



MODULES

YUKEN's Modular Valves are stack type valves, and require no piping. They not only rationalise system build, but they also meet the technical requirements for a variety of hydraulic systems. Stacking systems is a new era in hydraulics.

The valves have standardized mounting surface conforming to ISO 4401 and optimum thickness for each size. Any hydraulic circuits can be easily composed by stacking the valves with mounting bolts. The valves can be used widely for hydraulic systems for various industries such as machine tools, special purpose machines, ships and steel mill equipment.

Valve Type	Max. Operating Pressure MPa (PSI)	Maximum Flow												Page
		U.S.GPM												
		L/min												
005 Series Modular Valves	25 (3630)	005												517
01 Series Modular Valves	31.5 (4570)	01 01★												535
03 Series Modular Valves	25 (3630)	03 03★												577
06 Series Modular Valves	25 (3630)	06												619
10 Series Modular Valves	25 (3630)	10												633

★ Maximum Flow for Throttle and Check Modular Valves.

High Pressure, High Flow Rate Modular Valves

Features

1. Installation and mounting space can be minimized.
2. No special skill is required for assembly and any addition or alteration of the hydraulic circuit can be made quickly and easily.
3. Problems such as oil-leaks, vibration and noise which may be caused by piping are minimized, increasing the reliability of the hydraulic system.
4. Maintenance and system check-ups can be easily carried out as they are normally installed in stackable units.

Specifications

Series	Valve Size	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)	Number of Stack ^{★2}
005 Series	—	25 (3630)	15 (3.96)	1 to 4 stacks
01 Series	1/8	31.5 (4570)	35 [60] ^{★1} (9.24 [15.9]) ^{★1}	1 to 5 stacks ^{★3}
03 Series	3/8	25 [31.5] ^{★4} (3630 [4570]) ^{★4}	70 [120] ^{★1} (18.5 [31.7]) ^{★1}	1 to 5 stacks
06 Series	3/4	25 (3630)	500 (132)	
10 Series	1-1/4	25 (3630)	800 (211)	

★1. The values in parentheses represent the max. flow rates for throttle modular valves (MSP) and throttle check modular valves (MSA/MSB/MSW).

★2. Solenoid operated directional valve is included in the number of stack.

★3. Solenoid operated directional valve is included in the number of stack. If the working pressure is above 25 MPa (3630 PSI), the maximum number of layers in a stack is 4 including the solenoid operated directional valve.

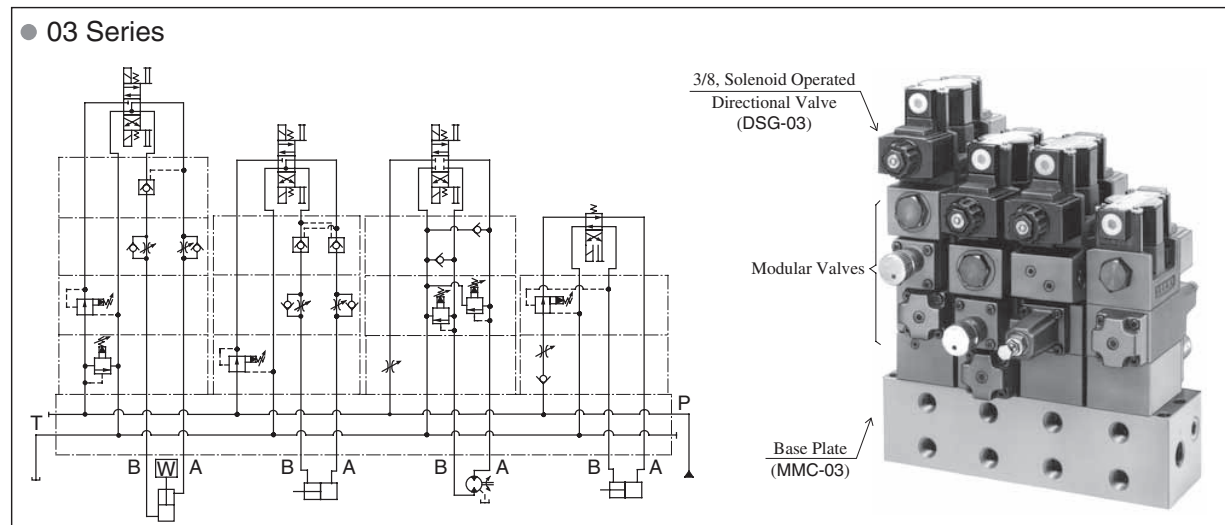
★4. The value range in parentheses represents the tightening torque requirements if the operating pressure is above 25 MPa (3630 PSI).

Mounting Surface

Mounting surface dimensions conform to ISO 4401 (Hydraulic fluid power four port directional control valves mounting surface) as listed in the table below.

Name of Valve	ISO Mtg. Surface Code No.
01 Series Modular Valve	ISO 4401-AB-03-4-A
03 Series Modular Valve	ISO 4401-AC-05-4-A
06 Series Modular Valve	ISO 4401-AE-08-4-A
10 Series Modular Valve	ISO 4401-AF-10-4-A

Stacking Example



1/8 Modular Valves

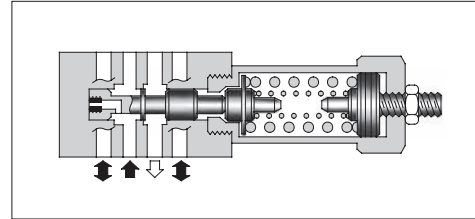
Type of Modular Valve

Class	Model Numbers	Graphic Symbols	Page	Class	Model Numbers	Graphic Symbols	Page
Pressure Control Valves	Solenoid Operated Directional Valve (S-)DSG-01-***-70/7090 E-DSG-01-***-D60/6090 T-DSG-01-***-D24*-70/7090 G-DSG-01-***-50/5090		344 378 379 412	Flow Control Valves	Throttle Valves (for "P-Line") MSP-01-50		559
	Relief Valves (for "P-Line") MBP-01-**-30		536		Check and Throttle Valves (for "P-Line") MSCP-01-30		561
	Relief Valves (for "A-Line") MBA-01-**-30		536		Throttle and Check Valves (for "A-Line", Metre-out) MSA-01-X-50		563
	Relief Valves (for "B-Line") MBB-01-**-30		536		Throttle and Check Valves (for "A-Line", Metre-in) MSA-01-Y-50		563
	Reducing Valves (for "P-Line") MRP-01-**-30/3090		539		Throttle and Check Valves (for "B-Line", Metre-out) MSB-01-X-50		563
	Reducing Valves (for "A-Line") MRA-01-**-30/3090		539		Throttle and Check Valves (for "B-Line", Metre-in) MSB-01-Y-50		563
	Reducing Valves (for "B-Line") MRB-01-**-30/3090		539		Throttle and Check Valves (for "A&B-Lines", Metre-out) MSW-01-X-50		563
	Brake Valves MBR-01-**-30		542		Throttle and Check Valves (for "A&B-Lines", Metre-in) MSW-01-Y-50		563
	Sequence Valves (for "P-Line") MHP-01-**-30		544		Throttle and Check Valves (for "A&B-Lines", Metre-out, Metre-in) MSW-01-XY-50		563
	Counterbalance Valves (for "A-Line") MHA-01-**-30		544		Throttle and Check Valves (for "A&B-Lines", Metre-in, Metre-out) MSW-01-YX-50		563
	Pressure Switch Valves (for "P-Line") MJP-01-**-10		547	Directional Control Valves	Check Valves (for "P-Line") MCP-01-**-30		567
	Pressure Switch Valves (for "A-Line") MJA-01-**-10		547		Check Valves (for "T-Line") MCT-01-**-30		567
	Pressure Switch Valves (for "B-Line") MJB-01-**-10		547		Anti-Cavitation Valves MAC-01-30		568
	Flow Control Valves (for "P-Line") MFP-01-10		551		Pilot Operated Check Valves (for "A-Line") MPA-01-**-40/4001		569
Flow Control Valves	Flow Control and Check Valves (for "A-Line", Metre-out) MFA-01-X-10		551	Directional Control Valves	Pilot Operated Check Valves (for "B-Line") MPB-01-**-40/4001		569
	Flow Control and Check Valves (for "A-Line", Metre-in) MFA-01-Y-10		551		Pilot Operated Check Valves (for "A&B-Lines") MPW-01-**-40/4001		569
	Flow Control and Check Valves (for "B-Line", Metre-out) MFB-01-X-10		551	Modular Plates and Mounting Bolts	End Plates (Blocking plates) MDC-01-A-30		571
	Flow Control and Check Valves (for "B-Line", Metre-in) MFB-01-Y-10		551		End Plates (Bypass plates) MDC-01-B-30		571
	Flow Control and Check Valves (for "A&B-Lines", Metre-out) MFW-01-X-10		551		Connecting Plates (for "P&A-Lines") MDS-01-PA-30/3090		572
	Flow Control and Check Valves (for "A&B-Lines", Metre-in) MFW-01-Y-10		551		Connecting Plates (for "P&B-Lines") MDS-01-PB-30/3090		572
	Temperature Compensated Throttle and Check Valves (for "A-Line", Metre-out) MSTA-01-X-10		555		Connecting Plates (for "A&T-Lines") MDS-01-AT-30/3090		572
	Temperature Compensated Throttle and Check Valves (for "B-Line", Metre-out) MSTB-01-X-10		555		Base Plates MMC-01-**-40/4080/4090		573
	Temperature Compensated Throttle and Check Valves (for "A&B-Lines", Metre-out) MSTW-01-X-10		555		Bolt Kits MBK-01-**-30/3090		576

Relief Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MBP-01-*-30 MBA-01-*-30 MBB-01-*-30	21 (3050)	35 (9.25)




Model Number Designation

F-	MBP	-01	-C	-30	*
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MBP: Relief Valve for P-Line MBA: Relief Valve for A-Line MBB: Relief Valve for B-Line	01	C: *-14 ★ ¹ (*-2030) H: 7-21 (1020-3050)	30	Refer to ★ ²

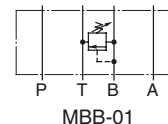
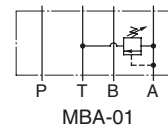
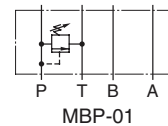
★¹. See the "Minimum Adjustment Pressure" of the next page for the item marked *.

★². Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

Instructions

- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of the [next 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 .

Graphic Symbols

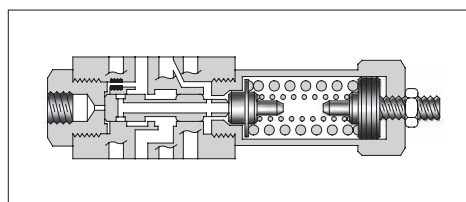
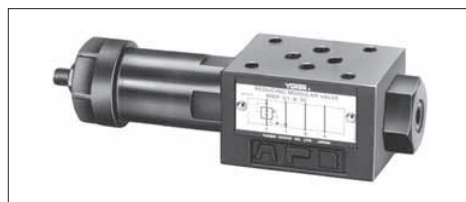


Reducing Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa(PaSI)	Max. Flow L/min (U.S.GPM)
MRP-01-∗-30/3090 MRA-01-∗-30/3090 MRB-01-∗-30/3090	31.5 (4570)	35 (9.25) ∗

★ If the pressure is set below 1.9 MPa (280 PSI), the maximum flow is limited. See the minimum adjustment pressure vs. maximum flow characteristics and during use, stay within the shaded zone on the graph.



Model Number Designation

F-	MRP	-01	-B	-30	∗
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MRP : Reducing Valve for P-Line MRA : Reducing Valve for A-Line MRB : Reducing Valve for B-Line	01	B : ∗-7 (∗-1020) ∗ ¹ C : 3.5-14 (510-2030) H : 7-21 (1020-3050)	30	Refer to ★ ²

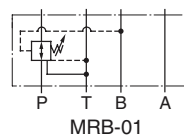
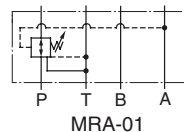
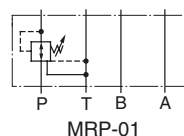
★ ¹. See the "Minimum Adjustment Pressure vs. Maximum Flow" of the next page for the item marked ∗.

★ ². Design Standards: None Japanese Standard "JIS" and European Design Standard
90 N. American Design Standard

Instructions

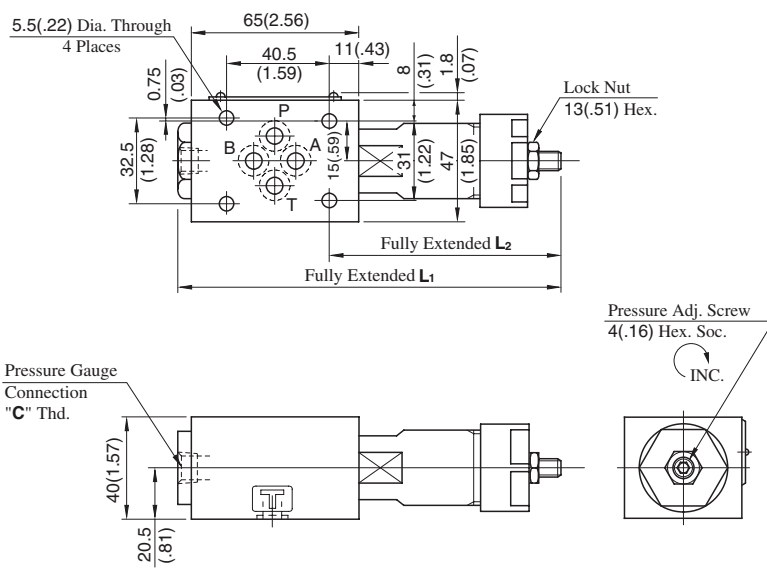
- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of the [next page](#). This back pressure should include the value of the T-line pressure drop characteristics of the valves stacked to the base plate side 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.

Graphic Symbols



MRP-01-*-30/3090
MRA-01-*-30/3090
MRB-01-*-30/3090

DIMENSIONS IN
MILLIMETRES (INCHES)



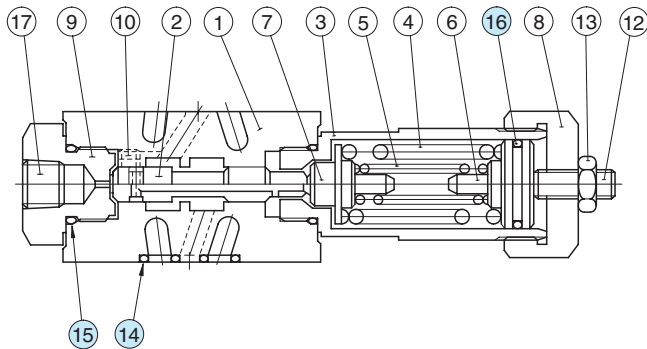
Model No.	L ₁	L ₂
MR*-01-B C	158 (6.22)	92 (3.62)
MR*-01-H	173.5 (6.83)	107.5 (4.23)

Model Numbers	Thread Size "C" Thd.
MR*-01-*-30	Rc 1/4 = 1/4 BSP.Tr
MR*-01-*-3090	1/4 NPT

Approx. Mass.....1.1 kg (2.4 lbs.)

■ Spare Parts List

MRP-01-*-30/3090
MRA-01-*-30/3090
MRB-01-*-30/3090



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
14	O-Ring	SO-NB-P9	4	Included in Seal Kit Kit No.: KS-MBP-01-30
15	O-Ring	SO-NB-P18	2	
16	O-Ring	SO-NA-P20	1	

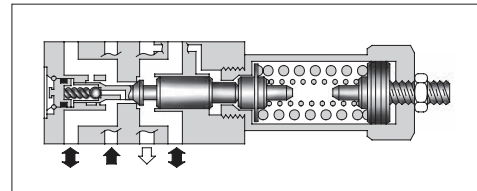
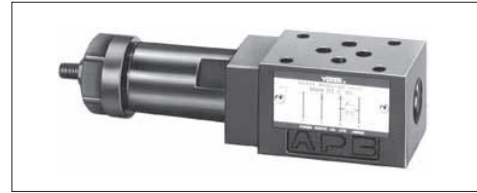
F

01 Series Modular Valves

Brake Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MBR-01-*-30	25 (3630)	35 (9.25)



Model Number Designation

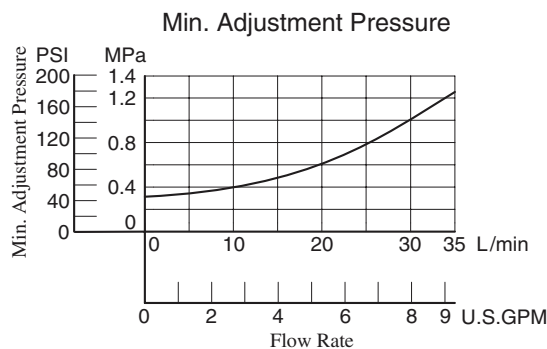
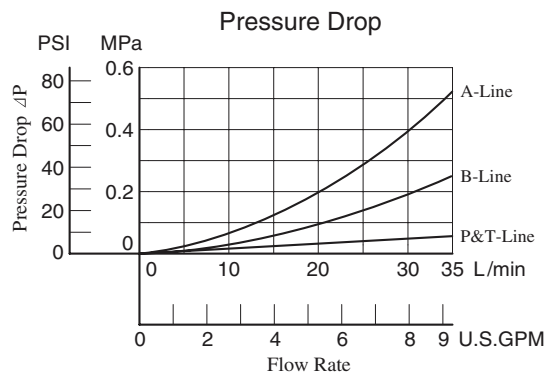
F-	MBR	-01	-C	-30	*
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MBR: Brake Valve	01	C: *-14 * ¹ (* -2030) H: 7-21 (1020-3050)	30	Refer to ★ ²

★¹. See the "Minimum Adjustment Pressure" for the item marked *.

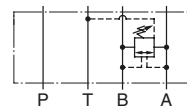
★². Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Graphic Symbol

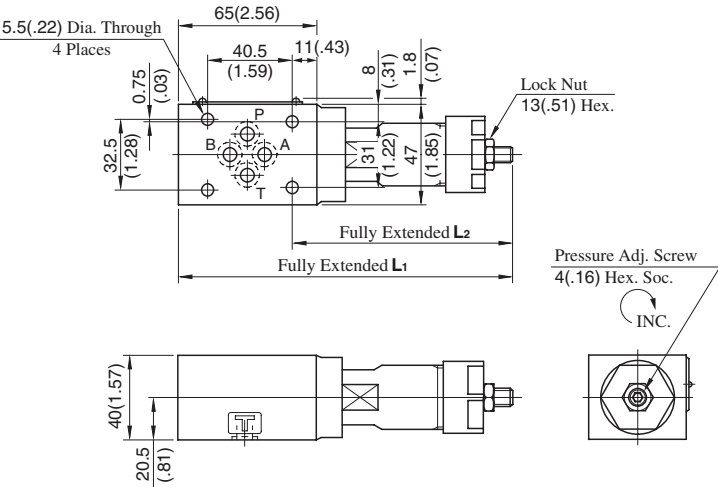


Instructions

- 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-∗-30

DIMENSIONS IN
MILLIMETRES (INCHES)

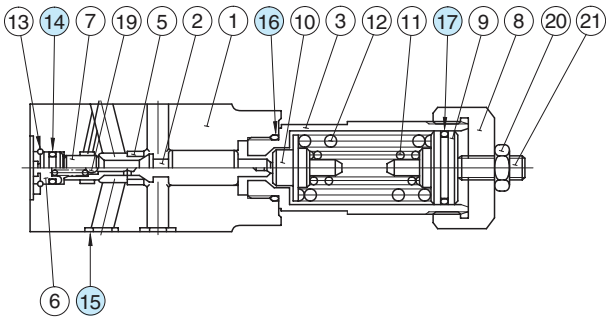


Model No.	L ₁	L ₂
MBR-01-C	161 (6.34)	107 (4.21)
MBR-01-H	176.5 (6.95)	122.5 (4.82)

Approx. Mass.....1.3 kg (2.9 lbs.)

■ Spare Parts List

MBR-01-∗-30



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
14	O-Ring	SO-NB-P7	1	Included in Seal Kit Kit No.: KS-MBR-01-30
15	O-Ring	SO-NB-P9	4	
16	O-Ring	SO-NB-P18	1	
17	O-Ring	SO-NA-P20	1	

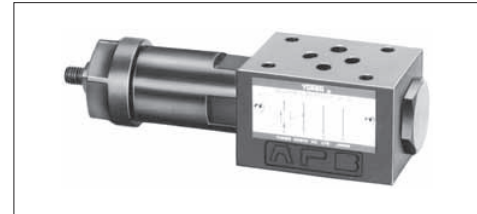
F

01 Series Modular Valves

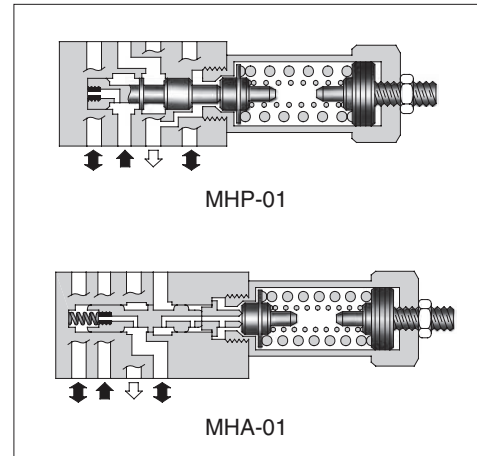
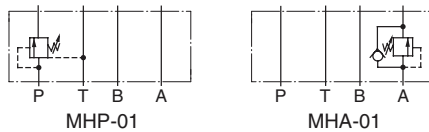
Sequence Modular Valves/Counterbalance Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)	Free Flow L/min (U.S.GPM)
MHP-01-*-30	25 (3630)	35 (9.25)	—
MHA-01-*-30			35 (9.25)



Graphic Symbols



Model Number Designation

F-	MHP	-01	-C	-30	*
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MHP: Sequence Valve for P-Line MHB: Counterbalance Valve for A-Line	01	C: *-14 ★ ¹ (*-2030) H: 7-21 (1020-3050)	30	Refer to ★ ²

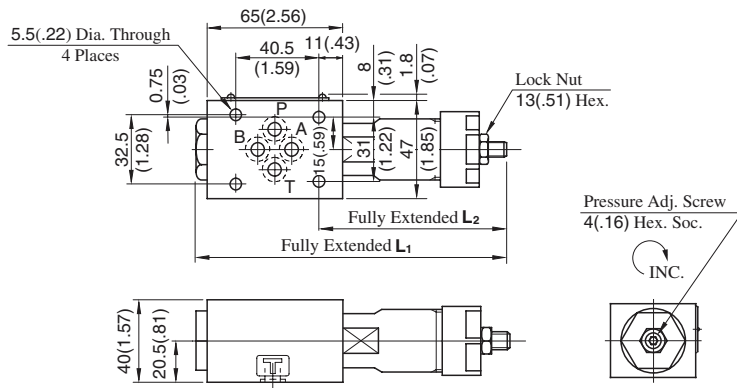
★¹. See the "Minimum Adjustment Pressure" of the next page for the item marked *.

★². Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

Instructions

- The minimum adjustment pressure (MHP-01) equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of the [next 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.
- The minimum adjustment pressure (MHA-01) equals the value obtained from the minimum adjustment pressure characteristics plus the outlet-side back pressure of the valve on the [next page](#). The outlet-side back pressure should include the values of the A-line and T-line pressure drop characteristics of the valves to be stacked due to the valve with internal drain.

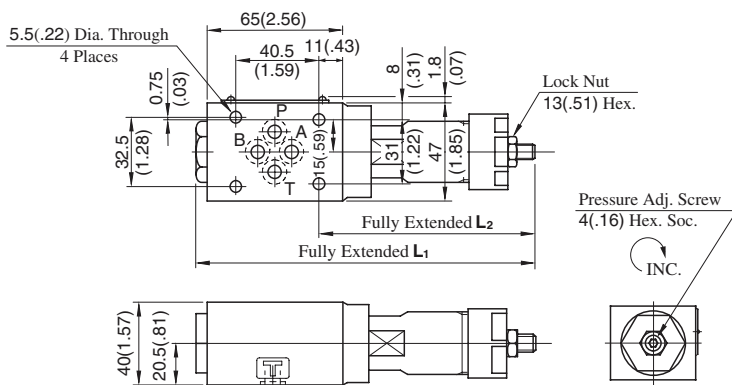
MHP-01-*-30



Model Numbers	L_1	L_2
MHP-01-C	151 (5.94)	92 (3.62)
MHP-01-H	166.5 (6.56)	107.5 (4.23)

Approx. Mass.....1.1 kg (2.4 lbs.)

MHA-01-*-30

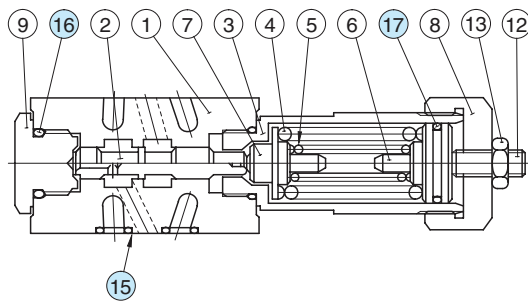


Model Numbers	L ₁	L ₂
MHA-01-C	171 (6.73)	112 (4.41)
MHA-01-H	186.5 (7.34)	127.5 (5.02)

Approx. Mass.....1.3 kg (2.9 lbs.)

■ Spare Parts List

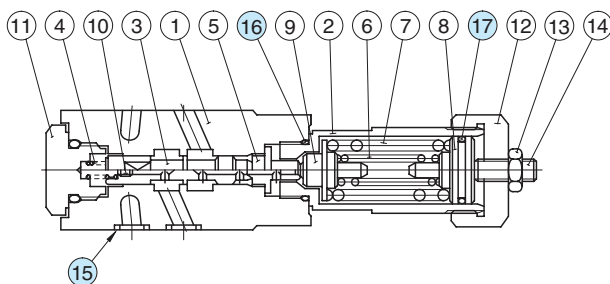
MHP-01-*-30



- List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
15	O-Ring	SO-NB-P9	4	Included in Seal Kit Kit No.: KS-MBP-01-30
16	O-Ring	SO-NB-P18	2	
17	O-Ring	SO-NA-P20	1	

MHA-01-*-30



- List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
15	O-Ring	SO-NB-P9	4	Included in Seal Kit Kit No.: KS-MHA-01-30
16	O-Ring	SO-NB-P18	2	
17	O-Ring	SO-NB-P20	1	

Throttle Modular Valves

Specifications

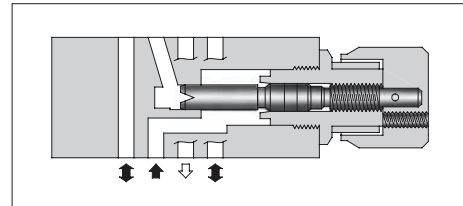
Model Number	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MSP-01-50	31.5 (4570)	60 (15.9) *

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

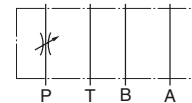
Model Number Designation

F-	MSP	-01	-50	*
Special Seals	Series Number	Valve Size	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MSP : Throttle Valve for P-Line	01	50	Refer to ★

★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

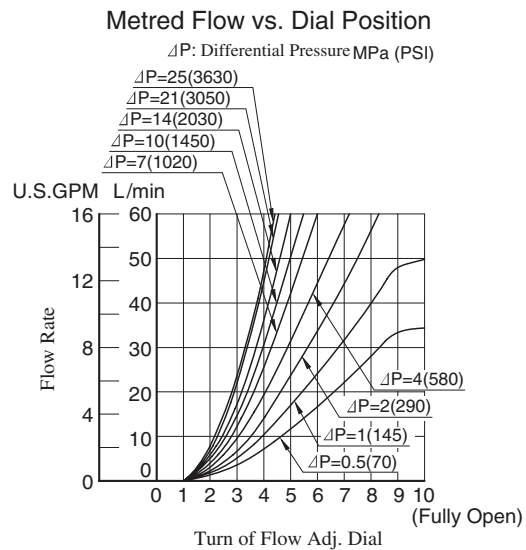
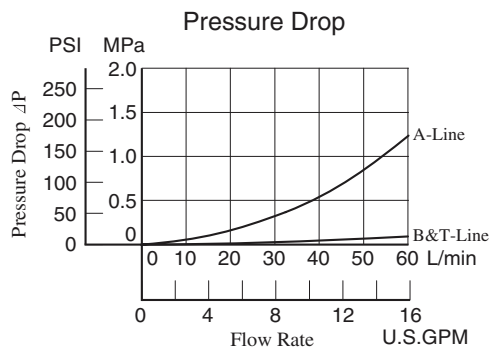
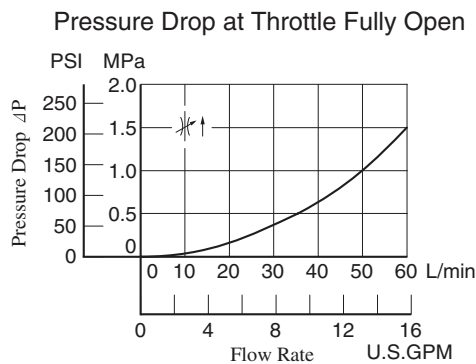


Graphic Symbol



Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Instructions

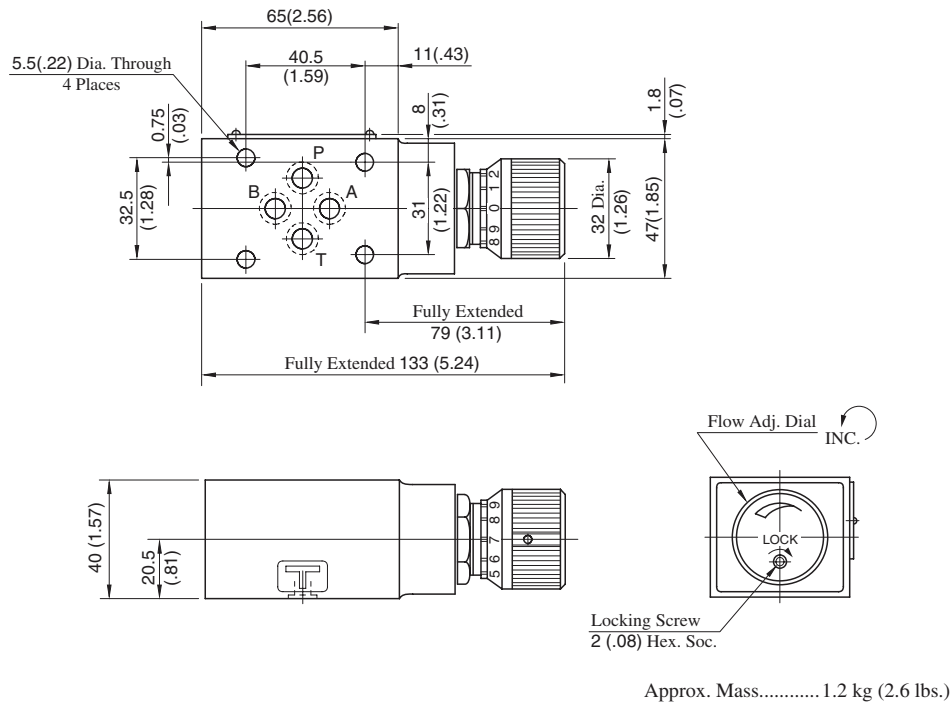
- To make flow rate adjustment, loosen locking screw for the dial and turn the flow adjustment dial clockwise or anti-clockwise. For a decrease of flow, turn the dial clockwise. Be sure to re-tighten the locking screw firmly after the adjustment of the flow rate.

F

01 Series Modular Valves

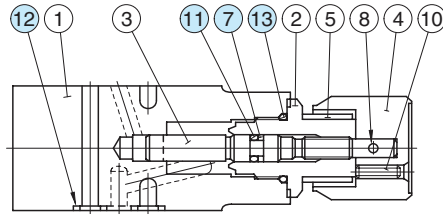
MSP-01-50

DIMENSIONS IN
MILLIMETRES (INCHES)



■ Spare Parts List

MSP-01-50



- List of Seals

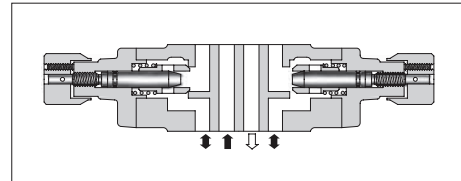
Item	Name of Parts	Part Numbers	Qty.	Remarks
7	Back Up Ring	SO-BB-P6	1	Included in Seal Kit Kit No.: KS-MSP-01-50
11	O-Ring	SO-NA-P6	1	
12	O-Ring	SO-NB-P9	4	
13	O-Ring	SO-NB-P18	1	

Throttle and Check Modular Valves


Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MSA-01-**-50 MSB-01-**-50 MSW-01-**-50	31.5 (4570)	60 (15.9) ★

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



Model Number Designation

F-	MSW	-01	-X	Y	-50	*
Special Seals	Series Number	Valve Size	Direction of Flow ("A" Line)	Direction of Flow ("B" Line)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MSA : Throttle and Check Valve for A-Line	01	X: Metre-out Y: Metre-in	—	50	Refer to 
	MSB : Throttle and Check Valve for B-Line		—	X: Metre-out Y: Metre-in		
	MSW : Throttle and Check Valve for A&B-Lines		X: Metre-out Y: Metre-in			
			X: Metre-out	Y: Metre-in		
			Y: Metre-in	X: Metre-out		

★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

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.

Graphic Symbols

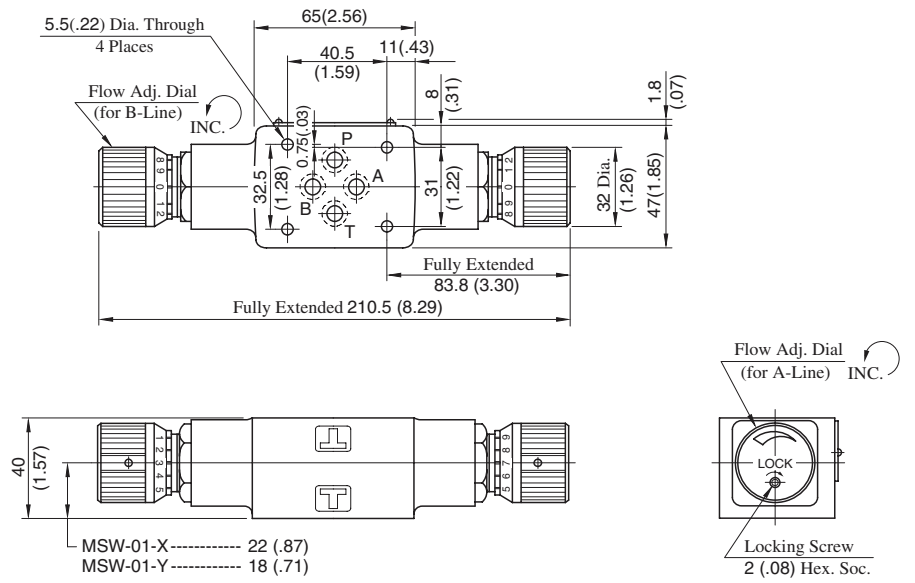
Metre-out	Metre-in
<p>MSA-01-X</p>	<p>MSA-01-Y</p>
<p>MSB-01-X</p>	<p>MSB-01-Y</p>
<p>MSW-01-X</p>	<p>MSW-01-Y</p>
Metre-out · Metre-in	Metre-in · Metre-out
<p>MSW-01-XY</p>	<p>MSW-01-YX</p>

F

01 Series Modular Valves

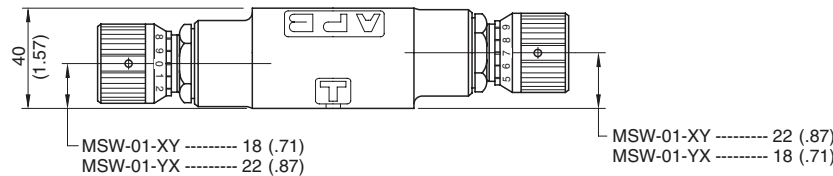
MSW-01-X_Y-50

DIMENSIONS IN
MILLIMETRES (INCHES)



Approx. Mass..... 1.5 kg (3.3 lbs.)

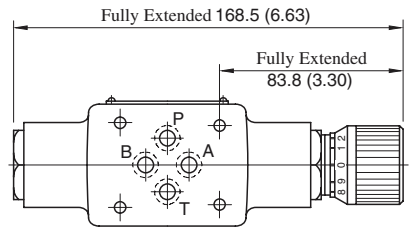
MSW-01-XY_{YX}-50



Approx. Mass..... 1.5 kg (3.3 lbs.)

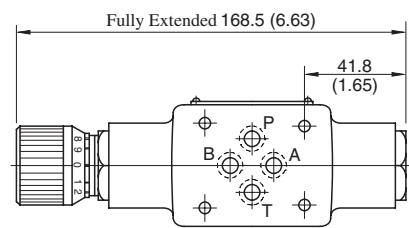
• For other dimensions, refer to "MSW-01-X_Y" drawing above.

MSA-01-X_Y-50



Approx. Mass..... 1.3 kg (2.9 lbs.)

MSB-01-X_Y-50



Approx. Mass..... 1.3 kg (2.9 lbs.)

• For other dimensions, refer to "MSW-01" drawing above.

Check Modular Valves

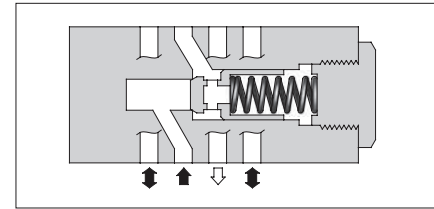
Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MCP-01-*-30 MCT-01-*-30	31.5 (4570)	35 (9.25)

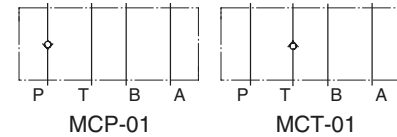
Model Number Designation

F-	MCP	-01	-0	-30	*
Special Seals	Series Number	Valve Size	Cracking Pressure MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MCP: Check Valve for P-Line MCT: Check Valve for T-Line	01	0: 0.035 (5) 2: 0.2 (29) 4: 0.4 (58)	30	Refer to ★

★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

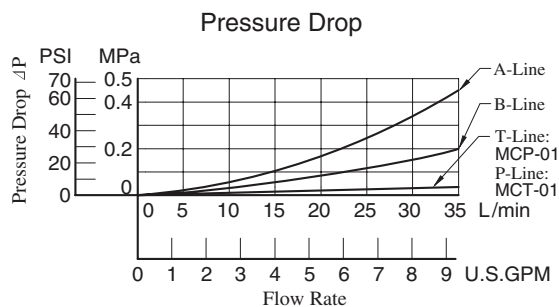
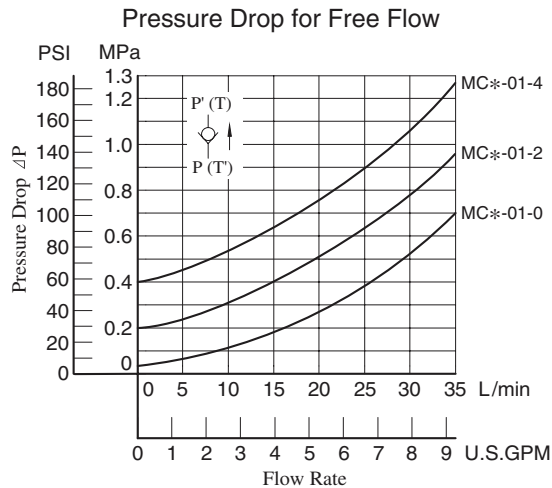


Graphic Symbols

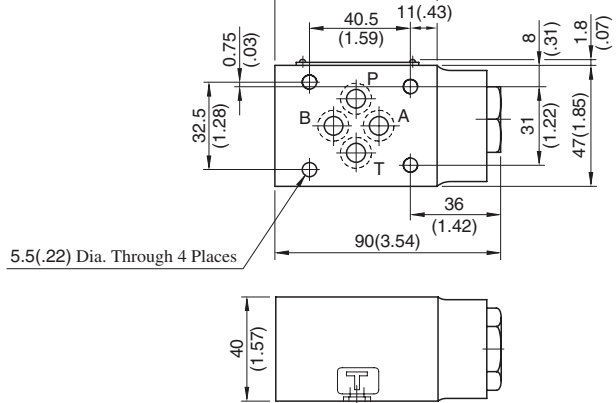


Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU),
Specific Gravity 0.850

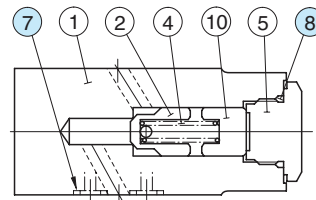


MCP-01-*-30
MCT-01-*-30



DIMENSIONS IN
MILLIMETRES (INCHES)

MCP-01-*-30
MCT-01-*-30



List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
7	O-Ring	SO-NB-P9	4	Included in Seal Kit
8	O-Ring	SO-NB-P18	1	Kit No.: KS-MCP-01-30

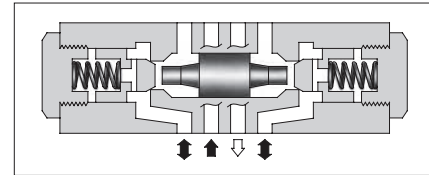
F

01 Series Modular Valves

Pilot Operated Check Modular Valves

Specifications

Model Numbers		Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
Standard	MP*-01-*-40	31.5 (4570)	35 (9.25)
Low Pilot Pressure Control Type	MP*-01-*-4001		

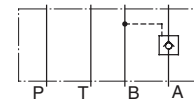


Model Number Designation

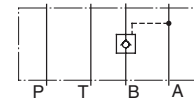
F-	MPA	-01	-2	-40	*
Special Seals	Series Number	Valve Size	Cracking Pressure MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MPA : Pilot Operated Check Valve for A-Line MPB : Pilot Operated Check Valve for B-Line MPW : Pilot Operated Check Valve for A&B-Lines	01	2 : 0.2 (29) 4 : 0.4 (58)	40 (Standard) 4001 (Low Pilot Pressure Control Type)	Refer to ★

★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

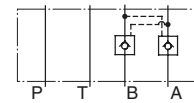
Graphic Symbols



MPA-01



MPB-01

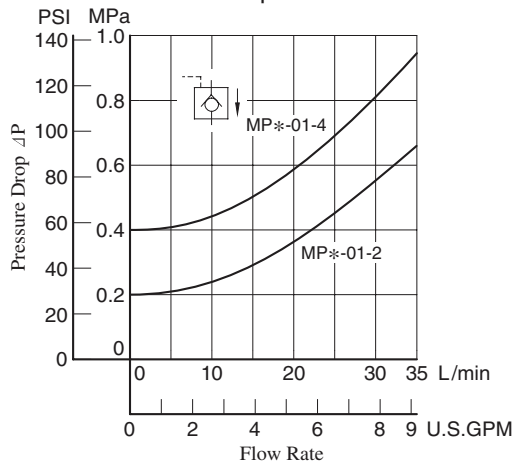


MPW-01

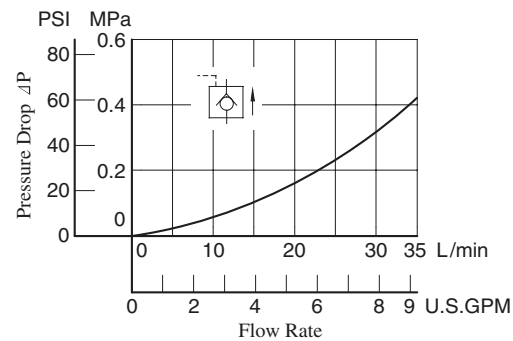
Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU),
Specific Gravity 0.850

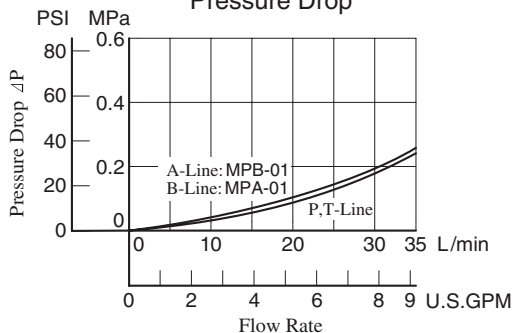
Pressure Drop for Free Flow



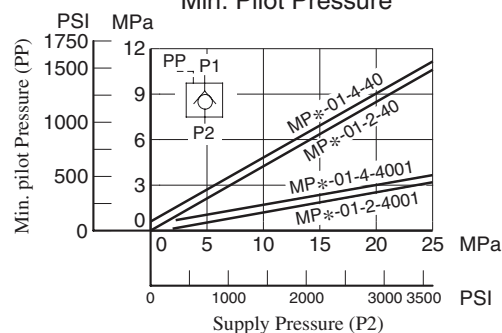
Pressure Drop for Reversed Controlled Flow



Pressure Drop



Min. Pilot Pressure

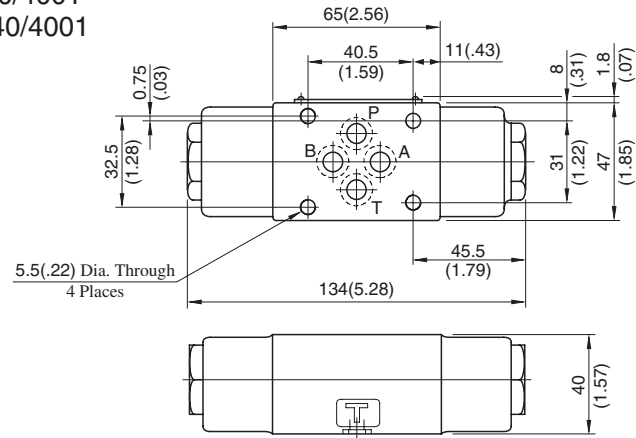


F

01 Series Modular Valves

MPA-01-*-40/4001
MPB-01-*-40/4001
MPW-01-*-40/4001

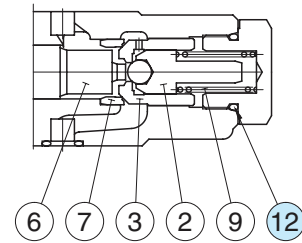
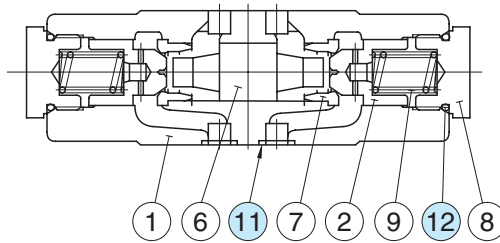
**DIMENSIONS IN
MILLIMETRES (INCHES)**



Approx. Mass..... 1.2 kg (2.6 lbs.)

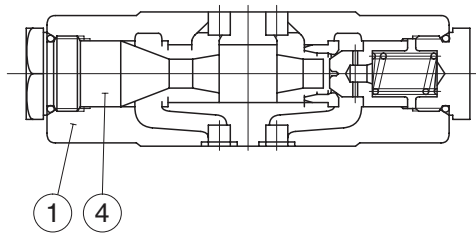
■ Spare Parts List

MPW-01-*-40

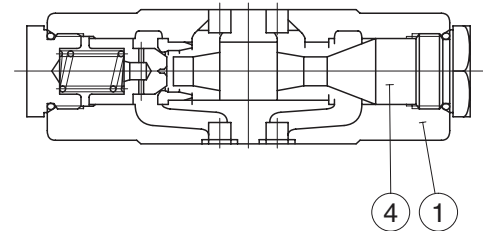


Low Pilot Pressure Control Type
(MPW-01-*-4001)

MPA-01-*-40



MPB-01-*-40



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
11	O-Ring	SO-NB-P9	4	Included in Seal Kit
12	O-Ring	SO-NB-P18	2	Kit No.: KS-MAC-01-30

Base Plates For Modular Valves

Specifications

Max. Operating Pressure ----- 25 MPa (3630 PSI)

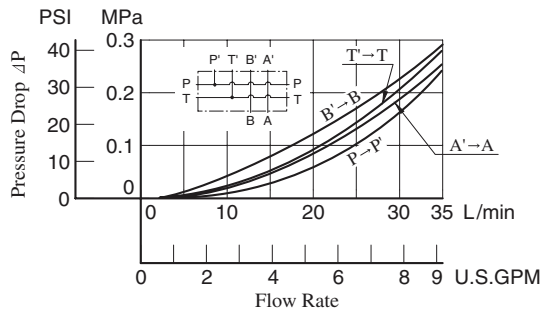


Model Number Designation

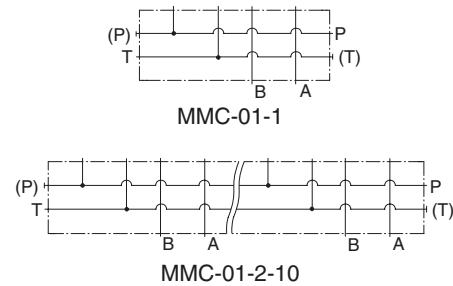
MMC	-01	-6	-40	*
Series Number	Plate Size	Number of Stations	Design Number	Design Standard
MMC: Base Plate	01	1: 1 Station	40	None: Japanese Standard "JIS"
		2: 2 Stations		80: European Design Standard
		3: 3 Stations		90: N.American Design Standard
		4: 4 Stations		
		5: 5 Stations		
		6: 6 Stations		
		7: 7 Stations		
		8: 8 Stations		
		9: 9 Stations		
		10: 10 Stations		

Pressure Drop

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Graphic Symbols



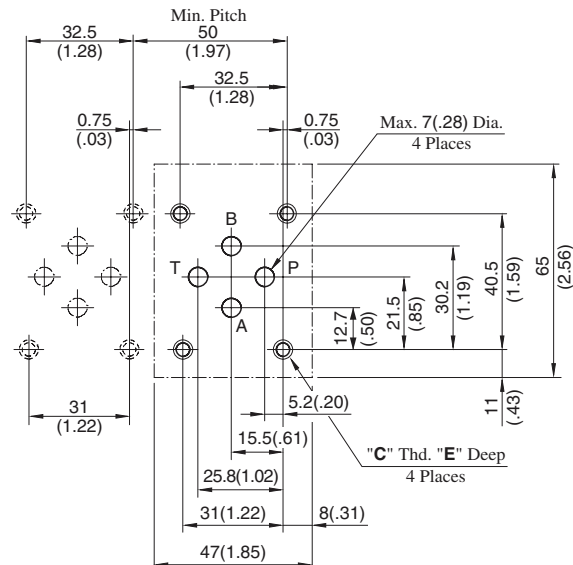
Instructions

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 1/8 Modular Valve

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

Design Std.	"C" Thd.	E
Japanese Standard "JIS" and European Design Standard	M5	10 (.39)
N.American Design Standard	No. 10-24 UNC	12 (.47)

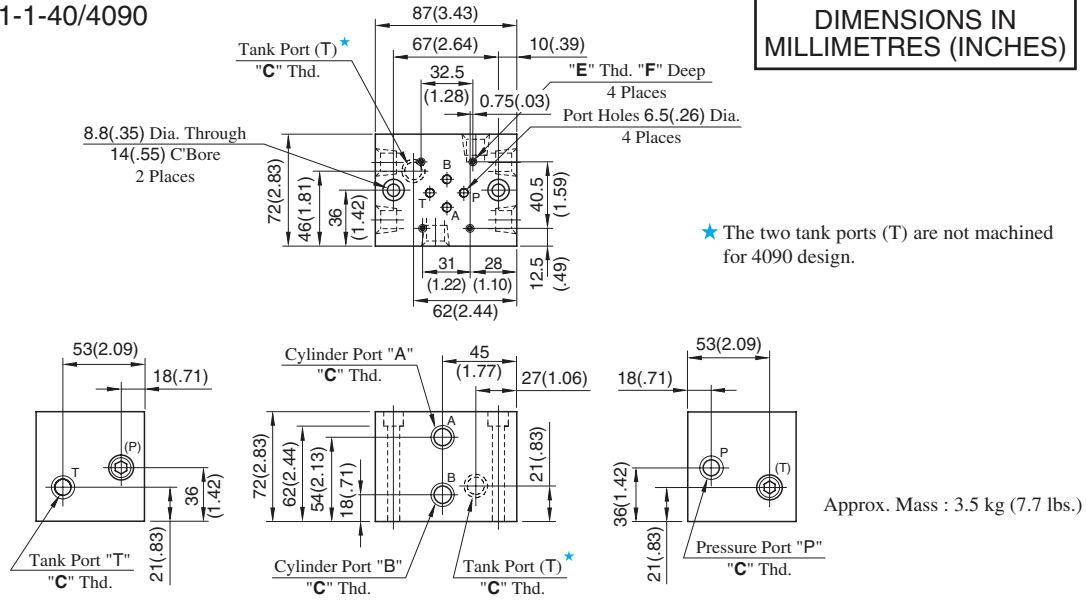


DIMENSIONS IN
MILLIMETRES (INCHES)

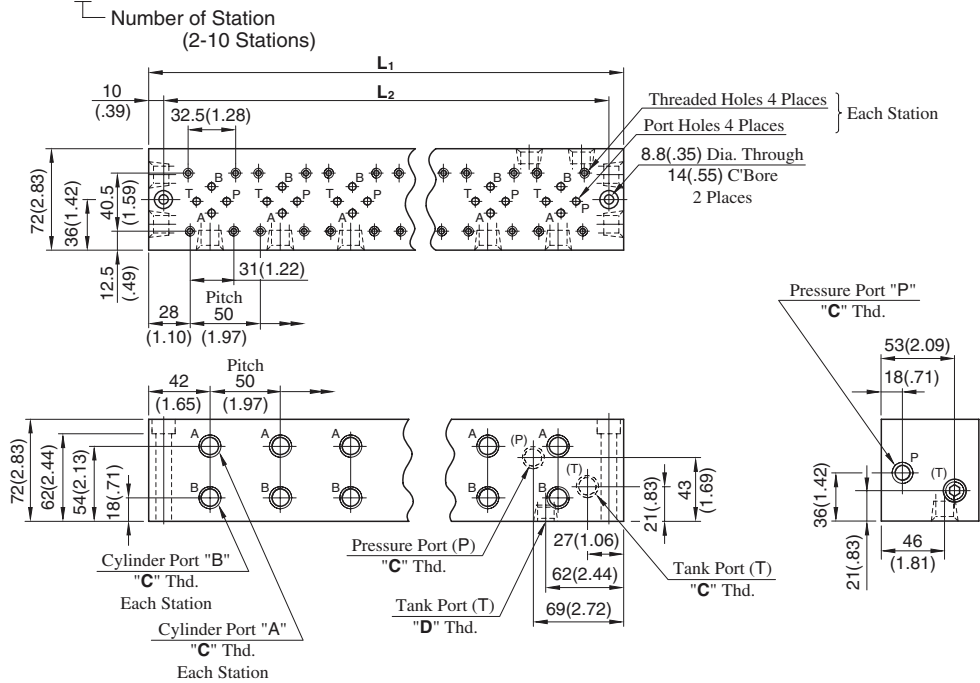
F

01 Series Modular Valves

MMC-01-1-40/4090



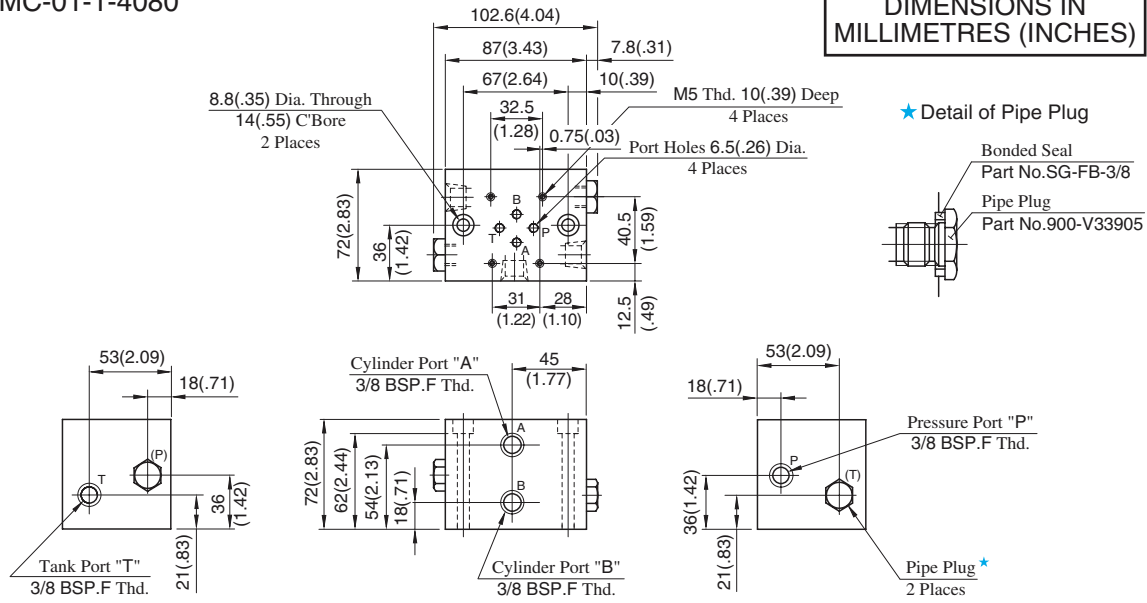
MMC-01-*40/4090



Model Numbers	Thread Size			Dimensions mm (Inches)
	"C" Thd.	"D" Thd.	"E" Thd.	F
MMC-01-*40	Rc 3/8	Rc 1/2	M5	10 (.39)
MMC-01-*4090	3/8 NPT	1/2 NPT	No.10-24 UNC	12 (.47)

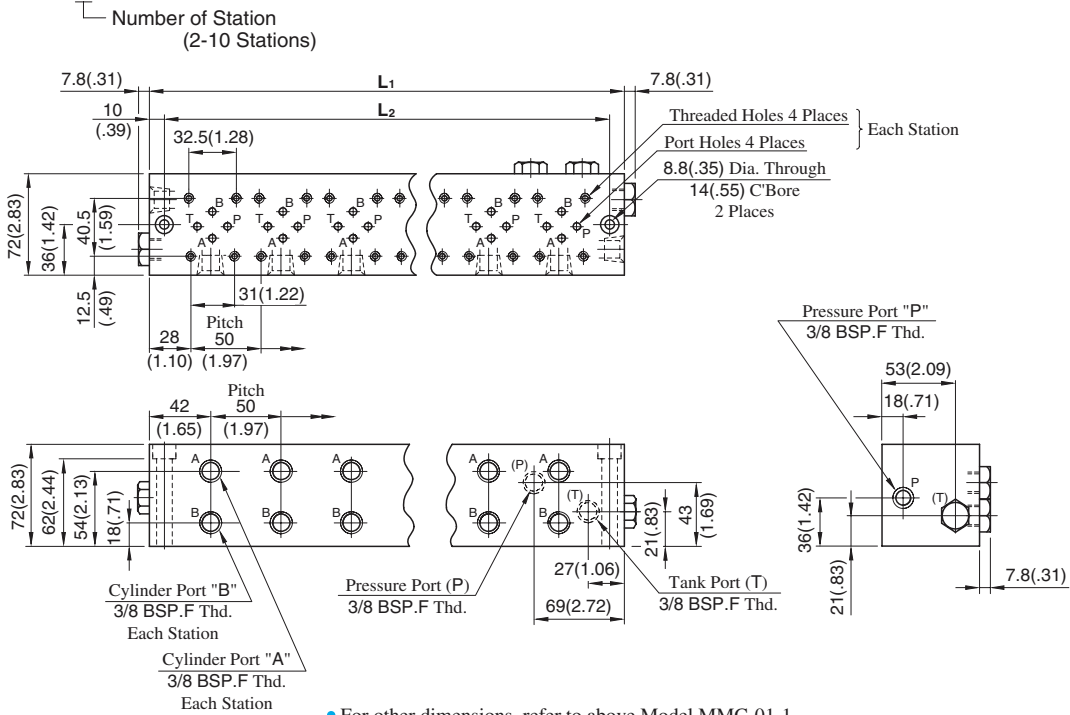
Model Numbers	Dimensions mm (Inches)		Approx. Mass kg (lbs.)	Model Numbers	Dimensions mm (Inches)		Approx. Mass kg (lbs.)
	L ₁	L ₂			L ₁	L ₂	
MMC-01-2	137 (5.39)	117 (4.61)	5.5 (12.1)	MMC-01-7	387 (15.24)	367 (14.45)	13.0 (28.7)
MMC-01-3	187 (7.36)	167 (6.57)	7.0 (15.4)	MMC-01-8	437 (17.20)	417 (16.42)	14.5 (32.0)
MMC-01-4	237 (9.33)	217 (8.54)	8.5 (18.7)	MMC-01-9	487 (19.17)	467 (18.39)	16.0 (35.3)
MMC-01-5	287 (11.30)	267 (10.51)	10.0 (22.1)	MMC-01-10	537 (21.14)	517 (20.35)	17.5 (38.6)
MMC-01-6	337 (13.27)	317 (12.48)	11.5 (25.4)				

MMC-01-1-4080



Approx. Mass : 3.5 kg (7.7 lbs.)

MMC-01-*-4080



Model Numbers	Dimensions mm (Inches)		Approx. Mass kg (lbs.)	Model Numbers	Dimensions mm (Inches)		Approx. Mass kg (lbs.)
	L ₁	L ₂			L ₁	L ₂	
MMC-01-2	137 (5.39)	117 (4.61)	5.5 (12.1)	MMC-01-7	387 (15.24)	367 (14.45)	13.0 (28.7)
MMC-01-3	187 (7.36)	167 (6.57)	7.0 (15.4)	MMC-01-8	437 (17.20)	417 (16.42)	14.5 (32.0)
MMC-01-4	237 (9.33)	217 (8.54)	8.5 (18.7)	MMC-01-9	487 (19.17)	467 (18.39)	16.0 (35.3)
MMC-01-5	287 (11.30)	267 (10.51)	10.0 (22.1)	MMC-01-10	537 (21.14)	517 (20.35)	17.5 (38.6)
MMC-01-6	337 (13.27)	317 (12.48)	11.5 (25.4)				

F

01 Series Modular Valves

3/8 Modular Valves

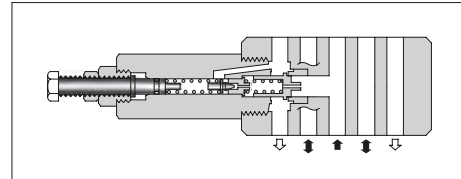
■ Type of Modular Valve

Class	Model Numbers	Graphic Symbols	Page	Class	Model Numbers	Graphic Symbols	Page
Pressure Control Valves	Solenoid Operated Directional Valve (S-)DSG-03-***-50/5090 E-DSG-03-***-D*-50/5090 T-DSG-03-***-D24*-50/5090 G-DSG-03-***-50/5090		361 378 379 412	Flow Control Valves	Temperature Compensated Throttle and Check Valves (for "A&B-Lines", Metre-out) MSTW-03-X-20		595
	Relief Valves (for "P-Line") MBP-03-**-30		578		Throttle Valves (for "P-Line") MSP-03-30		598
	Relief Valves (for "A-Line") MBA-03-**-30		578		Check and Throttle Valves (for "P-Line") MSCP-03-20		600
	Relief Valves (for "B-Line") MBB-03-**-30		578		Throttle and Check Valves (for "A-Line", Metre-out) MSA-03-X-40		602
	Relief Valves (for "A&B-Lines") MBW-03-**-30		578		Throttle and Check Valves (for "A-Line", Metre-in) MSA-03-Y-40		602
	Reducing Valves (for "P-Line") MRP-03-**-30/3090		581		Throttle and Check Valves (for "B-Line", Metre-out) MSB-03-X-40		602
	Reducing Valves (for "A-Line") MRA-03-**-30/3090		581		Throttle and Check Valves (for "B-Line", Metre-in) MSB-03-Y-40		602
	Reducing Valves (for "B-Line") MRB-03-**-30/3090		581		Throttle and Check Valves (for "A&B-Lines", Metre-out) MSW-03-X-40		602
	Reducing Valves for Low Pressure Setting (for "P-Line") MRLP-03-10/1090		584		Throttle and Check Valves (for "A&B-Lines", Metre-in) MSW-03-Y-40		602
	Reducing Valves for Low Pressure Setting (for "A-Line") MRLA-03-10/1090		584	Directional Control Valves	Check Valves (for "P-Line") MCP-03-**-10		605
	Reducing Valves for Low Pressure Setting (for "B-Line") MRLB-03-10/1090		584		Check Valves (for "A-Line") MCA-03-**-20		605
	Sequence Valves (for "P-Line") MHP-03-**-20		588		Check Valves (for "B-Line") MCB-03-**-20		605
	Counterbalance Valves (for "A-Line") MHA-03-**-20		588		Check Valves (for "T-Line") MCT-03-**-10		605
	Counterbalance Valves (for "B-Line") MHB-03-**-20		588		Check Valves (for "P&T-Lines") MCPT-03-P*-T*-10		607
Flow Control Valves	Flow Control Valves (for "P-Line") MFP-03-11		591		Anti-Cavitation Valves MAC-03-10		609
	Flow Control and Check Valves (for "A-Line", Metre-out) MFA-03-X-11		591		Pilot Operated Check Valves (for "A-Line") MPA-03-**-20/2001		610
	Flow Control and Check Valves (for "A-Line", Metre-in) MFA-03-Y-11		591		Pilot Operated Check Valves (for "B-Line") MPB-03-**-20/2001		610
	Flow Control and Check Valves (for "B-Line", Metre-out) MFB-03-X-11		591		Pilot Operated Check Valves (for "A&B-Lines") MPW-03-**-20/2001		610
	Flow Control and Check Valves (for "B-Line", Metre-in) MFB-03-Y-11		591	Modular Plates and Mounting Bolts	End Plates (Blocking Plates) MDC-03-A-10		613
	Flow Control and Check Valves (for "A&B-Lines", Metre-out) MFW-03-X-11		591		End Plates (Bypass Plates) MDC-03-B-10		613
	Flow Control and Check Valves (for "A&B-Lines", Metre-in) MFW-03-Y-11		591		Connecting Plates MDS-03-10/1090		614
	Temperature Compensated Throttle and Check Valves (for "A-Line", Metre-out) MSTA-03-X-20		595		Base Plates MMC-03-T-**-21/2180/2190		615
	Temperature Compensated Throttle and Check Valves (for "B-Line", Metre-out) MSTB-03-X-20		595		Bolt Kits MBK-03-**-10/1090		618

Relief Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MBP-03-*-30 MBA-03-*-30 MBB-03-*-30 MBW-03-*-30	31.5 (4570)	70 (18.5)



Model Number Designation

F-	MBA	-03	-B	-30	*
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MBP : Relief Valve for P-Line MBA : Relief Valve for A-Line MBB : Relief Valve for B-Line MBW : Relief Valve for A&B-Lines	03	B: *-7 ^{★1} (*-1020) H: 3.5-31.5 (510-4570)	30	Refer to ^{★2}

★1. See the "Minimum Adjustment Pressure" of the next page for the item marked *.

★2. Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

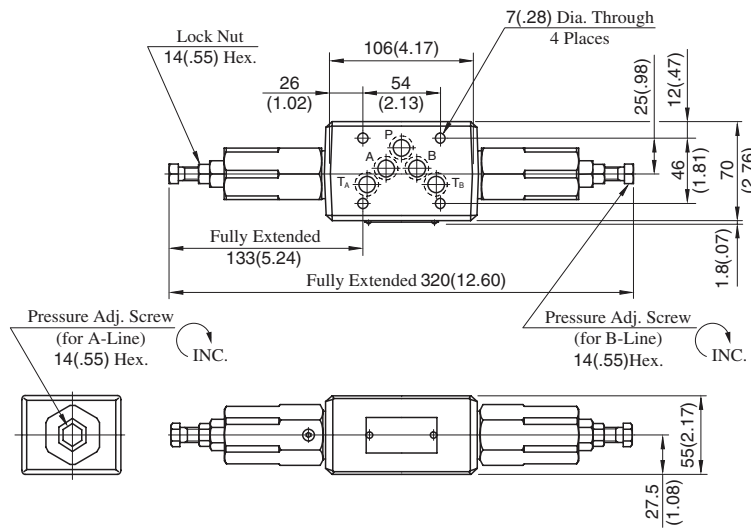
Instructions

- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of the [next 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 .

Model Numbers	Graphic Symbols	Detailed Graphic Symbols
MBP-03		
MBA-03		
MBB-03		
MBW-03		

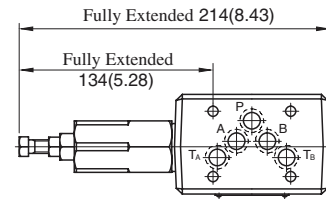
MBW-03-*-30

**DIMENSIONS IN
MILLIMETRES (INCHES)**



Approx. Mass.....3.8 kg (8.4 lbs.)

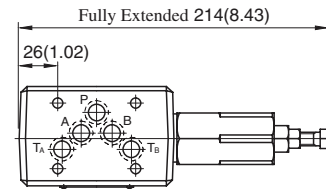
**MBP-03-*-30
MBA-03-*-30**



Approx. Mass.....3.1 kg (6.8 lbs.)

• For other dimensions, refer to "MBW-03" drawing left.

MBB-03-*-30



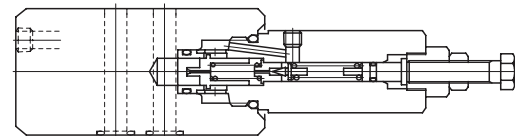
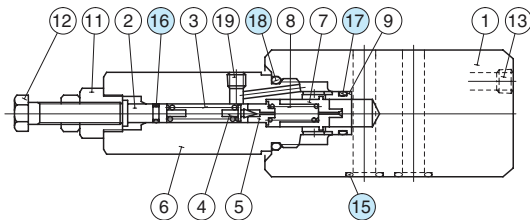
Approx. Mass.....3.1 kg (6.8 lbs.)

• For other dimensions, refer to "MBW-03" drawing left.

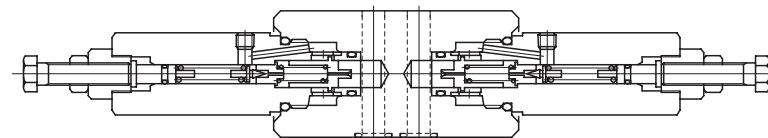
■ Spare Parts List

**MBP-03-*-30
MBA-03-*-30**

MBB-03-*-30



MBW-03-*-30



● List of Seals

Item	Name of Parts	Part Numbers	Quantity			
			MBP-03	MBA-03	MBB-03	MBW-03
15	O-Ring	SO-NB-A014	5	5	5	5
16	O-Ring	SO-NA-P6	1	1	1	2
17	O-Ring	SO-NB-P16	1	1	1	2
18	O-Ring	SO-NB-P26	1	1	1	2

Note: When ordering seals, please specify the seal kit number from the table right.

● List of Seal Kits

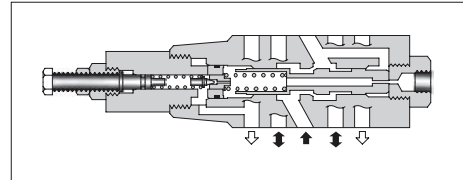
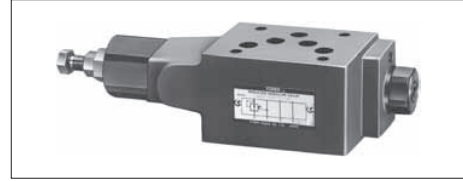
Valve Model Numbers	Seal kit Numbers
MBP-03	KS-MBP-03-30
MBA-03	
MBB-03	
MBW-03	KS-MBW-03-30

Reducing Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa(Pa)	Max. Flow L/min (U.S.GPM)
MRP-03-*-30/3090 MRA-03-*-30/3090 MRB-03-*-30/3090	25 (3630)	70 (18.5) ★

★ In pressure adjustment range "H", if the pressure in the primary side is set above 20 MPa (2900 PSI) and the pressure in the secondary side is set below 10 MPa (1450 PSI), the maximum flow is limited to 50 L/min (13.2 U.S.GPM).



Model Number Designation

F-	MRP	-03	-B	-30	*
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MRP: Reducing Valve for P-Line MRA: Reducing Valve for A-Line MRB: Reducing Valve for B-Line	03	B: 1-7 (145-1020) H: 3.5-24.5 (510-3550)	30	Refer to ★

★ Design Standards: None Japanese Standard "JIS" and European Design Standard
90 N. American Design Standard

Instructions

- The minimum adjustment pressure equals the lower limit of either pressure adjustment range (B, H) plus the tank line back pressure of the [next 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.

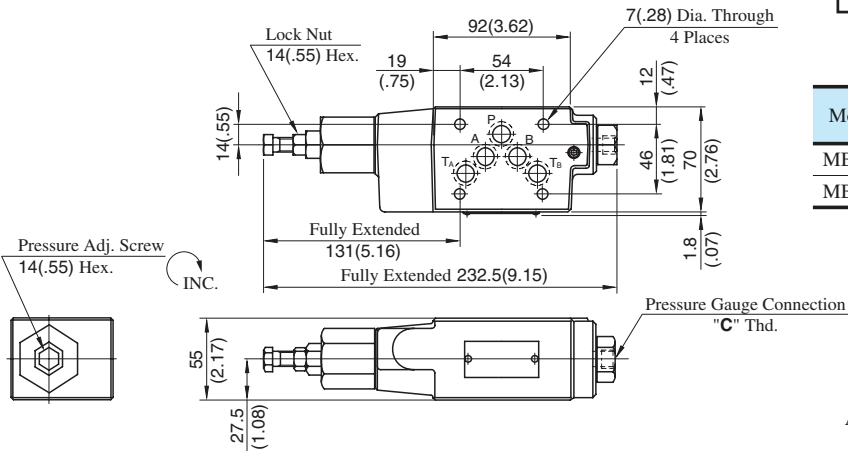
Model Numbers	Graphic Symbols	Detailed Graphic Symbols
MRP-03		
MRA-03		
MRB-03		

F

03 Series Modular Valves

MRP-03-* -30/3090
MRB-03-* -30/3090

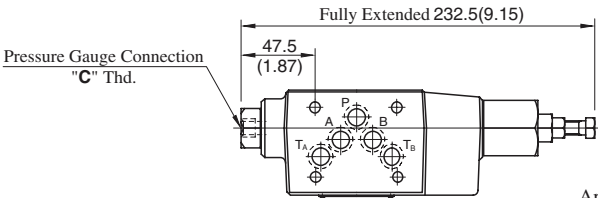
DIMENSIONS IN
MILLIMETRES (INCHES)



Model Numbers	Thread Size "C" Thd.
MB*-01-* -30	Rc 1/4 = 1/4 BSP.Tr
MB*-01-* -3090	1/4 NPT

Approx. Mass.....3.3 kg (7.5 lbs.)

MRA-03-* -30/3090

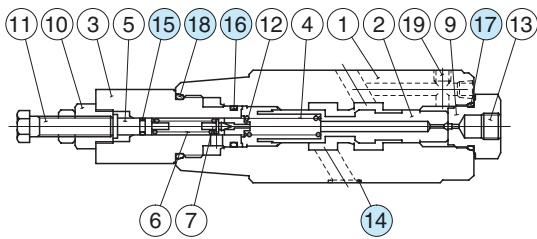


Approx. Mass.....3.3 kg (7.5 lbs.)

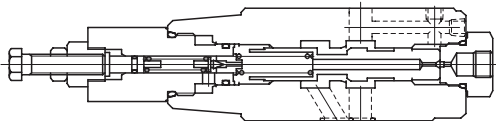
• For other dimensions, refer to "MRP-03" drawing above.

■ Spare Parts List

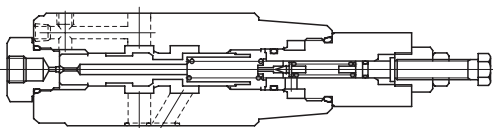
MRP-03-* -30/3090



MRB-03-* -30/3090



MRA-03-* -30/3090



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
14	O-Ring	SO-NB-A014	5	Included in Seal Kit Kit No.: KS-MRP-03-30
15	O-Ring	SO-NA-P6	1	
16	O-Ring	SO-NB-P16	1	
17	O-Ring	SO-NB-P18	1	
18	O-Ring	SO-NB-P26	1	

F

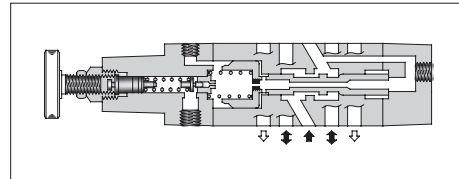
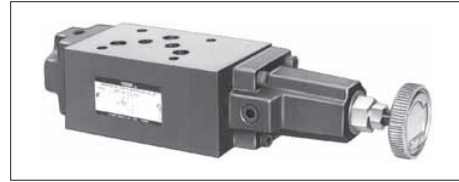
03 Series Modular Valves

Reducing Modular Valves For Low Pressure Setting

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Pres. Adj. Range MPa (PSI)	Max. Flow L/min (U.S.GPM)
MRLP-03-10/1080/1090 MRLA-03-10/1080/1090 MRLB-03-10/1080/1090	7 (1020)	0.2-6.5 (29-940)	50 (13.2) ★

★ When pressure setting is less than 0.8 MPa (116 PSI), maximum flow decreases. See "Min. Adjustment Pressure vs. Max. Flow" on the [next page](#) for the appropriate range.



Model Number Designation

F-	MRLP	-03	-10	*
Special Seals	Series Number	Valve Size	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MRLP : Low Pressure Setting Type Reducing Valve for P-Line MRLA : Low Pressure Setting Type Reducing Valve for A-Line MRLB : Low Pressure Setting Type Reducing Valve for B-Line	03	10	Refer to ★

★ Design Standards: None Japanese Standard "JIS"
80 European Design Standard
90 N. American Design Standard

Instructions

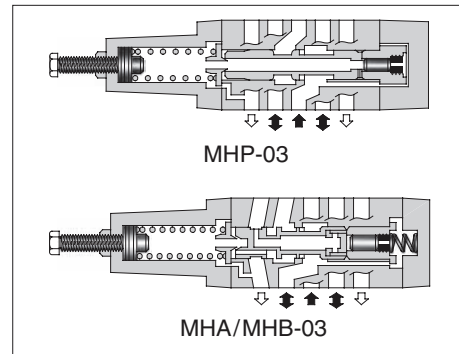
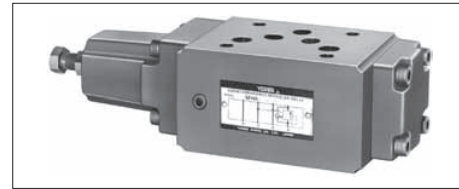
- If there is a pressure in drain line, it is added to the secondary setting pressure. Hence, drain line must be connected to tank directly with a low back pressure close to atmospheric pressure.
- To make pressure adjustment, loosen the lock nut and turn the pressure adjustment handle clockwise or anti-clockwise. For an increase of pressure, turn the handle clockwise. Be sure to re-tighten the lock nut firmly after making adjustment to the pressure.

Model Numbers	Graphic Symbols	Detailed Graphic Symbols
MRLP-03		
MRLA-03		
MRLB-03		

Sequence Modular Valves/Counterbalance Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)	Max. Free Flow L/min (U.S.GPM)
MHP-03-*-20	25 (3630)	50 (13.2)	—
MHA-03-*-20			70 (18.5)
MHB-03-*-20			



Model Number Designation

F-	MHA	-03	-C	-20	*
Special Seals	Series Number	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MHP: Sequence Valve for P-Line	03	N: *-1.8 (*-260) ★ ¹ A: 1.8-3.5 (260-510) B: 3.5-7 (510-1020) C: 7-14 (1020-2030)	20	Refer to ★ ²
	MHA: Counterbalance Valve for A-Line MHB: Counterbalance Valve for B-Line			20	

★¹. See the "Minimum Adjustment Pressure" of the next page for the item marked *.

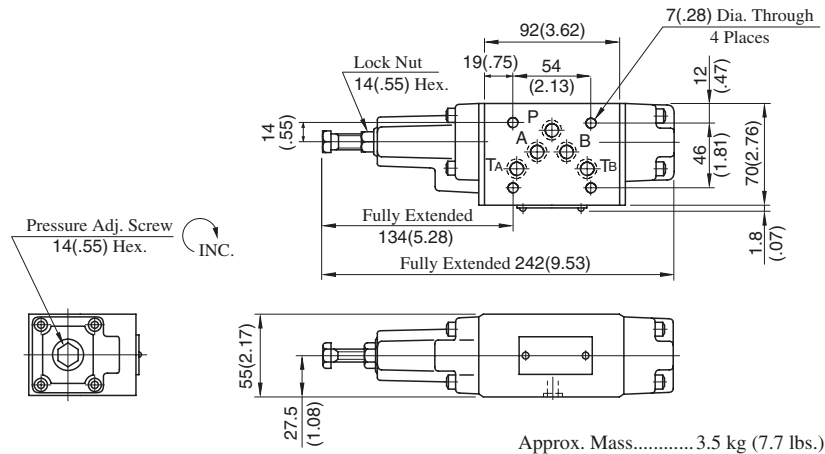
★². Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

Instructions

- The minimum adjustment pressure equals the value obtained from the minimum adjustment pressure characteristics plus the tank line back pressure of the [next 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.

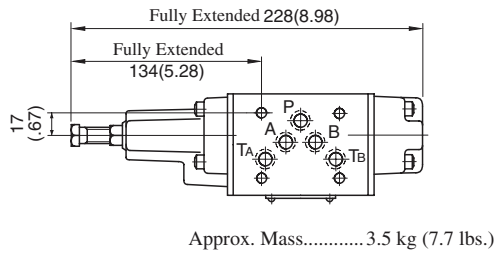
Model Numbers	Graphic Symbols	Detailed Graphic Symbols
MHP-03		
MHA-03		
MHB-03		

MHP-03-*-20

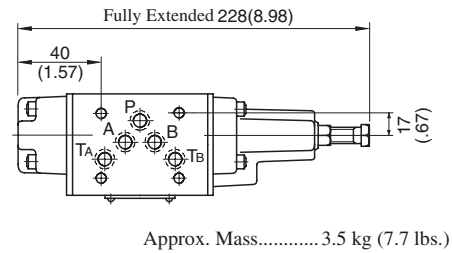


**DIMENSIONS IN
MILLIMETRES (INCHES)**

MHA-03-*-20



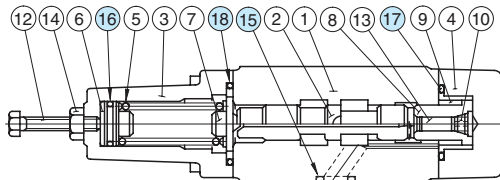
MHA-03-*-20



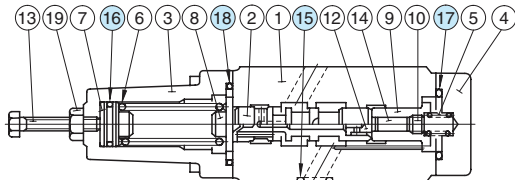
• For other dimensions, refer to "MHP-03" drawing above.

Spare Parts List

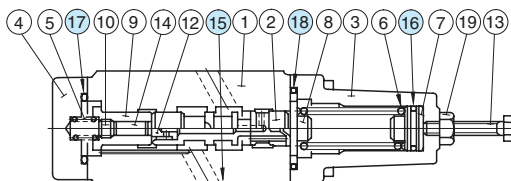
MHP-03-*-20



MHA-03-*-20



MHB-03-*-20



List of Seals

MHP-03, MHA-03

Item	Name of Parts	Part Numbers	Qty.	Remarks
15	O-Ring	SO-NB-A014	5	Included in Seal Kit Kit No.:KS-MHP-03-20
16	O-Ring	SO-NB-P16	1	
17	O-Ring	SO-NB-P29	1	
18	O-Ring	SO-NB-P32	1	

MHB-03

Item	Name of Parts	Part Numbers	Qty.	Remarks
15	O-Ring	SO-NB-A014	5	Included in Seal Kit Kit No.:KS-MHB-03-20
16	O-Ring	SO-NA-P16	1	
17	O-Ring	SO-NB-P29	1	
18	O-Ring	SO-NB-P32	1	

Throttle Modular Valves

Specifications

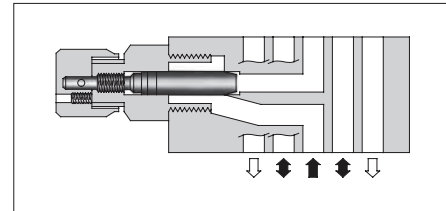
Model Number	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MSP-03-30	25 (3630)	70 (18.5) *

★ Maximum flow decreases when the differential pressure is less than 1 MPa (145 PSI).
See "Pressure Drop at Throttle Fully Open".

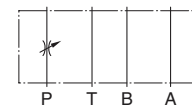
Model Number Designation

F-	MSP	-03	-30	*
Special Seals	Series Number	Valve Size	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MSP : Throttle Valve for P-Line	03	30	Refer to ★

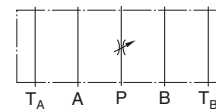
★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard



Graphic Symbol

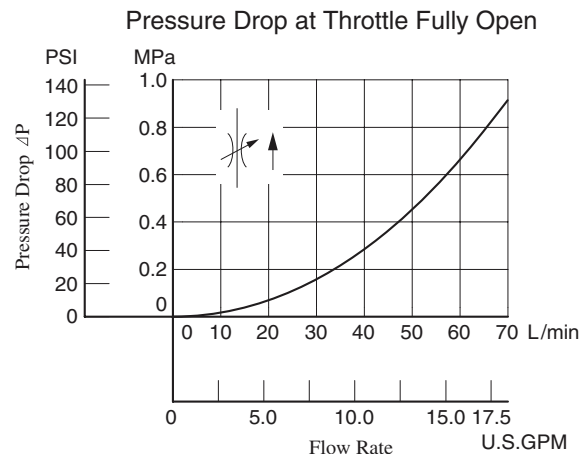
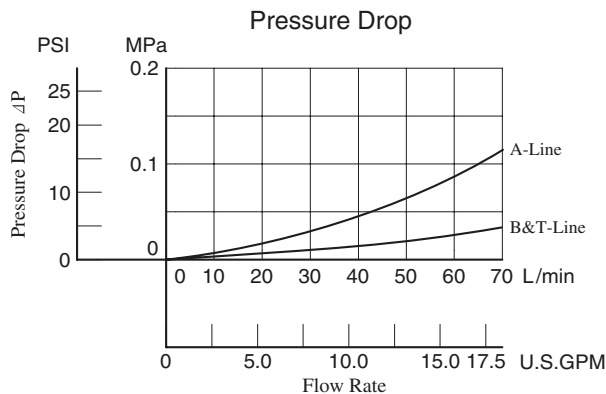


Detailed Graphic Symbol

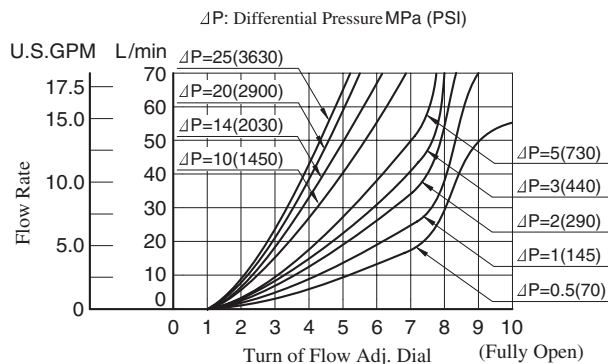


Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Metred Flow vs. Dial Position

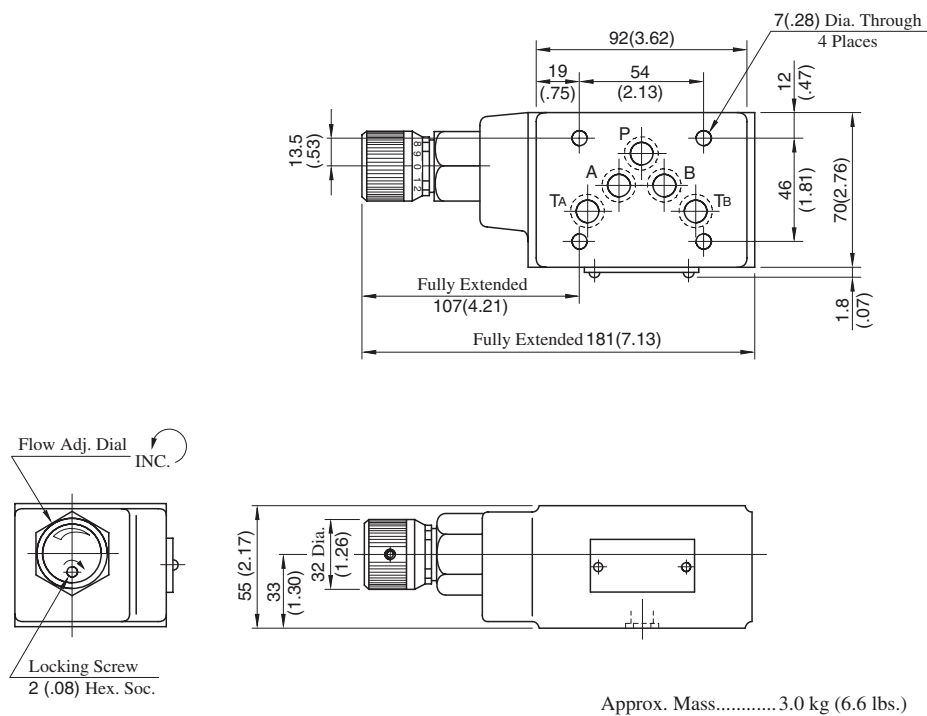


Instructions

- 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.

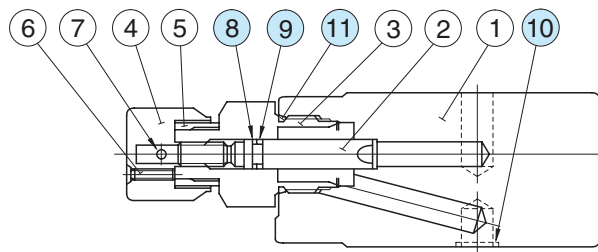
MSP-03-30

DIMENSIONS IN
MILLIMETRES (INCHES)



■ Spare Parts List

MSP-03-30



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
8	Back Up Ring	900-VK411915-2	1	Included in Seal Kit Kit No.: KS-MSP-03-30
9	O-Ring	SO-NA-P7	1	
10	O-Ring	SO-NB-A014	5	
11	O-Ring	SO-NB-P24	1	

F

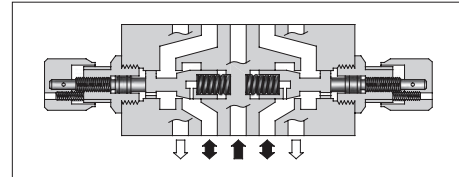


03 Series Modular Valves

Throttle and Check Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MSA-03-* -40 MSB-03-* -40 MSW-03-* -40	25 (3630)	120 (31.7)





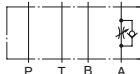
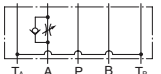
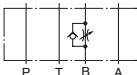

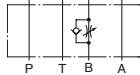
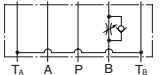
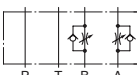
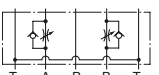
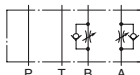

Model Number Designation

F-	MSW	-03	-X	-40	*
Special Seals	Series Number	Valve Size	Direction of Flow	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MSA : Throttle and Check Valve for A-Line MSB : Throttle and Check Valve for B-Line MSW : Throttle and Check Valve for A&B-Lines	03	X : Metre-out Y : Metre-in	40	Refer to ★

★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

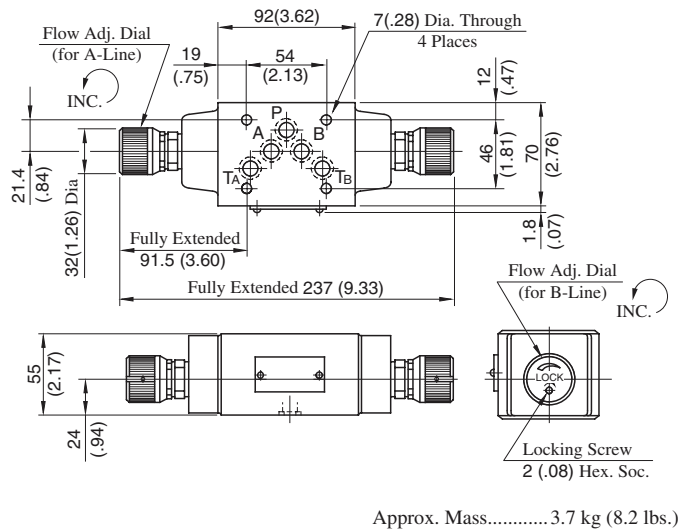
Instructions

- 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.

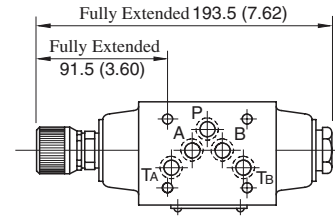
Model No.	Graphic Symbols	Detailed Graphic Symbols	Model No.	Graphic Symbols	Detailed Graphic Symbols
	Metre-out			Metre-in	
MSA-03-X			MSA-03-Y		
MSB-03-X			MSB-03-Y		
MSW-03-X			MSW-03-Y		

MSW-03-X_Y-40

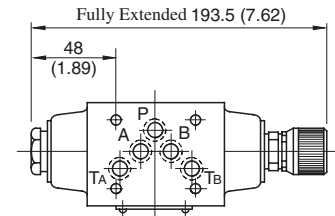
**DIMENSIONS IN
MILLIMETRES (INCHES)**



MSA-03-X_Y-40

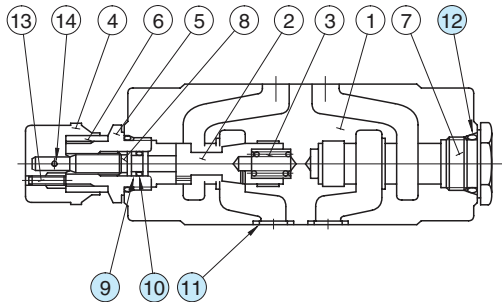


MSB-03-X_Y-40

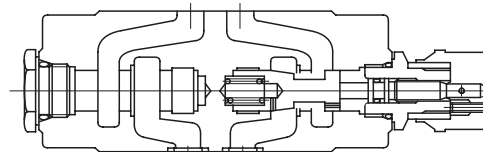


■ Spare Parts List

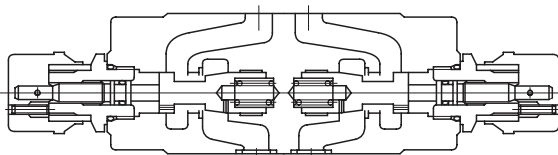
MSA-03-X_Y-40



MSB-03-X_Y-40



MSW-03-X_Y-40



● List of Seals

Item	Name of Parts	Part Numbers	Quantity		
			MSA-03	MSB-03	MSW-03
9	Back Up Ring	SO-BB-P8	1	1	2
10	O-Ring	SO-NA-P8	1	1	2
11	O-Ring	SO-NB-A014	5	5	5
12	O-Ring	SO-NB-P18	2	2	2

Note: When ordering seals, please specify the seal kit number from the table right.

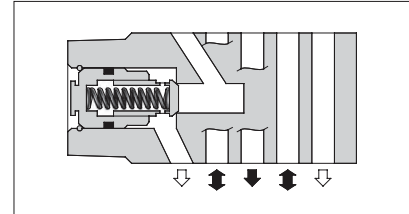
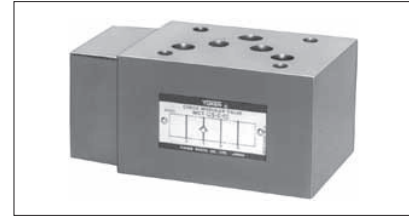
● List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
MSA-03	KS-MSA-03-40
MSB-03	
MSW-03	KS-MSW-03-40

Check Modular Valves

Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
MCP-03-*-10 MCA-03-*-20 MCB-03-*-20 MCT-03-*-10	25 (3630)	70 (18.5)



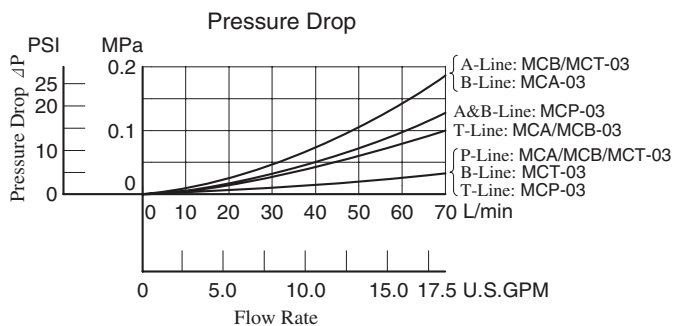
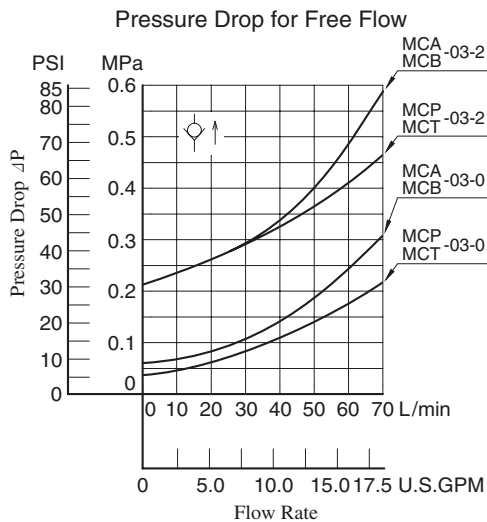
Model Number Designation

F-	MCP	-03	-0	-10	*
Special Seals	Series Number	Valve Size	Cracking Pressure MPa(PSI)	Design Number	Design Standard
F : Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MCP : Check Valve for P-Line	03	0 : 0.035(5) 2 : 0.2(29)	10	Refer to ★
	MCA : Check Valve for A-Line			20	
	MCT : Check Valve for T-Line			10	

★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Model No.	Graphic Symbols	Detailed Graphic Symbols
MCP-03		
MCA-03		
MCB-03		
MCT-03		

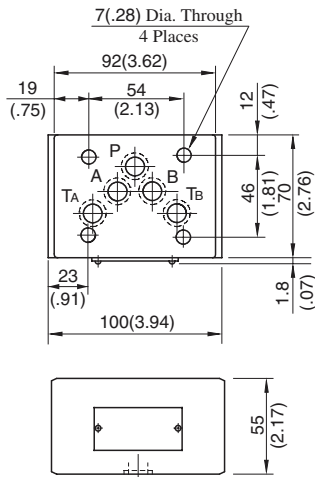
Instructions

Tank Line Used

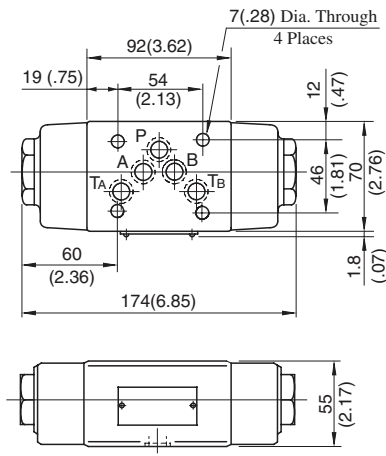
Check valve function of MCT-03 is included in T_A-Line. Therefore, the tank line for a circuit that uses this valve must be T_A-line.

F

03 Series Modular Valves

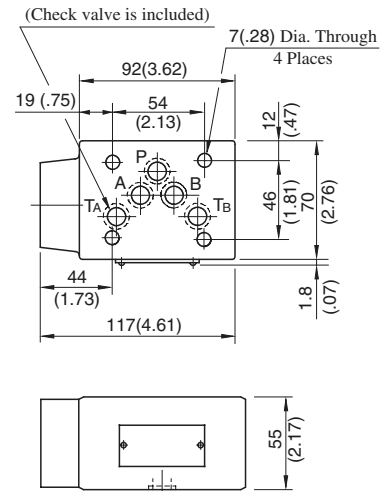
MCP-03-*-10


Approx. Mass.....2.5 kg (5.5 lbs.)

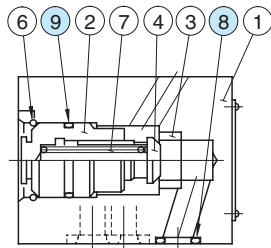
**MCA-03-*-20
MCB-03-*-20**


Approx. Mass.....3.5 kg (7.7 lbs.)

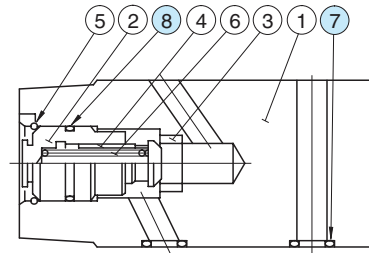
**DIMENSIONS IN
MILLIMETRES (INCHES)**

MCT-03-*-10


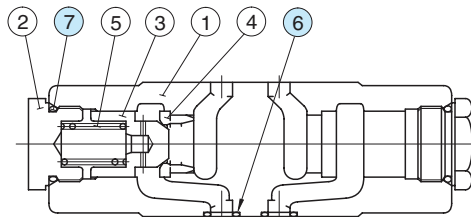
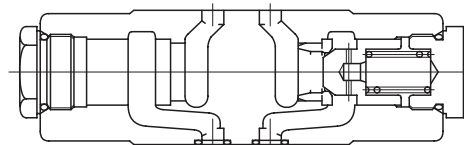
Approx. Mass.....2.8 kg (6.2 lbs.)

Spare Parts List
MCP-03-*-10

List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
8	O-Ring	SO-NB-A014	5	Included in Seal Kit
9	O-Ring	SO-NB-P21	1	Kit No.: KS-MCP-03-10

MCT-03-*-10

List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
7	O-Ring	SO-NB-A014	5	Included in Seal Kit
8	O-Ring	SO-NB-P21	1	Kit No.: KS-MCP-03-10

MCA-03-*-20

MCB-03-*-20

List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
6	O-Ring	SO-NB-A014	5	Included in Seal Kit
7	O-Ring	SO-NB-P24	2	Kit No.: KS-MCA-03-20

Pilot Operated Check Modular Valves

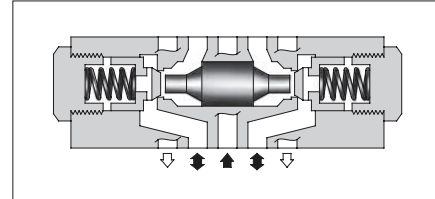
Specifications

Model Numbers		Max. Operating Pressure MPa (PSI)	Max. Flow L/min (U.S.GPM)
Standard	MP*-03-*-20	25 (3630)	70 (18.5)
Low Pilot Pressure Control Type	MP*-03-*-2001		



Model Number Designation

F-	MPA	-03	-2	-20	*
Special Seals	Series Number	Valve Size	Cracking Pressure MPa (PSI)	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MPA : Pilot Operated Check Valve for A-Line MPB : Pilot Operated Check Valve for B-Line MPW : Pilot Operated Check Valve for A&B-Lines	03	2 : 0.2 (29) 4 : 0.4 (58)	20 (Standard) 2001 (Low Pilot Pressure Control Type)	Refer to ★

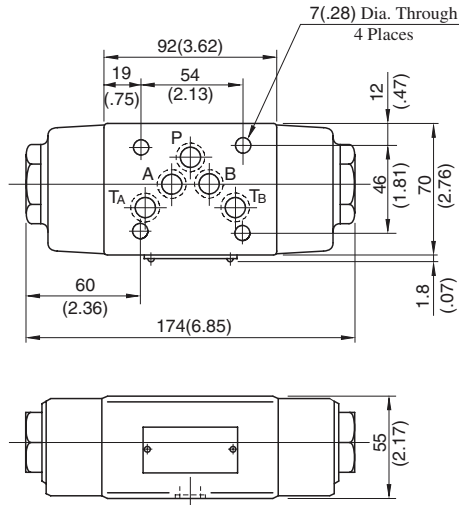


★ Design Standards: None Japanese Standard "JIS", European Design Standard and N. American Design Standard

Model No.	Graphic Symbols	Detailed Graphic Symbols
MPA-03		
MPB-03		
MPW-03		

MPA-03-*-20/2001
 MPB-03-*-20/2001
 MPW-03-*-20/2001

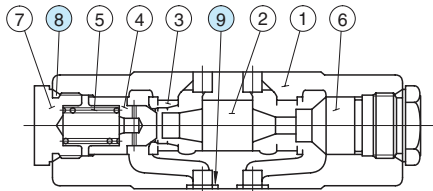
**DIMENSIONS IN
 MILLIMETRES (INCHES)**



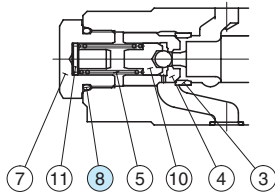
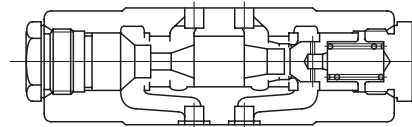
Approx. Mass..... 3.5 kg (7.7 lbs.)

■ Spare Parts List

MPA-03-*-20

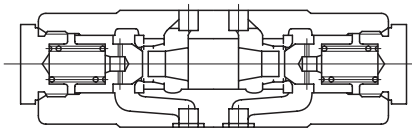


MPB-03-*-20



Low Pilot Pressure Control Type
 (MPA-03-*-2001)

MPW-03-*-20



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
8	O-Ring	SO-NB-P24	2	Included in Seal Kit
9	O-Ring	SO-NB-A014	5	Kit No.: KS-MPA-03-20

Base Plates For Modular Valves

Specifications

Max. Operating Pressure ----- 25 MPa (3630 PSI)

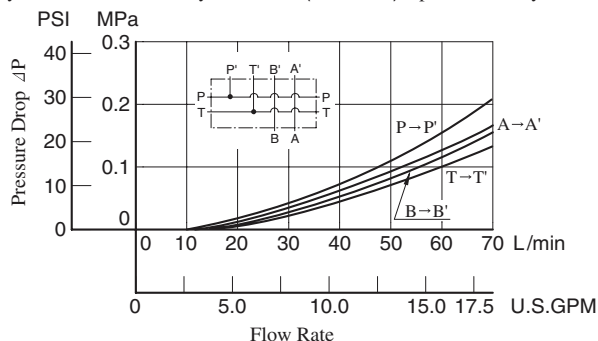


Model Number Designation

MMC	-03	-T	-6	-21	*
Series Number	Plate Size	Type of Connection	Number of Stations	Design Number	Design Standard
MMC : Base Plate	03	T : Threaded Connection	1: 1 Station 2: 2 Stations 3: 3 Stations 4: 4 Stations 5: 5 Stations 6: 6 Stations 7: 7 Stations	21	None : Japanese Standard "JIS" 80 : European Design Standard 90 : N.American Design Standard

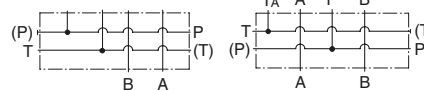
Pressure Drop

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



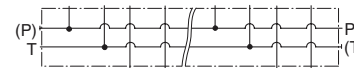
Graphic Symbol

Detailed Graphic Symbol



MMC-03-T-1

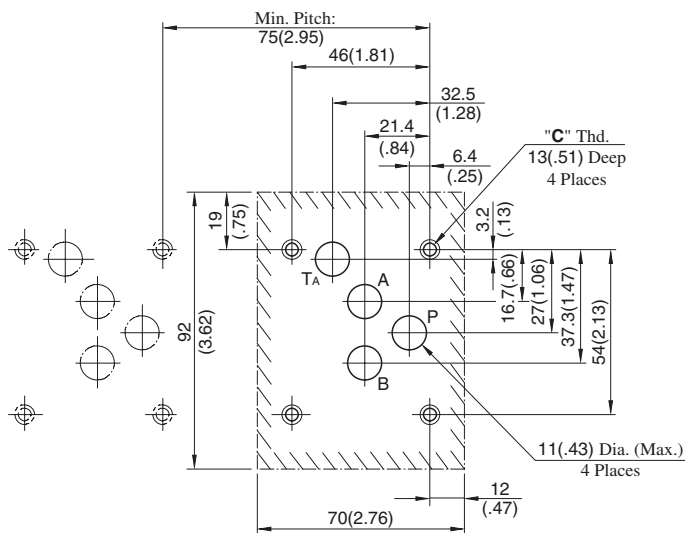
Graphic Symbol



MMC-03-T-2-7

Mounting Surface Dimensions for 3/8 Modular Valve

When the standard base plate (MMC-03) is not used, the following mounting surface must be prepared. Also, the mounting surface must have a good machined finish.



Instructions

- Although two ports are provided for both pressure port "P" and tank port "T", either may be used.

However, the ports having (P) or (T) in the drawing are normally plugged. Remove the plugs of the ports when they are used. Make sure that the ports that are not currently used are properly plugged.

DIMENSIONS IN MILLIMETRES (INCHES)

Design Std.	"C" Thd.
Japanese Standard "JIS" and European Design Standard	M6
N.American Design Standard	1/4-20 UNC

F



03 Series Modular Valves

