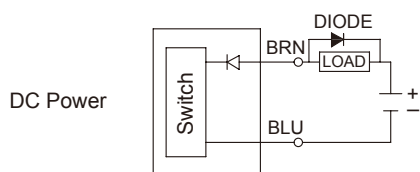
- ❶ For reed switch type sensors, polarity must also be observed for the proper functioning of LED. Connect the brown wire in series with load positive (+) and the blue wire to negative (-) of power source. If the polarity is reversed, reed switch remains functional but LED will remain in "OFF" state.



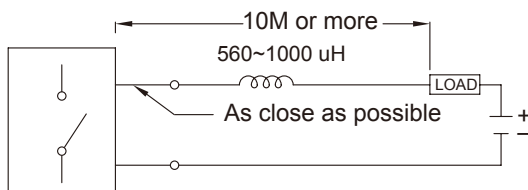
- ❷ For solid-state type sensors, polarity must also be observed. Connect brown wire to the positive (+) and the blue to the negative (-) of DC power source. The black wire must connect to the load only. If the black wire is accidentally connected to the power source, permanent damage to the sensor may occur.



- 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.



- ❹ Keep sensors away from 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).



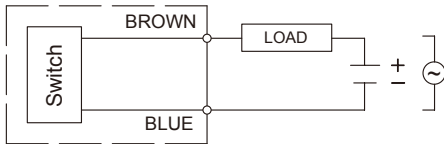
Caution for safety

⚠️ SENSOR SWITCH

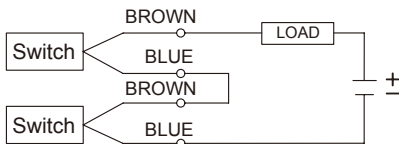
Connection method

2 wire S.W. connection

► General connection

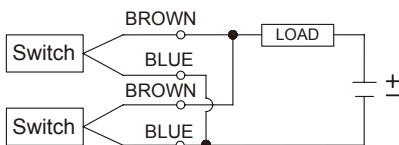


► Series connection (AND)



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.

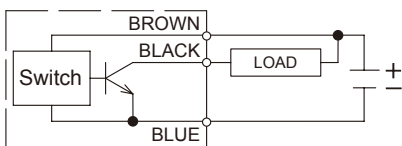
► Parallel connection (OR)



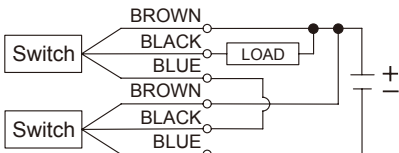
- ❶ When connecting non-contact 2-wire switches in parallel (OR), leakage current will increase and cause improper load operation.
- ❷ When connecting 2-wire reed switches in parallel(OR), possible concurrent operation will cause dim LED illumination due to lower current distribution.

3 wire NPN connection

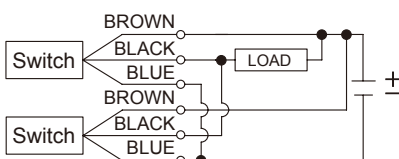
► General connection



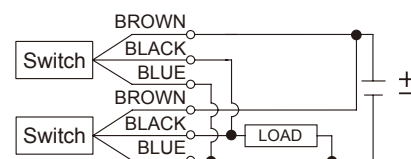
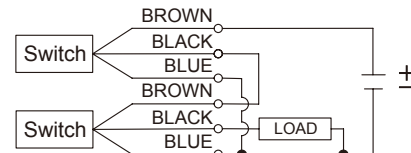
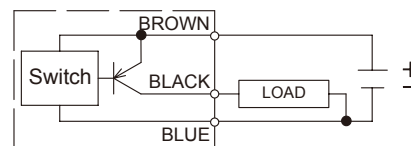
► Series connection (AND)



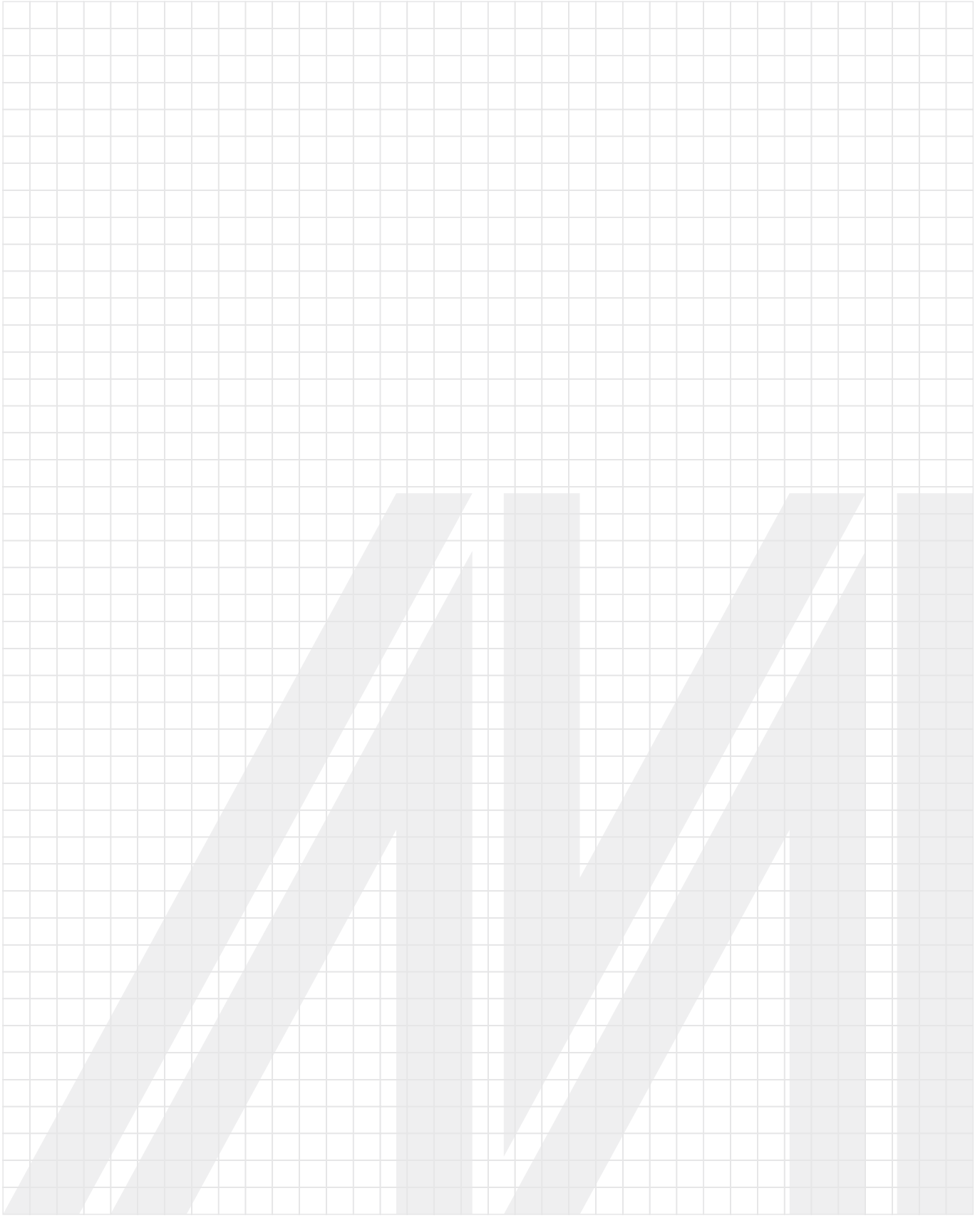
► Parallel connection (OR)



3 wire PNP connection









The specifications are subject to change without advance notice.

CAT. NO.: MD2006-E1

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