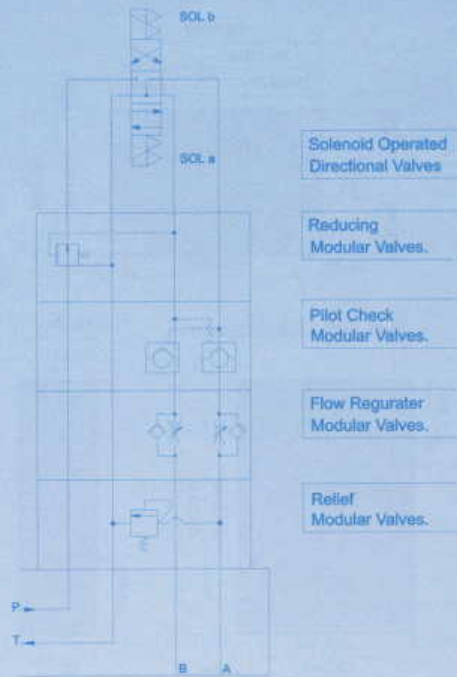
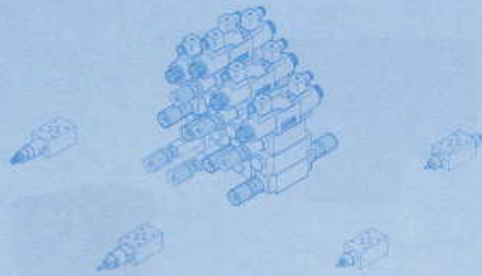
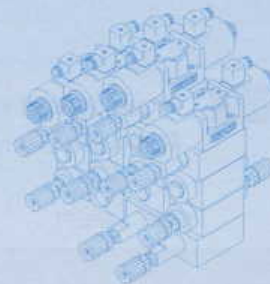


MODULAR VALVE SERIES



Model	Symbol	External View
DSG-3C*-N-01-*** Solenoid Operated Directional Valves		
MPW-01-* Pilot Operated Check Modular Valves		
MSW-01-* Throttle with Check Modular Valves		
MCP-01-* Check Modular Valves		
MBP-01-* Relief Modular Valves		
MMC-01 Base Plate		



Type	External View	Model Number				Description				Page
		01 Series	03 Series	04 Series	06 Series	P	T	B	A	
Pressure Control Valve	Relief Valve	MBP-01-*	MBP-03-*	MBP-04-*	MBP-06-*					
		MBW-01-*	MBW-03-*	MBW-04-*	MBW-06-*					
	MBA-01-*	MBA-03-*	MBA-04-*	MBA-06-*						
	MBB-01-*	MBB-03-*	MBB-04-*	MBB-06-*						
	Brake Valve	MBR-01-*	MBR-03-*							
		MRP-01-*	MRP-03-*	MRP-04-*	MRP-06-*					
	Reducing Valve	MRA-01-*	MRA-03-*	MRA-04-*	MRA-06-*					
		MRB-01-*	MRB-03-*	MRB-04-*	MRB-06-*					



C

	Type	External View	Model Number				Description					
			01 Series	03 Series	04 Series	06 Series	P	T	B	A		
Pressure Control Valve	Sequence Valves		MHP-01-*	MHP-03-*	MHP-04-*	MHP-06-*						
	Counter-balance Valves		MHA-01-*	MHA-03-*	MHA-04-*	MHA-06-*						
		MHB-01-*	MHB-03-*	MHB-04-*	MHB-06-*							
	Pressure Switches (Modular Type)		DNM(B)-01-P	DNM(B)-03-P								
		DNM(B)-01-A	DNM(B)-03-A									
		DNM(B)-01-B	DNM(B)-03-B									
Flow Control Valve	Throttle Valves		MSP-01-*	MSP-03-*	MSP-04-*	MSP-06-*						
	Throttle with Check Valves (Meter-Out)		MSW-01-X	MSW-03-X	MSW-04-X	MSW-06-X						
		MSA-01-X	MSA-03-X	MSA-04-X	MSA-06-X							
		MSB-01-X	MSB-03-X	MSB-04-X	MSB-06-X							
	Throttle with Check Valves (Meter-In)		MSW-01-Y	MSW-03-Y	MSW-04-Y	MSW-06-Y						
		MSA-01-Y	MSA-03-Y	MSA-04-Y	MSA-06-Y							
		MSB-01-Y	MSB-03-Y	MSB-04-Y	MSB-06-Y							
	Throttle Valves Pressure and Temperature Compensated		MSP-01-*	MSP-03-*	MFP-04-*	MFP-06-*						
		Throttle with Check Valves (Meter-Out) Pressure and Temperature Compensated		MFW-01-X	MFW-03-X	MFW-04-X	MFW-06-X					
			MFA-01-X	MFA-03-X	MFA-04-X	MFA-06-X						
			MFB-01-X	MFB-03-X	MFB-04-X	MFB-06-X						
		Throttle with Check Valves (Meter-In) Pressure and Temperature Compensated		MFW-01-Y	MFW-03-Y	MFW-04-Y	MFW-06-Y					
			MFA-01-Y	MFA-03-Y	MFA-04-Y	MFA-06-Y						
	MFB-01-Y		MFB-03-Y	MFB-04-Y	MFB-06-Y							
	Directional Control Valve	Check Valve		MCP-01-*	MCP-03-*	MCP-04-*	MCP-06-*					
MCT-01-*			MCT-03-*	MCT-04-*	MCT-06-*							
MCA-01-*			MCA-03-*	MCA-04-*	MCA-06-*							
MCB-01-*			MCB-03-*	MCB-04-*	MCB-06-*							
Vacume Check Valve			MAC-01-*	MAC-03-*								
Pilot Operated Check Valve			MPW-01-*	MPW-03-*	MPW-04-*	MPW-06-*						
		MPA-01-*	MPA-03-*	MPA-04-*	MPA-06-*							
		MPB-01-*	MPB-03-*	MPB-04-*	MPB-06-*							
End Plates	End Plates		MDC-01-A	MDC-03-A								
		MDC-01-B	MDC-03-B									

C

• The Hystar modular valves are available in size: 1/8" (01), 3/8"(03), 1/2"(04), 3/4"(06), all the mounting dimensions are based on ISO 4401 standard (Hydraulic fluid power four port directional control valves mounting surface). The types are available in pressure control valves, flow control valves, directional control valves, which are high pressure, large capacity to meet recent tendency-high pressure, high flow hydraulic circuits. Pressure up to (250 bar), flow up to 50lpm(size 01), 100lpm(size 03), 190lpm(size 04), 300lpm(size 06).

• Modular valves have been developed and designed to integrate the hydraulic circuit with hydraulic equipment. Any type of hydraulic circuit can be set up without piping simply by stacking modular valves one over another.

• The modular system has many features. For example, easy to install, easy alteration of hydraulic circuits reduces space, reduces cost, no vibration, no oil leakage, easy maintenance.....etc.

• Hystar's M series relief modular valves (MB*-0*-*) throttle modular valves (MSP-0*-*), throttle with check modular valves (MS*-0*-*), reducing modular valves (MR*-0*-*), equipped with handknob (handle) are standard.

• **BASE PLATES. (MULTI-STATION MANIFOLDS)**

Standard subplates details please see Cata No. V2002 pages 33 and 34.

Other subplates include:

Single station manifolds: side ports, bottom ports, side & bottom ports.

• Multi-station manifolds. (1-10 stations)

Ports thread "PT", "NPT", "PF"etc.

Option materials of aluminium (6016-T6) or steel (ASTM A570-79) are available. Consult Hystar for further information.

• **MOUNTING BOLTS**

Hexagonal socket head cap screw (Metric fixing Bolts UNC)-2 stacks supplied at standard no extra cost.

M5 x 85(95)Lg, 4pcs for 1/8" (01) modular valves.

M6 x 90Lg, 4pcs for 3/8" (03) modular valves.

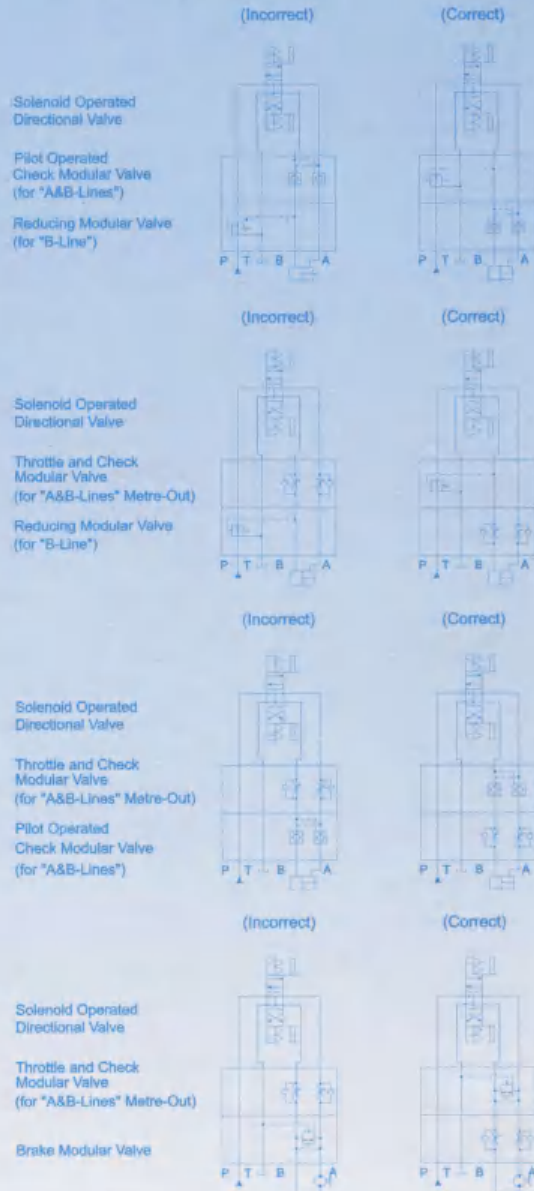
M10 x 120Lg, 4 pcs and M6 x 125Lg, 2 pcs for 1/2" (04) modular valves. modular valves.

M12 x 140Lg, 6pcs for 3/4" (06) modular valves.



• The modular circuit designing examples as following tables.

The left side is incorrect, and the right side is correct.



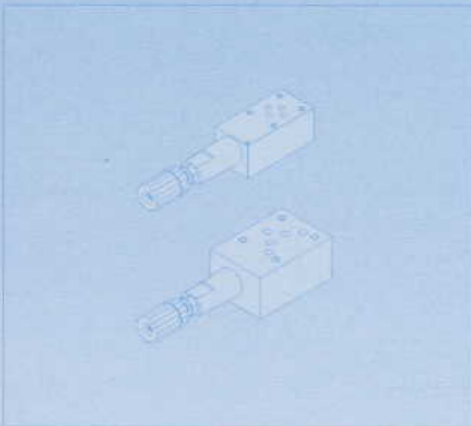
■ **Mounting Surface**

Series	CETOP	ISO	NFPA
01 Modules	CETOP 03	ISO Size 03	NFPA D03
03 Modules	CETOP 05	ISO Size 05	NFPA D05
04 Modules	CETOP 07	ISO Size 07	NFPA D07
06 Modules	CETOP 08	ISO Size 08	NFPA D08



RELIEF MODULAR VALVES

Relief Valves (Modular Type)



Model & Symbol		Model & Symbol	
MBP-01 (03)		MBP-04 (06)	
MBA-01 (03)		MBA-04 (06)	
MBB-01 (03)		MBB-04 (06)	
MBW-01 (03)			

Ratings

Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MB*-01-	250 (3600)	50 (13.2)	1/8"	1.1 (2.4)
MB*-03-	250 (3600)	100 (26.5)	3/8"	3.8 (8.3)
MB*-04-	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MB*-06-	250 (3600)	300 (79.3)	3/4"	11.2 (24.6)

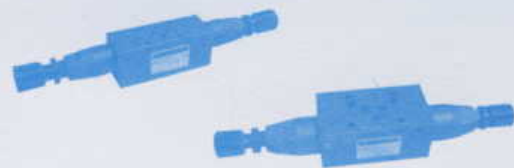
• This balanced piston type relief modular valve is an improved over the conventional type relief valve.

The valve is designed to control the maximum pressure of the hydraulic circuit and also serves as a safety valve.

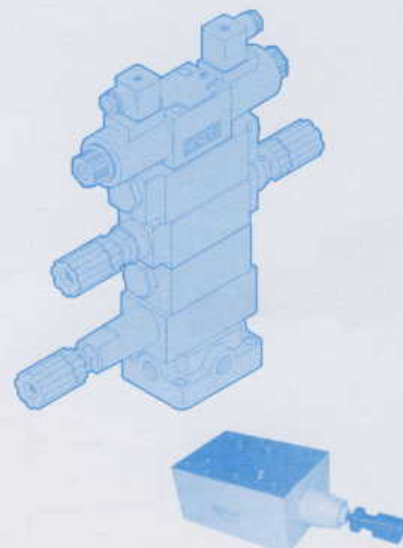
- It can provide normal performance in a wide range of operating pressure from 8 up to 250 bar.
- Back Pressure in tank port should be as low as possible (under 5 bar).
- In case the valves are used as safety valves, pressure setting should be higher than max. circuit pressure by 10 ~ 15 bar.
- The pressure will be increased when the pressure adjustment handle is turned clockwise, and will be reduced when the pressure adjustment handle is turned counter-clockwise.
- Be sure to re-tighten the lock nut firmly after making adjustment to the pressure.

Ordering Code

MB - **P** - **01** - **C** - **20** - **S**



Series No	Control Line	Valve Size	Pressure Adj. Range	Design No	Option Kits
Relief Modular Valves	P : P Port 	(DSG-) 01 (NFPA-D03) 	C: 8-140 bar 	20 DIN 912 bolts 	None: With Knob
	A : A Port 	(DSG-) 03 (NFPA-D05) 	H: 70-210 bar 	2090 UNC bolts (North America) 	S: Soc. Hd. Cap Screw
	B : B Port 	(DSHG-) 04 (NFPA-D07) 			
	W : A & B Port 	(DSHG-) 05 (NFPA-D08) 			



DIMENSIONS

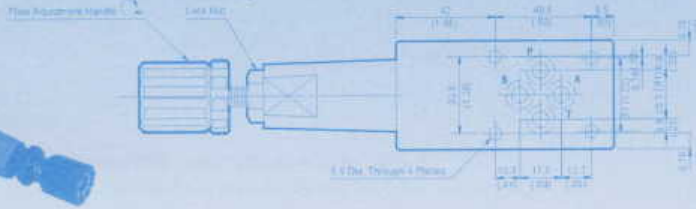
MILLIMETERS(INCHES)

MB*-01 Relief Valves(Modular Type)

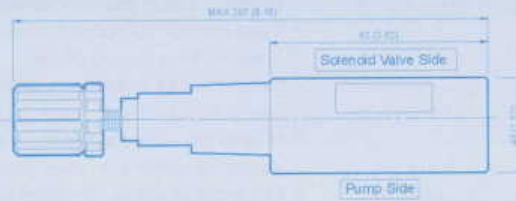
MOUNTING SURFACE:MB*-01-CETOP3
ISO 03-NFPAD03

Valve Specifications & Attachment

Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight (kg/lbs)	1.1 (2.4)
CODE 20	M5 X0.5LgX4pcs
CODE 2090	10-24UNCX3-4/4"LgX4pcs
Mounting Surface O-Ring	F3 x 3 pc



OPTION
Design No: 30 (3090)



MB*-03 Relief Valves(Modular Type)
(MBA-MBB-MBP-03)

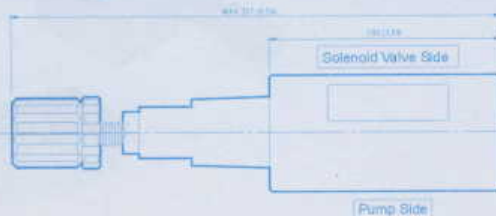
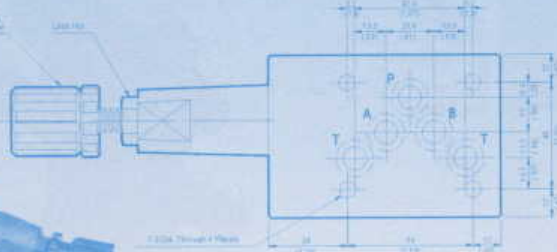
MOUNTING SURFACE:MB*-03-CETOP5
ISO 05-NFPAD05

Valve Specifications & Attachment

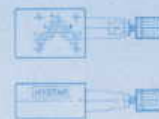
Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight (kg/lbs)	3.5 (7.7)
CODE 20	M6 X0.5LgX4pcs
CODE 2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc



OPTION
Design No: 30 (3090)



MB*-03-L





MBW-01 Relief Valves(Modular Type)

MOUNTING SURFACE: MB*-01-CETOP3
ISO 03-NFPAD03

OPTION
Design No: 30 (3090)

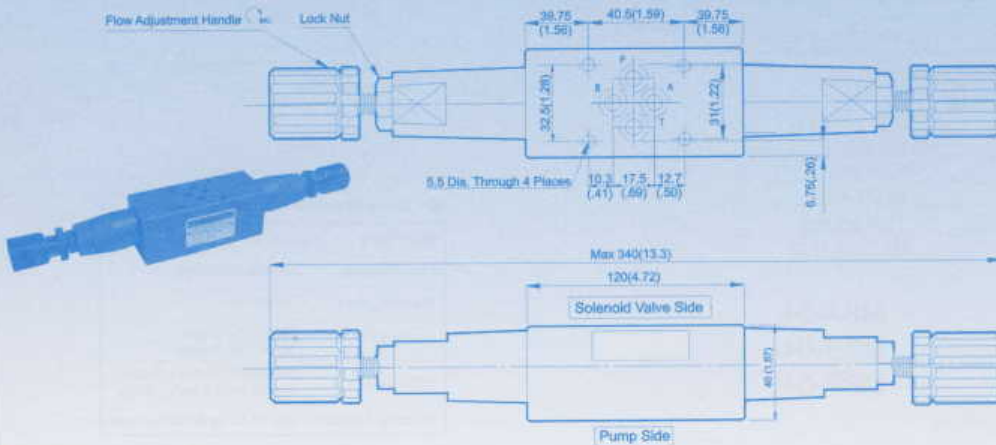


Valve Specifications & Attachment

Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	1.1 (2.4)
CODE:20	M5 X95LgX4pcs
CODE:2090	10-24UNCX4*LgX4pcs
Mounting Surface O-Ring	P9 x 2 pc



SYMBOL



MBW-03 Relief Valves(Modular Type)

MOUNTING SURFACE: MB*-03-CETOP5
ISO 05-NFPAD05

OPTION
Design No: 30 (3090)

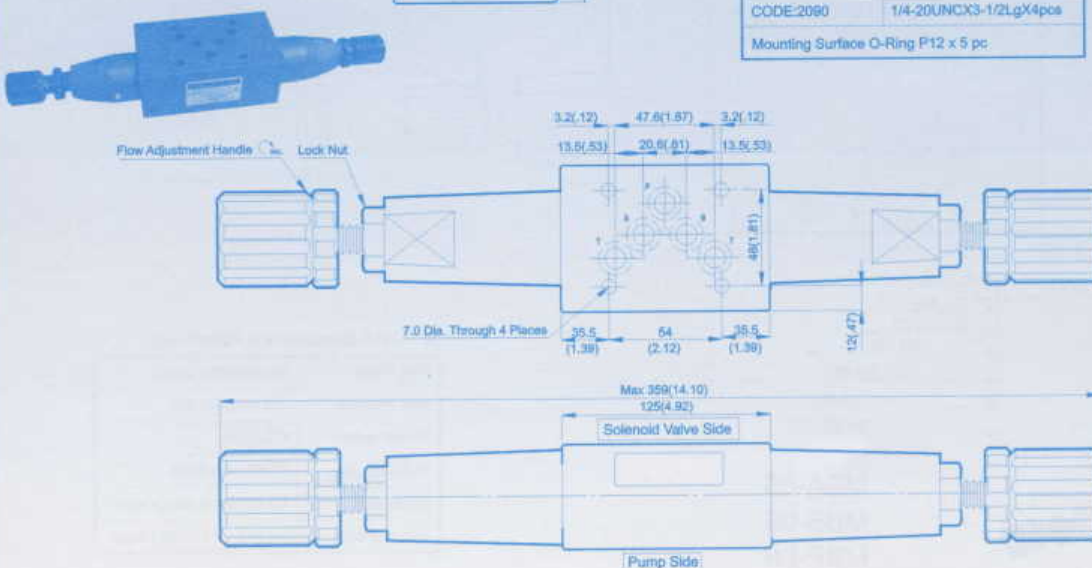


Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	3.5 (7.7)
CODE:20	M5 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc



SYMBOL

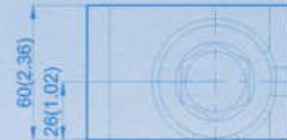
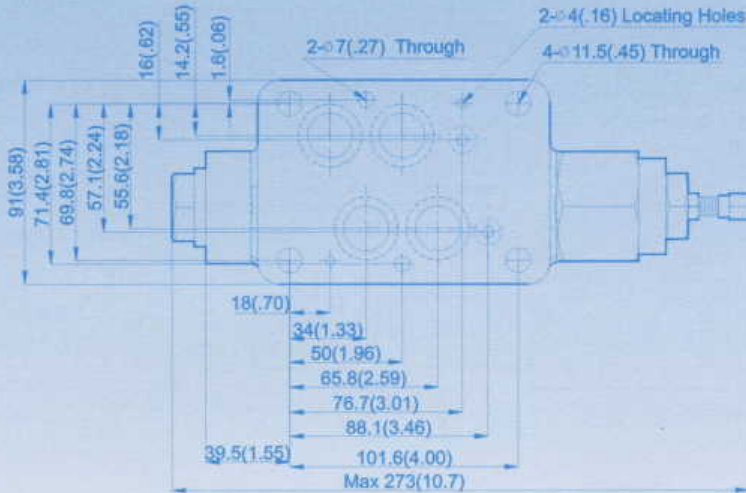


DIMENSIONS

MILLIMETERS(INCHES)

MB*-04 Relief Valves(Modular Type)

MOUNTING SURFACE:MB*-04-CETOP7
ISO 07-NFPAD07



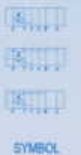
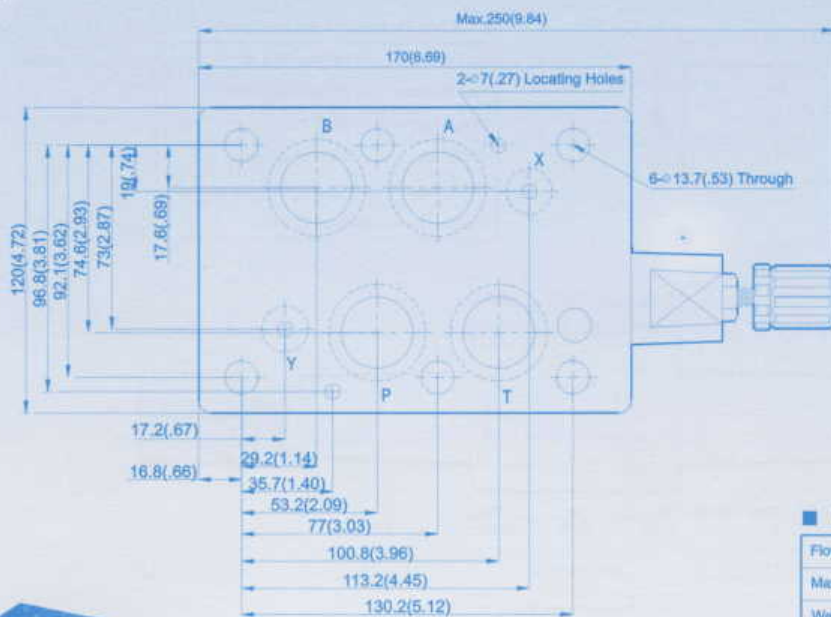
MBA-04
MBB-04
MBP-04

■ Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-18UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring P9 x 2 pc & P22A x 4 pcs	

MB*-06 Relief Valves(Modular Type)

MOUNTING SURFACE:MB*-06-CETOP8
ISO 08-NFPAD08



MBA-06
MBB-06
MBP-06

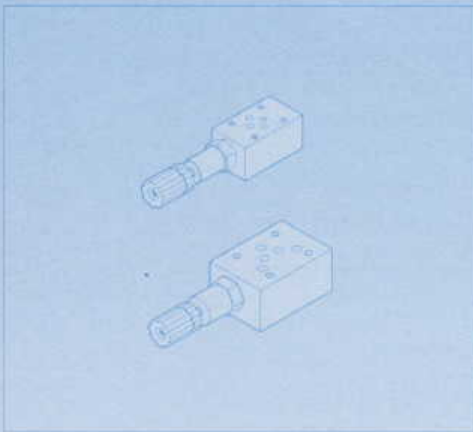
■ Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX6pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X6pcs
Mounting Surface O-Ring P12 x 2 pc, P28 x 4 pcs	



REDUCING MODULAR VALVES

Reducing Valves (Modular Type)



Model & Symbol		Model & Symbol	
MRP-01 (03)		MRP-04 (06)	
MRA-01 (03)		MRA-04 (06)	
MRB-01 (03)		MRB-04 (06)	

Ratings

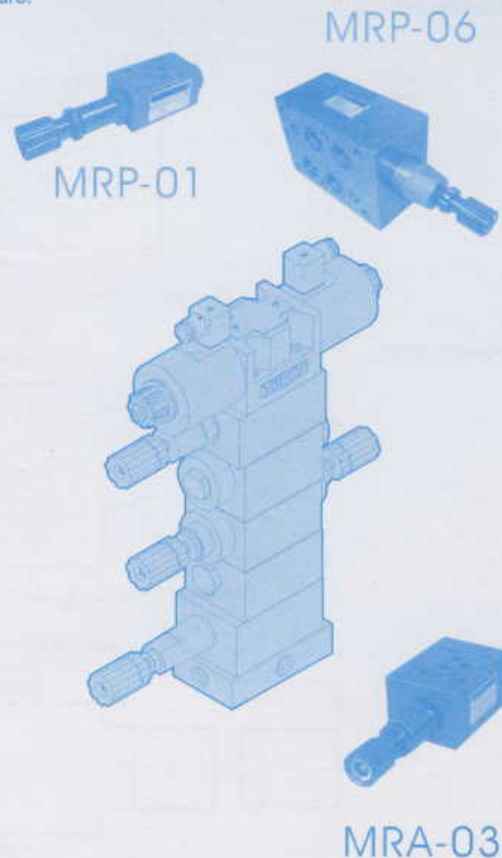
Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MR*-01-*	250 (3600)	50 (13.2)	1/8"	1.1 (2.4)
MR*-03-*	250 (3600)	100 (26.5)	3/8"	3.8 (8.3)
MR*-04-*	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MR*-06-*	250 (3600)	300 (79.3)	3/4"	11.2 (24.6)

- This valve is employed to keep the pressure of some circuit lower than the main circuit pressure.
- Drain port should be connected to tank.
- Pressure difference between primary pressure and secondary pressure should be maintained over than 10 bar for good pressure reduction.
- Pressure cannot be adjusted if a certain flow rate cannot be obtained.
- The pressure will be increased when the pressure adjustment handle is turned clockwise, and will be reduced when the pressure adjustment handle is turned counter-clockwise.
- Be sure to re-tighten the lock nut firmly after making adjustment to the pressure.

Ordering Code

MR - P - 03 - C - 20 - S

Series No	Control Line	Valve Size	Pressure Adj. Range	Design No	Option Kits
Reducing Modular Valves	P : P Port	(DSG-) 01 (NFPA-D03)	B: 3- 70 bar	20 DIN 912 bolts	None; With Knob
	A : A Port	(DSG-) 03 (NFPA-D05)	C: 35- 140 bar	2000 UNC bolts (North America)	S: Soc. Hd. Cap Screw
	B : B Port	(DSHG-) 04 (NFPA-D07)	H: 70- 210 bar		
		(DSHG-) 06 (NFPA-D08)			



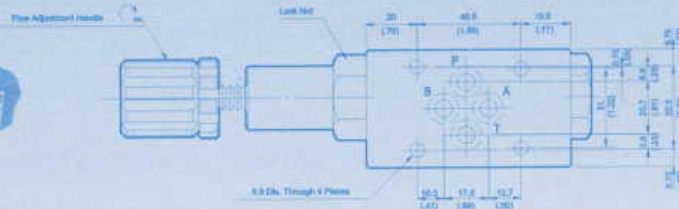
MR*-01

Reducing Valves(Modular Type)

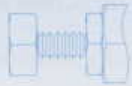
MOUNTING SURFACE:MR*-01-CETOP3
ISO 03-NFPAD03

Valve Specifications & Attachment

Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	1.1 (2.4)
CODE:20	M5 X85LgX4pcs
CODE:2090	10-24UNCX3-1/4"LgX4pcs
Mounting Surface O-Ring	P9 x 4 pc



OPTION
Design No: 30 (3090)



MR*-03

Reducing Valves(Modular Type)

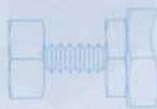
MOUNTING SURFACE:MR*-03-CETOP5
ISO 05-NFPAD05

Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	3.8 (8.4)
CODE:20	M6 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc

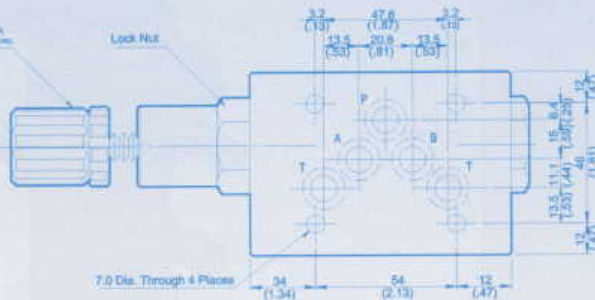


OPTION
Design No: 30 (3090)

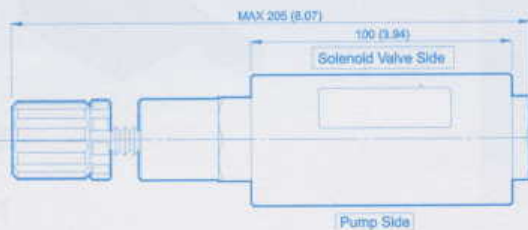


Flow Adjustment Handle

Lock Nut



7.0 Dia. Through 4 Planes





DIMENSIONS

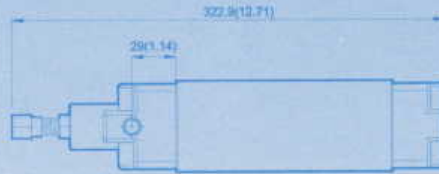
MILLIMETERS(INCHES)

MR*-04 Reducing Valves(Modular Type)

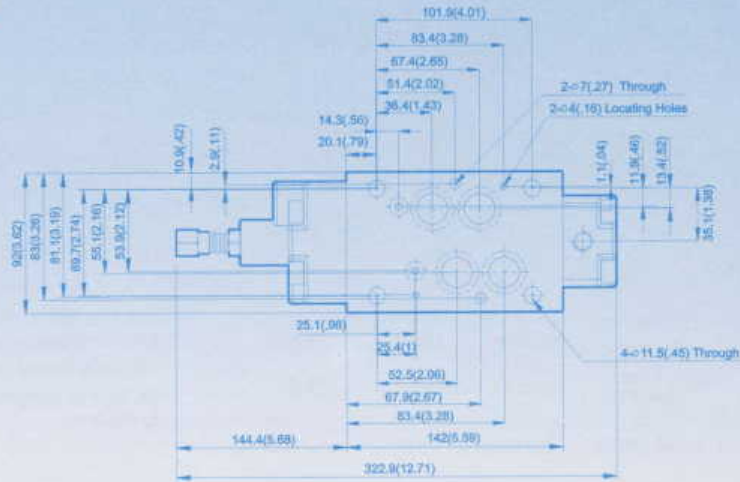
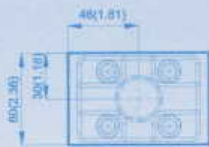
MOUNTING SURFACE:MR*-04-CETOP7
ISO 07-NFPAD07

Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg.(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring P9 x 2 pc & P22A x 4 pcs	



C

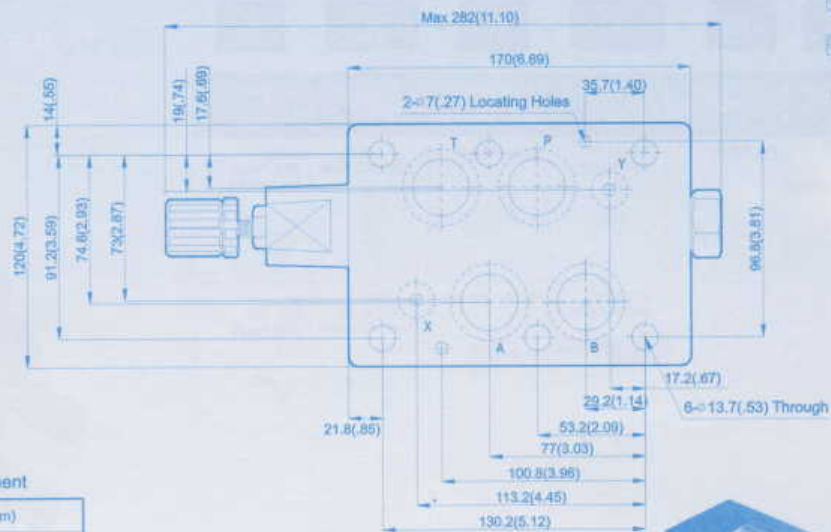
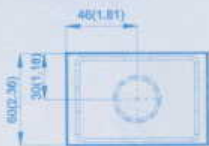


MR*-06 Reducing Valves(Modular Type)

MOUNTING SURFACE:MR*-06-CETOP8
ISO 08-NFPAD08

Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg.(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX8pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X8pcs
Mounting Surface O-Ring P12 x 2 pc, P28 x 4 pcs	



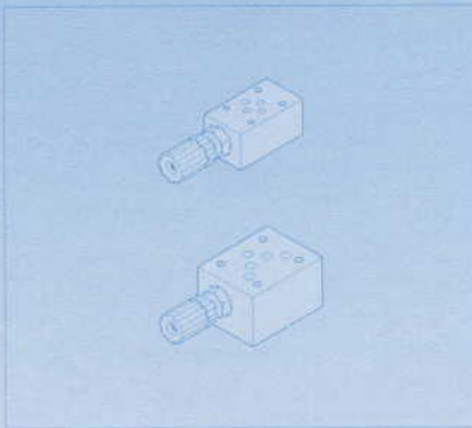
MRA-06
MRB-06
MRP-06



THROTTLE MODULAR VALVES

EXDPEV0110

■ Throttle Valves(Modular Type)



Model & Symbol

Model & Symbol

MSP-01 (03)



MSP-04 (06)



■ Ratings

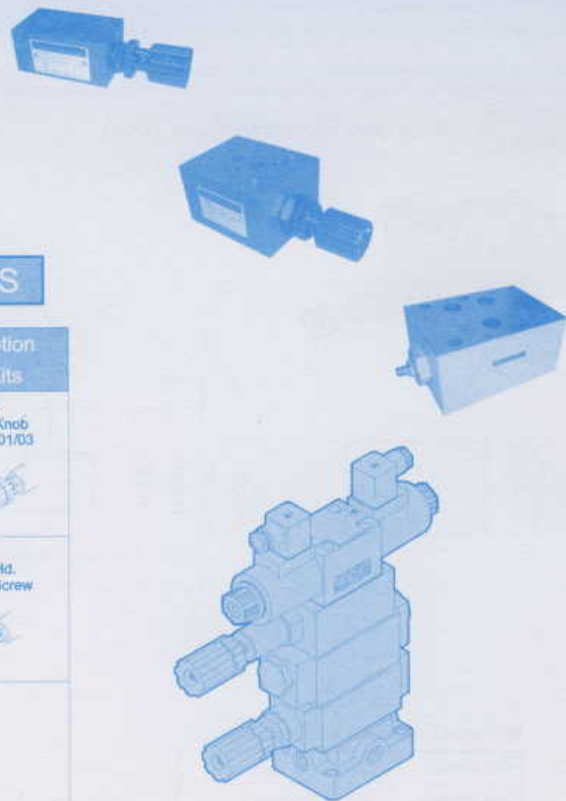
Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MSP-01	250 (3600)	50 (13.2)	1/8"	1.2 (2.6)
MSP-03	250 (3600)	100 (26.5)	3/8"	2.8 (6.1)
MSP-04	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MSP-06	250 (3600)	300 (79.3)	3/4"	11.2 (24.6)

- The flow will be decreased when the flow adjustment handle is turned clockwise, and will be increased when the flow adjustment handle is turned counter-clockwise.
- Be sure to re-tighten the lock nut firmly after making adjustment to the flow.

■ Ordering Code

MS P - 01 - H - 20 - S

Series No	Control Line	Valve Size	Pressure Adj. Range	Design No	Option Kits
Throttle Modular Valves (for P-Port)		(DSG-) 01 (NFPA-D03)	L: 5~ 50 bar	20 DIN 912 bolts	None: With Knob DSG-01/03
		(DSG-) 03 (NFPA-D05)	H: 70~ 210 bar	2090 UNC bolts (North America)	S: Soc. Hd. Cap Screw
		(DSHG-) 04 (NFPA-D07)			
		(DSHG-) 06 (NFPA-D08)			





DIMENSIONS

MILLIMETERS(INCHES)

MSP-01

Throttle Valves(Modular Type)

MOUNTING SURFACE:MS*-01-CETOP3
ISO 03-NFPAD03

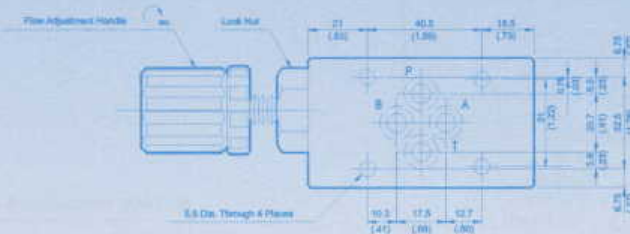


Valve Specifications & Attachment

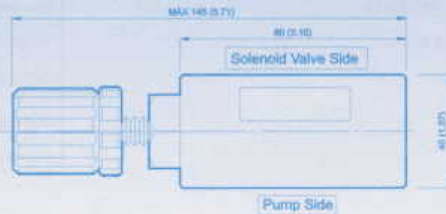
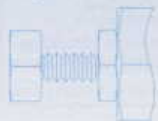
Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	1.2 (2.6)
CODE:20	M5 X95LgX4pcs
CODE:2090	10-24UNCX3-1/4"LgX4pcs
Mounting Surface O-Ring	P9 x 4 pc



SYMBOL



OPTION
Design No: 30 (3090)

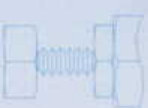


MSP-03

Throttle Valves(Modular Type)

MOUNTING SURFACE:MS*-03-CETOP5
ISO 05-NFPAD05

OPTION
Design No: 30 (3090)

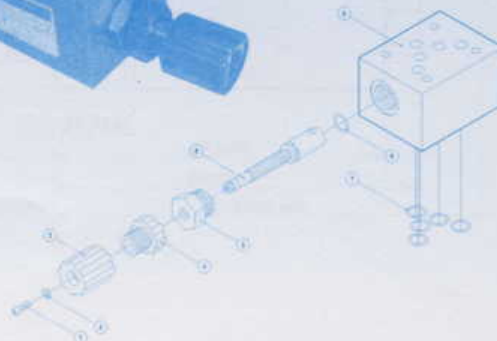
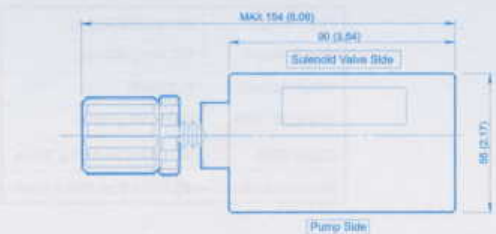
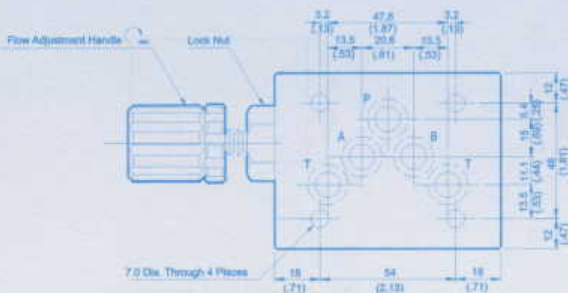


Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	3.0 (6.6)
CODE:20	M6 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2"LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc



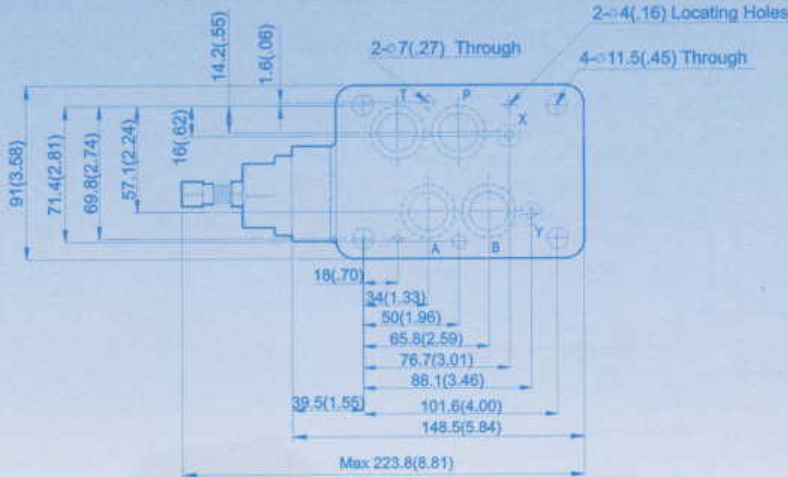
SYMBOL



C

MSP-04 Throttle Valves(Modular Type)

MOUNTING SURFACE:MSP-04-CETOP7
ISO 07-NFPAD07

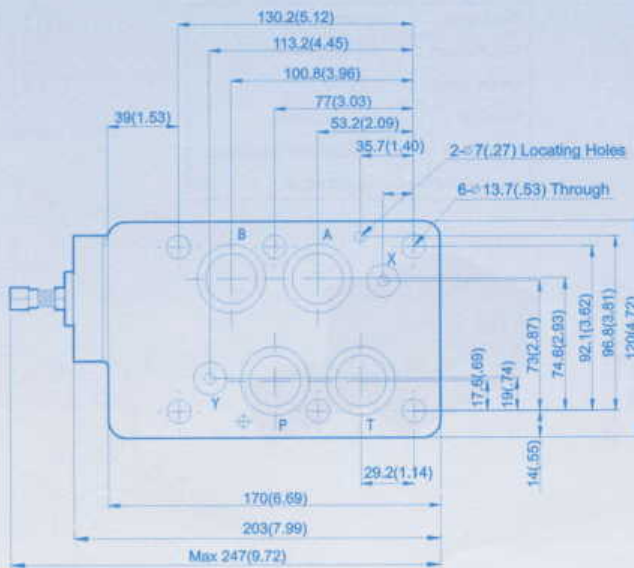


■ Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring	P9 x 2 pc & P22A x 4 pcs

MSP-06 Throttle Valves(Modular Type)

MOUNTING SURFACE:MSP-06-CETOP8
ISO 08-NFPAD08



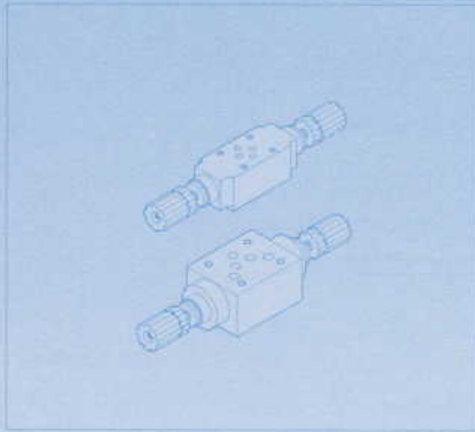
■ Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX6pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X6pcs
Mounting Surface O-Ring	P12 x 2 pc, P28 x 4 pcs



THROTTLE WITH CHECK MODULAR VALVES

Throttle with Check Valves (Modular Type)



Model & Symbol		Model & Symbol	
MSA-01 (03)-X		MSA-04 (06)-X	
MSB-01 (03)-X		MSB-04 (06)-X	
MSW-01 (03)-X		MSW-04 (06)-X	
MSA-01 (03)-Y		MSA-04 (06)-Y	
MSB-01 (03)-Y		MSB-04 (06)-Y	
MSW-01 (03)-Y		MSW-04 (06)-Y	

Ratings

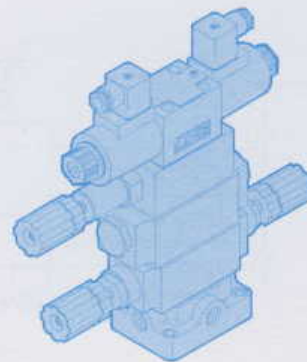
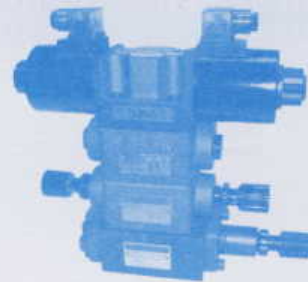
Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MS*-01-*	250 (3600)	50 (13.2)	1/8"	1.5 (3.3)
MS*-03-*	250 (3600)	100 (26.5)	3/8"	3.7 (8.1)
MS*-04-*	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MS*-06-*	250 (3600)	300 (79.3)	3/4"	12.2 (26.8)

- This valve is used for actuator speed control.
- Clockwise rotation of the adjusting handle decreases flow rate and counter-clockwise rotation increases it.
- Since the valve is of the spool type, oil flow cannot be shut off completely.
- Cracking pressure of check valve is 0.8 bar.

Ordering Code

MS A - 03 - X - L - 20 - S

Series No	Control Line	Valve Size	Pressure Adj. Range	Pressure Adj. Range	Design No	Option Kits
Throttle Check Modular Valves	A : A Port 	(DSG-) 01 (NFPA-D03) 	X : Meter out	L: 5- 50 bar 	20 DIN 912 bolts 	None: With Knob
	B : B Port 	(DSG-) 03 (NFPA-D05) 	Y : Meter in	H: 50- 250 bar 	2090 UNC bolts (North America) 	S: Soc. Hd. Cap Screw
	W : A & B Port 	(DSHG-) 04 (NFPA-D07) 				
		(DSHG-) 06 (NFPA-D08) 				



C

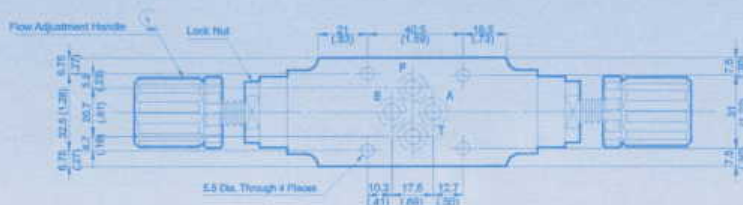
MSW-01 Throttle with Check Valves(Modular Type)

MOUNTING SURFACE:MS*-01-CETOP3
ISO 03-NFPAD03

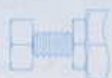


Valve Specifications & Attachment

Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	1.5 (3.3)
CODE:20	M5 X85LgX4pcs
CODE:2090	10-24UNCX3-1/4"LgX4pcs
Mounting Surface O-Ring P9 x 4 pc	



OPTION
Design No: 30 (3090)



SYMBOL



MSW-03 Throttle with Check Valves(Modular Type)

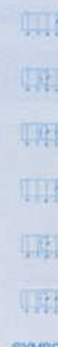
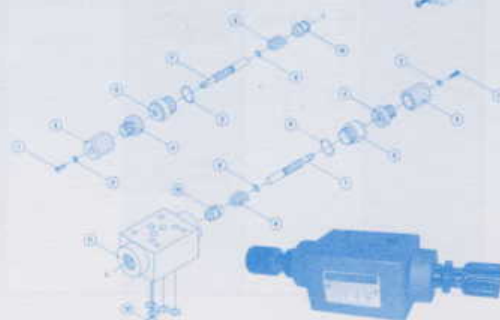
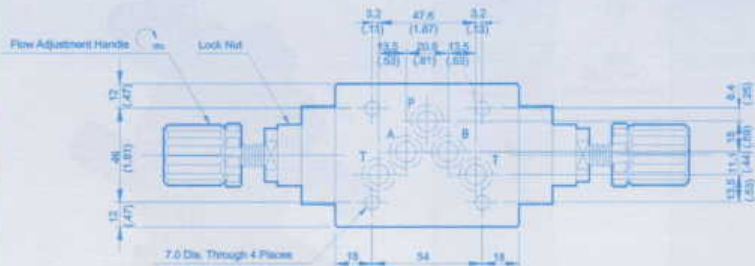
MOUNTING SURFACE:MS*-03-CETOP5
ISO 05-NFPAD05

OPTION
Design No: 30 (3090)



Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	3.7 (8.2)
CODE:20	M6 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring P12 x 5 pc	



SYMBOL





MODULAR CONTROL VALVES

DIMENSIONS

MILLIMETERS(INCHES)

MS*-04 Throttle with Check Valves(Modular Type)

MOUNTING SURFACE:MS*-04-CETOP7
ISO 07-NFPAD07

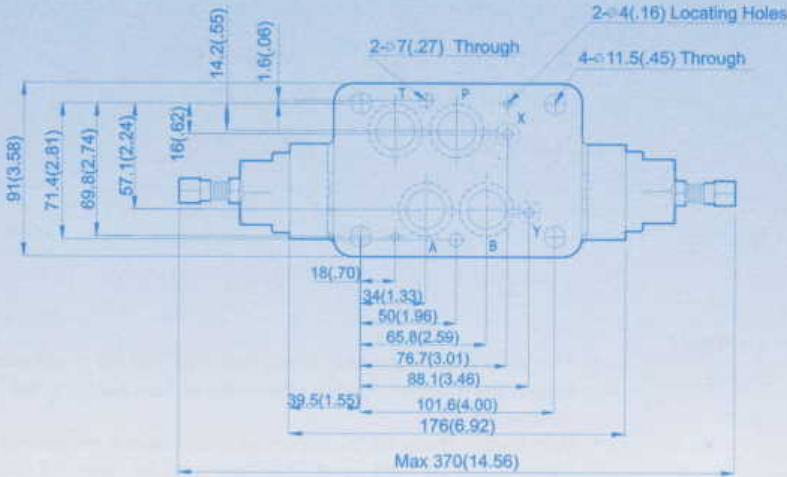


MSB-04

MSA-04



SYMBOL



MSW-04

Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg/(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pci 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring	P9 x 2 pc & P22A x 4 pcs

MS*-06 Throttle with Check Valves(Modular Type)

MOUNTING SURFACE:MS*-06-CETOP8
ISO 08-NFPAD08

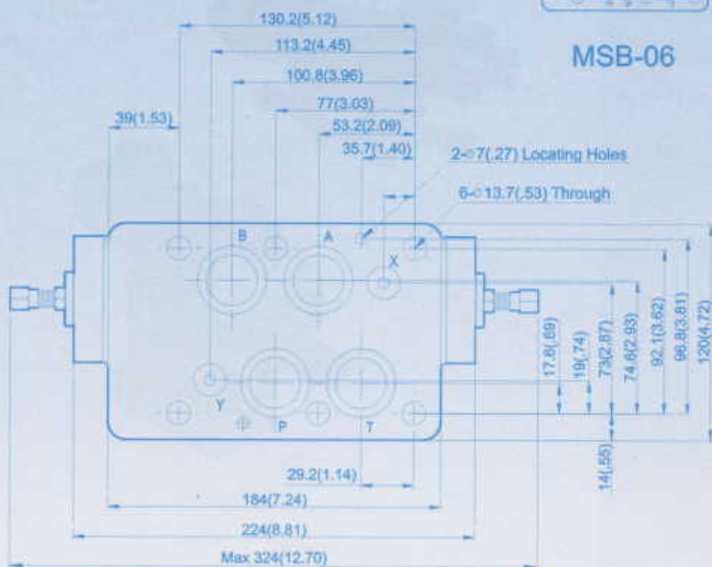


MSB-06

MSA-06



SYMBOL



MSW-06

Valve Specifications & Attachment

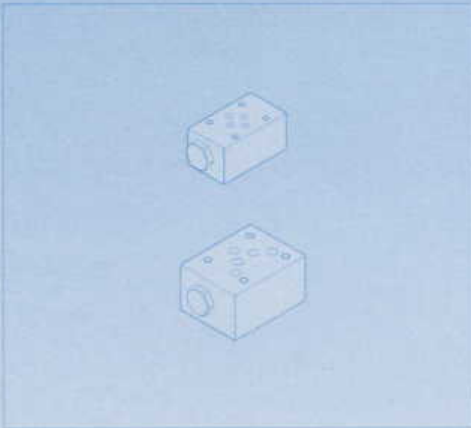
Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg/(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX6pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X6pcs
Mounting Surface O-Ring	P12 x 2 pc, P28 x 4 pcs



CHECK MODULAR VALVES

EXCHANGING

■ Check Valves(Modular Type)



Model & Symbol		Model & Symbol	
MCP-01 (03)		MCP-04 (06)	
MCA-01 (03)		MCA-04 (06)	
MCB-01 (03)		MCB-04 (06)	
MCT-01 (03)		MCT-04 (06)	

■ Ratings

Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MC*-01-*	250 (3600)	50 (13.2)	1/8"	1.1 (2.4)
MC*-03-*	250 (3600)	100 (26.5)	3/8"	2.8 (6.1)
MC*-04-*	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MC*-06-*	250 (3600)	300 (79.3)	3/4"	11.0 (24.2)

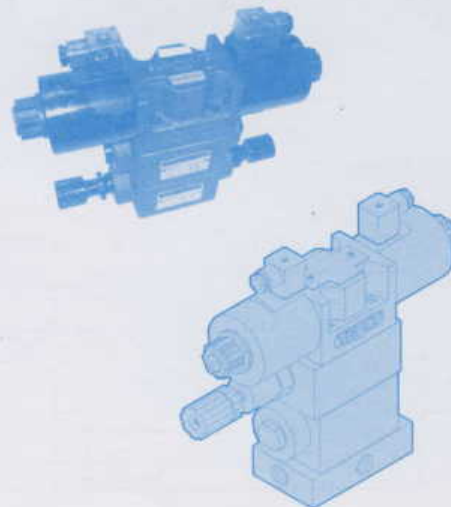
- This Valve is of the modular design improved from the check valve fitted in the P port or T port to prevent the oil from flowing in the reverse direction.
- With a valve of size 01, 03, 04, 06 the check valve is incorporated between A, B port and T port. This check modular valve of a certain type can be used for suction.



■ Ordering Code

MC - P - 03 - 2 - 20

Series No	Control Line	Valve Size	Cracking Pressure	Design No
Check Modular Valves	P : P Port 	(DSG-) 01 (NFFA-D03) 	0: 0.35 bar 	20 DIN 912 bolts
	A : A Port 	(DSG-) 03 (NFFA-D05) 	2: 2 bar 	2090 UNC bolts (North America)
	B : B Port 	(DSHG-) 04 (NFFA-D07) 	4: 4 bar 	
	T : T Port 	(DSHG-) 06 (NFFA-D08) 		





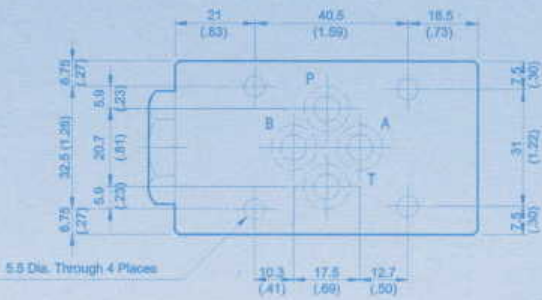
DIMENSIONS

MILLIMETERS(INCHES)

C

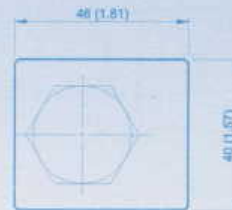
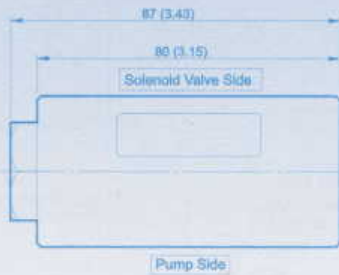
MC*-01 Check Valves(Modular Type)

MOUNTING SURFACE:MC*-01-CETOP3
ISO 03-NFPAD03



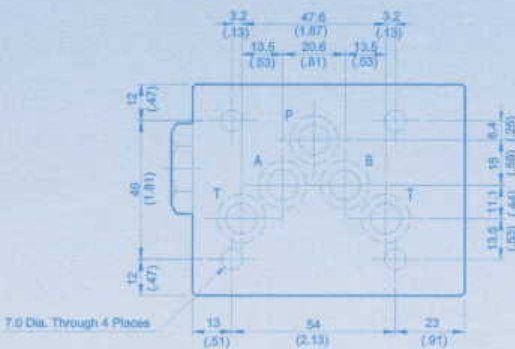
Valve Specifications & Attachment

Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	1.1 (2.4)
CODE:20	M5 X85LgX4pcs
CODE:2090	10-24UNCX3-1/4"LgX4pcs
Mounting Surface O-Ring	P9 x 4 pc



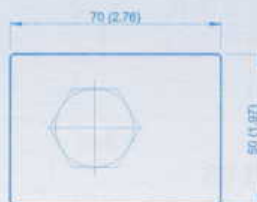
MC*-03 Check Valves(Modular Type)

MOUNTING SURFACE:MC*-03-CETOP5
ISO 05-NFPAD05



Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	3.5 (7.7)
CODE:20	M8 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc



DIMENSIONS

MILLIMETERS(INCHES)

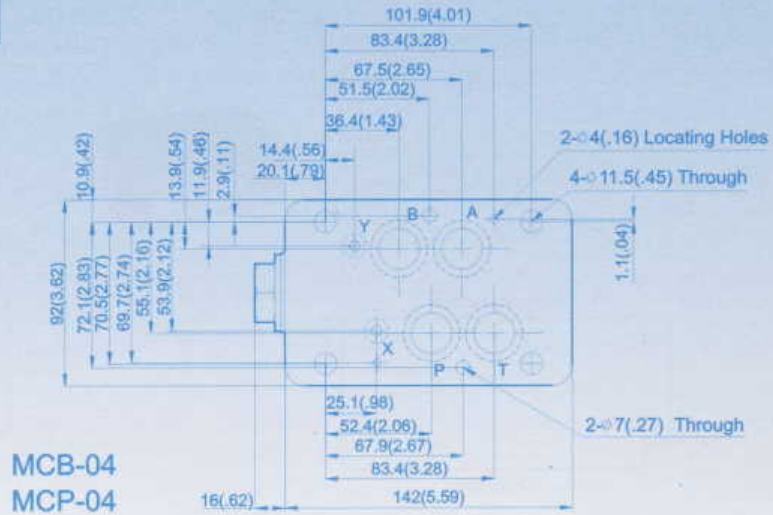
MCP-04 Check Valves(Modular Type)

MOUNTING SURFACE:MC*-04-CETOP7
ISO 07-NFPAD07

Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX3pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring	P9 x 2 pc & P22A x 4 pcs

MCA-04
MCT-04



MCB-04
MCP-04

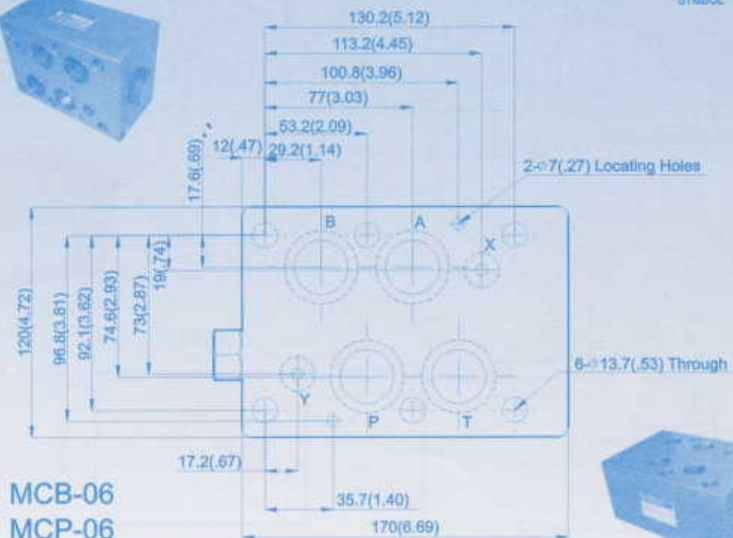
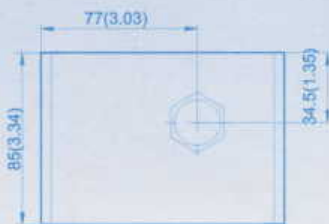
MCP-06 Check Valves(Modular Type)

MOUNTING SURFACE:MC*-06-CETOP8
ISO 08-NFPAD08

Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX8pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X8pcs
Mounting Surface O-Ring	P12 x 2 pc, P28 x 4 pcs

MCA-06
MCT-06



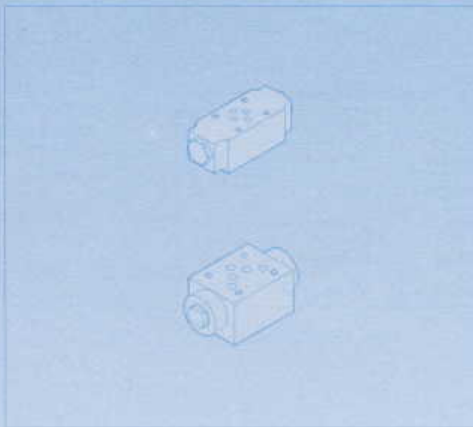
MCB-06
MCP-06





CHECK MODULAR VALVES

■ Pilot Operated Check Valves (Modular Type)



Model & Symbol		Model & Symbol	
MPA-01 (03)		MPA-04 (06)	
MPB-01 (03)		MPB-04 (06)	
MPW-01 (03)		MPW-04 (06)	



■ Ratings

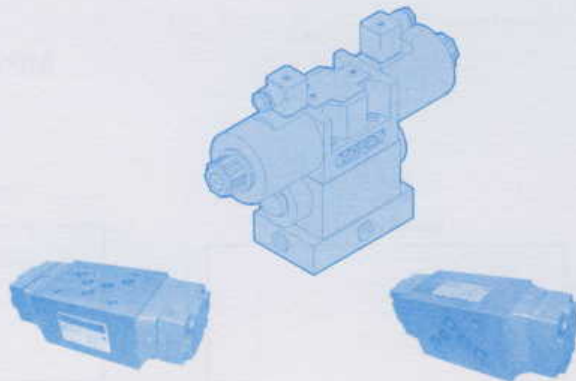
Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MP*-01-*	250 (3600)	50 (13.2)	1/8"	1.2 (2.6)
MP*-03-*	250 (3600)	100 (26.5)	3/8"	3.7 (8.1)
MP*-04-*	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MP*-06-*	250 (3600)	300 (79.3)	3/4"	11.2 (24.6)

- This Valve is of the modular design improved from the pilot operated check valve used for preventing the actuator from self-operating, as well as for valve position holding.
- Cracking pressure of check valve is 2 bar.
- The valve is of the internal drain type.

■ Ordering Code

MP A - 03 - 2 - 20

Series No	Control Line	Valve Size	Cracking Pressure	Design No
Pilot Operated Check Modular Valves	A : A Port 	(DSG-) 01 (NFFA-D03) 	2: 2 bar 	20 DIN 912 bolts
	B : B Port 	(DSG-) 03 (NFFA-D05) 	4: 4 bar 	2090 UNC bolts (North America)
	W : A & B Port 	(DSHG-) 04 (NFFA-D07) 		Design No. 30 Decompression Type
		(DSHG-) 06 (NFFA-D08) 		



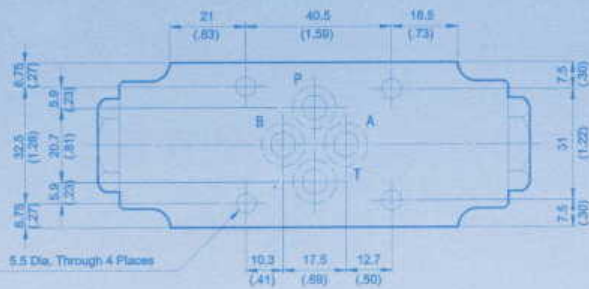
MPW-03-30



MPW - 01

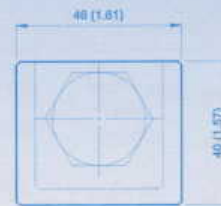
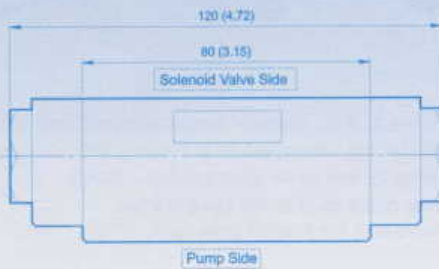
Pilot Operated Check Valves(Modular Type)

MOUNTING SURFACE:MP*-01-CETOP3
ISO 03-NFPAD03



Valve Specifications & Attachment

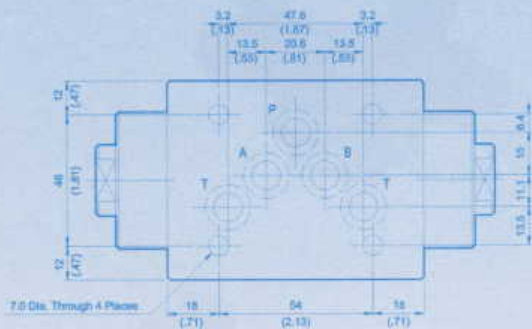
Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	1.2 (2.6)
CODE:20	M5 X85LgX4pcs
CODE:2090	10-24UNCX3-1/4"LgX4pcs
Mounting Surface O-Ring	P8 x 4 pc



MPW - 03

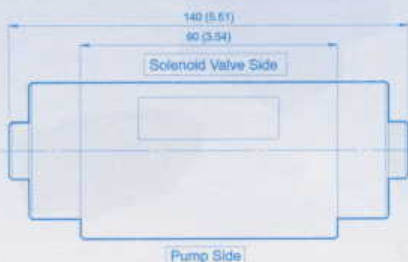
Pilot Operated Check Valves(Modular Type)

MOUNTING SURFACE:MP*-03-CETOP5
ISO 05-NFPAD05

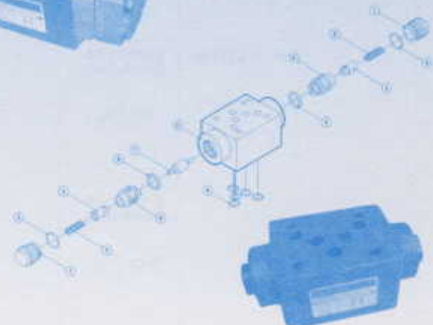
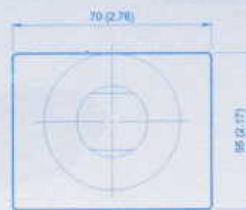


Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	3.5 (7.7)
CODE:20	M6 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc



MPW-03-30



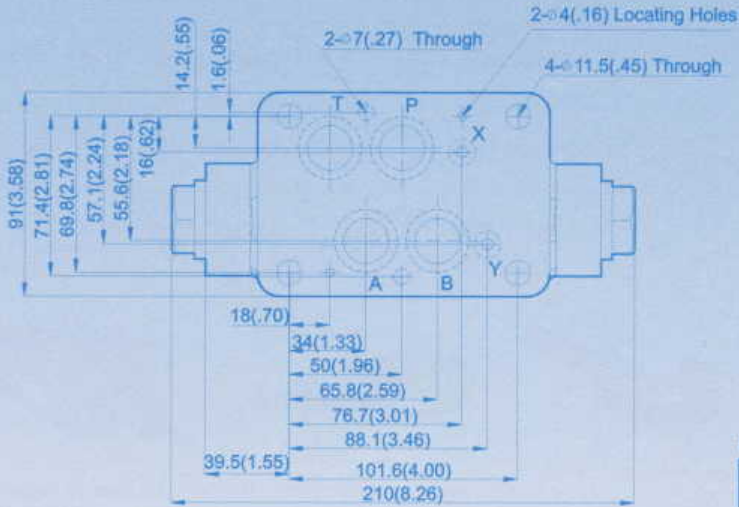


DIMENSIONS

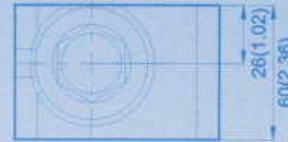
MILLIMETERS(INCHES)

MPW - 04 Pilot Operated Check Valves(Modular Type)

MOUNTING SURFACE:MP*-04-CETOP7
ISO 07-NFPAD07



SYMBOL



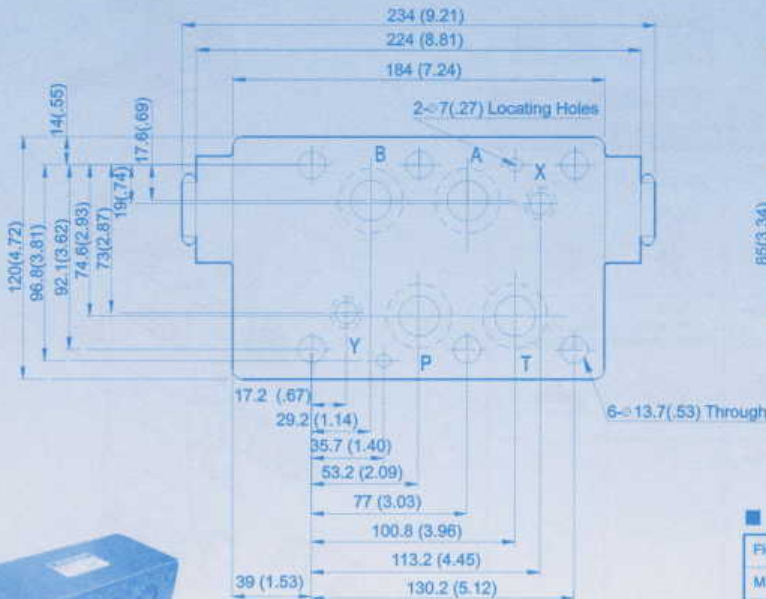
MPA-04
MPB-04
MPW-04

Valve Specifications & Attachment

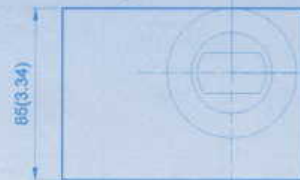
Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg/(lb.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring P9 x 2 pc & P22A x 4 pcs	

MPW - 06 Pilot Operated Check Valves(Modular Type)

MOUNTING SURFACE:MP*-06-CETOP8
ISO 08-NFPAD08



SYMBOL



MPA-06
MPB-06
MPW-06

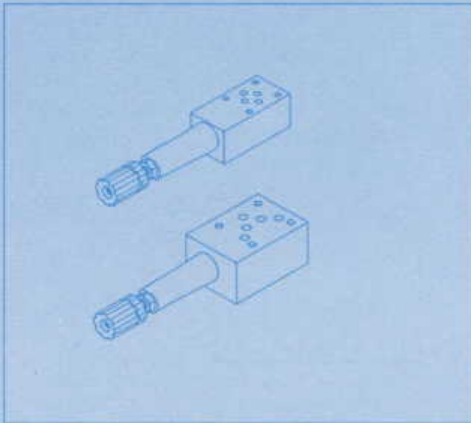
Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg/(lb.)	11.2 (24.6)
CODE:20	M12X140LgX6pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X6pcs
Mounting Surface O-Ring P12 x 2 pc, P28 x 4 pcs	

SEQUENCE VALVES & COUNTER BALANCE MODULAR VALVES

ENGLISH

- Sequence Valves (Modular Type) - MHP-0*-*
- Counter-balance Valves (Modular Type) - MHA(B)-0*-*



Model & Symbol		Model & Symbol	
MHP-01 (03)		MHP-04 (06)	
MHA-01 (03)		MHA-04 (06)	
MHB-01 (03)		MHB-04 (06)	



■ Ratings

Model	Max Operating Pres bar (PSI)	Max Flow lpm (USgpm)	Valve Size	Weight kg (lb)
MH*-01-*	250 (3600)	50 (13.2)	1/8"	1.1 (2.4)
MH*-03-*	250 (3600)	100 (26.5)	3/8"	3.8 (8.3)
MH*-04-*	250 (3600)	190 (50.2)	1/2"	7.0 (15.4)
MH*-06-*	250 (3600)	300 (79.3)	3/4"	11.2 (24.6)

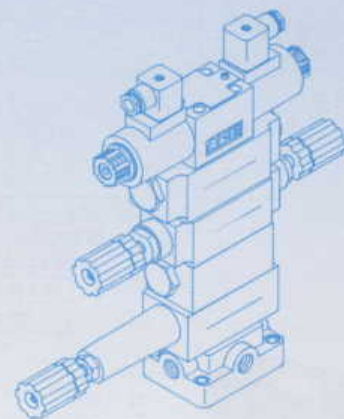
• This sequence modular valves (MHP-0*-*) is used for actuator sequential operation, as well as for circuit pressure holding. With wide adjustment range 6 ~ 250 bar. hydraulic circuit and also serves as a safety valve.

• MHA(B)-0*-* counter-balance modular valves is used for actuator back pressure control.

■ Ordering Code

MH - P - 01 - C - 20 - S

Series No	Control Line	Valve Size	Pressure Adj. Range	Design No	Special Kits
MHP Sequence Modular Valves	P : P Port 	(DSG-) 01 (NFFPA-D03) 	N: 6-18 bar 	20 DIN 912 bolts 	None: With Knob
MHA(B) Counterbalance Modular Valves	A : A Port 	(DSG-) 03 (NFFPA-D05) 	A: 18-35 bar 	2090 UNC bolts (North America) 	S: Soc. Hd. Cap Screw
	B : B Port 	(DSHG-) 04 (NFFPA-D07) 	B: 35-70 bar 		
		(DSHG-) 06 (NFFPA-D08) 	C: 70-250 bar 		



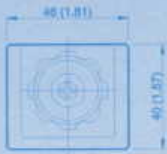


DIMENSIONS

MILLIMETERS(INCHES)

MHB-01 Counterbalance Valves(Modular Type)

MOUNTING SURFACE:MH*-01-CETOP3
ISO 03-NFPAD03

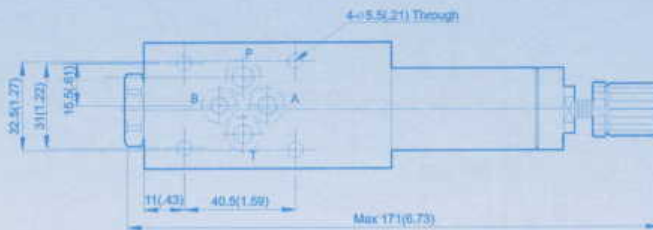


Valve Specifications & Attachment

Flow Rating	50 lpm (13.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg/(lb.)	1.1 (2.4)
CODE:20	M5 X85LgX4pcs
CODE:2090	10-24UNCX3-4/4"LgX4pcs
Mounting Surface O-Ring	P9 x 2 pc



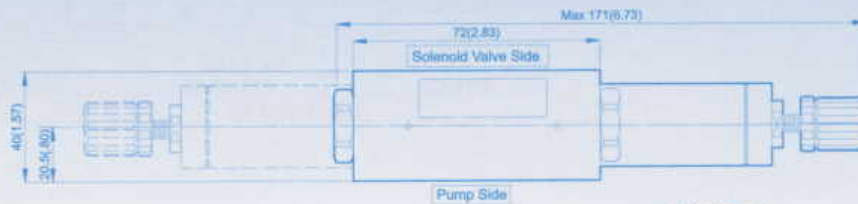
SYMBOL



OPTION
Design No: 30 (3090)



MHB-01



MHA-01

MHB-01

MHB-03 Counterbalance Valves(Modular Type)

MOUNTING SURFACE:MH*-03-CETOP5
ISO 05-NFPAD05

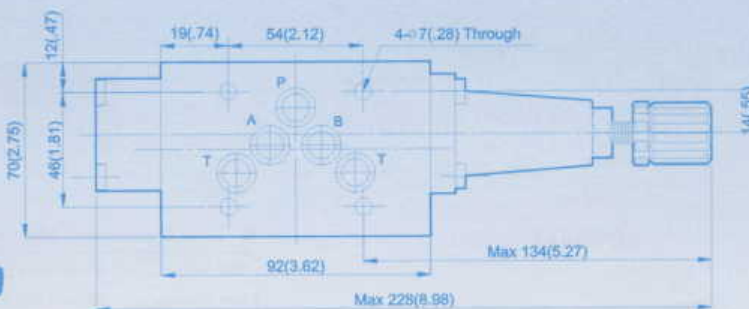


Valve Specifications & Attachment

Flow Rating	100 lpm (26.5 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg/(lb.)	3.5 (7.7)
CODE:20	M6 X90LgX4pcs
CODE:2090	1/4-20UNCX3-1/2LgX4pcs
Mounting Surface O-Ring	P12 x 5 pc



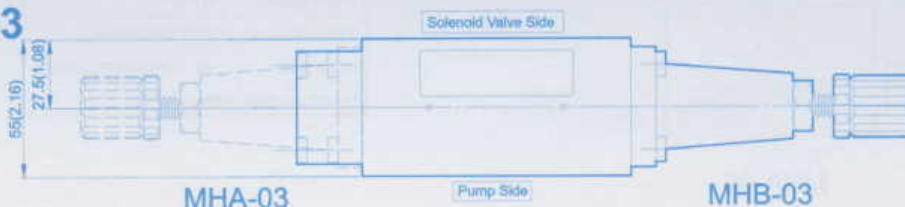
SYMBOL



OPTION
Design No: 30 (3090)



MHB-03



MHP-03

MHA-03

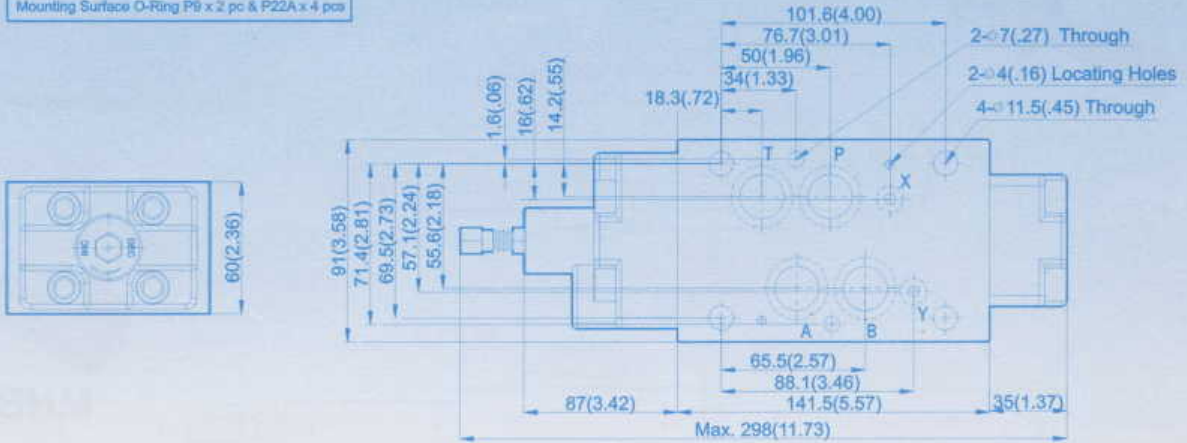
MHB-03

MHB-04 Counterbalance Valves(Modular Type)

MOUNTING SURFACE:MH*-04-CETOP7
ISO 07-NFPAD07

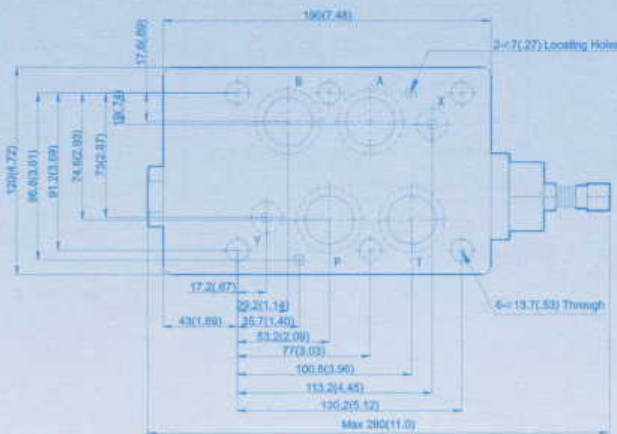
■ Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring	P9 x 2 pc & P22A x 4 pcs

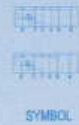


MHB-06 Counterbalance Valves(Modular Type)

MOUNTING SURFACE:MH*-06-CETOP8
ISO 08-NFPAD08

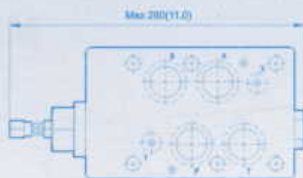


MHB-06



■ Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX8pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X8pcs
Mounting Surface O-Ring	P12 x 2 pc, P28 x 4 pcs



MHA-06

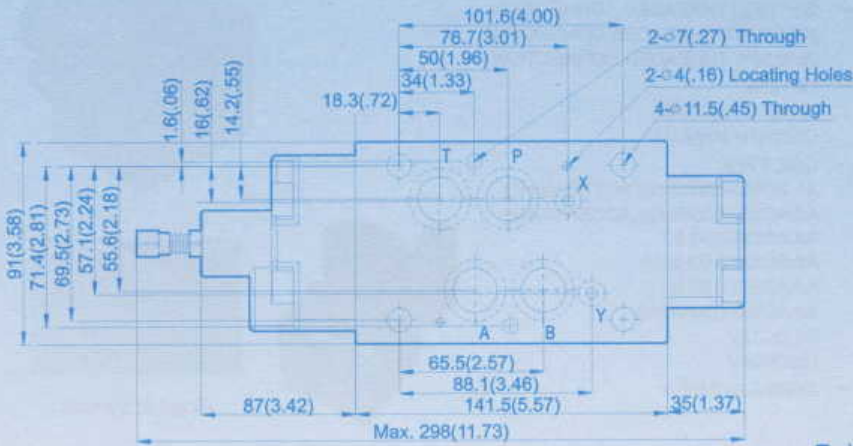


DIMENSIONS

MILLIMETERS(INCHES)

MHP-04 Sequence Valves(Modular Type)

MOUNTING SURFACE:MH*-04-CETOP7
ISO 07-NFPAD07

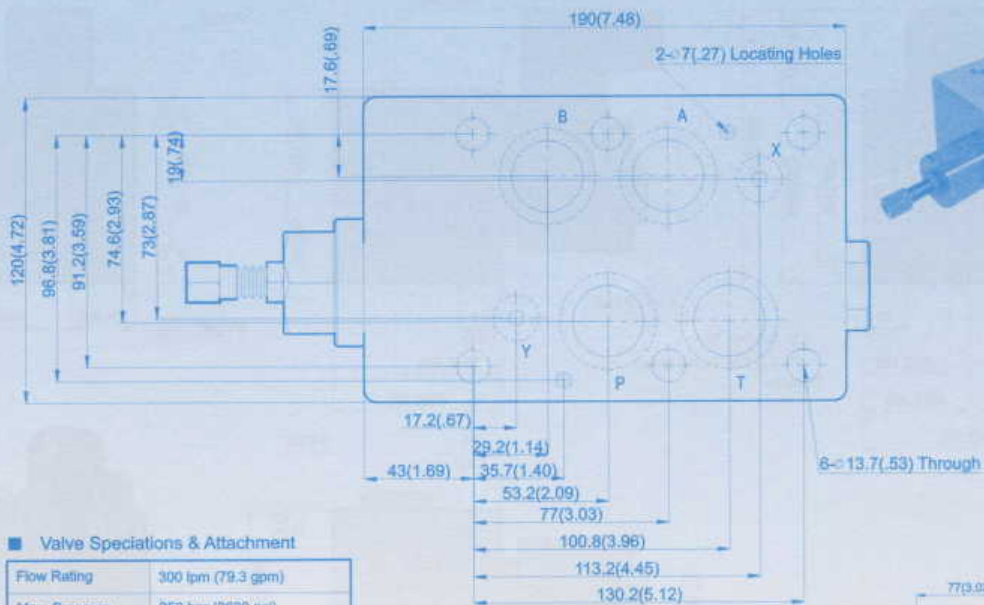


Valve Specifications & Attachment

Flow Rating	190 lpm (50.2 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	7.0 (15.4)
CODE:20	M6X125LgX2pcs M10X120LgX4pcs
CODE:2090	1/4-20UNCX4-7/8"LgX2pcs 3/8-16UNCX4-5/8"Lg X4pcs
Mounting Surface O-Ring P9 x 2 pc & P22A x 4 pcs	

MHP-06 Sequence Valves(Modular Type)

MOUNTING SURFACE:MH*-06-CETOP8
ISO 08-NFPAD08



Valve Specifications & Attachment

Flow Rating	300 lpm (79.3 gpm)
Max. Pressure	250 bar (3600 psi)
Weight kg(lbs.)	11.2 (24.6)
CODE:20	M12X140LgX8pcs
CODE:2090	1/2-13UNCX4-5/8"Lg X6pcs
Mounting Surface O-Ring P12 x 2 pc, P28 x 4 pcs	