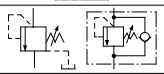
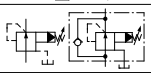
C

PRESSURE CONTROLS

Valve Type	Graphic Symbols	Maximum Operating Pressure MPa (PSI)	Maximum Flow U.S.GPM: .5 1 2 5 10 20 50 100 200 500 / L/min: 1 2 3 5 10 20 30 50 100 200 300 500 1000 2000	Page
Remote Cont. Relief Valves		25 (3630)	DT DG 01	203
Direct Type Relief Valves		21 (3050)	DT/DG 02	206
Pilot Operated Relief Valves		25 (3630)	BT/BG 03 06	209
Low Noise Type Pilot Operated Relief Valves		25 (3630)	S-BG 03 06 10	216
Sol. Cont. Relief Valves		25 (3630)	BST/BSG 03 06 10	220
Low Noise Type Sol. Cont. Relief Valves		25 (3630)	S-BSG 03 06 10	230
H TypePress. Cont. Valves / HC TypePress. Cont. Valves		21 (3050)	HT/HG HCT/HCG 03 06 10 HF HCF 16	237
Press. Reducing Valves / Press. Reducing & Check Valves		21 (3050)	RT/RG RCT/RCG 03 06 10 RF RCF 16	251
Pres. Reducing & Relieving Valves		03 : 14(2030) 06 : 25(3630)	RBG 03 06	260
Unloading Relief Valves		21 (3050)	BUCG 06 10	265
Brake Valves		25 (3630)	UBGR 03 06 10	271
Semiconductor Type Pressure Switches		35 (5080)	JT-02	272
Pressure Monitoring System		20(2900) 35(5080)		274

Hydraulic Fluids

Fluid Types

Any type of hydraulic fluids listed in the table below can be used.

Petroleum base oils	Use fluids equivalent to ISO VG 32 or VG 46.
Synthetic fluids	Use phosphate ester or polyol ester fluid. When phosphate ester fluid is used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.
Water containing fluids	Use water-glycol fluid.

Note: For use with hydraulic fluids other than those listed above, please consult your Yuken representatives in advance.

Recommended Fluid Viscosity and Temperature

Use under conditions where the viscosity and temperature of the hydraulic fluid remain in the ranges indicated in the following table.

Name	Viscosity	Temperature
Remote Control Relief Valves Direct Type Relief Valves Pilot Operated Relief Valves Low Noise Type Pilot Operated Relief Valves Solenoid Controlled Relief Valves ★ Low Noise Type Solenoid Controlled Relief Valves ★ H Type Pressure Control Valves HC Type Pressure Control Valves Pressure Reducing Valves Pressure Reducing and Check Valves Pressure Reducing and Relieving Valves Unloading Relief Valves Brake Valves	15 - 400 mm^2/s (88 - 1800 SSU)	-15 - +70°C (5 - 158°F)
Semiconductor Type Pressure Switches	15 - 400 mm^2/s (88 - 1800 SSU)	-20 - +70°C (- 4 - 158°F)

★ If the valve is provided with a vent ristrictor (ex. : A-BSG-03), the viscosity range should be 15 - 200 mm^2/s (80 - 900 SSU).

Control of Contamination

Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorten the life of the valves. Please maintain the degree of contamination within NAS 1638-Grade 12. Use 25 µm or finer line filter.

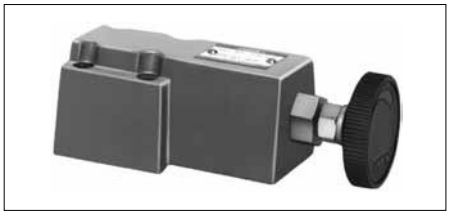
Interchangeability in Installation between Current and New Design

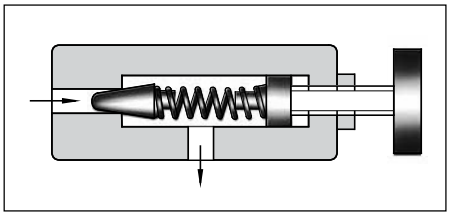
Model change has been made on the following products.
The difference between current and new design has been described on the paragraph of “Interchangeability in Installation between Current and New Design”. Refer to relevant pages on each series.

Name	Model Numbers		Mounting Interchange-ability	Main Changes	Page
	Current	New			
Solenoid Controlled Relief Valve	BS∗-03, -47∗	BS∗-03, -48∗	Yes	Pilot valves (DSG-01) have been changed in the design numbers 70.	222
	BS∗-06, -47∗	BS∗-06, -48∗			
	BS∗-10, -47∗	BS∗-10, -48∗			
Low Noise Type Solenoid Controlled Relief Valve	S-BSG-03, -52∗	S-BSG-03, -53∗	Yes		231
	S-BSG-06, -52∗	S-BSG-06, -53∗			
	S-BSG-10, -52∗	S-BSG-10, -53∗			

Remote Control Relief Valves

This valve is used as a remote control valve for pilot operated type pressure control valves.





Specifications

Model Numbers		Max. Operating Pres. MPa (PSI)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting		DT type	DG type
DT-01-22*	DG-01-22*	25 (3630)	1.6 (3.5)	1.4 (3.1)

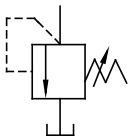
Model Number Designation

F-	D	T	-01	-22	*
Special Seals	Series Number	Type of Mounting	Valve Size	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**D:** Remote Control Relief Valves	**T:** Threaded Connection	**01**	**22**	**None:** Japanese Std. "JIS" **80:** European Design Std. **90:** N. American Design Std.
		G: Sub-plate Mounting		**22**	**None:** Japanese Std. "JIS" and European Design Std. **90:** N. American Design Std.

Instructions

- To adjust the pressure, loosen the lock nut and turn the handle slowly clockwise for higher pressures or anti-clockwise for lower pressures. After adjustments, do not forget to tighten the lock nut.
- Piping of the tank line should not be connected to any tank line of the other valves, but connected directly to the reservoir.
- Pressure is limited by collars fitted. If a working pressure cannot be attained, remove some collars. One collar is equivalent to 10 MPa (1450 PSI).
- If the internal volume of the vent line is too large, chattering is likely to occur.

Graphic Symbol



Attachment

- **Mounting bolts**

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
DG-01	M5 × 45 Lg.	No.10-24 UNC × 1-3/4 Lg.	4

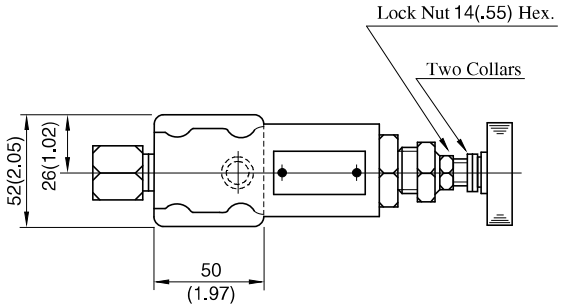
Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
DG-01	DGM-02-20	Rc 1/4	DGM-02-2080	1/4 BSP.F	DGM-02-2090	1/4 NPT	0.7 (1.5)

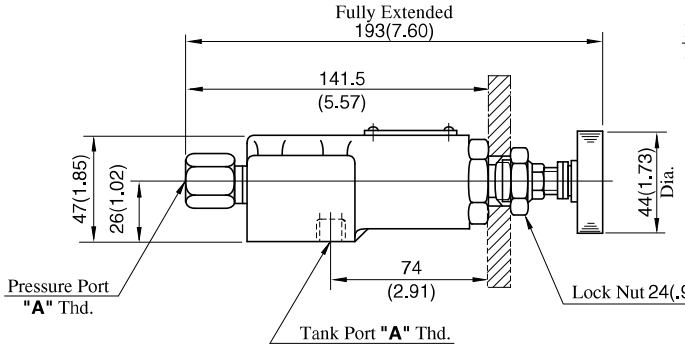
- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

DT-01-22/2280/2290

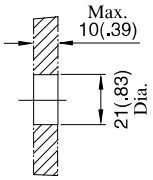
DIMENSIONS IN MILLIMETRES (INCHES)



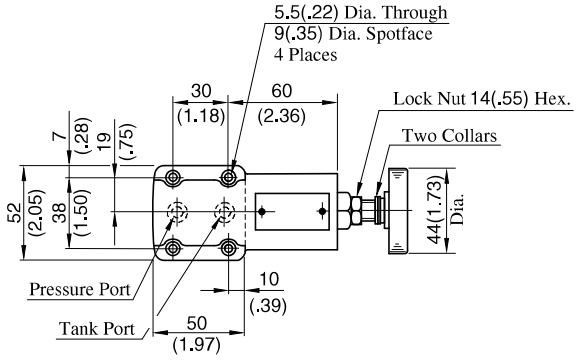
Model Numbers	"A" Thd.
DT-01-22	Rc 1/4
DT-01-2280	1/4 BSP.F
DT-01-2290	1/4 NPT

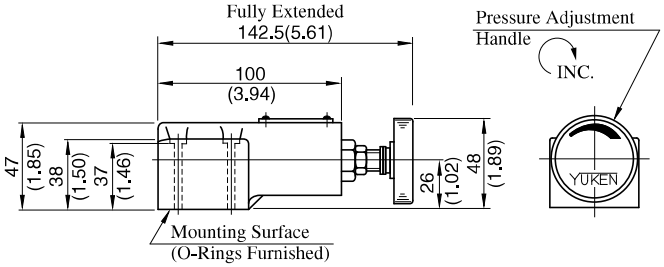


Dimensions of
The Panel Mounting Hole

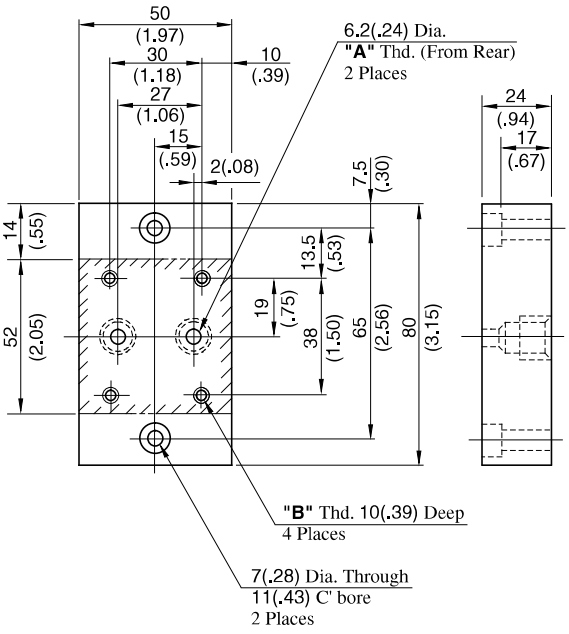


DG-01-22/2290





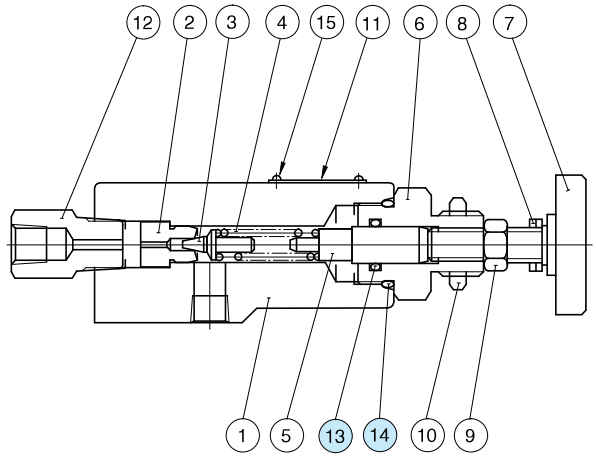
Sub-plate: DGM-02-20/2080/2090



Model Numbers	"A" Thd.	"B" Thd.
DGM-02-20	Rc 1/4	M5
DGM-02-2080	1/4 BSP.F	
DGM-02-2090	1/4 NPT	No. 10-24 UNC

Spare Parts List

DT-01-22/2280/2290



List of Seals

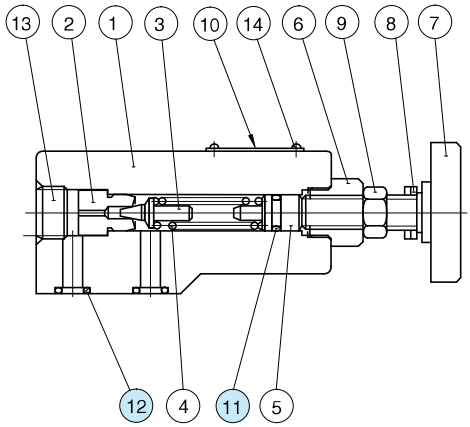
Item	Name of Parts	Part Numbers	Qty.
13	O-Ring	SO-NA-P12	1
14	O-Ring	SO-NB-P22.4	1

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

List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
DT-01	KS-DT-01-22
DG-01	KS-DG-01-22

DG-01-22/2290



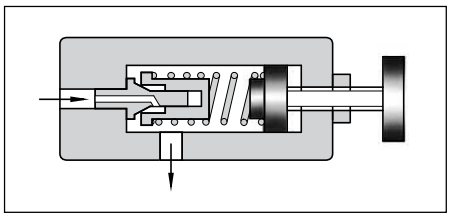
List of Seals

Item	Name of Parts	Part Numbers	Qty.
11	O-Ring	SO-NA-P9	1
12	O-Ring	SO-NB-P9	2

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

Direct Type Relief Valves

This valve is used in a hydraulic circuit to prevent damage due to over pressure and to adjust the maximum circuit pressure of small capacity.



Specifications

Model Numbers		Max. Operating Pressure MPa (PSI)	Pres. Adj. Range MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting				DT type	DG type
DT-02-*-22*	DG-02-*-22*	21 (3050)	Note)	16 (4.23)	1.5 (3.3)	1.5 (3.3)

Note: Refer to the Model Number Designation.

Model Number Designation

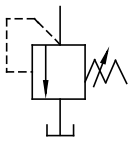
F-	D	T	-02	-B	-22	*
Special Seals	Series Number	Type of Mounting	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**D:** Direct Type Relief Valves	**T:** Threaded Connection	**02**	**B:** ★-7 (★-1020) **C:** 3.5-14 (510-2030) **H:** 7-21 (1020-3050)	**22**	**None:** Japanese Std. "JIS" **80:** European Design Std. **90:** N. American Design Std.
		G: Sub-plate Mounting			**22**	**None:** Japanese Std. "JIS" and European Design Std. **90:** N. American Design Std.

★ Refer to the Minimum Adjustment Pressure Characteristics.

Instructions

- To adjust the pressure, loosen the lock nut and turn the handle slowly clockwise for higher pressures or anti-clockwise for lower pressures. After adjustments, do not forget to tighten the lock nut.
- Piping of the tank line should not be connected to any tank line of the other valves, but connected directly to the reservoir.

Graphic Symbol



Attachment

- **Mounting bolts**

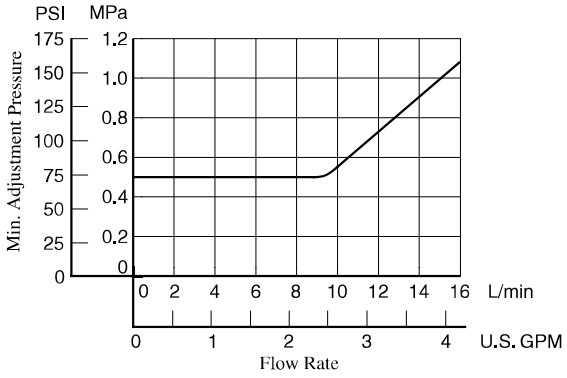
Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
DG-02	M5 × 45 Lg.	No.10-24 UNC × 1-3/4 Lg.	4

Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
DG-02	DGM-02-20	Rc 1/4	DGM-02-2080	1/4 BSP.F	DGM-02-2090	1/4 NPT	0.7 (1.5)

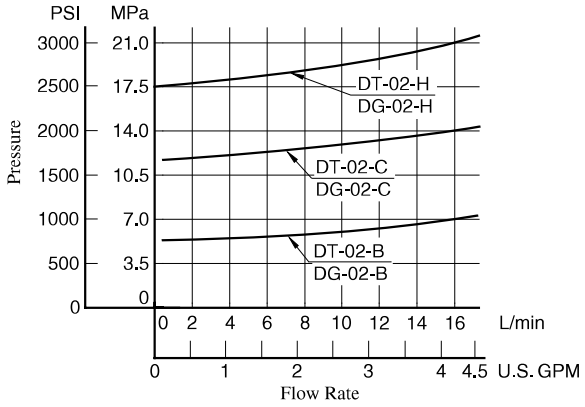
- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- The sub-plates are those for remote control relief valves. For dimensions, see page 204.

Min. Adjustment Pressure

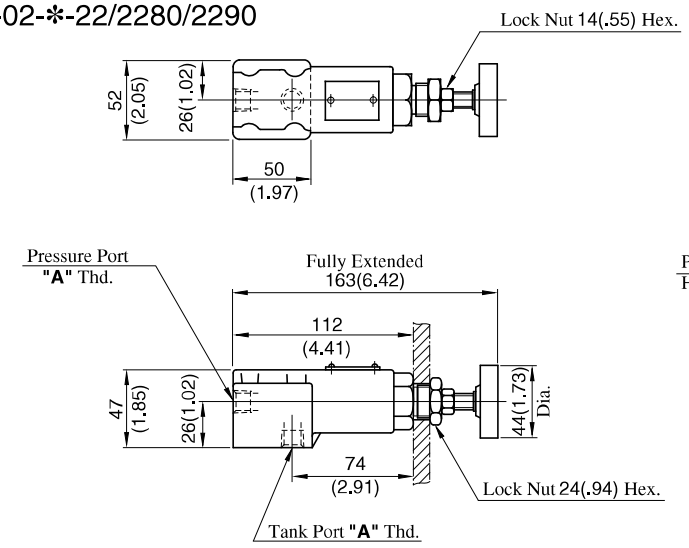


Nominal Override Characteristics

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

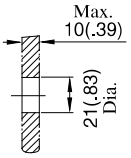


DT-02-∗-22/2280/2290



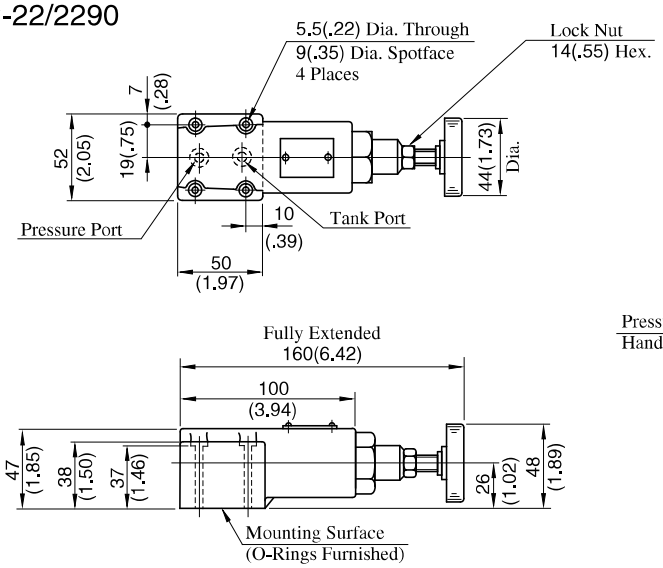
Model Numbers	"A" Thd.
DT-02-∗-22	Rc 1/4
DT-02-∗-2280	1/4 BSP.F
DT-02-∗-2290	1/4 NPT

Dimensions of
The Panel Mounting Hole



DIMENSIONS IN MILLIMETRES (INCHES)

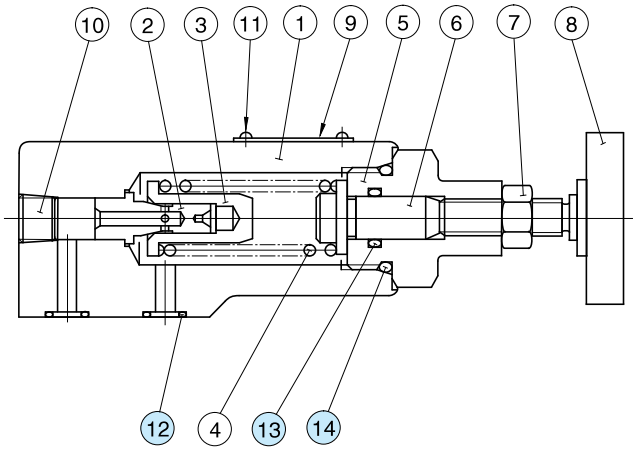
DG-02-∗-22/2290



Note: For dimensions of the valve mounting surface, see the dimensional drawing (page 204) of the sub-plate used together.

Spare Parts List

DT-02-*-22/2280/2290
DG-02-*-22/2290



List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
12	O-Ring	SO-NB-P9	2	Use only for DG-02
13	O-Ring	SO-NA-P12	1	———
14	O-Ring	SO-NB-P22.4	1	———

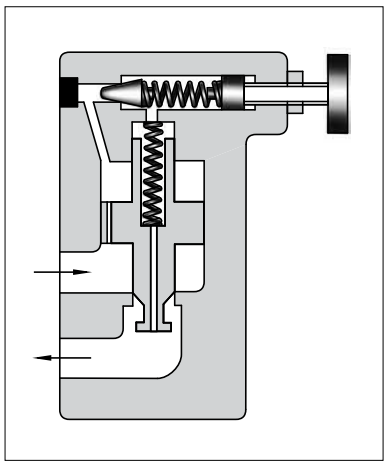
Note: When ordering the seals, please specify the seal kit number from the table below.

List of Seal Kits

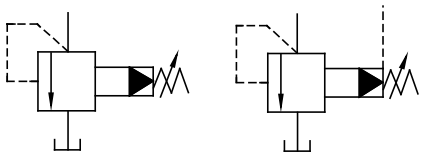
Valve Model Numbers	Seal Kit Numbers
DT-02	KS-DT-01-22
DG-02	KS-DG-02-22

Pilot Operated Relief Valves

These valves protect the hydraulic system from excessive pressure, and can be used to maintain constant pressure in a hydraulic system. Remote control and unloading are permitted by using vent circuits.



Graphic Symbols



Vent Connection

Specifications

Model Numbers		Max. Operating Pressure MPa (PSI)	Pres. Adj. Range MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting				BT type	BG type
BT-03-*-32*	BG-03-*-32*	25 (3630)	Note) ★-25 (★-3630)	100 (26.4)	5.0 (11.0)	4.7 (10.4)
BT-06-*-32*	BG-06-*-32*			200 (52.8)	5.0 (11.0)	5.6 (12.3)
BT-10-*-32*	BG-10-*-32*			400 (106)	8.5 (18.7)	8.7 (19.2)

Note: Refer to the Minimum adjustment Pressure characteristics on page 214.

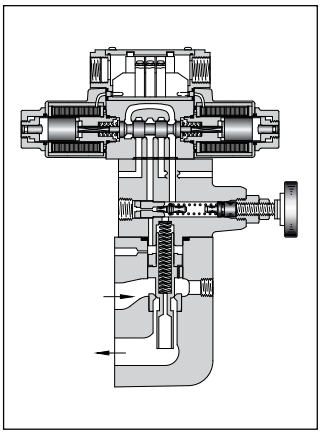
Model Number Designation

F-	B	T	-03	-V	-32	*
Special Seals	Series Number	Type of Mounting	Valve Size	High Venting★ Pres. Feature	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**B:** Pilot Operated Relief Valves	**T:** Threaded Connection	**03**	**V:** For High Venting Pressure Feature (Omit if not required)	**32**	**None:** Japanese Std. "JIS"
			06		**32**	**80:** European Design Std.
			10		**32**	**90:** N. American Design Std.
		G: Sub-plate Mounting	**03**		**32**	**None:** Japanese Std. "JIS" and European Design Std.
			06		**32**	
			10		**32**	**90:** N. American Design Std.

★ Use high venting pressure type to reduce the response time from unload to onload.

Solenoid Controlled Relief Valves

These valves are a combination of a pilot operated relief valve and a solenoid operated directional valve. Piping between the two is eliminated as the solenoid valve is directly mounted on the relief valve and connected with the relief valve vent. Pump pressure may be unloaded remotely by an electrical signal to the solenoid, or by connecting pilot relief valves to the solenoid valve ports.



Specifications

Model Numbers		Max. Operating Pressure MPa (PSI)	Pressure Adj. Range MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg (lbs.)		
					Double Sol.	Single Sol.	With Vent Restrictor
Threaded Connection	BST-03-*-*-*-*-48*	25 (3630)	Note) ★-25 (★-3630)	100 (26.4)	7.1 (15.7)	6.6 (14.6)	7.6 (16.8)
	BST-06-*-*-*-*-48*			200 (52.8)	7.1 (15.7)	6.6 (14.6)	7.6 (16.8)
	BST-10-*-*-*-*-48*			400 (106)	10.8 (23.8)	10.3 (22.7)	11.3 (24.9)
Sub-plate Mounting	BSG-03-*-*-*-*-48*	25 (3630)	Note) ★-25 (★-3630)	100 (26.4)	6.8 (15.0)	6.3 (13.9)	7.3 (16.1)
	BSG-06-*-*-*-*-48*			200 (52.8)	7.7 (17.0)	7.2 (15.9)	8.2 (18.1)
	BSG-10-*-*-*-*-48*			400 (106)	11.0 (24.3)	10.5 (23.2)	11.5 (25.4)

Note: For relief valves, standard pilot operated relief valves are used.
For minimum adjustment pressures and other characteristics, see page 214.

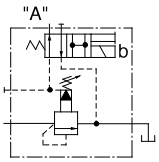
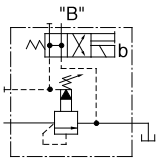
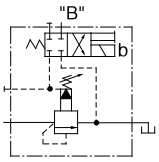
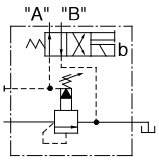
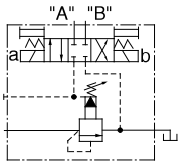
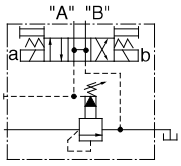
Model Number Designation

F-	A-	BS	T	-03	-V	-2B3A	-A100	-N	-48	*
Special Seals	With Vent Restrictor	Series Number	Type of Mounting	Valve Size	High Venting Pres. Feature	Vent Type	Coil Type ★4	Type of Electrical Con.	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**A:** With Vent Restrictor ★1 (Option-Omit if not required)	**BS:** Solenoid Controlled Relief Valves	**T:** Threaded Connection **G:** Sub-plate Mounting	**03** **06** **10**	**V:** For High ★2 Venting Pressure Feature (Omit if not required)	**2B3A** ★3 **2B3B** **2B2B** **2B2** **3C2** **3C3**	AC: **A100**, **A120** **A200**, **A240** DC: **D12**, **D24** **D48** AC→DC: **R100**, **R200**	**None:** Terminal Box Type **N:** With Plug-in Connector (DIN) **N:** With Plug-in Connector (DIN)	**48**	**None:** Japanese Std. "JIS" **90:** N. American Design Std. **80:** European Design Std.

★1. Models with vent restrictor are applicable only for the vent type 2B3A and 2B3B. For details, see page 222.
★2. Use high venting pressure types to reduce response time from unloading to onloading.
★3. For the details of the vent types, see the following page.
★4. The coil codes are the same as for solenoid operated directional valve DSG-01. See the Solenoid Ratings on page 345.

The coil type numbers in the shaded column are handled as optional extras. In case these coils are required to be chosen, please confirm the time of delivery with us before ordering.

Vent Types

Vent Type	Graphic Symbols	Solenoid Operated Directional Valve Model Number	Operation		
			SOL "a"	SOL "b"	Vent Connecting
2B3A		DSG-01-2B3A	—	OFF	Connected to port "A".
				ON	Connected to tank (no-load)
2B3B		DSG-01-2B3B	—	OFF	Connected to tank (no-load)
				ON	Connected to port "B".
2B2B		DSG-01-2B2B	—	OFF	Closed state (relief valve setting pressure)
				ON	Connected to port "B".
2B2		DSG-01-2B2	—	OFF	Connected to port "A".
				ON	Connected to port "B".
3C2		DSG-01-3C2	OFF	OFF	Closed state (relief valve setting pressure)
			ON	OFF	Connected to port "A".
			OFF	ON	Connected to port "B".
3C3		DSG-01-3C3	OFF	OFF	Connected to tank (no-load)
			ON	OFF	Connected to port "A".
			OFF	ON	Connected to port "B".

Attachment

Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw	
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.
BSG-03	M12 × 70 Lg. (2 pcs.), M12 × 95 Lg. (2 pcs.)	1/2-13UNC × 2-3/4 Lg. (2 pcs.), 1/2-13UNC × 3-3/4 Lg. (2 pcs.)
BSG-06	M16 × 60 Lg. (2 pcs.), M16 × 80 Lg. (2 pcs.)	5/8-11UNC × 2-1/4 Lg. (2 pcs.), 5/8-11UNC × 3-1/4 Lg. (2 pcs.)
BSG-10	M20 × 70 Lg. (2 pcs.), M20 × 90 Lg. (2 pcs.)	3/4-10UNC × 2-3/4 Lg. (2 pcs.), 3/4-10UNC × 3-1/2 Lg. (2 pcs.)

Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
BSG-03	BGM-03-20	Rc 3/8	BGM-03-3080	3/8 BSP.F	BGM-03-2090	3/8 NPT	2.4(5.3)
	BGM-03X-20	Rc 1/2	BGM-03X-3080	1/2 BSP.F	BGM-03X-2090	1/2 NPT	3.1(6.8)
BSG-06	BGM-06-20	Rc 3/4	BGM-06-3080	3/4 BSP.F	BGM-06-2090	3/4 NPT	4.7(10.4)
	BGM-06X-20	Rc 1	BGM-06X-3080	1 BSP.F	BGM-06X-2090	1 NPT	5.7(12.6)
BSG-10	BGM-10-20	Rc 1-1/4	BGM-10-3080	1-1/4 BSP.F	BGM-10-2090	1-1/4 NPT	8.4(18.5)
	BGM-10X-20	Rc 1-1/2	BGM-10X-3080	1-1/2 BSP.F	BGM-10X-2090	1-1/2 NPT	10.3(22.7)

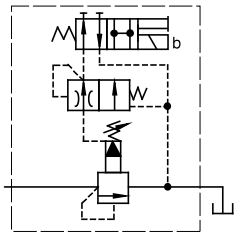
- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- The sub-plates are those for pilot operated relief valves. For dimensions, see page 213.

Option

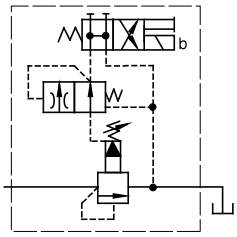
- **Models with vent restrictor**

The type with a vent restrictor has a vent restrictor in vent types 2B3A and 2B3B added between a relief valve and a solenoid operated directional valve. If prevents shock to the main circuit by gradually lowering the venting pressure in the shift from the set pressure to unloading.
Unloading pressure are the same as without a vent restrictor.

A-BS✻-✻-2B3A



A-BS✻-✻-2B3B



Instructions

- If a remote control relief valve is used in the vent circuit, see page 203. In addition, if the internal volume of the vent line is too large, chattering is likely to occur. Thus, as far as possible reduce the inside diametre and the length of the pipe.
- To adjust the pressure, loosen the lock nut and turn the handle slowly clockwise for higher pressures or anti-clockwise for lower pressures. After adjustments, do not forget to tighten the lock nut.
- Piping of the tank line should not be connected to any tank line of the other valves, but connected directly to the reservoir.
- Pressure is limited by collars fitted. If a working pressure cannot be attained, remove some collars. One collar is equivalent to 10 MPa (1450 PSI).
- With a small flow, the setting pressure may be unstable. Use models numbered 03 and 06 with a flow rate above 8 L/min (2.1 U.S. GPM) and model 10 with 15 L/min (4.0 U.S. GPM).

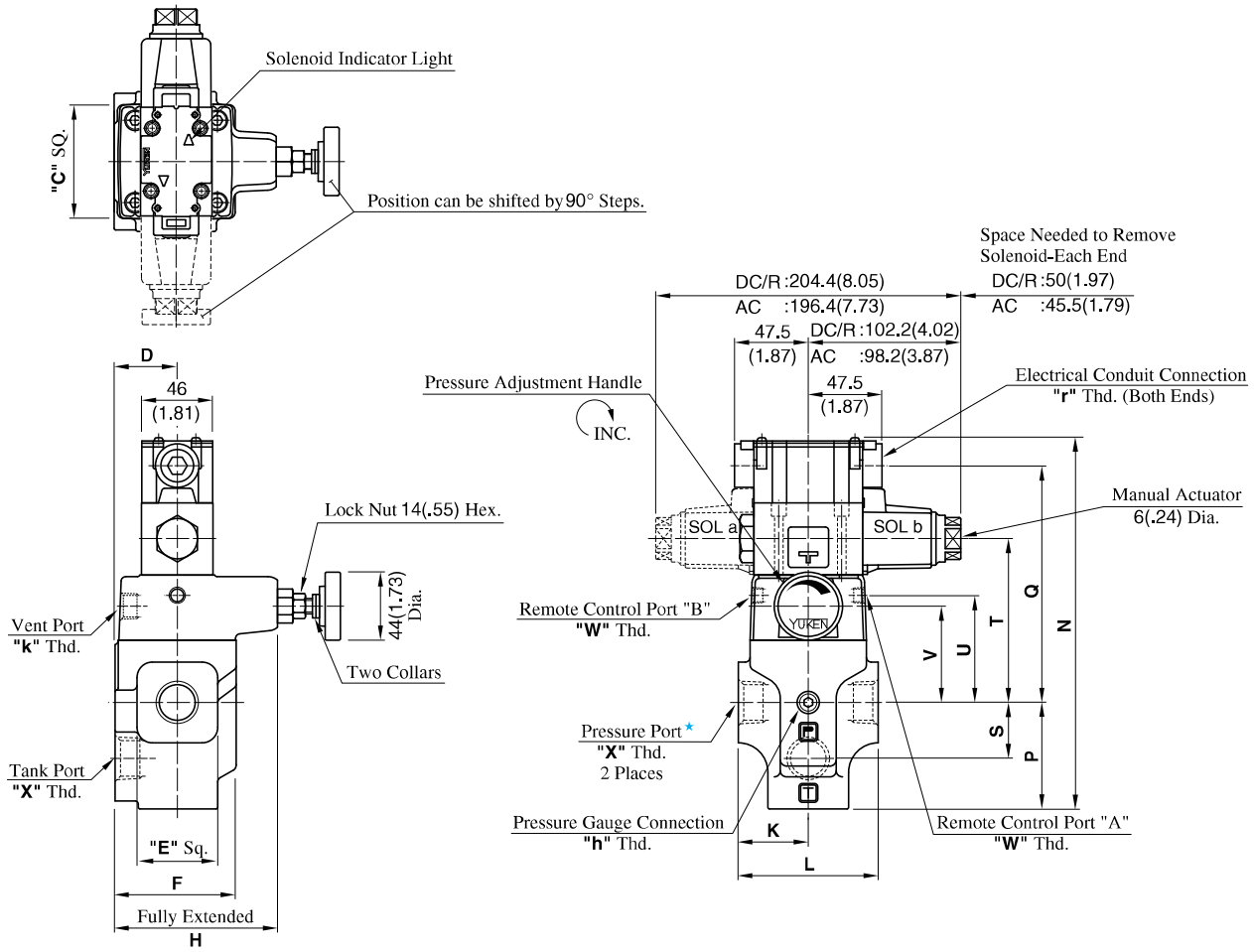
Interchangeability in Installation between Old and New Design.

Design 48 valve is one on which DSG-01, design 70 is mounted as a pilot valve. It is interchangeable with old design (design 47) with respect to specifications, exterior shape and mounting dimensions.

BST-03-*-*-*-48/4890
BST-06-*-*-*-48/4890
BST-10-*-*-*-48/4890

DIMENSIONS IN MILLIMETRES (INCHES)

● Terminal Box Type



★ There are two threaded connection pressure ports. They can be connected each other in-line; one as inlet and the other as an outlet or the valve can be used by plugging one of the pressure ports.

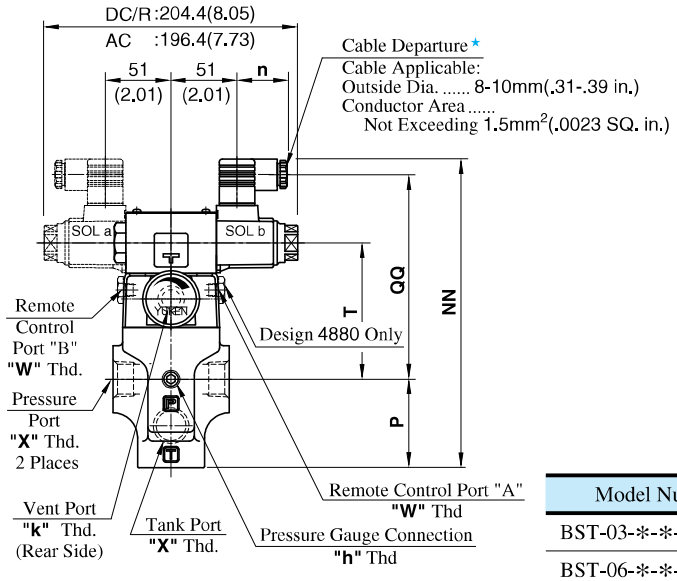
Model Numbers	Dimensions mm (Inches)													
	C	D	E	F	H	K	L	N	P	Q	S	T	U	V
BST-03-*-48/4890	75 (2.95)	40 (1.57)	52 (2.05)	78 (3.07)	145 (5.71)	45 (1.77)	90 (3.54)	239.3 (9.42)	68.5 (2.70)	152.5 (6.00)	36 (1.42)	105.5 (4.15)	69 (2.72)	62 (2.44)
BST-06-*-48/4890														
BST-10-*-48/4890	85 (3.35)	50 (1.97)	80 (3.15)	96 (3.78)	151 (5.94)	60 (2.36)	120 (4.72)	271.8 (10.70)	89 (3.50)	164.5 (6.48)	49 (1.93)	117.5 (4.63)	81 (3.19)	74 (2.91)

Model Numbers	Japanese Standard "JIS" Design 48					N. American Design Standard Design 4890				
	"W" Thd.	"X" Thd.	"h" Thd.	"k" Thd.	"r" Thd.	"W" Thd.	"X" Thd.	"h" Thd.	"k" Thd.	"r" Thd.
BST-03	Rc 1/8	Rc 3/8	Rc 1/4	Rc 3/8	G 1/2	1/8 NPT	3/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT
BST-06		Rc 3/4					3/4 NPT			
BST-10		Rc 1-1/4					1-1/4 NPT			

● Models with Plug-in Connector

DIMENSIONS IN MILLIMETRES (INCHES)

03
BST-06-✻-✻-✻-N-48/4880/4890
10



★ Position of cable departure can be changed. For details, refer to DSG-01 valve on page 357.

Model Numbers	Dimensions mm(Inches)				
	P	T	NN	QQ	n
BST-03-✻-A✻-N	68.5 (2.70)	105.5 (4.15)	239 (9.41)	158.5 (6.24)	39 (1.54)
BST-06-✻-A✻-N					
BST-10-✻-A✻-N	89 (3.50)	117.5 (4.63)	271.5 (10.69)	170.5 (6.71)	
BST-03-✻-D✻-N	68.5 (2.70)	105.5 (4.15)	250 (9.84)	169.5 (6.67)	39 (1.54)
BST-06-✻-D✻-N					
BST-10-✻-D✻-N	89 (3.50)	117.5 (4.63)	282.5 (11.12)	181.5 (7.15)	
BST-03-✻-R✻-N	68.5 (2.70)	105.5 (4.15)	253 (9.96)	162.7 (6.41)	53 (2.09)
BST-06-✻-R✻-N					
BST-10-✻-R✻-N	89 (3.50)	117.5 (4.63)	285.5 (11.24)	174.7 (6.88)	

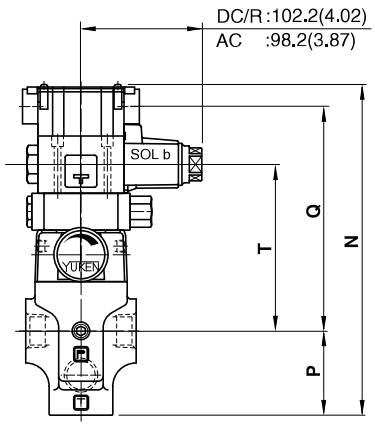
Model Numbers	"W" Thd.	"X" Thd.	"h" Thd.	"k" Thd.
BST-03-✻-✻-✻-N-4880	1/8 BSP.F	3/8 BSP.F	1/4 BSP.Tr	3/8 BSP.Tr
BST-06-✻-✻-✻-N-4880		3/4 BSP.F		
BST-10-✻-✻-✻-N-4880		1-1/4 BSP.F		

See the installation drawing of terminal box type on page 223 for design 48 and 4890 port thread and other dimensions.

Options - Models with Vent Restrictor

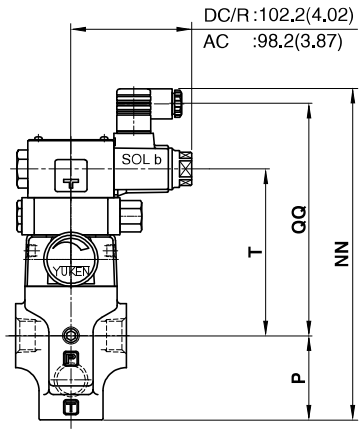
● Terminal Box Type

03
A-BST-06-✻-2B3A / 2B3B-✻-48/4880
10



● Plug-in Connector Type

03
A-BST-06-✻-2B3A / 2B3B-✻-N-48/4880/4890
10



Dimensions mm (Inches) / Model Numbers	P	T	Terminal Box Type		Plug-in Connector Type					
					AC Solenoid		DC Solenoid		R (AC→DC) Solenoid	
			N	Q	NN	QQ	NN	QQ	NN	QQ
A-BST-03	68.5 (2.70)	135.5 (5.33)	269.3 (10.60)	182.5 (7.19)	269 (10.59)	188.5 (7.42)	280 (11.02)	199.5 (7.85)	283 (11.14)	192.7 (7.59)
A-BST-06										
A-BST-10	89 (3.50)	147.5 (5.81)	301.8 (11.88)	194.5 (7.66)	301.5 (11.87)	200.5 (7.89)	312.5 (12.30)	211.5 (8.33)	315.5 (12.42)	204.7 (8.06)

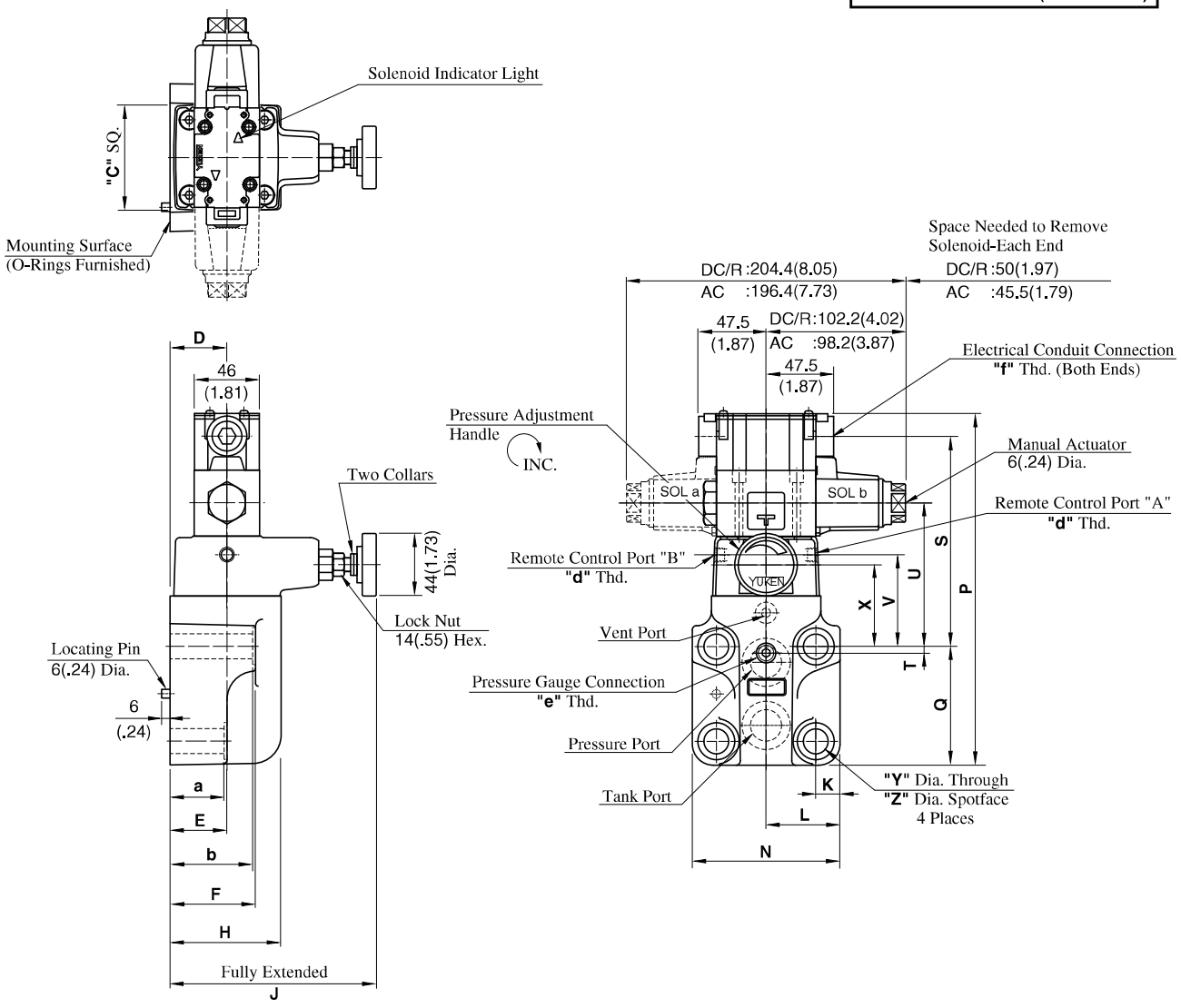
For other dimensions, see the models without vent restrictor type on page 223 and 224.

BSG-03-*-*-*-48/4890
BSG-06-*-*-*-48/4890
BSG-10-*-*-*-48/4890

Mounting surface
BSG-03: ISO 6264-AR-06-2-A
BSG-06: ISO 6264-AS-08-2-A
BSG-10: ISO 6264-AT-10-2-A

DIMENSIONS IN MILLIMETRES (INCHES)

● Terminal Box Type



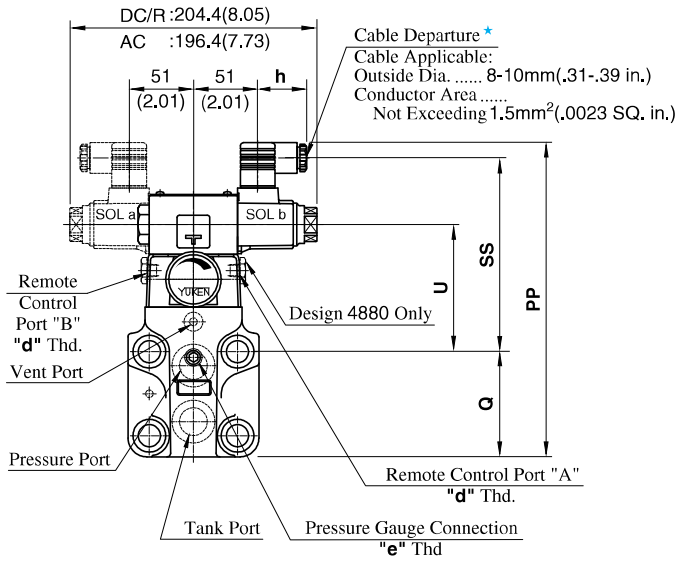
Model Numbers	Dimensions mm (Inches)																			
	C	D	E	F	H	J	K	L	N	P	Q	S	T	U	V	X	Y	Z	a	b
BSG-03	75 (2.95)	40 (1.57)	57 (2.24)	78 (3.07)	78 (3.07)	145 (5.71)	14.1 (.56)	41 (1.61)	82 (3.23)	225.8 (8.89)	77 (3.03)	130.5 (5.14)	22 (.87)	83.5 (3.29)	47 (1.85)	40 (1.57)	13.5 (.53)	21 (.83)	55 (2.17)	77 (3.03)
BSG-06	75 (2.95)	40 (1.57)	40 (1.57)	60 (2.36)	78 (3.07)	145 (5.71)	17 (.67)	52 (2.05)	104 (4.09)	249.8 (9.83)	83.5 (3.29)	148 (5.83)	4.5 (.18)	101 (3.98)	64.5 (2.54)	57.5 (2.26)	17.5 (.69)	26 (1.02)	38 (1.50)	58 (2.28)
BSG-10	85 (3.35)	45 (1.77)	47 (1.85)	67 (2.64)	84 (3.31)	146 (5.75)	20.7 (.81)	62 (2.44)	124 (4.88)	283.8 (11.17)	110 (4.33)	155.5 (6.12)	6 (.24)	108.5 (4.27)	72 (2.83)	65 (2.56)	21.5 (.85)	32 (1.26)	45 (1.77)	65 (2.56)

Model Numbers	Japanese Standard "JIS" Design 48			N. American Design Standard Design 4890		
	"d" Thd.	"e" Thd.	"f" Thd.	"d" Thd.	"e" Thd.	"f" Thd.
BSG-03	Rc 1/8	Rc 1/4	G 1/2	1/8 NPT	1/4 NPT	1/2 NPT
BSG-06						
BSG-10						

Note: For dimensions of the valve mounting surface, see the installation drawing (P. 213) of the sub-plate used together.

● Models with Plug-in Connector

03
BSG-06-✻-✻-✻-N-48/4880/4890
10



Model Numbers	Dimensions mm(Inches)				
	Q	U	PP	SS	h
BSG-03-✻-A✻-N	77 (3.03)	83.5 (3.29)	225.5 (8.88)	136.5 (5.37)	39 (1.54)
BSG-06-✻-A✻-N	83.5 (3.29)	101 (3.98)	249.5 (9.82)	154 (6.06)	
BSG-10-✻-A✻-N	110 (4.33)	108.5 (4.27)	283.5 (11.16)	161.5 (6.36)	
BSG-03-✻-D✻-N	77 (3.03)	83.5 (3.29)	236.5 (9.31)	147.5 (5.81)	39 (1.54)
BSG-06-✻-D✻-N	83.5 (3.29)	101 (3.98)	260.5 (10.26)	165 (6.50)	
BSG-10-✻-D✻-N	110 (4.33)	108.5 (4.27)	294.5 (11.59)	172.5 (6.79)	
BSG-03-✻-R✻-N	77 (3.03)	83.5 (3.29)	239.5 (9.43)	140.7 (5.54)	53 (2.09)
BSG-06-✻-R✻-N	83.5 (3.29)	101 (3.98)	263.5 (10.37)	158.2 (6.23)	
BSG-10-✻-R✻-N	110 (4.33)	108.5 (4.27)	297.5 (11.71)	165.7 (6.52)	

★ Position of cable departure can be changed. For details, refer to DSG-01 valve on page 357.

Model Numbers	"d" Thd.	"e" Thd.
BSG-03-✻-✻-✻-N-4880	1/8 BSP.F	1/4 BSP.Tr
BSG-06-✻-✻-✻-N-4880		
BSG-10-✻-✻-✻-N-4880		

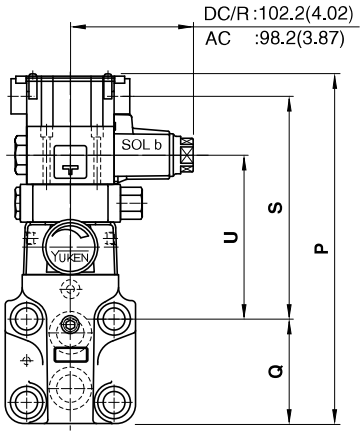
See the installation drawing of terminal box type on page 225 for design 48 and 4890 port threads and other dimensions.

DIMENSIONS IN MILLIMETRES (INCHES)

Options - Models with Vent Restrictor

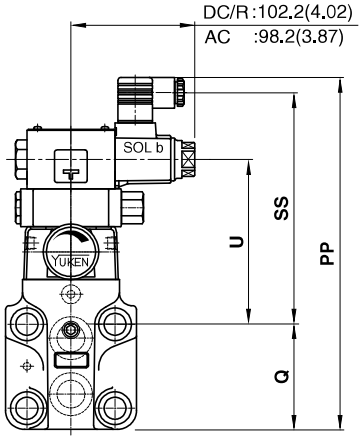
● Terminal Box Type

03
A-BSG-06-✻-2B3A 2B3B -✻-48/4890
10



● Plug-in Connector Type

03
A-BSG-06-✻-2B3A 2B3B -✻-N-48/4880/4890
10



Dimensions mm (Inches) / Model Numbers	Q	U	Terminal Box Type		Plug-in Connector Type					
					AC Solenoid		DC Solenoid		R (AC→DC) Solenoid	
			P	S	PP	SS	PP	SS	PP	SS
A-BSG-03	77 (3.03)	113.5 (4.47)	255.8 (10.07)	160.5 (6.32)	255.5 (10.06)	166.5 (6.56)	266.5 (10.49)	177.5 (6.99)	269.5 (10.61)	170.7 (6.72)
A-BSG-06	83.5 (3.29)	131 (5.16)	279.8 (11.02)	178 (7.01)	279.5 (11.00)	184 (7.24)	290.5 (11.44)	195 (7.68)	293.5 (11.56)	188.2 (7.41)
A-BSG-10	110 (4.33)	138.5 (5.45)	313.8 (12.35)	185.5 (7.30)	313.5 (12.34)	191.5 (7.54)	324.5 (12.78)	202.5 (7.97)	327.5 (12.89)	195.7 (7.70)

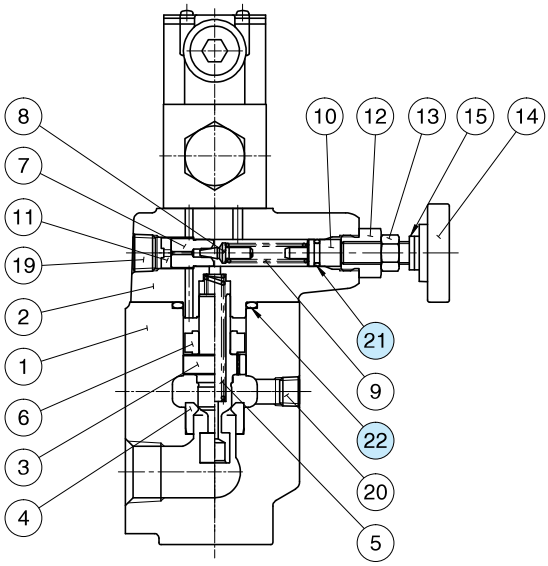
For other dimensions, see the models without vent restrictor type on page 225 and 226.

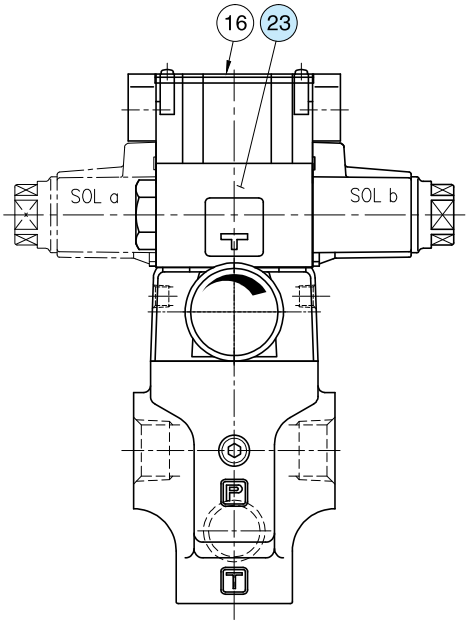
Spare Parts List

Threaded Connections

Terminal Box Type

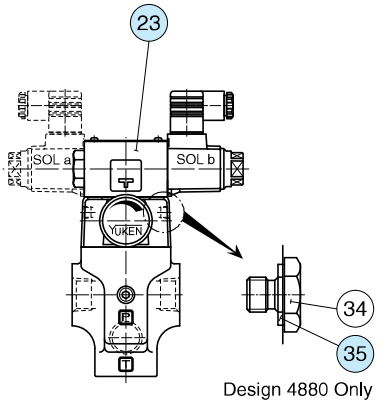
03
BST-06-*-*-*-48/4890
10





Models with Plug-in Connector

03
BST-06-*-*-*-N-48/4880/4890
10

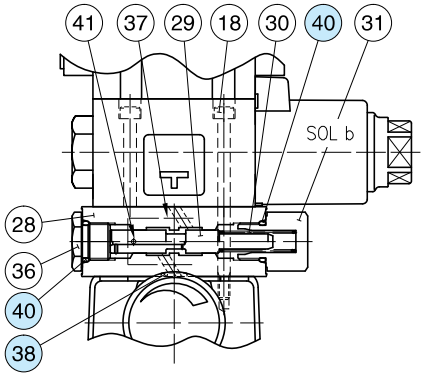


Design 4880 Only

Option

Models with Vent Restrictor

03
A-BST-06-*-*-*-48/4890
10
N-48/4880/4890



List of Seals

Item	Name of Parts	Part Numbers			Qty.
		BST-03	BST-06	BST-10	
21	O-Ring	SO-NA-P9		SO-NA-P9	1
22	O-Ring	SO-NB-P32		SO-NB-P42	1
35	Bonded Seal	SG-FB-1/8		SG-FB-1/8	2
38★	O-Ring	SO-NB-P8			2
40★	O-Ring	SO-NB-P14			2

★ The O-Rings for Item 38,40 are used only for the models with the vent restrictor.

Note: When ordering the seals, please specify the seal kit number from the table right. In addition to the above seals, seals for the pilot valves are included in the seal kit.
For the detail of the pilot valve seals, see the page 359.

List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
BST-03	KS-BST-03-48
BST-06	
BST-10	KS-BST-10-48
A-BST-03	KS-A-BST-03-48
A-BST-06	
A-BST-10	KS-A-BST-10-48

Note: No bonded seals are included in the seal kits.

Pilot Valves

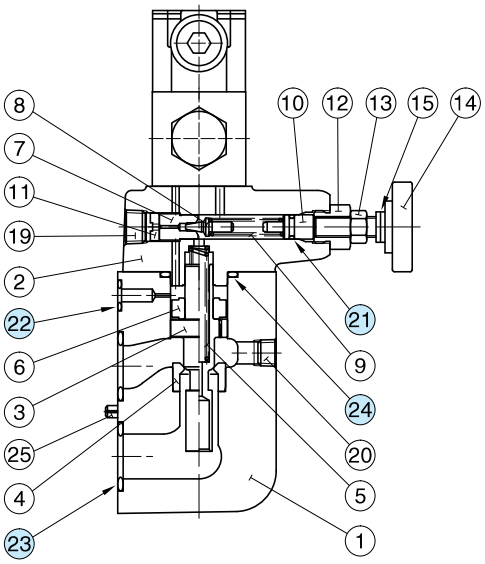
See page 229 for the pilot valve model numbers to be used.

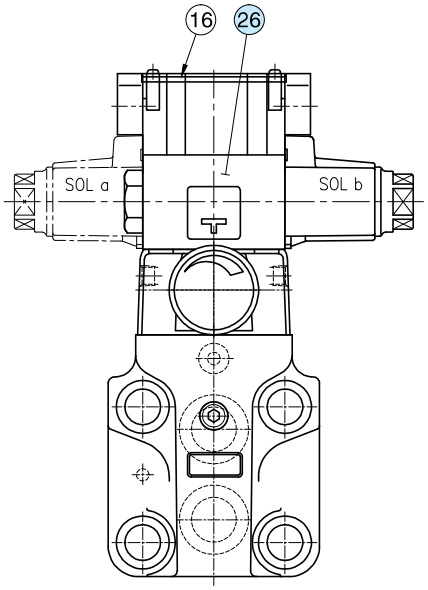
Spare Parts List

Sub-plate Mounting

Terminal Box Type

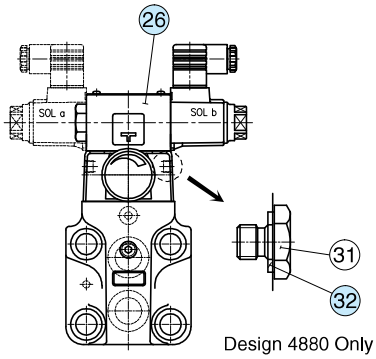
03
BSG-06-✻-✻-✻-48/4890
10





Models with Plug-in Connector

03
BSG-06-✻-✻-✻-N-48/4880/4890
10

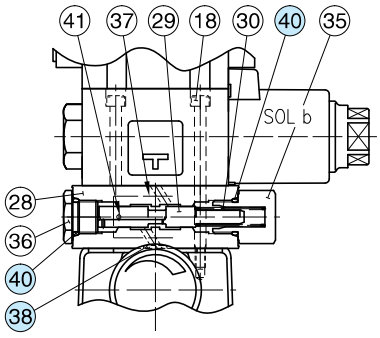


Design 4880 Only

Option

Models with Vent Restrictor

03
A-BSG-06-✻-✻-✻-48/4890
10 N-48/4880/4890



List of Seals

Item	Name of Parts	Part Numbers			Qty.
		BSG-03	BSG-06	BSG-10	
21	O-Ring	SO-NA-P9	SO-NA-P9	SO-NA-P9	1
22	O-Ring	SO-NB-P9	SO-NB-P11	SO-NB-P9	1
23	O-Ring	SO-NB-P18	SO-NB-P28	SO-NB-P32	2
24	O-Ring	SO-NB-P32	SO-NB-P32	SO-NB-P42	1
32	Bonded Seal	SG-FB-1/8	SG-FB-1/8	SG-FB-1/8	2
38★	O-Ring	SO-NB-P8			2
40★	O-Ring	SO-NB-P14			2

★ The O-Rings for item 38, 40 are used only for the models with the vent restrictor.

Note: When ordering the seals, please specify the seal kit number from the table right. In addition to the above seals, seals for the pilot valves are included in the seal kit.
For the detail of the pilot valve seals, see page 359.

List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
BSG-03	KS-BSG-03-48
BSG-06	KS-BSG-06-48
BSG-10	KS-BSG-10-48
A-BSG-03	KS-A-BSG-03-48
A-BSG-06	KS-A-BSG-06-48
A-BSG-10	KS-A-BSG-10-48

Note: No bonded seals are included in the seal kits.

Pilot Valves

See page 229 for the pilot valve model numbers to be used.

Spare Parts List

List of Pilot Valves

Type of Electrical Conduit Connection	Valve Model Numbers	Pilot Valve Model Numbers	Remarks
Terminal Box Type	✻-BST/BSG-03/06/10-✻-2B3A-★-48	DSG-01-2B3A-★-70	Japanese Standard "JIS"
	✻-BST/BSG-03/06/10-✻-2B3B-★-48	DSG-01-2B3B-★-70	
	✻-BST/BSG-03/06/10-✻-2B2B-★-48	DSG-01-2B2B-★-70	
	✻-BST/BSG-03/06/10-✻-2B2-★-48	DSG-01-2B2-★-70	
	✻-BST/BSG-03/06/10-✻-3C2-★-48	DSG-01-3C2-★-70	
	✻-BST/BSG-03/06/10-✻-3C3-★-48	DSG-01-3C3-★-70	
	✻-BST/BSG-03/06/10-✻-2B3A-★-4890	DSG-01-2B3A-★-7090	N. American Design Std.
	✻-BST/BSG-03/06/10-✻-2B3B-★-4890	DSG-01-2B3B-★-7090	
	✻-BST/BSG-03/06/10-✻-2B2B-★-4890	DSG-01-2B2B-★-7090	
	✻-BST/BSG-03/06/10-✻-2B2-★-4890	DSG-01-2B2-★-7090	
	✻-BST/BSG-03/06/10-✻-3C2-★-4890	DSG-01-3C2-★-7090	
	✻-BST/BSG-03/06/10-✻-3C3-★-4890	DSG-01-3C3-★-7090	
Plug-in Connector Type	✻-BST/BSG-03/06/10-✻-2B3A-★-N-48	DSG-01-2B3A-★-N-70	Japanese Standard "JIS"
	✻-BST/BSG-03/06/10-✻-2B3B-★-N-48	DSG-01-2B3B-★-N-70	
	✻-BST/BSG-03/06/10-✻-2B2B-★-N-48	DSG-01-2B2B-★-N-70	
	✻-BST/BSG-03/06/10-✻-2B2-★-N-48	DSG-01-2B2-★-N-70	
	✻-BST/BSG-03/06/10-✻-3C2-★-N-48	DSG-01-3C2-★-N-70	
	✻-BST/BSG-03/06/10-✻-3C3-★-N-48	DSG-01-3C3-★-N-70	
	✻-BST/BSG-03/06/10-✻-2B3A-★-N-4880	DSG-01-2B3A-★-N-70	European Design Std.
	✻-BST/BSG-03/06/10-✻-2B3B-★-N-4880	DSG-01-2B3B-★-N-70	
	✻-BST/BSG-03/06/10-✻-2B2B-★-N-4880	DSG-01-2B2B-★-N-70	
	✻-BST/BSG-03/06/10-✻-2B2-★-N-4880	DSG-01-2B2-★-N-70	
	✻-BST/BSG-03/06/10-✻-3C2-★-N-4880	DSG-01-3C2-★-N-70	
	✻-BST/BSG-03/06/10-✻-3C3-★-N-4880	DSG-01-3C3-★-N-70	
	✻-BST/BSG-03/06/10-✻-2B3A-★-N-4890	DSG-01-2B3A-★-N-7090	N. American Design Std.
	✻-BST/BSG-03/06/10-✻-2B3B-★-N-4890	DSG-01-2B3B-★-N-7090	
	✻-BST/BSG-03/06/10-✻-2B2B-★-N-4890	DSG-01-2B2B-★-N-7090	
	✻-BST/BSG-03/06/10-✻-2B2-★-N-4890	DSG-01-2B2-★-N-7090	
	✻-BST/BSG-03/06/10-✻-3C2-★-N-4890	DSG-01-3C2-★-N-7090	
	✻-BST/BSG-03/06/10-✻-3C3-★-N-4890	DSG-01-3C3-★-N-7090	

Note: 1. Fill a coil type (a symbol representing current/voltage) in section marked ★.
2. For the details of the pilot valves, see page 359.

H/HC Type Pressure Control Valves

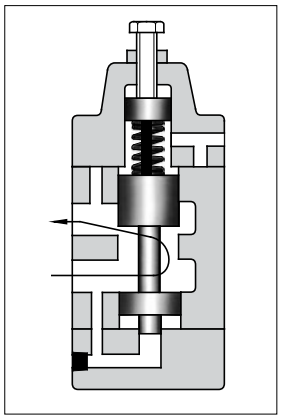
These valves are hydraulically damped, direct operated, pressure control valves which can be actuated by internal or external pilot pressure.

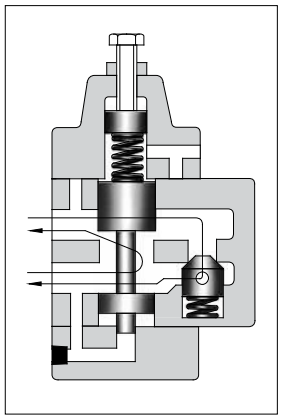
H Type Pressure Control Valves

There are various types of valve including sequence, unloading and low pressure relief valves, all of which are operated by a pressure rise in the circuit, sensed either internally or remotely.

HC Type Pressure Control Valves

They are available with integral check valves for use when free reverse flow from secondary port to the primary port is desired. There are various types of valve including sequence and counterbalance valves, all of which are operated by a pressure rise in the circuit, sensed either internally or remotely.



Specifications

Series	Model Numbers		Max. Operating Pres. MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg (lbs.)	
	Threaded Connection	Sub-plate Mounting			Threaded Connection	Sub-plate Mounting
H Type Pressure Control Valves	HT-03-∗∗-∗-22/2280/2290	HG-03-∗∗-∗-22/2290	21(3050)	50 (13.2)	3.7 (8.2)	4.0 (8.8)
	HT-06-∗∗-∗-22/2280/2290	HG-06-∗∗-∗-22/2290		125 (33)	6.2 (13.7)	6.1 (13.5)
	HT-10-∗∗-∗-22/2280/2290	HG-10-∗∗-∗-22/2290		250 (66)	12.0 (26.5)	11.0 (24.3)
HC Type Pressure Control Valves	HCT-03-∗∗-∗-22/2280/2290	HCG-03-∗∗-∗-22/2290	21(3050)	50 (13.2)	4.1 (9.0)	4.8 (10.6)
	HCT-06-∗∗-∗-22/2280/2290	HCG-06-∗∗-∗-22/2290		125 (33)	7.1 (15.7)	7.4 (16.3)
	HCT-10-∗∗-∗-22/2280/2290	HCG-10-∗∗-∗-22/2290		250 (66)	13.8 (30.4)	13.8 (30.4)

● For check valve pressure drops of HC type, see free flow pressure drop characteristics described on page 247.

Yuken can offer flanged connection valves described below.
For details, contact us.

Model Numbers	Max. Operating Pressure MPa (PSI)	Max. flow L/min (U.S.GPM)
HF/HCF-10-∗∗-∗-22/2290	21 (3050)	250(66)
HF/HCF-16-∗∗-∗-20/2090		500(132)

Model Number Designation

F-	H	T	-03	-C	3	-P	-22	*
Special Seals	Series Number	Type of Mounting	Valve Size	Pres. Adj. Range MPa (PSI)	Valve Type ★1	With Auxiliary Pilot Pressure	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**H:** H Type Pressure Control Valves	**T:** Threaded Connection	03	**L:** 0.25 - 0.45 (36 - 65) **M:** 0.45 - 0.9 (65 - 130) **N:** 0.9 - 1.8 (130 - 260) **A:** 1.8 - 3.5 (260 - 510) **B:** 3.5 - 7.0 (510 - 1020) **C:** 7.0 - 14 (1020 - 2030)	1 ★2 2 3 4	**P:** ★3 With Auxiliary Pilot Pressure	22	**None:** Japanese Std. "JIS" **80:** European Design Std. **90:** N. American Design Std.
			06				22	
			10				22	
		G: Sub-plate Mounting	03				22	**None:** Japanese Std. "JIS" & European Design Std. **90:** N. American Design Std.
			06				22	
			10				22	
	HC: HC Type Pressure Control Valves	**T:** Threaded Connection	03		1 2 3 4		22	**None:** Japanese Std. "JIS" **80:** European Design Std. **90:** N. American Design Std.
			06				22	
			10				22	
		G: Sub-plate Mounting	03				22	**None:** Japanese Std. "JIS" & European Design Std. **90:** N. American Design Std.
			06				22	
			10				22	

★1. For the details of valve types, see the following page.
★2. Type 1 is only possible for pressure adjustment ranges L and M.
★3. Models with auxiliary pilots are used where valves must be operated under a lower external pilot pressure than the adjusted pressure (types N, A, and B: about 1/8 of adjusted pressure; type C: about 1/16). This does not apply to pressure adjustment ranges L and M and valve type 1.

Instructions

- To adjust the pressure, loosen the lock nut and turn the pressure adjustment screw slowly clockwise to increase pressures or anti-clockwise to decrease pressures. After adjustments, do not forget to tighten the lock nut.
- Connect the secondary side pressure ports of types 1 and 4 (internal drain) and the drain ports of types 2 and 3 (external drain) directly to the reservoir with a back pressure close to the atmospheric pressure.
- There are two threaded connection primary pressure ports. They can be connected each other in-line; one as inlet and the other as an outlet or the valve can be used by plugging one of the pressure ports.

Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N.American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
HG HCG-03-**	HGM-03-20	Rc 3/8	HGM-03-2080	3/8 BSP.F	HGM-03-2090	3/8 NPT	1.6 (3.5)
	HGM-03X-20	Rc 1/2	HGM-03X-2080	1/2 BSP.F	HGM-03X-2090	1/2 NPT	1.6 (3.5)
HG HCG-03-**-P	HGM-03-P-20	Rc 3/8	HGM-03-P-2080	3/8 BSP.F	HGM-03-P-2090	3/8 NPT	2.0 (4.4)
	HGM-03X-P-20	Rc 1/2	HGM-03X-P-2080	1/2 BSP.F	HGM-03X-P-2090	1/2 NPT	2.0 (4.4)
HG HCG-06-**	HGM-06-20	Rc 3/4	HGM-06-2080	3/4 BSP.F	HGM-06-2090	3/4 NPT	2.4 (5.3)
	HGM-06X-20	Rc 1	HGM-06X-2080	1 BSP.F	HGM-06X-2090	1 NPT	3.0 (6.6)
HG HCG-06-**-P	HGM-06-P-20	Rc 3/4	HGM-06-P-2080	3/4 BSP.F	HGM-06-P-2090	3/4 NPT	2.4 (5.3)
	HGM-06X-P-20	Rc 1	HGM-06X-P-2080	1 BSP.F	HGM-06X-P-2090	1 NPT	3.0 (6.6)
HG HCG-10-**	HGM-10-20	Rc 1-1/4	HGM-10-2080	1-1/4 BSP.F	HGM-10-2090	1-1/4 NPT	4.8 (10.6)
	HGM-10X-20	Rc 1-1/2	HGM-10X-2080	1-1/2 BSP.F	HGM-10X-2090	1-1/2 NPT	5.7 (12.6)
HG HCG-10-**-P	HGM-10-P-20	Rc 1-1/4	HGM-10-P-2080	1-1/4 BSP.F	HGM-10-P-2090	1-1/4 NPT	4.8 (10.6)
	HGM-10X-P-20	Rc 1-1/2	HGM-10X-P-2080	1-1/2 BSP.F	HGM-10X-P-2090	1-1/2 NPT	5.7 (12.6)

- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

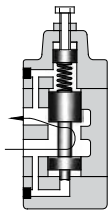
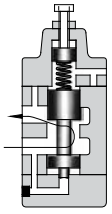
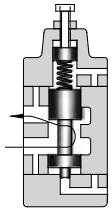
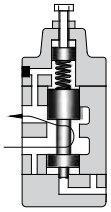
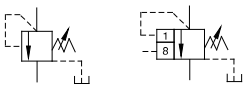
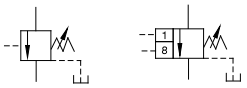
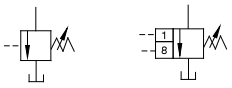
Attachment

Mounting Bolts

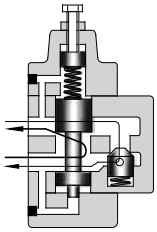
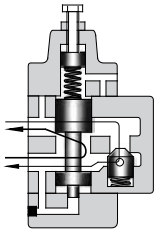
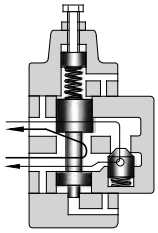
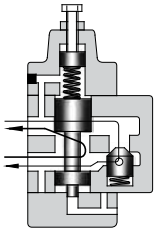
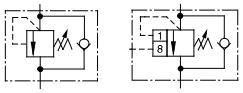
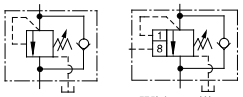
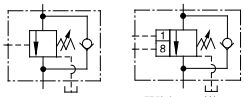
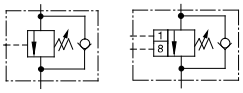
Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
HG-03	M10×50 Lg.	3/8 -16 UNC×2 Lg.	4
HG-06	M10×50 Lg.	3/8 -16 UNC×2 Lg.	4
HG-10	M10×50 Lg.	3/8 -16 UNC×2 Lg.	6
HCG-03	M10×70 Lg.	3/8 -16 UNC×2-3/4 Lg.	4
HCG-06	M10×80 Lg.	3/8 -16 UNC×3-1/4 Lg.	4
HCG-10	M10×90 Lg.	3/8 -16 UNC×3-1/2 Lg.	6

Valve Types

H Type

Valve Type	Type 1: Low Pres. Relief Valve	Type 2: Sequence Valve	Type 3: Sequence Valve	Type 4: Unloading Valve
Pilot-Drain Type	Internal Pilot-Internal Drain	Internal Pilot-External Drain	External Pilot-External Drain	External Pilot-Internal Drain
Operations				
Graphic Symbols		 With auxiliary pilot port	 With auxiliary pilot port	 With auxiliary pilot port
Description	Can be used as low-pressure relief valve, but be careful to occurrence of surge pressure.	Used to control the operational sequence of two or more actuators. If primary pressure exceeds the pressure setting, effective fluid is delivered to the secondary side.	Used for the same purpose as for the type 2. Operated by external pilot pressure irrespective of primary pressure.	Used as unloading valve. If external pilot pressure exceeds the pressure setting, the pump is turned no-load by releasing all fluid to the tank.

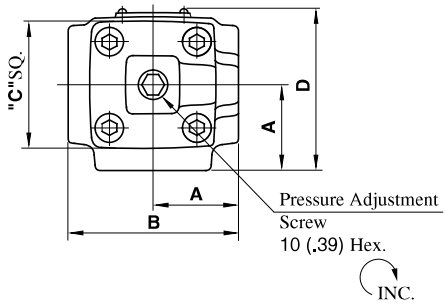
HC Type

Valve Type	Type 1: Counterbalance Valve	Type 2: Sequence and Check Valve	Type 3: Sequence and Check Valve	Type 4: Counterbalance Valve
Pilot-Drain Type	Internal Pilot-Internal Drain	Internal Pilot-External Drain	External Pilot-External Drain	External Pilot-Internal Drain
Operations				
Graphic Symbols	 With auxiliary pilot port	 With auxiliary pilot port	 With auxiliary pilot port	 With auxiliary pilot port
Descriptions	Used to prevent gravitational falls by generating a pressure on the actuator return side. If primary pressure exceeds the pressure setting, fluid is released to keep the pressure constant.	Used to control the operating sequence of two or more actuators. If primary pressure exceeds the pressure setting, effective fluid is delivered to the secondary side. Reversed flow is free by a check valve.	Used for the same purpose as for type 2. Operated by external pilot pressure irrespective of primary pressure. Reversed flow is free by a check valve.	Used for the same purpose as for type 1. Operated by external pilot pressure irrespective of primary pressure. Reversed flow is free by a check valve.

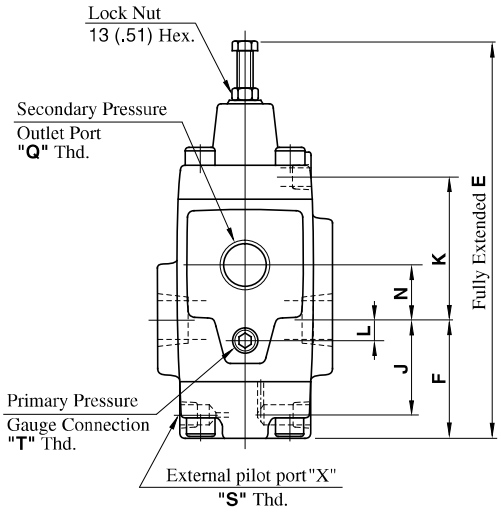
HT-03, 06, 10-**-*-22/2280/2290

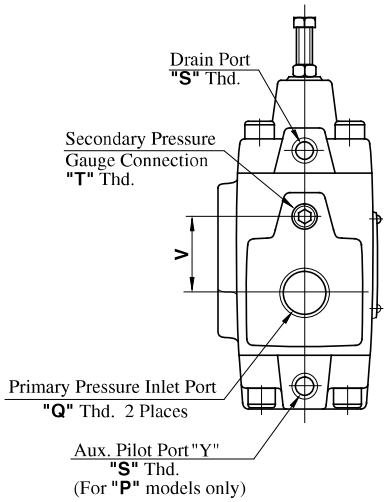
DIMENSIONS IN MILLIMETRES (INCHES)

Type 3: Sequence Valve
(External Pilot, External Drain)



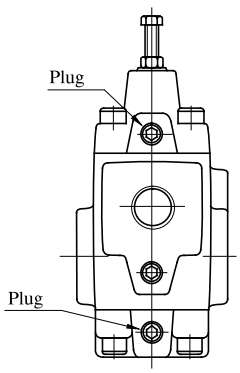
Model Numbers	Thread Size		
	"Q" Thd.	"S" Thd.	"T" Thd.
HT-03, 22	Rc 3/8	Rc 1/4	Rc 1/4
HT-06, 22	Rc 3/4		
HT-10, 22	Rc 1-1/4		
HT-03, 2280	3/8 BSP.F	1/4 BSP.F	1/4 BSP.Tr
HT-06, 2280	3/4 BSP.F		
HT-10, 2280	1-1/4 BSP.F		
HT-03, 2290	3/8 NPT	1/4 NPT	1/4 NPT
HT-06, 2290	3/4 NPT		
HT-10, 2290	1-1/4 NPT		



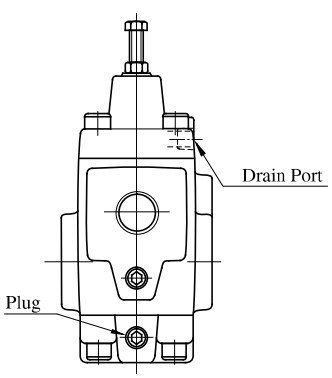


Model Numbers	Dimensions mm (Inches)										
	A	B	C	D	E	F	J	K	L	N	V
HT-03	41 (1.61)	82 (3.23)	60 (2.36)	74 (2.91)	191 (7.52)	57 (2.24)	43 (1.69)	70 (2.76)	0 (0)	28 (1.10)	28 (1.10)
HT-06	48 (1.89)	96 (3.78)	73 (2.87)	87 (3.43)	221 (8.70)	64.5 (2.54)	50.5 (1.99)	80.5 (3.17)	9 (.35)	33 (1.30)	42 (1.65)
HT-10	66 (2.60)	132 (5.20)	86 (3.39)	112 (4.41)	272 (10.71)	84 (3.31)	66 (2.60)	98 (3.86)	12 (.47)	40 (1.57)	52 (2.05)

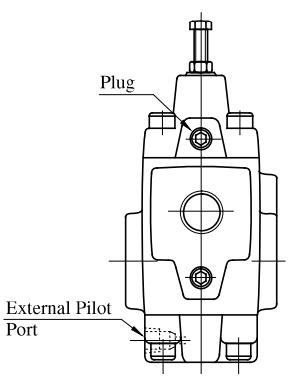
Type 1: Low Pressure Relief Valve
(Internal Pilot, Internal Drain)



Type 2: Sequence Valve
(Internal Pilot, External Drain)



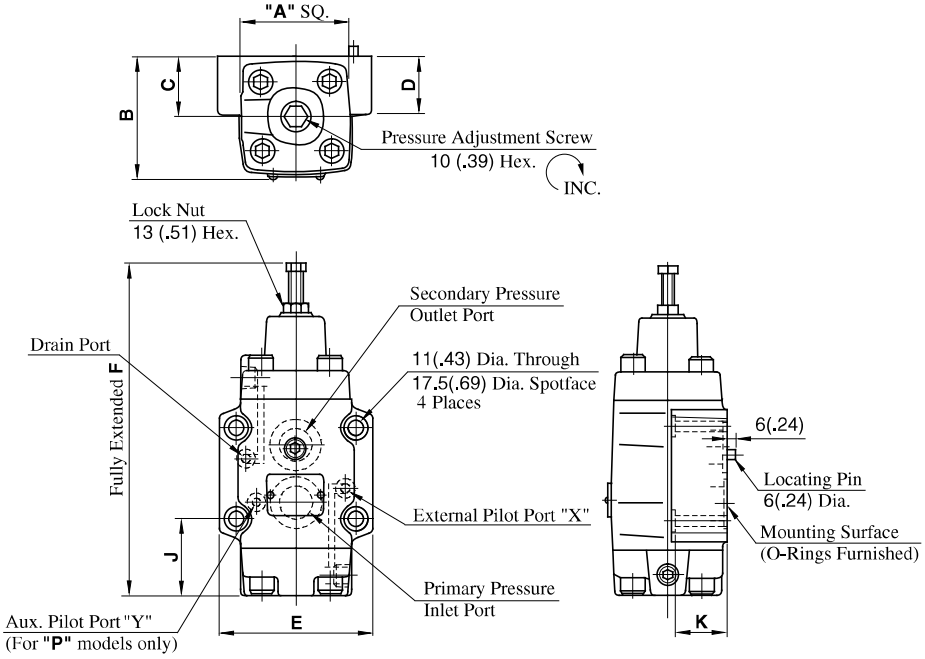
Type 4: Unloading Valve
(External Pilot, Internal Drain)



HG-03, 06-**-*-22/2290

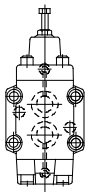
Mounting Surface
HG-03: ISO 5781-AG-06-2-A
HG-06: ISO 5781-AH-08-2-A

Type 3: Sequence Valve
(External Pilot, External Drain)

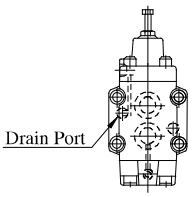


Model Numbers	Dimensions mm (Inches)							
	A	B	C	D	E	F	J	K
HG-03	60 (2.36)	67 (2.64)	35 (1.38)	39 (1.54)	89 (3.50)	191 (7.52)	49.6 (1.95)	38 (1.50)
HG-06	73 (2.87)	79 (3.11)	40 (1.57)	39 (1.54)	102 (4.02)	221 (8.70)	51 (2.01)	38 (1.50)

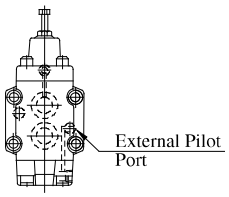
Type 1: Low Pressure Relief Valve
(Internal Pilot, Internal Drain)



Type 2: Sequence Valve
(Internal Pilot, External Drain)



Type 4: Unloading Valve
(External Pilot, Internal Drain)

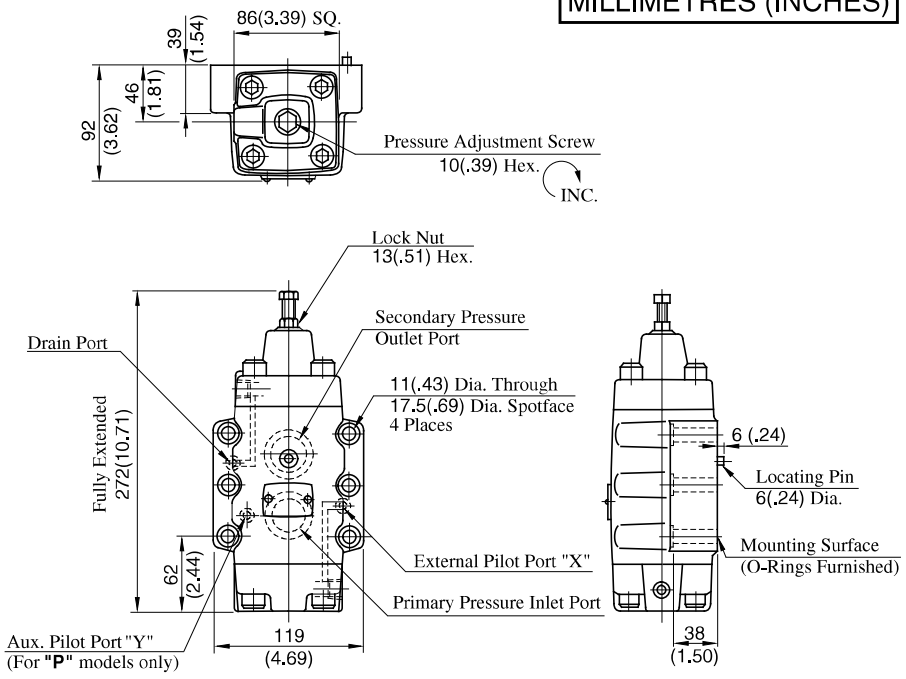


HG-10-**-*-22/2290

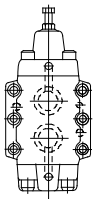
Mounting Surface
ISO 5781-AJ-10-2-A

Type 3: Sequence Valve
(External Pilot, External Drain)

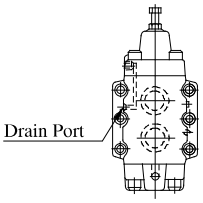
DIMENSIONS IN MILLIMETRES (INCHES)



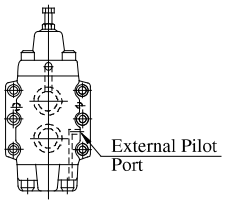
Type 1: Low Pressure Relief Valve
(Internal Pilot, Internal Drain)



Type 2: Sequence Valve
(Internal Pilot, External Drain)



Type 4: Unloading Valve
(External Pilot, Internal Drain)

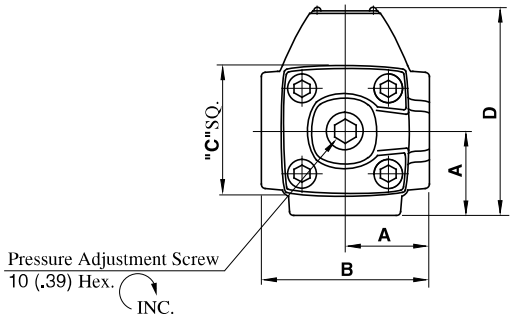


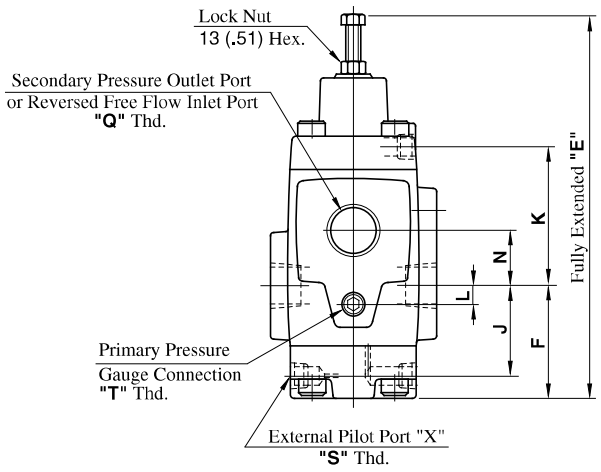
HCT-03, 06, 10-**-*-22/2280/2209

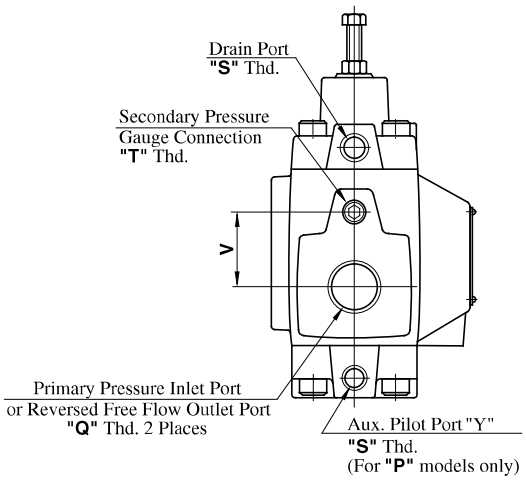
Type 3: Sequence and Check Valve
(External Pilot, External Drain)

DIMENSIONS IN MILLIMETRES (INCHES)

Model Numbers	Thread Size		
	"Q" Thd.	"S" Thd.	"T" Thd.
HCT-03, 22	Rc 3/8	Rc 1/4	Rc 1/4
HCT-06, 22	Rc 3/4		
HCT-10, 22	Rc 1-1/4		
HCT-03, 2280	3/8 BSP.F	1/4 BSP.F	1/4 BSP.Tr
HCT-06, 2280	3/4 BSP.F		
HCT-10, 2280	1-1/4 BSP.F		
HCT-03, 2290	3/8 NPT	1/4 NPT	1/4 NPT
HCT-06, 2290	3/4 NPT		
HCT-10, 2290	1-1/4 NPT		

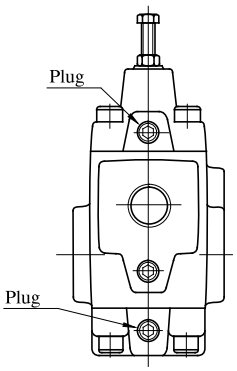




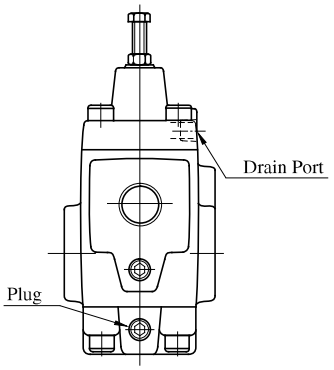


Model Numbers	Dimensions mm (Inches)										
	A	B	C	D	E	F	J	K	L	N	V
HCT-03	41 (1.61)	82 (3.23)	60 (2.36)	96 (3.78)	191 (7.52)	57 (2.24)	43 (1.69)	70 (2.76)	0 (0)	28 (1.10)	28 (1.10)
HCT-06	48 (1.89)	96 (3.78)	73 (2.87)	116 (4.57)	221 (8.70)	64.5 (2.54)	50.5 (1.99)	80.5 (3.17)	9 (.35)	33 (1.30)	42 (1.65)
HCT-10	66 (2.60)	132 (5.20)	86 (3.39)	152 (5.98)	272 (10.71)	84 (3.31)	66 (2.60)	98 (3.86)	12 (.47)	40 (1.57)	52 (2.05)

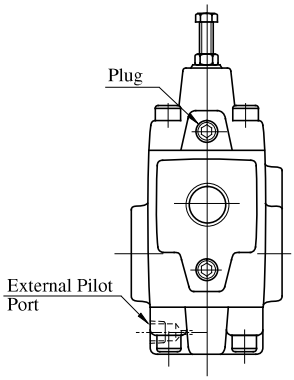
Type 1: Counterbalance Valve
(Internal Pilot, Internal Drain)



Type 2: Sequence and Check Valve
(Internal Pilot, External Drain)



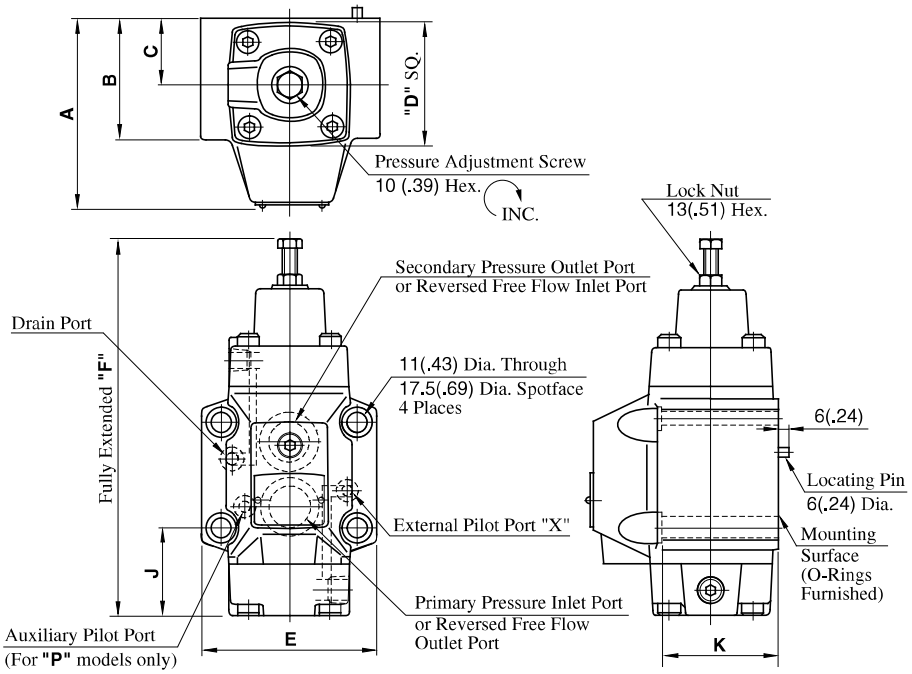
Type 4: Counterbalance Valve
(External Pilot, Internal Drain)



HCG-03, 06-**-*-22/2290

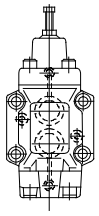
Mounting Surface
HCG-03: ISO 5781-AG-06-2-A
HCG-06: ISO 5781-AH-08-2-A

Type 3: Sequence and Check Valve
(External Pilot, External Drain)

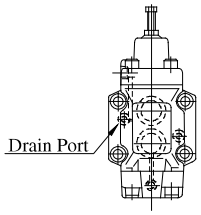


Model Numbers	Dimensions mm (Inches)							
	A	B	C	D	E	F	J	K
HCG-03	90 (3.54)	59 (2.32)	35 (1.38)	60 (2.36)	89 (3.50)	191 (7.52)	49.6 (1.95)	58 (2.28)
HCG-06	108 (4.25)	69 (2.72)	40 (1.57)	73 (2.87)	102 (4.02)	221 (8.70)	51 (2.01)	68 (2.68)

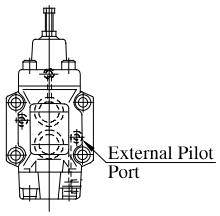
Type 1: Counterbalance Valve
(Internal Pilot, Internal Drain)



Type 2: Sequence and Check Valve
(Internal Pilot, External Drain)



Type 4: Counterbalance Valve
(External Pilot, Internal Drain)

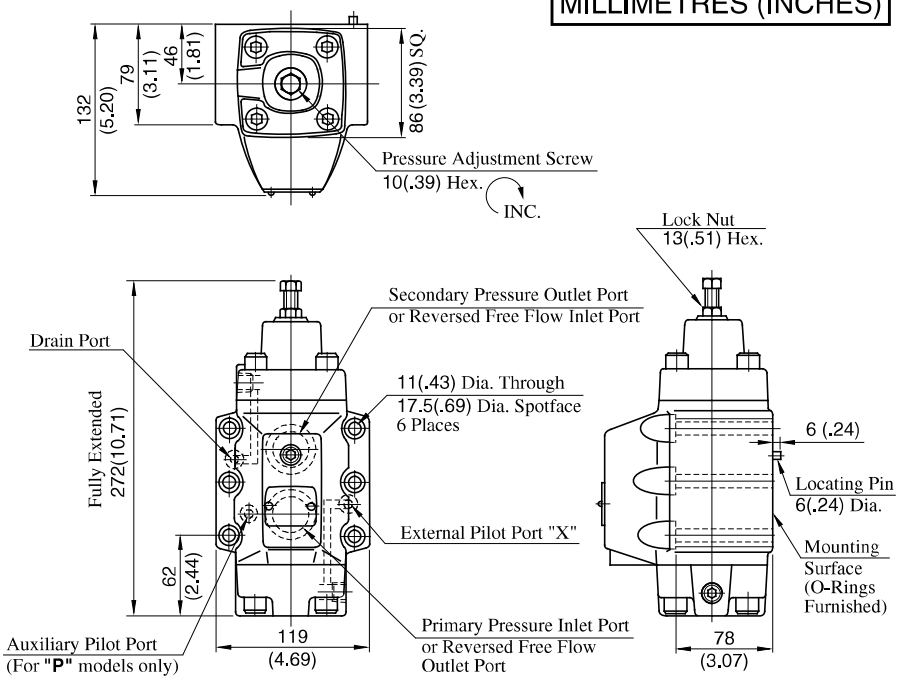


HCG-10-**-*-22/2290

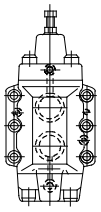
Mounting Surface
ISO 5781-AJ-10-2-A

Type 3: Sequence and Check Valve
(External Pilot, External Drain)

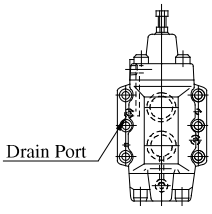
DIMENSIONS IN MILLIMETRES (INCHES)



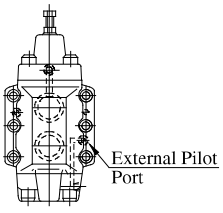
Type 1: Counterbalance Valve
(Internal Pilot, Internal Drain)



Type 2: Sequence and Check Valve
(Internal Pilot, External Drain)

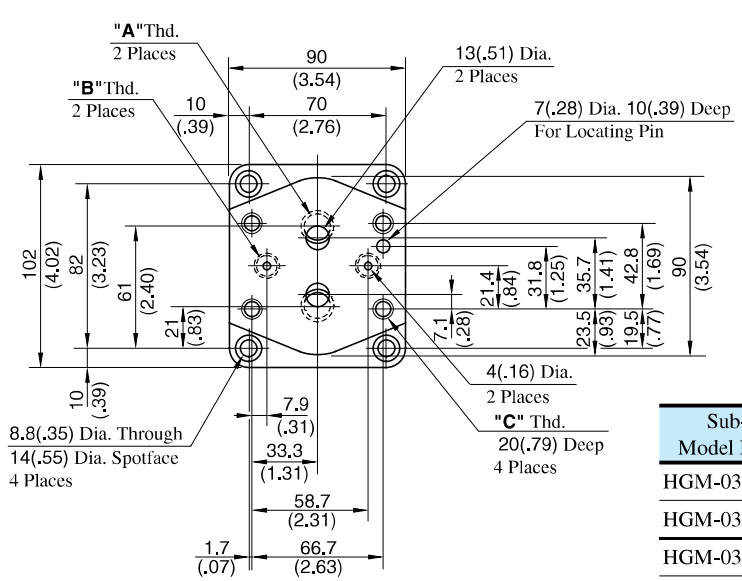


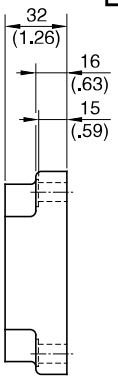
Type 4: Counterbalance Valve
(External Pilot, Internal Drain)



HGM-03-20/2080/2090
HGM-03X-20/2080/2090

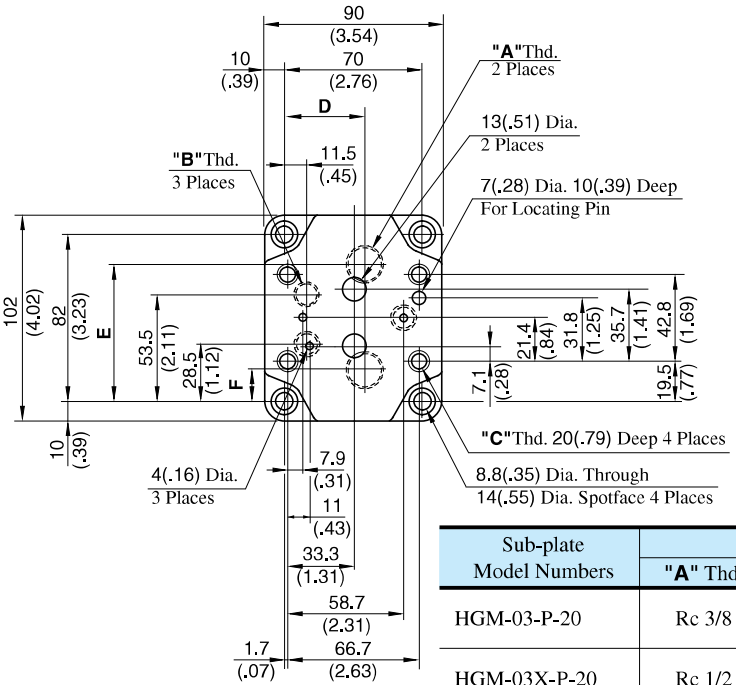
DIMENSIONS IN MILLIMETRES (INCHES)

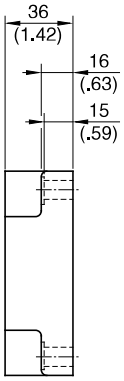




Sub-plate Model Numbers	"A" Thd.	"B" Thd.	"C" Thd.
HGM-03-20	Rc 3/8	Rc 1/4	M10
HGM-03X-20	Rc 1/2		
HGM-03-2080	3/8 BSP.F	1/4 BSP.F	
HGM-03X-2080	1/2 BSP.F		
HGM-03-2090	3/8 NPT	1/4 NPT	3/8-16 UNC
HGM-03X-2090	1/2 NPT		

With Auxiliary Pilot Pressure Port
HGM-03-P-20/2080/2090
HGM-03X-P-20/2080/2090

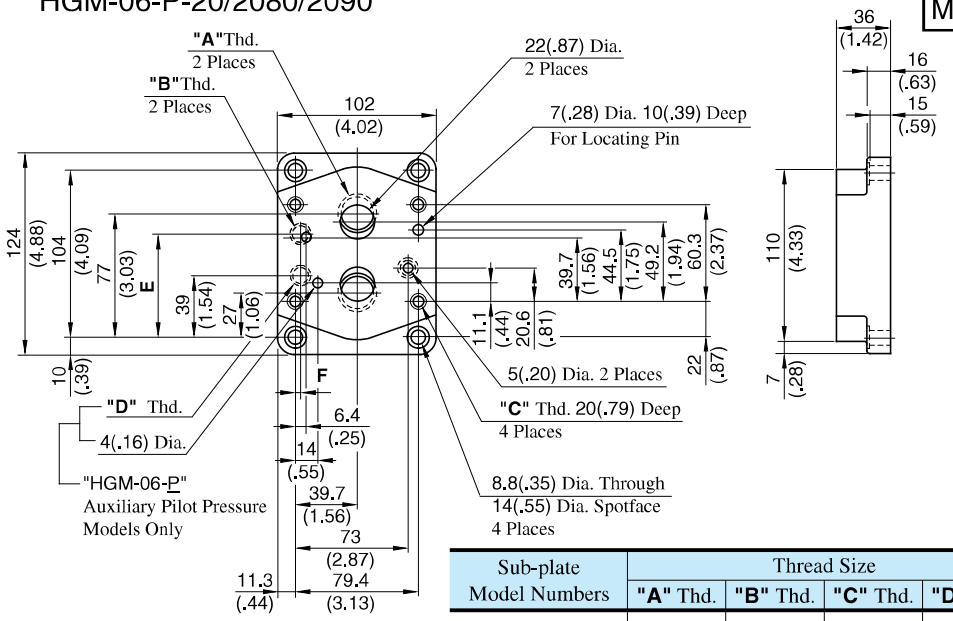




Sub-plate Model Numbers	Thread Size			Dimensions mm(Inches)		
	"A" Thd.	"B" Thd.	"C" Thd.	D	E	F
HGM-03-P-20	Rc 3/8	Rc 1/4	M 10	35 (1.38)	69.5 (2.74)	12.5 (.49)
HGM-03X-P-20	Rc 1/2			41 (1.61)	67.5 (2.66)	14.5 (.57)
HGM-03-P-2080	3/8 BSP.F	1/4 BSP.F		35 (1.38)	69.5 (2.74)	12.5 (.49)
HGM-03X-P-2080	1/2 BSP.F			41 (1.61)	67.5 (2.66)	14.5 (.57)
HGM-03-P-2090	3/8 NPT	1/4 NPT	3/8-16 UNC	35 (1.38)	69.5 (2.74)	12.5 (.49)
HGM-03X-P-2090	1/2 NPT			41 (1.61)	67.5 (2.66)	14.5 (.57)

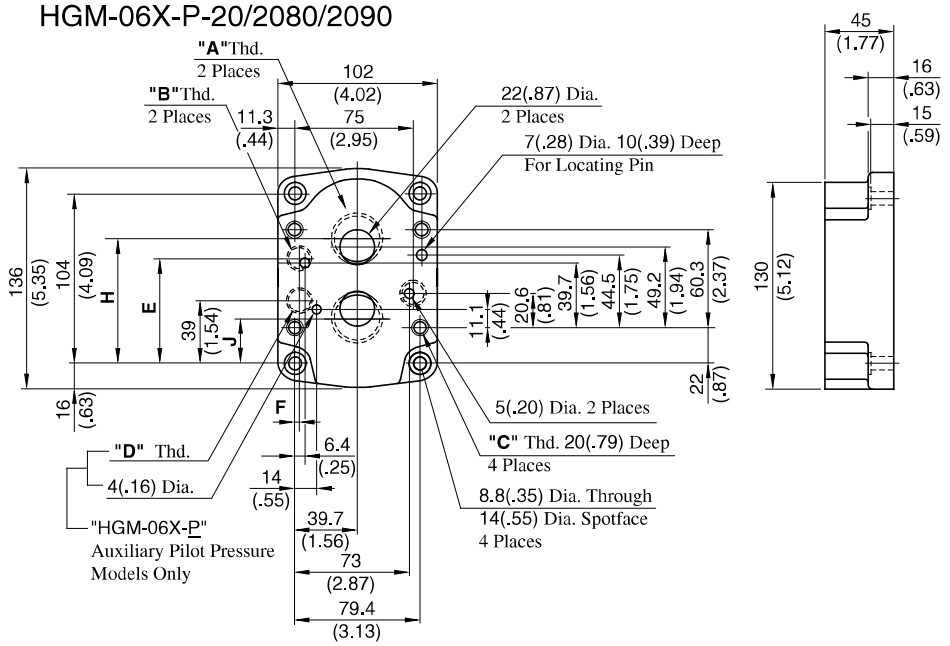
HGM-06-20/2080/2090
HGM-06-P-20/2080/2090

DIMENSIONS IN MILLIMETRES (INCHES)



Sub-plate Model Numbers	Thread Size				Dimensions mm(Inches)	
	"A" Thd.	"B" Thd.	"C" Thd.	"D" Thd.	E	F
HGM-06-20	Rc 3/4	Rc 1/4	M10	Rc 1/4	61.7 (2.43)	6.4 (.25)
HGM-06-P-20					64 (2.52)	3 (.12)
HGM-06-2080	3/4 BSP.F	1/4 BSP.F		1/4 BSP.F	61.7 (2.43)	6.4 (.25)
HGM-06-P-2080					64 (2.52)	3 (.12)
HGM-06-2090	3/4 NPT	1/4 NPT	3/8-16 UNC	1/4 NPT	61.7 (2.43)	6.4 (.25)
HGM-06-P-2090					64 (2.52)	3 (.12)

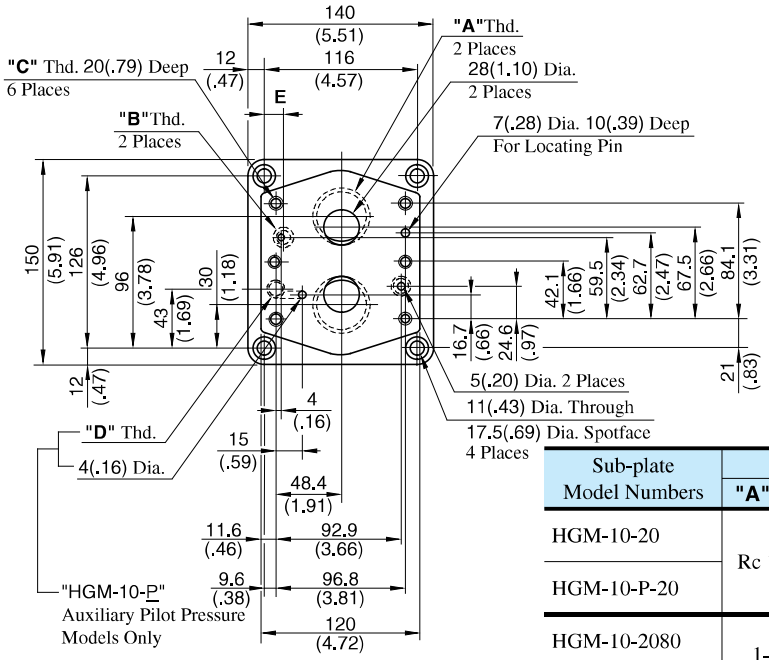
HGM-06X-20/2080/2090
HGM-06X-P-20/2080/2090

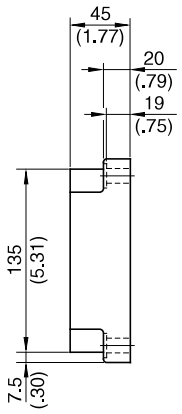


Sub-plate Model Numbers	Thread Size				Dimensions mm(Inches)			
	"A" Thd.	"B" Thd.	"C" Thd.	"D" Thd.	E	F	H	J
HGM-06X-20	Rc 1	Rc 1/4	M10	Rc 1/4	61.7 (2.43)	6.4 (.25)	82.3 (3.24)	22 (.87)
HGM-06X-P-20					64 (2.52)	3 (.12)		
HGM-06X-2080	1 BSP.F	1/4 BSP.F		1/4 BSP.F	61.7 (2.43)	6.4 (.25)	80 (3.15)	24 (.94)
HGM-06X-P-2080					64 (2.52)	3 (.12)	82.3 (3.24)	22 (.87)
HGM-06X-2090	1 NPT	1/4 NPT	3/8-16 UNC	1/4 NPT	61.7 (2.43)	6.4 (.25)	80 (3.15)	24 (.94)
HGM-06X-P-2090					64 (2.52)	3 (.12)	82.3 (3.24)	22 (.87)

HGM-10-20/2080/2090
HGM-10-P-20/2080/2090

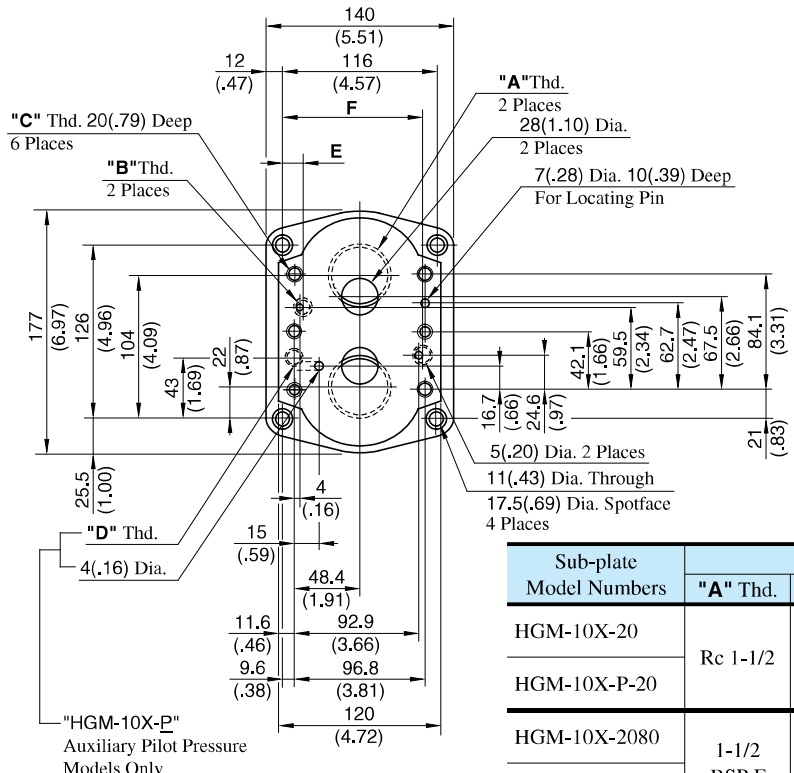
DIMENSIONS IN MILLIMETRES (INCHES)

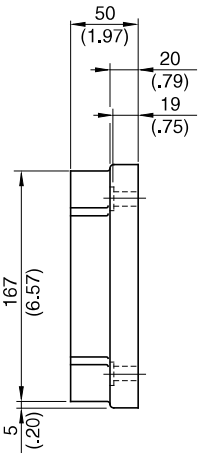




Sub-plate Model Numbers	Thread Size				mm(Inches)
	"A" Thd.	"B" Thd.	"C" Thd.	"D" Thd.	E
HGM-10-20	Rc 1-1/4	Rc 1/4	M10	Rc 1/4	13.6 (.54)
HGM-10-P-20					9.6 (.38)
HGM-10-2080	1-1/4 BSP.F	1/4 BSP.F		1/4 BSP.F	13.6 (.54)
HGM-10-P-2080					9.6 (.38)
HGM-10-2090	1-1/4 NPT	1/4 NPT	3/8-16 UNC	1/4 NPT	13.6 (.54)
HGM-10-P-2090					9.6 (.38)

HGM-10X-20/2080/2090
HGM-10X-P-20/2080/2090

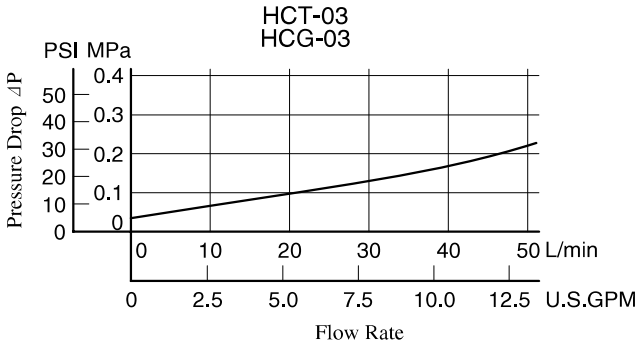


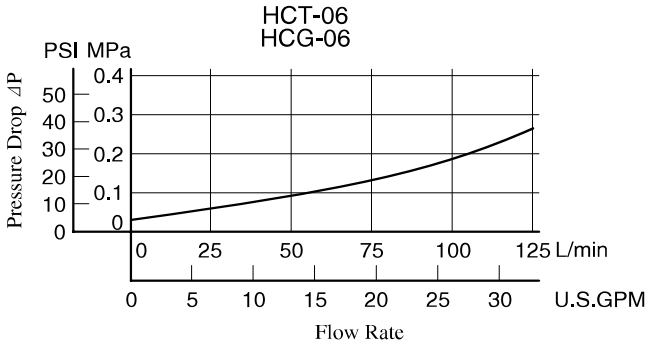


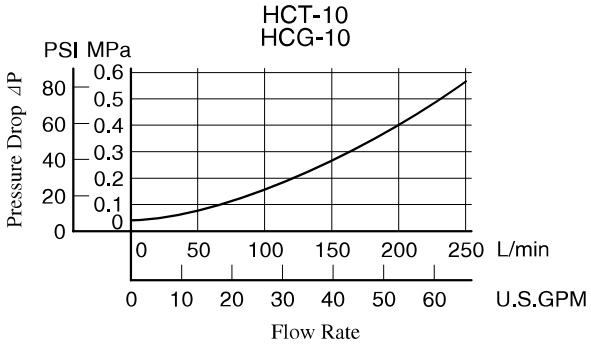
Sub-plate Model Numbers	Thead Size				mm(Inches)	
	"A" Thd.	"B" Thd.	"C" Thd.	"D" Thd.	E	F
HGM-10X-20	Rc 1-1/2	Rc 1/4	M10	Rc 1/4	13.6 (.54)	102.5 (4.04)
HGM-10X-P-20					9.6 (.38)	106 (4.17)
HGM-10X-2080	1-1/2 BSP.F	1/4 BSP.F		1/4 BSP.F	13.6 (.54)	102.5 (4.04)
HGM-10X-P-2080					9.6 (.38)	106 (4.17)
HGM-10X-2090	1-1/2 NPT	1/4 NPT	3/8-16 UNC	1/4 NPT	13.6 (.54)	102.5 (4.04)
HGM-10X-P-2090					9.6 (.38)	106 (4.17)

Pressure Drop for Reversed Free Flow

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







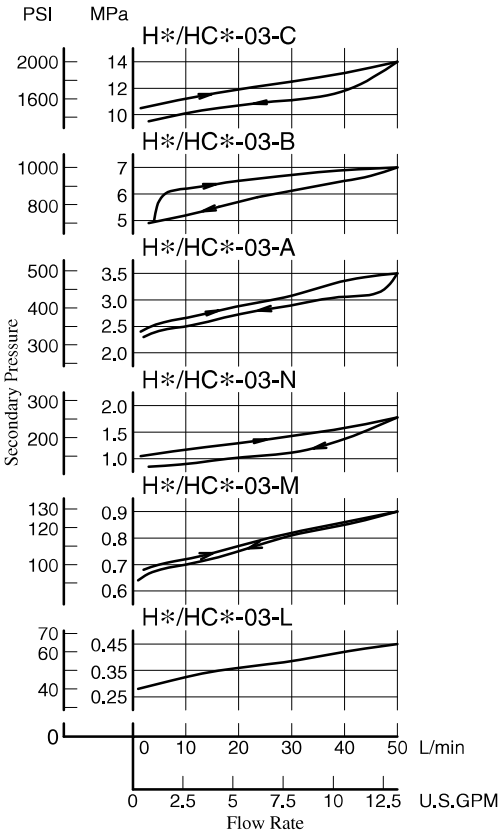
- For any other viscosity, multiply the factors in the table below.

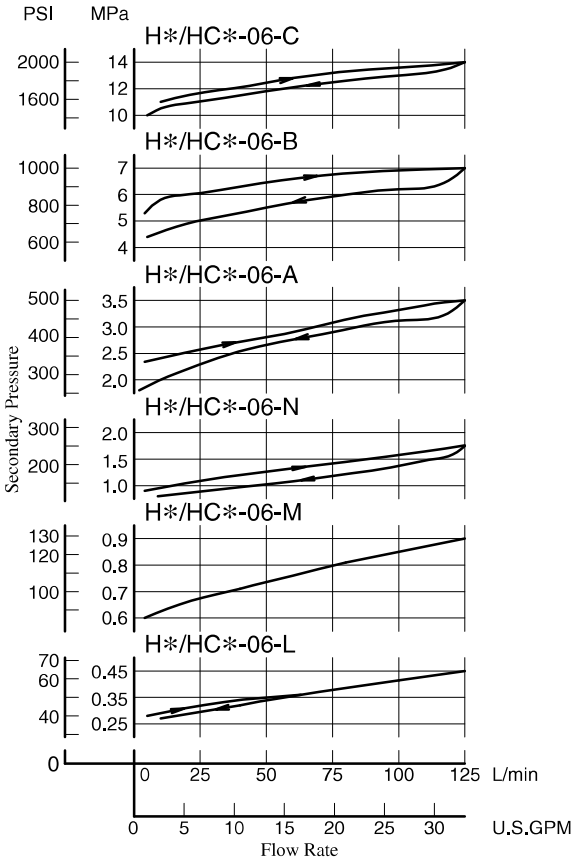
Viscosity	mm²/s	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Factor		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

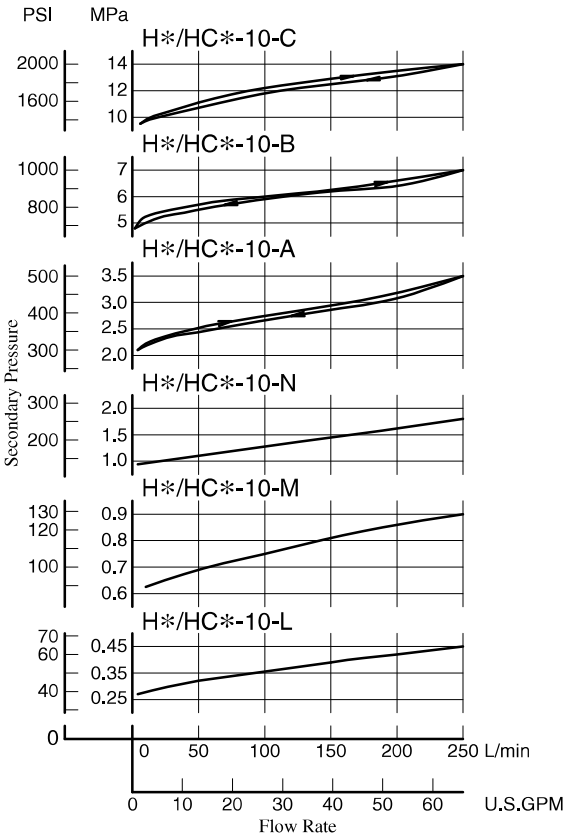
- For any other specific gravity (G'), the pressure drop (⊿P') may be obtained from the formula below.
  ⊿P'=⊿P (G'/0.850)

Nominal Override Characteristics

Hydraulic Fluid: Viscosity 35 mm^2/s (164 SSU), Specific Gravity 0.850

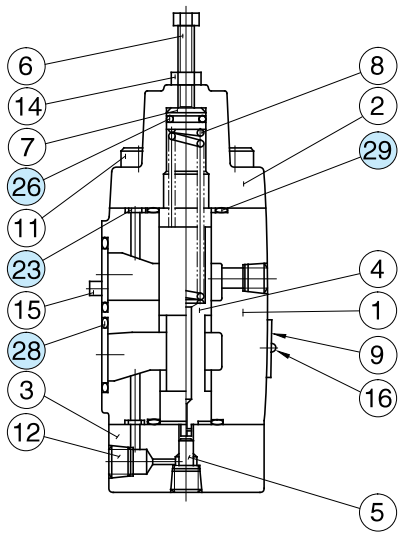


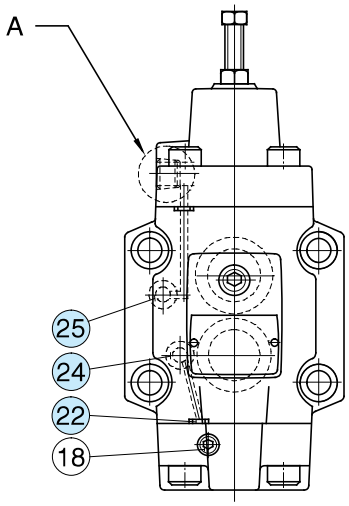


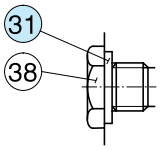


Spare Parts List

HT-03, 06, 10-✻✻-✻-22/2280/2290
HG-03, 06, 10-✻✻-✻-22/2290







Section "**A**" for
HT-✻-✻✻-✻-2280 Models

List of Seals

Item	Name of Parts	Part Numbers			Quantity	
		HT HG -03	HT HG -06	HT HG -10	HT-✻	HG-✻
22	O-Ring	SO-NB-P4	SO-NB-P4	SO-NB-P4	—	3★
23	O-Ring	SO-NB-P6	SO-NB-P6	SO-NB-P6	4	4
24	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	—	1★
25	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	—	2
26	O-Ring	SO-NA-P11	SO-NA-P15	SO-NA-P20	1	1
28	O-Ring	SO-NB-P18	SO-NB-P28	SO-NB-P32	—	2
29	O-Ring	SO-NB-P22	SO-NB-P28	SO-NB-P36	2	2
31	Bonded Seal	SG-FB-1/4	SG-FB-1/4	SG-FB-1/4	2	—

★ Used only for HG type with auxiliary pilot pressure (P).
Note: When ordering the seals, please specify the seal kit number from the table berow.

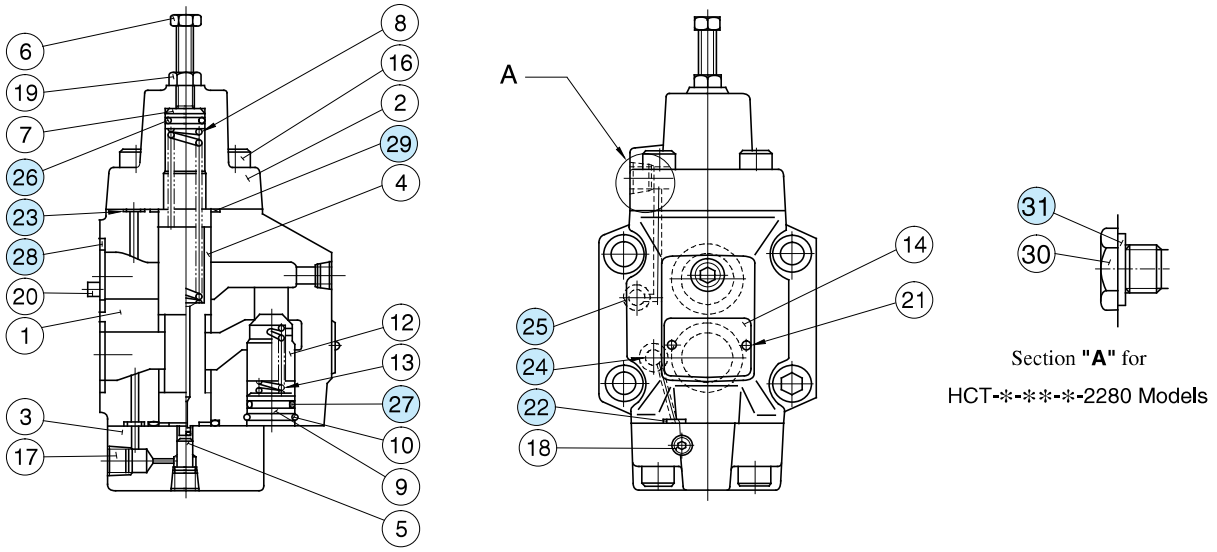
List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
HT-03-✻✻-✻-22/2280/2290	KS-HT-03-22
HT-06-✻✻-✻-22/2280/2290	KS-HT-06-22
HT-10-✻✻-✻-22/2280/2290	KS-HT-10-22
HG-03-✻✻-22/2290	KS-HG-03-22
HG-03-✻✻-P-22/2290	KS-HG-03-P-22
HG-06-✻✻-22/2290	KS-HG-06-22
HG-06-✻✻-P-22/2290	KS-HG-06-P-22
HG-10-✻✻-22/2290	KS-HG-10-22
HG-10-✻✻-P-22/2290	KS-HG-10-P-22

Note: No bonded seals are included in the seal kits.

Spare Parts List

HCT-03, 06, 10-✻✻-✻-22/2280/2290
HCG-03, 06, 10-✻✻-✻-22/2290



List of Seals

Item	Name of Parts	Part Numbers			Quantity	
		HCT HCG -03	HCT HCG -06	HCT HCG -10	HCT-✻	HCG-✻
22	O-Ring	SO-NB-P4	SO-NB-P4	SO-NB-P4	—	3★
23	O-Ring	SO-NB-P6	SO-NB-P6	SO-NB-P6	4	4
24	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	—	1★
25	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	—	2
26	O-Ring	SO-NA-P11	SO-NA-P15	SO-NA-P20	1	1
27	O-Ring	SO-NB-P12	SO-NB-P18	SO-NB-P22A	1	1
28	O-Ring	SO-NB-P18	SO-NB-P28	SO-NB-P32	—	2
29	O-Ring	SO-NB-P22	SO-NB-P28	SO-NB-P36	2	2
31	Bonded Seal	SG-FB-1/4	SG-FB-1/4	SG-FB-1/4	2	—

★ Used only for HCG type with auxiliary pilot pressure (P).
Note: When ordering the seals, please specify the seal kit number from the table below.

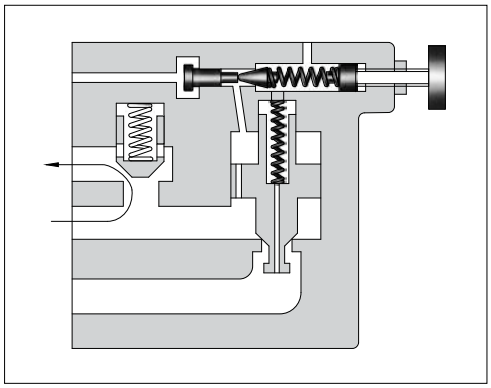
List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
HCT-03-✻✻-✻-22/2280/2290	KS-HCT-03-22
HCT-06-✻✻-✻-22/2280/2290	KS-HCT-06-22
HCT-10-✻✻-✻-22/2280/2290	KS-HCT-10-22
HCG-03-✻✻-22/2290	KS-HCG-03-22
HCG-03-✻✻-P-22/2290	KS-HCG-03-P-22
HCG-06-✻✻-22/2290	KS-HCG-06-22
HCG-06-✻✻-P-22/2290	KS-HCG-06-P-22
HCG-10-✻✻-22/2290	KS-HCG-10-22
HCG-10-✻✻-P-22/2290	KS-HCG-10-P-22

Note: No bonded seals are included in the seal kits.

Unloading Relief Valves

These valves are used to operate the pumps with minimum load in accumulator circuits or in high-low pump circuits.
In accumulator circuits, when the system pressure reaches to a cut out pressure (adjusted maximum), the valve acts to divert the pump delivery to the reservoir at low pressure, thus the pump is unloaded automatically.
When the accumulator pressure drops to the cut in pressure (refer to characteristic chart on page 269), the valve directs the pump delivery to the accumulator and hydraulic system.
An integral check valve prevents reverse flow through the valve from the accumulator.
In high-low pump circuits, the valve acts to unload the large volume pump with the same manner as described above during load operation of the small volume pump.



Specifications

Model Numbers	Max. Operating Pres. MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg(1bs.)
BUCG-06-∗∗-30/3080/3090	21 (3050)	125 (33)	12 (26.5)
BUCG-10-∗∗-25/2580/2590		250 (66)	21.5 (47.4)

Model Number Designation

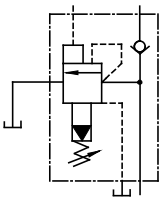
F-	BUC	G	-06	-B	V	-30	∗
Special Seals	Series Number	Type of Mounting	Valve Size	Cut-out Pres. Adj. Range MPa (PSI)	High Venting Pres. Feature ★	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**BUC:** Unloading Relief Valve	**G:** Sub-plate Mounting	**06**	**B:** 2.5-7.0 (360-1020)	**V:** For High Venting Pressure Feature (Omit if not required)	**30**	**None:** Japanese Std. "JIS"
				C: 3.5-14 (510-2030)			**80:** European Design Std.
			10	**H:** 7.0-21 (1020-3050)		**25**	**90:** N. American Design Std.

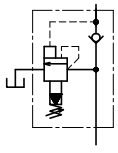
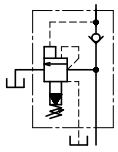
★ Use the high-venting-pressure type to reduce the shift time from unloading to onloading.

Pilot-drain system

A pilot-drain system is typically configured with an external pilot and an external drain, as indicated by the right graphic symbol. However, customized pilot-drain systems with an internal pilot are also available.
For the internal pilot type, the design standard number at the end of the model number is uniquely assigned. Refer to the table below for the internal pilot type. Please contact us for details.

Graphic Symbol



Pilot & Drain Conn.	Graphic Symbols	European Design Standard	N. American Design Standard	Japanese Std. "JIS"
Int. Pitot- Int. Drain		BUCG-06-∗∗-30801 BUCG-10-∗∗-25801	BUCG-06-∗∗-30901 BUCG-10-∗∗-25901	BUCG-06-∗∗-3001 BUCG-10-∗∗-2501
Int. Pitot- Ext. Drain		BUCG-06-∗∗-30802	BUCG-06-∗∗-30902	BUCG-06-∗∗-2502

Instructions

- To adjust the pressure, loosen the lock nut and turn the pressure adjustment handle slowly clockwise for higher pressures or anti-clockwise for lower pressures. After adjustments, do not forget to tighten the lock nut.
- Take care not to neglect connecting the drain pipe to the reservoir; otherwise not only will the valve fail to operate properly but also the line pressure will rise infinitely. Extend the end of the drain pipe into fluid.
- Limit the pressure drop between the valve and the accumulator in an accumulator circuit below 10% of the cut-out pressure.
- Limit the drain port back pressure below 2% of the cut-out pressure.

Attachment

- **Mounting Bolts**

Valve Model Numbers	Socket Head Cap Screw	
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.
BUCG-06	M16 × 55Lg. (2 pcs.) M16 × 110Lg. (2 pcs.) M16 × 130Lg. (2 pcs.)	5/8-11 UNC × 2-1/4 Lg. (2 pcs.) 5/8-11 UNC × 4-1/2 Lg. (2 pcs.) 5/8-11 UNC × 5 Lg. (2 pcs.)
BUCG-10	M20 × 70Lg. (2 pcs.) M20 × 160Lg. (4 pcs.)	3/4-10 UNC × 2-3/4 Lg. (2 pcs.) 3/4-10 UNC × 6-1/2 Lg. (4 pcs.)

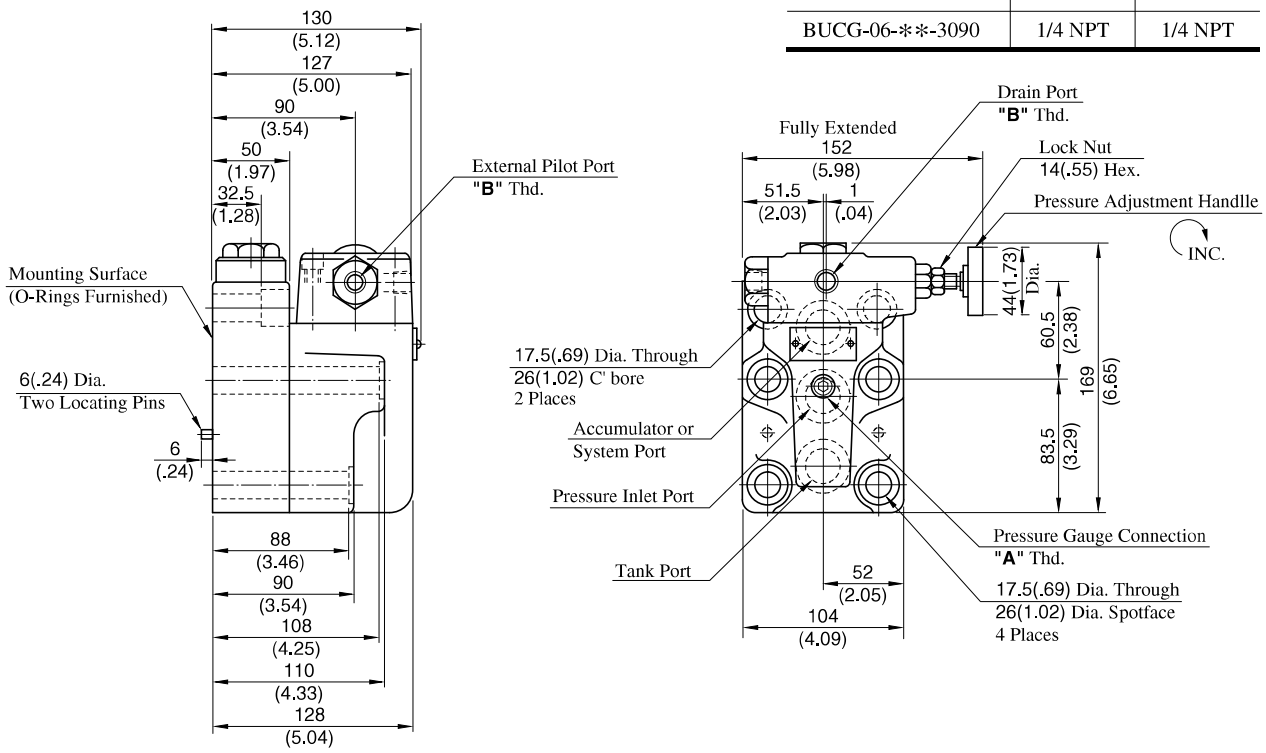
Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
BUCG-06	BUCGM-06-20	Rc 3/4	BUCGM-06-2080	3/4 BSP.F	BUCGM-06-2090	3/4 NPT	4.4 (9.7)
BUCG-10	BUCGM-10-20	Rc 1-1/4	BUCGM-10-2080	1-1/4 BSP.F	BUCGM-10-2090	1-1/4 NPT	7.2 (15.9)

- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

BUCG-06-**-30/3080/3090

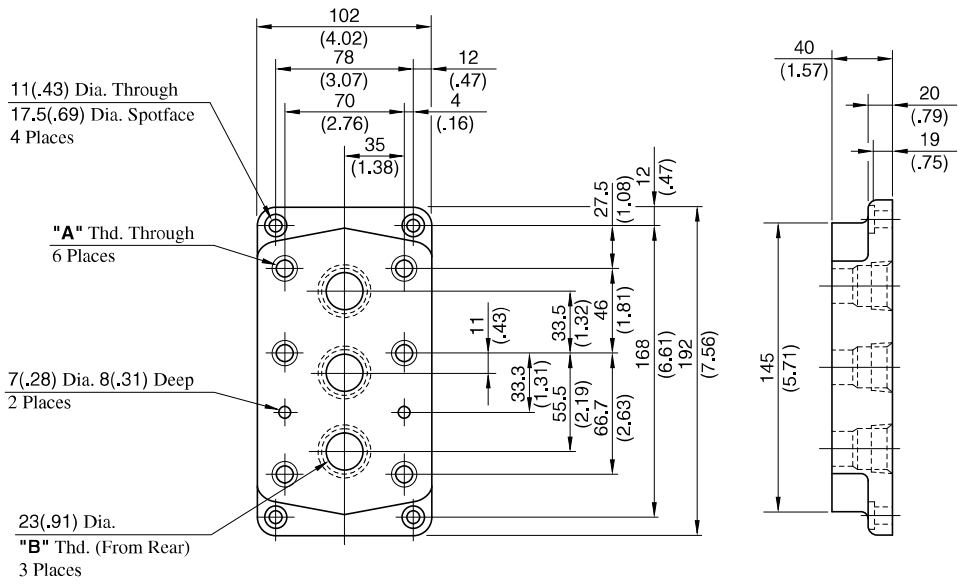
Model Numbers	"A" Thd.	"B" Thd.
BUCG-06-**-30	Rc 1/4	Rc 1/4
BUCG-06-**-3080	1/4 BSP.Tr	1/4 BSP.F
BUCG-06-**-3090	1/4 NPT	1/4 NPT



DIMENSIONS IN MILLIMETRES (INCHES)

Sub-plate

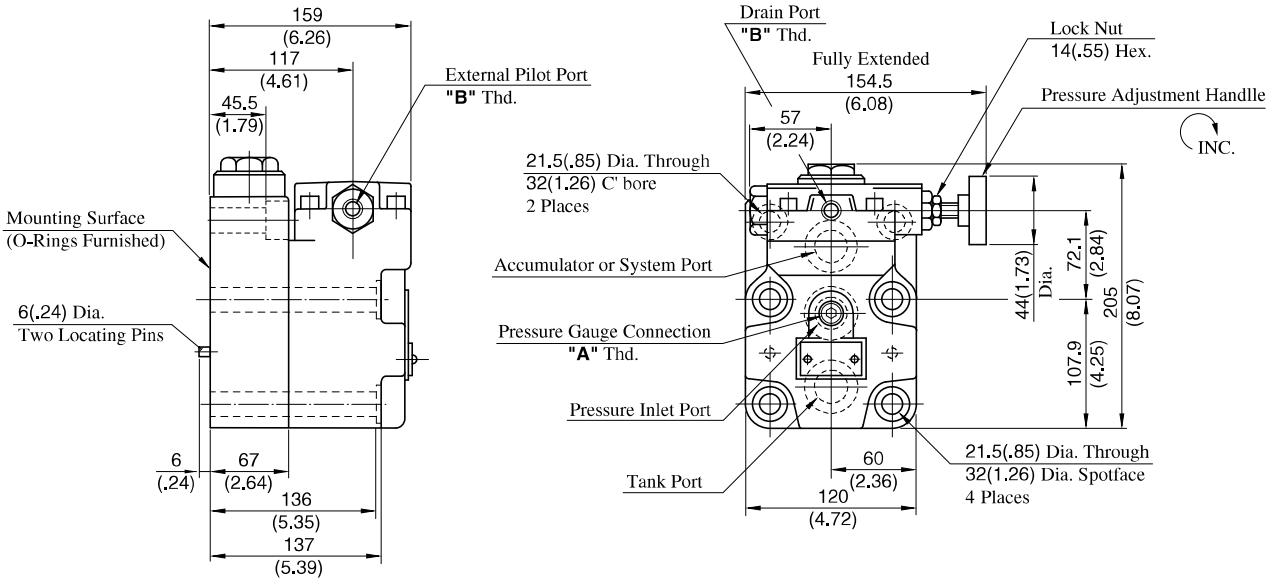
BUCGM-06-20/2080/2090



Sub-plate Model No.	"A" Thd.	"B" Thd.
BUCGM-06-20	M16	Rc 3/4
BUCGM-06-2080	M16	3/4 BSP.F
BUCGM-06-2090	5/8-11 UNC	3/4 NPT

BUCG-10-**-25/2580/2590

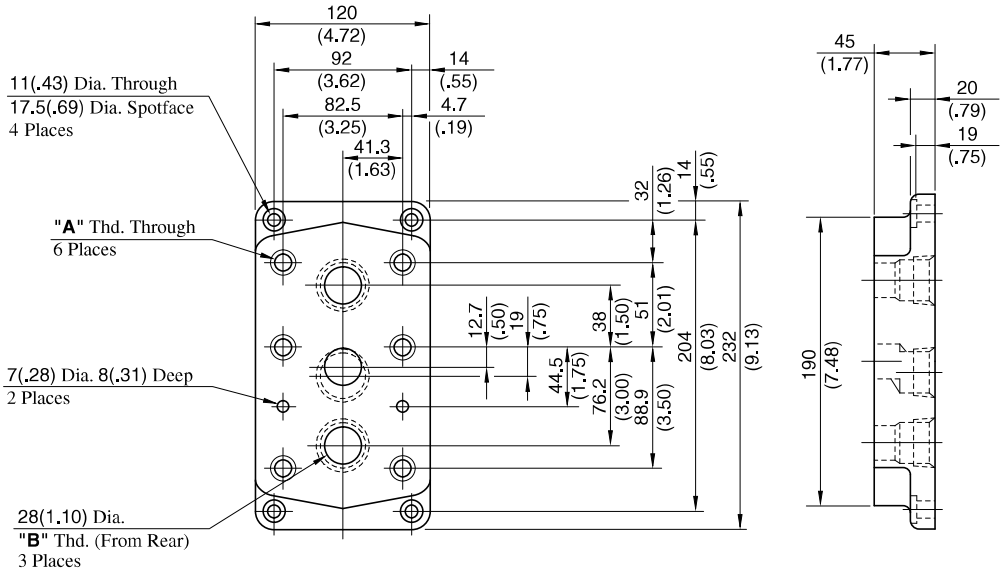
Model Numbers	"A" Thd.	"B" Thd.
BUCG-10-**-25	Rc 1/4	Rc 1/4
BUCG-10-**-2580	1/4 BSP.Tr	1/4 BSP.F
BUCG-10-**-2590	1/4 NPT	1/4 NPT



DIMENSIONS IN MILLIMETRES (INCHES)

Sub-plate

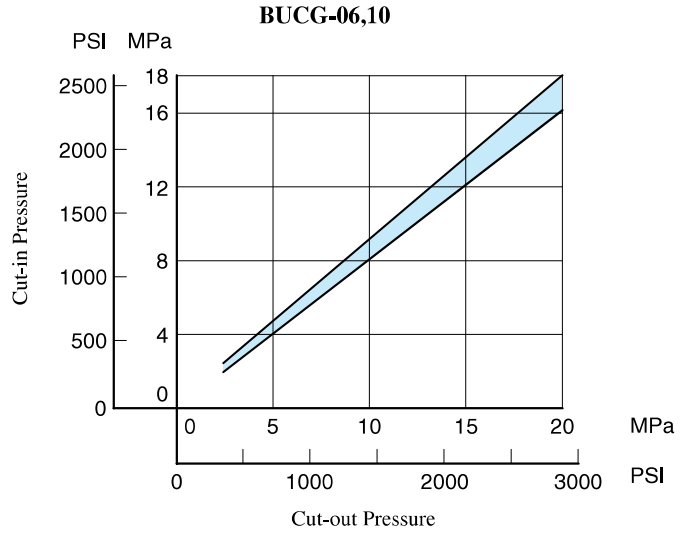
BUCGM-10-20/2080/2090



Sub-plate Model No.	"A" Thd.	"B" Thd.
BUCGM-10-20	M20	Rc 1-1/4
BUCGM-10-2080	M20	1-1/4 BSP.F
BUCGM-10-2090	3/4-10 UNC	1-1/4 NPT

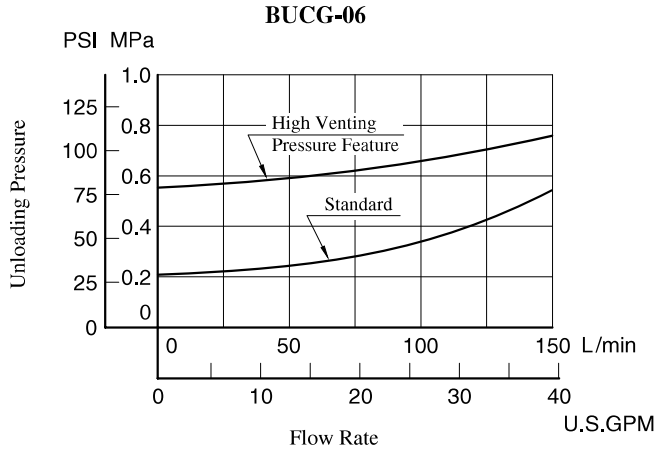
Cut-in Pressure vs. Cut-out Pressure

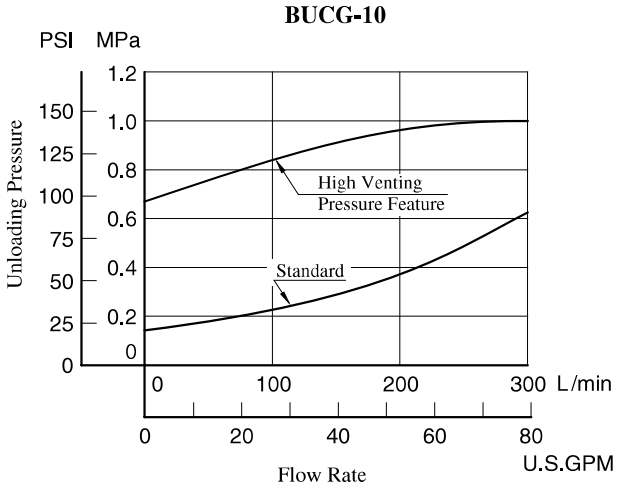
Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Unloading Pressure vs. Flow

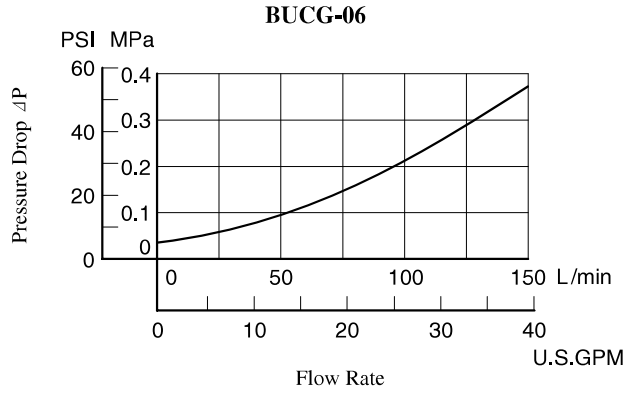
Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850

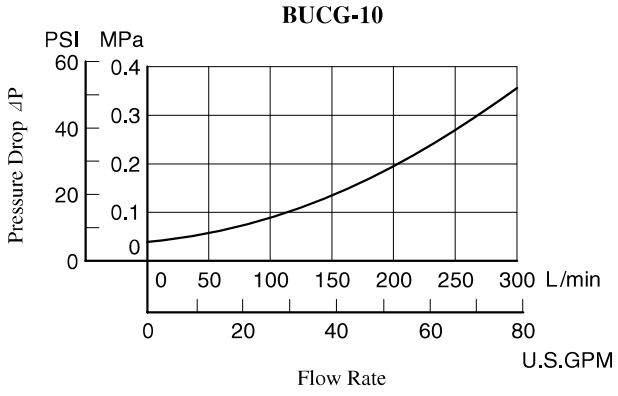




Pressure Drop for Check Valve

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





- For any other viscosity, multiply the factors in the table below.

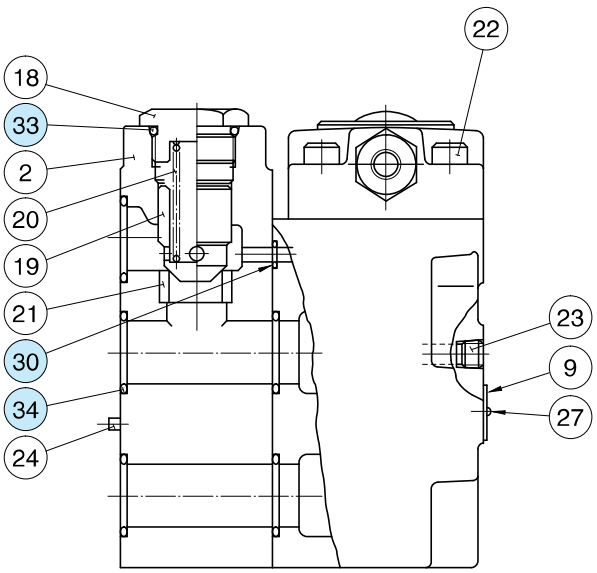
Viscosity	mm²/s	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Factor		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

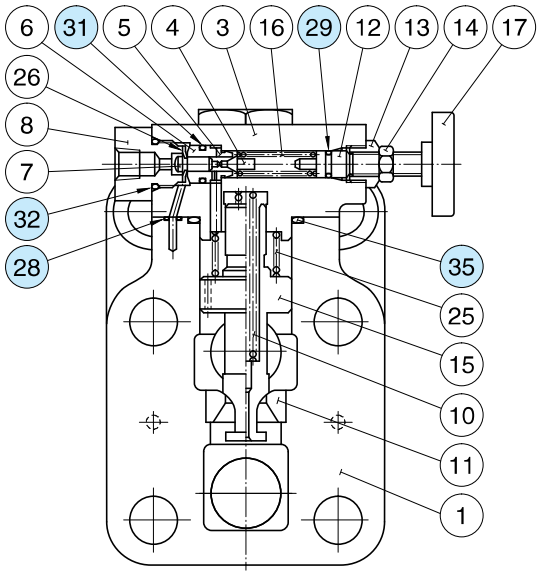
- For any other specific gravity (G'), the pressure drop (⊿P') may be obtained from the formula below.

⊿P'=⊿P (G'/0.850)

Spare Parts List

BUCG-06-**-30/3080/3090
BUCG-10-**-25/2580/2590





List of Seals

Item	Name of Parts	Part Numbers		Quantity
		BUCG-06	BUCG-10	
28	O-Ring	SO-NB-P6	SO-NB-P6	3
29	O-Ring	SO-NA-P9	SO-NA-P9	1
30	O-Ring	SO-NB-P11	SO-NB-P9	1
31	O-Ring	SO-NB-P12	SO-NB-P12	1
32	O-Ring	SO-NB-P18	SO-NB-P18	1
33	O-Ring	SO-NB-P24	SO-NB-P32	1
34	O-Ring	SO-NB-P28	SO-NB-P32	5
35	O-Ring	SO-NB-P32	SO-NB-P45	1

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

List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
BUCG-06	KS-BUCG-06-30
BUCG-10	KS-BUCG-10-25