

# 01 Series Modular Valves

## Type of Modular Valve

Class	Name and Model Numbers	Graphic Symbols	Page	Class	Name and Model Numbers	Graphic Symbols	Page		
Solenoid Operated Directional Valve	(S-) DSG-01-***-70 E-DSG-01-***-D*-70 T-DSG-01-***-D24*-70 G-DSG-01-***-51		★	Flow Control Valves	Throttle Valves (for "P-Line") MSP-01-50		F-29		
	Pressure Control Valves	Relief Valves (for "P-Line") MBP-01-**-70			F-12	Throttle Valves (for "T-Line") MST-01-50		F-29	
		Relief Valves (for "A-Line") MBA-01-**-70			F-12	Check and Throttle Valves (for "P-Line") MSCP-01-30		F-30	
		Relief Valves (for "B-Line") MBB-01-**-70			F-12	Throttle and Check Valves (for "A-Line", Meter-out) MSA-01-X-70		F-31	
		Reducing Valves (for "P-Line") MRP-01-**-70			F-14	Throttle and Check Valves (for "A-Line", Meter-in) MSA-01-Y-70		F-31	
		Reducing Valves (for "A-Line") MRA-01-**-70			F-14	Throttle and Check Valves (for "B-Line", Meter-out) MSB-01-X-70		F-31	
		Reducing Valves (for "B-Line") MRB-01-**-70			F-14	Throttle and Check Valves (for "B-Line", Meter-in) MSB-01-Y-70		F-31	
		Directional Control Valves	Two Pressure Reducing Valves (for "P-Line") MRDP-01-***-10			F-16	Throttle and Check Valves (for "A&B-Lines", Meter-out) MSW-01-X-70		F-31
			Brake Valves MBR-01-**-30			F-18	Throttle and Check Valves (for "A&B-Lines", Meter-in) MSW-01-Y-70		F-31
			Sequence Valves (for "P-Line") MHP-01-**-70			F-19	Throttle and Check Valves (for "A&B-Lines", Meter-out, Meter-in) MSW-01-XY-70		F-31
			Counterbalance Valves (for "A-Line") MHA-01-**-70			F-19	Throttle and Check Valves (for "A&B-Lines", Meter-in, Meter-out) MSW-01-YX-70		F-31
			Counterbalance Valves (for "B-Line") MHB-01-**-70			F-19	Check Valves (for "P-Line") MCP-01-**-70		F-33
Pressure Switch Valves (for "P-Line") MJP-01-***-10				F-22	Check Valves (for "A-Line") MCA-01-**-70		F-33		
Pressure Switch Valves (for "A-Line") MJA-01-***-10			F-22	Check Valves (for "B-Line") MCB-01-**-70		F-33			
Pressure Switch Valves (for "B-Line") MJB-01-***-10			F-22	Check Valves (for "T-Line") MCT-01-**-70		F-33			
Pressure Switch Valves (for "A&B-Line") MJW-01-J-**-10			F-22	Check Valves (for "A&B-Line") MCW-01-**-70		F-33			
Flow Control Valves	Flow Control Valves (for "P-Line") MFP-01-10			F-25	Anti-Cavitation Valves MAC-01-30		F-35		
	Flow Control and Check Valves (for "A-Line", Meter-out) MFA-01-X-10			F-25	Pilot Operated Check Valves (for "A-Line") MPA-01-***-70		F-36		
	Flow Control and Check Valves (for "A-Line", Meter-in) MFA-01-Y-10			F-25	Pilot Operated Check Valves (for "B-Line") MPB-01-***-70		F-36		
	Flow Control and Check Valves (for "B-Line", Meter-out) MFB-01-X-10		F-25	Pilot Operated Check Valves (for "A&B-Lines") MPW-01-***-70		F-36			
	Flow Control and Check Valves (for "B-Line", Meter-in) MFB-01-Y-10		F-25	Modular Plates and Mounting Bolts	End Plates (Blocking Plates) MDC-01-A-30		F-38		
	Flow Control and Check Valves (for "A&B-Lines", Meter-out) MFW-01-X-10		F-25		End Plates (Bypass plates) MDC-01-B-30		F-38		
	Flow Control and Check Valves (for "A&B-Lines", Meter-in) MFW-01-Y-10		F-25		Connecting Plates (for "P&A-Lines") MDS-01-PA-30		F-38		
	Temperature Compensated Throttle and Check Valves (for "A-Line", Meter-out) MSTA-01-X-10		F-27		Connecting Plates (for "P&B-Lines") MDS-01-PB-30		F-38		
	Temperature Compensated Throttle and Check Valves (for "B-Line", Meter-out) MSTB-01-X-10		F-27		Connecting Plates (for "A&T-Lines") MDS-01-AT-30		F-38		
	Temperature Compensated Throttle and Check Valves (for "A&B-Lines", Meter-out) MSTW-01-X-10		F-27		Base Plates MMC-01-**-40		F-39		
						Bolt Kits MBK-01-**-70		F-41	

★ Please refer to the catalog page of "E: Directional Control Valves"

# Relief Modular Valves

## Specifications


Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MB*-01-**-70	35	60

## Model Number Designation

MBP	-01	-B	-B	-70
Series Number	Valve Size	Pres. Adj. Range MPa	Pres. Adj. Screw Position	Design Number
MBP: Relief Valve for P-Line	01	<b>B: ★-7</b> <b>C: 3.5-14</b> <b>H: 7-21</b> <b>K: 14-35</b>	<b>None: A Port Side</b> <b>B: B Port Side</b>	70
MBA: Relief Valve for A-Line				
MBB: Relief Valve for B-Line				

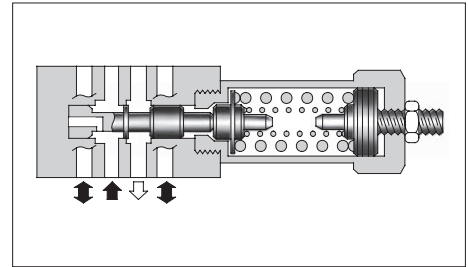
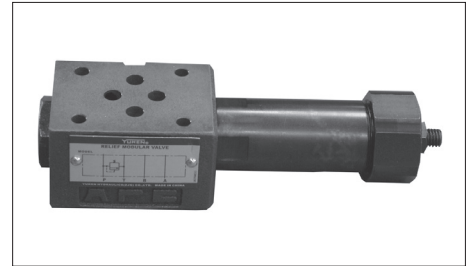
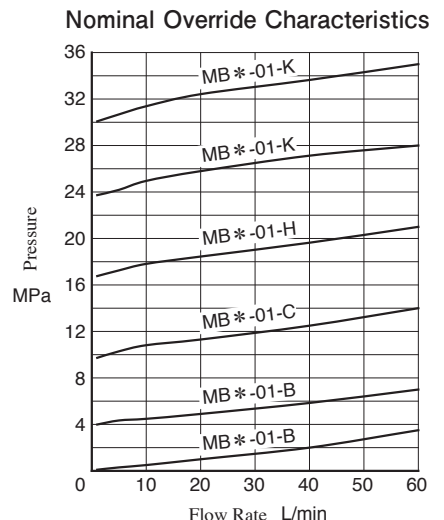
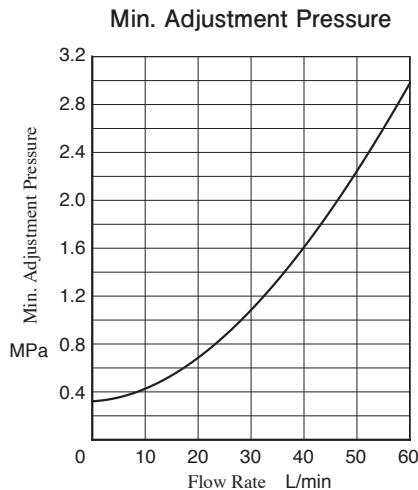
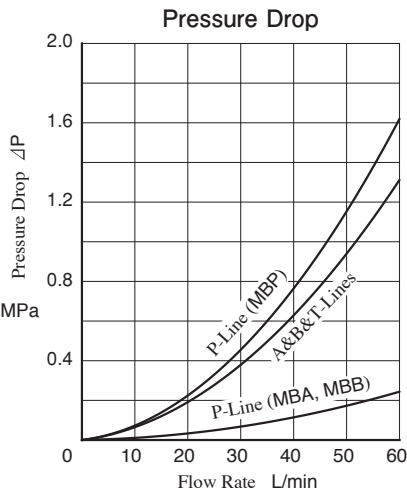
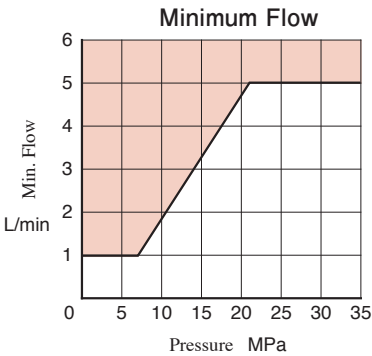
★See the "Min. Adjustment Pressure" of this page.

## Instructions

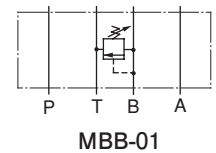
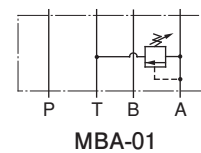
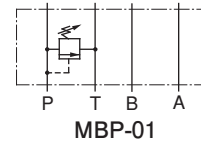
- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of this page. This back pressure should include the value of the T-line pressure drop characteristics of the valves stacked to the base plate side of the modular valve.
- 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.
- In case of a small flow, the setting pressure may become unstable. To avoid this, refer to the minimum flow characteristic curve of the next page and use the valve within a range as shown with .

## Typical Performance Characteristics

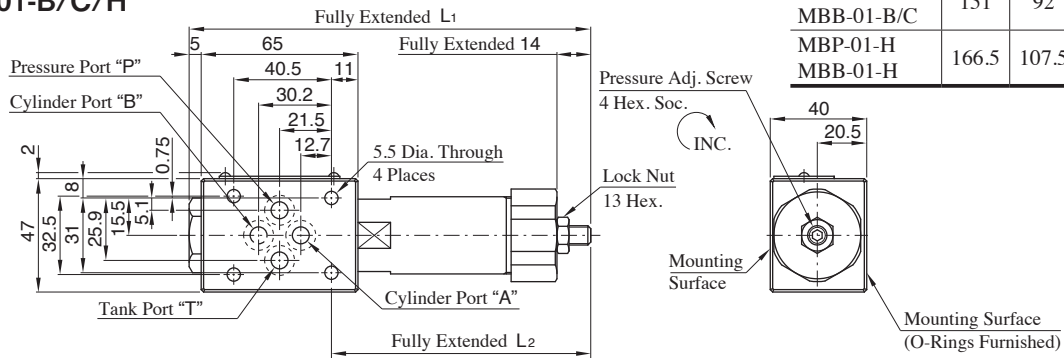
Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



## Graphic Symbols

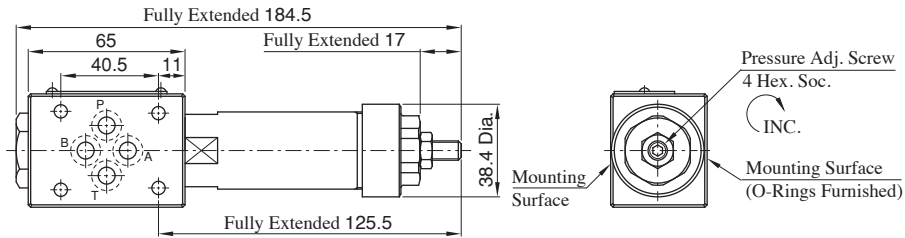


### MBP-01-B/C/H MBB-01-B/C/H



Model Numbers	L1	L2	Mass kg
MBP-01-B/C MBB-01-B/C	151	92	1.15
MBP-01-H MBB-01-H	166.5	107.5	1.25

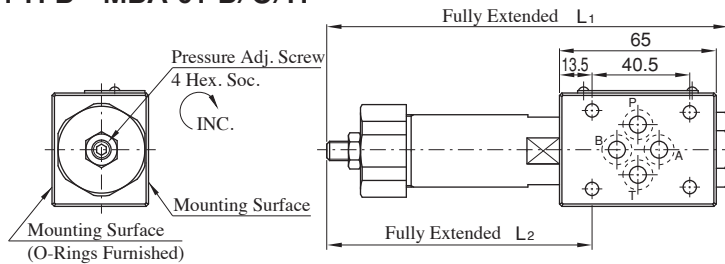
### MBP-01-K MBB-01-K



Approx. Mass.....1.35 kg

● For other dimensions, refer to the drawing above (MBP-01-B/C/H).

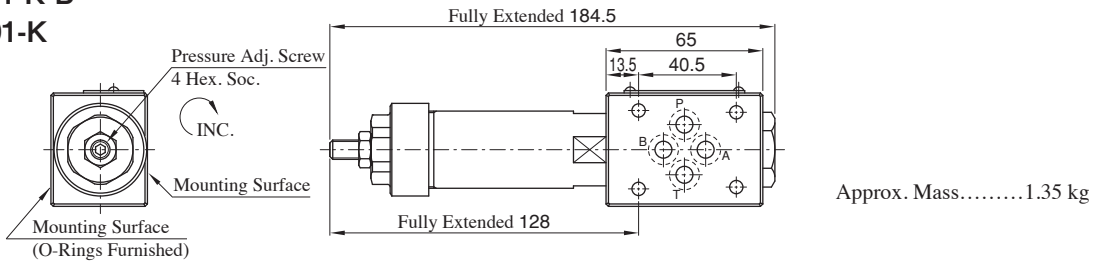
### MBP-01-B-B • MBP-01-C-B MBP-01-H-B • MBA-01-B/C/H



Model Numbers	L1	L2	Mass kg
MBP-01-B-B MBP-01-C-B	151	94.5	1.15
MBP-01-H-B MBA-01-H	166.5	110	1.25

● For other dimensions, refer to the drawing above (MBP-01-B/C/H).

### MBP-01-K-B MBA-01-K

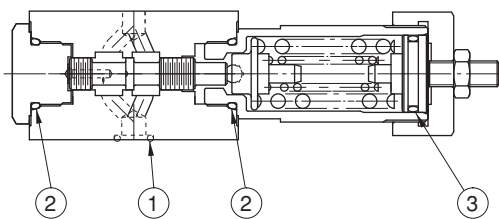


Approx. Mass.....1.35 kg

● For other dimensions, refer to the drawing above (MBP-01-B/C/H).

### List of Seals

#### MBP-01 MBA-01 MBB-01



● MBP/MBB-01- \* -B, MBA-01  
The pressure adjustment part is assembled on the left side.

Item	Name of Parts	Part Numbers	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	2
3	O-Ring	OR NBR-70-1 P20-N (MB * -01-B/C/H(-B)) OR NBR-70-1 P22-N (MB * -01-K(-B))	1

# Reducing Modular Valves

## Specifications

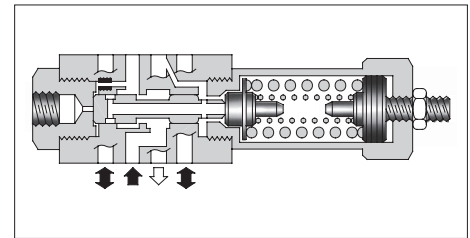
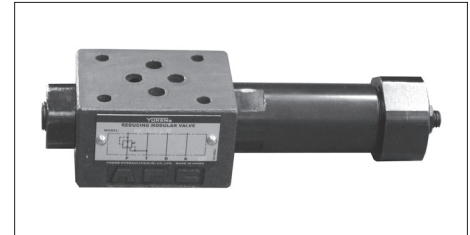
Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MR*-01-*-70	35	60*

★If the pressure is set below 0.5 MPa, the maximum flow is limited. See the "Min. Adjustment Pressure vs. Max. Flow" of this page and during use, stay within the shaded zone on the graph.

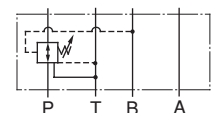
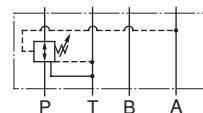
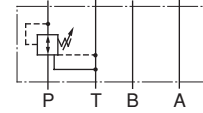
## Model Number Designation

MRP	-01	-A	-B	-70
Series Number	Valve Size	Pres.Adj. Range MPa	Pres.Adj. Screw Position	Design Number
<b>MRP:</b> Reducing Valve for P-Line	<b>01</b>	<b>A:</b> ★3.5	<b>None:</b> A Port Side <b>B:</b> B Port Side	<b>70</b>
<b>MRA:</b> Reducing Valve for A-Line		<b>B:</b> 0.8-7		
<b>MRB:</b> Reducing Valve for B-Line		<b>C:</b> 3.5-14 <b>H:</b> 7-21		

★See the "Min. Adjustment Pressure vs. Max. Flow" of this page.



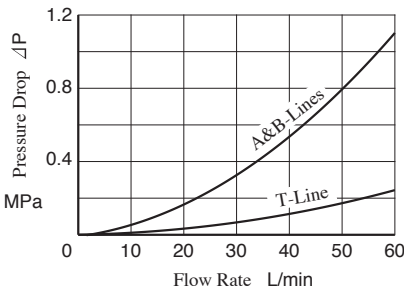
### Graphic Symbols



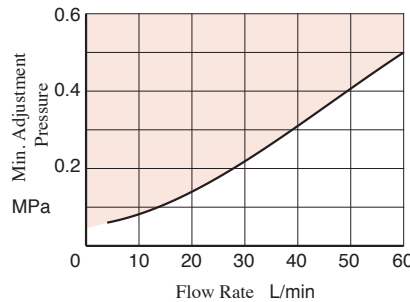
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

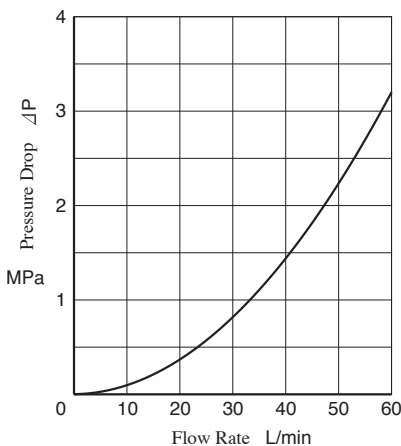
Pressure Drop



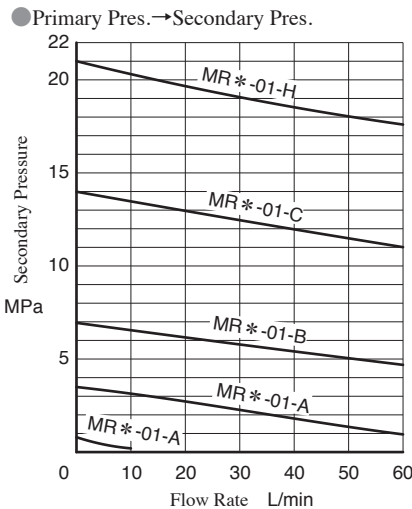
Min. Adjustment Pressure vs. Max. Flow



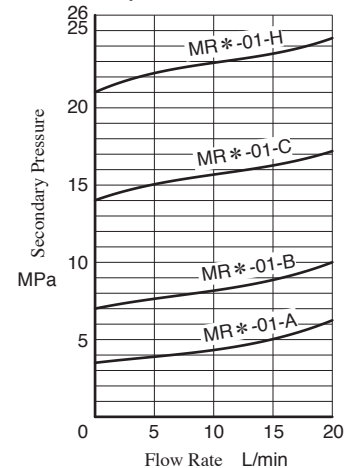
Pres. Drop at Spool Fully Open (P-Line)



Nominal Override Characteristics Primary Pressure 35 MPa



Secondary Pres. to T Line

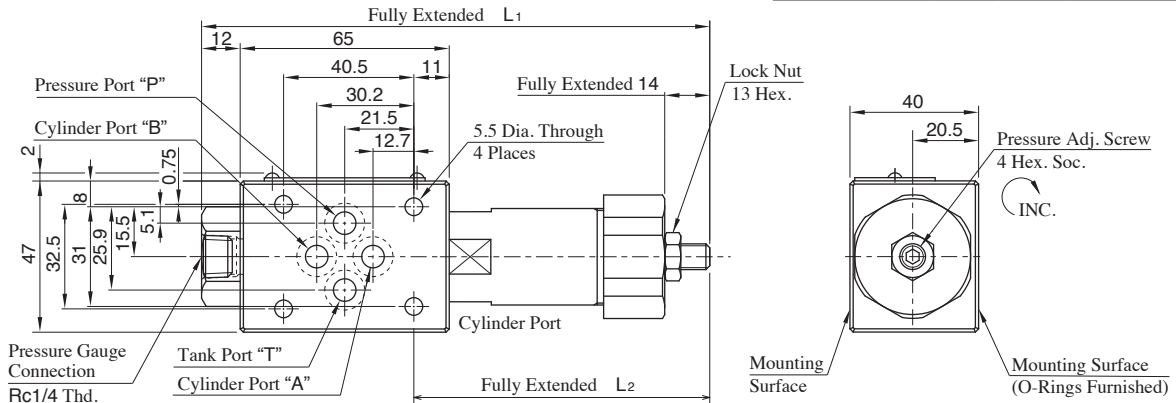


## Instructions

- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure. This back pressure should include the value of the T-line pressure drop characteristics of the valves stacked to the base plate side of the modular valve.
- 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.

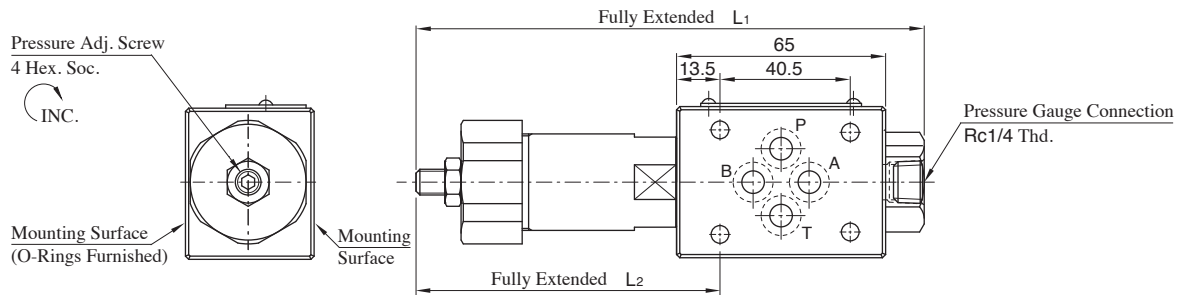
**MRP-01**  
**MRA-01**  
**MRB-01**

Model Numbers	L1	L2	Mass kg
MR*-01-A	162.5	96.5	1.10
MR*-01-B/C	158	92	1.15
MR*-01-H	173.5	107.5	1.25



**MRP-01-\* -B**  
**MRA-01-\* -B**  
**MRB-01-\* -B**

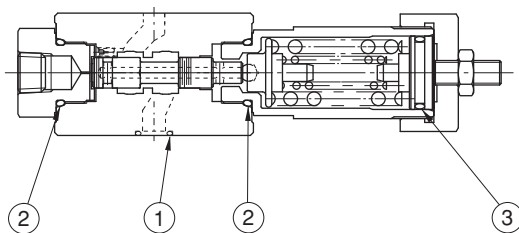
Model Numbers	L1	L2	Mass kg
MR*-01-A-B	162.5	99	1.10
MR*-01-B-B	158	94.5	1.15
MR*-01-C-B			
MR*-01-H-B	173.5	110	1.25



● For other dimensions, please refer to "MRP/MRA/MRB-01" in the above figure.

## List of Seals

**MRP-01**  
**MRA-01**  
**MRB-01**



Item	Name of Parts	Part Numbers	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	2
3	O-Ring	OR NBR-70-1 P20-N	1

- MR\*-01-\* -B  
The pressure adjustment part is assembled on the left side.

01 Series Modular Valves

# Two Pressure Reducing Modular Valves

## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MRDP-01-B- * - * -10	14	20 ★
MRDP-01-C- * - * -10		40 ★

★ Max. Flow is limited when set pressure is low pressure.  
See the "Min. Adjustment Pressure vs. Max. Flow" of this page and operate in the range above the graph curve.

## Model Number Designation

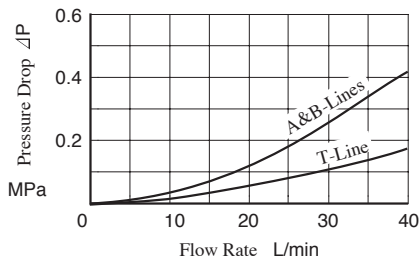
MRDP	-01	-B	-A100	-N	-10
Series Number	Valve Size	Pres. Adj. Range MPa	Coil Type	Electrical Conduit Connection	Design Number
<b>MRDP:</b> Two Pressure Reducing Valve for P-Line	<b>01</b>	Low Press. / High Press. <b>B:</b> 0.2-3.5 / 0.5-7 <b>C:</b> 0.5-7 / 0.5-14	AC A100, A200 DC D24 AC (Rectified) R100, R200 ★	<b>N:</b> Plug-in Connector Type <b>N1:</b> Plug-in Connector Type with Indicator Light (Option)	<b>10</b>

★Coil Type "R200" is treated as an option.

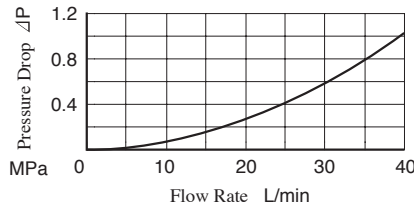
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

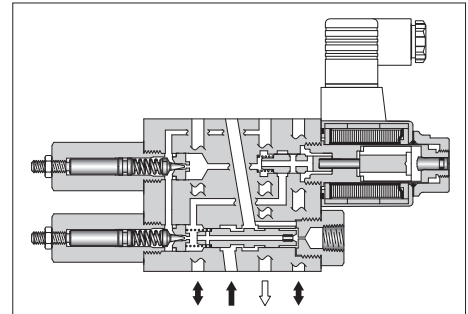
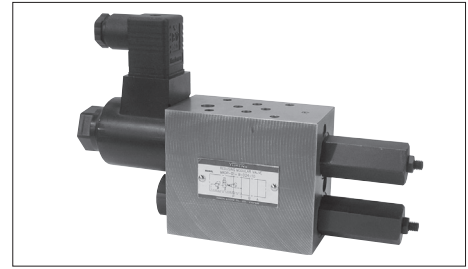
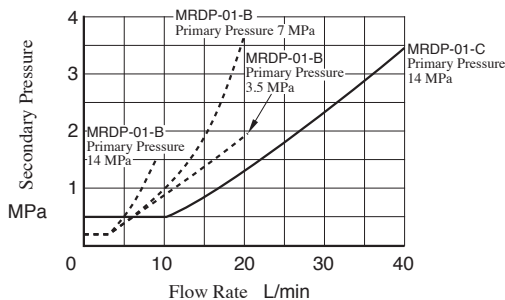
Pressure Drop



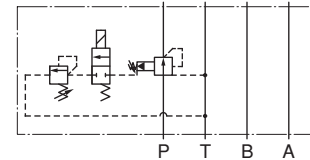
Pressure Drop at Spool Fully Open (P-Line)



Min. Adjustment Pressure vs. Max. Flow

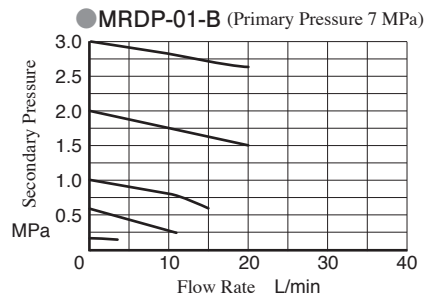
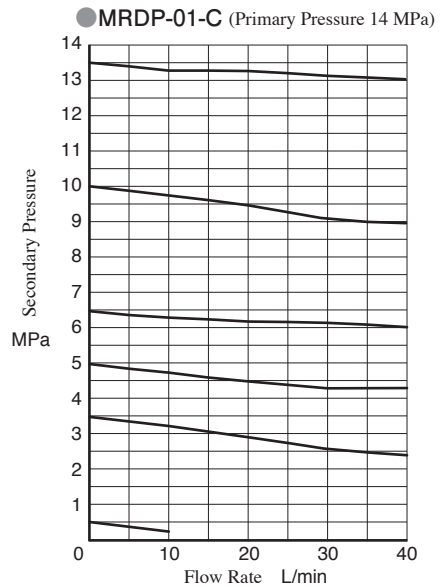


Graphic Symbol



MRDP-01

Nominal Override Characteristics



## Standard Solenoid Ratings

Electric Source	Coil Type	Frequency Hz	Voltage (V)		Current & Power at Rated Voltage		
			Source Rating	Serviceable Range	Inrush (A)	Holding (A)	Power (W)
AC	A100	50	100	80-110	1.65	0.30	—
			100	90-120	1.45	0.24	
		110	1.60		0.27		
	A200	50	200	160-220	0.83	0.15	
			200	180-240	0.73	0.12	
		220	0.80		0.14		
DC	D24	—	24	21.6-26.4	—	0.60	14
AC→DC (Rectified)	R100	50/60	100	90-110	—	0.168	14
	R200		200	180-220	—	0.084	

## Instructions

- The minimum adjustment pressure equals the value of the minimum adjustment pressure on the previous page plus the tank line back pressure. This back pressure should include the value of the T-Line pressure drop characteristics of the valves stacked to the base plate side of the modular valve.
- To adjust the pressure, loosen the lock nut and turn the pressure adjustment screw slowly clockwise to increase pressure and anti-clockwise to decrease pressure. After adjustments do not forget to tighten the lock nut. Refer to the table below for the relationship between energized state of the high & low pres. change solenoid and set pressure.

High & Low Pres. Change Solenoid	Set Pres.
OFF	High
ON	Low

### MRDP-01

DC, R Fully Extended: 220.2  
AC Fully Extended: 216.2

5.5 Dia. Through 4 Places

High Pressure Adj. Screw (when SOL "OFF")  
3 Hex. Soc

Low Pressure Adj. Screw (when SOL "ON")  
3 Hex. Soc

Lock Nut 10 Hex.

Lock Nut 10 Hex.

Cable Departure  
Applicable Cable:  
Outside Dia.... 8 - 10 mm  
Conductor Area....1.5mm<sup>2</sup> or less

High & Low Pressure Change Solenoid

Lock Nut ★  
Tightening Torque  
10.3 - 11.3 Nm

Manual Actuator  
6 Dia.  
Pressure Gauge Connection  
Rc1/4 Thd.

Mounting Surface Dimensions: 93x47

Approx. Mass.....3 kg

The position of the plug-in connector can be changed as illustrated below by loosening the lock nut ★ (AC only 90° left and right). Be sure to tighten the lock nut after changing the position.

## List of Seals, Solenoid Ass'y, Coil Ass'y No.

### MRDP-01

- List of Seals

Item	Name of Parts	Part Numbers	Qty.	Notes
13	O-Ring	OR NBR-70-1 P6-N	2	
14	O-Ring	OR NBR-90 P9-N	4	
15	O-Ring	OR NBR-90 P14-N	2	
16	O-Ring	OR NBR-90 P18-N	1	
17	O-Ring	AS568-013(NBR-90)	2	
32	O-Ring	AS568-026(NBR-70-1)	1	Included in solenoid ass'y (item 30).
33	O-Ring	OR NBR-90 P18-N	1	
34	O-Ring	OR NBR-70-1 P20-N	1	

- Solenoid Ass'y, Coil Ass'y No.

Model Numbers	⑩Solenoid Ass'y No.	⑪Coil Ass'y No.
MRDP-01- *-A100	L-SA1-100-N-7003	C-L-SA1-100-N-70
MRDP-01- *-A200	L-SA1-200-N-7003	C-L-SA1-200-N-70
MRDP-01- *-D24	L-SD1-24-N-7003	C-L-SD1-24-N-70
MRDP-01- *-R100	L-SR1-100-N-7003	C-L-SR1-100-N-70
MRDP-01- *-R200	L-SR1-200-N-7003	C-L-SR1-200-N-70

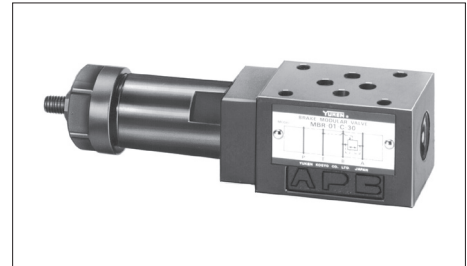
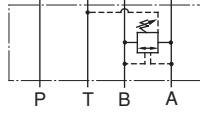
01 Series Modular Valves

# Brake Modular Valves

## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MBR-01-* -30	25	35

## Graphic Symbol



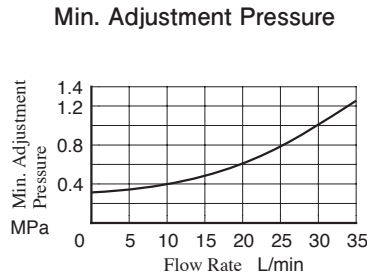
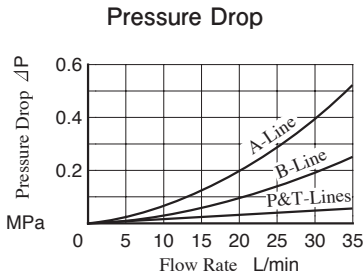
## Model Number Designation

MBR	-01	-C	-30
Series Number	Valve Size	Pres. Adj. Range MPa	Design Number
<b>MBR: Brake Valve</b>	<b>01</b>	<b>C: ★-14</b> <b>H: 7-21</b>	<b>30</b>

★See the "Min. Adjustment Pressure" of this page.

## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



## Instructions

- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of the left. This back pressure should include the value of the T-line pressure drop characteristics of the valves stacked to the base plate side of the modular valve.
- 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.

**MBR-01**

5.5 Dia. Through 4 Places  
Lock Nut 13 Hex.  
Pressure Adj. Screw 4 Hex. Soc.  
INC.  
Approx. Mass.....1.3 kg

Model Numbers	L1	L2
MBR-01-C	161	107
MBR-01-H	176.5	122.5

## List of Seals

**MBR-01**

Item	Name of Parts	Part Numbers	Qty.
14	O-Ring	OR NBR-90 P7-N	1
15	O-Ring	OR NBR-90 P9-N	4
16	O-Ring	OR NBR-90 P18-N	1
17	O-Ring	OR NBR-70-1 P20-N	1



# Sequence Modular Valves/Counterbalance Modular Valves

## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MHP-01- *- *-70	35	60
MHA/MHB-01- *-70		

## Model Number Designation

MHP	-01	-B	-B	-70
Series Number	Valve Size	Pres. Adj. Range MPa	Pres. Adj. Screw Position	Design Number
MHP: Sequence Valve for P-Line	01	<b>B:</b> ★-7 <b>C:</b> 3.5-14 <b>H:</b> 7-21 <b>K:</b> 14-35	<b>None:</b> A Port Side <b>B:</b> B Port Side	70
MHA: Counterbalance Valve for A-Line			—	
MHB: Counterbalance Valve for B-Line			—	

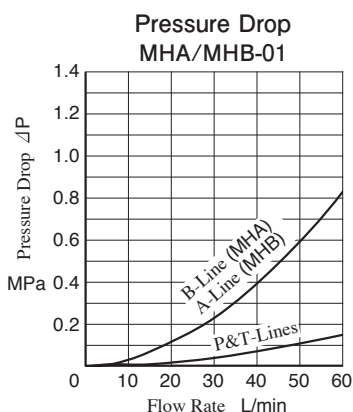
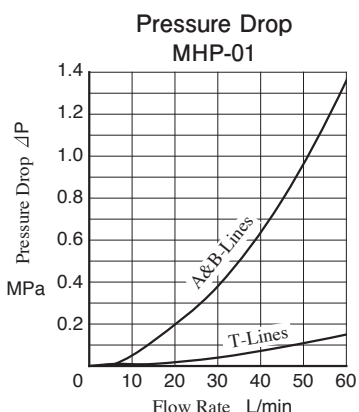
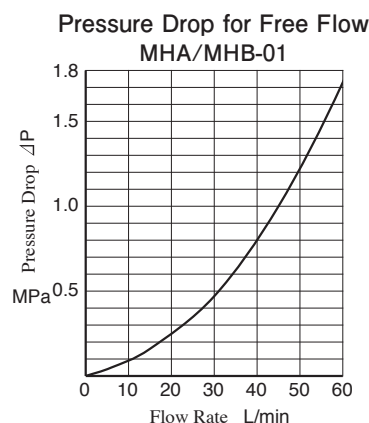
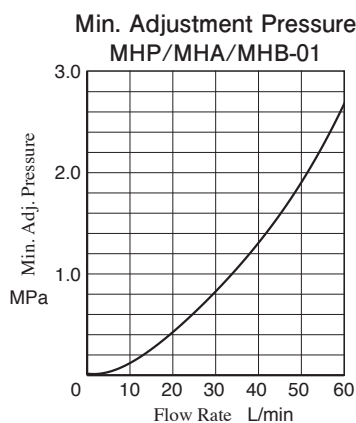
★ See the "Min. Adjustment Pressure" on this page.

## Instructions

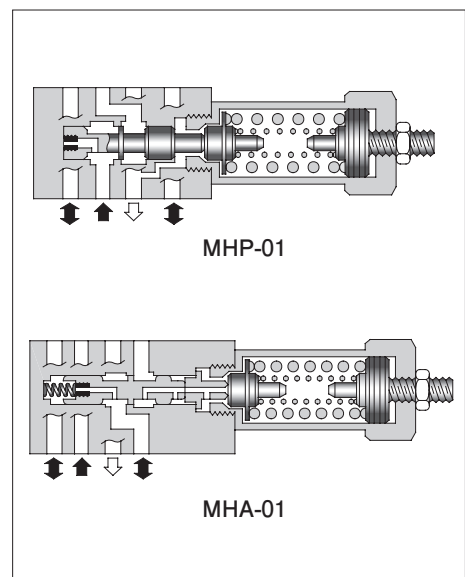
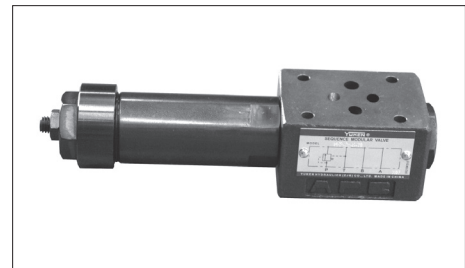
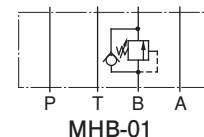
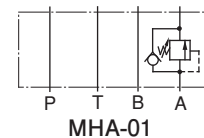
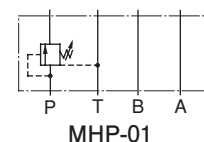
- The minimum adjustment pressure for MHP-01 equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure. This back pressure should include the value of the T-Line pressure drop characteristics of the valves stacked.
- The minimum adjustment pressure for MHA-01 and MHP-01 equals the value obtained from the minimum adjustment pressure characteristics plus the outlet-side back pressure of the valve. The outlet-side back pressure should include the values of the A(B)-Line pressure drop.
- To make pressure adjustment, loosen the lock nut and turn the pressure adjustment screw clockwise or anti-clockwise. For increasing 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 mm<sup>2</sup>/s, Specific Gravity: 0.850



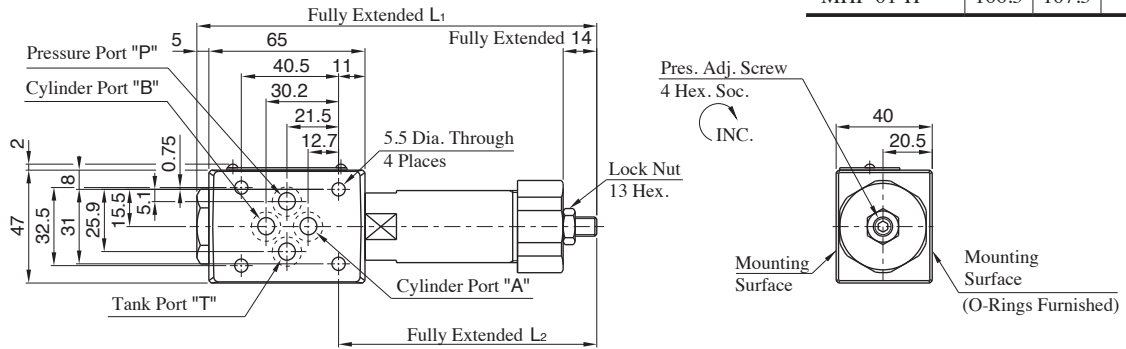
## Graphic Symbols



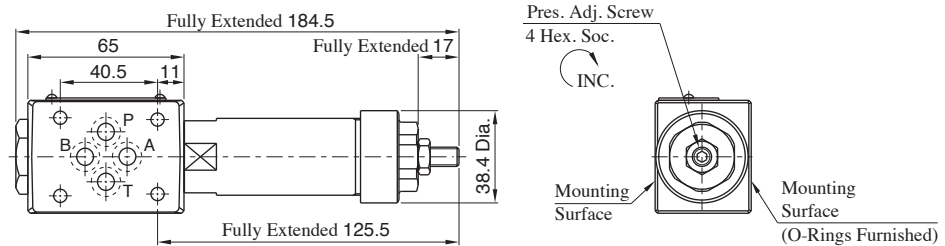
01 Series Modular Valves

**MHP-01-B/C/H**

Model Numbers	L <sub>1</sub>	L <sub>2</sub>	Mass kg
MHP-01-B/C	151	92	1.45
MHP-01-H	166.5	107.5	1.55



**MHP-01-K**

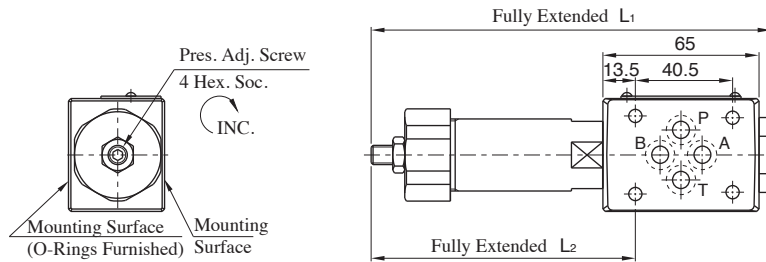


● For other dimensions, refer to "MHP-01-B/C/H" in the above figure.

Approx. Mass.....1.65 kg

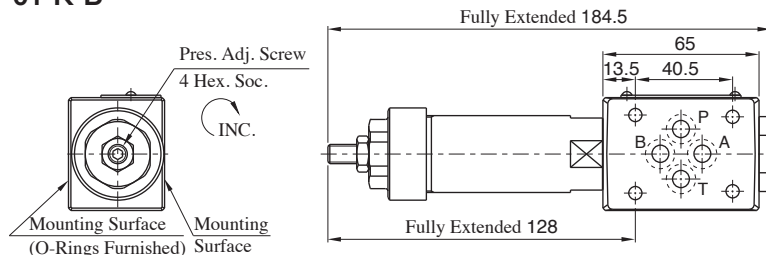
**MHP-01-B-B**  
**MHP-01-C-B**  
**MHP-01-H-B**

Model Numbers	L <sub>1</sub>	L <sub>2</sub>	Mass kg
MHP-01-B-B	151	94.5	1.45
MHP-01-C-B	166.5	110	1.55



● For other dimensions, refer to "MHP-01-B/C/H" drawing above.

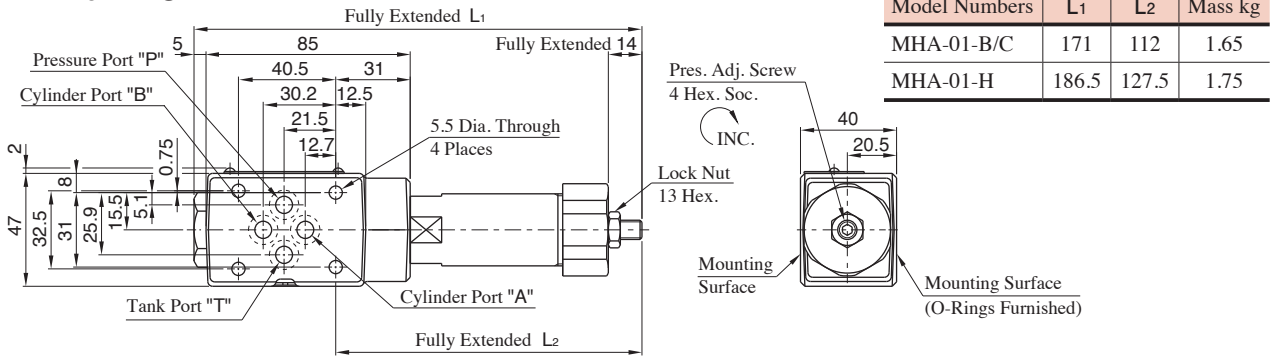
**MHP-01-K-B**



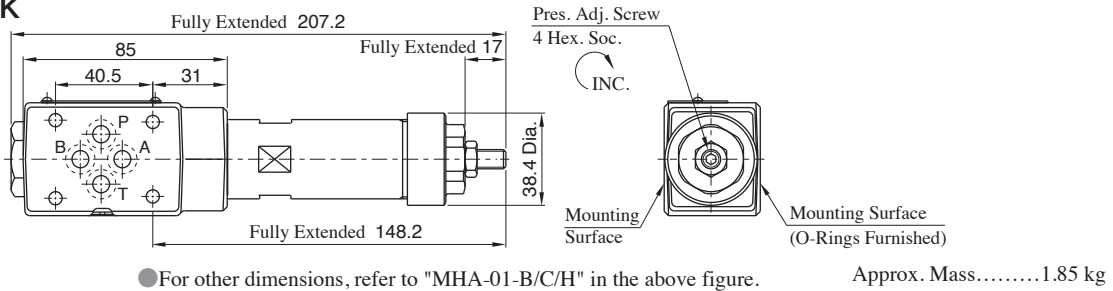
● For other dimensions, refer to "MHP-01-K" in the above figure.

Approx. Mass.....1.65 kg

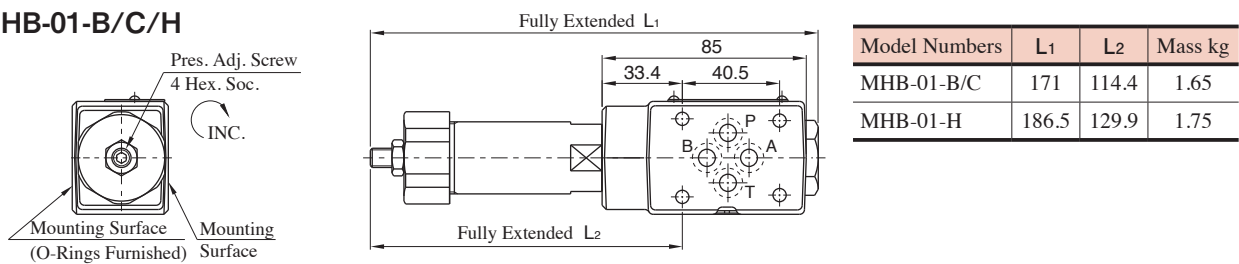
## MHA-01-B/C/H



## MHA-01-K

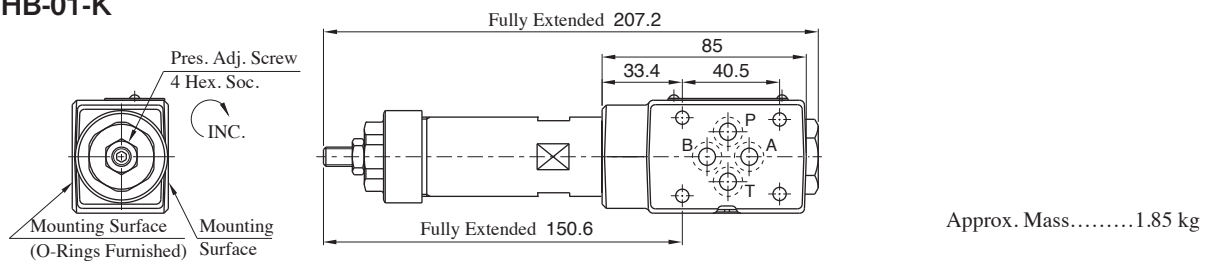


## MHB-01-B/C/H



●For other dimensions, refer to "MHA-01-B/C/H" in the above figure.

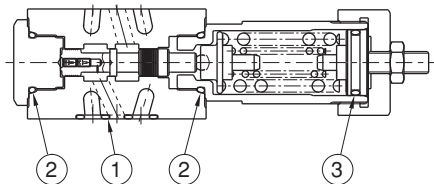
## MHB-01-K



●For other dimensions, refer to "MHA-01-K" in the above figure.

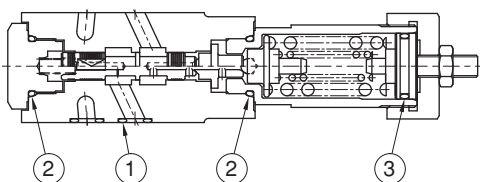
## List of Seals

### MHP-01



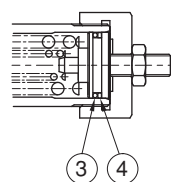
●MHP-01 - \* -B has the pressure adjustment part on the left side.

### MHA-01



●MHB-01 has the pressure adjustment part on the left side.

### MHA-01-K



Item	Name of Parts	Part Numbers	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	2
3	O-Ring	OR NBR-70-1 P20-N [MHP-01-B/C/H] OR NBR-70-1 P22-N [MHP-01-K]	1
Item	Name of Parts	Part Numbers	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	2
3	O-Ring	OR NBR-90 P20-N [MHA-01-B/C/H] [MHB-01-B/C/H] OR NBR-90 P22-N [MHA-01-K] [MHB-01-K]	1
4	Back-up Ring	BR JIS B 2401-4-T2-P22 [MHA-01-K] [MHB-01-K]	1

# Pressure Switch Modular Valves

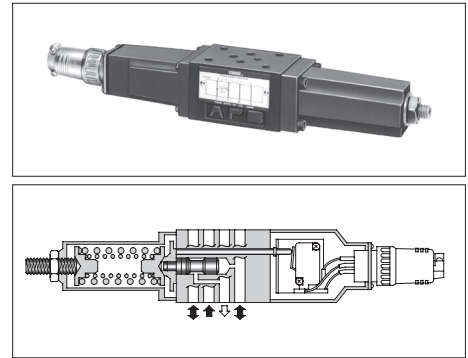
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MJ*-01-M-**-*-10	31.5	35
MJ*-01-J-35-10	10	
MJ*-01-J-100-10	10	
MJ*-01-J-200-10	20	
MJ*-01-J-350-10	35	

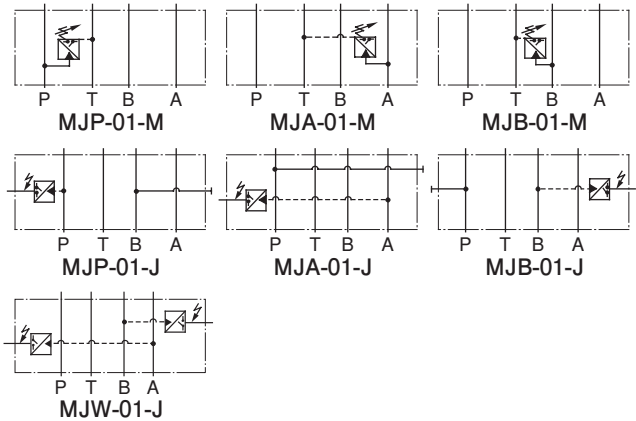
## Sensitive Switch Ratings

Electric Source	AC		DC	
	Voltage (V)	125 · 250	125	250
Current (A)	11A-1/3 HP		0.5	0.25

- Specifications of semiconductor type pressure switch  
JT-02 series is installed for semiconductor type pressure switch, refer to "C Pressure Control Valves" catalog page for details.



## Graphic Symbols



## Model Number Designation

MJP	-01	-M	-B	-N	-10
Series Number	Valve Size	Type of Switch	Pres. Adj. Range MPa	Type of Electrical Connection	Design Number
<b>MJP:</b> for P-Line <b>MJA:</b> for A-Line <b>MJB:</b> for B-Line	01	<b>M:</b> Sensitive Switch	<b>B:</b> 1-7 <b>C:</b> 3.5-14 <b>H:</b> 7-21	<b>None:</b> Cable Connector Type <b>N:</b> With Plug-in Connector (DIN)	10
<b>MJP:</b> for P-Line <b>MJA:</b> for A-Line <b>MJB:</b> for B-Line <b>MJW:</b> for A&B-Line		<b>J:</b> Semiconductor Type Pressure Switch	<b>35:</b> 0.1-3.5 <b>100:</b> 1-10 <b>200:</b> 2-20 <b>350:</b> 3.5-35	<b>None:</b> Lead Wire Type	

## Instructions

- Wiring of a sensitive switch should be made correctly referring to the table right. Numbers in the switch status column indicate wiring numbers in receptacles or contact numbers of connectors.

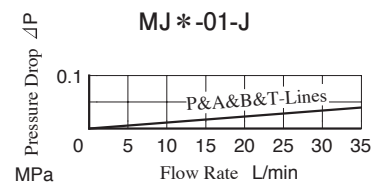
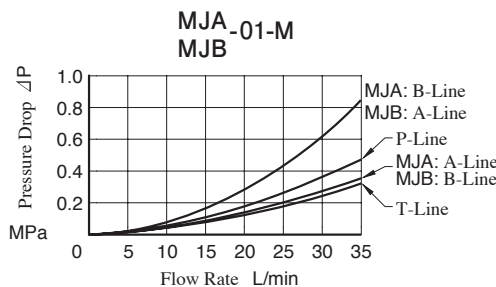
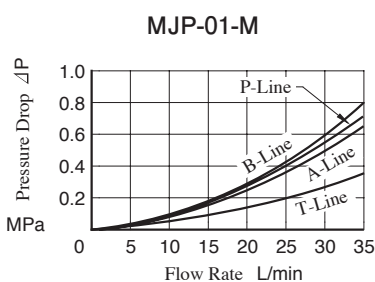
(Pressure with Sensitive Switch and The Switch Status)

Operating Pressure	Switch Status
Less than Pressure setting	
More than Pressure setting	

- 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.

## Pressure Drop

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

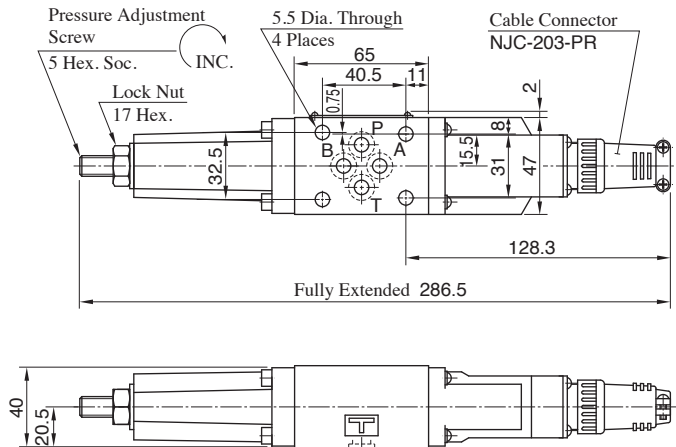


## Accessories

Valve Model Numbers	Accessories
MJ*-01-M-* -10	Cable connector : NJC-203-PR.....1 Pc.
MJ*-01-M-* -N-10	DIN connector : GDM311-B-11.....1 Pc.

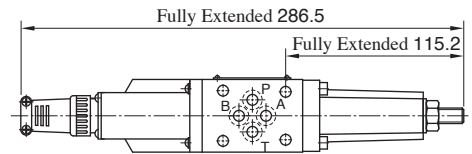
### ● Cable Connector Type

**MJP-01-M-\* -10**  
**MJA-01-M-\* -10**



Approx. Mass.....1.3 kg

### MJB-01-M-\* -10

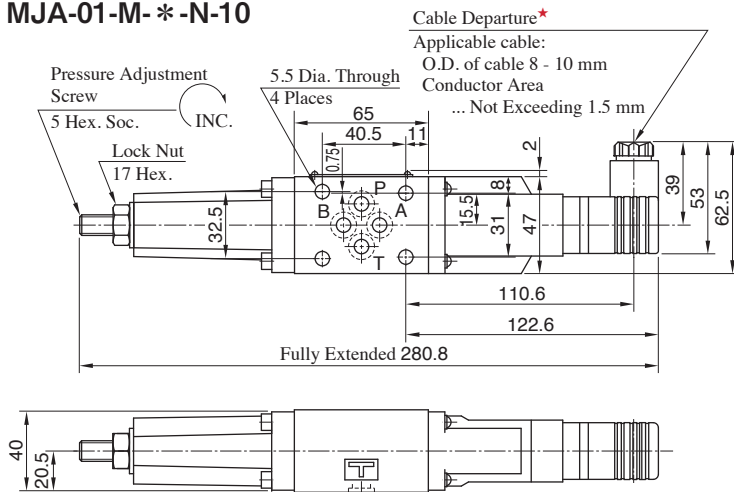


Approx. Mass.....1.3 kg

For other dimensions, refer to "MJP-01" in the drawing left.

### ● Plug-in Connector Type

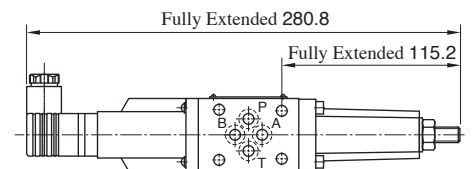
**MJP-01-M-\* -N-10**  
**MJA-01-M-\* -N-10**



Approx. Mass.....1.3 kg

★As shown by the dot-and-dash line, the cable departure can also be faced opposite.

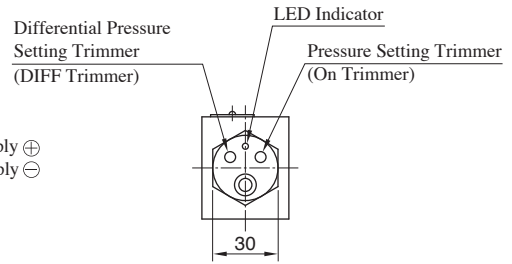
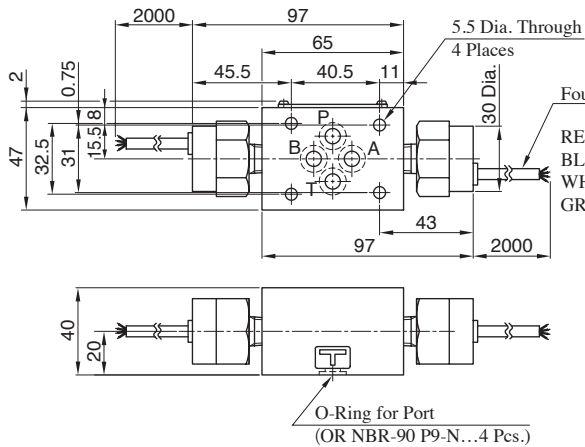
### MJB-01-M-\* -N-10



Approx. Mass.....1.3 kg

For other dimensions, refer to "MJP-01" in the drawing left.

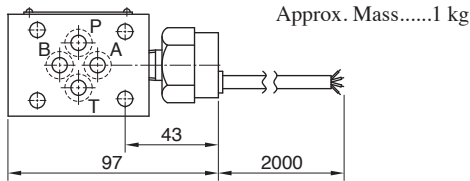
**● Semiconductor Type Pressure Switch**  
**MJW-01-J- \*-10**



Four Conductor Cable  
 [5 mm O.D.]  
 RED.....Power Supply ⊕  
 BLACK....Power Supply ⊖  
 WHITE....Output ⊕  
 GREEN....Output ⊖

Approx. Mass.....1 kg

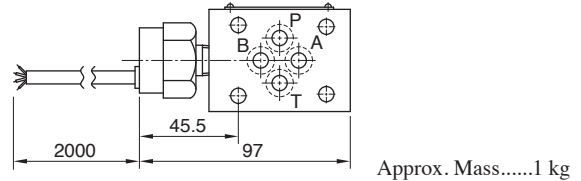
**MJP-01-J- \*-10**  
**MJA-01-J- \*-10**



Approx. Mass.....1 kg

For other dimensions, refer to "MJW-01" in the drawing above.

**MJB-01-J- \*-10**

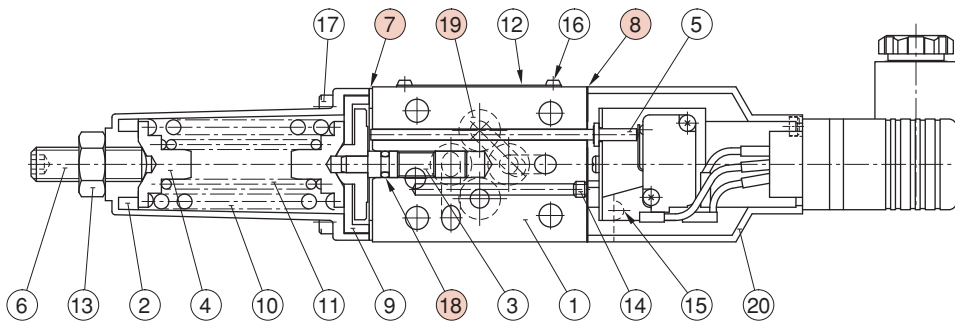


Approx. Mass.....1 kg

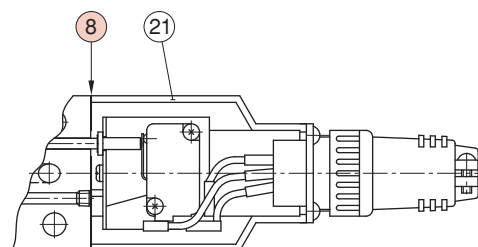
For other dimensions, refer to "MJW-01" in the drawing above.

**■ List of Seals**

**MJP-01-M- \*-N-10**  
 Plug-in Connector Type



**MJ \*-01-M- \*-10**  
 Cable Connector Type



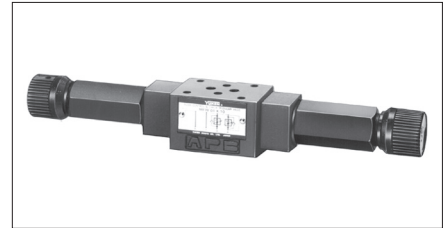
Item	Name of Parts	Part Numbers	Qty.
7	Packing	3116-VK414239-4	1
8	Packing	3116-VK414240-2	1
18	O-Ring	OR NBR-70-1 P5-N	1
19	O-Ring	OR NBR-90 P9-N	4

● Since MJ \*-01-J- \*-10 (Semiconductor type pressure switch) does not have any seals inside, only four(4) O-rings for the ports are required. Please refer to the drawing above.

# Pressure and Temperature Compensated Flow Control (and Check) Modular Valves

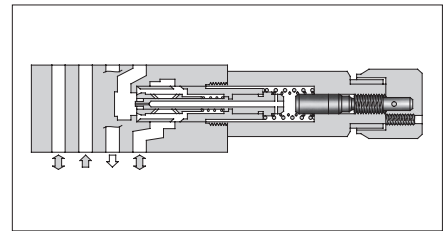
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Metered Flow L/min	Max. Free Flow L/min
MFP-01-10	16	35	—
MF*-01-*-10			35

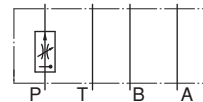


## Model Number Designation

MFA	-01	-X	-10
Series Number	Valve Size	Direction of Flow	Design Number
<b>MFP:</b> Flow Control Valve for P-Line	01	—	10
<b>MFA:</b> Flow Control and Check Valve for A-Line <b>MFB:</b> Flow Control and Check Valve for B-Line <b>MFW:</b> Flow Control and Check Valve for A&B-Lines		X: Meter-out Y: Meter-in	10



## Graphic Symbols

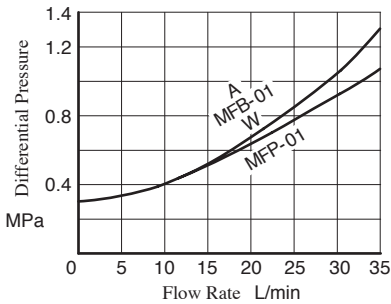


MFP-01

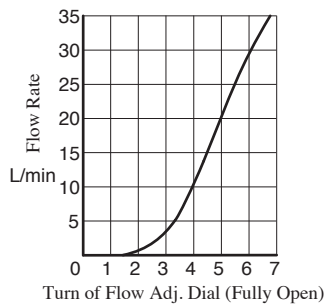
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

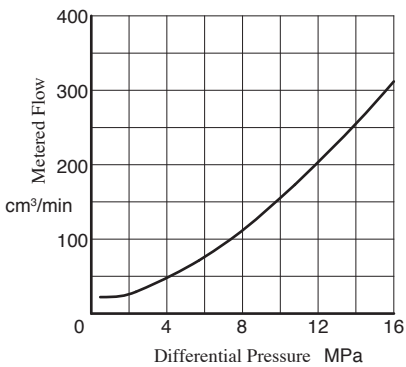
### Min. Required Pressure Difference



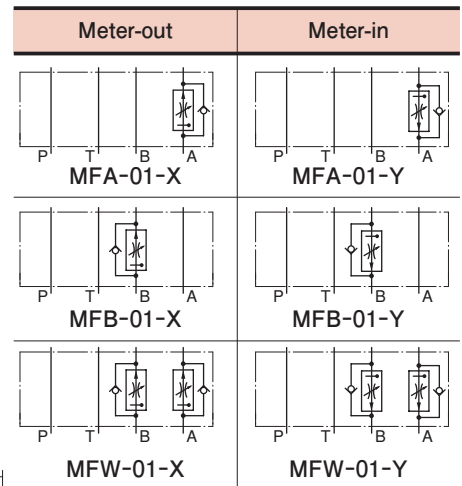
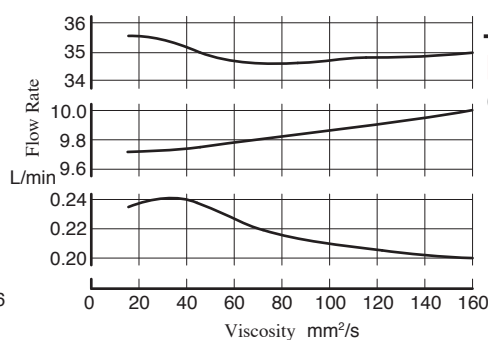
### Metered Flow vs. Dial Position



### Min. Metered Flow



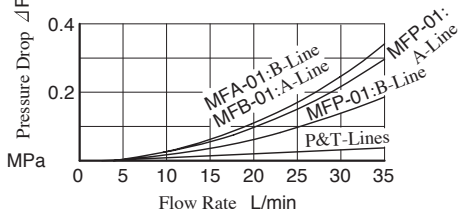
### Metered Flow vs. Viscosity



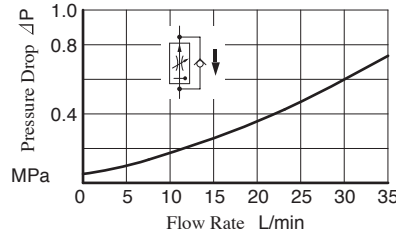
## Instructions

- To make flow rate adjustment, loosen locking screw for the dial and turn the flow adjustment dial clockwise or anti-clockwise. For a decrease of flow, turn the dial clockwise. Be sure to re-tighten the locking screw firmly after the adjustment of the flow rate.

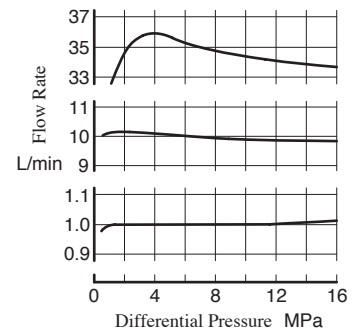
### Pressure Drop



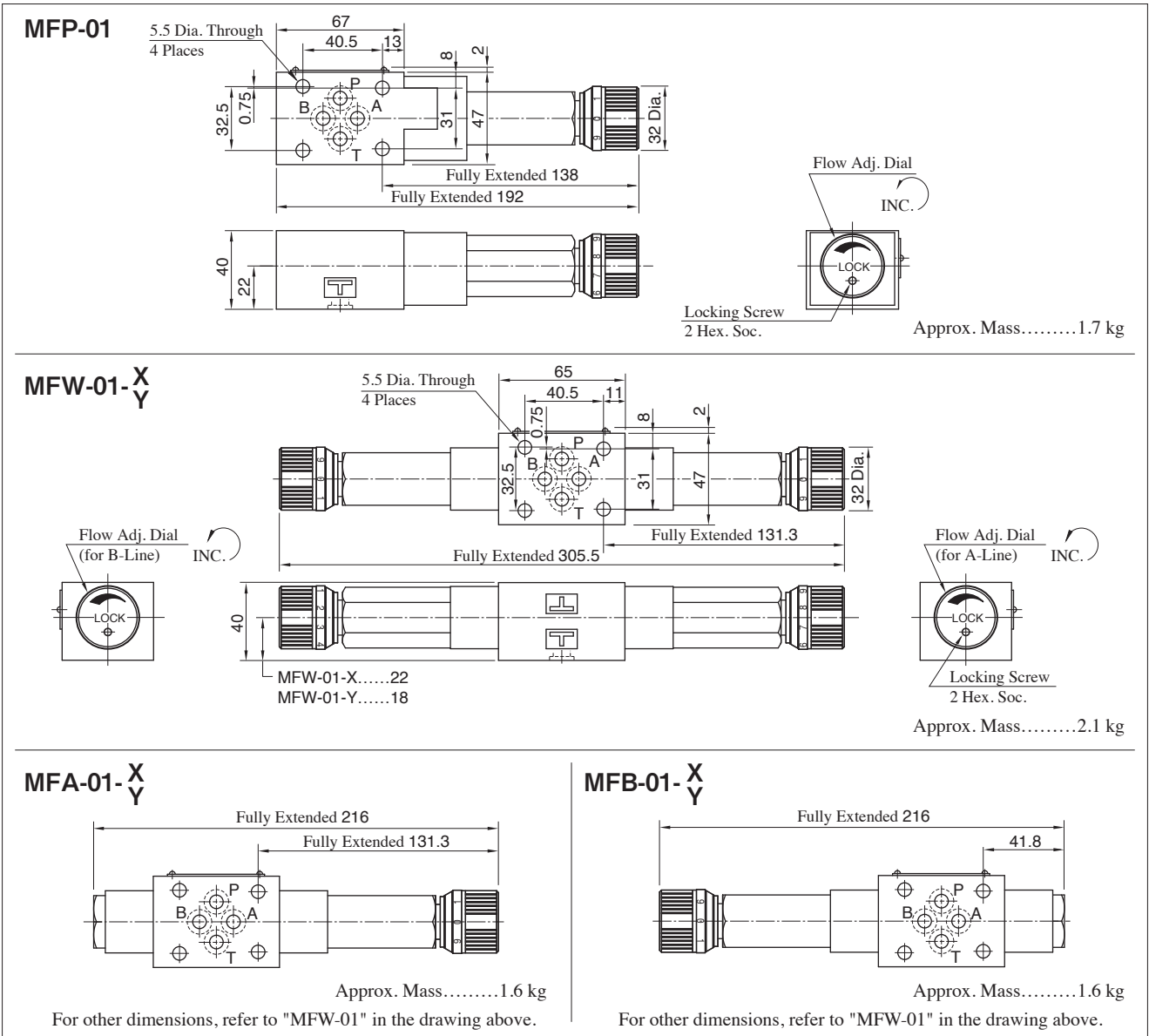
### Pressure Drop for Free Flow



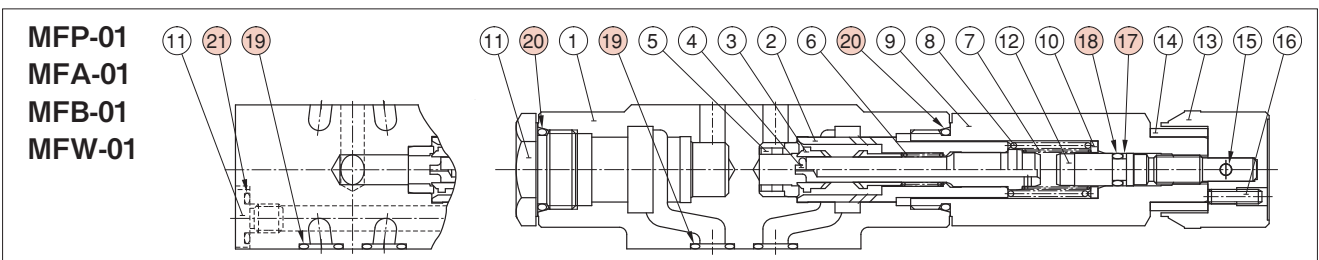
### Metered Flow vs. Differential Pres.



**F**  
01 Series Modular Valves



**List of Seals**



● MFB-01: Flow control part is built in the left side.  
● MFW-01: Flow control part is built in the both sides.

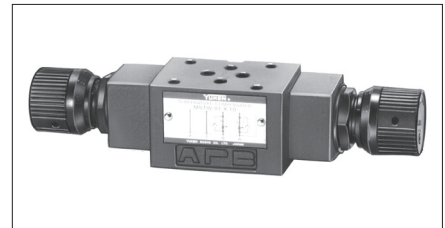
Item	Name of Parts	Part Numbers	Qty.			
			MFP-01	MFA-01	MFB-01	MFW-01
17	Back-up Ring	BR JIS B 2401-4-T2-P6	1	1	1	2
18	O-Ring	OR NBR-70-1 P6-N	1	1	1	2
19	O-Ring	OR NBR-90 P9-N	4	4	4	4
20	O-Ring	OR NBR-90 P18-N	1	2	2	2
21	O-Ring	OR NBR-90 P10-N	1	—	—	—



# Temperature Compensated Throttle and Check Modular Valves

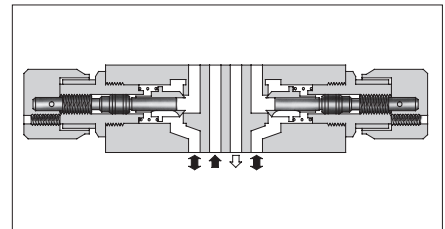
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Differential Pressure MPa	Max. Metered Flow L/min	Min. Metered Flow L/min	Max. Free Flow L/min
MST*-01-X-10	31.5	14	35	0.5	35

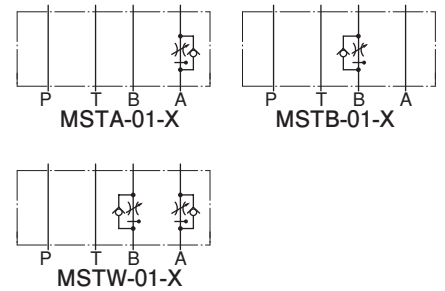


## Model Number Designation

MSTA	-01	-X	-10
Series Number	Valve Size	Direction of Flow	Design Number
MSTA: for A-Line MSTB: for B-Line MSTW: for A&B-Lines	01	X: Meter-out	10
Temperature Compensated Throttle and Check Valve			

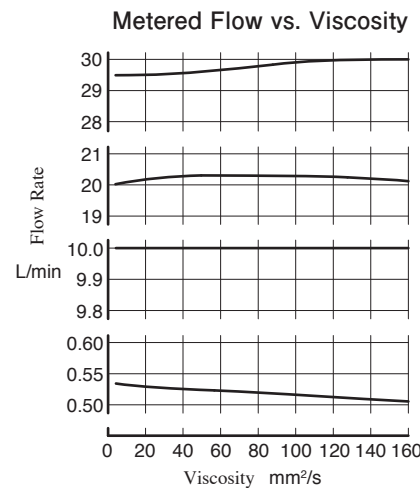
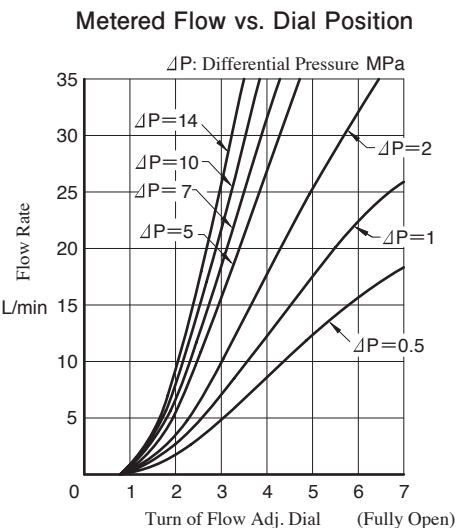
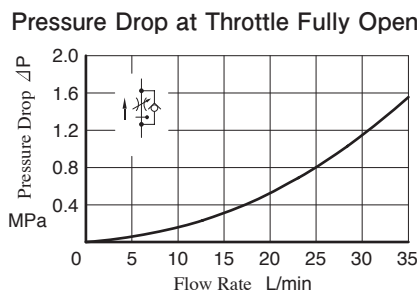
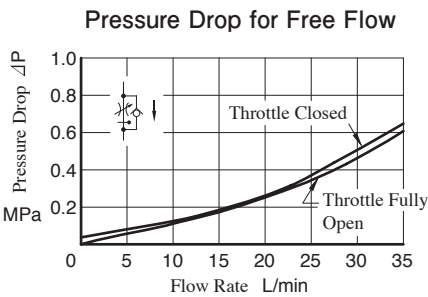
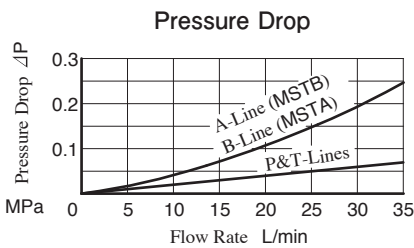


Graphic Symbols



## Typical Performance Characteristics

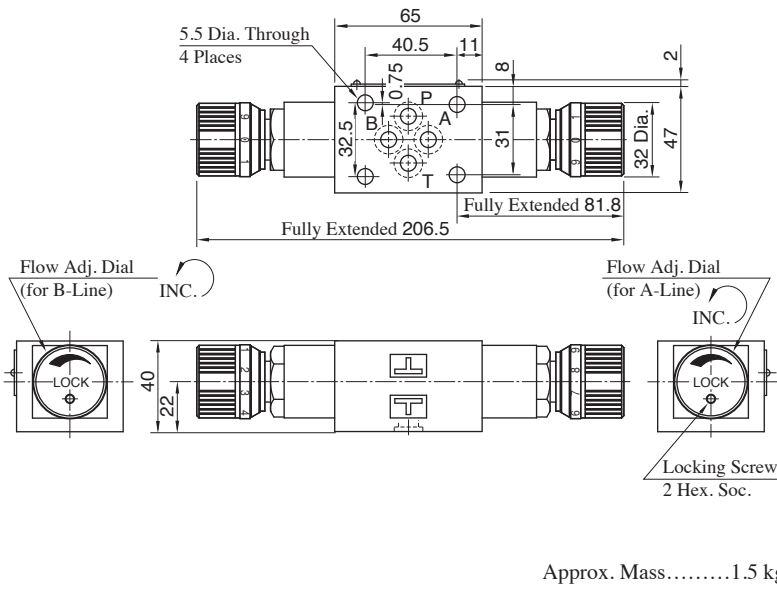
Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



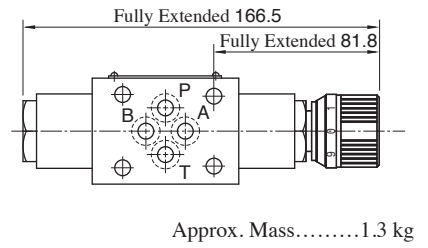
## Instructions

- To make flow rate adjustment, loosen locking screw for the dial and turn the flow adjustment dial clockwise or anti-clockwise. For a decrease of flow, turn the dial clockwise. Be sure to re-tighten the locking screw firmly after the adjustment of the flow rate.

**MSTW-01-X**

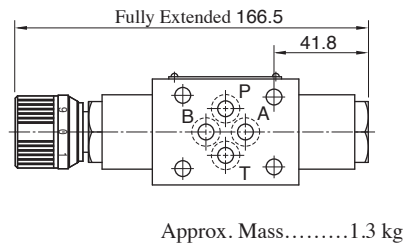


**MSTA-01-X**



For other dimensions, refer to "MSTW-01" in the drawing left.

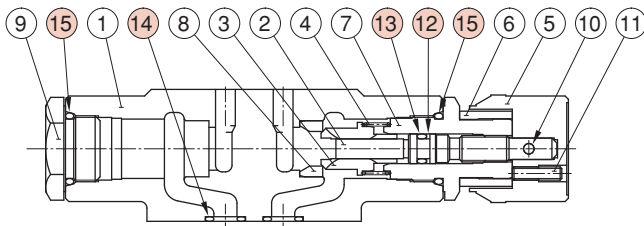
**MSTB-01-X**



For other dimensions, refer to "MSTW-01" in the drawing left.

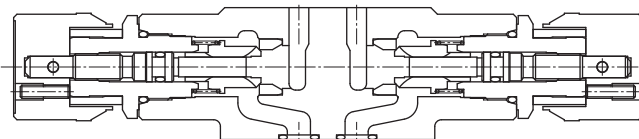
**List of Seals**

**MSTA-01**  
**MSTB-01**  
**MSTW-01**



**MSTA-01-X**

● MSTB-01-X: Flow control part is built in the left side.



**MSTW-01-X**

Item	Name of Parts	Part Numbers	Qty.		
			MSTA	MSTB	MSTW
12	Back-up Ring	BR JIS B 2401 -4-T2-P6	1	1	2
13	O-Ring	OR NBR-70-1 P6-N	1	1	2
14	O-Ring	OR NBR-90 P9-N	4	4	4
15	O-Ring	OR NBR-90 P18-N	2	2	2

# Throttle Modular Valves

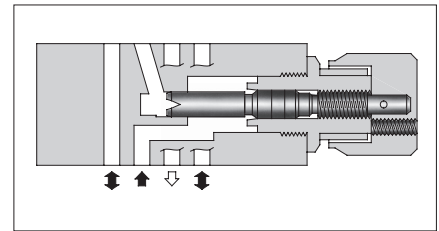
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MS*-01-50	31.5	60*

\*At the low differential pressure, maximum flow is limited. See "Pressure Drop at Throttle Fully Open".

## Model Number Designation

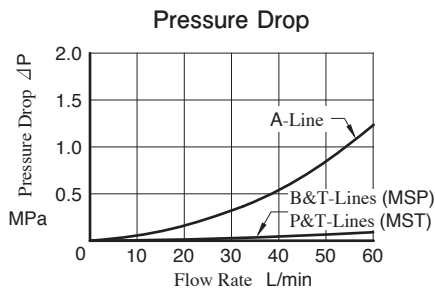
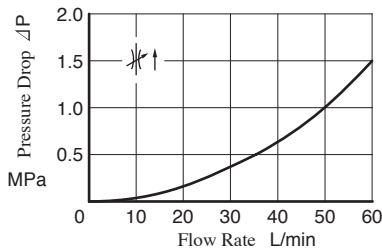
MSP	-01	-50
Series Number	Valve Size	Design Number
MSP: for P-Line } Throttle Valve MST: for T-Line }	01	50



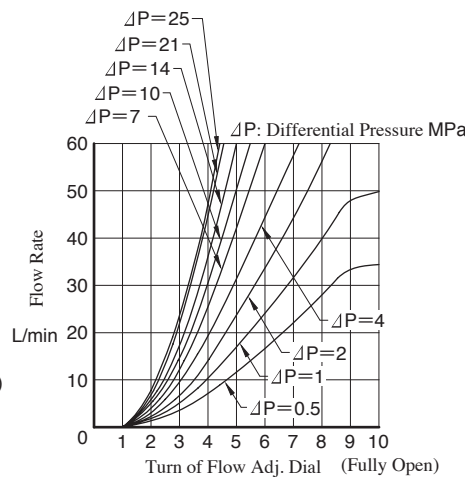
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

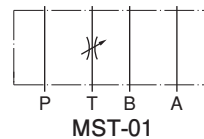
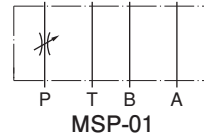
### Pressure Drop at Throttle Fully Open



### Metered Flow vs. Dial Position



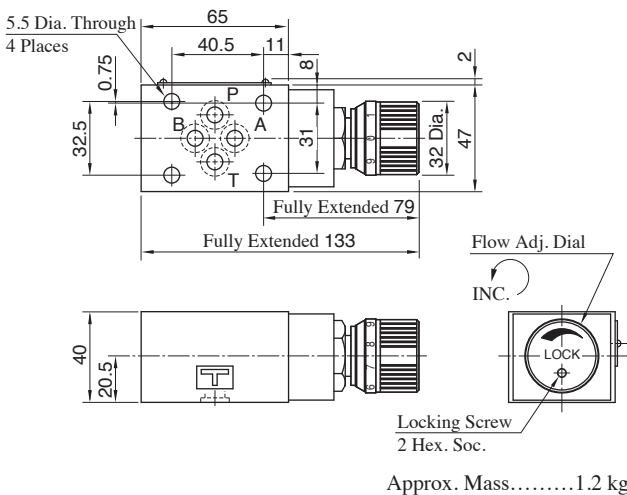
## Graphic Symbols



## Instructions

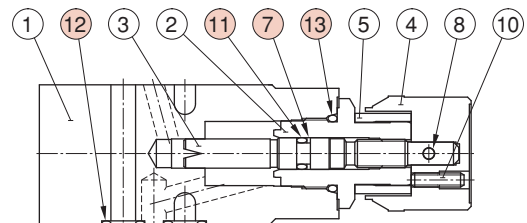
- To make flow rate adjustment, loosen locking screw for the dial and turn the flow adjustment dial clockwise or anti-clockwise. For a decrease of flow, turn the dial clockwise. Be sure to re-tighten the locking screw firmly after the adjustment of the flow rate.

## MSP-01 MST-01



## List of Seals

### MSP-01 MST-01



Item	Name of Parts	Part Numbers	Qty.
7	Back-up Ring	BR JIS B 2401-4-T2-P6	1
11	O-Ring	OR NBR-70-1 P6-N	1
12	O-Ring	OR NBR-90 P9-N	4
13	O-Ring	OR NBR-90 P18-N	1

01 Series Modular Valves

# Check and Throttle Modular Valves

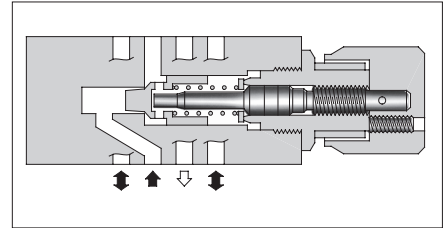
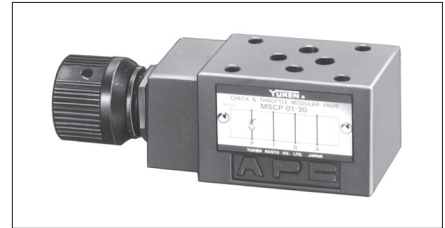
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MSCP-01-30	31.5	35 *

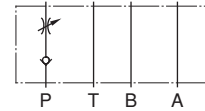
★At the low differential pressure, maximum flow is limited. See "Pressure Drop at Throttle Fully Open".

## Model Number Designation

MSCP	-01	-30
Series Number	Valve Size	Design Number
<b>MSCP:</b> Check and Throttle <b>MSCP:</b> Valve for P-Line	<b>01</b>	<b>30</b>



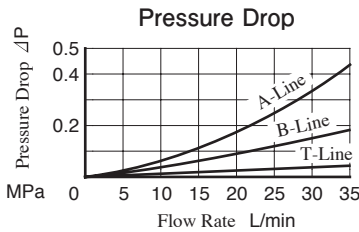
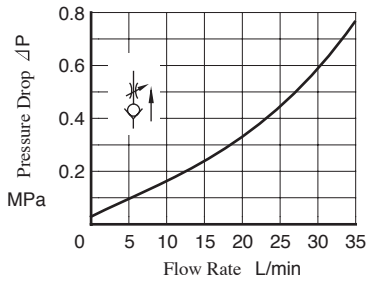
Graphic Symbol



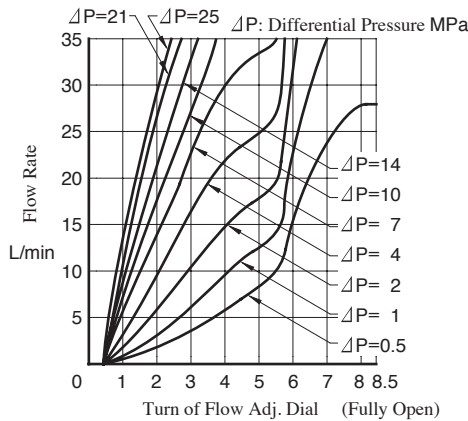
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

### Pressure Drop at Throttle Fully Open



### Metered Flow vs. Dial Position



## Instructions

● To make flow rate adjustment, loosen locking screw for the dial and turn the flow adjustment dial clockwise or anti-clockwise. For a decrease of flow, turn the dial clockwise. Be sure to re-tighten the locking screw firmly after the adjustment of the flow rate.

### MSCP-01

5.5 Dia. Through 4 Places

65, 40.5, 11, 8, 2.5, 31, 32 Dia., 47, 2

32.5, 0.75

Fully Extended 77.5

Fully Extended 131.5

Flow Adj. Dial

INC.

LOCK

Locking Screw 2 Hex. Soc.

Approx. Mass.....1.2 kg

### List of Seals

#### MSCP-01

Item	Name of Parts	Part Numbers	Qty.
7	Back-up Ring	BR JIS B 2401-4-T2-P6	1
11	O-Ring	OR NBR-70-1 P6-N	1
12	O-Ring	OR NBR-90 P9-N	4
13	O-Ring	OR NBR-90 P18-N	1

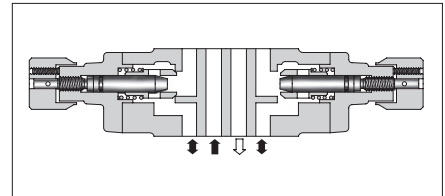
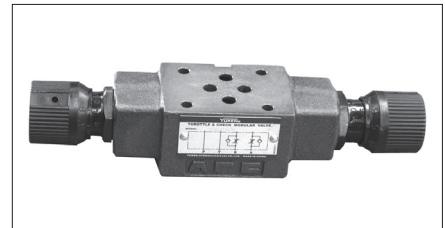
# Throttle and Check Modular Valves

## Specifications

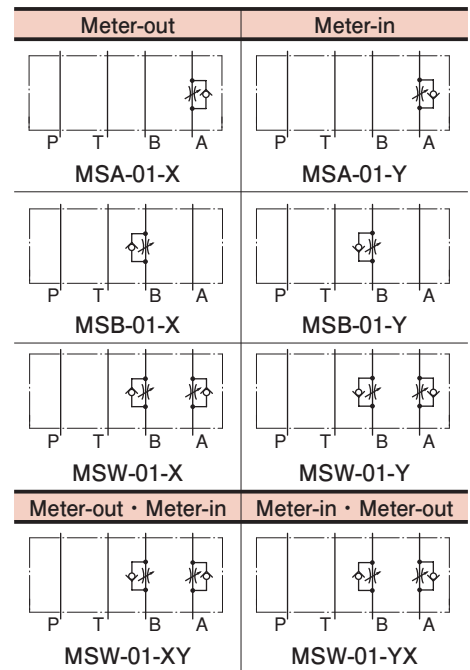
Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MS*-01-* *-70	35	80

## Model Number Designation

MSW	-01	-X	Y	-70
Series Number	Valve Size	Direction of Flow ("A" Line)	Direction of Flow ("B" Line)	Design Number
<b>MSA:</b> Throttle and Check Valve for A-Line	01	<b>X:</b> Meter-out <b>Y:</b> Meter-in	—	70
<b>MSB:</b> Throttle and Check Valve for B-Line		—	<b>X:</b> Meter-out <b>Y:</b> Meter-in	
<b>MSW:</b> Throttle and Check Valve for A&B-Lines		<b>X:</b> Meter-out <b>Y:</b> Meter-in	<b>X:</b> Meter-out <b>Y:</b> Meter-in	
		<b>Y:</b> Meter-in <b>X:</b> Meter-out	<b>X:</b> Meter-out	



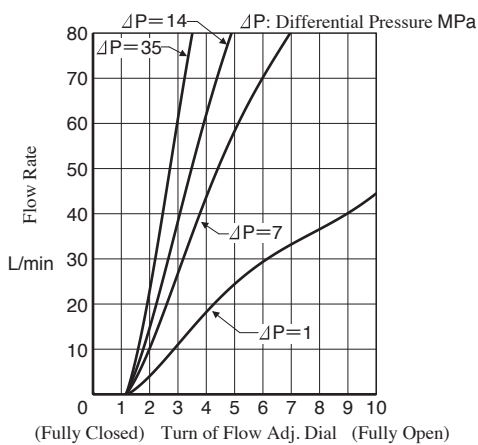
Graphic Symbols



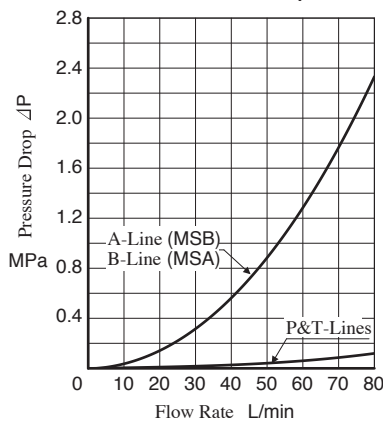
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

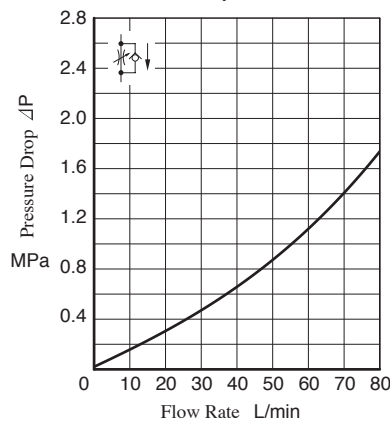
Metered Flow vs. Dial Position



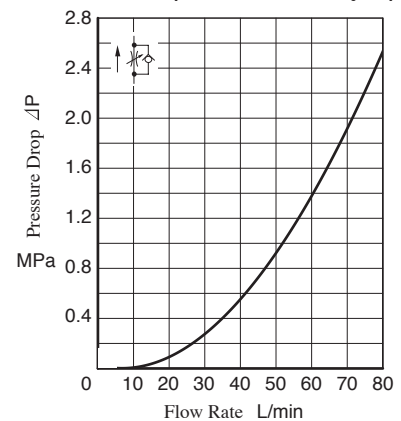
Pressure Drop



Pressure Drop for Free Flow



Pressure Drop at Throttle Fully Open

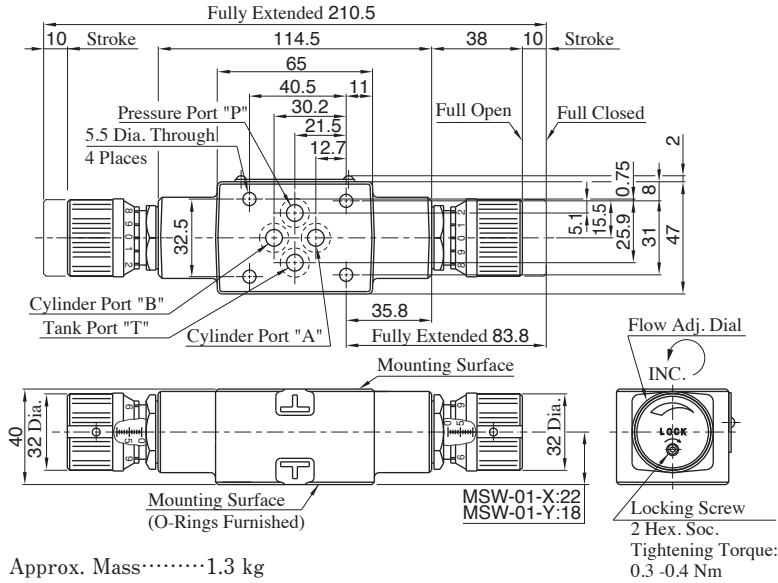


## Instructions

- To make flow rate adjustment, loosen locking screw for the dial and turn the flow adjustment dial clockwise. For a decrease of flow turn the dial clockwise. Be sure to re-tighten the locking screw firmly after the adjustment of the flow rate.

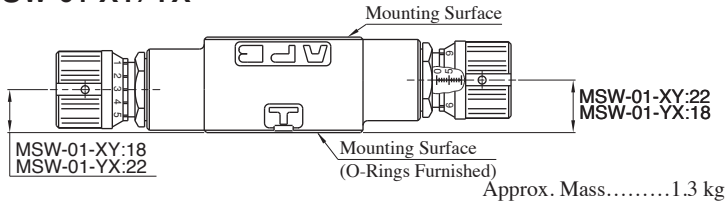
01 Series Modular Valves

**MSW-01-X/Y**



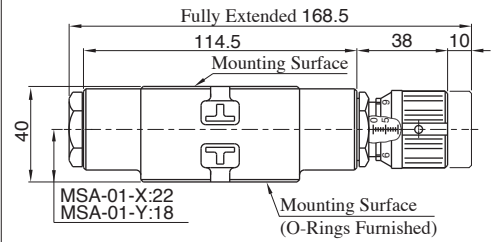
Approx. Mass.....1.3 kg

**MSW-01-XY/YX**



For other dimensions, refer to "MSW-01-X/Y" in the drawing above.

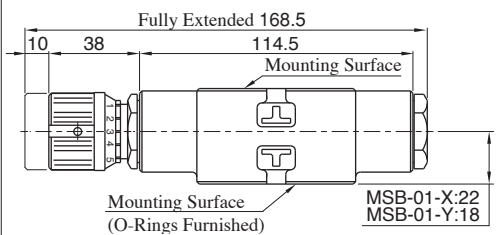
**MSA-01-X/Y**



Approx. Mass.....1.15 kg

For other dimensions, refer to "MSW-01" in the drawing left.

**MSB-01-X/Y**

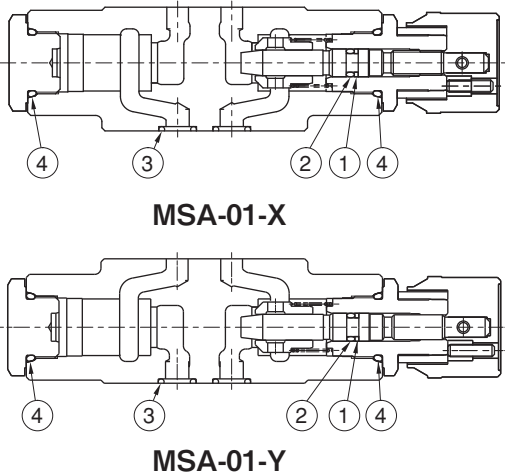


Approx. Mass.....1.15 kg

For other dimensions, refer to "MSW-01" in the drawing left.

**List of Seals**

**MSA-01, MSB-01, MSW-01**

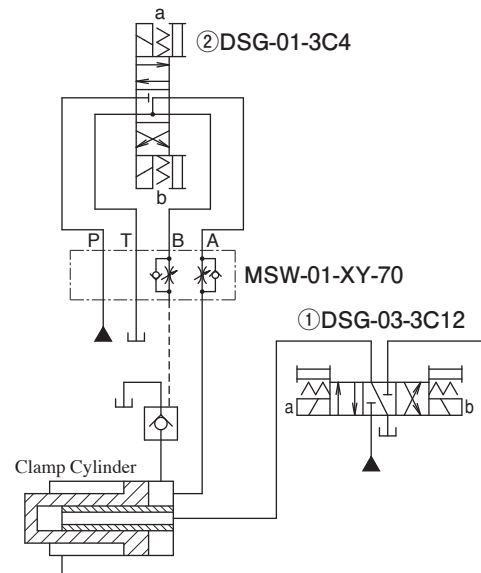


- MSB-01: Flow control part is built in the left side.
- MSW-01: Flow control part is built in the both left and right sides.

Item	Name of Parts	Part Numbers	Qty.	
			MSA,MSB	MSW
1	Back-up Ring	BR JIS B 2401-4-T2-P6	1	2
2	O-Ring	OR NBR-70-1 P6-N	1	2
3	O-Ring	OR NBR-90 P9-N	4	4
4	O-Ring	OR NBR-90 P18-N	2	2

**Application**

- Circuit of Clamp Cylinder for Injection Molding Machine



**Operation Sequence**

Clamp Cylinder	Advance	End Point Pressurization	Decompression	Retreat
Solenoid Operated Directional Valve ①	Sol.a ON	→	Center Position	Sol.b ON
Solenoid Operated Directional Valve ②	Sol.b ON	Sol.a ON	Sol.b ON	→

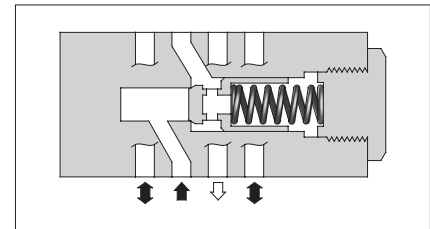
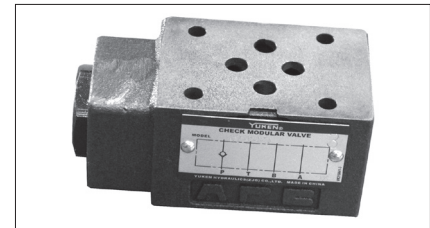
# Check Modular Valves

## Specifications

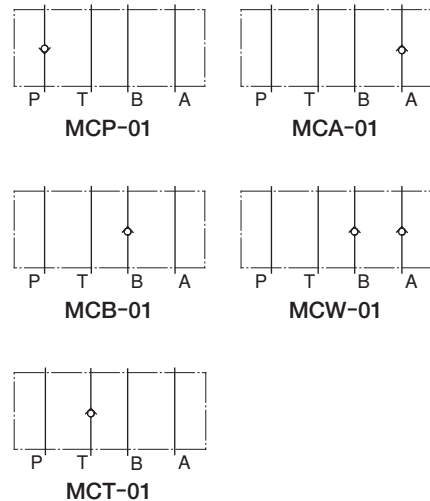
Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MC *-01- *-70	35	60

## Model Number Designation

MCP	-01	-0	-70
Series Number	Valve Size	Cracking Pressure MPa	Design Number
<b>MCP:</b> Check Valve for P-Line <b>MCA:</b> Check Valve for A-Line <b>MCB:</b> Check Valve for B-Line <b>MCT:</b> Check Valve for T-Line <b>MCW:</b> Check Valve for A-Line & B-Line	<b>01</b>	<b>0:</b> 0.035 <b>2:</b> 0.2 <b>4:</b> 0.4	<b>70</b>



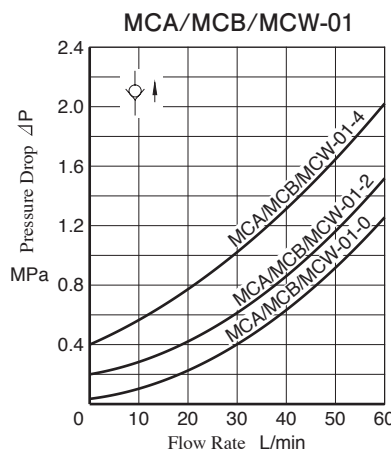
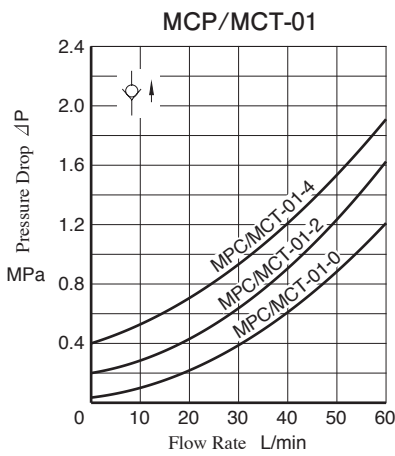
Graphic Symbols



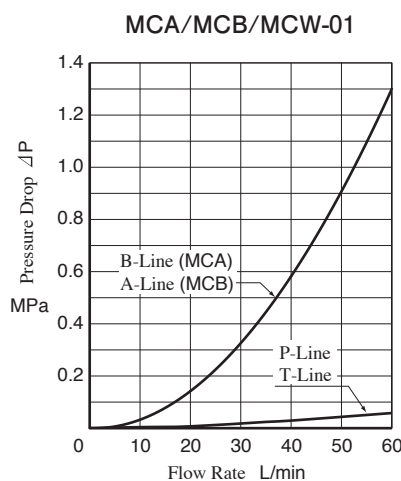
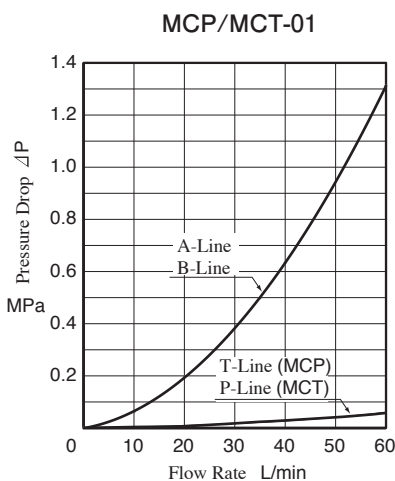
## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850

Pressure Drop for Free Flow

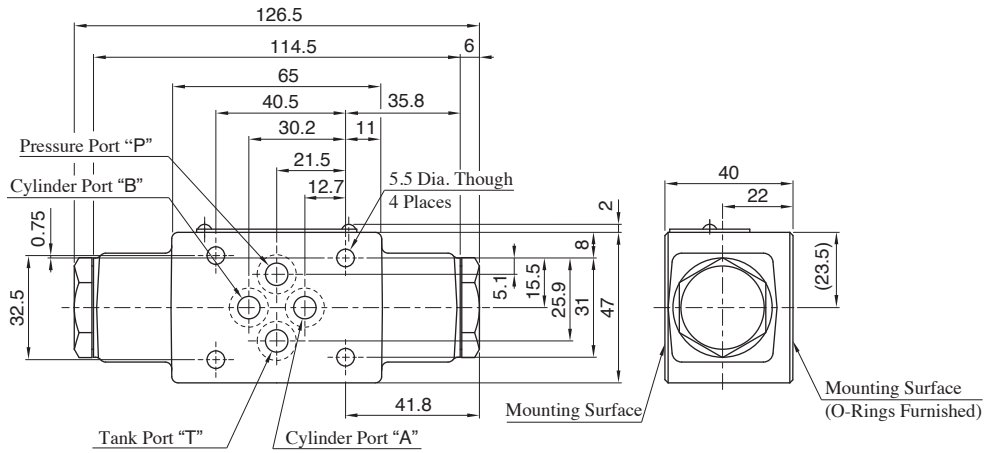


Pressure Drop of each line



01 Series Modular Valves

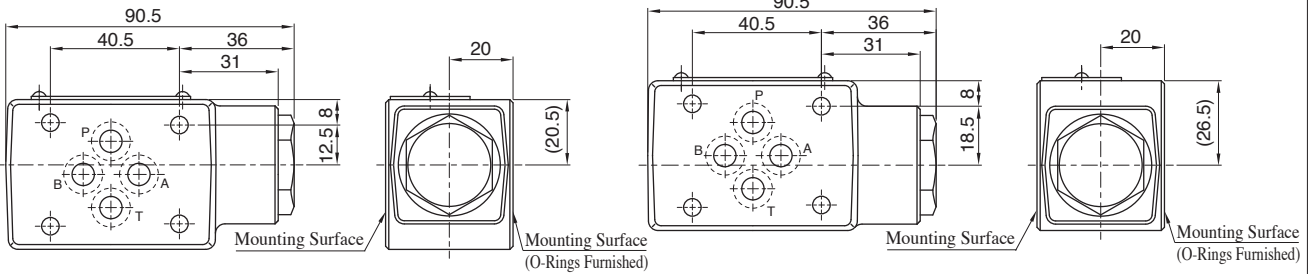
**MCA-01  
MCB-01  
MCW-01**



Approx. Mass.....1.2 kg

**MCP-01**

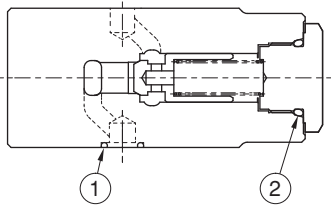
**MCT-01**



● Please refer to the drawing above (MCA-01/MCB-01/MCW-01) for other dimensions. Approx. Mass.....1.0 kg

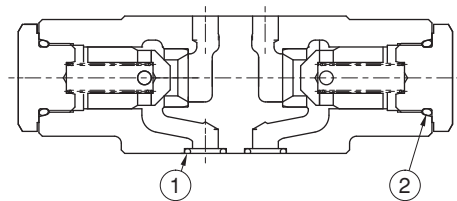
**List of Seals**

**MCP-01  
MCT-01**



Item	Name of Parts	Part Numbers	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	1

**MCA-01  
MCB-01  
MCW-01**



Please refer to the drawing above for MCW-01.

- MCA-01 does not have poppet, spring or seat built in the left side.
- MCB-01 does not have poppet, spring or seat built in the right side.

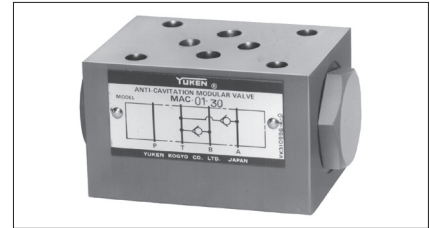
Item	Name of Parts	Model of Parts	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	2



# Anti-Cavitation Modular Valves

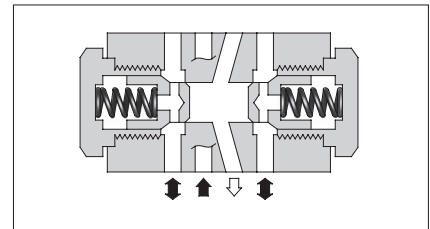
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MAC-01-30	31.5	35



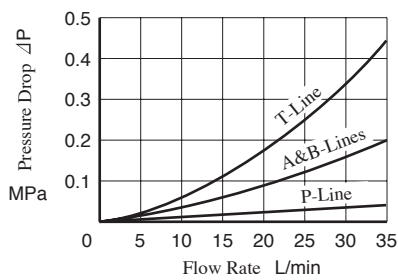
## Model Number Designation

MAC	-01	-30
Series Number	Valve Size	Design Number
<b>MAC: Anti-Cavitation Valve</b>	<b>01</b>	<b>30</b>

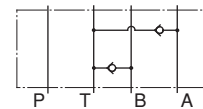


## Pressure Drop

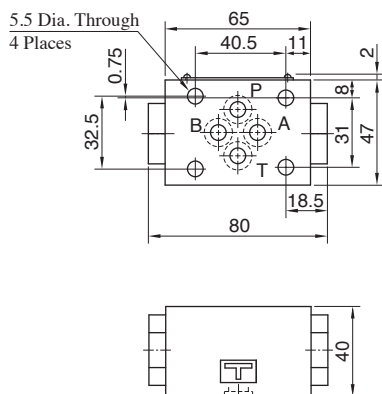
Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



## Graphic Symbol

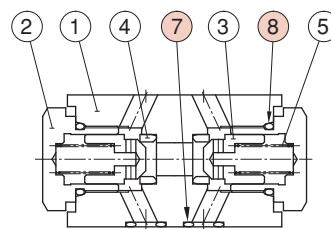


## MAC-01



Approx. Mass.....0.8 kg

## List of Seals MAC-01



Item	Name of Parts	Part Numbers	Qty.
7	O-Ring	OR NBR-90 P9-N	4
8	O-Ring	OR NBR-90 P18-N	2

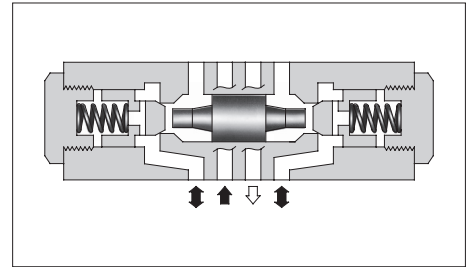
# Pilot Operated Check Modular Valves

## Specifications

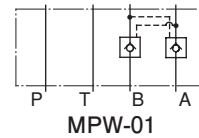
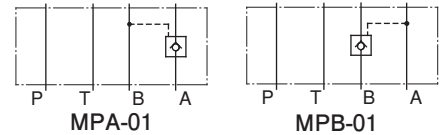
Model Numbers		Max. Operating Pressure MPa	Max. Flow L/min
Standard	MP*-01-*-70	35	60
Low Pilot Pressure Control Type	MP*-01-*-L-70		

## Model Number Designation

MPA	-01	-2	-L	-70
Series Number	Valve Size	Cracking Pressure MPa	Pilot Operation Format	Design Number
<b>MPA:</b> Pilot Operated Check Valve for A-Line <b>MPB:</b> Pilot Operated Check Valve for B-Line <b>MPW:</b> Pilot Operated Check Valve for A&B-Line	<b>01</b>	<b>0:</b> 0.035 <b>2:</b> 0.2 <b>4:</b> 0.4	<b>None:</b> Standard <b>L:</b> Low Pilot Pressure Type	<b>70</b>

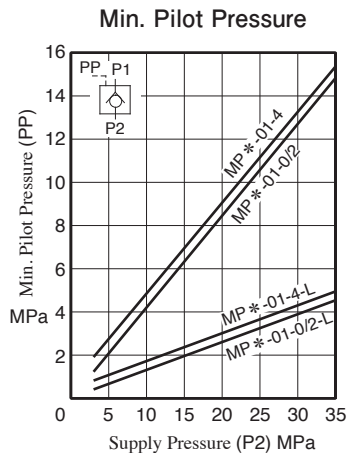
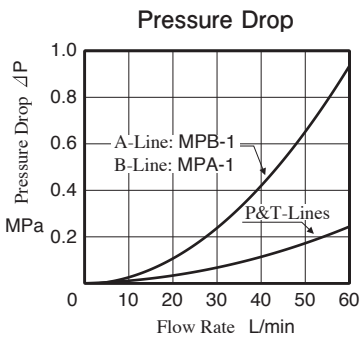
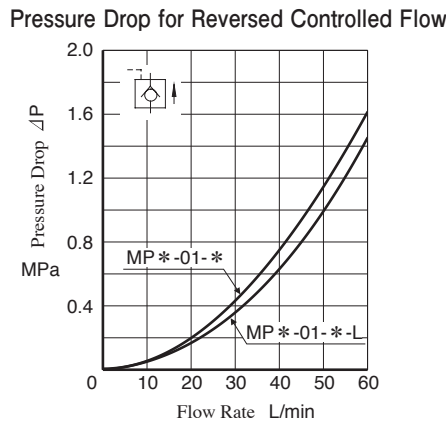
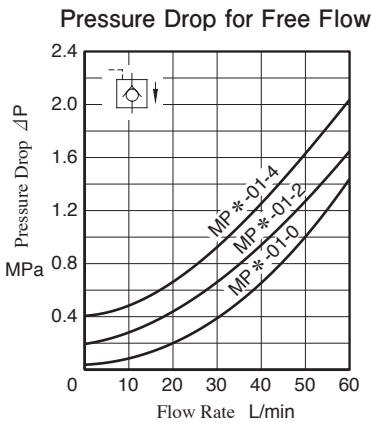


Graphic Symbols

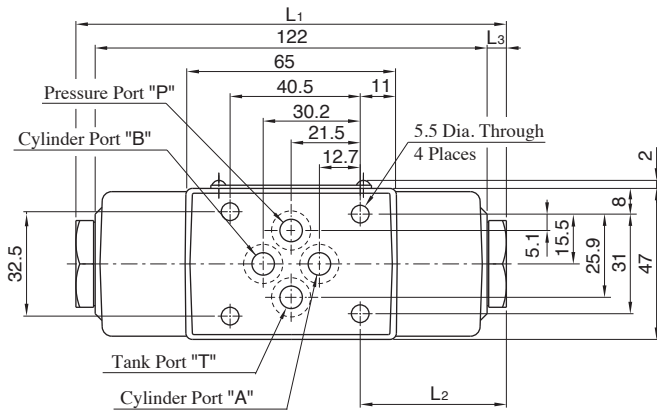


## Typical Performance Characteristics

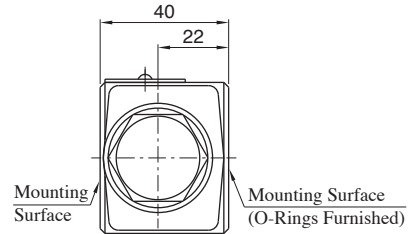
Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



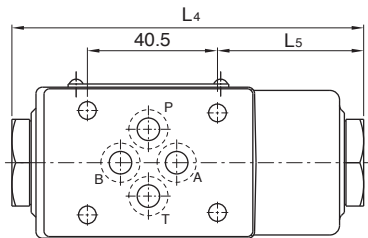
## MPW-01



Model Numbers	L1	L2	L3	Approx. Mass kg
MPW-01-*	134	45.5	6	1.4
MPW-01-*-L	142	49.5	10	1.45



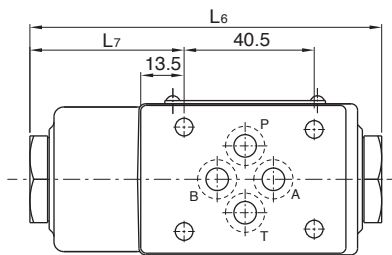
## MPA-01



Model Numbers	L4	L5	Approx. Mass kg
MPA-01-*	109.5	45.5	1.15
MPA-01-*-L	113.5	49.5	1.2

● Please refer to the drawing above (MPW-01) for other dimensions.

## MPB-01

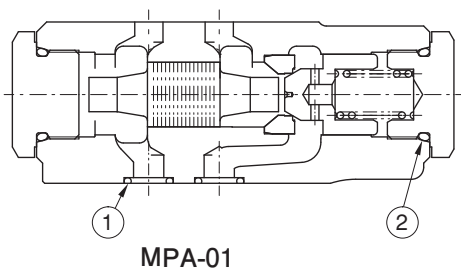


Model Numbers	L6	L7	Approx. Mass kg
MPB-01-*	109.5	48	1.15
MPB-01-*-L	113.5	52	1.2

● Please refer to the drawing above (MPW-01) for other dimensions.

## List of Seals

### MPA-01 MPB-01 MPW-01



- MPW-01 has a check valve built in the left side.
- MPW-01 has check valves built in the both left and right sides.

Item	Name of Parts	Part Numbers	Qty.
1	O-Ring	OR NBR-90 P9-N	4
2	O-Ring	OR NBR-90 P18-N	2

# End Plates

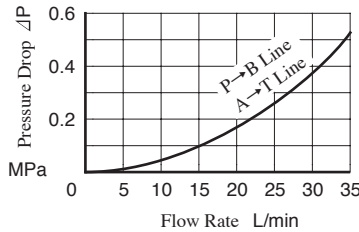
Blocking plates are used for auxiliary mounting surface or for closing unnecessary circuits.  
 Bypass plates are used for unidirectional circuits that require no solenoid operated directional valves.

## Model Number Designation

<b>MDC</b>	<b>-01</b>	<b>-A</b>	<b>-30</b>
Series Number	Plate Size	Type of Plate	Design Number
<b>MDC: End Plate</b>	<b>01</b>	<b>A: Blocking Plate</b> <b>B: Bypass Plate</b>	<b>30</b>

## Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



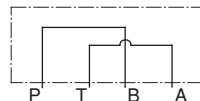
## Specifications

Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MDC-01- *-30	31.5	35

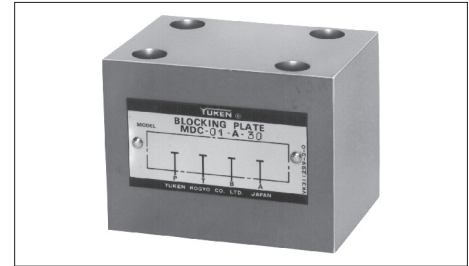
### Graphic Symbols



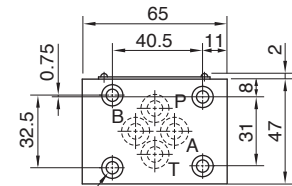
MDC-01-A



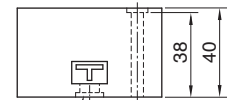
MDC-01-B



## MDC-01



5.5 Dia. Through  
9.5 Spotface 4 Places



O-Ring for Port  
(OR NBR-90 P9-N...4 Pcs.)

Approx. Mass.....1 kg

# Connecting Plates

These plates are used for detecting pressure of each line.

## Model Number Designation

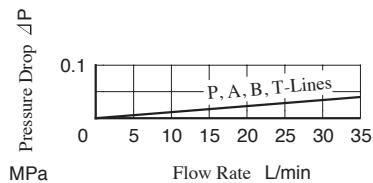
<b>MDS</b>	<b>-01</b>	<b>-PA</b>	<b>-30</b>
Series Number	Plate Size	Type of Detecting Line	Design Number
<b>MDS: Connecting Plate</b>	<b>01</b>	<b>PA: P&amp;A-Lines</b> <b>PB: P&amp;B-Lines</b> <b>AT: A&amp;T-Lines</b>	<b>30</b>

## Specifications

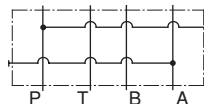
Model Numbers	Max. Operating Pressure MPa	Max. Flow L/min
MDS-01- *-30	31.5	35

## Pressure Drop

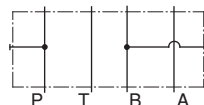
Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s, Specific Gravity 0.850



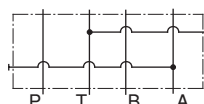
### Graphic Symbols



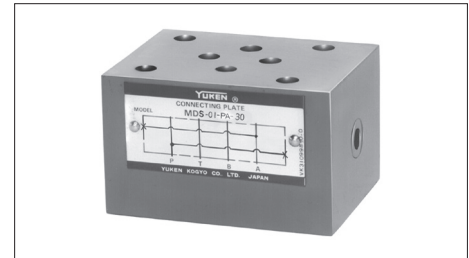
MDS-01-PA



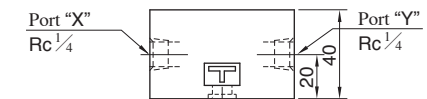
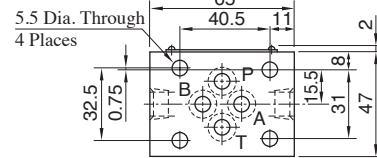
MDS-01-PB



MDS-01-AT



## MDS-01



O-Ring for Port  
(OR NBR-90 P9-N: 4 Pcs.)

Approx. Mass.....0.8 kg

Model Numbers	Pressure Detecting Line	
	Port "X"	Port "Y"
MDS-01-PA	P-Line	A-Line
MDS-01-PB	B-Line	P-Line
MDS-01-AT	T-Line	A-Line

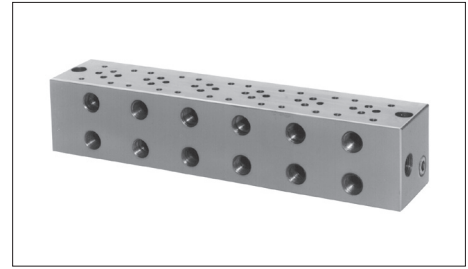
# Base Plates For Modular Valves

## Specifications

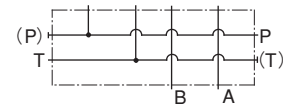
Max. Operating Pressure.....25 MPa

## Model Number Designation

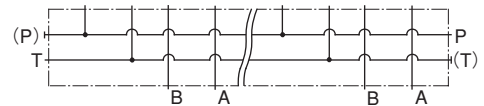
MMC	-01	-6	-40
Series Number	Plate Size	Number of Stations	Design Number
MMC: Base Plate	01	1: 1 Station 2: 2 Stations 3: 3 Stations 4: 4 Stations 5: 5 Stations 6: 6 Stations 7: 7 Stations 8: 8 Stations 9: 9 Stations 10: 10 Stations	40



Graphic Symbols

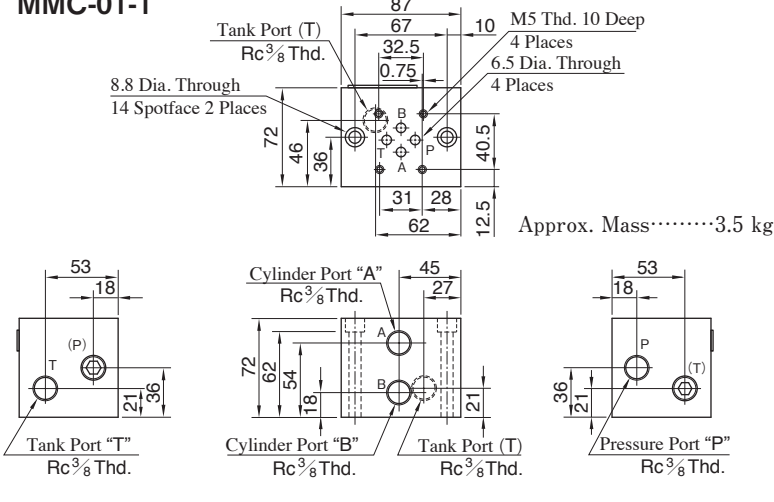


MMC-01-1



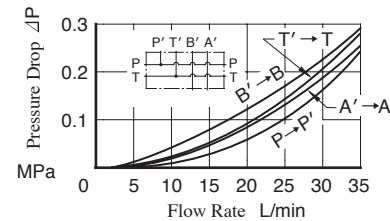
MMC-01-2~10

### MMC-01-1

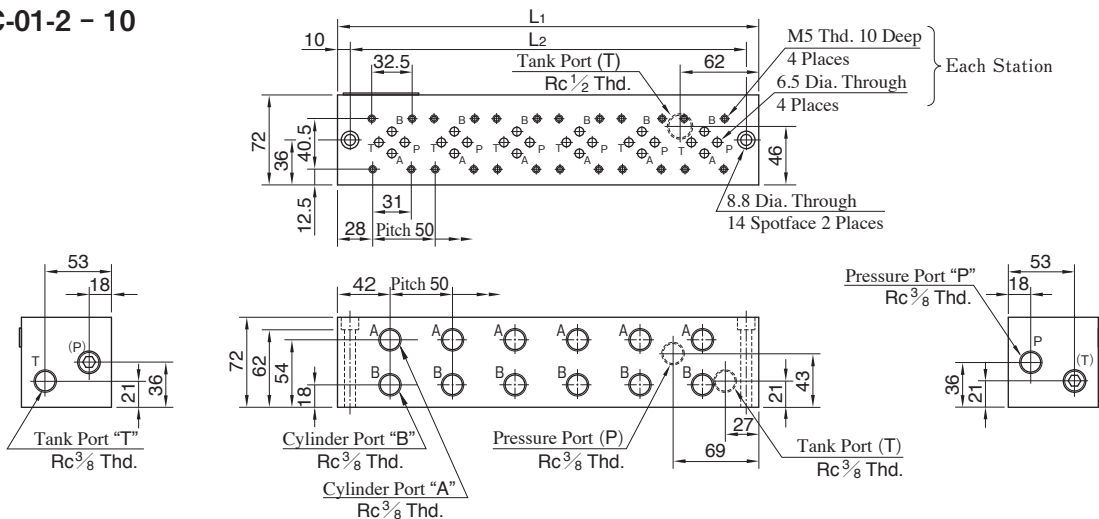


## Pressure Drop

Hydraulic Fluid: Viscosity 35 mm<sup>2</sup>/s,  
Specific Gravity 0.850



### MMC-01-2 - 10



Model Numbers	L1	L2	Mass kg
MMC-01-2	137	117	5.5
MMC-01-3	187	167	7.0
MMC-01-4	237	217	8.5
MMC-01-5	287	267	10.0
MMC-01-6	337	317	11.5

Model Numbers	L1	L2	Mass kg
MMC-01- 7	387	367	13.0
MMC-01- 8	437	417	14.5
MMC-01- 9	487	467	16.0
MMC-01-10	537	517	17.5

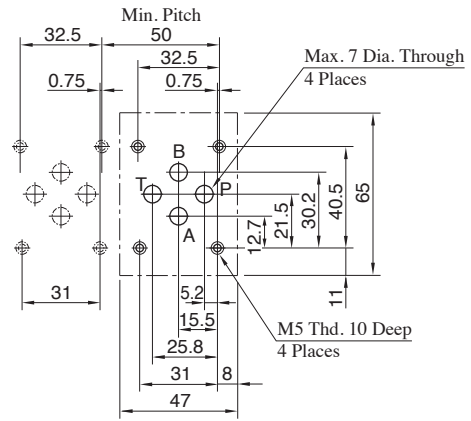
01 Series Modular Valves

**■ Instructions**

- Port Used: Base plate has three (two, in case of 1 station type) pressure port "P"s and four tank port "T"s. Any one of these ports or two or more ports may be used. However, please note that the ports marked with (P) or (T) in the drawing are normally plugged. Remove the plugs when using such ports. Make sure that ports that are not currently used are properly plugged.

**■ Interface Mounting Surface Dimensions for 01 Series Modular Valve**

When standard base plates (MMC-01) are not used, the mounting surface described below must be prepared. The mounting surface should have a good machined finish. (ⓁⓂ)



## Mounting Bolt Kits For Modular Valves

Valves are mounted with four 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 bolt kit, be sure to give the bolt kit model number from the table below.

### Model Number Designation

MBK	-01	-02	-70
Series Number	Size of Modular Valve	Bolt Number	Design Number
MBK : Bolt Kits for Modular Valves	01	01, 02, 03, 04, 05 (Refer to the following chart)	70

### Bolt Kits Selection Chart

Model Numbers	Quantity of valves to be stacked			Approx. Mass g	Max. Operating Pressure MPa
	Solenoid Operated Directional Valve (*-DSG-01)	End Plate (MDC-01)	Modular Valve & Connecting Plate (M*-01)★2		
MBK-01-01-70	1	0	1	85	35
	0	1			
MBK-01-02-70	1	0	2	110	35
	0	1			
MBK-01-03-70	1	0	3	135	35
	0	1			
MBK-01-04-70★1	1	0	4	160	25
	0	1			
MBK-01-05-70	1	0	0	32	35
	0	1			

★1. In case of MBK-01-04-70, operating pressure is restricted at 25 MPa or less.

★2. Two Pressure Reducing Valve(MRDP-01), that height of tightening position is equal to 2 pieces of other modular valves, so that if use Two Pressure Reducing Valves, add 1 piece to the actual using quantity.



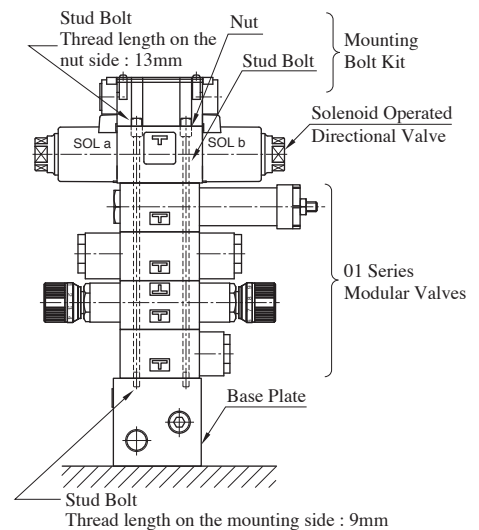
### Bolt Kit Composition

Stud Bolt..... 4 Pcs. } 1 Set  
Nut ..... 4 Pcs. }

Note: In case of bolt kit model number having "05", four hexagon socket head cap screws only.

### Tightening Torque:

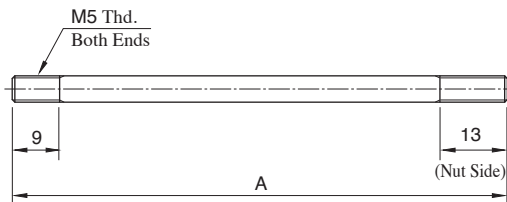
Operating Pressure MPa	Tightening Torque Nm
25 or less	5-7
More than 25	6-7



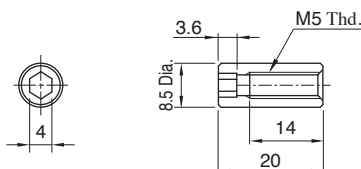
Stacking Example

### MBK-01

#### Stud Bolt



#### Nut



Bolt Numbers	A mm
01	98
02	138
03	178
04	218
05	Socket Head Cap Screw M5x45 L

01 Series Modular Valves

## ■ Interchangeability in Installation between Current and New Design

The following models of 01 Series Modular Valves have changed to 70 design numbers model to operate higher pressure and modification for large flow use.

Name	Model Numbers
Relief Modular Valves	MB * -01- * - * -70
Reducing Modular Valves	MR * -01- * - * -70
Sequence Modular Valves	MHP-01- * - * -70
Counterbalance Modular Valves	MHA/MHB-01- * -70
Throttle and Check Modular Valves	MS * -01- * * -70
Check Modular Valves	MC * -01- * -70
Pilot Operated Check Modular Valves	MP * -01- * - * -70
Bolt Kits	MBK-01- * -70

### ● Major Changes

- (1) Max. Operating Pressure (35MPa) & Max. Flow have substantially increased respectively.
- (2) Possible to select “B” port side of the pressure adjustment screw direction about 3 models below.
  - ① Relief Modular Valves (only for P-Line)
  - ② Reducing Modular Valves (for all P&A&B-Line)
  - ③ Sequence Modular Valves
- (3) Add B-Line for Counterbalance Modular Valves.
- (4) Selectable low pilot operation type as standard model for Pilot Operated Check Modular Valves.

### ● Mounting Interchangeability

Interchangeability	Details
Yes	<ul style="list-style-type: none"> <li>· Mounting surface is not changed from current models.</li> <li>· If use the adjustment pressure as more than 25 MPa, have to select 70 design bolt kits (MBK-01). Mounting bolt kits of 70 design, the length of both sides screw is different, so refer to the assembly example about 01 series modular valves on page F-41.</li> </ul>

### ● Specifications

#### Max. Operating Pressure

Name	Current		New	
	Model Numbers	Max. Operating Pressure MPa	Model Numbers	Max. Operating Pressure MPa
Relief Modular Valves	MB * -01- * -30	21	MB * -01- * - * -70	35
Reducing Modular Valves	MR * -01- * -30	31.5	MR * -01- * - * -70	
Sequence Modular Valves	MHP-01- * -30	25	MHP-01- * - * -70	
Counterbalance Modular Valves	MHA-01- * -30	25	MHA/MHB-01- * -70	
Throttle and Check Modular Valves	MS * -01- * * -50	31.5	MS * -01- * * -70	
Check Modular Valves	MC * -01- * -30	31.5	MC * -01- * -70	
Pilot Operated Check Modular Valves	MP * -01- * -40	31.5	MP * -01- * -70	
	MP * -01- * -4001	31.5	MP * -01- * -L-70	



## Max. Flow

Name	Current		New	
	Model Numbers	Max. Flow L/min	Model Numbers	Max. Flow L/min
Relief Modular Valves	MB * -01- * -30	35	MB * -01- * - * -70	60
Reducing Modular Valves	MR * -01- * -30	35	MR * -01- * - * -70	60
Sequence Modular Valves	MHP-01- * -30	35	MHP-01- * - * -70	60
Counterbalance Modular Valves	MHA-01- * -30	35	MHA/MHB-01- * -70	60
Throttle and Check Modular Valves	MS * -01- * * -50	60	MS * -01- * * -70	80
Check Modular Valves	MC * -01- * -30	35	MC * -01- * -70	60
Pilot Operated Check Modular Valves	MP * -01- * -40	35	MP * -01- * -70	60
	MP * -01- * -4001	35	MP * -01- * -L-70	60

## ● Model Number Designation

### Function Addition

Name	Model Numbers	Additional Functions
Relief Modular Valves	MBP-01- * -B-70	Direction of the pressure adjustment screw, selectable B port side
Reducing Modular Valves	MR * -01- * -B-70	Direction of the pressure adjustment screw, selectable B port side
Sequence Modular Valves	MHP-01- * -B-70	Direction of the pressure adjustment screw, selectable B port side
Counterbalance Modular Valves	MHB-01- * -70	Add the Counterbalance Modular Valves for B-Line
Pilot Operated Check Modular Valves	MP * -01- * -L-70	Low pilot operation type, selectable as standard product

### Pressure Adjustment Range

Name	Current		New	
	Model Numbers	Pres. Adj. Range MPa	Model Numbers	Pres. Adj. Range MPa
Relief Modular Valves	MB * -01- * -30	<b>C:</b> ★-14 <b>H:</b> 7-21	MB * -01- * - * -70	<b>B:</b> ★-7 <b>C:</b> 3.5-14 <b>H:</b> 7-21 <b>K:</b> 14-35
Reducing Modular Valves	MR * -01- * -30	<b>B:</b> ★-7 <b>C:</b> 3.5-14 <b>H:</b> 7-21	MR * -01- * - * -70	<b>A:</b> ★-3.5 <b>B:</b> 0.8-7 <b>C:</b> 3.5-14 <b>H:</b> 7-21
Sequence Modular Valves	MHP-01- * -30	<b>C:</b> ★-14 <b>H:</b> 7-21	MHP-01- * - * -70	<b>B:</b> ★-7 <b>C:</b> 3.5-14 <b>H:</b> 7-21 <b>K:</b> 14-35
Counterbalance Modular Valves	MHA-01- * -30		MHA/MHB-01- * -70	

### Cracking Pressure

Name	Current		New	
	Model Numbers	Cracking Pressure MPa	Model Numbers	Cracking Pressure MPa
Pilot Operated Check Modular Valves	MP * -01- * -40	<b>2:</b> 0.2 <b>4:</b> 0.4	MP * -01- * -70	<b>0:</b> 0.035 <b>2:</b> 0.2 <b>4:</b> 0.4
	MP * -01- * -4001		MP * -01- * -L-70	

## ● Typical Performance Characteristics

Characteristics of all models have been changed.

●Approx. Mass

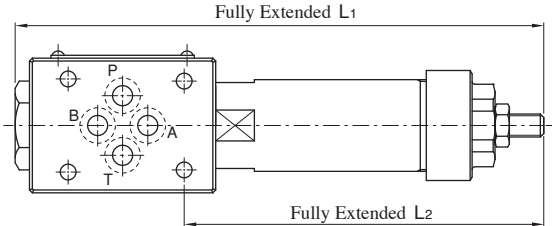
Name	Current		New	
	Model Numbers	Approx. Mass kg	Model Numbers	Approx. Mass kg
Relief Modular Valves	MB * -01- * -30	1.1	MBP-01-B/C-70 MBP-01-B/C-B-70 MBA-01-B/C-70 MBB-01-B/C-70	1.15
			MBP-01-H-70 MBP-01-H-B-70 MBA-01-H-70 MBB-01-H-70	1.25
Reducing Modular Valves	MR * -01-B/C-30	1.1	MR * -01-B/C-70	1.15
	MR * -01-H-30		MR * -01-H-70	1.25
Sequence Modular Valves	MHP-01- * -30	1.1	MHP-01-B/C- * -70	1.45
			MHP-01-H- * -70	1.55
Counterbalance Modular Valves	MHA-01- * -30	1.3	MHA-01-B/C- * -70	1.65
			MHB-01-B/C- * -70	1.65
			MHA/MHB-01-H- * -70	1.75
Throttle and Check Modular Valves	MSA/MSB-01- * * -50	1.3	MSA/MSB-01- * * -70	1.15
	MSW-01- * * -50	1.5	MSW-01- * * -70	1.3
Check Modular Valves	MCP/MCT-01- * -30	1.1	MCP/MCT-01- * -70	1.0
	MCA/MCB/MCW-01- * -30	1.3	MCA/MCB/MCW-01- * -70	1.2
Pilot Operated Check Modular Valves	MP * -01- * -40/4001	1.2	MPA/MPB-01- * -70	1.15
			MPW-01- * -70	1.4
			MPA/MPB-01- * -L-70	1.2
			MPW-01- * -L-70	1.45
Mounting Bolt Kits	MBK-01-01-30	0.060	MBK-01-01-70	0.085
	MBK-01-02-30	0.100	MBK-01-02-70	0.110
	MBK-01-03-30	0.130	MBK-01-03-70	0.135
	MBK-01-05-30	0.040	MBK-01-05-70	0.032

## ● Dimensions

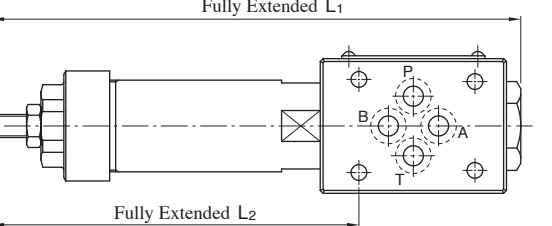
As of fully extended dimensions, height (40mm) and depth (47mm) are same between current and new models. Width is same except for the models below.

### (1) Relief Modular Valves

**MBP-01**  
**MBB-01**



**MBP-01- \*-B**  
**MBA-01**

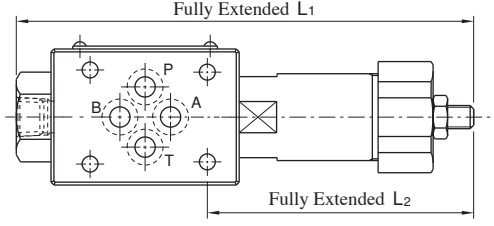


Model Numbers	L1	L2
MBP-01-B-70	151	92
MBB-01-B-70		
MBP-01-K-70	184.5	125.5
MBB-01-K-70		
MBP-01-B-B-70	151	94.5
MBP-01-C-B-70		
MBP-01-H-B-70	166.5	110
MBA-01-B-70	151	94.5
MBP-01-K-B-70	184.5	128
MBA-01-K-B-70		

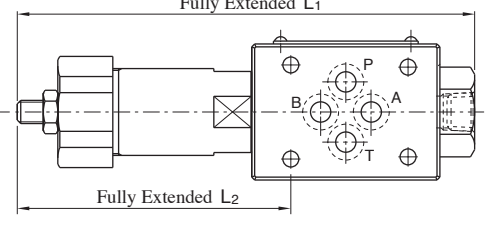
★1. Pressure adjustment range “B”, “K” newly added.  
★2. Pressure adjustment screw direction B port side, newly added for P-Line.

### (2) Reducing Modular Valves

**MR \*-01**



**MR \*-01- \*-B**

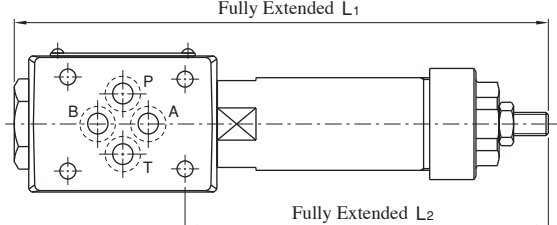


Model Numbers	L1	L2
MRA-01-A-70	162.5	96.5
MR *-01-A-B-70	162.5	99
MR *-01-B-B-70	158	94.5
MR *-01-C-B-70		
MR *-01-H-B-70	173.5	110

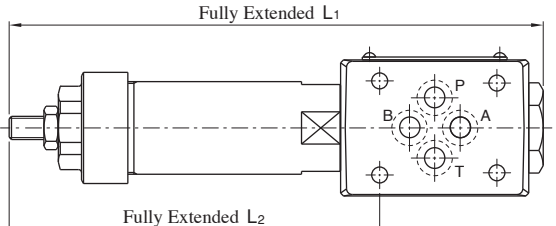
★1. Pressure adjustment range “A” newly added.  
★2. Pressure adjustment screw direction B port side, newly added.

### (3) Sequence Modular Valves

**MHP-01**



**MHP-01- \*-B**



Model Numbers	L1	L2
MHP-01-B-70	151	92
MHP-01-K-70	184.5	125.5
MHP-01-B-B-70	151	94.5
MHP-01-C-B-70		
MHP-01-H-B-70	166.5	110
MBP-01-K-B-70	184.5	128

★1. Pressure adjustment range “B”, “K” newly added.  
★2. Pressure adjustment screw direction B port side, newly added.

(4) Counterbalance Modular Valves

### MHA-01

Model Numbers		L1	L2
New	MHA-01-B-70	171	112
	MHA-01-K-70	207.2	148.2

★Pressure adjustment range “B”, “K” newly added.

### MHB-01

Model Numbers		L1	L2
New	MHB-01-B-70	171	114.4
	MHB-01-C-70		
	MHB-01-H-70	186.5	129.9
	MHB-01-K-70	207.2	150.6

★Newly added for B-Line.

(5) Check Modular Valves

### MCP/MCT-01

Model Numbers		L1
Current	MCP/MCT-01- *-30	90
New	MCP/MCT-01- *-70	90.5

(6) Pilot Operated Check Modular Valves

### MPA-01

### MPB-01

Model Numbers		L1
Current	MPA/MPB-01- *-40	134
	MPA/MPB-01- *-4001	138
New	MPA/MPB-01- *-70	109.5
	MPA/MPB-01- *-L-70	113.5

(7) Mounting Bolt Kits

● Stud Bolt

● Nut

Model Numbers		L1	L2	L3	L4
Current	MBK-01-01-30	94	9	15	9
	MBK-01-02-30	134			
	MBK-01-03-30	174			
	MBK-01-04-30	214			
New	MBK-01-01-70	98	13	20	14
	MBK-01-02-70	138			
	MBK-01-03-70	178			
	MBK-01-04-70	218			