

01 Series Modular Valves

Type of Modular Valve

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

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

Mounting Bolt Kits For Modular Valves

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

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

Model Number Designation

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

Bolt Kits Selection Chart

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

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

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



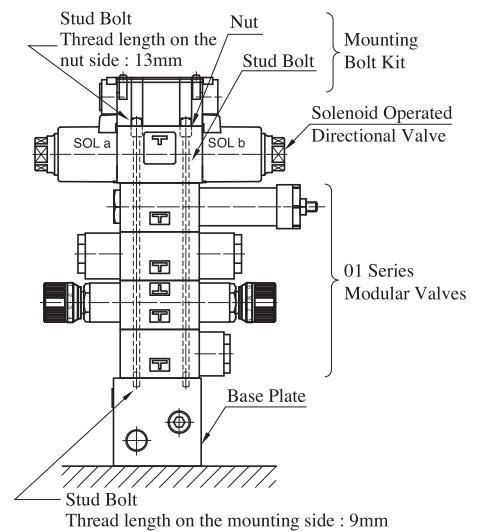
Bolt Kit Composition

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

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

Tightening Torque:

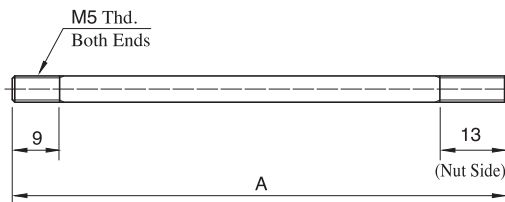
Operating Pressure MPa	Tightening Torque Nm
25 or less	5-7
More than 25	6-7



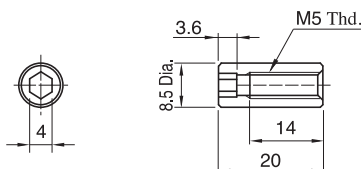
Stacking Example

MBK-01

Stud Bolt



Nut



Bolt Numbers	A mm
01	98
02	138
03	178
04	218
05	Socket Head Cap Screw M5×45 L

01 Series Modular Valves

Interchangeability in Installation between Current and New Design

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

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

Major Changes

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

Mounting Interchangeability

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

Specifications

Max. Operating Pressure

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

Max. Flow

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

● Model Number Designation

Function Addition

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

Pressure Adjustment Range

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

Cracking Pressure

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

● Typical Performance Characteristics

Characteristics of all models have been changed.

● Approx. Mass

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

● Dimensions

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

(1) Relief Modular Valves

MBP-01
MBB-01

MBP-01- *-B
MBA-01

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

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

(2) Reducing Modular Valves

MR *-01

MR *-01- *-B

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

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

(3) Sequence Modular Valves

MHP-01

MHP-01- *-B

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

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

(4) Counterbalance Modular Valves

MHA-01

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

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

MHB-01

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

★Newly added for B-Line.

(5) Check Modular Valves

MCP/MCT-01

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

(6) Pilot Operated Check Modular Valves

MPA-01

MPB-01

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

(7) Mounting Bolt Kits

● Stud Bolt

● Nut

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