

04 Series Modular Valves

Type of Modular Valve


Class	Name and Model Numbers	Graphic Symbols	Page	Class	Name and Model Numbers	Graphic Symbols						Page	
						P	T	Y	X	B	A		
Solenoid Operated Directional Valve	(S-) DSHG-04-***-*-52		★	Directional Control Valves	Check Valves (for "P-Line") MCP-04-*-10							F-83	
					Check Valves (for "T-Line") MCT-04-*-10							F-83	
					Pilot Operated Check Valves (for "A-Line") MPA-04-*-10							F-85	
Pilot Operated Check Valves (for "B-Line") MPB-04-*-10								F-85					
Pilot Operated Check Valves (for "A&B-Lines") MPW-04-*-10								F-85					
Pressure Control Valves	Reducing Valves (for "P-Line") MRP-04-*-10		F-79		Mounting Bolts	Bolt Kits MBK-04-*-10							F-86
	Reducing Valves (for "A-Line") MRA-04-*-10		F-79										
	Reducing Valves (for "B-Line") MRB-04-*-10		F-79										
	Throttle and Check Valves (for "A-Line", Meter-out) MSA-04-X-10					F-81							
	Throttle and Check Valves (for "A-Line", Meter-in) MSA-04-Y-10					F-81							
	Throttle and Check Valves (for "B-Line", Meter-out) MSB-04-X-10			F-81									
Flow Control Valves	Throttle and Check Valves (for "B-Line", Meter-in) MSB-04-Y-10			F-81									
	Throttle and Check Valves (for "A&B-Lines", Meter-out) MSW-04-X-10			F-81									
	Throttle and Check Valves (for "A&B-Lines", Meter-in) MSW-04-Y-10			F-81									

★Refer to the relevant pages of catalog "E: DIRECTIONAL CONTROLS"

Reducing Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow * L/min
MR*-04-A-10	35	100
MR*-04-C-10 B H		300

★ In case of pressure adjustment range "A" "B", the maximum flow is limited by the pressure in the secondary side. Use in the range of  refer to "Secondary Side Pressure - Max. Flow Characteristics" below.

Model Number Designation

MRP	-04	-A	-10
Series Number	Valve Size	Pres. Adj. Range MPa	Design Number
MRP: for P-Line MRA: for A-Line MRB: for B-Line	04	A: 0.7-7 B: 1.5-7 C: 3.5-14 H: 7-25	10
Reducing Modular Valves			

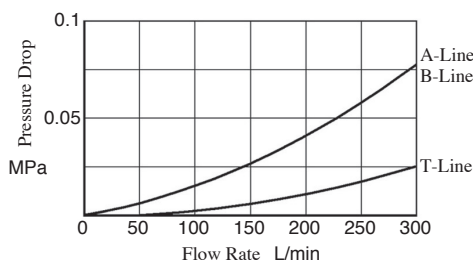
Instructions

- The drain line (Y-port) must be connected to tank directly to keep setting pressure stable. If use solenoid controlled pilot operated directional valves with these modular valves, please select the internal drain type (T-line).
- To make pressure adjustment, loosen the lock nut and turn the pressure adjustment screw clockwise or anti-clockwise. For an increase of pressure, turn the screw clockwise. Be sure to re-tighten the lock nut firmly after making adjustment to the pressure.

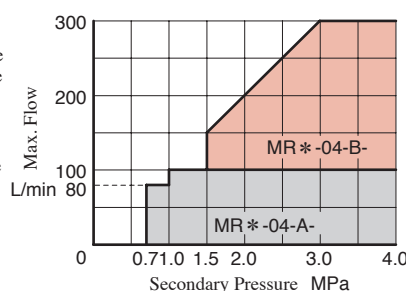
Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s, Specific Gravity 0.850

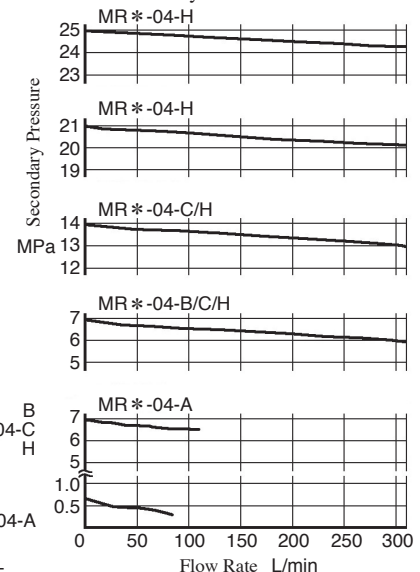
Pressure Drop



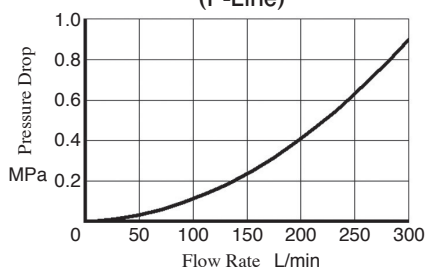
Secondary Pressure vs. Max. Flow



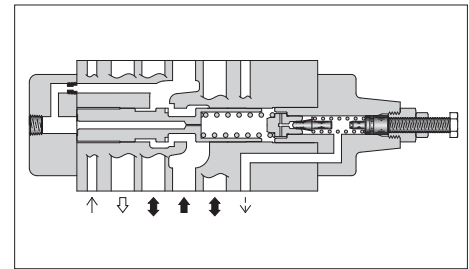
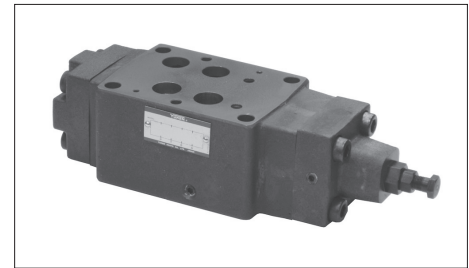
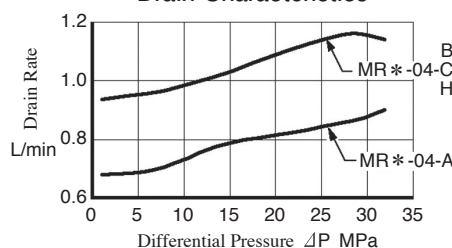
Nominal Override Characteristics
Primary Pressure 35 MPa



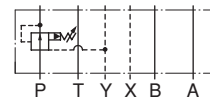
Pres. Drop at Spool Fully Open (P-Line)



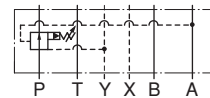
Drain Characteristics



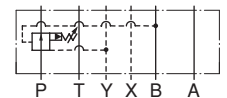
Graphic Symbols



MRP-04



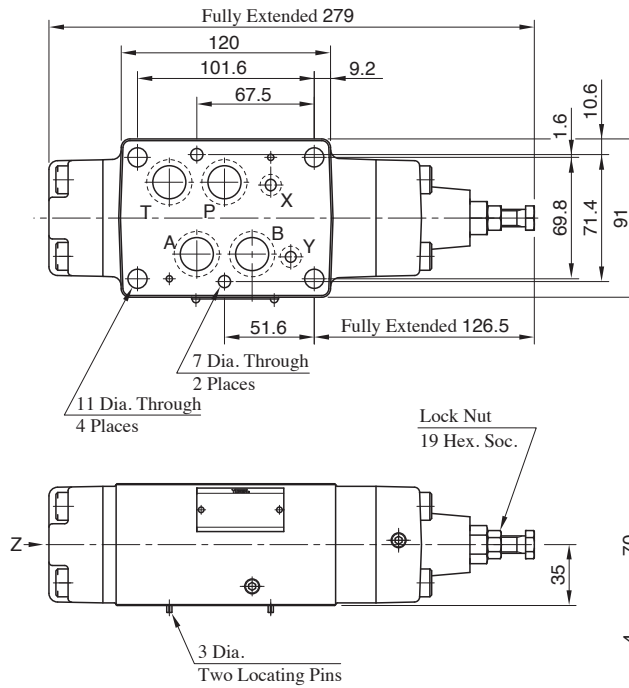
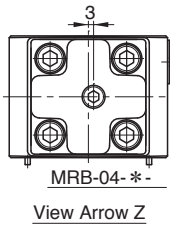
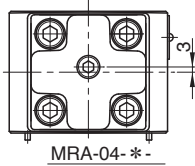
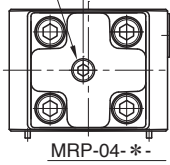
MRA-04



MRB-04

**MRP-04
MRA-04
MRB-04**

Secondary Pressure Gauge Connection
Rc1/4 Thd.

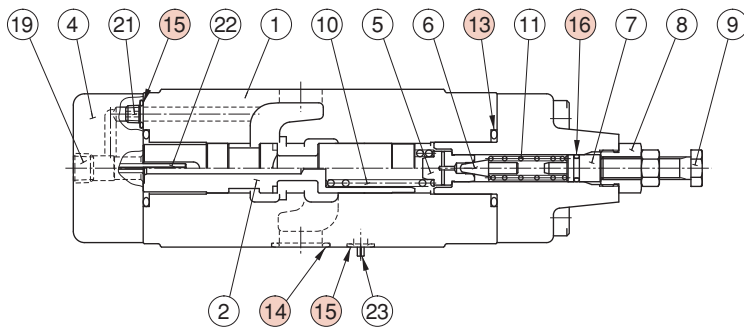


Pressure Adj. Screw
14 Hex. Soc. INC.

Approx. Mass.....7.4 kg

List of Seals

**MRP-04
MRA-04
MRB-04**



Item	Name of Parts	Part Numbers	Qty.
13	O-Ring	OR NBR-90 P28-N	2
14	O-Ring	OR NBR-90 P22-N	4
15	O-Ring	OR NBR-90 P9-N	7
16	O-Ring	OR NBR-70-1 P9-N	1

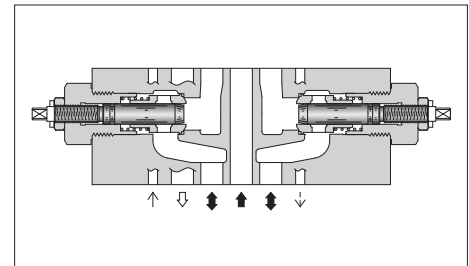
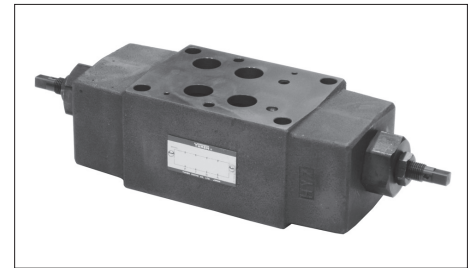
Throttle and Check Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MS*-04*-10	35	300

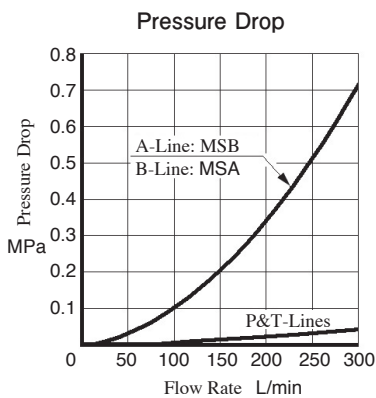
Model Number Designation

MSA	-04	-X	-10
Series Number	Valve Size	Direction of Flow	Design Number
MSA: For A-Line MSB: For B-Line MSW: For A&B-Lines	04	X: Meter-out Y: Meter-in	10

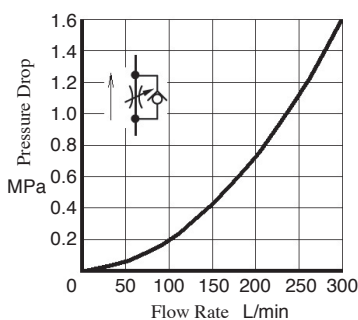


Typical Performance Characteristics

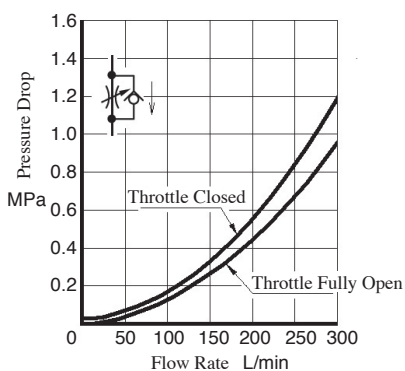
Hydraulic Fluid: Viscosity 35 mm²/s, Specific Gravity 0.850



Pressure Drop at Throttle Fully Open



Pressure Drop for Free Flow



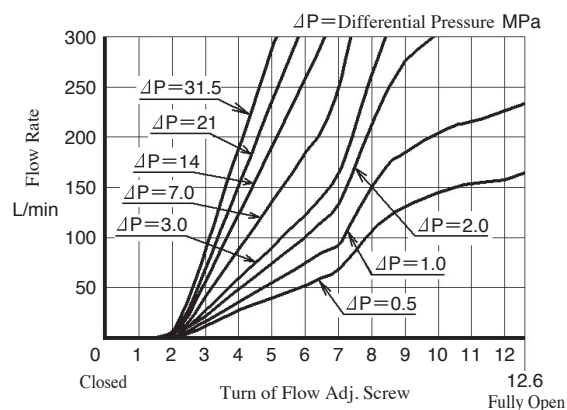
Graphic Symbols

Meter-out	Meter-in
<p>MSA-04-X</p>	<p>MSA-04-Y</p>
<p>MSB-04-X</p>	<p>MSB-04-Y</p>
<p>MSW-04-X</p>	<p>MSW-04-Y</p>

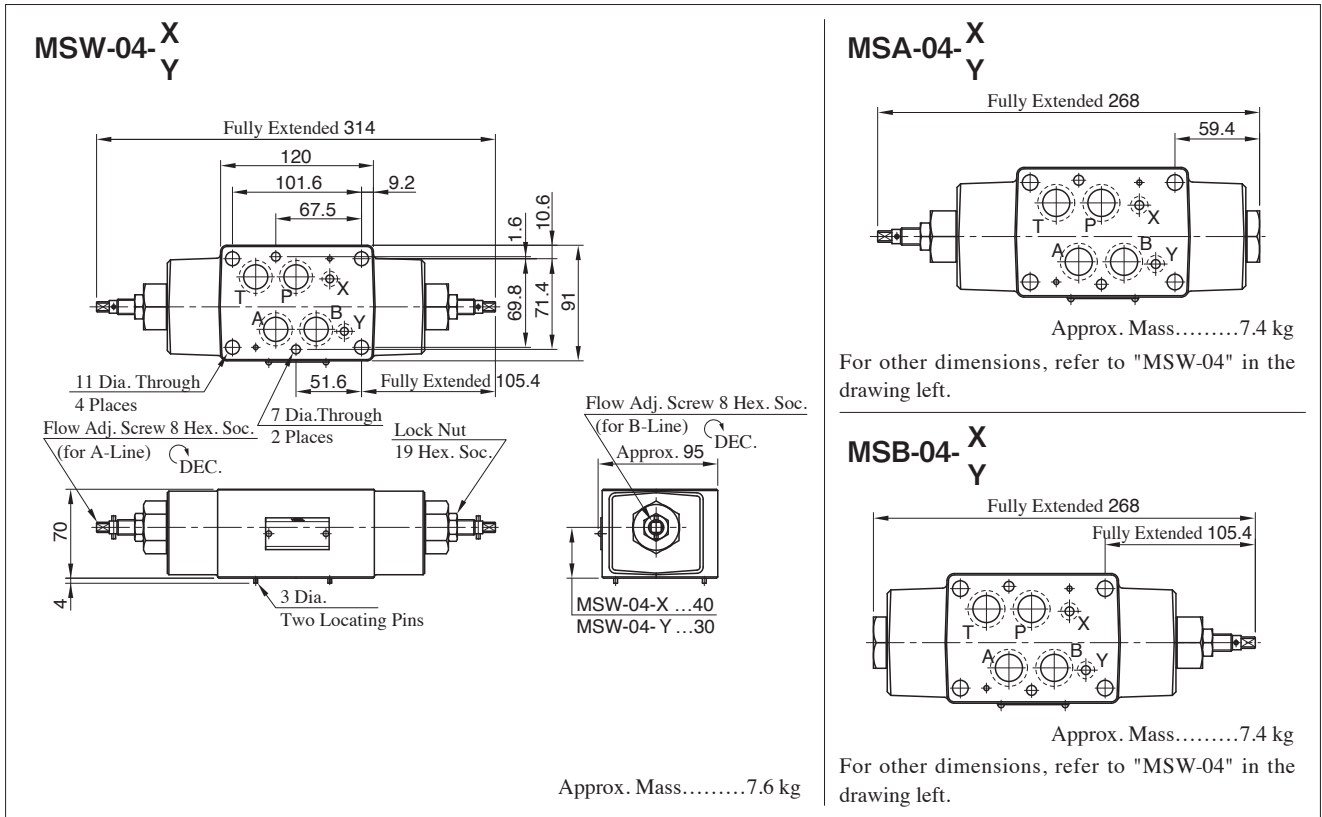
Instructions

- To make flow rate adjustment, loosen lock nut and turn the flow adjustment screw clockwise or anti-clockwise. Turn the screw anti-clockwise, the flow rate increase. Be sure to re-tighten the lock nut firmly after the adjustment of the flow rate is completed.

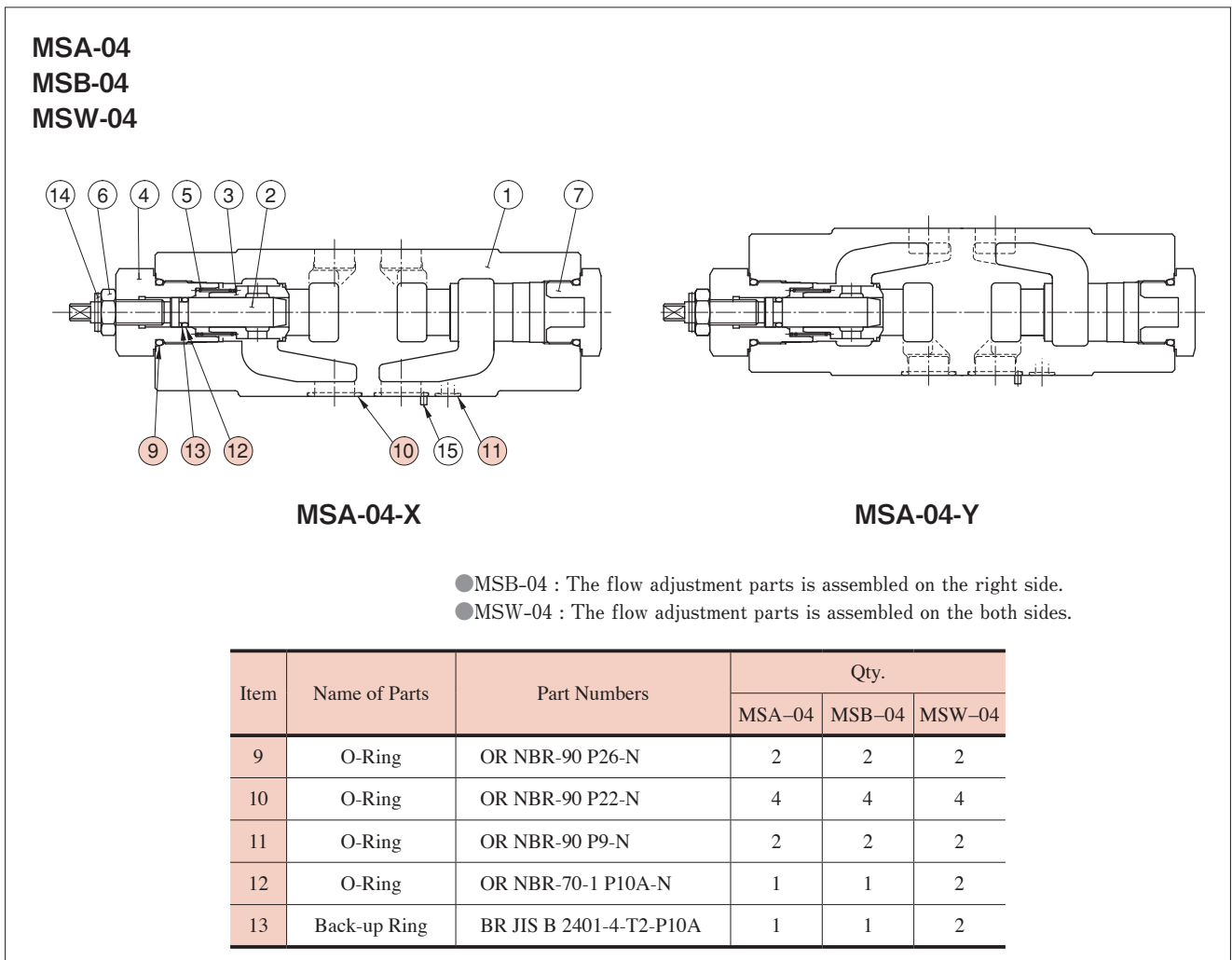
Metered Flow vs. Screw Position



04 Series Modular Valves



List of Seals



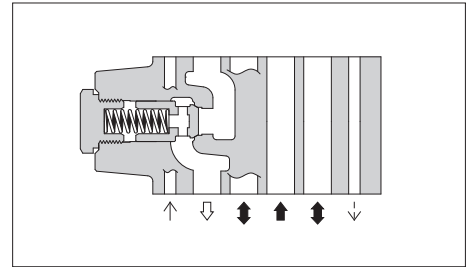
Check Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MCP-04 *-10	35	300
MCT-04 *-10		

Model Number Designation

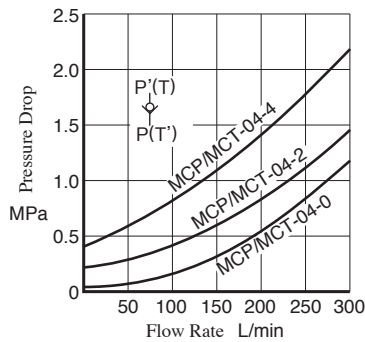
MCP	-04	-0	-10
Series Number	Valve Size	Cracking Pressure MPa	Design Number
MCP: Check Valve for P-Line	04	0: 0.035	10
MCT: Check Valve for T-Line		2: 0.2 4: 0.4	



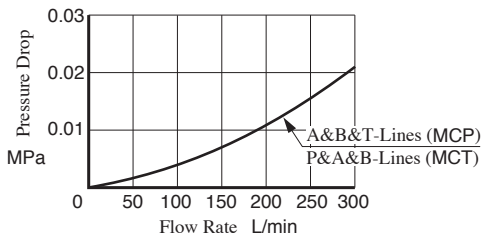
Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s, Specific Gravity 0.850

Pressure Drop for Free Flow



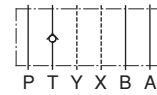
Pressure Drop



Graphic Symbols



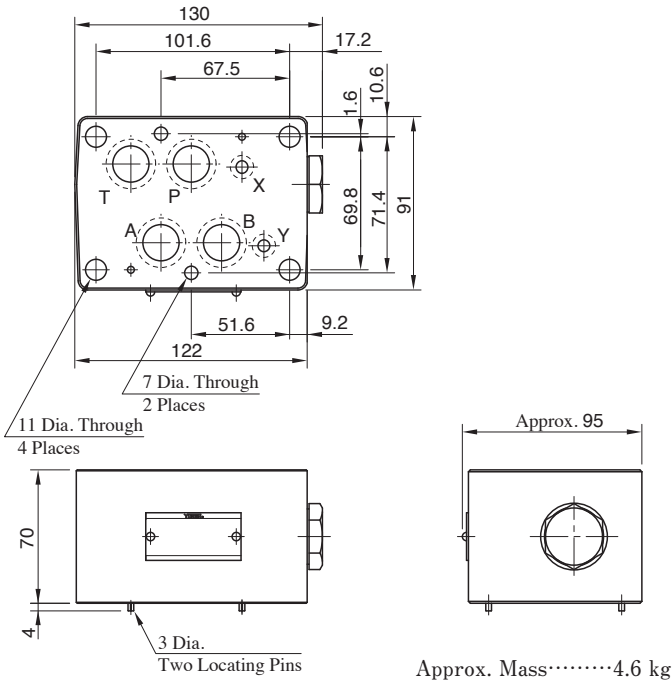
MCP-04



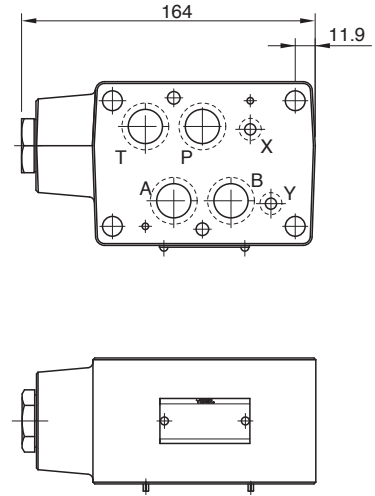
MCT-04

04 Series Modular Valves

MCP-04



MCT-04

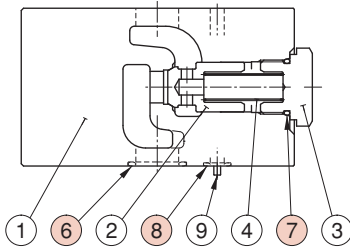


Approx. Mass.....5.4 kg

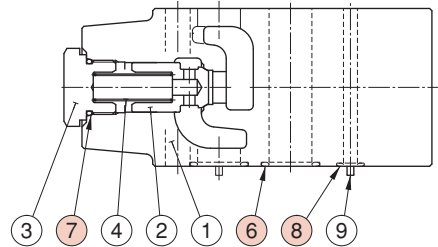
For other dimensions, refer to "MCP-04" in the drawing left.

List of Seals

MCP-04



MCT-04



Item	Name of Parts	Part Numbers	Qty.
6	O-Ring	OR NBR-90 P22-N	4
7	O-Ring	OR NBR-90 P21-N	1
8	O-Ring	OR NBR-90 P9-N	2

Pilot Operated Check Modular Valves

Specifications

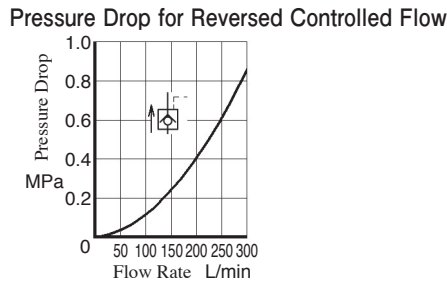
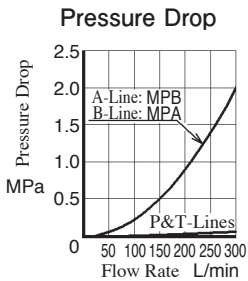
Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MP*-04-* -10	35	300

Model Number Designation

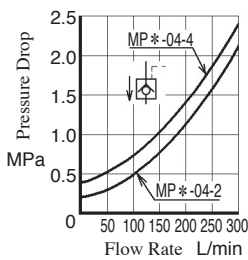
MPA	-04	-2	-10
Series Number	Valve Size	Cracking Pressure MPa	Design Number
MPA: For A-Line MPB: For B-Line MPW: For A&B-Lines	04	2: 0.2 4: 0.4	10
Pilot Operated Check Valve			

Typical Performance Characteristics

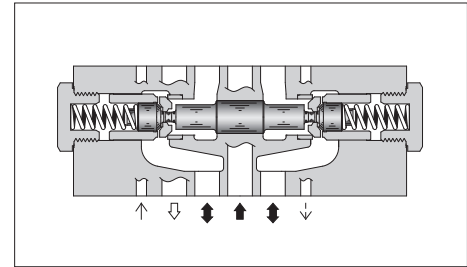
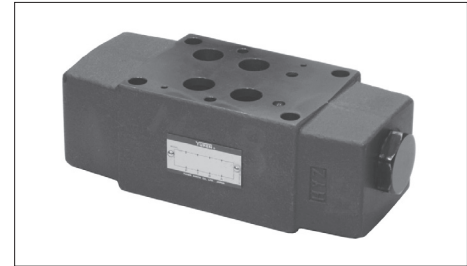
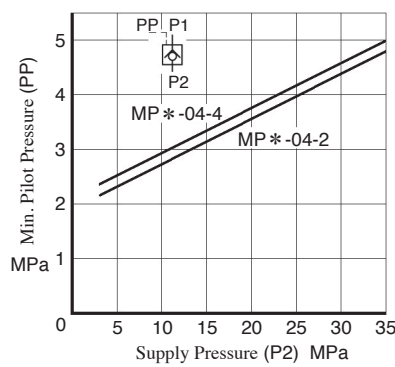
Hydraulic Fluid: Viscosity 35 mm²/s, Specific Gravity 0.850



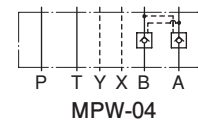
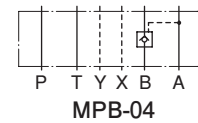
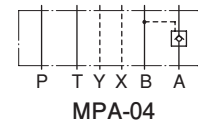
Pressure Drop for Free Flow



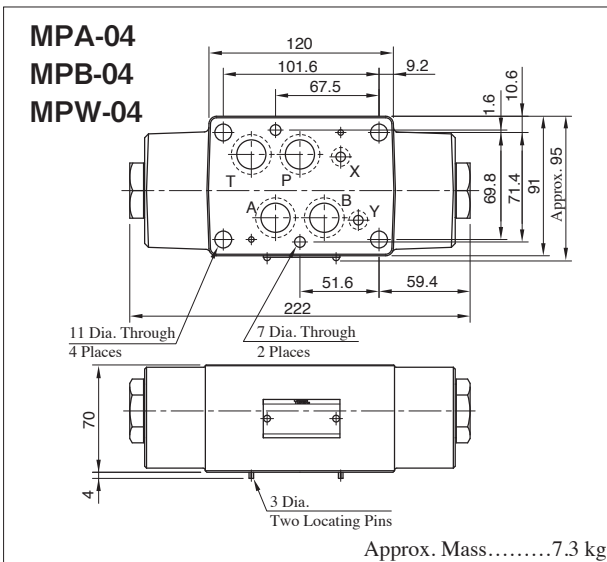
Min. Pilot Pressure



Graphic Symbols

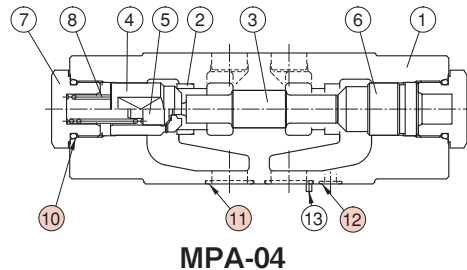


F
04 Series Modular Valves



List of Seals

**MPA-04
MPB-04
MPW-04**



- MPB-04: The Check Valve is assembled on the right side.
- MPW-04: The Check Valve is assembled on the both sides.

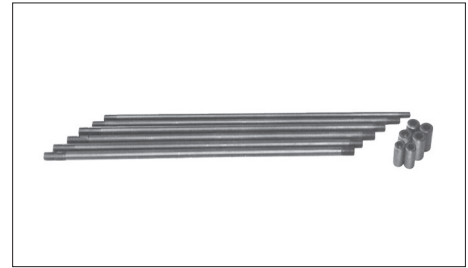
Item	Name of Parts	Part Numbers	Qty.
10	O-Ring	OR NBR-90 P26-N	2
11	O-Ring	OR NBR-90 P22-N	4
12	O-Ring	OR NBR-90 P9-N	2

Mounting Bolt Kits For Modular Valves

Valves are mounted with six stud bolts (M6×2, M10×4). Valve combination varies according to the circuit type. Hence, the mounting bolt kits are available on a combination type basis. When ordering the mounting bolt kit, be sure to give the bolt kit model number from the table below.

Model Number Designation

MBK	-04	-01	-10
Series Number	Size of Modular Valve	Bolt Number	Design Number
MBK: Mounting Bolt Kits for Modular Valves	04	01, 02, 03, 04 (Refer to the selection chart below)	10



Bolt Kit Composition

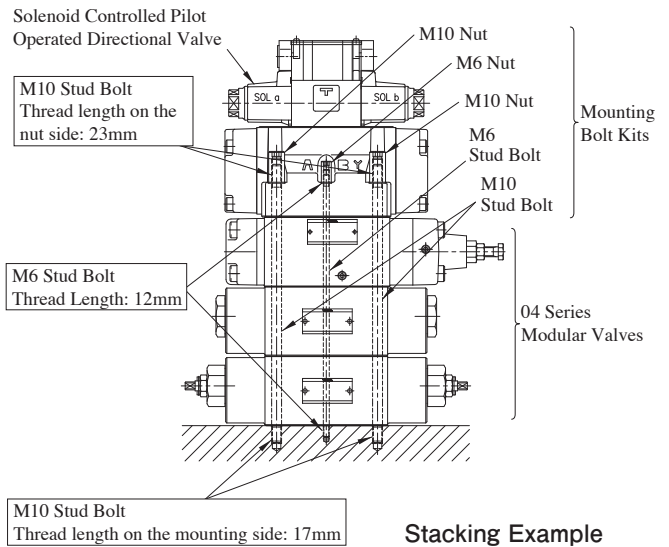
- M6 Stud Bolt 2 Pcs.
 - M6 Nut 2 Pcs.
 - M10 Stud Bolt 4 Pcs.
 - M10 Nut 4 Pcs.
- } 1 Set

Tightening Torque

- M6 12-15 Nm
- M10 45-55 Nm

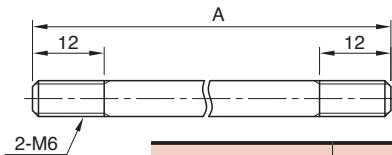
Bolt Kits Selection Chart

Bolt Kit Model Numbers	Quantity of Valves to be Stacked		Approx. Mass (1 set) kg
	Sol. Cont. Pilot Operated Directional Valves (DSHG-04, 52Design)	Modular Valve	
MBK-04-01-10	1	1	0.6
MBK-04-02-10	1	2	0.8
MBK-04-03-10	1	3	1.0
MBK-04-04-10	1	4	1.2



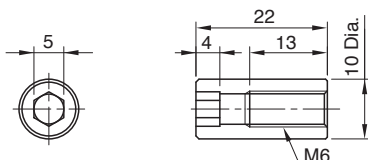
MBK-04

Stud Bolt M6

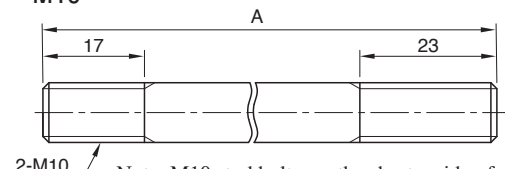


Model Numbers	A	
	M6	M10
MBK-04-01-10	125	140
MBK-04-02-10	195	210
MBK-04-03-10	265	280
MBK-04-04-10	335	350

Nut M6

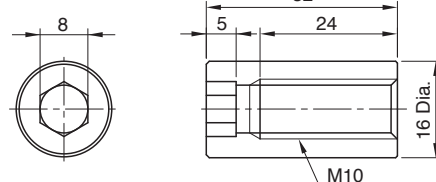


M10



Note: M10 stud bolt, use the shorter side of screw part to the mounting surface side, the longer side to the nut side.
About more details, refer to the stacking example of the 04 series modular valves.

M10

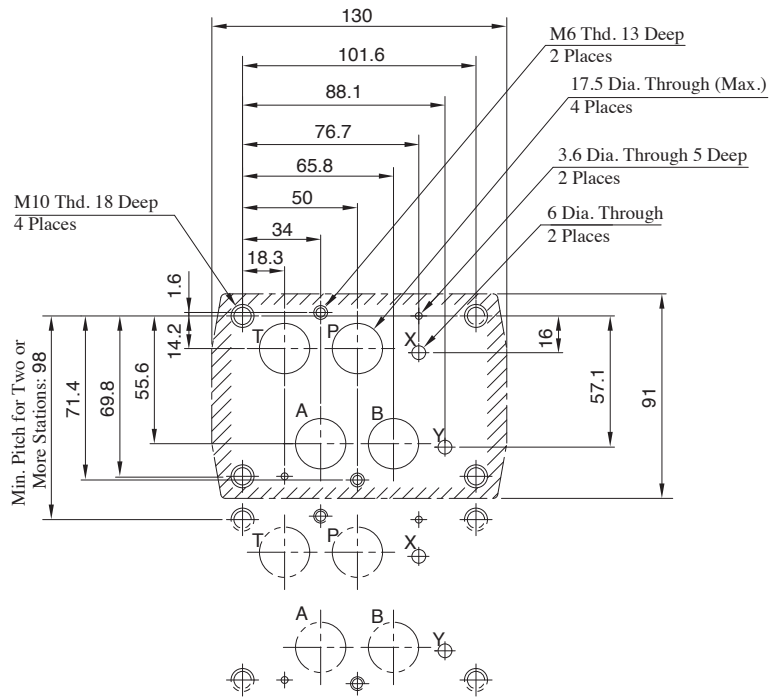


— Mounting Surface Dimensions for 04 Series Modular Valve —

When mounting 04 series modular valve, be sure to use a sub-plate for 1/2 solenoid controlled pilot operated directional valves

Name	Model Numbers	Page
Sub-plate for 1/2 Solenoid Controlled Pilot Operated Directional Valves	DHGM-04 * -20	F-108

Also, when no sub-plates are used, be sure to use the following mounting surface.



Note: The mounting surface of shaded parts above has a good machined finish. ($\sqrt{16}$)