

06 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		
Pressure Control Valves	★1 Solenoid Controlled Pilot Operated Directional Valve (S-) DSHG-06-**-**-53		★2	Directional Control Valves	Pilot Operated Check Valves (for "A-Line", Internal Pilot-Internal Drain Type) MPA-06-**-70							F-93	
					Pilot Operated Check Valves (for "A-Line", External Pilot-External Drain Type) MPA-06-**-X-70							F-93	
					Pilot Operated Check Valves (for "A-Line", External Pilot-Internal Drain Type) MPA-06-**-Y-70							F-93	
	Reducing Valves (for "P-Line") MRP-06-**-70		F-89									F-93	
	Reducing Valves (for "A-Line") MRA-06-**-70		F-89									F-93	
	Reducing Valves (for "B-Line") MRB-06-**-70		F-89									F-93	
Flow Control Valves	Throttle and Check Valves (for "A-Line", Meter-out) MSA-06-X-70		F-91										F-93
	Throttle and Check Valves (for "A-Line", Meter-in) MSA-06-Y-70		F-91										F-93
	Throttle and Check Valves (for "B-Line", Meter-out) MSB-06-X-70		F-91										F-93
	Throttle and Check Valves (for "B-Line", Meter-in) MSB-06-Y-70		F-91										F-93
	Throttle and Check Valves (for "A&B-Lines", Meter-out) MSW-06-X-70		F-91									F-93	
	Throttle and Check Valves (for "A&B-Lines", Meter-in) MSW-06-Y-70		F-91									F-93	
					Mounting Bolts	Bolt Kits MBK-06-**-70						F-96	


★1. Because drain ports "V" and "W" are not provided for solenoid controlled pilot operated directional valves of Pressure Centered Type (3H*) and models with Pilot Piston (P*), those valves cannot be used in combination with modular valves.

★2. 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 *-06-A-70	35	125
B MR *-06-C-70 H		500

★ In the pressure adjustment ranges "A" and "B", maximum flow rates are limited by the pressure setting on the secondary side. See the "Secondary Pressure vs. Max. Flow" of this page, use the valve at the maximum flow rate within a zone highlighted with .

Model Number Designation

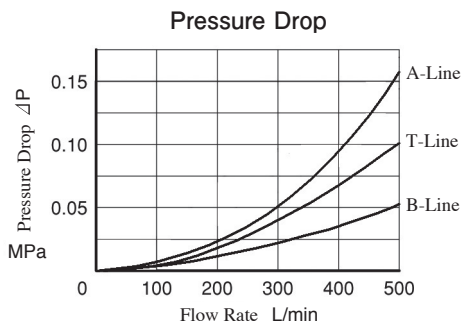
MRP	-06	-A	-70
Series Number	Valve Size	Pres. Adj. Range MPa	Design Number
MRP: For P-Line MRA: For A-Line MRB: For B-Line	06	A: 0.7-7 B: 1.5-7 C: 3.5-14 H: 7-25	70
Reducing Valve			

Instructions

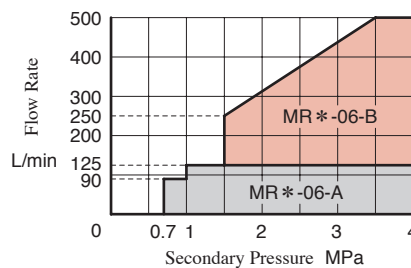
- Connect Drain Line (Y port) to oil tank independently so as to obtain stable pressure setting. At the same time, the solenoid controlled pilot operated directional valve to be used in combination with this valve must be of internal drain type (with T).
- To make pressure adjustment, loosen the lock 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

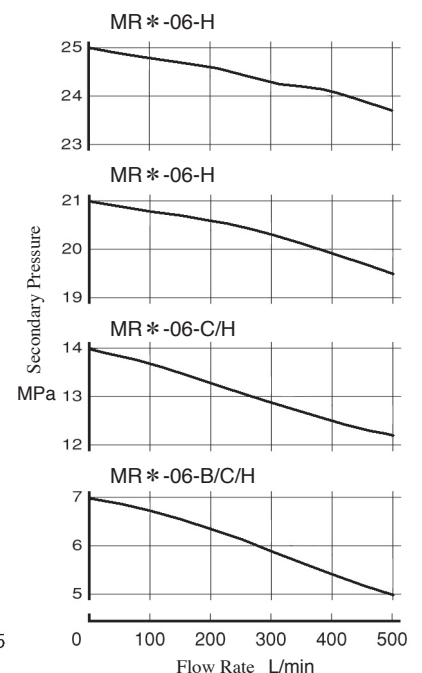


Secondary Pressure vs. Max. Flow

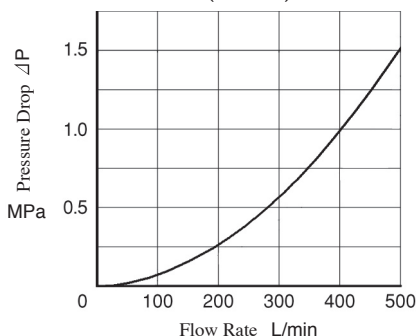


Nominal Override Characteristics

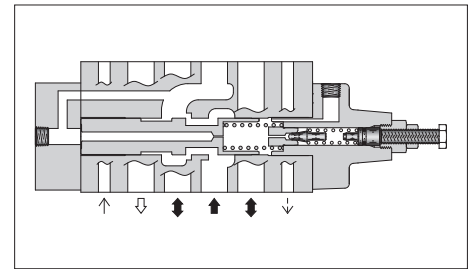
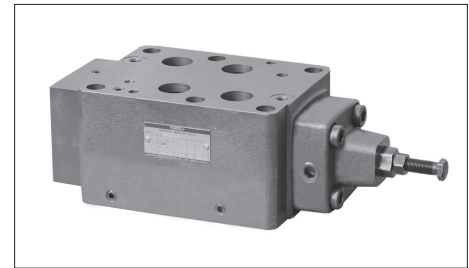
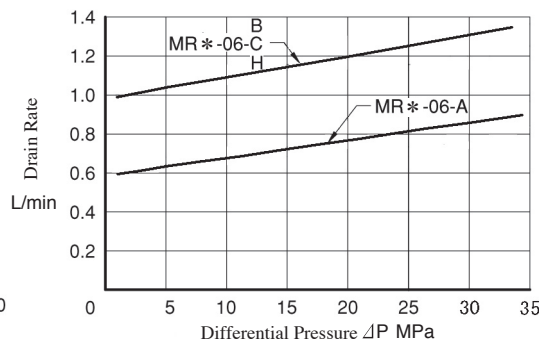
Primary Pressure 35 MPa



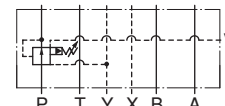
Pressure Drop at Spool Fully Open (P-Line)



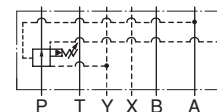
Drain Characteristics



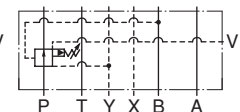
Graphic Symbols



MRP-06



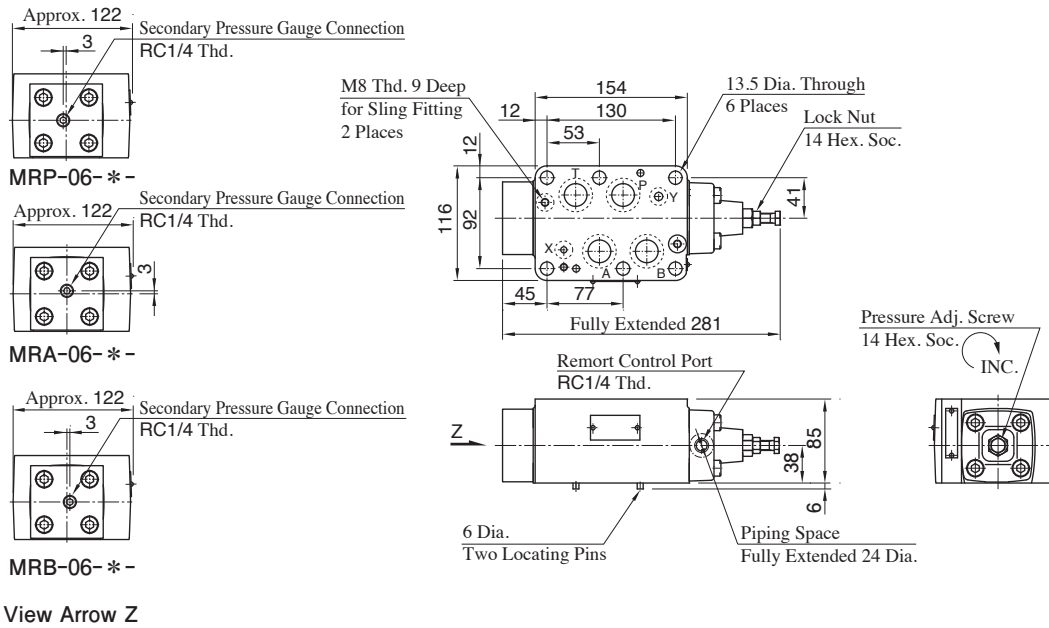
MRA-06



MRB-06

06 Series Modular Valves

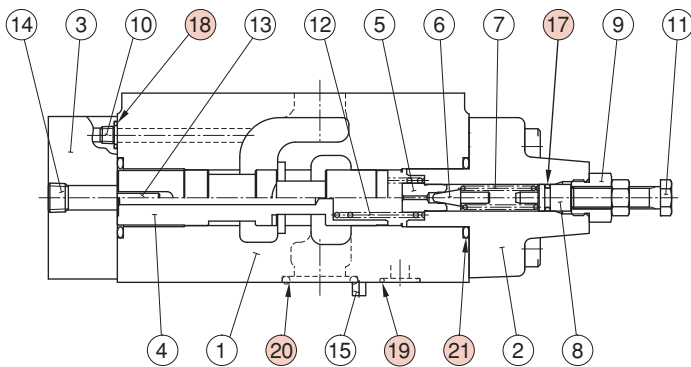
**MRP-06
MRA-06
MRB-06**



Approx. Mass.....11.1 kg

List of Seals

**MRP-06
MRA-06
MRB-06**



Item	Name of Parts	Part Numbers	Qty.
17	O-Ring	OR NBR-70-1 P9-N	1
18	O-Ring	OR NBR-90 P9-N	5
19	O-Ring	OR NBR-90 P14-N	2
20	O-Ring	OR NBR-90 P28-N	4
21	O-Ring	OR NBR-90 P30-N	2

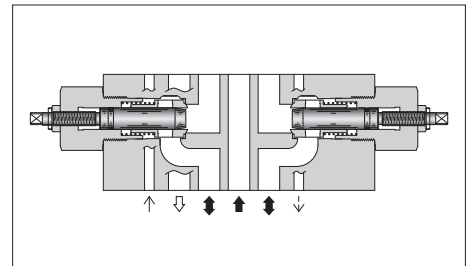
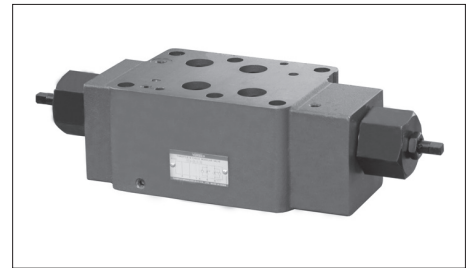
Throttle and Check Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MS*-06-*-70	35	500

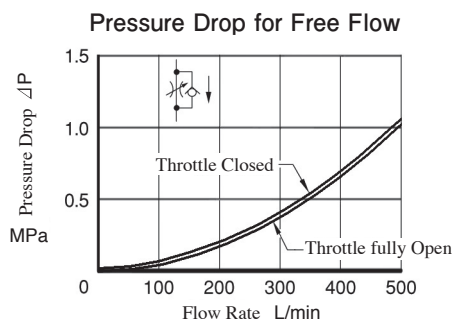
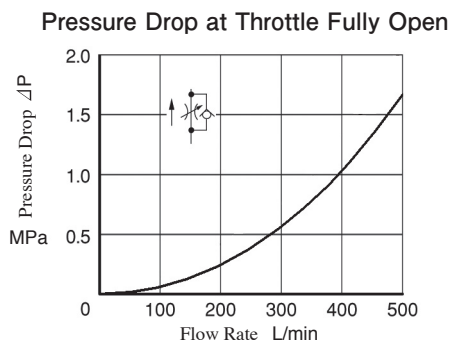
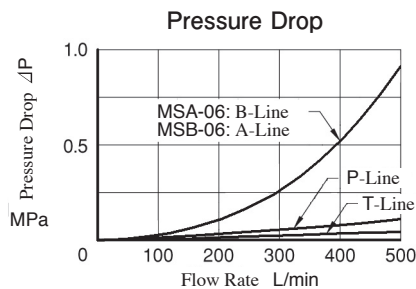
Model Number Designation

MSA	-06	-X	-70
Series Number	Valve Size	Direction of Flow	Design Number
MSA: For A-Line MSB: For B-Line MSW: For A&B-Line	06	X: Meter-out Y: Meter-in	70
Throttle and Check Valve			

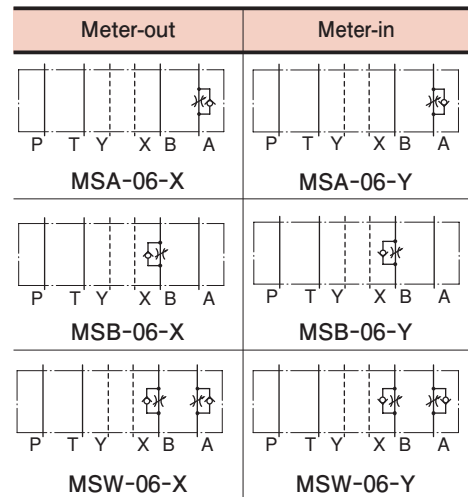


Typical Performance Characteristics

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



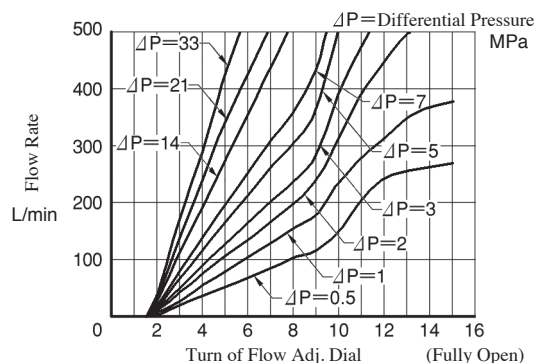
Graphic Symbols



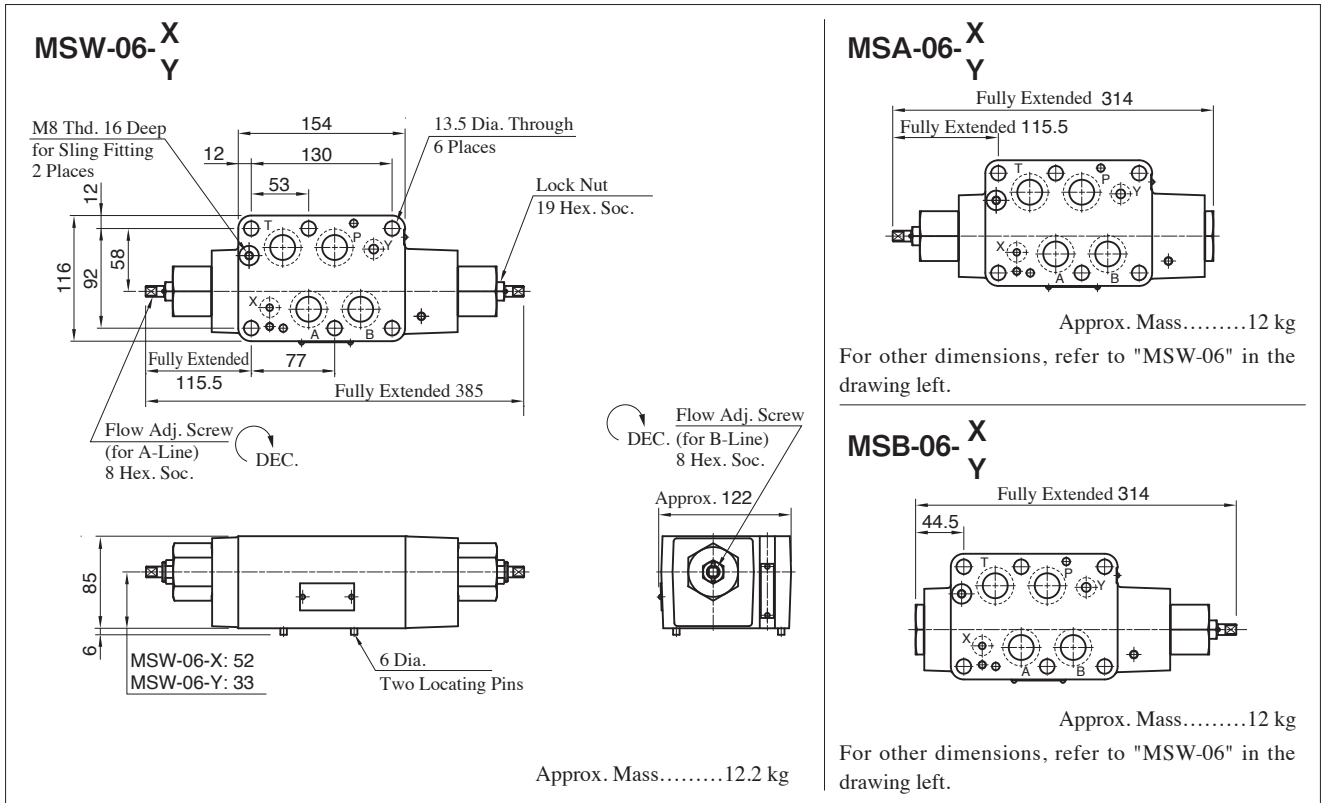
Instructions

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

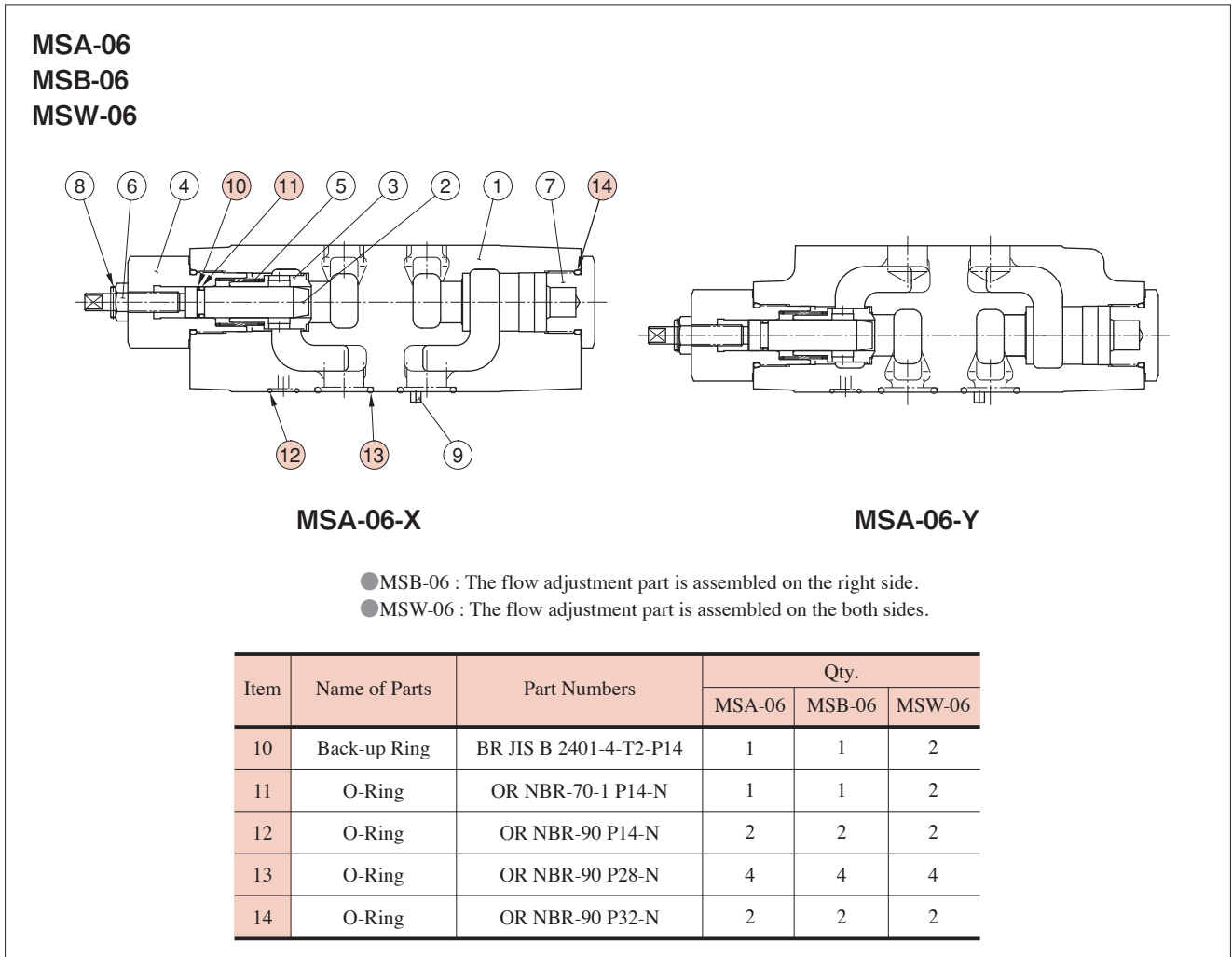
Metered Flow vs. Screw Position



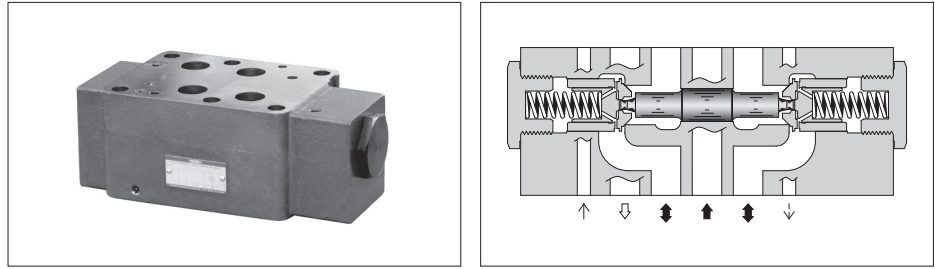
06 Series Modular Valves



List of Seals



Pilot Operated Check Modular Valves



Model Number Designation

MPA	-06	S	-2	-X	-70
Series Number	Valve Size	Port Tapping Feature of Pilot-Drain Port *1	Cracking Pressure MPa	Pilot-Drain Connection *2	Design Number
MPA: For A-Line MPB: For B-Line MPW: For A&B-Line	06	None: Rc 3/8 S: G 3/8	2: 0.2 4: 0.4	None: Internal Pilot-Internal Drain X: External Pilot-External Drain Y: External Pilot-Internal Drain	70
Pilot Operated Check Valve					

- *1. This item applies only to External Pilot or External Drain Type.
- *2. Only "None: Internal Pilot-Internal Drain Type" is available for MPW (for "A&B-Lines").

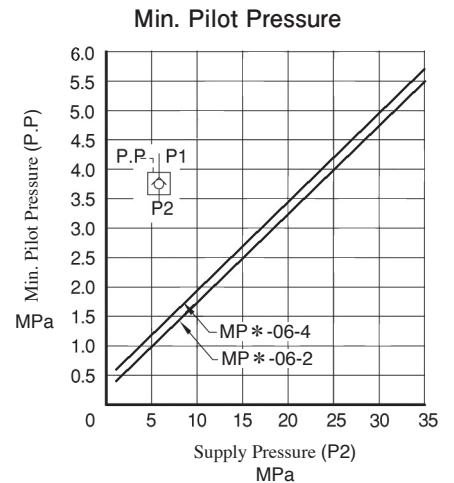
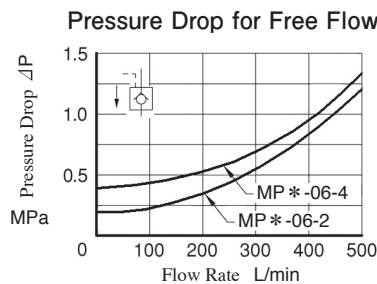
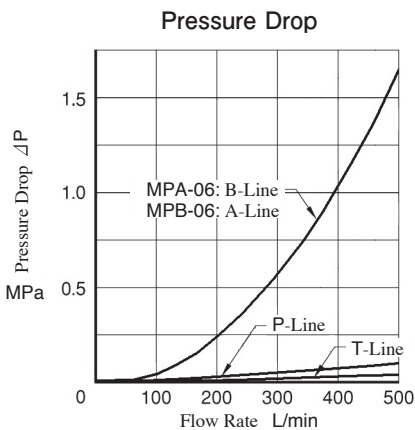
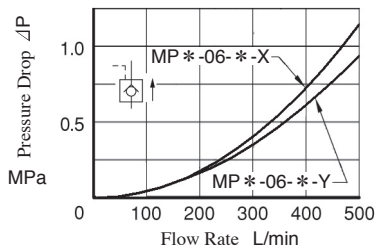
Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MP*-06*-*-70	35	500

Typical Performance Characteristics

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

Pressure Drop for Reversed Controlled Flow



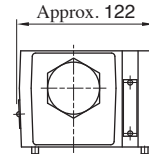
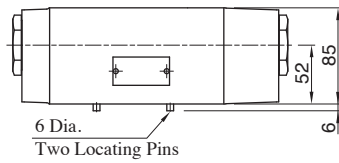
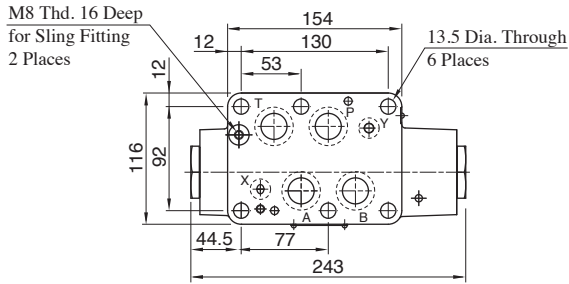
Graphic Symbols

Model Numbers	Pilot-Drain Type			
	Internal Pilot-Internal Drain Type	External Pilot-External Drain Type	External Pilot-Internal Drain Type	External Pilot-Internal Drain Type
MPA-06				
	P T Y X B A MPA-06-*	P T Y X B A MPA-06*-*-X	P T Y X B A MPA-06*-*-Y	P T Y X B A MPA-06*-*-Y
MPB-06				
	P T Y X B A MPB-06-*	P T Y X B A MPB-06*-*-X	P T Y X B A MPB-06*-*-Y	P T Y X B A MPB-06*-*-Y
MPW-06				
	P T Y X B A MPW-06-*			

06 Series Modular Valves

● Internal Pilot - Internal Drain Type

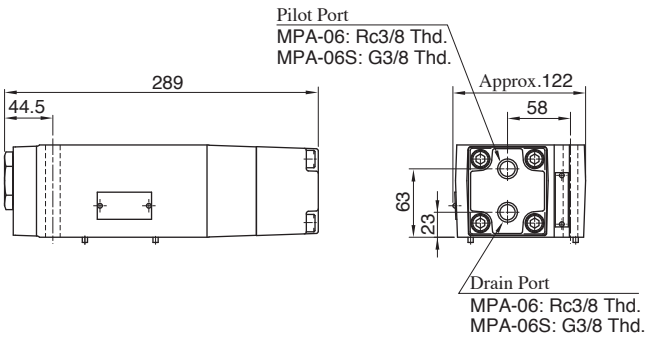
MPA-06
MPB-06
MPW-06



Approx. Mass.....11.6 kg

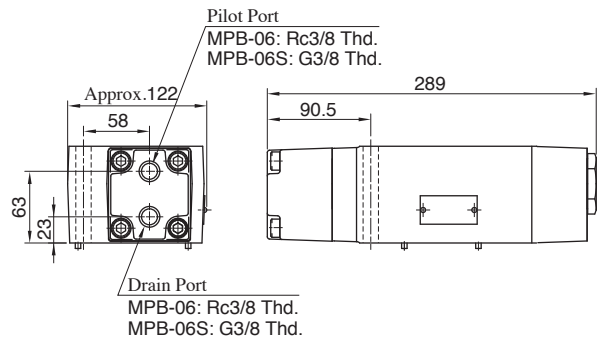
● External Pilot - External Drain Type

MPA-06 * - * -X



Approx. Mass.....13 kg

MPB-06 * - * -X

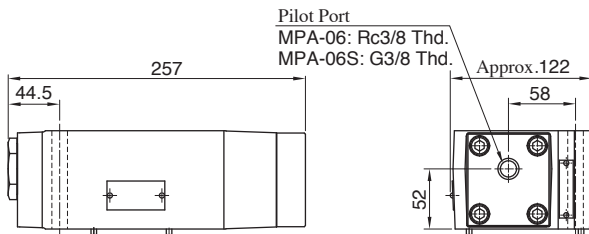


Approx. Mass.....13 kg

For other dimensions, refer to "Internal Pilot-Internal Drain Type" in the drawing above.

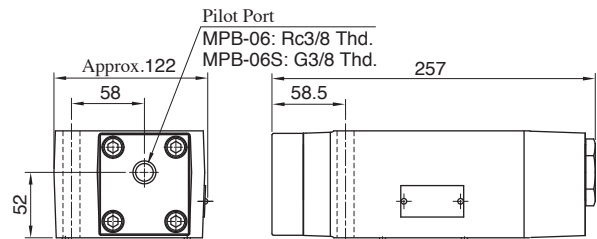
● External Pilot - Internal Drain Type

MPA-06 * - * -Y



Approx. Mass.....11.6 kg

MPB-06 * - * -Y



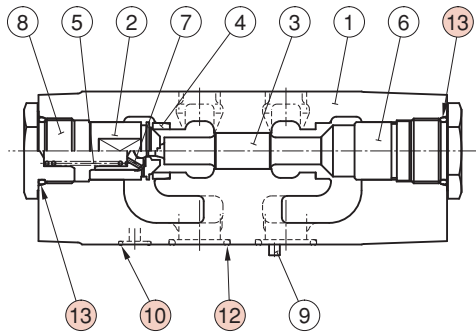
Approx. Mass.....11.6 kg

For other dimensions, refer to "Internal Pilot-Internal Drain Type" in the drawing above.

List of Seals

MPA-06
MPB-06
MPW-06

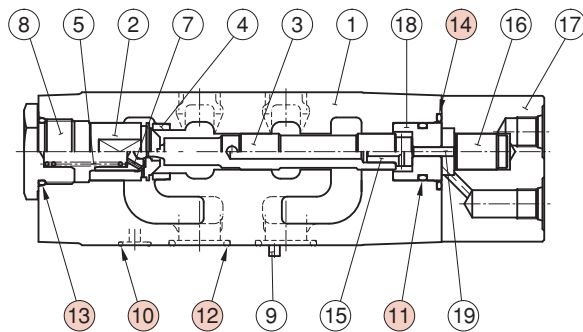
Internal Pilot - Internal Drain Type



MPA-06

- MPB-06: The Check Valve is assembled on the right side.
- MPW-06: The Check Valve is assembled on the both sides.

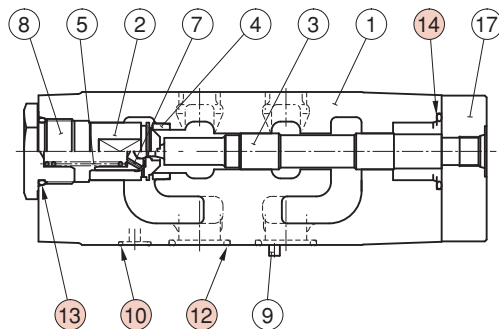
External Pilot - External Drain Type



MPA-06 * - * - X

- MPB-06: The Check Valve is assembled on the right side.

External Pilot - Internal Drain Type



MPA-06 * - * - Y

- MPB-06: The Check Valve is assembled on the right side.

Item	Name of Parts	Part Numbers	Qty.		
			Internal Pilot - Internal Drain Type	External Pilot - External Drain Type	External Pilot - Internal Drain Type
10	O-Ring	OR NBR-90 P14-N	2	2	2
11	O-Ring	OR NBR-70-1 P26-N	—	1	—
12	O-Ring	OR NBR-90 P28-N	4	4	4
13	O-Ring	OR NBR-90 P32-N	2	1	1
14	O-Ring	OR NBR-90 P36-N	—	1	1

Mounting Bolt Kits For Modular Valves

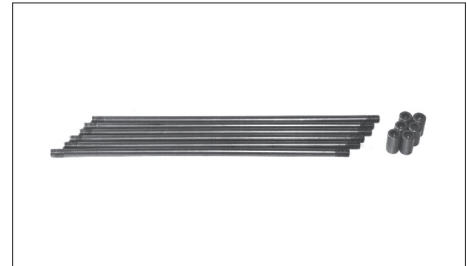
Valves are mounted with six stud bolts. Valve combination varies according to the circuit type. Hence, the mounting bolt kits are available on a combination type basis. When ordering the mounting bolt kit, be sure to give the bolt kit model number from the table below.

Model Number Designation

MBK	-06	-01	-70
Series Number	Size of Modular Valve	Bolt Number	Design Number
MBK: Mounting Bolt Kits for Modular Valves	06	01, 02, 03, 04 (Refer to the chart below)	70

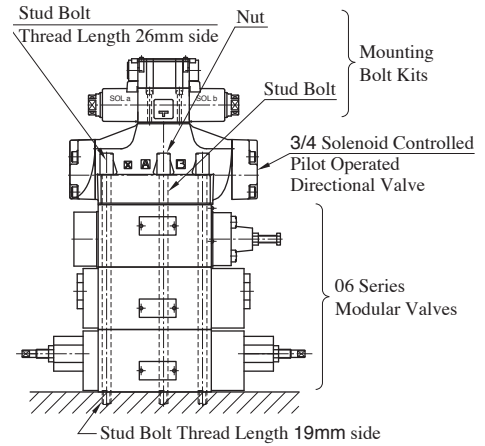
Bolt Kits Selection Chart

Bolt Kit Model Numbers	Quantity of Valves to be Stacked		Approx. Mass (1 Set) kg
	Sol. Cont. Pilot Operated Directional Valves (DSHG-06, 53Design)	Modular Valve	
MBK-06-01-70	1	1	1.2
MBK-06-02-70	1	2	1.7
MBK-06-03-70	1	3	2.1
MBK-06-04-70	1	4	2.6



- **Bolt Kit Composition**
 Stud Bolt..... 6 Pcs. } 1 Set
 Nut 6 Pcs. }

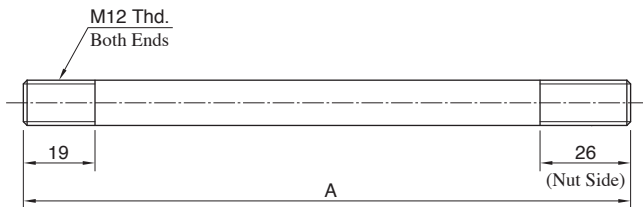
- **Tightening Torque** :..... 70-100 Nm
 [If the operating pressure is more than 25 MPa 90-100 Nm]



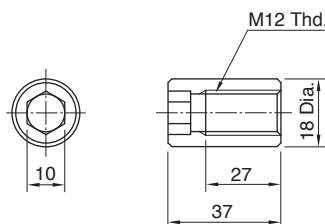
Stacking Example

MBK-06

● Stud Bolt



● Nut



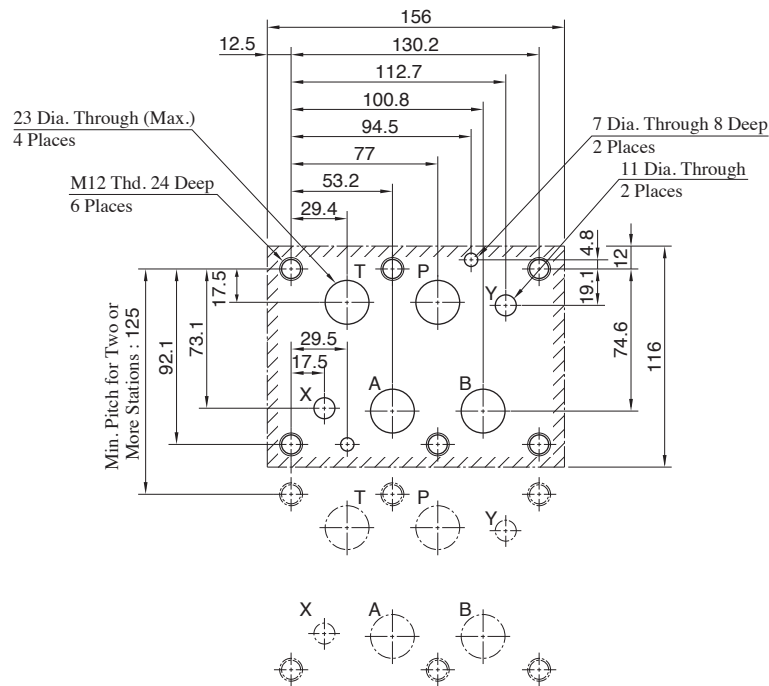
Bolt Number	A mm
01	168
02	253
03	338
04	423

— Mounting Surface Dimensions for 06 Series Modular Valve —

When mounting 06 series modular valve, be sure to use a sub-plate for 3/4 solenoid controlled pilot operated directional valves.

Name	Model Numbers	Page
Sub-plate for 3/4 Solenoid Controlled Pilot Operated Directional Valves	DHGM-06 * -50	F-109

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. ($\sqrt{1.6}$)

— Interchangeability in Installation between Current and New Design —

06 Series Modular Valves have changed from 30 to 70 design numbers model to operate higher max. pressure. The mounting surface has no changes.

But if use the operating pressure as more than 25 MPa, have to select design No. 70 bolt kits (MBK-06).

Mounting bolt kits of design No. 70, the length of both sides screw is different, so refer to the stacking example about 06 series model valves on page F-96.

If current and new designs in mixed use, the max. pressure is equal to the current design's pressure.