

# KOGANEI

### **VALVES GENERAL CATALOG**

# **SOLENOID VALVES** JC, JE SERIES INDEX

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Easy-to-use, simple construction valves! Suitable for various needs and offering high-performance control, while achieving still lower power consumption, quicker response, and a larger flow rate!

New

# Standard Valve Solenoid Valves JC, JE Series







- Space Saving—Thin and compact size Valve width: 10mm [0.394in.] Valve length: 65.4mm [2.575in.]
- Flow Large flow rate with a compact body

Sonic conductance C: 0.6dm<sup>3</sup>/(s·bar) (Effective area S: 3.0mm<sup>2</sup> (Cv: 0.17)) Optimum for operating up to  $\phi$  40 bore size cylinders.

Response—Quick response

Response time: When ON, 6ms or below When OFF, 7ms or below (in the case of quick response type single solenoid)

● Power—Lower power consumption Standard type: 0.55W, Low current type: 0.15W

# SOLENOID VALVES JC, JE SERIES

# Provides sure performance for all situations in which solenoid valves are required, in the manufacturing lines, in machinery, or in equipment. A NEW standard in compact valves!

Reliability—Improved reliability

New solenoid and stem construction resulting for years of valve technology experience have boosted operating life, response, and other basic performance features.

Option—Mountable on DIN rail

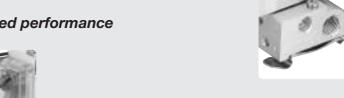
The A type manifold (base piping type) can be mounted on a DIN rail.

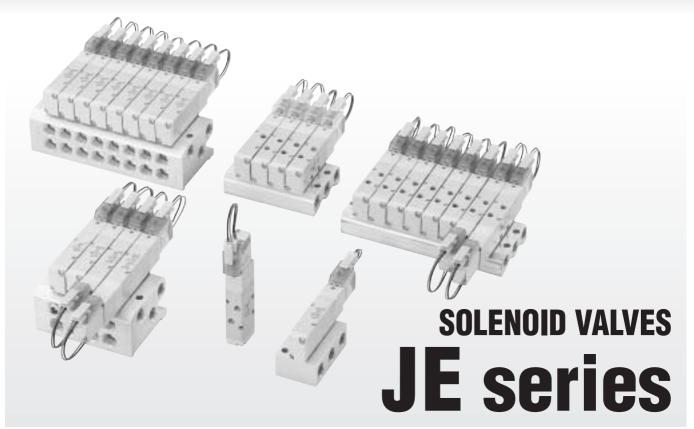
(for both the JC and JE series)

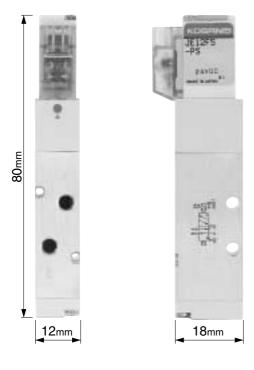
● Environmental Protection — Improved performance

Grommet type valves offer moisture proof specification.

(for both the JC and JE series)







Space Saving—Thin and compact size

Valve width: 12mm [0.472in.] Valve length: 80mm [3.150in.]

● Flow—Large flow rate with a compact body

Sonic conductance C: 1.9dm³/(s·bar)
(Effective area: 9.5mm² [Cv: 0.53])

Optimum for operating up to  $\phi$  80 bore size cylinders.

●Response—Quick response

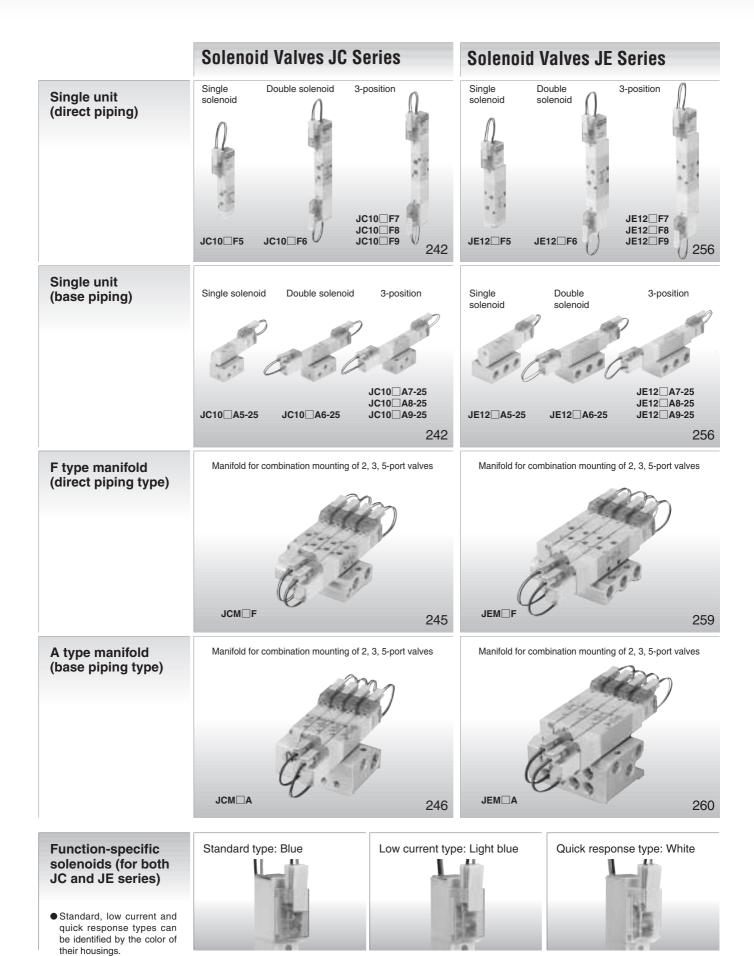
Response time: When ON, 6ms or below
When OFF, 10ms or below
(for quick response type single solenoid)

- Power—Lower power consumption
  Standard type: 0.55W, Low current type: 0.15W
- Safety—Configured to prevent erroneous operations

Lever type manual override with erroneous operation prevention mechanism improves safety. (JE series only)



## Provides a wide product range





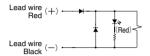
#### Solenoid

#### Internal circuit

#### ●DC12V, DC24V

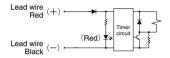
(Standard type)

Solenoid with LED indicator and surge suppression



#### ●DC24V

(Low current, quick response types)
Solenoid with LED indicator and surge suppression



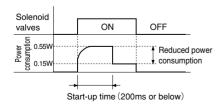
Cautions: 1. Do not apply megger between the pins.

- 2. Leakage current inside the circuit could result in failure of the solenoid valve to return to the rest position or other erratic operation. Always use it at less than the allowable leakage current shown in the solenoid specifications on p.235, and 249. If circuit conditions, etc. cause the leakage current to exceed the maximum allowable leakage current, consult
- For the double solenoid configuration, avoid energizing both solenoids simultaneously.
- 4. The standard housing type is colored blue, while the low current type is light blue, and the quick response type is white.
- The low current and quick response types will not activate when the power supply voltage is raised too slowly. Always apply the appropriate voltage.

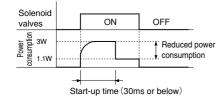
## Operating principles of low current and quick response types

The low current and quick response types use a timer circuit, as shown above, that achieves power savings by switching to the holding operations mode after a certain period of time and operates at about 1/3 of the starting power consumption.

#### Power waveform for low current type



#### ● Power waveform for quick response type



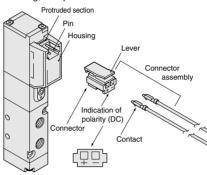


#### Plug connector

#### Attaching and removing plug connector

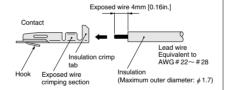
Use fingers to insert the connector into the pin, push it in until the lever claw latches onto the protruded section of the connector housing, and complete the connection.

To remove the connector, squeeze the lever along with the connector, lift the lever claw up from the protruded section of the connector housing, and pull it out.



#### Crimping of connecting lead wire and contact

To crimp lead wires into contacts, strip off 4mm [0.16in.] of the insulation from the end of the lead wire, insert it into the contact, and crimp it. Be sure to avoid catching the insulation on the exposed wire crimping section.



Cautions: 1. Do not pull hard on the lead wire.

Always use a dedicated tool for crimping of connecting lead wire and contact.

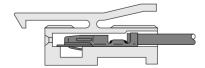
Contact: Model 702062-2M Manufactured by Sumiko Tech, Inc.

Crimping tool: Model F1-702062 Manufactured by Sumiko Tech, Inc.

#### Attaching and removing contact and connector

Insert the contact with lead wire into a plug connector  $\square$  hole until the contact hook latches on and is secured to the plug connector. Confirm that the lead wire cannot be easily pulled out.

To remove it, insert a tool with a fine tip (such as a small screwdriver) into the rectangular hole on the side of the plug connector to push up on the hook, and then pull out the lead wire.



Cautions: 1. Do not pull hard on the lead wire.

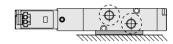
It could result in defective contacts, breaking wires, etc.

If the pin is bent, use a small screwdriver, etc. to gently straighten out the pin, and then complete the connection to the plug connector.



#### Side mounting precautions (JE series)

When using a JE series single solenoid valve unit in a side mounting, as shown in the diagram below, mounting base -22 for the side mounting is required, because the fitting interferes with the mounting surface. The TS6-M5 and TL6-M5 quick fitting standard types for the 6mm tube cannot be mounted. Use the hexagon socket straight fitting or the quick fitting mini type instead.





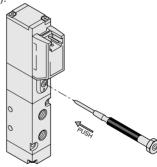
#### Manual override

#### Non-locking type

To operate the manual override, press it all the way down.

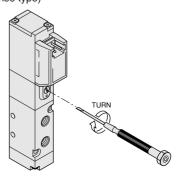
For the single solenoid, the valve works the same as when in the energized state as long as the manual override is pushed down, and returns to the rest position upon release.

For the double solenoid, pressing the manual override on the 14 (SA) side switches the 14 (SA) to the energized state, and the valve remains in that state even after the manual override is released. To return it to the rest position, operate the manual override on the 12 (SB) side. This is the same for the solenoid 12 (SB).



#### Locking type

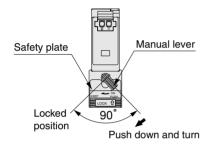
To lock the manual override, use a small screwdriver to push down on the manual override all the way down and turn it clockwise 45 degrees. When locked, turning the manual override 45 degrees in the counterclockwise direction returns it to its rest position, and releases the lock. (Excluding the quick response type)



#### Lever type (JE series only)

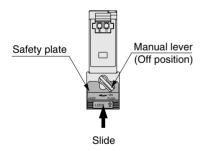
To lock the manual override, push the manual lever all the way down and turn it clockwise 90 degrees. When locked, turning the manual lever 90 degrees in the counterclockwise direction returns it to its rest position and releases the lock. When the manual lever is not turned, this type acts just like the non-locking type, and the valve remains in the energized state as long as the manual lever is pushed down, and returns to the rest position upon release.

The manual lever is equipped with a safety plate to avoid erroneous operation. Care should be taken that the safety plate cannot be operated when the manual lever is locked in place.



#### Safety plate operation

- ①Check that the manual lever is in the off position.
- ②Slide the center of the safety plate in the direction shown by the arrow until it comes to a stop, at a distance of about 3mm [0.12in.]. In this position, the manual lever can no longer be pushed in.
- 3 To release the safety plate, slide it in the direction opposite to that shown by the arrow until it comes to a stop.



Cautions: 1. The JC and JE series are pilot type solenoid valves. As a result, the manual override button or manual lever cannot switch the main valve without air supplied from the 1(P) port.

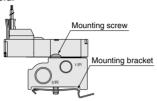
- Always release the lock of the manual override button or manual lever before commencing normal operation.
- Do not attempt to operate the manual override button or manual lever with a pin or other object having an extremely fine tip. It could damage the button.
- For the lever type, do not apply excessive force when sliding the safety plate. It could result in a breakdown. (Recommended force: 3N)



#### Manifold

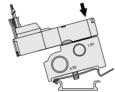
#### Mounting on a DIN rail (A type manifold)

With the DIN rail mounting bracket option, a mounting bracket and mounting screw are provided. First, use the mounting screw to temporarily secure the mounting bracket on the manifold.



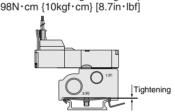
#### Mounting

① Approaching from the direction shown in the diagram, let the mounting bracket hook latches onto the DIN rail fringe, then press down the manifold to secure the bracket onto the DIN rail.



②To ensure that the mounting bracket is firmly set against the bottom of the manifold, tighten the mounting screw to secure the DIN rail in place.

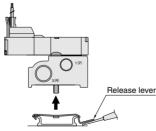
Recommended tightening torque:



Caution: Since the mounting bracket cannot slide along the DIN rail once it is set onto the rail, make sure to set the manifold in the appropriate position beforehand.

#### Removing

- ①Loosen the mounting screw and lift the manifold off and away from the mounting bracket.
- ②Insert a flatblade screwdriver, etc. underneath the mounting bracket's release lever, and gently pry it away to remove the mounting bracket.

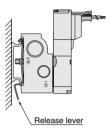


Cautions: Spring force from the mounting bracket's plate could cause the bracket to pop out during the removal operation. To ensure safety, proceed with caution during the operation. In addition, always use a flatbrack screwdriver, etc. when removing the mounting bracket from the DIN rail. Never use your fingers because of the danger of serious injury due to the potential strong forces.

#### Vertical mounting

When mounting the manifold in a vertical direction, mount it so that the release lever is pointing downward.

Caution: Caution should be taken not to drop the manifold.



#### Mounting a valve on the manifold

When mounting a valve on the manifold, the recommended tightening torque for the valve mounting screw is 14.7N·cm {1.5kgf·cm} [1.30in·lbf].

#### Tube

#### 1. Attaching and removing tubes

For tube connection, insert an appropriate size tube until it comes into contact with the tube stopper, and lightly pull it to check the connection.

For tube removal, push the tube against the tube stopper, then push the release ring and at the same time pull the tube out.

## 2. Either a nylon or urethane tube can be used.

Use tubes with an outer diameter tolerance within  $\pm 0.1$ mm [ $\pm 0.004$ in.] of the nominal diameter, and ensure the ovalness (difference between large diameter and small diameter) is 0.2mm [0.008in.] or less. (Using Koganei tubes is recommended.)

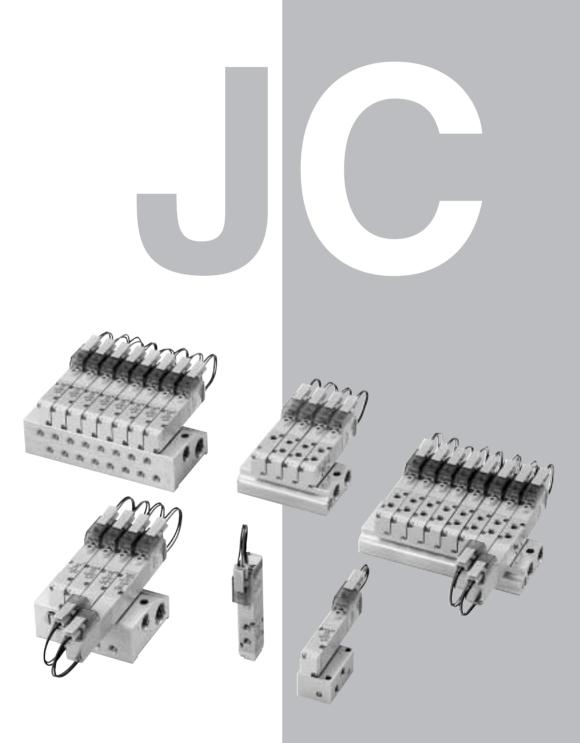
Cautions: 1. Do not use extra-soft tubes since their pull-out strength is significantly reduced.

- Only use tubes without scratches on their outer surfaces. If a scratch occurs during repeated use, cut off the scratched section.
- Do not bend the tube excessively near the fittings. The minimum bending radius is as shown in the table below.
- 4. When attaching or removing tubes, always stop the air supply. In addition, always confirm that air has been completely exhausted from the manifold

mm [in.]

Tube size	Minimum bending radius			
Tube Size	Nylon tube	Urethane tube		
φ3		7 [0.28]		
φ4	20 [0.79]	10 [0.39]		
φ6	30 [1.18]	15 [0.59]		
φ8	50 [1.97]	20 [0.79]		

# Solenoid Valves JC Series



## **JC** SERIES SPECIFICATIONS

#### **Specifications**

#### **Basic Models and Functions**

Basic model	For direct piping, F type manifolds	JC10□F1 <sup>Note</sup> JC10□F2 <sup>Note</sup> JC10□F3 <sup>Note</sup> JC10□F4 <sup>Note</sup>	JC10□F5	JC10□F6	JC10□F7 JC10□F8 JC10□F9
Item	For base piping, A type manifolds	JC10 ☐ A1 <sup>Note</sup> JC10 ☐ A2 <sup>Note</sup> JC10 ☐ A3 <sup>Note</sup> JC10 ☐ A4 <sup>Note</sup>	JC10□A5	JC10□A6	JC10□A7 JC10□A8 JC10□A9
Number of position	ons	2 positions		3 positions	
Number of ports		2, 3 ports	5 ports		
Valve function S		Single solenoid NC, NO	Single solenoid	Double solenoid	Closed center, Exhaust center, Pressure center

Remark: For the optional specifications and order codes, see p.239.

Note: Valves with valve specifications **F1**, **F2**, **F3**, **F4**, **A1**, **A2**, **A3**, and **A4** are for mounting on manifolds only, and cannot be used as single valve units.

#### **Specifications**

Opcomoduoi	.0						
Basic model		ect piping, manifolds	JC10□F1 JC10□F2 JC10□F3 JC10□F4	JC10□F5	JC10⊡F6	JC10□F7 JC10□F8 JC10□F9	
Item		se piping, manifolds	JC10□A1 JC10□A2 JC10□A3 JC10□A4	JC10□A5	JC10□A6	JC10□A7 JC10□A8 JC10□A9	
Media				A	ir		
Operation type				Internal <sub>I</sub>	oilot type		
Flow rate characte		otance C dm <sup>3</sup> /(s·bar)		0	.6		
Port size <sup>Note 2</sup>	Port size <sup>Note 2</sup>		M5×0.8				
Lubrication			Not required				
Operating pressur	re range	MPa {kgf/cm²}[psi.]	0.2~0.7 {2~7.1} [29~102]				
Proof pressure		MPa {kgf/cm²}[psi.]	1.05 {10.7} [152]				
Response time <sup>Note</sup>	e 3	Standard type	10/20 or below		12 or below	10/30 or below	
ON/OFF	ms	Low current type (L)	10/50 or below		12 or below	10/60 or below	
014/011		Quick response type (S)	6/7 or below 6 d		6 or below	6/12 or below	
Maximum operati	na	Standard type	5				
frequency	Hz	Low current type (L)	2				
Quick response type (S)		10					
Minimum time to ene	Minimum time to energize for self holdingNote 4 ms			_ 50			
Operating temperature range (atmosphere and media) °C [°F]		5~50 [41~122]					
Shock resistance		m/s² {G}	1373.0 {140} (Axial direction 294.2 {30}) 1373.0 {140} (Axial direction 147.1 {15}) 1373.0 {140} (Axial direction 195.0			1373.0 {140} (Axial direction 195.0 {20})	
Mounting direction	n			Aı	ny		

Notes: 1. For details, see the flow rate characteristics on p.236.

- 2. For details, see the port size on p.237.
- 3. Values when air pressure is 0.5MPa [73psi.]. The values for the 3-position valves are switching time from the neutral position.
- 4. For double solenoid valve.

#### **Solenoid Specifications**

Item	F	Rated voltage	DC12V (Standard type)	DC24V (Standard type)	DC24V (Low current type)	DC24V (Quick response type)
Opera	ting voltage renge	V	10.8~13.2	21.6~26.4	21.6~26.4	21.6~26.4
Opera	ting voltage range	V	(12±10%)	(24±10%)	(24±10%)	(24±10%)
Standard	Current (when rated voltage is a	pplied) mA (r.m.s)	46	23	_	_
type	Power consumption	W	0.55	0.55	_	_
type	Current (when rated	Starting mA	_	_	23	125
	voltage is applied)	Holding mA	_	_	6.3	46
Low current type Quick response	Power consumption	Starting W	_	_	0.55	3
/ curi	i ower consumption	Holding W	_	_	0.15	1.1
Pow Quji	Start-up time (standa	rd time) ms	_	_	200 or below	30 or below
Allowa	Allowable leakage current mA		2	2 1 0.5		4
Insulation resistance MΩ		Over 100 (value at DC500V megger)				
Color of LED indicator			Red			
Surge	suppression (as stand	ard)		Flywhe	el diode	

The test method for flow rate characteristics conforms to JIS B 8390:2000 (test method for pneumatic equipment — equipment for compressible fluids — flow rate characteristics).

#### When used as a single unit (with fittings)

Basic model		Flow path	Sonic conductance C dm³/(s·bar)	Critical pressure ratio b	Effective area S mm² (Cv)
		1 (P) →4 (A)	_	_	
	JC10□F5	1 (P) →2 (B)	_	_	2.80(0.156)
	JC10□F6	4 (A) →5 (R1)	_	_	2.00(0.150)
Direct piping <sup>Note 1</sup>		2 (B) →3 (R2)	_	_	
Direct piping	IC10 = E7	1 (P) →4 (A)	_	_	
	JC10□F7 JC10□F8 JC10□F9	1 (P) →2 (B)	_	_	2.50(0.139)
		4 (A) →5 (R1)	_	_	2.50 (0.139)
		2 (B) →3 (R2)	_	_	
	JC10□A5 JC10□A6	1 (P) →4 (A)	0.58	0.40	2.90 (0.161) Note 3
		1 (P) →2 (B)	0.57	0.37	2.85 (0.158) Note 3
		4 (A) →5 (R1)	0.51	0.29	2.55 (0.142) Note 3
Base pipingNote 1		2 (B) →3 (R2)	0.61	0.26	3.05 (0.169) Note 3
(with sub-base)	JC10□A7	1 (P) →4 (A)	0.52	0.36	2.60 (0.144) Note 3
	JC10□A7	1 (P) →2 (B)	0.53	0.33	2.65 (0.147) Note 3
	JC10□A6 JC10□A9	4 (A) →5 (R1)	0.49	0.27	2.45 (0.136) Note 3
	JC 10 A9	2 (B) →3 (R2)	0.55	0.27	2.75 (0.153) Note 3

#### When mounted on a manifold (with fittings)

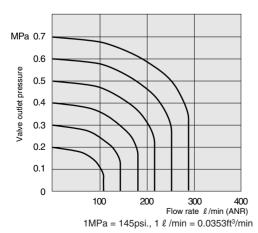
Basic model		Flow path	Sonic conductance C dm³/(s·bar)	Critical pressure ratio b	Effective area S <sup>Note 3</sup> mm <sup>2</sup> (Cv)
	JC10□F1	1 (P) →4 (A)	0.66	0.54	3.30(0.183)
	JC10□F2 JC10□F3	1 (P) →2 (B)	0.62	0.46	3.10(0.172)
	JC10⊡F4 JC10⊡F5	4 (A) →5 (R1)	0.58	0.33	2.90(0.161)
F type manifold Note 2	JC10□F6	2 (B) →3 (R2)	0.55	0.14	2.75(0.153)
(direct piping type)	JC10□F7	1 (P) →4 (A)	0.56	0.41	2.80(0.156)
	JC10⊟F7 JC10⊟F8	1 (P) →2 (B)	0.56	0.42	2.80(0.156)
	JC10□F9	4 (A) →5 (R1)	0.53	0.32	2.65(0.147)
		2 (B) →3 (R2)	0.50	0.13	2.50(0.139)
JC10□/	JC10□A1	1 (P) →4 (A)	0.61	0.33	3.05(0.169)
	JC10⊟A2 JC10⊟A3	1 (P) →2 (B)	0.60	0.31	3.00(0.167)
	JC10□A4 JC10□A5	4 (A) →5 (R1)	0.61	0.08	3.05(0.169)
A type manifold Note 2	JC10□A5 JC10□A6	2 (B) →3 (R2)	0.60	0.08	3.00(0.167)
(base piping type)	JC10□A7	1 (P) →4 (A)	0.54	0.29	2.70(0.150)
	JC10⊟A7 JC10⊟A8	1 (P) →2 (B)	0.54	0.30	2.70(0.150)
	JC10⊟A8 JC10⊟A9	4 (A) →5 (R1)	0.57	0.08	2.85(0.158)
	JC IU_A9	2 (B) →3 (R2)	0.54	0.09	2.70(0.150)

Notes: 1. Quick fitting TSH6-M5Ms are mounted on connection ports 1(P), 2(B), and 4(A).

2. Quick fitting TSH6-M5Ms are mounted on connection ports 2(B) and 4(A).

3. Figures in effective area S are calculated based on sonic conductance C (S=5.0×C).

#### (Effective area S=3.0mm<sup>2</sup> (Cv: 0.17))



•The graph uses flow rate calculations based on the discharge method.

•Use the flow rate as a guide.

#### **Port Size**

Port specificatio	n Port	2(B), 4(A)	1(P)	3, 5(R)
Cinalo unit	Direct piping	M5×0.8	M5×0.8	M3×0.5
Single unit	Base piping (with sub-base)	M5×0.8	M5×0.8	M5×0.8
Manifold	F type	M5×0.8	Rc1/8	Rc1/8
Manifold	A type	M5×0.8	Rc1/8	Rc1/4

#### Mass

#### **Single Valve Unit Mass**

g [oz.]

g [oz.]

			g [02.]
Basic model	Mass	Addition	nal mass
Dasic Houel Wass		-21 (with bottom mounting base)	-25 (with sub-base)
JC10□F1			
JC10□F2	06 [0 00]		
JC10□F3	26 [0.92]	_	
JC10□F4			
JC10□F5	26 [0.92]	4 [0.14]	_
JC10□F6	40 [1.41]		
JC10□F7		_	
JC10□F8	43 [1.52]		
JC10□F9			
JC10□A1			
JC10□A2	26 [0.92]	_	_
JC10□A3	20 [0.92]	_	
JC10□A4			
JC10□A5	26 [0.92]		
JC10□A6	40 [1.41]		
JC10□A7		_	27 [0.95]
JC10□A8	43 [1.52]		
JC10□A9			

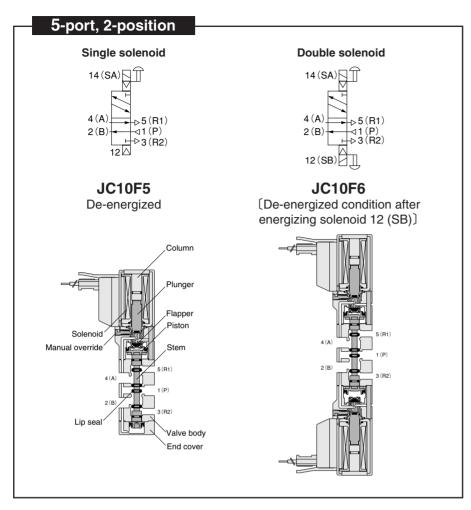
Manifold Mass

Basic model	Mass calculation of each unit (n = number of units)	Block-off plate	With DIN rail mounting bracket
JCM□F	$(12.5\times n)+20$ [ $(0.44\times n)+0.71$ ]	2 [0 11]	_
JCM□A	(22.5×n)+42 [(0.79×n)+1.48]	3 [0.11]	15 [0.53]

Calculation example: JCM8A

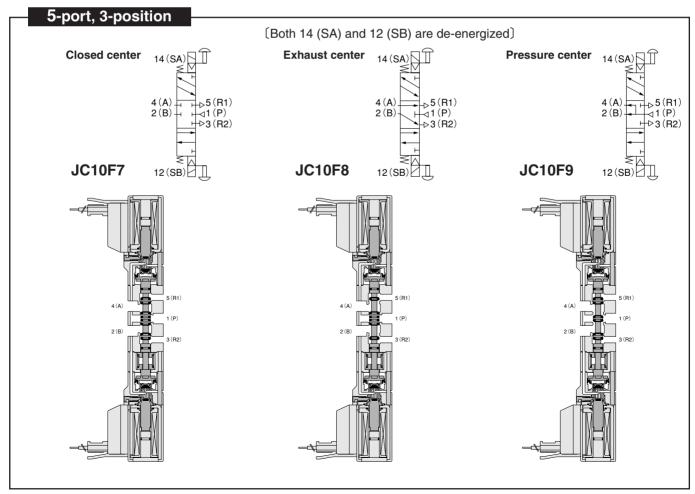
stn.1~8 JC10A5-PS-D4

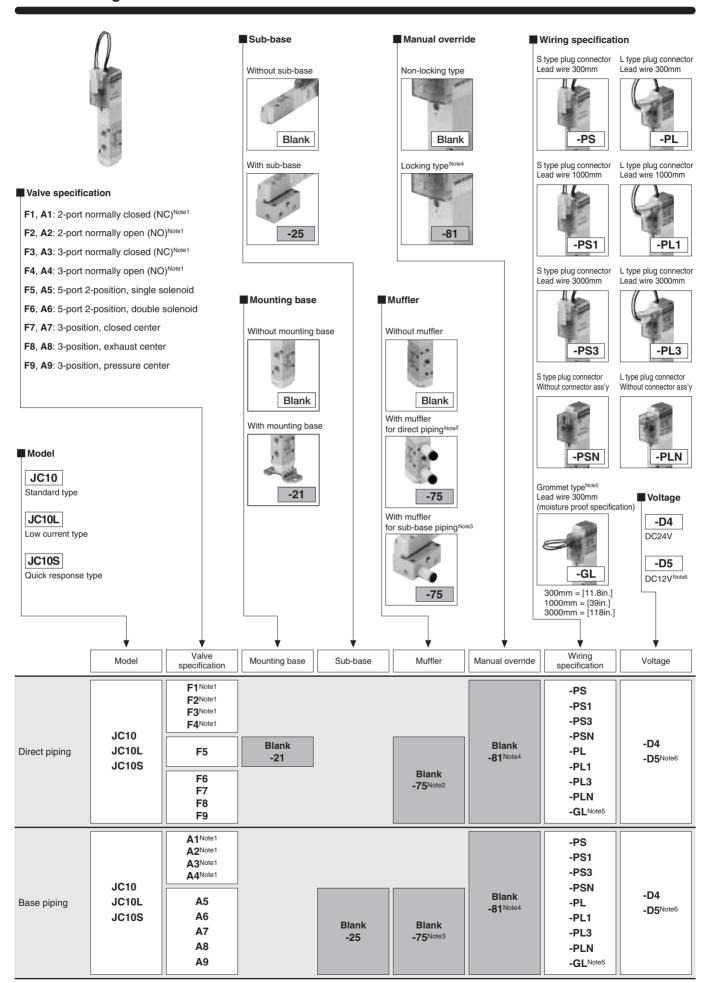
 $(22.5\times8)+42+(26\times8) = 430g$  [15.17oz.]



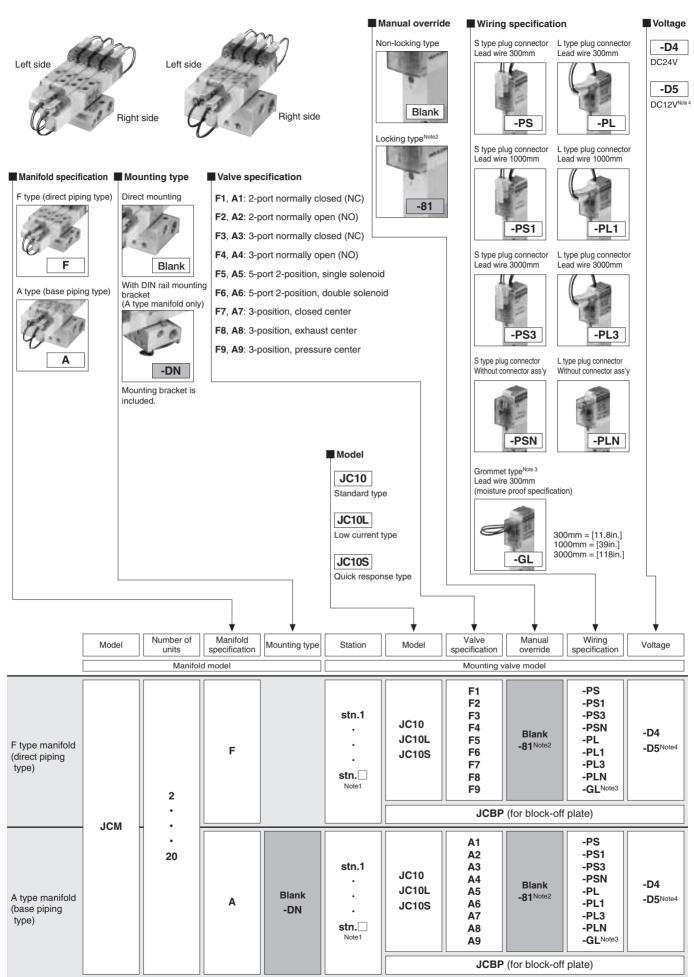
#### **Major Parts and Materials**

	Parts	Materials
	Body	Aluminum alloy
Valve	Stem	(anodized)
	Lip seal	Synthetic rubber
	Flapper	Synthetic rubber
	Mounting base	Mild steel (zinc plated)
	Sub-base	Aluminum alloy (anodized)
	Plunger	Magnetic stainless
	Column	steel
	End cover	Plastic
	Body	Aluminum alloy (anodized)
Manifold	Block-off plate	Mild steel (nickel plated)
	Seal	Synthetic rubber





- Notes: 1. Valves with valve specifications F1, F2, F3, F4, A1, A2, A3, and A4 are for mounting on manifolds only, and cannot be used as single valve units.
  - 2. The muffler thread for direct piping is  $M3\times0.5$  and the muffler cannot be used for sub-base piping.
  - When ordering the sub-base piping with muffler, always enter both -25 (sub-base) and -75 (muffler).
     The muffler thread for sub-base piping is M5 X 0.8 and the muffler cannot be used for direct piping.
- 4. The locking-type manual override is not available in the quick response type JC10S.
- The grommet type is not available in the low current type JC10L and quick response type JC10S.
- The DC12V specification is not available in the low current type JC10L and quick response type JC10S.



Notes: 1. The valve mounting location is from the left side of the manifold.

- The locking-type manual override is not available in the quick response type JC10S.
- 3. The grommet type is not available in the low current type JC10L and quick response type JC10S.
- 4. The DC12V specification is not available in the low current type JC10L and quick response type JC10S.

# **Block-off plate** (block-off plate and 2 mounting screws) **JCBP**

#### Connector-related



#### Connector specification

P : Connector, lead wire length 300mm [11.8in.]
 P1 : Connector, lead wire length 1000mm [39in.]
 P3 : Connector, lead wire length 3000mm [118in.]
 PN : Connector, without lead wire (contacts included)

#### DIN rail mounting bracket (with screws)

#### JCZ-DN



#### **Common connector assembly**



#### Connector specification

PA : Positive common A type, connector, lead wire length 300mm [11.8in.]
PA1 : Positive common A type, connector, lead wire length 1000mm [39in.]
PA3 : Positive common A type, connector, lead wire length 3000mm [118in.]
PB : Positive common B type, connector, lead wire length 300mm [11.8in.]
PB1 : Positive common B type, connector, lead wire length 1000mm [39in.]
PB3 : Positive common B type, connector, lead wire length 3000mm [118in.]
PC : Positive common C type, connector, lead wire length 300mm [11.8in.]
PC1 : Positive common C type, connector, lead wire length 1000mm [39in.]
PC3 : Positive common C type, connector, lead wire length 3000mm [118in.]
CPN : Positive common, connector, without lead wire

(short bar and contacts included)

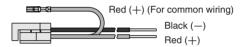
#### A type: EAZ-PA□\*



#### B type: EAZ-PB□\*



#### C type: EAZ-PC□\*



%Lead wire length

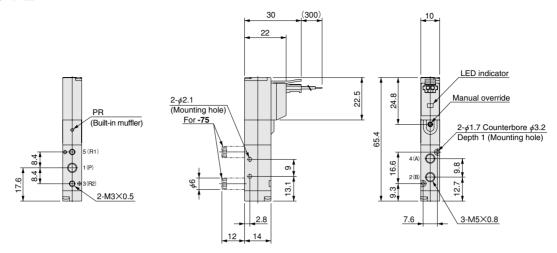
Blank: 300mm [11.8in.] 1: 1000mm [39in.] 3: 3000mm [118in.]

#### Application example



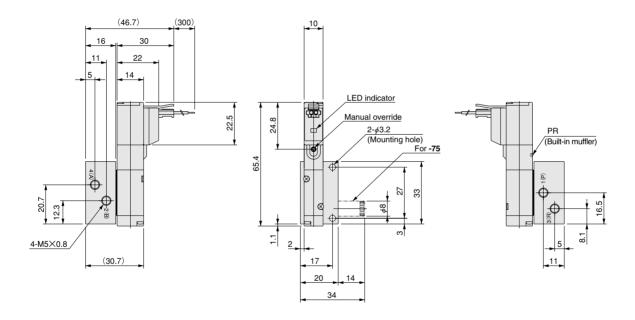
5-port, single solenoid

#### JC10 F5-PL

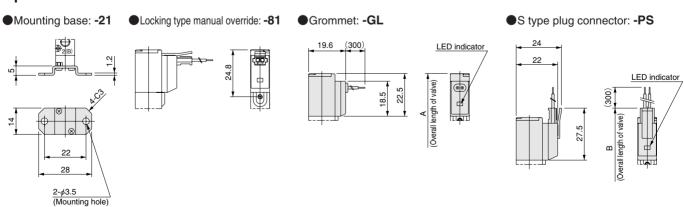


5-port, single solenoid (with sub-base)

#### JC10 A5-25-PL



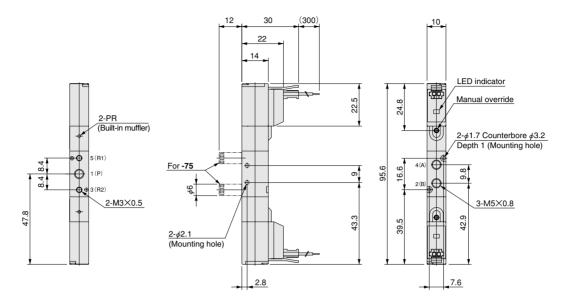
#### **Options**



			111111
Model Code	Α	В	Remark
JC10F5, JC10A5	65.4	70.4	Overall length to the and of the value
JC10LF5, JC10LA5, JC10SF5, JC10SA5	_	70.4	Overall length to the end of the valve

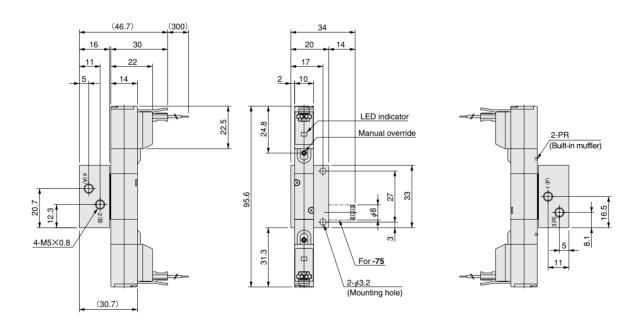
5-port, double solenoid

#### JC10 F6-PL

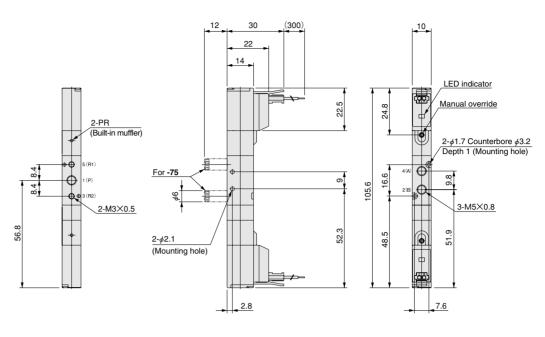


5-port, double solenoid (with sub-base)

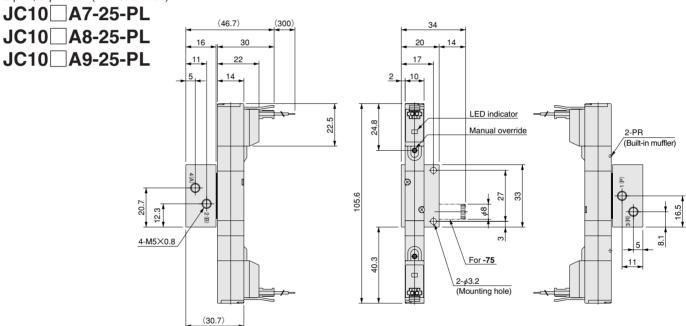
#### JC10 A6-25-PL



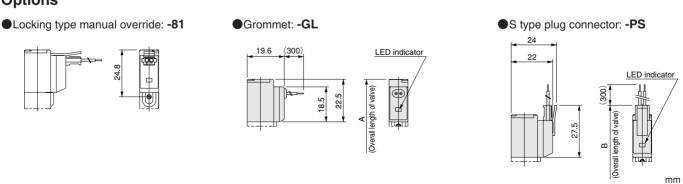
5-port, 3-position
JC10 F7-PL
JC10 F8-PL
JC10 F9-PL





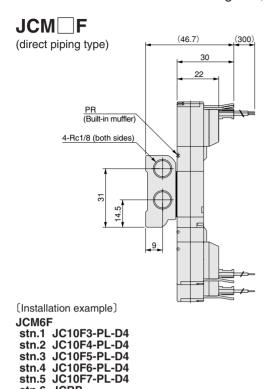


#### **Options**

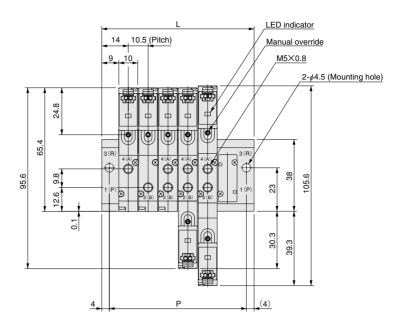


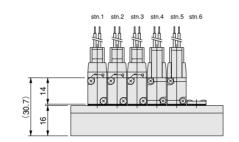
Model	Code	Α	В	Remark
JC10F6, JC10A6		95.6	105.6	
JC10F7~JC10F9, JC10A7~JC10A9		105.6	115.6	
JC10LF6, JC10LA6, JC10SF6, JC10SA6		_	105.6	Overall length to the opposite end of the solenoid
JC10LF7~JC10LF9, JC10LA7~JC10LA9		_	115.6	
JC10SF7~JC10SF9, JC10SA7~JC10SA9			113.0	

Manifold for combination mounting of 2, 3, 5-port valves



stn.6 JCBP

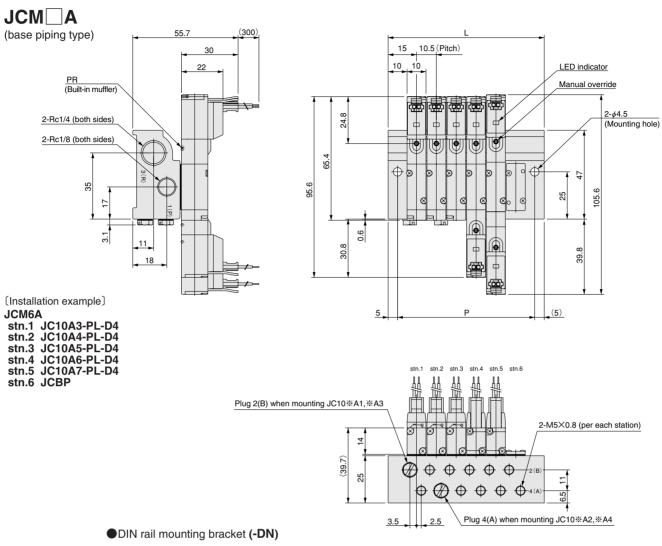


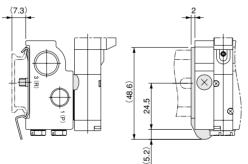


# Unit dimensions

Number of units	L	Р
2	38.5	30.5
3	49.0	41.0
4	59.5	51.5
5	70.0	62.0
6	80.5	72.5
7	91.0	83.0
8	101.5	93.5
9	112.0	104.0
10	122.5	114.5
11	133.0	125.0
12	143.5	135.5
13	154.0	146.0
14	164.5	156.5
15	175.0	167.0
16	185.5	177.5
17	196.0	188.0
18	206.5	198.5
19	217.0	209.0
20	227.5	219.5

#### Manifold for combination mounting of 2, 3, 5-port valves

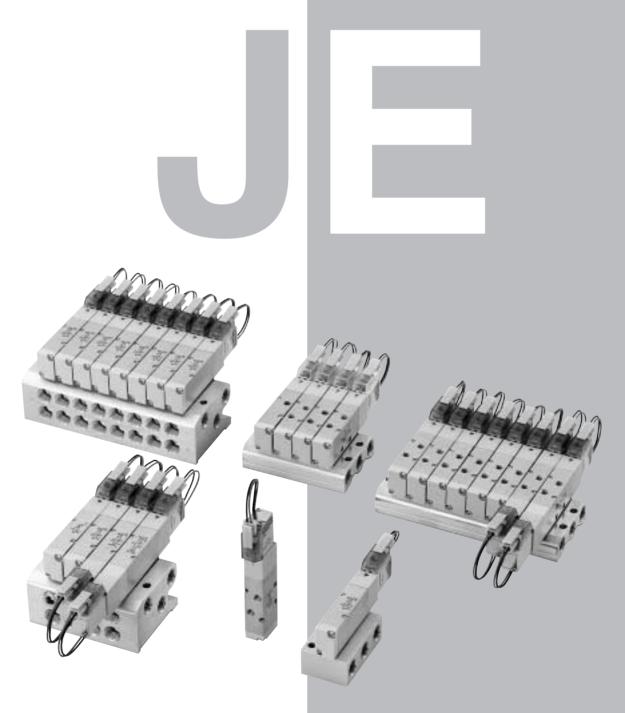




#### **Unit dimensions**

Number of units	L	Р
2	40.5	30.5
3	51.0	41.0
4	61.5	51.5
5	72.0	62.0
6	82.5	72.5
7	93.0	83.0
8	103.5	93.5
9	114.0	104.0
10	124.5	114.5
11	135.0	125.0
12	145.5	135.5
13	156.0	146.0
14	166.5	156.5
15	177.0	167.0
16	187.5	177.5
17	198.0	188.0
18	208.5	198.5
19	219.0	209.0
20	229.5	219.5
,		

# **Solenoid Valves JE Series**



# **JE SERIES SPECIFICATIONS**

#### **Specifications**

#### **Basic Models and Functions**

Basic model	For direct piping, F type manifolds	JE12□F1 <sup>Note</sup> JE12□F2 <sup>Note</sup> JE12□F3 <sup>Note</sup> JE12□F4 <sup>Note</sup>	JE12□F5	JE12□F6	JE12□F7 JE12□F8 JE12□F9
Item	For base piping, A type manifolds	JE12□A1 <sup>Note</sup> JE12□A2 <sup>Note</sup> JE12□A3 <sup>Note</sup> JE12□A4 <sup>Note</sup>	JE12□A5	JE12□A6	JE12□A7 JE12□A8 JE12□A9
Number of position	ons	2 positions		3 positions	
Number of ports		2, 3 ports	5 ports		
Valve function		Single solenoid NC, NO	Single solenoid	Double solenoid	Closed center, Exhaust center, Pressure center

Remark: For the optional specifications and order codes, see p.253.

Note: Valves with valve specifications F1, F2, F3, F4, A1, A2, A3, and A4 are for mounting on manifolds only, and cannot be used as single valve units.

#### **Specifications**

		ct piping, nanifolds	JE12□F1 JE12□F2 JE12□F3 JE12□F4	JE12□F5	JE12□F6	JE12⊡F7 JE12⊡F8 JE12⊡F9	
		e piping, nanifolds	JE12□A1 JE12□A2 JE12□A3 JE12□A4	JE12□A5	JE12□A6	JE12⊡A7 JE12⊡A8 JE12⊡A9	
Media				A	ir		
Operation type				Internal	oilot type		
Flow rate characterist		tance C dm³/(s • bar)		Base piping	(A type): 1.9		
Port size <sup>Note 2</sup>			Direct piping (F type): M5×0.8, Base piping (A type): Rc1/8				
Lubrication	Lubrication		Not required				
Operating pressure ra	range	MPa {kgf/cm²}[psi.]	0.2~0.7 {2~7.1} [29~102]				
Proof pressure		MPa {kgf/cm²}[psi.]		1.05 {10.7} [152]			
Response time <sup>Note 3</sup>		Standard type	12/28 or below		20 or below	12/30 or below	
ON/OFF	ms	Low current type (L)	12/60 c	r below	20 or below	12/60 or below	
		Quick response type (S)	6/10 or	below	8 or below	6/10 or below	
Maximum operating		Standard type		Ę	5		
frequency	Hz	Low current type (L)		2	2		
Quick response type (S)		10					
Minimum time to energize for self holding <sup>Note 4</sup> ms		_ 50					
Operating temperature range (atmosphere and media) $\ ^{\circ}C\ [^{\circ}F]$		5~50 [41~122]					
Shock resistance		m/s² {G}	1373.0 {140} (Axial	direction 294.2 (30))	1373.0 {140} (Axial direction 245.0 {25})		
Mounting direction			Any				

- Notes: 1. For details, see the flow rate characteristics on p.250.

  - For details, see the port size on p.251.
     Values when air pressure is 0.5MPa [73psi.]. The values for the 3-position valves are the switching time from the neutral position.
     For double solenoid valve.

#### **Solenoid Specifications**

Item	F	Rated voltage	DC12V (Standard type)	DC24V (Standard type)	DC24V (Low current type)	DC24V (Quick response type)
Opera	Operating voltage range V		10.8~13.2 (12±10%)	21.6~26.4 (24±10%)	21.6~26.4 (24±10%)	21.6~26.4 (24±10%)
Standard	Current (when rated voltage is ap	oplied) mA (r.m.s)	46	23	_	——————————————————————————————————————
type	Power consumption	W	0.55	0.55	_	_
type	Current (when rated	Starting mA	_	_	23	125
type Ise ty	voltage is applied)	Holding mA	_	_	6.3	46
Low current type Quick response t	Power consumption	Starting W	_	_	0.55	3
/ curl	i ower consumption	Holding W	_	_	0.15	1.1
Lov	Start-up time (standar	rd time) ms	_	_	200 or below	30 or below
Allowa	able leakage current	mA	2	1	0.5	4
Insula	Insulation resistance $M\Omega$		Over 100 (value at DC500V megger)			
Color of LED indicator			Red			
Surge	suppression (as stand	ard)		Flywhe	el diode	

The test method for flow rate characteristics conforms to JIS B 8390:2000 (test method for pneumatic equipment — equipment for compressible fluids — flow rate characteristics)

#### When used as a single unit (with fittings)

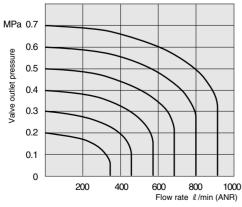
Basic mo	odel	Flow path	Sonic conductance C dm³/(s·bar)	Critical pressure ratio b	Effective area S Note 5 mm² (Cv)
		1 (P) →4 (A)	0.81	0.55	4.05(0.225)
	JE12□F5	1 (P) →2 (B)	0.81	0.54	4.05(0.225)
	JE12□F6	4 (A) →5 (R1)	0.75	0.44	3.75(0.208)
Direct pipingNote 1		2 (B) →3 (R2)	0.76	0.43	3.80(0.211)
Direct piping	IE40 E7	1 (P) →4 (A)	0.80	0.51	4.00(0.222)
	JE12□F7 JE12□F8 JE12□F9	1 (P) →2 (B)	0.80	0.52	4.00(0.222)
		4 (A) →5 (R1)	0.71	0.41	3.55(0.197)
		2 (B) →3 (R2)	0.72	0.43	3.60 (0.200)
		1 (P) →4 (A)	1.91	0.19	9.55(0.531)
	JE12□A5	1 (P) →2 (B)	1.93	0.18	9.65(0.536)
	JE12□A6	4 (A) →5 (R1)	1.90	0.15	9.50(0.528)
Base pipingNote 2		2 (B) →3 (R2)	1.90	0.12	9.50(0.528)
(with sub-base)	JE12□A7	1 (P) →4 (A)	1.42	0.20	7.10(0.394)
	JE12□A7 JE12□A8	1 (P) →2 (B)	1.49	0.21	7.45(0.414)
	JE12□A6 JE12□A9	4 (A) →5 (R1)	1.37	0.18	6.85(0.381)
	GE12 A9	2 (B) →3 (R2)	1.28	0.14	6.40(0.356)

#### When mounted on a manifold (with fittings)

Basic model		Flow path	Sonic conductance C dm³/(s·bar)	Critical pressure ratio b	Effective area S Note 5 mm <sup>2</sup> (Cv)
	JE12□F1	1 (P) →4 (A)	0.88	0.64	4.40(0.244)
	JE12□F2 JE12□F3	1 (P) →2 (B)	0.88	0.63	4.40(0.244)
	JE12□F4 JE12□F5	4 (A) →5 (R1)	0.90	0.20	4.50 (0.250)
F type manifold Note 3	JE12□F5 JE12□F6	2 (B) →3 (R2)	0.91	0.20	4.55(0.253)
(direct piping type)	IE10□E7	1 (P) →4 (A)	0.84	0.59	4.20(0.233)
	JE12□F7 JE12□F8 JE12□F9	1 (P) →2 (B)	0.85	0.59	4.25(0.236)
		4 (A) →5 (R1)	0.85	0.20	4.25(0.236)
	JE 12 LF9	2 (B) →3 (R2)	0.85	0.21	4.25(0.236)
	JE12□A1	1 (P) →4 (A)	1.62	0.38	8.10(0.450)
	JE12□A2 JE12□A3	1 (P) →2 (B)	1.63	0.38	8.15(0.453)
	JE12□A4 JE12□A5	4 (A) →5 (R1)	1.82	0.10	9.10(0.506)
A type manifold Note 4	JE12□A5 JE12□A6	2 (B) →3 (R2)	1.77	0.18	8.85(0.492)
(base piping type) JE12 A	IE40 - 47	1 (P) →4 (A)	1.34	0.40	6.70(0.372)
		1 (P) →2 (B)	1.37	0.24	6.85(0.381)
	JE12□A8	4 (A) →5 (R1)	1.34	0.08	6.70(0.372)
	JE12□A9	2 (B) →3 (R2)	1.26	0.17	6.30 (0.350)

- Notes: 1. Quick fitting TSH6-M5Ms are mounted on connection ports 1(P), 2(B), and 4(A).
  - 2. Quick fitting TS8-01s are mounted on connection ports 1(P), 2(B), and 4(A).
  - 3. Quick fitting TSH6-M5Ms are mounted on connection ports 2(B) and 4(A).
  - 4. Quick fitting TS6-01Ms are mounted on connection ports 2(B) and 4(A).
  - 5. Figures in effective area S are calculated based on sonic conductance C (S=5.0×C).

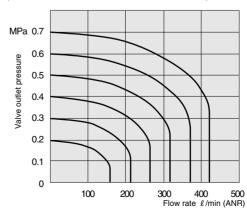
## Base piping type (Effective area $S = 9.5 mm^2$ (Cv: 0.53))



#### • Graphs use flow rate calculations based on the discharge method.

•Use the flow rate as a guide.

#### Direct piping type (Effective area S = 4.4mm<sup>2</sup> (Cv: 0.25))



1MPa = 145psi., 1  $\ell$  /min = 0.0353ft<sup>3</sup>/min

#### **Port Size**

Port specification	Port	2(B), 4(A)	1(P)	3, 5(R)
Single unit	Direct piping	M5×0.8	M5×0.8	M5×0.8
Sirigle unit	Base piping (with sub-base)	Rc1/8	Rc1/8	Rc1/8
Manifold	F type	M5×0.8	Rc1/8	Rc1/8
IVIAIIIIOIU	A type	Rc1/8	Rc1/8	Rc1/8

#### Mass

#### **Single Valve Unit Mass**

g [oz.]

				g [02:]
Basic model	Mass		Additional mass	
Basic model	IVIASS	-21 (with bottom mounting base)	-22 (with side mounting base)	-25 (with sub-base)
JE12□F1				
JE12□F2	20 [1 20]			
JE12□F3	39 [1.38]	_	_	
JE12□F4				
JE12□F5	36 [1.27]	6 [0.21]		_
JE12□F6	52 [1.83]			
JE12⊡F7			5 [0.18]	
JE12□F8	55 [1.94]	_		
JE12□F9				
JE12□A1				
JE12□A2	39 [1.38]	_		_
JE12□A3	39 [1.30]		_	_
JE12□A4				
JE12□A5	36 [1.27]			
JE12□A6	52 [1.83]			
JE12□A7		_	_	48 [1.69]
JE12□A8	55 [1.94]			
JE12□A9				

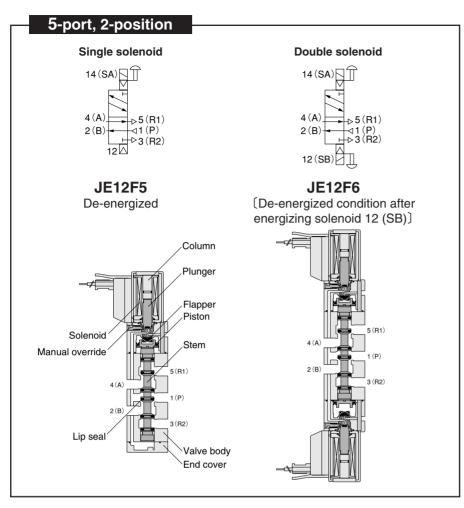
Manifold Mass g [oz.]

Basic model	Mass calculation of each unit (n = number of units)	Block-off plate	With DIN rail mounting bracket
JEM□F	$(13\times n)+17$ [(0.46×n)+0.60]	7 [0 05]	_
JEM□A	(32×n)+59 [(1.13×n)+2.08]	7 [0.25]	15 [0.53]

Calculation example: **JEM8A** 

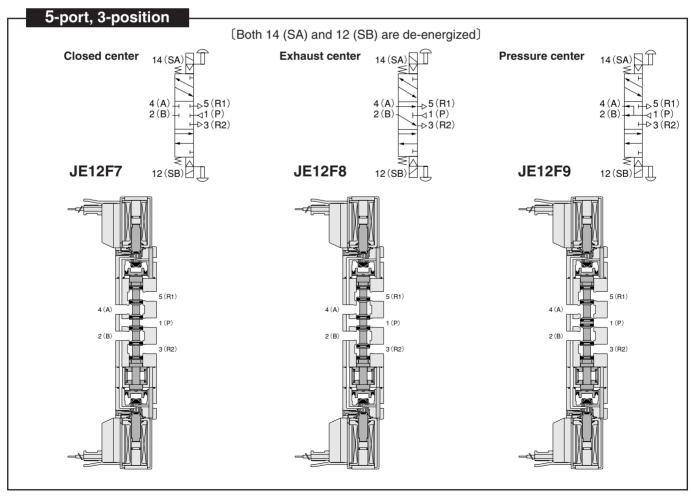
stn.1 $\sim$ 8 JE12A5-PS-D4

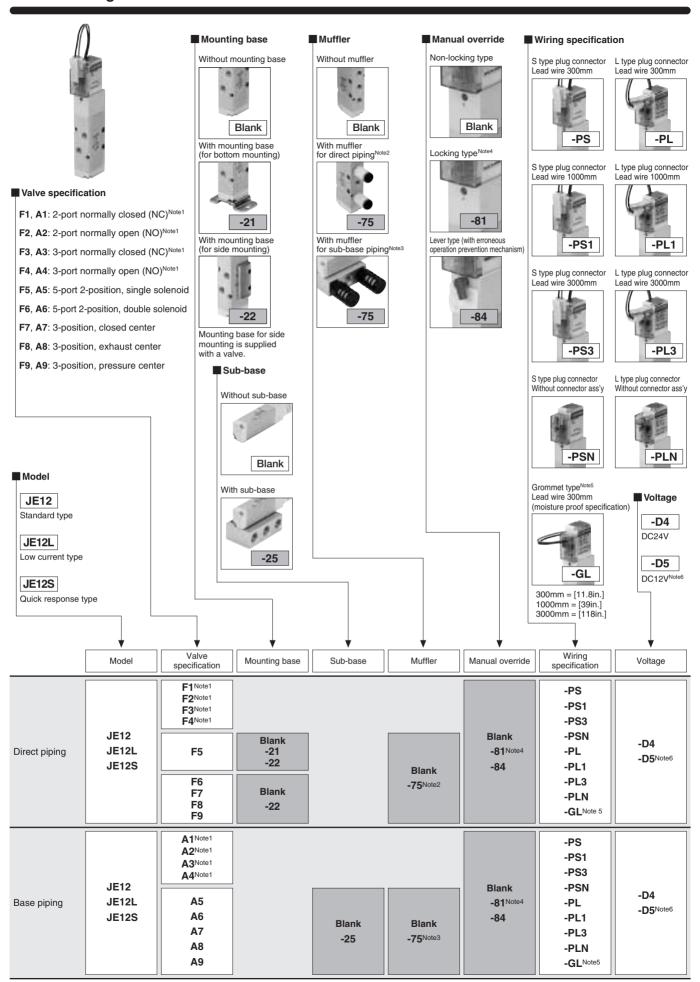
 $(32\times8)+59+(36\times8) = 603g$  [21.27oz.]



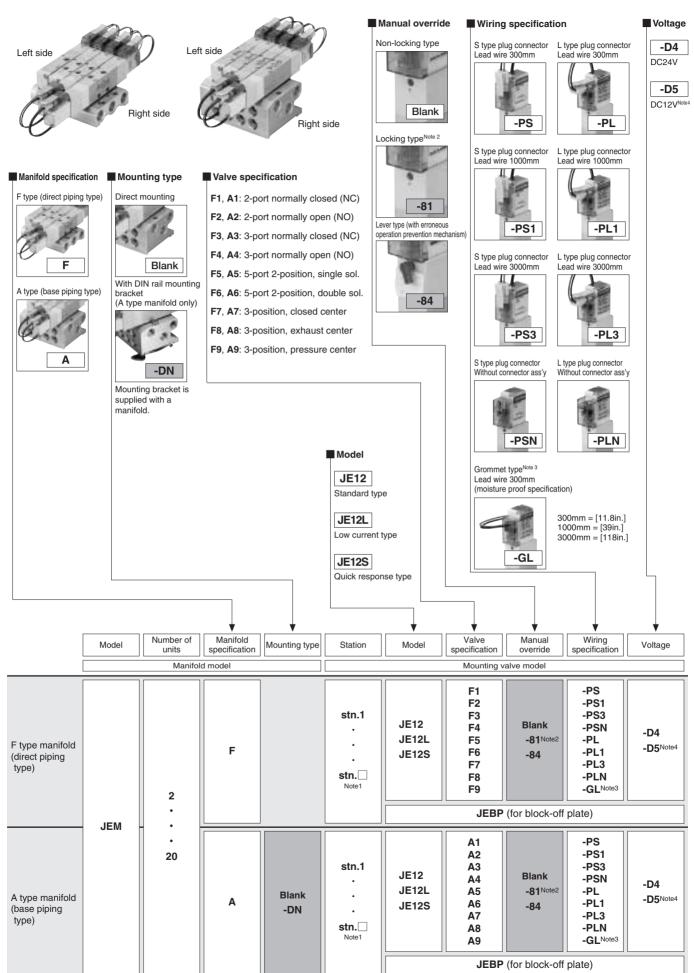
#### **Major Parts and Materials**

	Parts	Materials	
	Body	Aluminum alloy	
	Stem	(anodized)	
	Lip seal	Synthetic rubber	
	Flapper	Synthetic rubber	
Valve	Mounting base	Mild steel (nickel plated)	
	Sub-base	Aluminum alloy (anodized)	
	Plunger	Magnetic stainless	
	Column	steel	
	End cover	Plastic	
	Body	Aluminum alloy (anodized)	
Manifold	Block-off plate	Mild steel (nickel plated)	
	Seal	Synthetic rubber	





- Notes: 1. Valves with valve specifications F1, F2, F3, F4, A1, A2, A3, and A4 are for mounting on manifolds only, and cannot be used as single valve units.
  - 2. The muffler thread for direct piping is  $M5 \times 0.8$  and the muffler cannot be used for sub-base piping.
  - When ordering the sub-base piping with muffler, always enter both -25 (sub-base) and -75 (muffler).
     The muffler thread for sub-base piping is Rc1/8 and the muffler cannot be used for direct piping.
- 4. The locking-type manual override is not available in the quick response type JE12S.
- The grommet type is not available in the low current type JE12L and quick response type JE12S.
- The DC12V specification is not available in the low current type JE12L and quick response type JE12S.



Notes: 1. The valve mounting location is from the left side of the manifold.

- 2. The locking-type manual override is not available in the quick response type **JE12S**.
- 3. The grommet type is not available in the low current type JE12L and quick response type JE12S.
- 4. The DC12V specification is not available in the low current type **JE12L** and quick response type **JE12S**.

#### Block-off plate (block-off plate and 2 mounting screws) **JEBP**

#### Connector-related



#### Connector specification

P : Connector, lead wire length 300mm [11.8in.] P1 : Connector, lead wire length 1000mm [39in.] P3: Connector, lead wire length 3000mm [118in.] PN: Connector, without lead wire (contacts included)

#### **DIN rail mounting bracket** (with screws)

#### JEZ-DN



#### **Common connector assembly**



#### Connector specification

PA : Positive common A type, connector, lead wire length 300mm [11.8in.] PA1 : Positive common A type, connector, lead wire length 1000mm [39in.] PA3 : Positive common A type, connector, lead wire length 3000mm [118in.] PB : Positive common B type, connector, lead wire length 300mm [11.8in.] **PB1**: Positive common B type, connector, lead wire length 1000mm [39in.] PB3 : Positive common B type, connector, lead wire length 3000mm [118in.] PC : Positive common C type, connector, lead wire length 300mm [11.8in.] PC1 : Positive common C type, connector, lead wire length 1000mm [39in.] PC3 : Positive common C type, connector, lead wire length 3000mm [118in.] CPN : Positive common, connector, without lead wire

(short bar and contacts included)

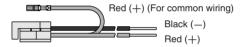
A type: EAZ-PA 

\*









\*Lead wire length

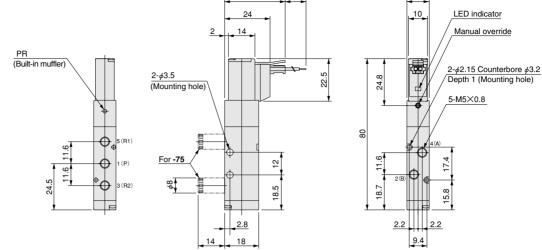
Blank: 300mm [11.8in.] 1: 1000mm [39in.] 3:3000mm [118in.]

#### Application example



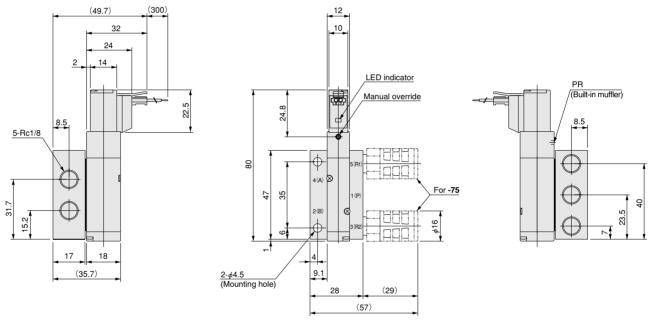
5-port, single solenoid



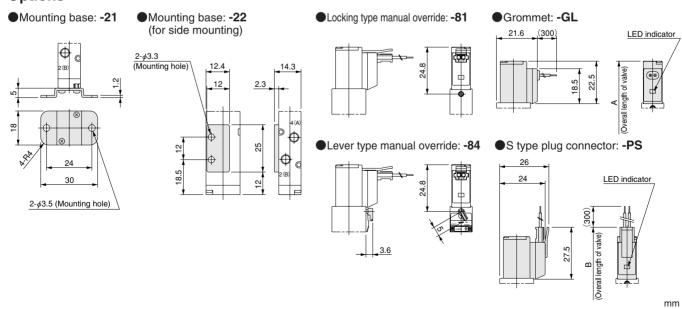


5-port, single solenoid (with sub-base)

#### JE12 A5-25-PL



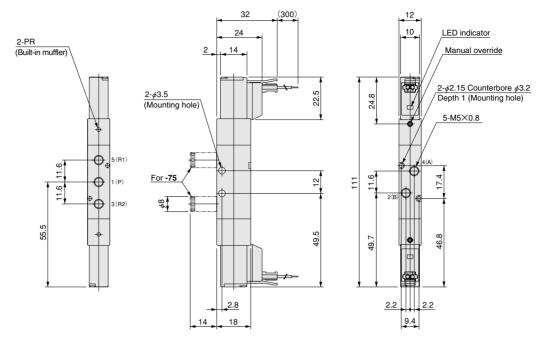
#### **Options**



Model Code	Α	В	Remark	
JE12F5, JE12A5	80	85	Overall length to the end of the valve	
JE12LF5, JE12LA5, JE12SF5, JE12SA5	_	85		

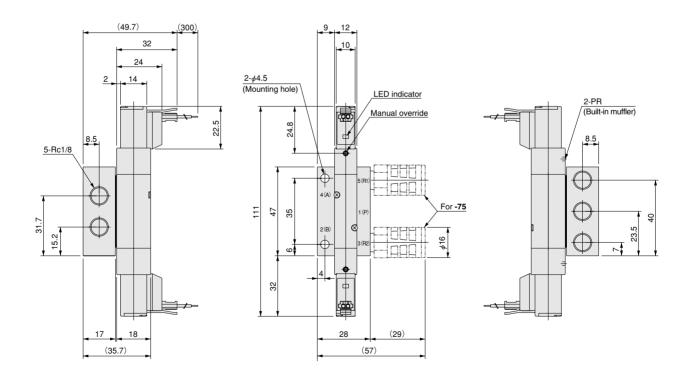
5-port, double solenoid

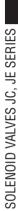
#### JE12 F6-PL

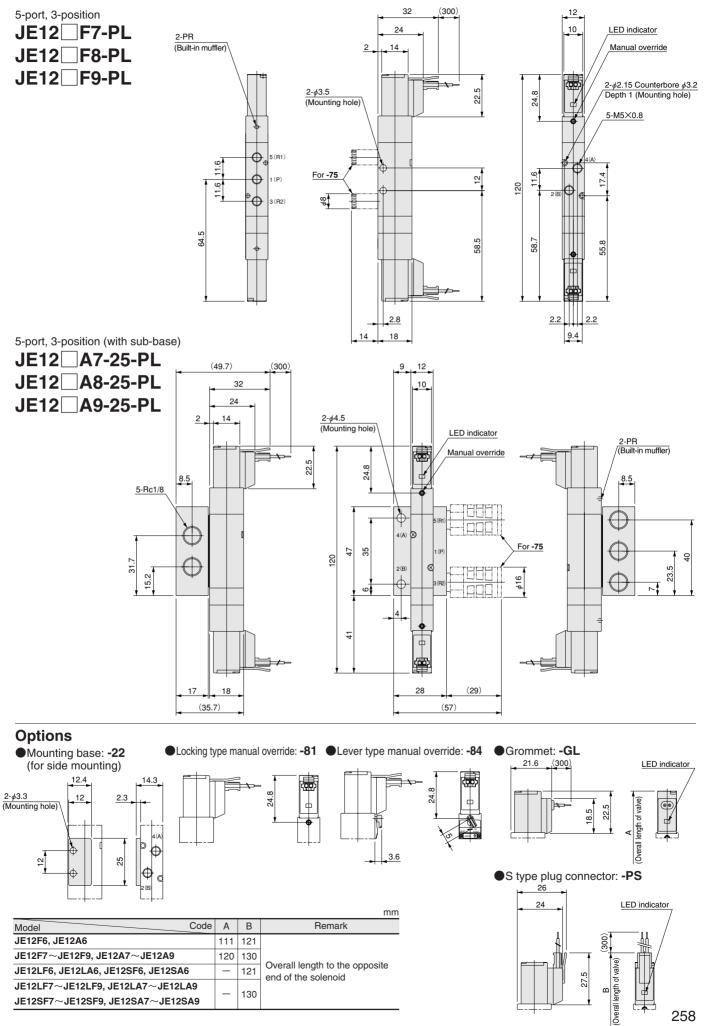


5-port, double solenoid (with sub-base)

#### JE12 A6-25-PL





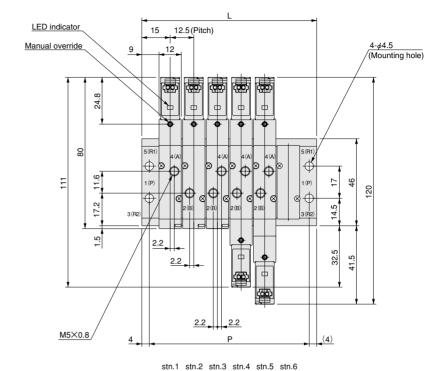


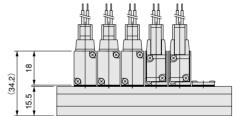
Manifold for combination mounting of 2, 3, 5-port valves

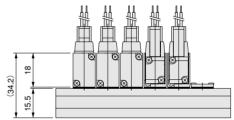
# JEM F (Direct piping type) (48.2) 32 PR (Built-in muffler) 24 6-Rc1/8 (both sides) 16.5 8.5 (Installation example)

JEM6F

JEM6F stn.1 JE12F3-PL-D4 stn.2 JE12F4-PL-D4 stn.3 JE12F5-PL-D4 stn.4 JE12F6-PL-D4 stn.5 JE12F7-PL-D4 stn.6 JEBP







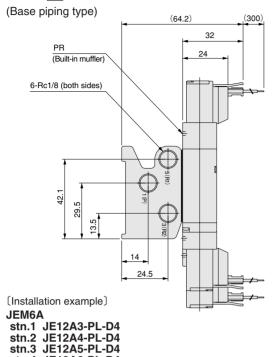
#### **Unit dimensions**

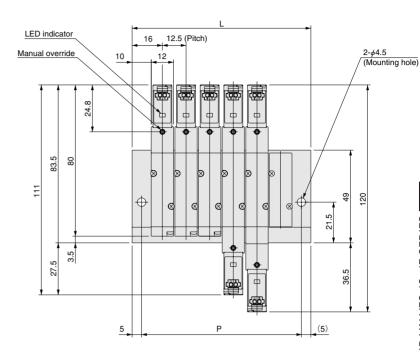
Number of units	L	Р
2	42.5	34.5
3	55.0	47.0
4	67.5	59.5
5	80.0	72.0
6	92.5	84.5
7	105.0	97.0
8	117.5	109.5
9	130.0	122.0
10	142.5	134.5
11	155.0	147.0
12	167.5	159.5
13	180.0	172.0
14	192.5	184.5
15	205.0	197.0
16	217.5	209.5
17	230.0	222.0
18	242.5	234.5
19	255.0	247.0
20	267.5	259.5

#### Manifold for combination mounting of 2, 3, 5-port valves

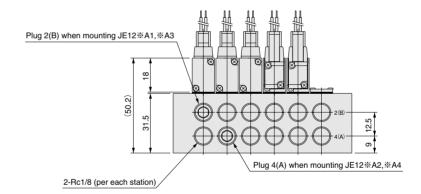
#### **JEM** A

stn.4 JE12A6-PL-D4 stn.5 JE12A7-PL-D4 stn.6 JEBP

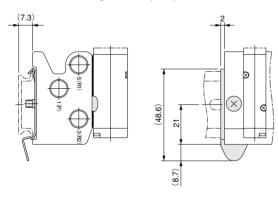




stn.1 stn.2 stn.3 stn.4 stn.5 stn.6



#### ●DIN rail mounting bracket (-DN)



#### **Unit dimensions**

Number of units	L	Р
2	44.5	34.5
3	57.0	47.0
4	69.5	59.5
5	82.0	72.0
6	94.5	84.5
7	107.0	97.0
8	119.5	109.5
9	132.0	122.0
10	144.5	134.5
11	157.0	147.0
12	169.5	159.5
13	182.0	172.0
14	194.5	184.5
15	207.0	197.0
16	219.5	209.5
17	232.0	222.0
18	244.5	234.5
19	257.0	247.0
20	269.5	259.5