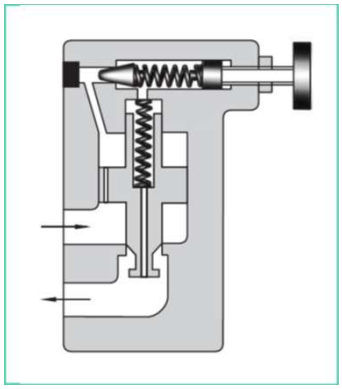
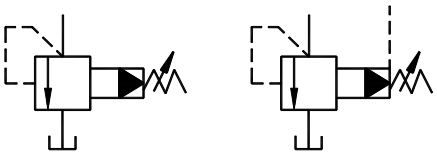
Pilot Operated Relief Valves

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 vent circuits.





Graphic Symbol



Vent Connection

Specifications

Model Number		Max. Operating Pressure Kgf/cm²	Pres. Adj. Range Kgf/cm²	Max. Flow L/min.	Mass Kg.	
Threaded Connection	Sub-plate Mounting				BT type	BG type
-	BG-03-※-32	250	* ~ 250	100	-	4.7
BT-04-※-1080	-			200	4.8	-
BT-06-※-3280	BG-06-※-32			200	5	5.6
-	BG-10-※-32			400	-	8.7

* Refer to the Minimum adjustment Pressure characteristics on Page 260.

Model Number Designation

F-	B	T	-03	-P	-V	-32	※
Special Seals **	Series Number	Type of Mounting	Valve Size	Plunger Type	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 Connections	**04**	**P:** Pull Type	**V:** For High Venting Pressure Feature (Omit if not required)	**10**	**80H01**
			06			**32**	**80**
		G: Sub-plate Mounting	**03**			**32**	—
			06			**32**	
			10			**32**	

* Use high venting pressure type to reduce the response time from unload to load.

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

Attachment

- **Mounting Bolts**

Valve Model Number	Socket Head Cap Screw	Qty Nos.	Bolt Kit Ordering Code
BG-03	M12 x 70Lg., M12 x 95Lg.	2 each	BK BG-03-10
BG-06	M16 x 60Lg., M16 x 80Lg.	2 each	BK BG-06-10
BG-10	M20 x 70Lg., M20 x 90Lg.	2 each	BK BG-10-10

Sub-Plate

Valve Model Number	Sub-plate Model Number	Piping Size	Mass Kg.
BG-03	BGM-03-3080	3/8 BSP.F	2.4
	BGM-03X-3080	1/2 BSP.F	3.1
BG-06	BGM-06-3080	3/4 BSP.F	4.7
	BGM-06X-3080	1 BSP.F	5.7
BG-10	BGM-10-3080	1-1/4 BSP.F	8.4
	BGM-10X-3080	1-1/2 BSP.F	10.3

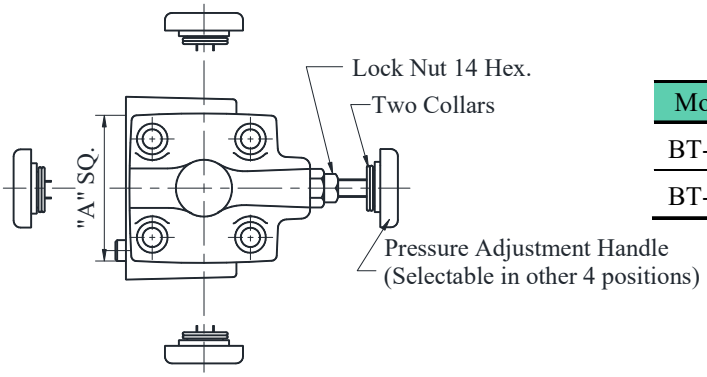
- Sub-plates are available. Specify sub-plate model from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

Instructions

- If a remote control relief valve is used in the vent circuit, see page 241 in EIC-C-1001-0. 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 Dia. and the length of the pipe.
- To adjust the pressure, loosen the lock nut and turn the handle slowly clockwise for higher pressure or anti-clockwise for lower pressures. After adjustments, do not forget to tighten the lock nut.
- Pressure is limited by collars fitted. If a working pressure cannot be attained, remove some collars. One collar is equivalent to 100 Kgf/cm^2.
- Piping of the Tank line should not be connected to any tank line of the other valves, but connected directly to the reservoir.
- With a small flow, the setting pressure may be unstable. Use models numbered 03 and 06 with a flow rate 8 L/min. and model 10 with 15 L/min.
- 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.

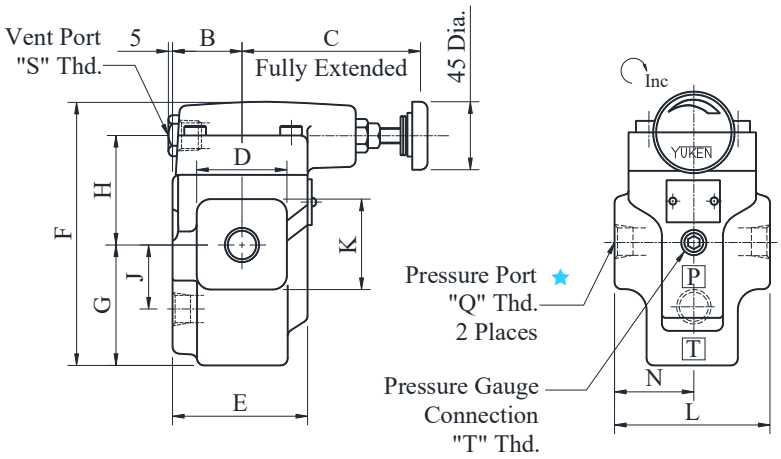
● BT-06-P-※-3280

DIMENSIONS IN MILLIMETRES



Model Number	"Q" Thd.	"S" Thd.	"T" Thd.
BT-04P-※-1080	1/2 BSP.F	3/8 BSP.F	-
BT-06P-※-3280	3/4 BSP.F	3/8 BSP.F	1/4 BSP. Tr

Model Number	A	B	C	D	E	F
BT-04	75	38	105	52	78	151
BT-06	75	40	105	52	78	151



Model Number	G	H	J	K	L	N
BT-04	68.5	62	36	65	87	43.5
BT-06	68.5	62	36	52	90	45

★ 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 port.

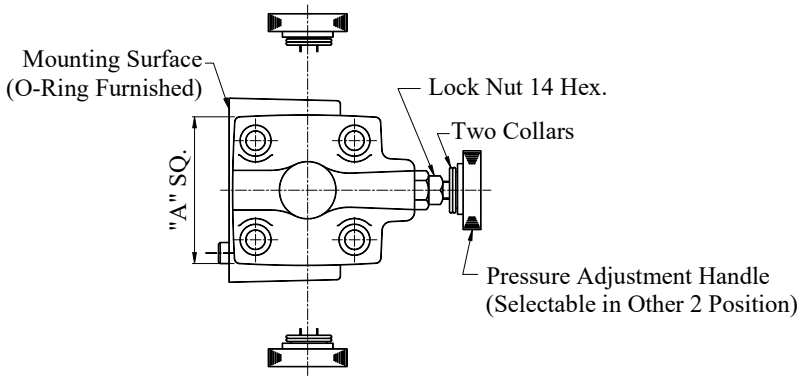
● BG-06-P-※ 32

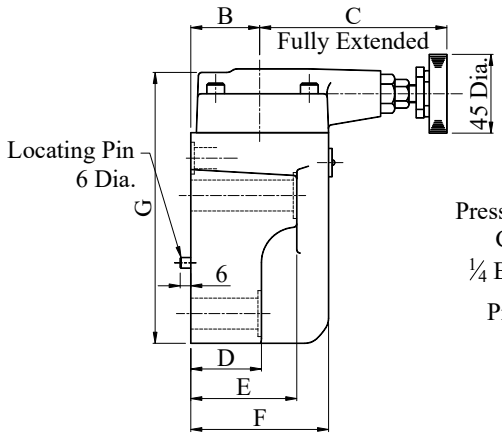
Model Number	A	B	C	D	E	F	G
BG-03	75	40	105	57	60	78	137
BG-06	75	40	105	40	60	78	161
BG-10	85	45	101	47	67	87.5	195

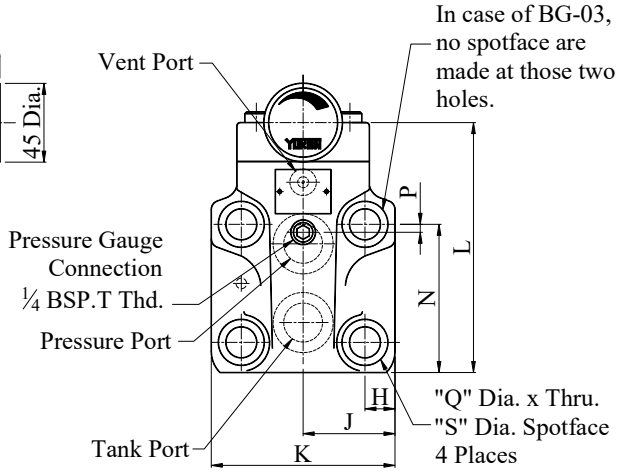
Mounting Surface
BG-03: ISO 6264 AR-06-2-A
BG-06: ISO 6264 AS-08-2-A
BG-10: ISO 6264 AT-10-2-A

Model Number	H	J	K	L
BG-03	14.1	41	82	117
BG-06	17	52	104	141
BG-10	20.7	62	124	175

Model Number	N	P	Q	S
BG-03	77	22	13.5	21
BG-06	83.5	4.5	17.5	26
BG-10	110	6	21.5	32

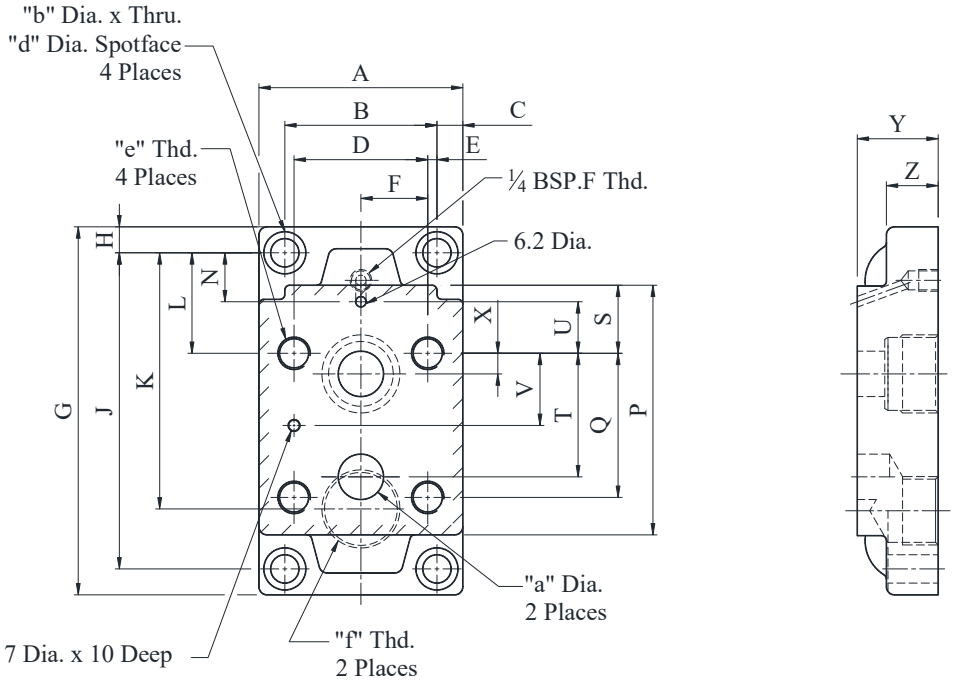






03, 03X
- **Sub-Plate: BGM - 06, 06X-3080**
10, 10X

DIMENSIONS IN MILLIMETRES



Model Numbers	A	B	C	D	E	F	G	H	J	K	L	N	P	Q
BGM-03	86	60	13	53.8	3.1	26.9	149	13	123	86	32	26	97	53.8
BGM-03X										95		21		
BGM-06	108	78	15	70	4	35	180	15	150	106.5	51	27.2	121	66.7
BGM-06X										119		18		
BGM-10	126	94	16	82.6	5.7	41.3	227	16	195	138.2	62	30.2	154	88.9
BGM-10X										158		17		

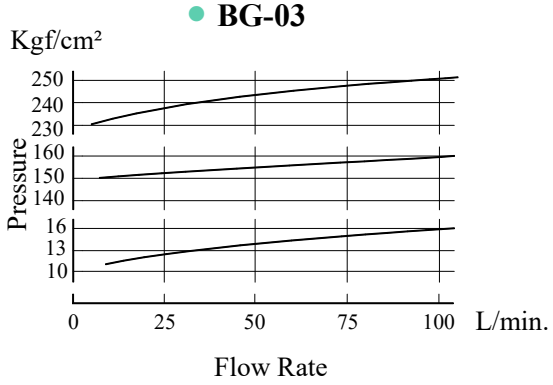
Model Numbers	S	T	U	V	X	Y	Z	a	b	d
BGM-03	19	47.4	0	22	22	32	20	14.5	11	17.5
BGM-03X						40				
BGM-06	37	55.5	23.8	33.4	11	40	25	23	13.5	21
BGM-06X						50				
BGM-10	42	76.2	31.8	44.5	12.7	50	32	28	17.5	26
BGM-10X						63				

Model Numbers	“e” Thd.	“f” Thd.
BGM-03	M12 Thd. x 20 Deep	3/8 BSP.F
BGM-03X		1/2 BSP.F
BGM-06	M16 Thd. x 25 Deep	3/4 BSP.F
BGM-06X		1 BSP.F
BGM-10	M20 Thd. x 28 Deep	1 - 1/4 BSP.F
BGM-10X		1 - 1/2 BSP.F

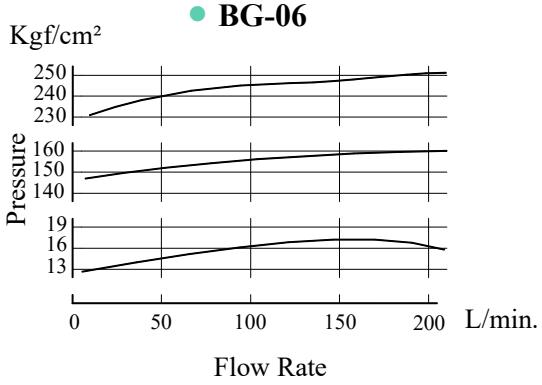
Nominal Override Characteristics

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

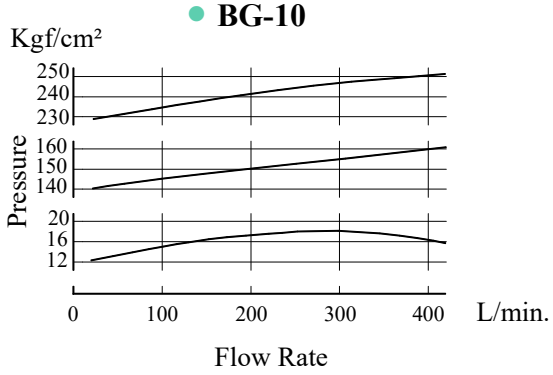
BG-03



BG-06



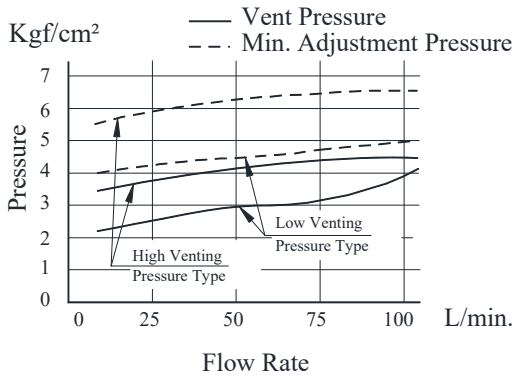
BG-10



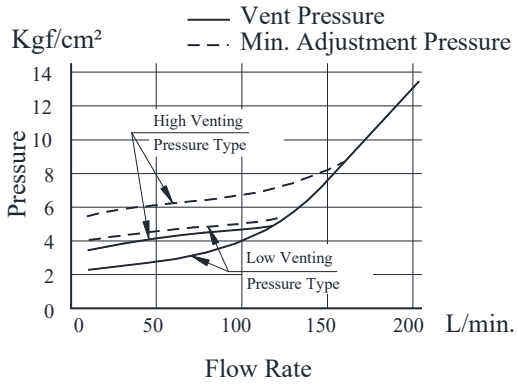
Min. Adj Pressure & Vent Pressure Vs Flow

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

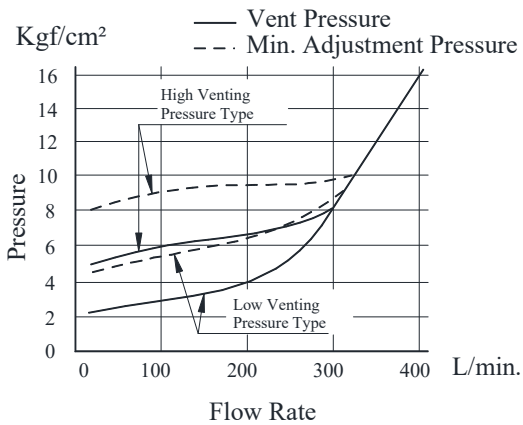
BG-03



BT-06, BG-06



BG-10



Spare Parts List

Sl. No.	Name of Parts	Part Number	Quantity			
			BG-03	BG-06	BG-10	BT-06
1	O-Ring	SO-NA-P9	1	1	1	1
2	O-Ring	SO-NB-P9	1	-	1	-
3	O-Ring	SO-NB-P11	-	1	-	-
4	O-Ring	SO-NB-P18	2	-	-	-
5	O-Ring	SO-NB-P28	-	2	-	-
6	O-Ring	SO-NB-P32	1	1	2	1
7	O-Ring	SO-NB-P42	-	-	1	-

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

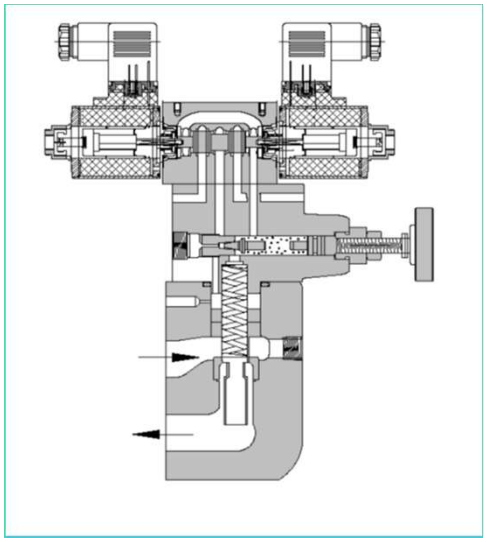
List of Seal Kit

Model Numbers	Seal Kit Numbers
BG-03	KS-BG-03-32
BG-06	KS-BG-06-32
BG-10	KS-BG-10-32
BT-06	KS-BT-06-32

Solenoid Controlled Relief valves

These valves are a combination of relief valve and solenoid valve. Piping between the two is eliminated as the solenoid valves 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 Number		Max. Operating Pressure Kgf/cm²	Pres. Adj. Range Kgf/cm²	Max. Flow L/min.	Mass (Kg)		
Threaded Connection	Sub-Plate Mounting				Double Solenoid	Single Solenoid	With Vent Restrictor
*-BST-06-※-※-※-※-4680	-	250	(Note) *~250	200	7.4	6.8	7.8
-	*-BSG-03-※-※-※-※-4680			100	7.1	6.5	7.5
-	*-BSG-06-※-※-※-※-4680			200	8.0	7.4	8.4
-	*-BSG-10-※-※-※-※-4680			400	11.3	10.7	11.7

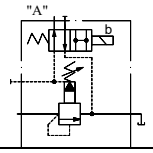
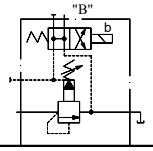
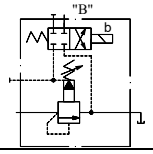
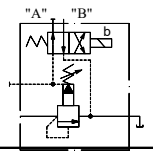
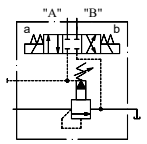
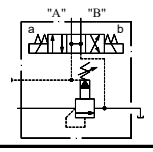
* For Relief Valves, standard pilot operated relief valves are used.
* For minimum adjustment pressure and other characteristics, see page 260.

Model Number Designation

F-	A-	BS	T	-03	-V	-2B3A	-A120	-N	-46	80
Special Seals **	With Vent Restrictor	Series Number	Type of Mounting	Valve Size	High Venting Pres. Feature	Vent Type	Coil Type	Type of electrical Connection	Design Number	Design Standard
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**A:** *1 With Vent Restrictor (Option)	**BS:** Solenoid Controlled Relief Valves	**T:** Threaded Connection	**06**	**V:** For High *2 Venting Pressure Feature (Omit if not required)	**2B3A** *3 **2B3B** **2B2B** **2B2** **3C2** **3C3**	AC: **A120** *4 **A240** DC: **D12,D24**	**N:** With Plug-in connector (DIN) **N1:** With Plug-in connector with indicator light (option)	**46**	**80**
			G: Sub-Plate Mounting	**03**						
				06						
				10						

*1 Models with vent restrictor are applicable only for the vent type 2B3A and 2B3B For details see page 264.
*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 directional valves DSG-01.
See solenoid Rating on EIC-E-1001-0, Page No. 366.
** Before ordering the Special Seals, consult YUKEN INDIA LTD.

Vent type

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

Spare Parts List

List of Seals

Sl. No.	Name of Parts	Part Number	Quantity							
			BSG-03	BSG-06	BSG-10	BST-06	A-BSG-03	A-BSG-06	A-BSG-10	A-BST-06
1	O-Ring	SO-NA-P9	1	1	1	1	1	1	1	1
2	O-Ring	SO-NB-P9	1	-	1	-	1	-	1	-
3	O-Ring	SO-NB-P18	2	-	-	-	2	-	-	-
4	O-Ring	SO-NB-P32	1	1	2	1	1	1	2	1
5	O-Ring	SO-NB-P11	-	1	-	-	-	1	-	-
6	O-Ring	SO-NB-P28	-	2	-	-	-	2	-	-
7	O-Ring	SO-NB-P42	-	-	2	-	-	-	2	-
8	Bonded Seal	SG-FB-1/8	2	2	2	2	2	2	2	2
9	O-Ring	SO-NB-P8	-	-	-	-	2	2	2	2
10	O-Ring	SO-NB-P14	-	-	-	-	2	2	2	2

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

List of Seal Kits

Model Numbers	Seal kit numbers
BSG-03	KS-BSG-03-4680
BSG-06	KS-BSG-06-4680
BSG-10	KS-BSG-10-4680
BST-06	KS-BST-06-4680

Model Numbers	Seal kit numbers
A-BSG-03	KS-A-BSG-03-4680
A-BSG-06	KS-A-BSG-06-4680
A-BSG-10	KS-A-BSG-10-4680
A-BST-06	KS-A-BST-06-4680

Attachment

- **Mounting Bolts**

Valve Model Number	Socket Head Cap Screw	Qty.	Bolt Kit Ordering Code
BSG-03	M12 x 70Lg., M12 x 95Lg.	2 each	BKBG - 03 -10
BSG-06	M16 x 60Lg., M16 x 80Lg.	2 each	BKBG - 06 -10
BSG-10	M20 x 70Lg., M20 x 90Lg.	2 each	BKBG - 10 -10

Sub-Plate

Valve Model Number	Sub-Plate Model Number	Piping Size	Mass Kg.
BSG-03	BGM-03-3080	3/8 BSP.F	2.4
	BGM-03X-3080	1/2 BSP.F	3.1
BSG-06	BGM-06-3080	3/4 BSP.F	4.7
	BGM-06X-3080	1 BSP.F	5.7
BSG-10	BGM-10-3080	1-1/4 BSP.F	8.4
	BGM-10X-3080	1-1/2 BSP.F	10.3

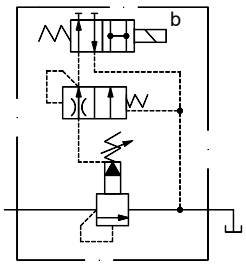
- Sub-plates are available. Specify sub-plate model from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- The sub-plates are those for pilot operated relief valves . For dimensions, refer page 259.

Option

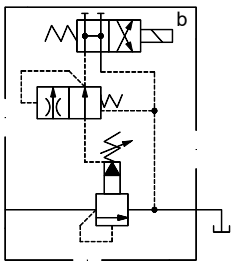
- **With vent restrictor**

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

A-BS※-※-2B3A



A-BS※-※-2B3B



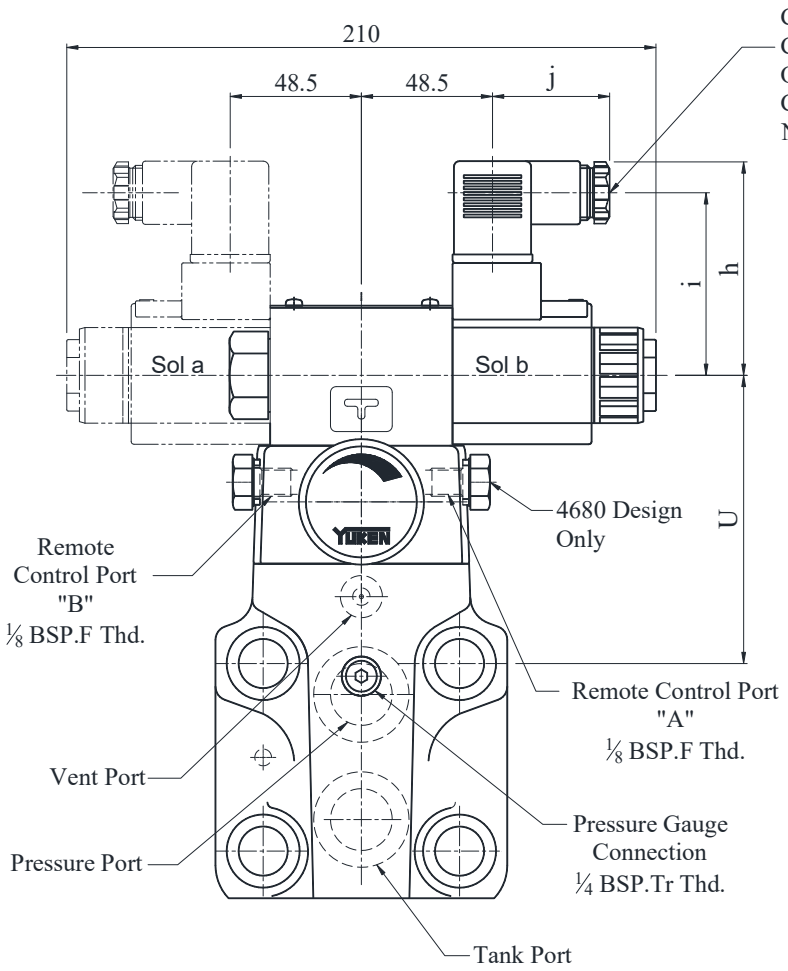
Instructions

- The remote control relief valve is used in the vent circuit, see page 241 in EIC-C-1001. 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 diameter and the length of the pipe.
- To adjust the pressure, loosen the lock nut and turn the handle slowly clockwise for higher pressure or anti-clockwise for lower pressures. One revolution of the handle makes about a 50 Kgf/cm^2 pressure change. After adjustments, do not forget to tighten the lock nut.
- Pressure is limited by collars fitted. If a working pressure cannot be attained, remove some collars. one collar is equivalent to 100 Kgf/cm^2.
- Piping of the tank line should not be connected to any tank line of the other valves, but connected directly to the reservoir.
- With a small flow, the setting pressure may be unstable. Use models numbered 03 and 06 with a flow rate above 8 L/min. and model 10 with 15 L/min.
- There are two threaded connection pressure ports in BST type. 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.

Models with Plug-in Connector

DIMENSIONS IN MILLIMETRES

- BSG-06-※-※-※-N-4680 (03 / 10)



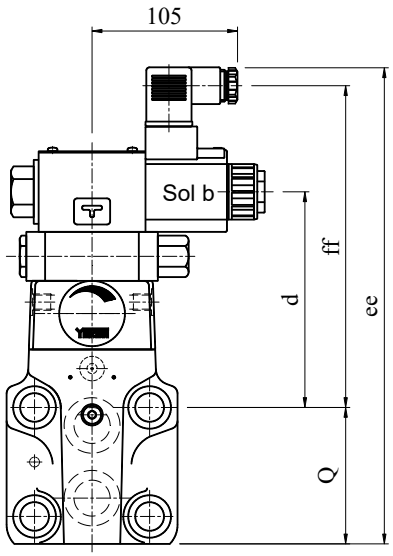
Model Number	U
BSG-03, -N-	85
BSG-06, -N-	102.5
BSG-10, -N-	110

Model Number	i	h	j
BSG-※-※-※-A-N-4680 (with AC solenoid)	53	65	39
BSG-※-※-※-D※-N- (with DC solenoid)	64	76	39

Option-Models With Vent Restrictor

- **Plug-in Connector Type**

- A-BSG-06-※ (03 / 10) (2B3A / 2B3B) -※-4680

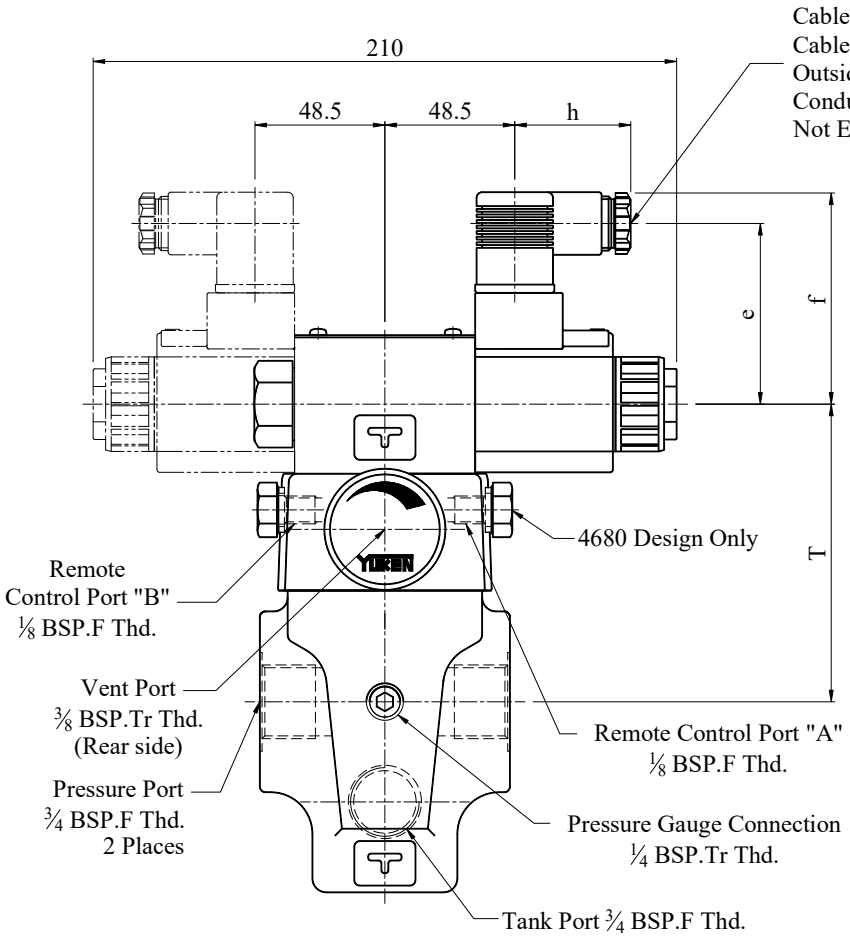


Model Number \ Item	d	Q	Plug-in Connector Type			
			AC Solenoid		DC Solenoid	
			ee	ff	ee	ff
A-BSG-03	115	77	245	180	256	191
A-BSG-06	132.5	83.5	281	185	292	196.5
A-BSG-10	140	110	315	193	326	204

DIMENSIONS IN MILLIMETRES

Models with Plug-in Connector

- **BST-06-※-※-※-N-4680**



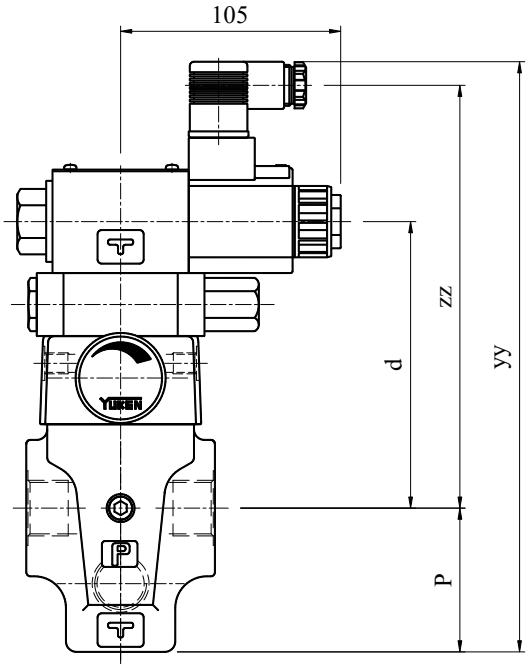
Model Number	T
BST-06-※-※-※-N-	107

Model Number	e	f	h
BST-※-※- (with AC solenoid)	53	65	39
BST-※-※-D-※-N- (with DC solenoid)	64	76	39

Option-Models With Vent Restrictor

- **Plug-in Connector Type**

- **A-BST-06-※-$\frac{\text{2B3A}}{\text{2B3B}}$-※-4680**



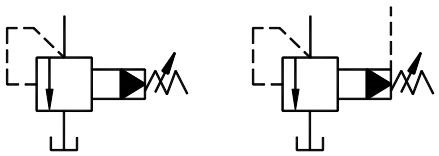
Model Number \ Item	d	P	Plug-in Connector Type			
			AC Solenoid		DC Solenoid	
			yy	zz	yy	zz
A-BST-06	137	68.5	270.5	190	281.5	201

Pilot Operated Relief Valve

These valves protect the hydraulic system from excessive pressure and can be used to maintain constant Pressure in a hydraulic system. Vent circuit permits remote control and unloading.



Graphic Symbols



Vent Connection

Specifications

Model Numbers	Max. Operating Pressure Kgf/cm²	Pres. Adj. Range Kgf/cm²	Max. Flow L/min.	Mass (Approx) Kg.
YBG-03-P-※-10	250	* ~ 250	60	2.7

* Refer to "Minimum Adjustment Pressure" charecteristics on page 269.

Model Number Designation

Y	B	G	-03	-P	-V	-10
Series Number		Type of Mounting	Valve Size	Plunger Type	High Venting Pressure Feature	Design * Number
Y:YIL	**B:**Pilot Operated Relief Valve	**G:**Sub-Plate Mounting	**03**	**P:** Pull Type	**V:** For High Venting Pressure Feature (Omit if not required)	**10**

* Design number subject to change from 10 to 19, but installation dimensions remain as shown.

Attachment

- **Mounting Bolts**

Model Number	Socket Head Cap Screw	Qty.	Bolt Kit Ordering Code
YBG-03-P-※-10	M12 x 50Lg.	4	BK-YBG-03-10

Sub-plate

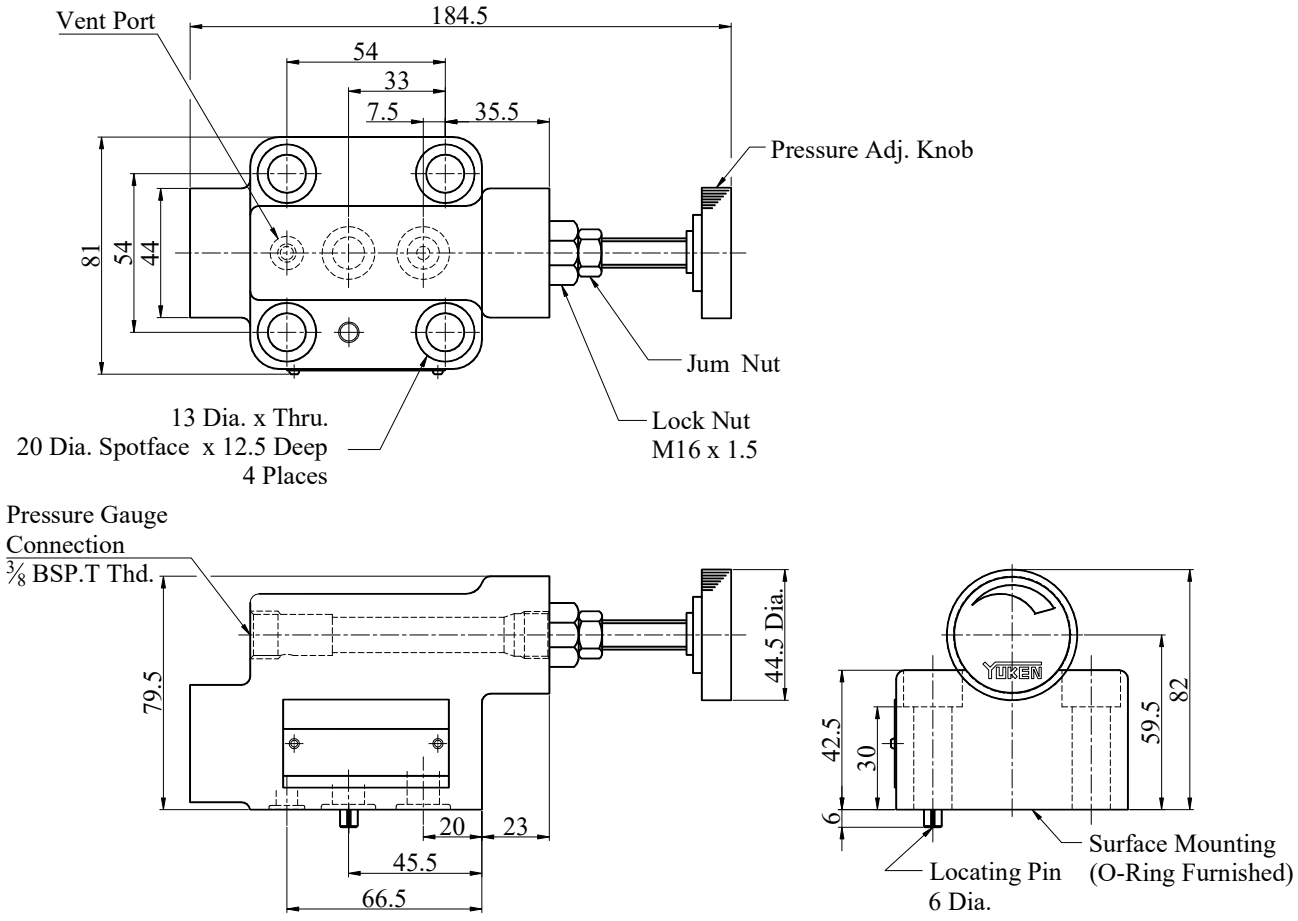
Valve Model Numbers	Sub-plate Model Number	Thread Size	Mass (Approx) Kg.
YBG-03-P-※-10	BGM-03-3080	3/8 BSP.F	2.4
	BGM-03X-3080	1/2 BSP.F	

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

Instructions

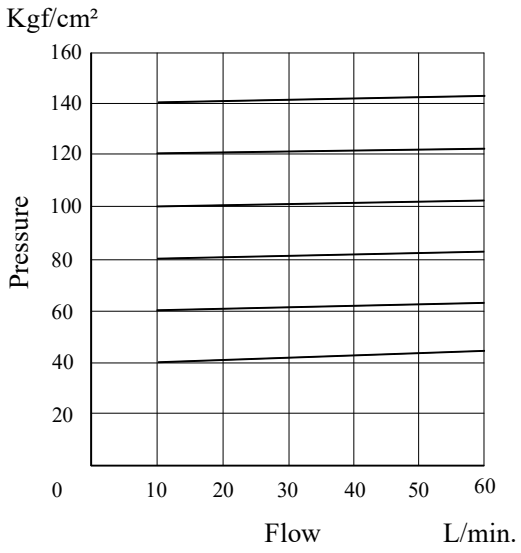
- If the internal volume of the vent line is too large, chattering is likely to occur. Thus, as far as possible reduce the inside dia.and lenth of the pipe
- To adjust the pressure, loosen the lock nut and turn the handle slowely clockwise for higher pressure or anti-clockwise for lower pressure. One revolution of the handle makes about a 50Kg/cm² pressure change. After adjustment, do not forget to tighten the lock nut.
- Piping of the tank line should not be connect to tank line of the other valves, but connect directly to tank.
- With a small flow, the setting pressure may be unstable.
- There are two threaded connection pressure ports. They can be connected to each other in-line one inlet and the other as an outlet or the valve can be used by plugging one of the pressure ports.

- **YBG-03-P-※-10**

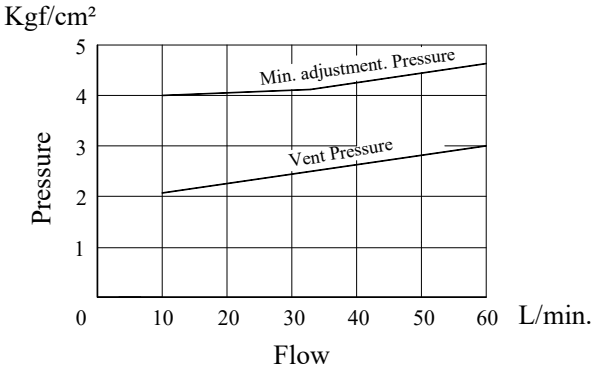


* For subplate details, see page 259.

Nominal Override Characteristics



Min. Adj. Pressure & Vent Pressure vs Flow



Spare Parts List

- **List of Seals**

Sl. No.	Name of Parts	Parts Number	Qty.
1	O-Ring	SO-NA-P4	1
2	O-Ring	SO-NA-P9	2
3	O-Ring	SO-NA-P14	2
4	O-Ring	SO-NA-P22A	1
5	O-Ring	SO-NB-P25	1

Note : When ordering the seals, please specify the seal kit number KS-YBG-03-10.