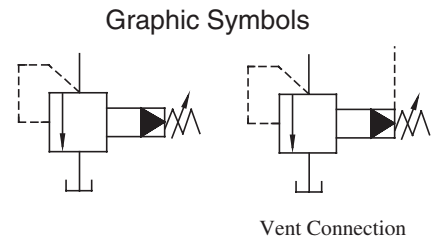
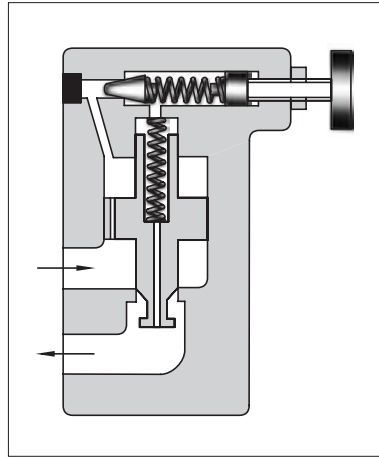


Pilot Operated Relief Valves

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.



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" 80: European Design Std. 90: N. American Design Std. |
| | | | 06 | | 32 | |
| | | | 10 | | 32 | |
| | | G: Sub-plate Mounting | 03 | | 32 | None: Japanese Std. "JIS" and European Design Std. 90: N. American Design Std. |
| | | | 06 | | 32 | |
| | | | 10 | | 32 | |

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

■ Attachment

● Mounting Bolts

| Valve Model Numbers | Socket Head Cap Screw | |
|---------------------|--|--|
| | Japanese Std. "JIS" and European Design Std. | N. American Design Std. |
| BG-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.) |
| BG-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.) |
| BG-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 | |
| BG-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) |
| BG-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) |
| BG-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) |

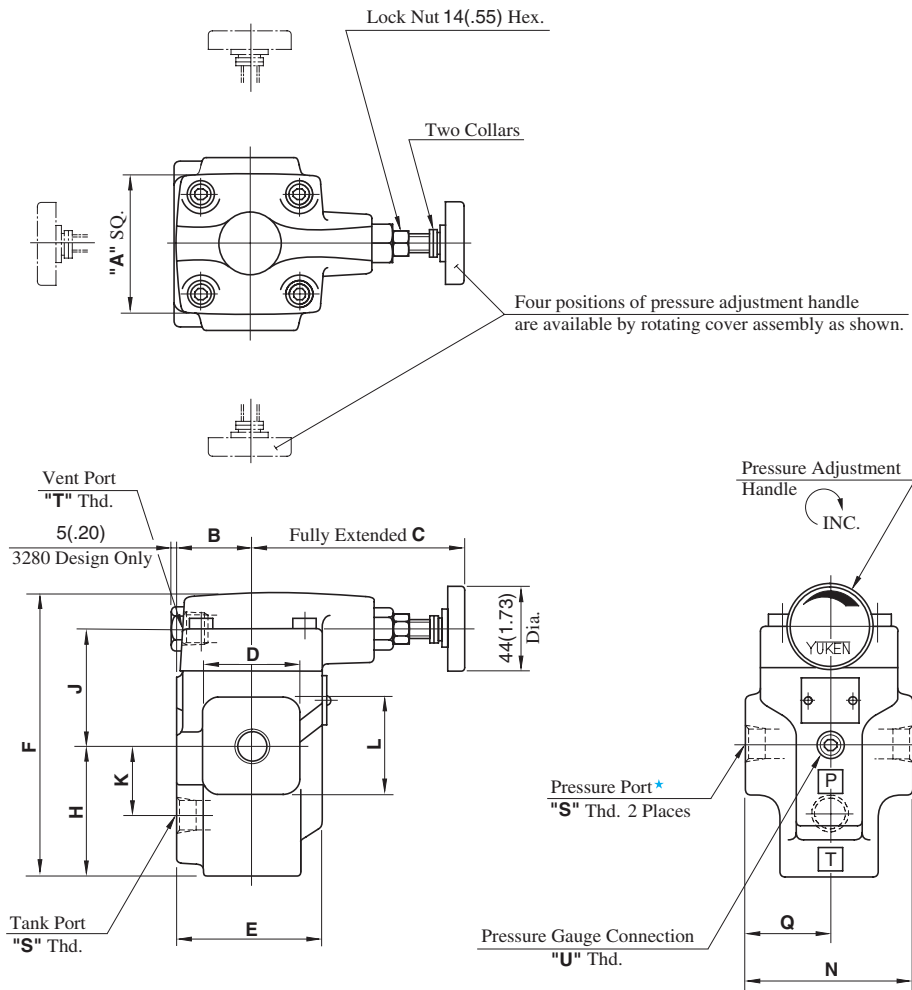
- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

■ 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 diameter 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).

BT-03-*-32/3280/3290
 BT-06-*-32/3280/3290
 BT-10-*-32/3280/3290

DIMENSIONS IN
MILLIMETRES (INCHES)



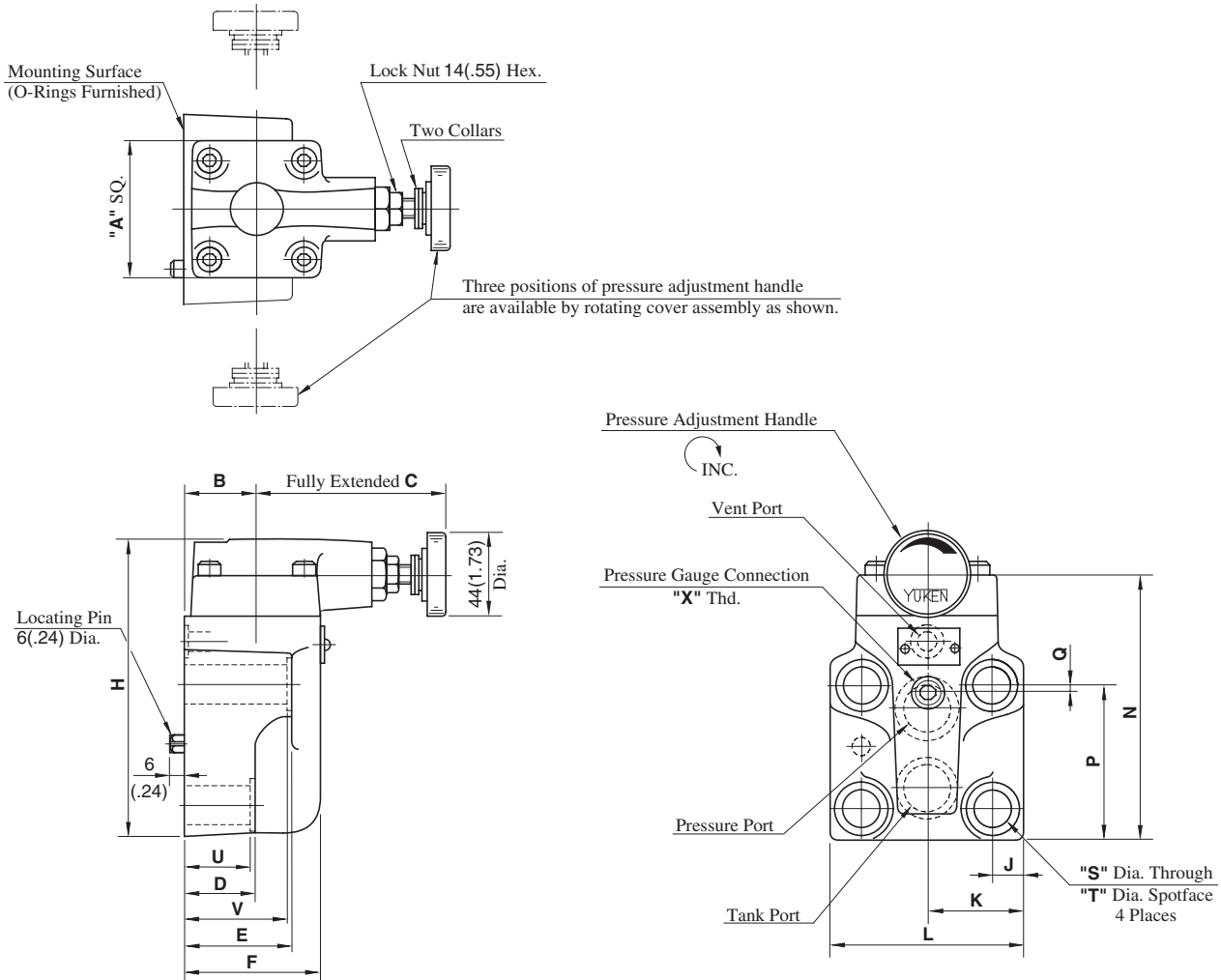
★ There are two threaded connection pressure ports. They can be connected each other in-line; one as inlet and the other as an outlet or the valve can be used by plugging one of the pressure ports.

| Model Numbers | Dimensions mm (Inches) | | | | | | | | | | | |
|----------------------|------------------------|--------------|---------------|--------------|--------------|-----------------|----------------|--------------|--------------|--------------|---------------|--------------|
| | A | B | C | D | E | F | H | J | K | L | N | Q |
| BT-03-*-32/3280/3290 | 75 (2.95) | 40 (1.57) | 105 (4.13) | 52 (2.05) | 78 (3.07) | 150.5 (5.93) | 68.5 (2.70) | 62 (2.44) | 36 (1.42) | 52 (2.05) | 90 (3.54) | 45 (1.77) |
| BT-06-*-32/3280/3290 | | | | | | | | | | | | |
| BT-10-*-32/3280/3290 | 85 (3.35) | 50 (1.97) | 101 (3.98) | 80 (3.15) | 96 (3.78) | 183 (7.20) | 89 (3.50) | 74 (2.91) | 49 (1.93) | 80 (3.15) | 120 (4.72) | 60 (2.36) |

| Model Numbers | Thread Size | | |
|---------------|-------------|-----------|------------|
| | "S" Thd. | "T" Thd. | "U" Thd. |
| BT-03-*-32 | Rc 3/8 | Rc 3/8 | Rc 1/4 |
| BT-03-*-3280 | 3/8 BSP.F | 3/8 BSP.F | 1/4 BSP.Tr |
| BT-03-*-3290 | 3/8 NPT | 3/8 NPT | 1/4 NPT |
| BT-06-*-32 | Rc 3/4 | Rc 3/8 | Rc 1/4 |
| BT-06-*-3280 | 3/4 BSP.F | 3/8 BSP.F | 1/4 BSP.Tr |
| BT-06-*-3290 | 3/4 NPT | 3/8 NPT | 1/4 NPT |
| BT-10-*-32 | Rc 1-1/4 | Rc 3/8 | Rc 1/4 |
| BT-10-*-3280 | 1-1/4 BSP.F | 3/8 BSP.F | 1/4 BSP.Tr |
| BT-10-*-3290 | 1-1/4 NPT | 3/8 NPT | 1/4 NPT |

BG-03-*-32/3290
 BG-06-*-32/3290
 BG-10-*-32/3290

**DIMENSIONS IN
 MILLIMETRES (INCHES)**

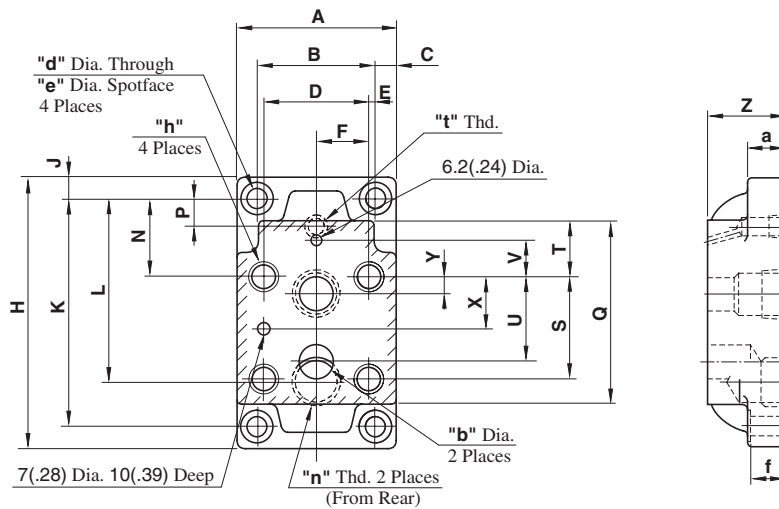


| Model Numbers | Dimensions mm (Inches) | | | | | | | | | | | | | | | | |
|-----------------|------------------------|--------------|---------------|--------------|--------------|----------------|---------------|---------------|--------------|---------------|---------------|----------------|--------------|---------------|--------------|--------------|--------------|
| | A | B | C | D | E | F | H | J | K | L | N | P | Q | S | T | U | V |
| BG-03-*-32/3290 | 75 (2.95) | 40 (1.57) | 105 (4.13) | 57 (2.24) | 78 (3.07) | 78 (3.07) | 137 (5.39) | 14.1 (.56) | 41 (1.61) | 82 (3.23) | 117 (4.61) | 77 (3.03) | 22 (.87) | 13.5 (.53) | 21 (.83) | 55 (2.17) | 77 (3.03) |
| BG-06-*-32/3290 | 75 (2.95) | 40 (1.57) | 105 (4.13) | 40 (1.57) | 60 (2.36) | 78 (3.07) | 161 (6.34) | 17 (.67) | 52 (2.05) | 104 (4.09) | 141 (5.55) | 83.5 (3.29) | 4.5 (.18) | 17.5 (.69) | 26 (1.02) | 38 (1.50) | 58 (2.28) |
| BG-10-*-32/3290 | 85 (3.35) | 45 (1.77) | 101 (3.98) | 47 (1.85) | 67 (2.64) | 87.5 (3.44) | 195 (7.68) | 20.7 (.81) | 62 (2.44) | 124 (4.88) | 175 (6.89) | 110 (4.33) | 6 (.24) | 21.5 (.85) | 32 (1.26) | 45 (1.77) | 65 (2.56) |

| Model Numbers | Thread Size | Mounting Surface |
|---------------|---------------------|--------------------|
| | "X" Thd | |
| BG-03-*-32 | Rc 1/4 = 1/4 BSP.Tr | ISO 6264-AR-06-2-A |
| BG-03-*-3290 | 1/4 NPT | |
| BG-06-*-32 | Rc 1/4 = 1/4 BSP.Tr | ISO 6264-AS-08-2-A |
| BG-06-*-3290 | 1/4 NPT | |
| BG-10-*-32 | Rc 1/4 = 1/4 BSP.Tr | ISO 6264-AT-10-2-A |
| BG-10-*-3290 | 1/4 NPT | |

BGM-03,03X-20 / 3080 / 2090
 BGM-06,06X-20 / 3080 / 2090
 BGM-10,10X-20 / 3080 / 2090

DIMENSIONS IN
 MILLIMETRES (INCHES)



| Model Numbers | Dimensions mm (Inches) | | | | | | | | | | | | | |
|---------------|------------------------|--------|-------|--------|-------|--------|--------|-------|--------|--------|--------|--------|--------|--------|
| | A | B | C | D | E | F | H | J | K | L | N | P | Q | S |
| BGM-03 | 86 | 60 | 13 | 53.8 | 3.1 | 26.9 | 149 | 13 | 123 | 86 | 32 | 26 | 97 | 53.8 |
| BGM-03X | (3.39) | (2.36) | (.51) | (2.12) | (.12) | (1.06) | (5.87) | (.51) | (4.84) | (3.39) | (1.26) | (1.02) | (3.82) | (2.12) |
| BGM-06 | 108 | 78 | 15 | 70 | 4 | 35 | 180 | 15 | 150 | 106.5 | 51 | 27.2 | 121 | 66.7 |
| BGM-06X | (4.25) | (3.07) | (.59) | (2.76) | (.16) | (1.38) | (7.09) | (.59) | (5.91) | (4.19) | (2.01) | (1.07) | (4.76) | (2.63) |
| BGM-10 | 126 | 94 | 16 | 82.6 | 5.7 | 41.3 | 227 | 16 | 195 | 138.2 | 62 | 30.2 | 154 | 88.9 |
| BGM-10X | (4.96) | (3.70) | (.63) | (3.25) | (.22) | (1.63) | (8.94) | (.63) | (7.68) | (5.44) | (2.44) | (1.19) | (6.06) | (3.50) |

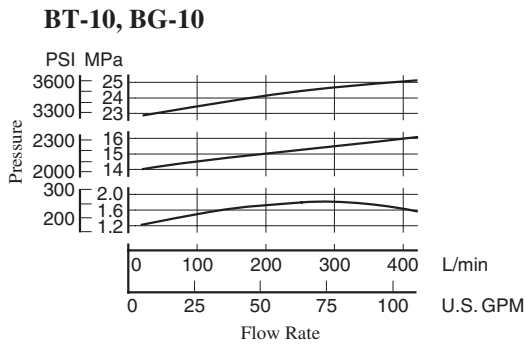
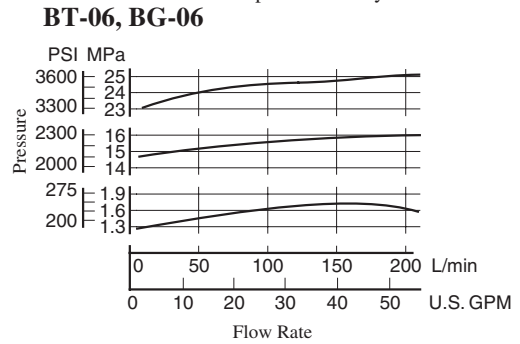
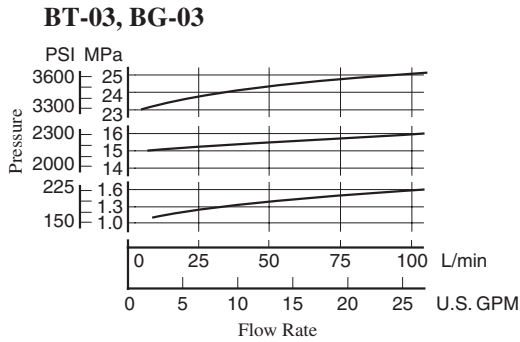
| Model Numbers | Dimensions mm (Inches) | | | | | | | | | | |
|---------------|------------------------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|
| | T | U | V | X | Y | Z | a | b | d | e | f |
| BGM-03 | 19 | 47.4 | 0 | 22 | 22 | 32 | 20 | 14.5 | 11 | 17.5 | 19 |
| BGM-03X | (.75) | (1.87) | (0) | (.87) | (.87) | (1.26) | (.79) | (.57) | (.43) | (.69) | (.75) |
| BGM-06 | 37 | 55.5 | 23.8 | 33.4 | 11 | 40 | 25 | 23 | 13.5 | 21 | 24 |
| BGM-06X | (1.46) | (2.19) | (.94) | (1.31) | (.43) | (1.57) | (.98) | (.91) | (.53) | (.83) | (.94) |
| BGM-10 | 42 | 76.2 | 31.8 | 44.5 | 12.7 | 50 | 32 | 28 | 17.5 | 26 | 31 |
| BGM-10X | (1.65) | (3.00) | (1.25) | (1.75) | (.50) | (1.97) | (1.26) | (1.10) | (.69) | (1.02) | (1.22) |

| Model Numbers | Japanese Standard "JIS" Design "20" | | | European Design Standard Design "3080" | | | N. American Design Standard Design "2090" | | |
|---------------|-------------------------------------|----------|---------------|--|----------------|-----------|---|----------|----------|
| | "h" | "n" Thd. | "t" Thd. | "h" | "n" Thd. | "t" Thd. | "h" | "n" Thd. | "t" Thd. |
| BGM-03 | M12 Thd. | Rc 3/8 | Rc 1/4 | M12 Thd. | 3/8 BSP.F | 1/4 BSP.F | 1/2-13UNC Thd. | 3/8 NPT | 1/4 NPT |
| BGM-03X | 20(.79) Deep | Rc 1/2 | | 20(.79) Deep | 1/2 BSP.F | | 22(.87) Deep | 1/2 NPT | |
| BGM-06 | M16 Thd. | Rc 3/4 | | M16 Thd. | 3/4 BSP.F | | 5/8-11UNC Thd. | 3/4 NPT | |
| BGM-06X | 25(.98) Deep | Rc 1 | | 25(.98) Deep | 1 BSP.F | | 27(1.06) Deep | 1 NPT | |
| BGM-10 | M20 Thd. | Rc1-1/4 | M20 Thd. | 1-1/4 BSP.F | 3/4-10UNC Thd. | 1-1/4 NPT | | | |
| BGM-10X | 28(1.10) Deep | Rc 1-1/2 | 28(1.10) Deep | 1-1/2 BSP.F | 28(1.10) Deep | 1-1/2 NPT | | | |



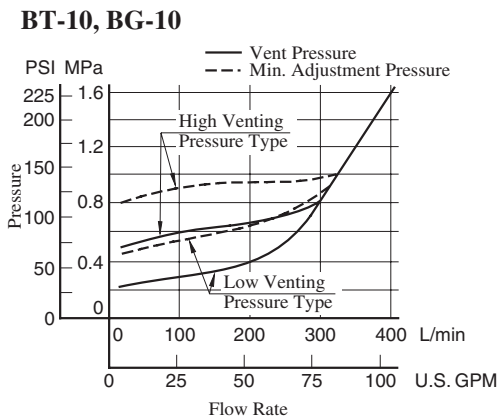
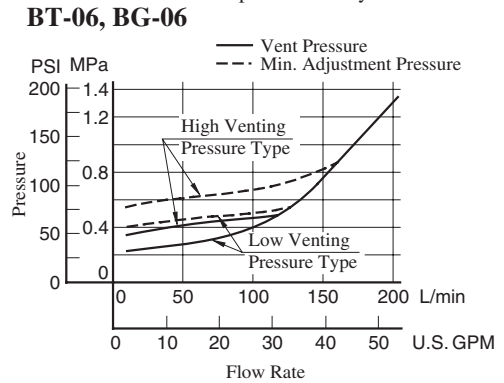
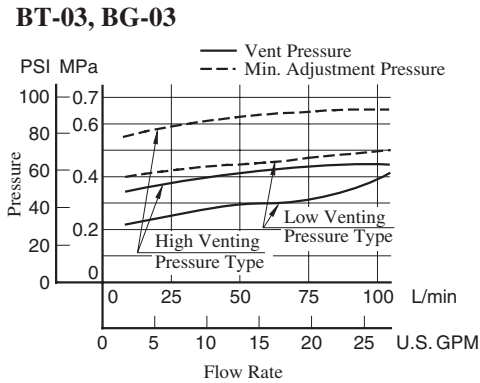
Nominal Override Characteristics

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



Min. Adj. Pressure & Vent Pressure vs. Flow

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

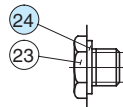
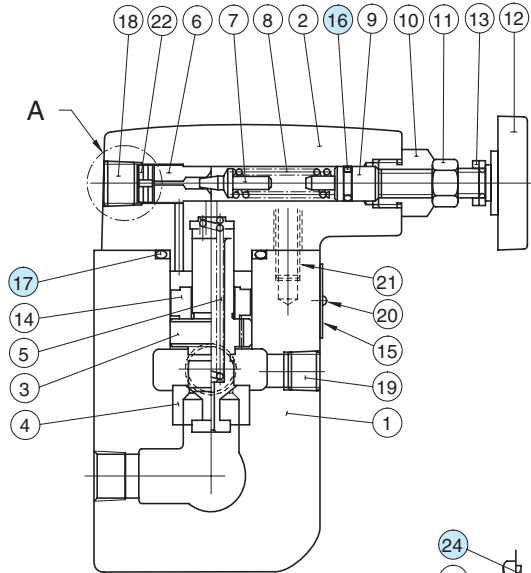


Spare Parts List

BT-03-*-32/3280/3290

BT-06-*-32/3280/3290

BT-10-*-32/3280/3290



Section "A"
for Design 3280

List of Seals

| Item | Name of Parts | Part Numbers | | | Qty. |
|------|---------------|--------------|-----------|-----------|------|
| | | BT-03 | BT-06 | BT-10 | |
| 16 | O-Ring | SO-NA-P9 | SO-NA-P9 | SO-NA-P9 | 1 |
| 17 | O-Ring | SO-NB-P32 | SO-NB-P42 | SO-NB-P42 | 1 |
| 24 | Bonded Seal | SG-FB-3/8 | SG-FB-3/8 | SG-FB-3/8 | 1 |

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

List of Seal Kits

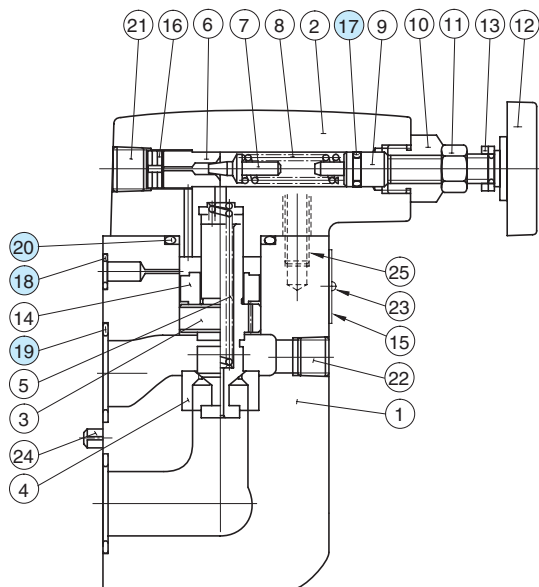
| Valve Model Numbers | Seal Kit Numbers |
|---------------------|------------------|
| BT-03 | KS-BT-03-32 |
| BT-06 | |
| BT-10 | KS-BT-10-32 |

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

BG-03-*-32/3290

BG-06-*-32/3290

BG-10-*-32/3290



List of Seals

| Item | Name of Parts | Part Numbers | | | Qty. |
|------|---------------|--------------|-----------|-----------|------|
| | | BG-03 | BG-06 | BG-10 | |
| 17 | O-Ring | SO-NA-P9 | SO-NA-P9 | SO-NA-P9 | 1 |
| 18 | O-Ring | SO-NB-P9 | SO-NB-P11 | SO-NB-P9 | 1 |
| 19 | O-Ring | SO-NB-P18 | SO-NB-P28 | SO-NB-P32 | 2 |
| 20 | O-Ring | SO-NB-P32 | SO-NB-P32 | SO-NB-P42 | 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 |
|---------------------|------------------|
| BG-03 | KS-BG-03-32 |
| BG-06 | KS-BG-06-32 |
| BG-10 | KS-BG-10-32 |