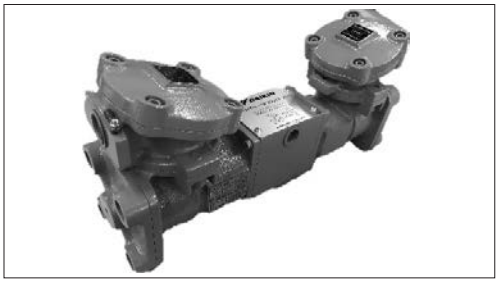
Pressure-resistant Explosion-proof Solenoid Operated Valve



Features

- This is a valve that follows the guidelines for explosion-proof electrical equipment in factories of the Technology Institution of Industrial Safety, which is a Public Interest Incorporated Association.

Nomenclature

JST - G ※※ - ※ ※ ※ - 20
1 2 3 4 5 6 7

1 Basic Model
JST: Pressure-resistant explosion-proof solenoid operated valve

2 Connections
G: Gasket mount type

3 Nominal diameter
03: 3/8

4 Spool code (See the model table.)

5 Spool operating method (See the model table.)
C: Spring center type
B: Spring offset type (with SOL.b)
D: No-spring type (with detent)

6 Voltage code
(See the solenoid specification table.)

7 Design No. (The design No. is subject to change.)

Specifications

Model code	Nominal diameter	Maximum operating pressure MPa {kgf/cm^2}	Maximum flow rate L/min	Permissible back pressure MPa {kgf/cm^2}	Maximum switching frequency Times per minute	Type of explosion proofing
JST-G03	3/8	21 {210}	76	7 {70}	60	Pressure-resistant explosion-proof structure (d2G4)

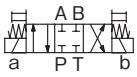
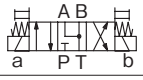
6 : Solenoid specification table

Voltage code	Power supply voltage	Holding current A	Holding power W	Permissible voltage fluctuation (%)
P	DC 24 V	1.15	26.4	90 to 110
E	AC 100 V with rectifier	0.30	28.9	90 to 121
	AC 110 V with rectifier	0.33	35.0	82 to 110
G	AC 200 V with rectifier	0.15	29.1	90 to 121
	AC 220 V with rectifier	0.17	35.2	82 to 110

Note: The current and power indicated are the values at 20°C.

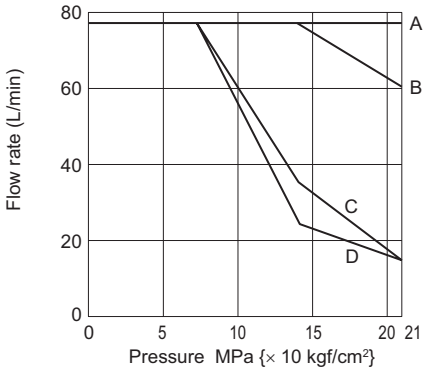
Time rating	Insulation resistance	Withstand voltage	Insulation type
Continuous	50 MΩ	AC 1500 V 1 minute	Type B

4 5: Model table

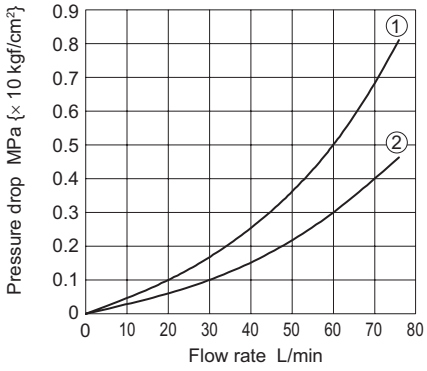
Model code	JIS graphic symbols for hydraulic system	Pressure - flow rate characteristics (See the performance curves)			Pressure drop characteristics (See the performance curves)	
		A B P T	A B P T	A B P T	P→A P→B	A→T B→T
JST-G03-2C		A	D	D	①	①
JST-G03-4C		A	D	D	①	②
JST-G03-2B		A	C	D	①	①
JST-G03-2D		A	B	B	①	①

Performance curves (viscosity: 32 mm²/s {cSt})

Pressure – Flow rate characteristics



Pressure drop characteristics



Note: The flow rates shown in the graphs are the maximum flow rates under which operation (switching) of the valve is possible under the following conditions.

DC	With the maximum attainable temperature rise achieved, 90% of rated voltage applied

Operation time (sec.)

Power supply	Operating direction	Operation time
DC	Excitation	0.04 to 0.13
	Spring return	0.01 to 0.05
With rectifier	Excitation	0.04 to 0.13
	Spring return	0.15 to 0.31

Mass (kg)

Double solenoid	Single solenoid
16.7	9.5

Note: The operation time may change slightly depending on the conditions of use (pressure, flow rate, hydraulic fluid viscosity, etc.).

Handling

- Applicable fluids: Use petroleum-based hydraulic oil and water-glycol hydraulic fluid.
- Operate the unit in an environment where both the following conditions are satisfied: viscosity range from 15 to 200 mm²/s and oil temperature from 15 to 60°C.
  When using water-glycol hydraulic fluid, use it at a temperature within the range 15 to 50°C.
- Connect the grounding wire to the solenoid grounding terminal in the terminal box.
- When performing maintenance work with the power ON, do not open the terminal box cover.
- When performing maintenance work with the power shut OFF, check the safety of the electrical circuits in particular.

Sub-plate model code

- The sub-plate is not provided with the valve. Order it separately if required by specifying the model code given in the table below.

Model code	Nominal diameter	Port diameter	Mass kg
JS-03M	3/8	Rc3/8	2.5
JS-03M04		Rc1/2	2.2

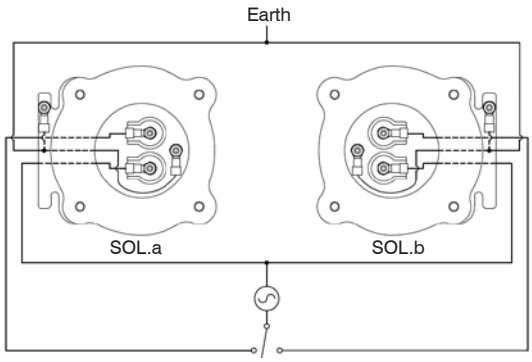
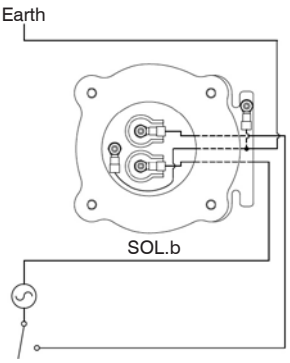
Refer to Page S-9 for the dimensions of the sub-plate.

Accessories

Model No.	Hexagon socket head cap bolt	Number of bolts	Tightening torque N·m {kgf·cm}
JST-G03	M6 × 35	4	12 to 13 {120 to 130}

Wiring guide

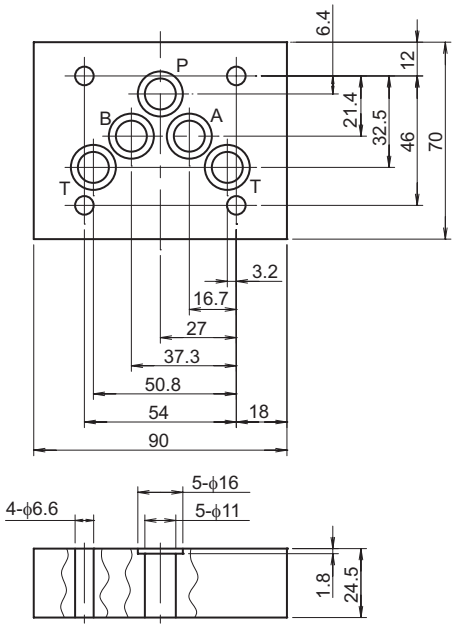
- The figure below shows the status with the terminal box cover removed.
- Always turn off the power supply before starting wiring work.
- The wiring diagram in the table shows an AC power supply, but there is no polarity for a DC power supply either.
- Connect the grounding wire to the solenoid grounding terminal in the terminal box.
- Tighten the terminal nut (M4) with a tightening torque of 0.34 to 0.51 N·m.

	Spool operating method	
	Type C/Type D	Type B
Wiring diagram		

Auxiliary plate

- An auxiliary plate (Model code: JST-M6) is required if the solenoid interferes when the pressure-resistant explosion-proof solenoid operated valve is mounted directly on the manifold.
  Order it separately if required.
  For the dimensions, refer to the figure to the right.
  Note that the auxiliary plate comes with four hexagon socket head cap bolts (M6 × 60) and five O-rings (JIS B 2401 IBP12).

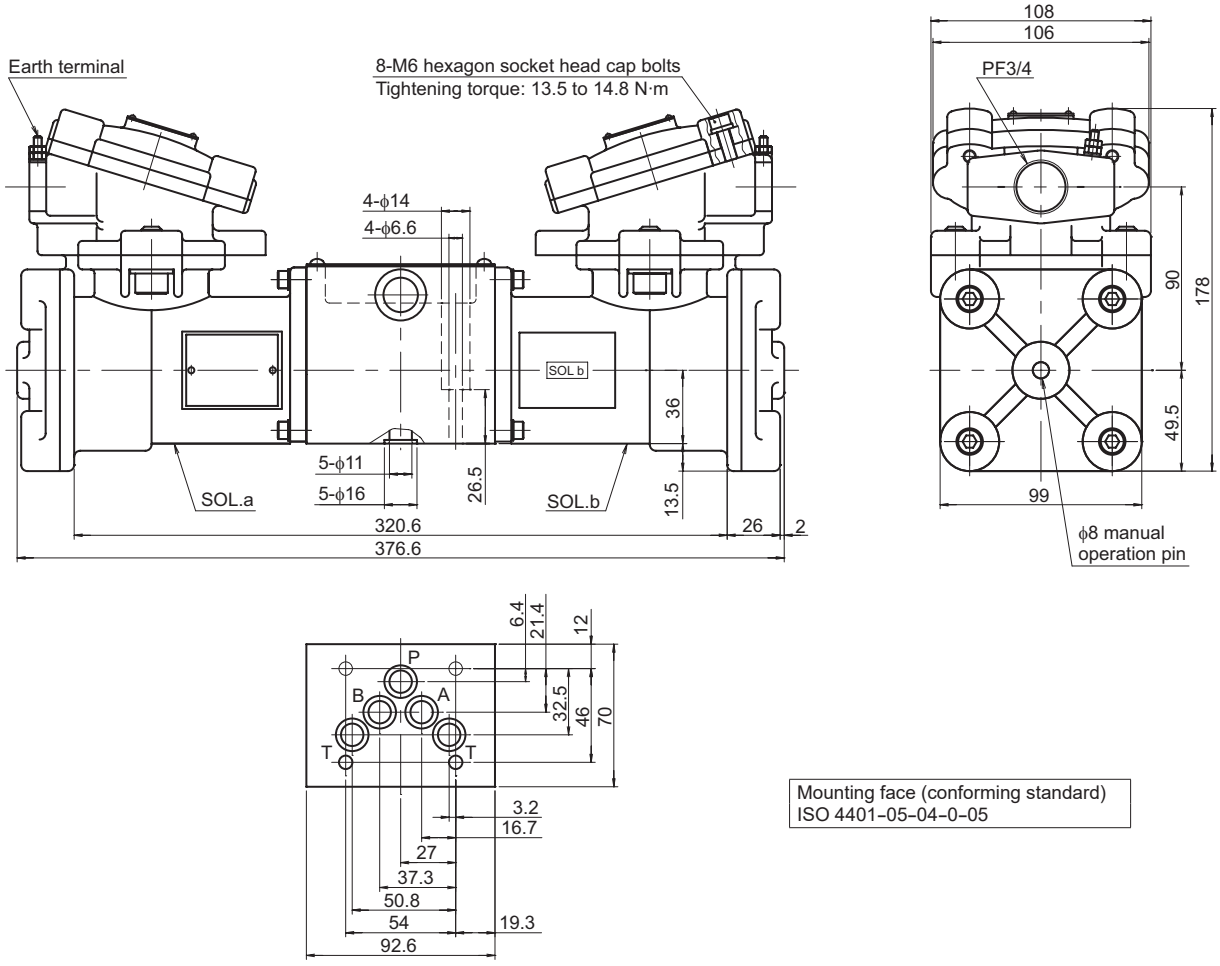
■External Dimension Diagram (mass: 1.2 kg)



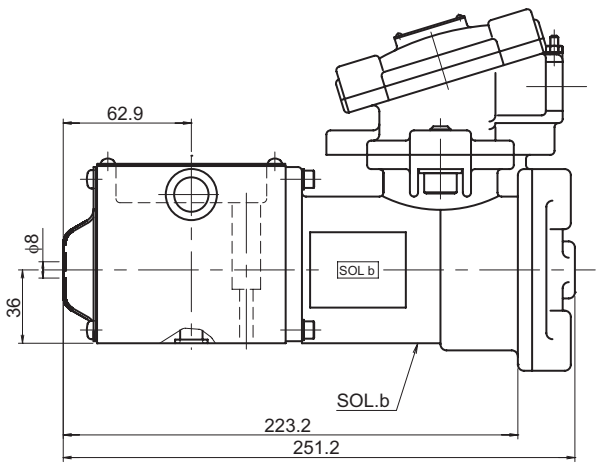
Mounting face (conforming standard)
ISO 4401-05-04-0-05

External dimension diagram

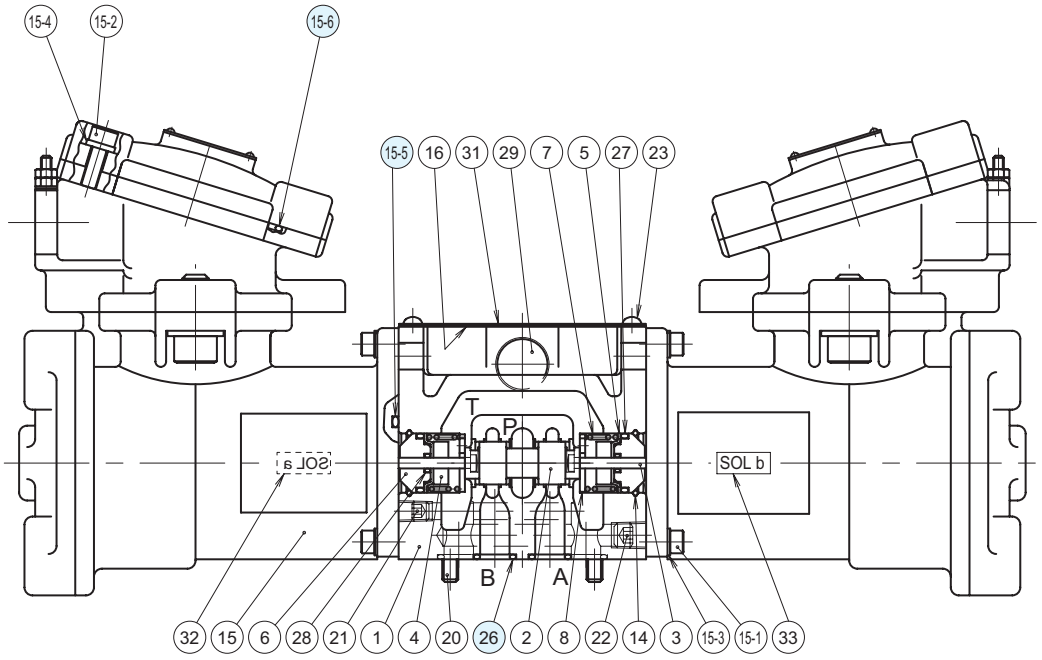
- Type C: Spring center type
- Type D: No-spring type (with detent)



- Type B: Spring offset type (with SOL.b)



Sectional structural diagram



Sealing part table

Part No.	Name	Quantity	Part specifications
15-5	O-ring	2	JIS B2401 1B G30
15-6	O-ring	2	JIS B2401 1A G65
26	O-ring	5	JIS B2401 1B P12