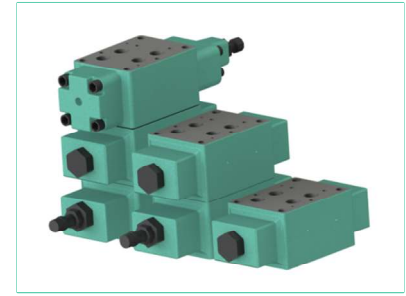


04 Series Modular Valves

For hydraulics systems with higher flow rates than 70 L/min, it was convention to use the 06 series modular valves until now. With the introduction of the 04 series valves for hydraulic systems with flow rates up to 300 L/min., it becomes convenient to use modular valves that are more suitably sized. The 04 series is rated up 300 L/min and will help in designing hydraulic systems with minimum piping.



Types Of Modular Valves

Name	Model Numbers	Graphic Symbols	Page	Remarks
	Solenoid Operated Directional Valve DSHG-04-※※※-※-50		EIC-E-1003	
Pres. Control Valves	Reducing Modular Valves (for "P-Line") MRP-04-※-10H01		465	Δ Pressure Adjustment Range A : 7 ~ 70 Kg/cm ² B : 15 ~ 70 Kg/cm ² C : 35 ~ 140 Kg/cm ² H : 70 ~ 250 Kg/cm ²
	Reducing Modular Valves (for "A-Line") MRA-04-※-10H01		465	
	Reducing Modular Valves (for "B-Line") MRB-04-※-10H01		465	
Flow Control Valves	Throttle and Check Modular Valve (for "A-Line") MSA-04-X-10H01		467	Direction Of Flow X : Metre - out Y : Metre - In
	Throttle and Check Modular Valve (for "A-Line") MSA-04-Y-10H01		467	
	Throttle and Check Modular Valve (for "B-Line") MSB-04-X-10H01		467	
	Throttle and Check Modular Valve (for "B-Line") MSB-04-Y-10H01		467	
	Throttle Check Modular Valve (for "A,B-Line") MSW-04-X-10H01		467	
	Throttle Check Modular Valve (for "A,B-Line") MSW-04-Y-10H01		467	
Direction Control	Pilot Operated Check Modular Valve (for "A-Line") MPA-04-※-10H01		470	※ : Cracking Pressure 2 : 2 Kg/cm ² 4 : 4 Kg/cm ²
	Pilot Operated Check Modular Valve (for "B-Line") MPB-04-※-10H01		470	
	Pilot Operated Check Modular Valve (for "A,B-Line") MPW-04-※-10H01		470	
Modular Bolts	Bolt Kit MBK-04-※-10			Bolt No. Refer To Page No. 472 For Details

04 series valves for Phosphate Ester Fluid are also available.

To specify a model for Phosphate Ester Fluid, prefix "F" to the model number. Because the special seal (FluoroRubber) are to be used .

Mounting Bolts

Modular valves are mounted using stud bolts which are supplied in a kit form. When mounting, see the following table for tightening torque. After the test run, be sure to tighten again to a firm tightness within the specified torque.

Modular Valve Series	Bolt Kit Model Numbers	Tightening Torque Kgf-m
04 Series	MBK-04-※-10	1.2 - 1.5 (M6) 4.5 - 5.5 (M10)

1/2 Reducing Modular Valves

Specifications

Model Number	Max. Operating Pressure Kgf/cm ²	Max. Flow L/min.
MR※-04-A-10H01	350	100
B		300
MR※-04-C-10H01 H		



Model Number Designation

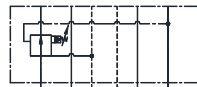
F-	MRP	-04	-A	-10	H01
Special Seals **	Series Number	Valve Size	Pres. Adj. Range Kgf/cm ²	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	MRP: Reducing Modular Valves for P-Line MRA: Reducing Modular Valves for A-Line MRB: Reducing Modular Valves for B-Line	04	A: 7 ~ 70 B: 15 ~ 70 C: 35 ~140 H: 70 ~250	10	H01

** Before ordering the Special Seals, consult YUKEN INDIA LTD.

Graphic Symbol



(F-) MRP-04-※-



(F-) MRA-04-※-

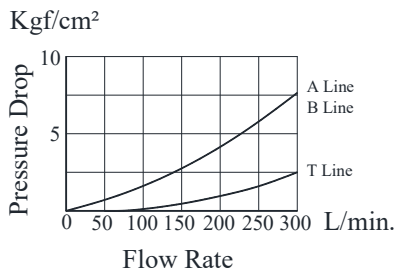


(F-) MRB-04-※-

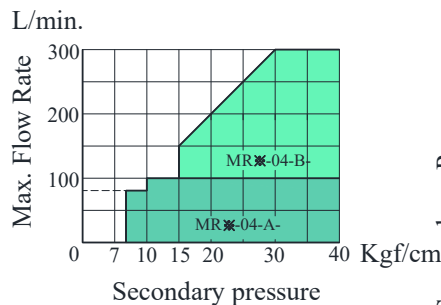
Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35cSt, Specific Gravity 0.850

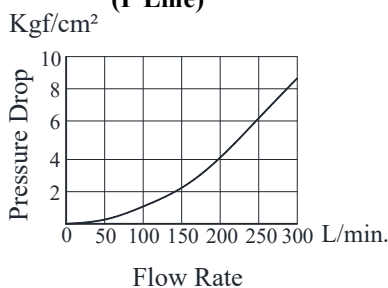
Pressure Drop



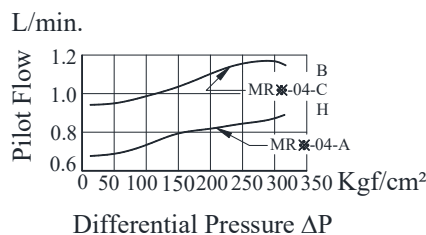
Secondary Pr. Vs Max. Flow



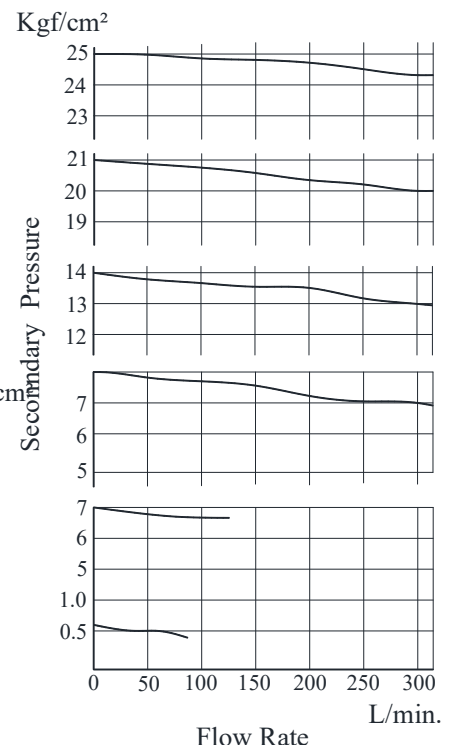
Pr. Drop At Spool Fully Open (P Line)



Pilot Flow



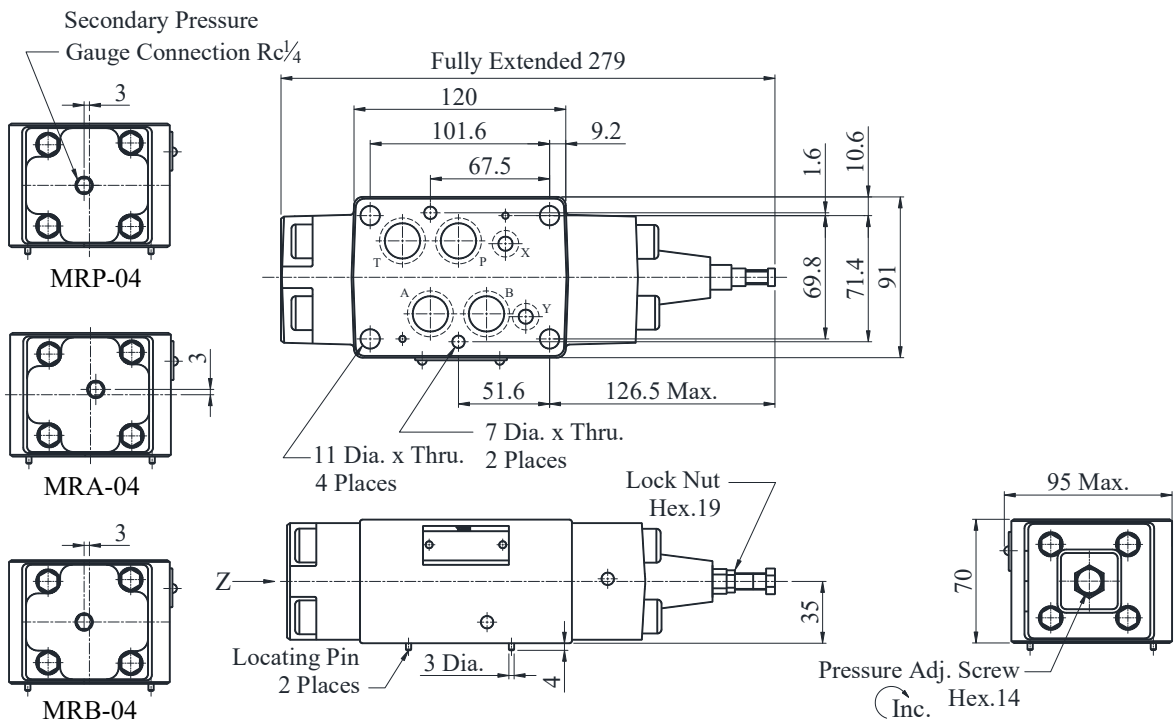
Nominal Over ride Characteristics



Instructions

- **Min. adjustment pressure** which varies with tank line back pressure may be obtained from the formula below.
Min. Adjustment pressure = Min. adjustment pressure value + Tank line Back pressure.
 Add T-Line pressure drop value of the valve to be stacked on the base plate side to tank line back pressure.
- 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-04-※-10H01**
- **MRA-04-※-10H01**
- **MRB-04-※-10H01**



Mass 7.4 Kg. (Approx.)

Spare Parts List

List of Seals

Sl. No.	Name of Parts	Parts Numbers	Qty.
1	O-Ring	SO-NB-P28	2
2	O-Ring	SO-NB-P22	4
3	O-Ring	SO-NB-P9	7
4	O-Ring	SO-NA-P9	1

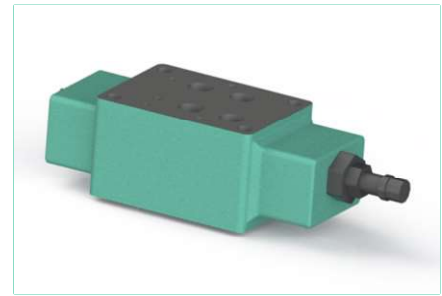
List of Seal Kits

Model Numbers	Seal Kit Numbers
MRP-04	KS-MRP-04-10
MRA-04	
MRB-04	

1/2 Throttle and Check Modular Valves

Specifications

Model Number	Max. Operating Pressure Kg/cm ²	Max. Flow L/min.
(F-) MSA-04-※-10H01	350	300
(F-) MSB-04-※-10H01	350	300
(F-) MSW-04-※-10H01	350	300



Model Number Designation

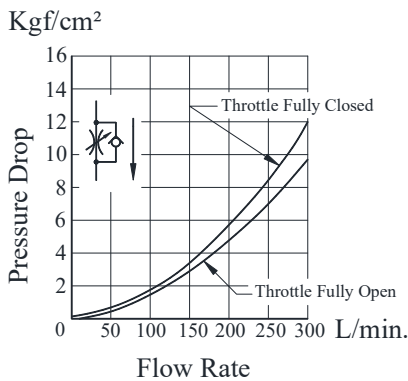
F-	MSA	-04	-X	-10	H01
Special Seals **	Series Number	Valve Size	Direction of Flow ("A" line)	Design Number	Design Standard
F: Special Seals For Phosphate Ester Type Fluids (Omit if not required)	MSA: Throttle and Check Modular Valves for A-Line MSB: Throttle and Check Modular Valves for B-Line MSW: Throttle and Check Modular Valves for A,B-Line	04	X : Meter - Out Y : Meter - In	10	H01

** Before ordering the Special Seals, consult YUKEN INDIA LTD.

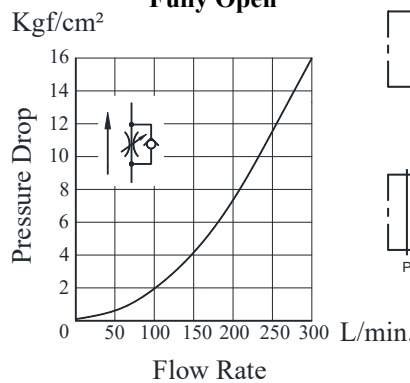
Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35cSt, Specific Gravity 0.850

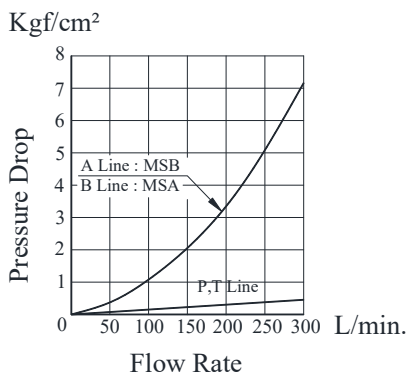
● **Pressure Drop For Free Flow**



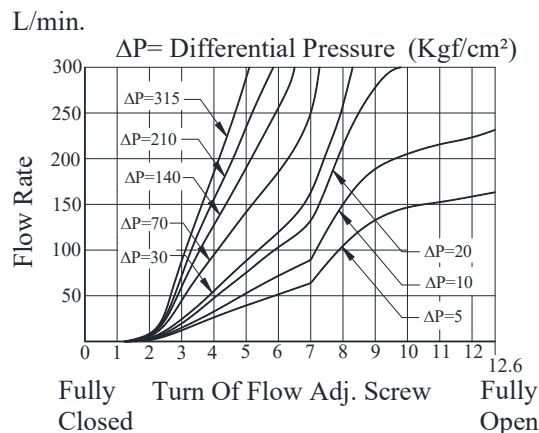
● **Pressure Drop At Throttle Fully Open**



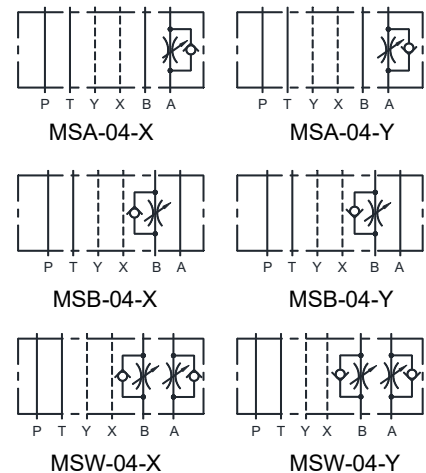
● **Pressure Drop**



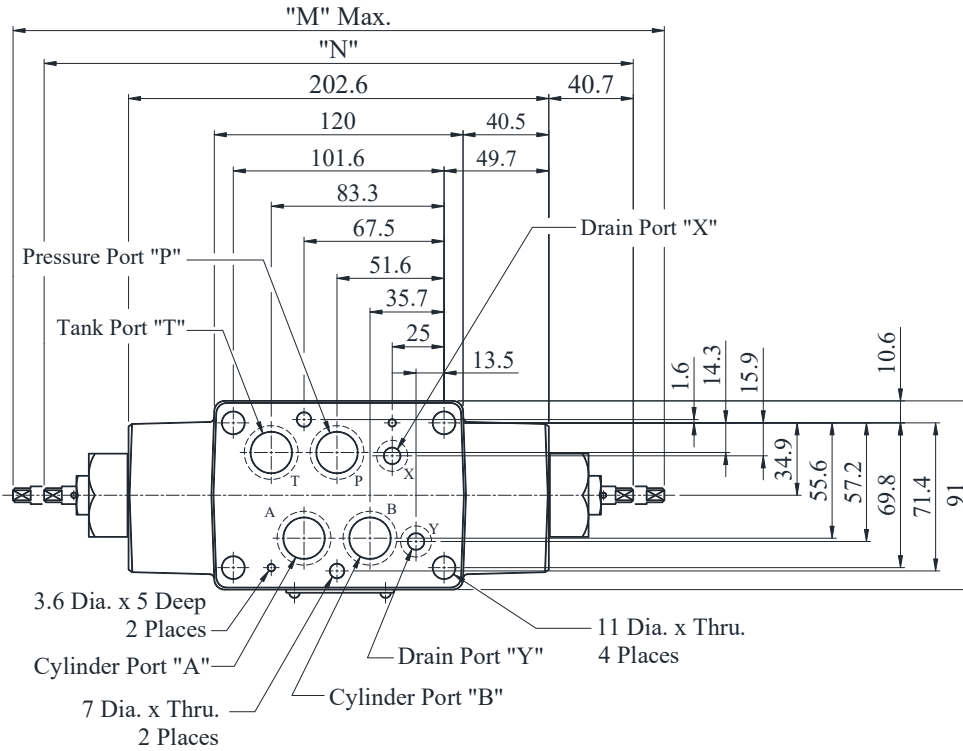
● **Metered Flow Vs Screw Position**



Graphic Symbols



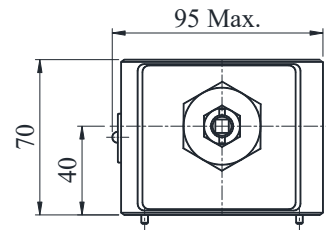
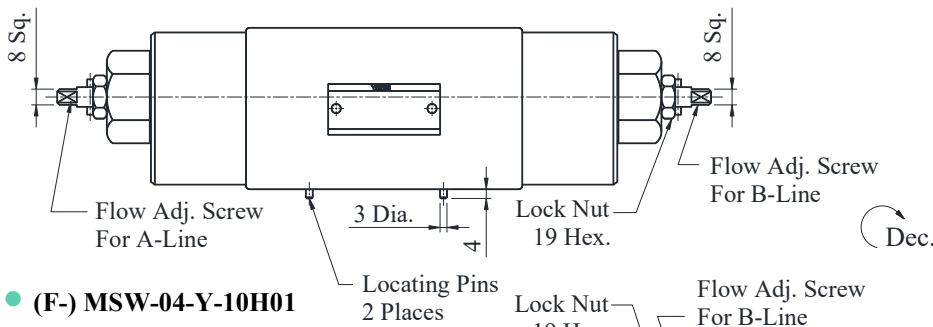
● (F-) MSW-04-X-10H01



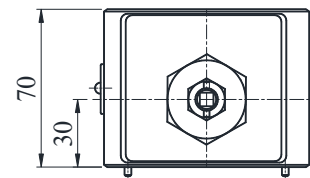
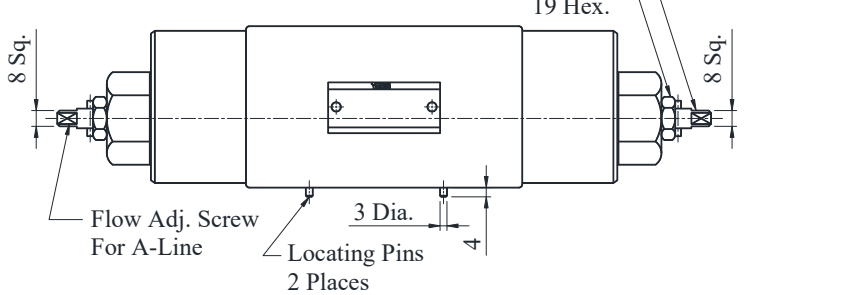
Sl. No.	Model Numbers	"M"	"N"
1	MSA-04	268	253
2	MSB-04	268	284
3	MSW-04	314	284

DIMENSIONS IN MILLIMETRES

● (F-) MSW-04-X-10H01

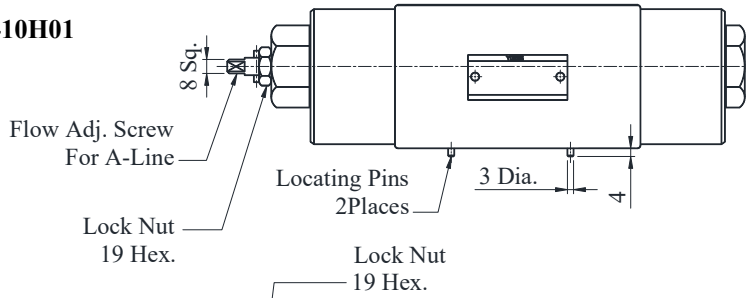


● (F-) MSW-04-Y-10H01

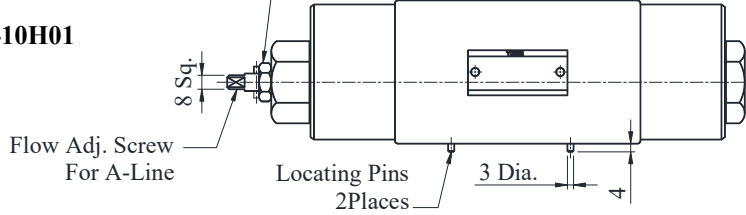


Mass 7.6 Kg. (Approx.)

● (F-) MSA-04-X-10H01



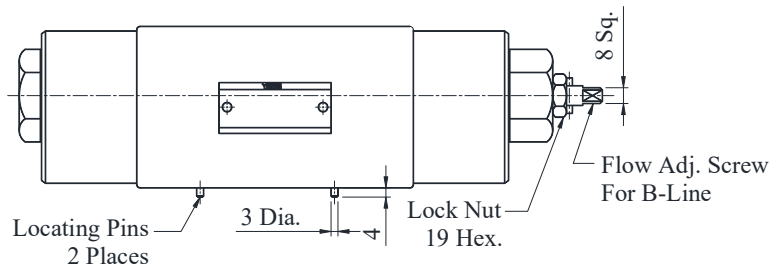
● (F-) MSA-04-Y-10H01



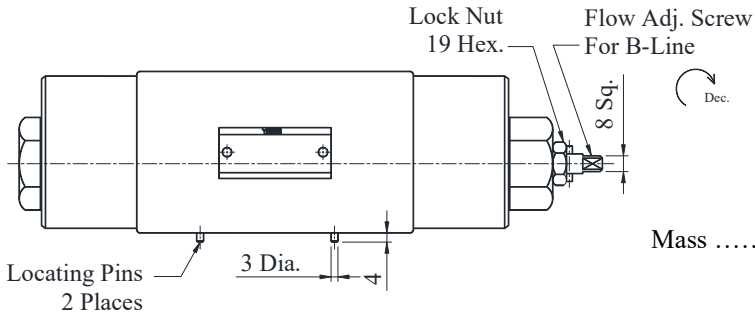
Mass 7.4 Kg. (Approx.)

Note : For all other dimensions refer MSW-04-X_Y-10H01 accordingly.

● (F-) MSB-04-X-10H01



● (F-) MSB-04-Y-10H01



Mass 7.4 Kg. (Approx.)

Note : For all other dimensions refer MSW-04-X_Y-10H01 accordingly.

■ Spare Parts List

● List of Seals

Sl. No.	Name of Parts	Parts Numbers	Qty.		
			MSA-04	MSB-04	MSW-04
1	O-Ring	SO-NB-P26	2	2	2
2	O-Ring	SO-NB-P22	4	4	4
3	O-Ring	SO-NB-P9	2	2	2
4	O-Ring	SO-NA-P10A	1	1	2
5	Backup-Ring	SO-BB-P10A	1	1	2

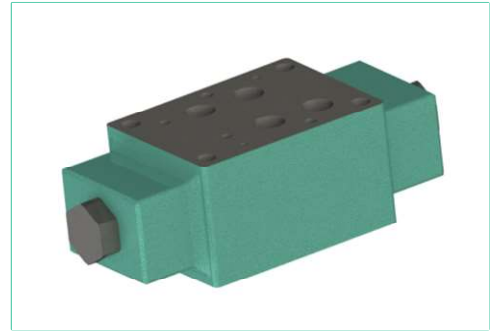
● List of Seal Kits

Model Numbers	Seal Kit Numbers
MSA-04	KS-MSA-04-10
MSB-04	
MSW-04	KS-MSW-04-10

1/2 Pilot Operated Check Modular Valves

Specifications

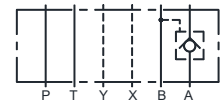
Model Number	Max. Operating Pressure Kgf/cm ²	Max. Flow L/min.
(F-) MP*-04*-10H01	350	300



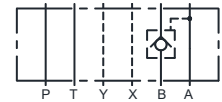
Model Number Designation

F-	MPA	-04	-2	-10	H01
Special Seals **	Series Number	Valve Size	Cracking Pressure Kgf/cm ²	Design Number	Design Standard
F: Special Seals For Phosphate Ester Type Fluids (Omit if not required)	MPA: A-Line MPB: B-Line MPW: A.B-Line	04	2 : 2 4 : 4	10	H01

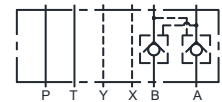
Graphic Symbols



MPA-04



MPB-04



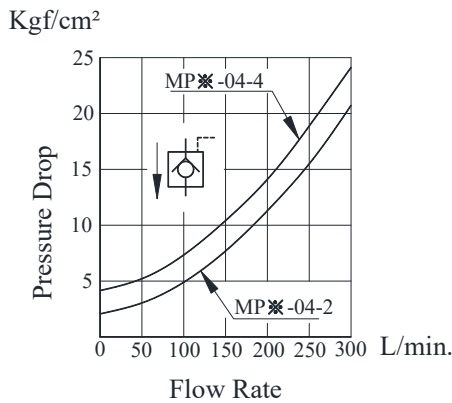
MPW-04

** Before ordering the Special Seals, consult YUKEN INDIA LTD.

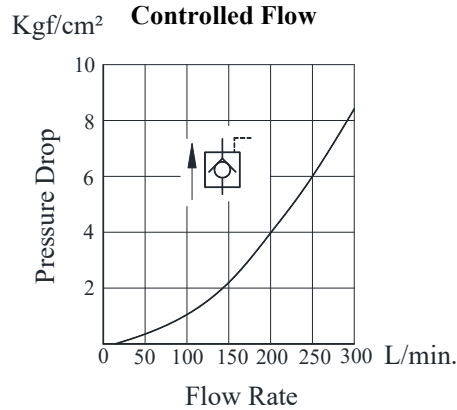
Typical Performance Characteristics

Hydraulic Fluid: Viscosity 35cSt, Specific Gravity 0.850

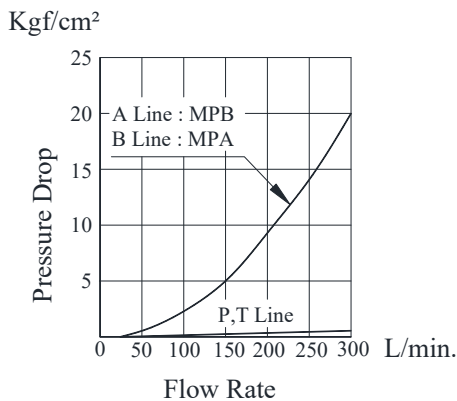
Pressure Drop for Free Flow



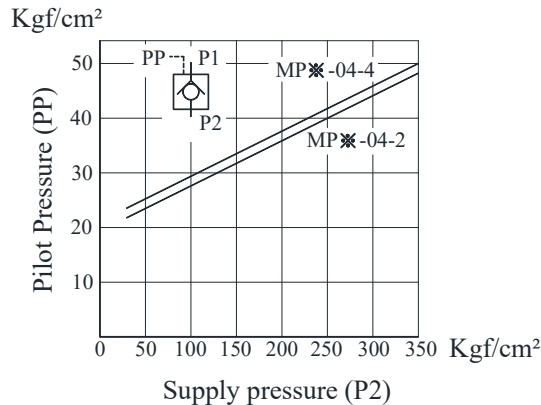
Pressure Drop For Reversed Controlled Flow



Pressure Drop

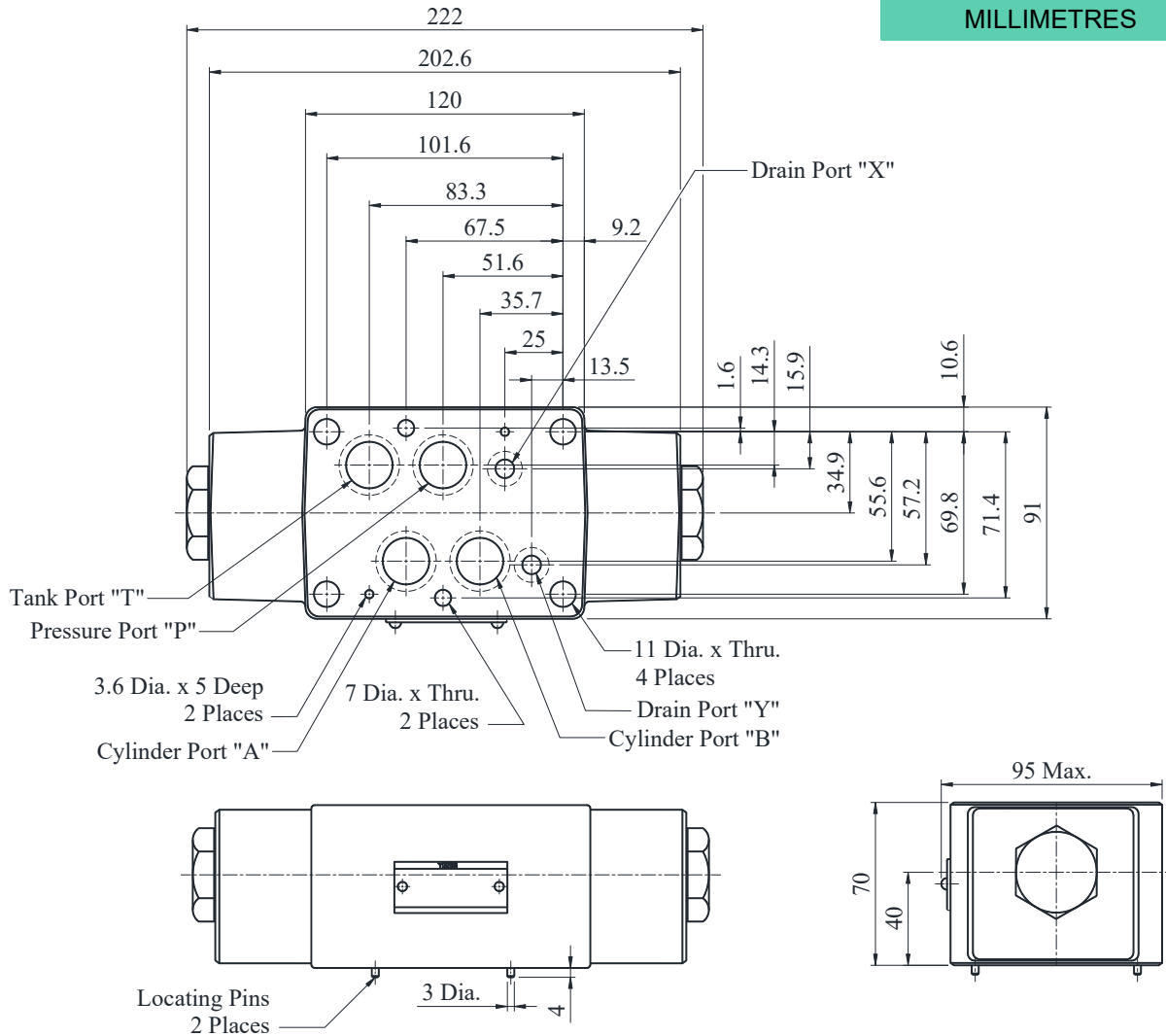


Minimum pilot pressure



● (F-) MP※ -04-※-10H01

DIMENSIONS IN MILLIMETRES



Mass 7.3 Kg. (Approx.)

■ Spare Parts List

● List of Seals

Sl. No.	Name of Parts	Parts Numbers	Qty.
1	O-Ring	SO-NB-P26	2
2	O-Ring	SO-NB-P22	4
3	O-Ring	SO-NB-P9	2

● List of Seal Kits

Model Numbers	Seal Kit Numbers
MPA-04	KS-MPA-04-10
MPB-04	
MPW-04	

04 Series Modular Valves

■ Mounting Bolts Kits, For 1/2 Modular Valves

Valves are mounted with four stud bolts. Valves combination varies according to the circuit type. Hence, the mounting bolts kits are available in a combination type basis.

When ordering the bolts kit, be sure to give the bolt kit model number from the table.

■ Model Number Designation

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

■ Bolts Kit Structure:

- **Stud Bolt**
M6 Thd. ----- 2 No.
M10 Thd. ----- 4 No.
 - **Nut**
M6 Thd. ----- 2 No.
M10 Thd. ----- 4 No.
- } 1 Set

■ Bolt Kits selection chart

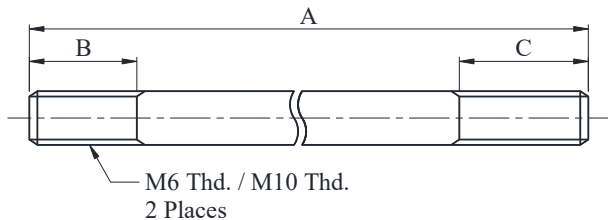
Models Number	Quantity Of Valves To Be Stacked			Approx. Mass Kg.
	DSHG-04	Modular Valve	Total Number of Stacks	
MBK-04-01-10	1	1	2	0.6
MBK-04-02-10	1	2	3	0.8
MBK-04-03-10	1	3	4	1.0
MBK-04-04-10	1	4	5	1.2

Note :

- 1 Bolt Kits are available as Bolt Kit number mentioned above.
- 2 The solenoid Operated directional valve comes with mounting bolts.

■ MBK-04

● **Stud Bolt**

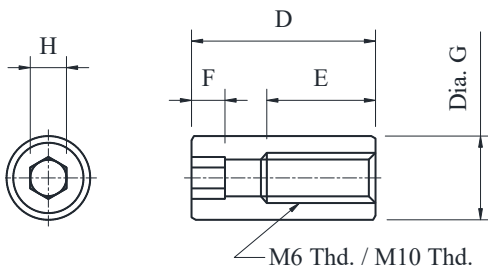


Model Numbers	A		B		C	
	M6	M10	M6	M10	M6	M10
MBK-04-01-10	125	140	12	17	12	23
MBK-04-02-10	195	210				
MBK-04-03-10	265	280				
MBK-04-04-10	335	350				

Note :

- 1 As M10 Thd. Stud Bolt is having longer thread portion (at C), suggested to use Nut at that location.
- 2 As M6 Thd. Stud Bolt thread portion is same at both ends, Nut to be used at any one side.

● **Nut**



Thread Size	D	E	F	G	H
M6	22	13	4	10	5
M10	32	24	5	16	8