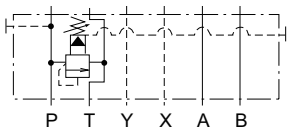
04 Series Stacking Type Port P Relief Valves

JIS graphic symbols for hydraulic system

MR-04P



Nomenclature

※ - MR - 04 P - ※ ※ - 10 - ※02 - ※
1 2 3 4 5 6 7 8 9

1 Applicable fluid code
No designation: Petroleum-based hydraulic fluid, water-glycol hydraulic fluid
F: Phosphate ester hydraulic fluid

2 Model No.
MR: Modular stacking type relief valve

3 Nominal diameter
04: ½

4 Control port
P: Port P

5 Pressure adjustment range
1: Up to 7 MPa {Up to 70 kgf/cm^2}
2: 2 to 16 MPa {20 to 160 kgf/cm^2}
3: 3.5 to 25 MPa {35 to 250 kgf/cm^2}
4: 7 to 35 MPa {70 to 350 kgf/cm^2}

6 Vent type code
No designation: Low-vent type
V: High-vent type

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

8 Piping port
R02: Connection port Rc¼
S02: Connection port G¼ O-ring boss (JIS B 2351)

9 Drainage code
No designation: Internal drain type
E: External drain type

Specifications

Model code	Maximum operating pressure MPa {kgf/cm^2}	Maximum flow rate L/min	Pressure adjustment range *1 MPa {kgf/cm^2}	Mass kg	Pressure change MPa {kgf/cm^2} per screw revolution
MR-04P-1※-10	35 {350}	300	Up to 7 {Up to 70}	7	2.5 {25}/revolution
MR-04P-2※-10			2 to 16 {20 to 160}		4.6 {46}/revolution
MR-04P-3※-10			3.5 to 25 {35 to 250}		7.9 {79}/revolution
MR-04P-4※-10			7 to 35 {70 to 350}		9.1 {91}/revolution

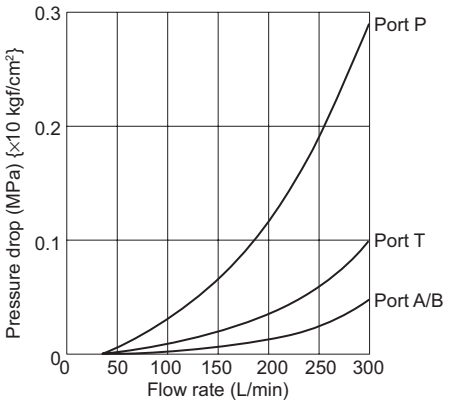
Note: *1 The minimum adjustment pressure varies depending on the flow rate. See the minimum adjustment pressure characteristics for details.

Handling

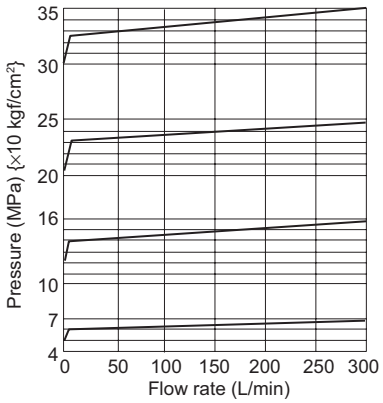
- Maintain the back pressure of the tank port at no greater than 0.5 MPa {5 kgf/cm^2}.
- When using the valve in combination with a direct operated relief valve for remote control, connect it to the vent port of the valve. Since excessive internal volume of the vent piping may lead to vibration, use steel pipes with an inner diameter of 4 mm maximum and thick walls for piping.
- When using the valve as a safety valve, set the pressure 1 to 1.5 MPa {10 to 15 kgf/cm^2} higher than the pressure set for the hydraulic circuit.
- Use the valve with a flow rate of 8 L/min minimum since the pressure setting may be unstable if the flow rate is too low.
- The time required to switch from the unload to on-load state can be reduced by using the high-vent type.
- The drain type setting can be changed by fitting/removing plugs. See the sectional structural diagram on Page I-96 for details.

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

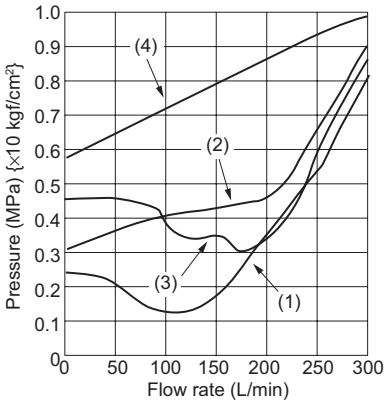
Pressure drop characteristics



Pressure - Flow rate characteristics
Internal drain type



Vent unloading pressure characteristics
Minimum adjustment pressure characteristics

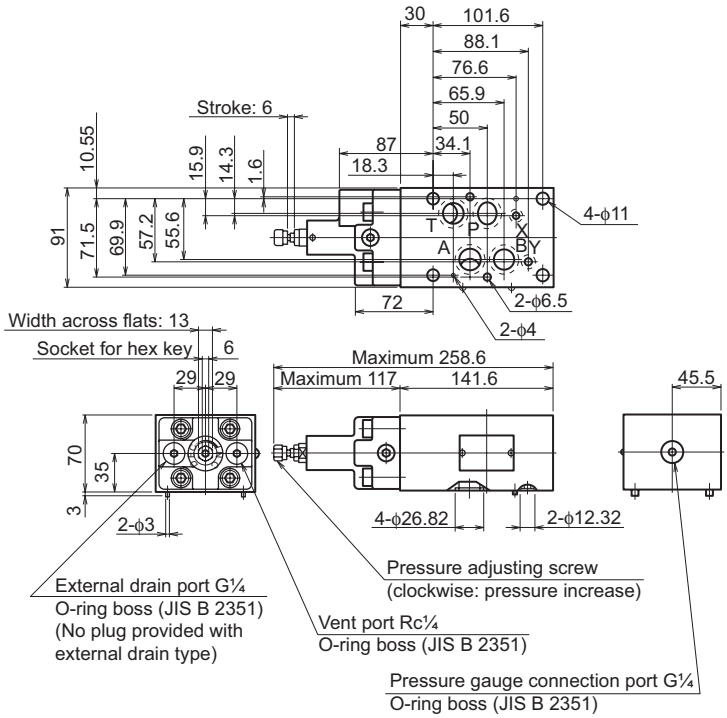


Note: (1) Low vent type: Vent unload pressure: When the vent port vents to the atmosphere
(2) Low vent type: Minimum adjustment pressure: With the handle fully open
(3) High vent type: Vent unload pressure: When the vent port vents to the atmosphere
(4) High vent type: Minimum adjustment pressure: With the handle fully open

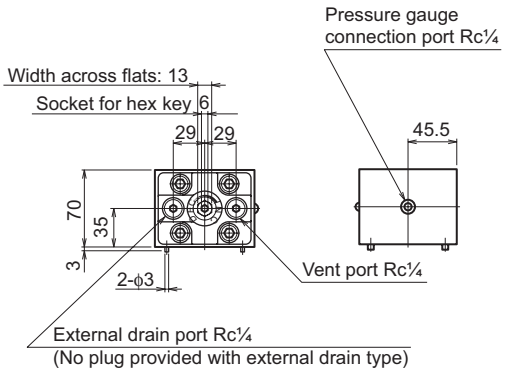
External dimension diagram

MR-04P

● With S02

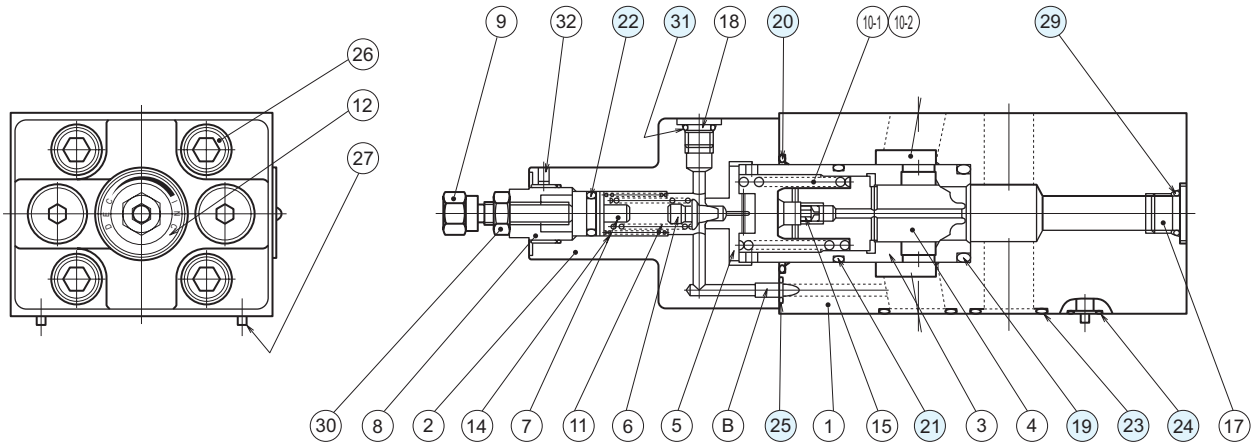


● With R02



Sectional structural diagram

MR-04P



Sealing part table

Part No.	Name	Quantity		Part specifications
		-S02	-R02	
19	O-ring	1	1	JIS B 2401 1B P28
20	O-ring	1	1	AS568-127 (NBR, Hs90)
21	O-ring	1	1	AS568-122 (NBR, Hs90)
22	O-ring	1	1	JIS B 2401 1A P11
23	O-ring	4	4	AS568-118 (NBR, Hs90)
24	O-ring	2	2	AS568-012 (NBR, Hs90)
25	O-ring	1	1	JIS B 2401 1B P6
29	O-ring	3	-	JIS B 2401 1B P11
31	O-ring	2	2	JIS B 2401 1B P8

Drain type setting guide

- Either the internal or external drain type can be set by fitting/removing plugs.
  To change the internal drain type to the external drain type, fit a plug (NPTF1/32) to port B and remove the plug (R¼ plug for R02 or G¼ hexagon socket thread plug with flange for S02) from the external drain port.

Tightening torque of NPTF1/32 hexagon socket taper thread plug:
0.9 to 1.2 N·m {9 to 12 kgf·cm}