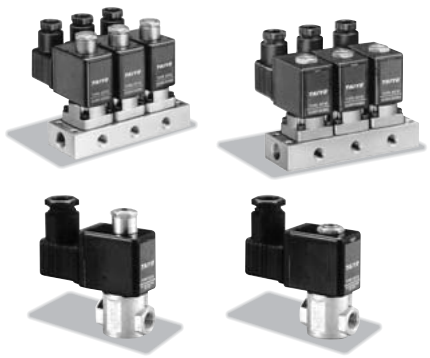
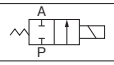
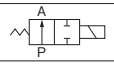
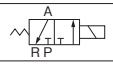
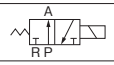
SH valves of 2- and 3-port poppet types

- Port size: G1/4
- Effective sectional area
  2-port: 2.53 mm²·4.22 mm²
  3-port: 2.53 mm²
- 2-port normally closed valves of high pressure type are available.
- 2- and 3-port normally closed valves are applicable to water and oil.

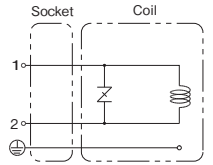
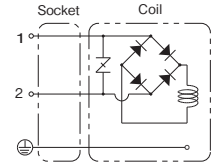
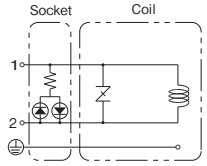
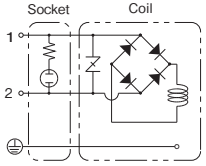


Valve Specifications

Item \ Model			2-port 2-position Normally closed	2-port 2-position Normally open	3-port 2-position Normally closed	3-port 2-position Normally open
Model number (general-purpose type)	Direct type	Orifice φ2.0	2AC−08E20	2AP−08E20	3AC−08E20	3AP−08E20
		Orifice φ3.2	2AC−08E32	—	—	—
	Valve for manifold	Orifice φ2.0	2AC−08M20	2AP−08M20	3AC−08M20	3AP−08M20
		Orifice φ3.2	2AC−08M32	—	—	—
Model number (high pressure type)	Direct type	Orifice φ2.0	2AC−08E20−07	—	—	—
		Orifice φ3.2	2AC−08E32−07	—	—	—
	Valve for manifold	Orifice φ2.0	2AC−08M20−07	—	—	—
		Orifice φ3.2	2AC−08M32−07	—	—	—
JIS symbol	General-purpose type High pressure type					
		Driving method	Direct acting			
Port size	Direct type		Ports P and A: G1/4		Ports P and A: G1/4 Port R: G1/8	
Effective sectional area		Orifice φ2.0	2.53 mm²		2.53 mm²	
		Orifice φ3.2	4.22 mm²		—	
Working fluid			Air, water, oil (20 cSt or less)	Air	Air, water, oil (20 cSt or less)	Air
Working pressure range Note 1)	General-purpose type	Orifice φ2.0	Air :0 to 1.0 MPa Water:0 to 2.0 MPa Oil :0 to 2.0 MPa	0 to 1.0 MPa	Air :0 to 1.0 MPa Water:0 to 1.0 MPa Oil :0 to 0.6 MPa	0 to 1.0 MPa
		Orifice φ3.2	Air :0 to 0.9 MPa Water:0 to 0.8 MPa Oil :0 to 0.6 MPa	—	—	—
	High pressure type	Orifice φ2.0	Air :0 to 1.0 MPa Water:0 to 4.0 MPa Oil :0 to 4.0 MPa	—	—	—
		Orifice φ3.2	Air :0 to 1.0 MPa Water:0 to 1.5 MPa Oil :0 to 1.2 MPa	—	—	—
Lubrication			Unnecessary (But possible. Use additive-free turbine oil Class 1 ISO VG32 or its equivalent.)			
Response time in ON/OFF state			25/30 ms or less			
Working temperature range			+5 to +50℃ (ambient temperature and fluid temperature)			
Manual method			None			
Installing direction			Free			

Note 1) When oil is used as a working fluid, the viscosity of the oil must be 20 cSt or less.

Electrical Specifications for General-purpose Solenoid Valves (HR02 coil)

			24 V DC	100 V AC (100 V DC)	200 V AC
Rated voltage			24 V DC	100 V AC (100 V DC)	200 V AC
Allowable voltage range			Rated voltage±10%		
Starting current		50/60Hz	—	90 mA (—)	50 mA
Holding current		50/60Hz	390 mA	90 mA (100mA)	50 mA
Power consumption		50/60Hz	9.4 W	9.0 VA (10W)	10 VA
Allowable circuit leakage current value			19 mA or less	8.5 mA or less	5 mA or less
Insulation class			Class B		
Wiring part protective structure			Equivalent to IP65 (in the case of DIN socket method)		
Wiring method			Lead wire method (2000 mm), terminal method, DIN socket method		
Lead wire color			White/black	Blue	Red
Electric circuit	Circuit type		With protective circuit		
	Wiring method		Lead wire method, terminal method, DIN socket method		
	Type of voltage		For DC	For AC	
	Circuit diagram		 No polarity		
	Circuit type		With lamp and protective circuit		
	Wiring method		Terminal method, DIN socket method		
	Type of voltage		For DC	For AC	
	Note 1) Indicating lamp		LED: Lights when sensing	Neon lamp: Lights when sensing	
	Circuit diagram		 No polarity		

Note 1) Two kinds of lamps, orange and green lamps, are available.

Electrical Specifications for High Pressure Type Solenoid Valves (HR07 coil)

		24 V DC	100 V AC (100 V DC)	200 V AC
Rated voltage		24 V DC	100 V AC (100 V DC)	200 V AC
Allowable voltage range		Rated voltage±10%		
Starting current	50/60Hz	—	165 mA (—)	80 mA
Holding current	50/60Hz	710mA	165 mA (190 mA)	80 mA
Power consumption	50/60Hz	17W	16.5 VA (19 W)	16 VA
Allowable circuit leakage current value		71 mA or less	21 mA or less	10 mA or less
Insulation class		Class B		
Wiring part protective structure		Equivalent to IP65 (in the case of DIN socket method)		
Wiring method		Lead wire method (2000 mm), terminal method, DIN socket method		
Lead wire color		White/black	Blue	Red
Electric circuit		Same electric circuits as those of above general-purpose solenoid valves		

Manifold Specifications

Name		Mono-manifold		
Model number		M0806−∗∗3AC	M0806−∗∗2AC	M0806−∗∗2AC07
Max. number of stations		10 stations		
Number of stations		2・3・4・5・6・7・8・9・10		
Exhaust type		Individual valve exhaust		
Port size	P	G1/4		
	A	G1/8		
Piping specification		Side piping		
Applicable valve		3AP−08M20 3AC−08M20 2AP−08M20	2AC−08M20 2AC−08M32	2AC−08M20−07 2AC−08M32−07
Seal plate		M0806−AS		

Valve Weight

Unit: kg

Item \ Model			2-port		3-port	
			2-position		2-position	
			Normally closed	Normally open	Normally closed	Normally open
Model number (general-purpose type)	Direct type	Orifice ϕ2.0	2AC−08E20	2AP−08E20	3AC−08E20	3AP−08E20
		Orifice ϕ3.2	2AC−08E32	—	—	—
	Valve for manifold	Orifice ϕ2.0	2AC−08M20	2AP−08M20	3AC−08M20	3AP−08M20
		Orifice ϕ3.2	2AC−08M32	—	—	—
Model number (high pressure type)	Direct type	Orifice ϕ2.0	2AC−08E20−07	—	—	—
		Orifice ϕ3.2	2AC−08E32−07	—	—	—
	Valve for manifold	Orifice ϕ2.0	2AC−08M20−07	—	—	—
		Orifice ϕ3.2	2AC−08M32−07	—	—	—
Weight	General-purpose type		0.35	0.35	0.35	0.35
	High pressure type		0.35	—	—	—

Manifold Weight

Unit: kg

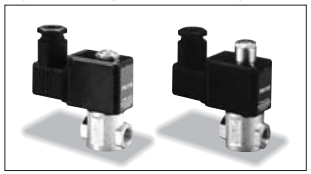
Type	Model number	Number of stations								
		2 stations	3 stations	4 stations	5 stations	6 stations	7 stations	8 stations	9 stations	10 stations
Mono-manifold	M0806−∗∗2AC M0806−∗∗3AC	0.17	0.25	0.32	0.40	0.47	0.55	0.62	0.70	0.77
	M0806−∗∗2AC07	0.23	0.33	0.43	0.53	0.64	0.74	0.84	0.94	1.04

● Add the valve weight to the manifold weight.

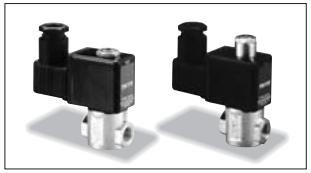
● How to order

Valve Only

2-port valve (port size: G1/4)



3-port valve (port size: G1/4)

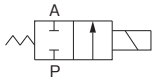
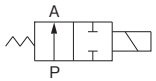
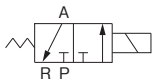
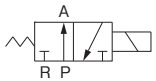


2A C – 08 E 20 – 10 S4 – 07

3A C – 08 E 20 – 10 S4

Option
Wiring method
Voltage/driving method

Switching method

No. of ports	Symbol	Switching method
2-port	C	Normally closed 
	P	Normally open 
3-port	C	Normally closed 
	P	Normally open 

Port size

Symbol	Port A
08	G1/4

Mounting method

Symbol	Mounting method
E	Direct type 

Orifice diameter

Symbol	Orifice diameter
20	ϕ2.0 mm
32	ϕ3.2 mm

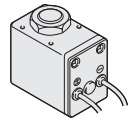
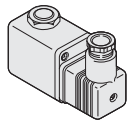
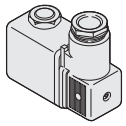
Note) The orifice diameter of ϕ3.2 mm (32) can be specified only for 2-port normally closed valves.

Voltage

Symbol	Voltage
12	12 V DC
24	24 V DC
10	100 V AC 50/60Hz 100 V DC
20	200 V AC 50/60Hz
11	110 V AC 50/60Hz 110 V DC
22	220 V AC 50/60Hz

Note 1) High pressure type valves (-07) for 12 VDC (12) are not available.

Wiring method

Symbol	Wiring method
L1	Lead wire method/2000 mm 
S4	DIN socket method/wiring port : G1/2 
SO	DIN socket method/wiring port : Pg11 (Note 1) With orange lamp (Note 2)
SG	DIN socket method/wiring port : Pg11 (Note 1) With green lamp (Note 2)
T1	Terminal method 
TO	Terminal method/with orange lamp (Note 2)
TG	Terminal method/with green lamp (Note 2)

Note 1) Wiring port: Pg11 is a screw size according to DIN40430.
Note 2) 12-VDC valves do not have lamps.

Option

Symbol	Option
None	None
07	High pressure type 

Note) High pressure type valves (07) come only in the 2-port normally closed type.

● How to order

Manifold

● Model number of mono-manifold

M0806 – 06 2AC

● Number of stations

Symbol	Number of stations
02	2 stations
03	3 stations
04	4 stations
05	5 stations
06	6 stations
07	7 stations
08	8 stations
09	9 stations
10	10 stations

● Applicable model

Symbol	Applicable model
2AC	2AC-08M20
	2AC-08M32
3AC	3AC-08M20
	3AP-08M20
	2AP-08M20
2AC07	2AC-08M20-07
	2AC-08M32-07

Note) ● When only a manifold is ordered, a mounting bolt will be supplied.

● Model number of valve for manifold

2-port valve

2A C – 08M 20 – 10 S4

3-port valve

3A C – 08M 20 – 10 S4

Notes) ● For details, see "How to Order Valve Only."
● When only a valve is ordered, a gasket will be supplied.

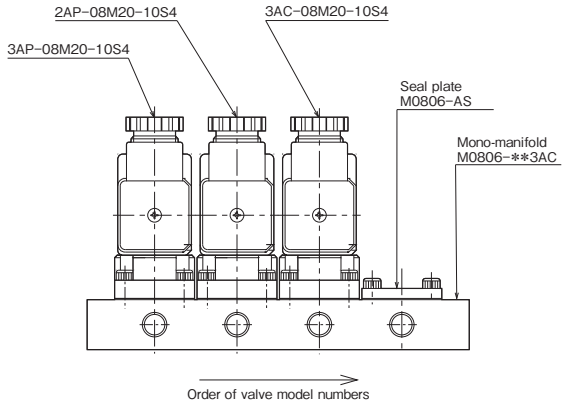
● Seal plate (SZZ)

M0806-AS

Notes) ● When only a seal plate is ordered, a gasket and a mounting bolt will be supplied.

How to Order

● Mono-manifold

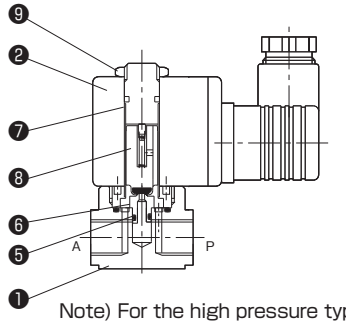


Model number of manifold	Qty.
M0806-043AC	1

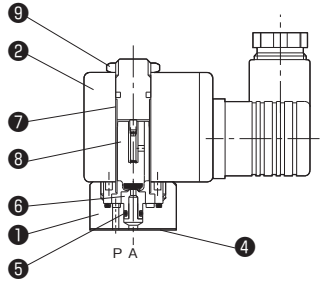
Model number of valve	Qty.
3AP-08M20-10S4	1
2AP-08M20-10S4	1
3AC-08M20-10S4	1
M0806-AS	1

Sectional Drawings

2-port valve/Direct type
2AC-08E20(-07)
(normally closed)

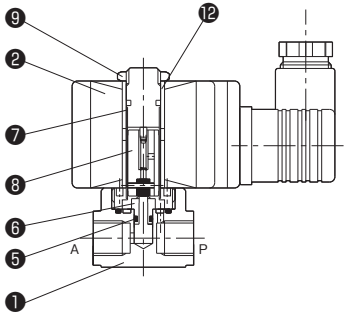


2-port valve/Valve for manifold
2AC-08M20(-07)
(normally closed)

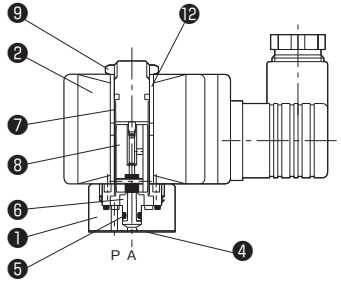


Note) For the high pressure type (-07), the coils are replaced with HR07.

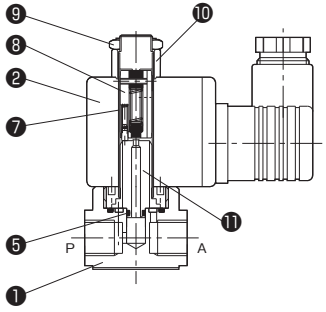
2AC-08E32-07
(normally closed)



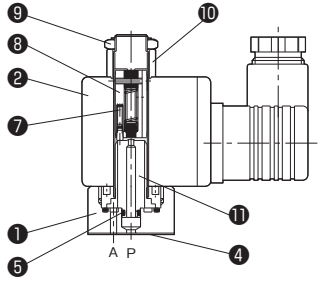
2AC-08M32-07
(normally closed)



2AP-08E20
(normally open)



2AP-08M20
(normally open)

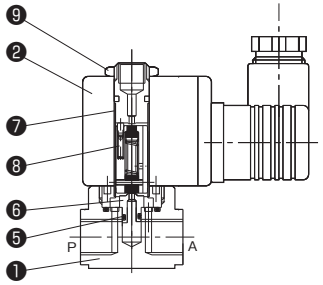


Parts List

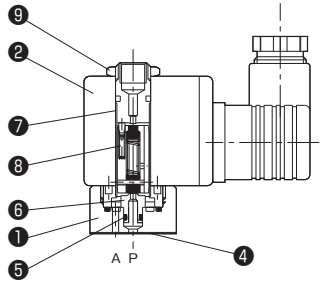
No.	Name	Material
1	Body	Copper alloy
2	Coil	HR02 Coil
3	Coil	HR07 Coil
4	Seal	Nitrile rubber
5	O-ring	Nitrile rubber
6	Valve seat	Stainless steel
7	Magnet pipe	Stainless steel
8	Plunger	Magnetic material
9	Nut	Copper alloy
10	Bush	Copper alloy
11	Fixed iron core	Magnetic material
12	Pipe	SPC

Sectional Drawings

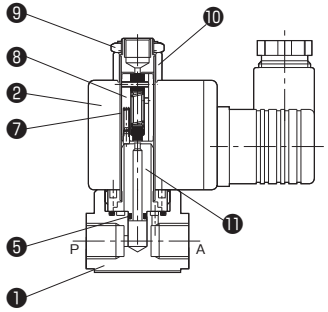
3-port valve/Direct type
3AC-08E20
(normally closed)



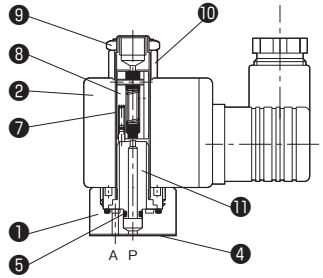
3-port valve/Valve for manifold
3AC-08M20
(normally closed)



3AP-08E20
(normally open)



3AP-08M20
(normally open)



Parts List

No.	Name	Material
❶	Body	Copper alloy
❷	Coil	HR02 Coil
❹	Seal	Nitrile rubber
❺	O-ring	Nitrile rubber
❻	Valve seat	Stainless steel
❼	Magnet pipe	Stainless steel
❽	Plunger	Magnetic material
❾	Nut	Copper alloy
❿	Bush	Copper alloy
⓫	Fixed iron core	Magnetic material

● How to order

Coil Only (Maintenance Parts)

Note) ●The mounting cap and manual operation button are not included.

HR 02 – 10 S4

- Type of coil

Symbol	Type of coil
02	General-purpose type
07	Only for high pressure type

- Voltage

Symbol	Voltage
12	12 V DC
24	24 V DC
10	100 V AC 50/60Hz 100 V DC
20	200 V AC 50/60Hz
11	110 V AC 50/60Hz 110 V DC
22	220 V AC 50/60Hz

Note 1) High pressure type valves (–07) for 12 V DC (12) are not available.

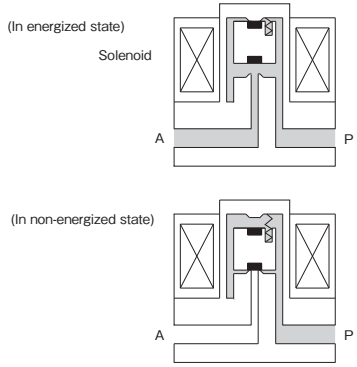
- Wiring method

Symbol	Wiring method
L1	Lead wire method(2000 mm)
S4	DIN socket method (wiring port: G1/2)
SO	DIN socket method/wiring port: Pg11/with orange lamp Note) 12-VDC valves do not have lamps.
SG	DIN socket method/wiring port: Pg11/with green lamp Note) 12-VDC valves do not have lamps.
T1	Terminal method
TO	Terminal method/with orange lamp Note) 12-VDC valves do not have lamps.
TG	Terminal method/with green lamp Note) 12-VDC valves do not have lamps.

Note) Wiring port: Pg11 is a screw size according to DIN40430.

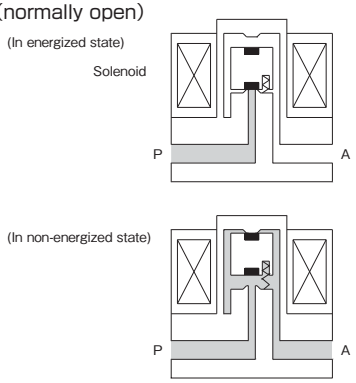
Principle of Operation

2-port valve
2AC-08E20(32) 2AC-08E20(32)-07
2AC-08M20(32) 2AC-08M20(32)-07
(normally closed)



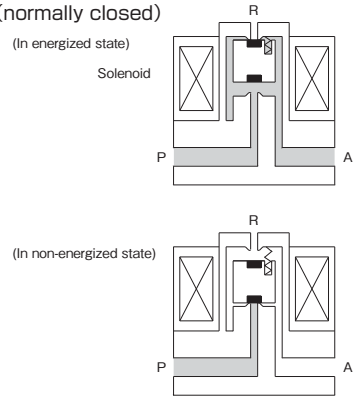
When the solenoid is energized, the plunger opens the supply valve seat (port P), and air flows from P to A. When it is deenergized, the plunger closes the supply valve seat (port P), and the port A is closed. When power failure occurs or the electric circuit is broken, the spool returns to the position at which it is set in the non-energized state.

2AP-08E20
2AP-08M20
(normally open)



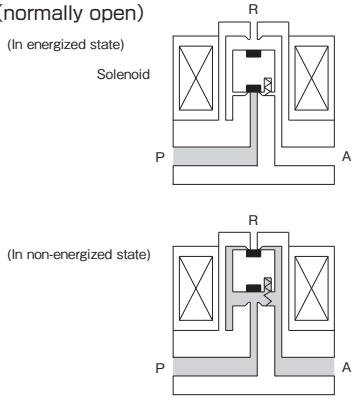
When the solenoid is energized, the plunger closes the supply valve seat (port P), and the port A is closed. When it is deenergized, the supply valve seat (port P) is opened, and air flows from P to A. When power failure occurs or the electric circuit is broken, the spool returns to the position at which it is set in the non-energized state.

3-port valve
3AC-08E20
3AC-08M20
(normally closed)



When the solenoid is energized, the plunger closes the exhaust valve seat (port R), and air flows from P to A. When it is deenergized, the plunger closes the supply valve seat (port P) to discharge air from A to R. When power failure occurs or the electric circuit is broken, the spool returns to the position at which it is set in the non-energized state.

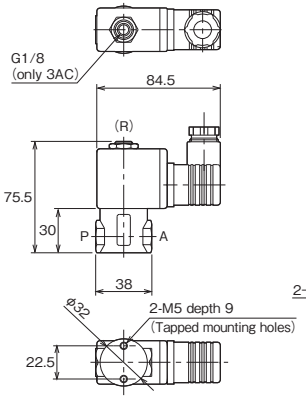
3AP-08E20
3AP-08M20
(normally open)



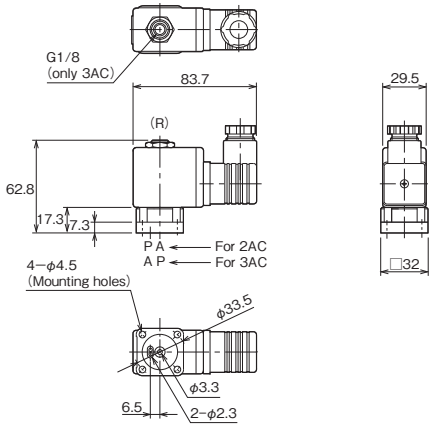
When the solenoid is energized, the plunger closes the supply valve seat (port P) to discharge air from A to R. When it is deenergized, the plunger closes the exhaust valve seat (port R), and air flows from P to A. When power failure occurs or the electric circuit is broken, the spool returns to the position at which it is set in the non-energized state.

General-purpose Solenoid Valves

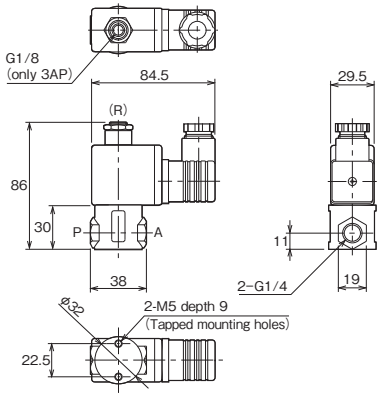
Direct type
2AC-08E20(2-port normally closed)
2AC-08E32(2-port normally closed)
3AC-08E20(3-port normally closed)



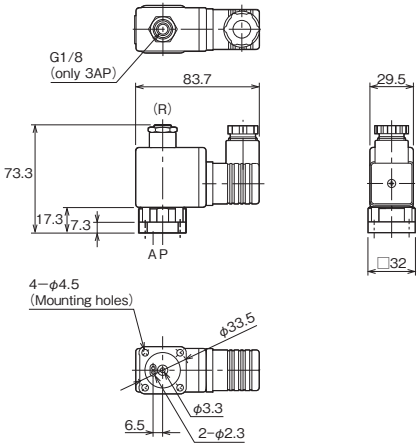
Valve for manifold
2AC-08M20(2-port normally closed)
2AC-08M32(2-port normally closed)
3AC-08M20(3-port normally closed)



Direct type
2AP-08E20(2-port normally open)
3AP-08E20(3-port normally open)

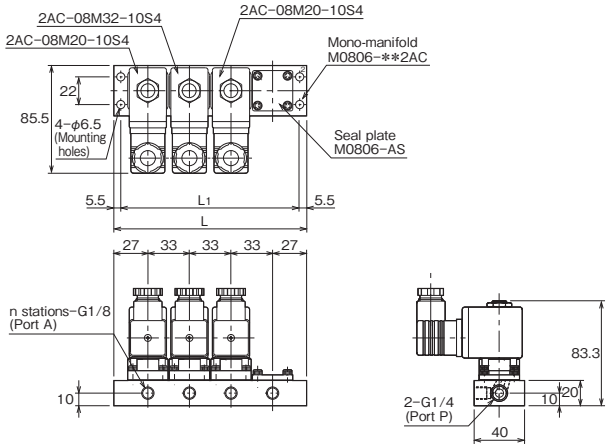


Valve for manifold
2AP-08M20(2-port normally open)
3AP-08M20(3-port normally open)

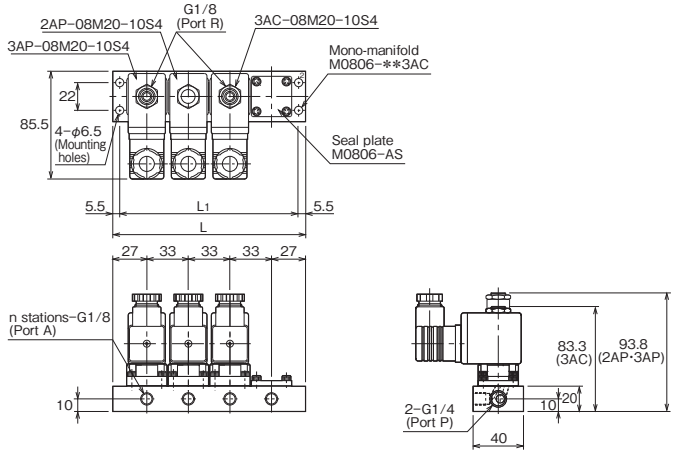


General-purpose Solenoid Valves

Mono-manifold/M0806-∗∗2AC
For 2AC



Mono-manifold/M0806-∗∗3AC
For 3AC, 2AP, and 3AP

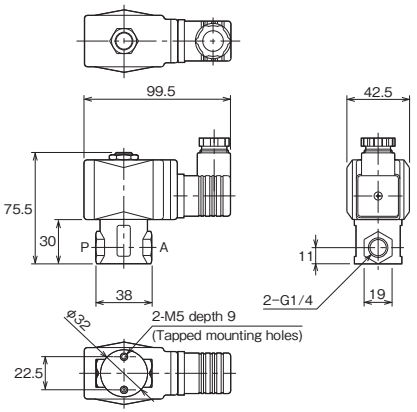


Dimensional Table

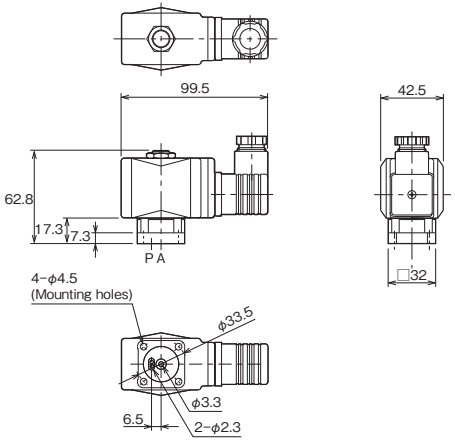
Model number of mono manifold	Number of stations n / Symbol of number of stations	2	3	4	5	6	7	8	9	10
	Dimension symbol	02	03	04	05	06	07	08	09	10
M0806−∗∗2AC M0806−∗∗3AC	L	87	120	153	186	219	252	285	318	351
	L1	76	109	142	175	208	241	274	307	340

High Pressure Type Solenoid Valves

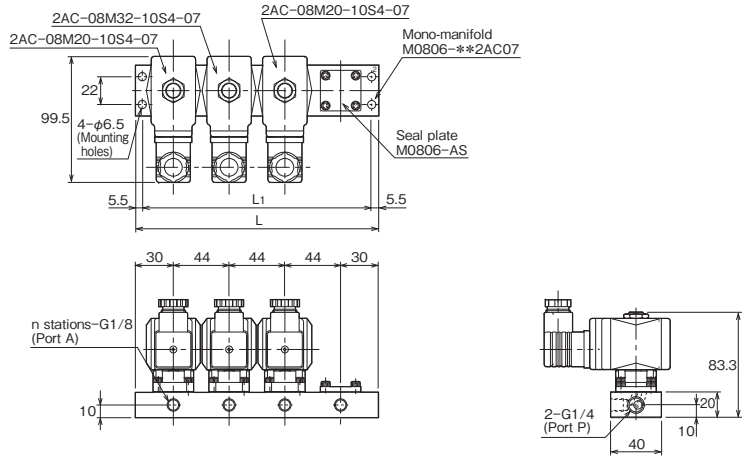
Direct type
2AC-08E20-07(2-port normally closed)
2AC-08E32-07(2-port normally closed)



Valve for manifold
2AC-08M20-07(2-port normally closed)
2AC-08M32-07(2-port normally closed)



Mono-manifold/M0806-∗∗2AC07

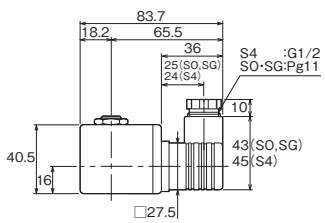


Dimensional Table

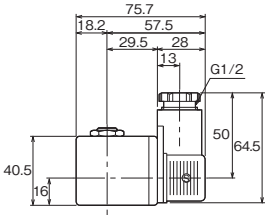
Model number of mono manifold	Number of stations n / Symbol of number of stations / Dimension symbol	2	3	4	5	6	7	8	9	10
		02	03	04	05	06	07	08	09	10
M0806-∗∗2AC07	L	104	148	192	236	280	324	368	412	456
	L1	93	137	181	225	269	313	357	401	445

Wiring Block (HR02 coil)

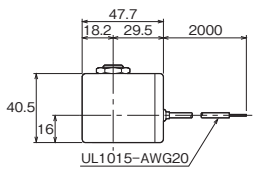
DIN socket method
(S4, SO, SG)



Terminal method
(T1, TO, TG)

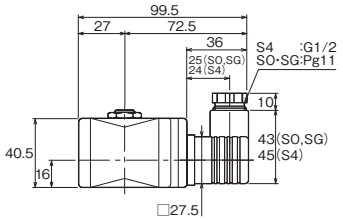


Lead wire method(L1)

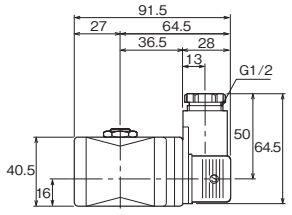


Wiring block (HR07 coil)

DIN socket method
(S4, SO, SG)



Terminal method
(T1, TO, TG)



Lead wire method(L1)