

Unloading Relief Valves

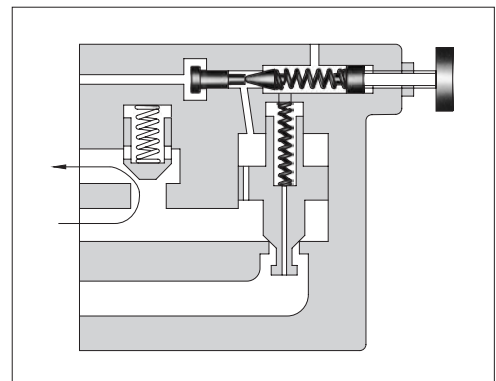
These valves are used to operate the pumps with minimum load in accumulator circuits or in high-low pump circuits.

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.



Unloading Relief Valves

Specifications

| Model Numbers | Max. Operating Pres. MPa (PSI) | Max. Flow L/min (U.S.GPM) | Approx. Mass kg (lbs.) |
|-------------------------|--------------------------------|---------------------------|------------------------|
| 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 10 | B: 2.5-7.0 (360-1020) C: 3.5-14 (510-2030) H: 7.0-21 (1020-3050) | V: For High Venting Pressure Feature (Omit if not required) | 30 25 | None: Japanese Std. "JIS" 80: European Design Std. 90: N. American Design Std. |

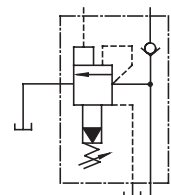
* Use the high-venting-pressure type to reduce the shift time from unloading to onloading.

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. Pilot- Int. Drain | | BUCG-06-**-30801 BUCG-10-**-25801 | BUCG-06-**-30901 BUCG-10-**-25901 | BUCG-06-**-3001 BUCG-10-**-2501 |
| Int. Pilot- 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.) | 5/8-11 UNC × 2-1/4 Lg. (2 pcs.) |
| | M16 × 110Lg. (2 pcs.) | 5/8-11 UNC × 4-1/2 Lg. (2 pcs.) |
| | M16 × 130Lg. (2 pcs.) | 5/8-11 UNC × 5 Lg. (2 pcs.) |
| BUCG-10 | M20 × 70Lg. (2 pcs.) | 3/4-10 UNC × 2-3/4 Lg. (2 pcs.) |
| | M20 × 160Lg. (4 pcs.) | 3/4-10 UNC × 6-1/2 Lg. (4 pcs.) |

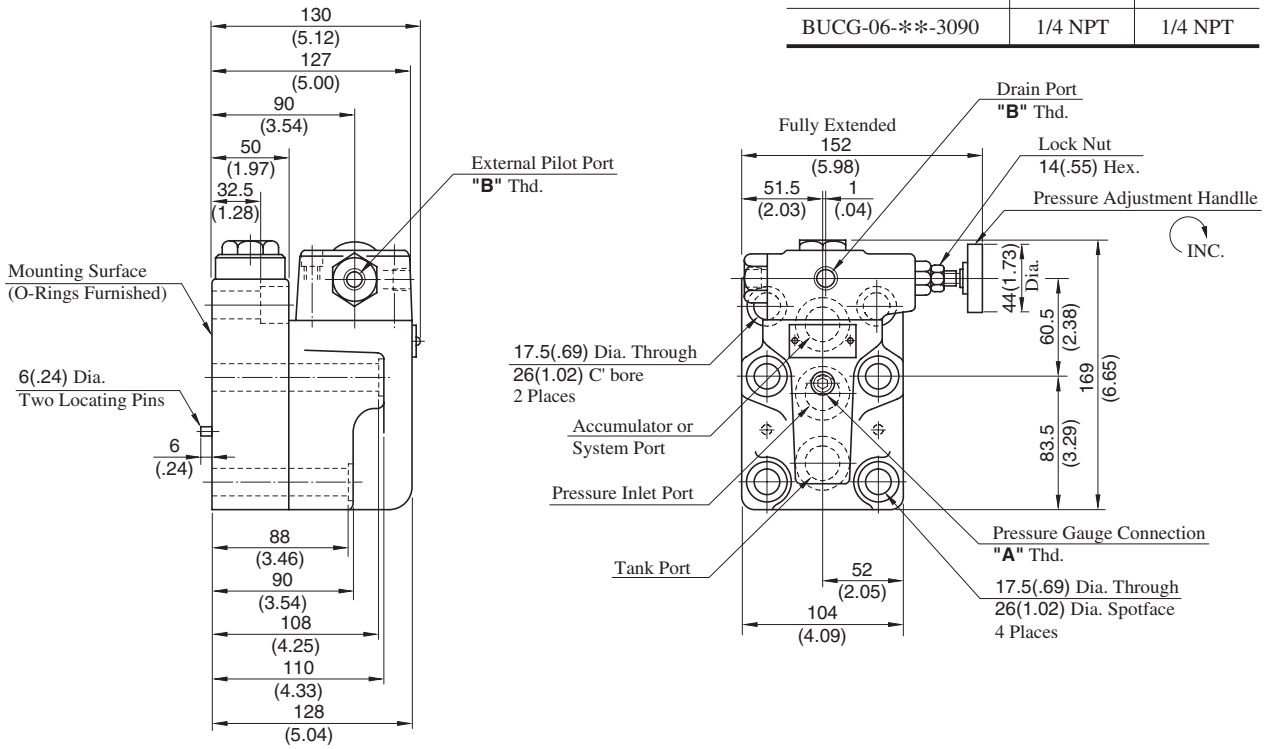
■ Sub-plate

| 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

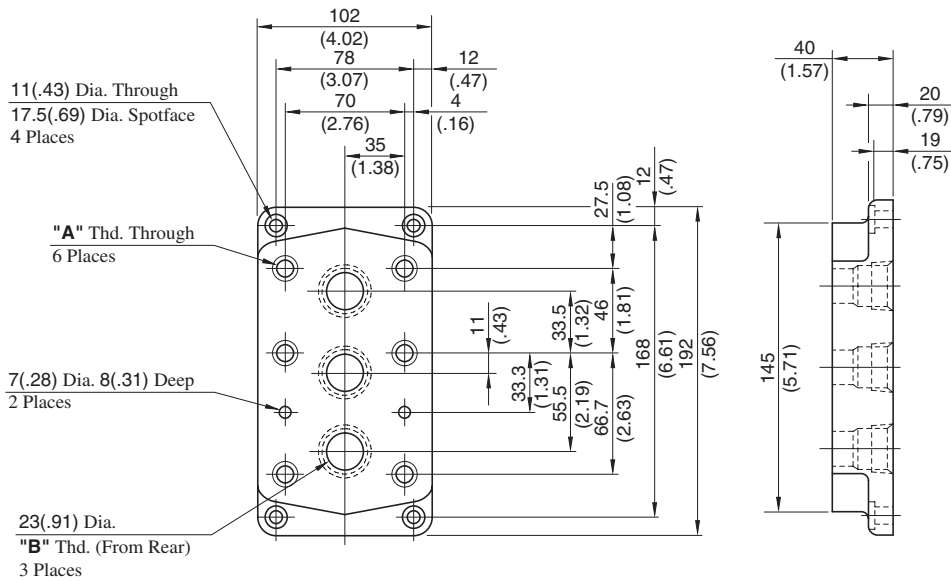
| Model Numbers | "A" Thd. | "B" Thd. |
|-----------------|------------|-----------|
| BUCG-06-**-30 | Rc 1/4 | Rc 1/4 |
| BUCG-06-**-3080 | 1/4 BSP.Tr | 1/4 BSP.F |
| BUCG-06-**-3090 | 1/4 NPT | 1/4 NPT |



DIMENSIONS IN MILLIMETRES (INCHES)

■ Sub-plate

BUCGM-06-20/2080/2090

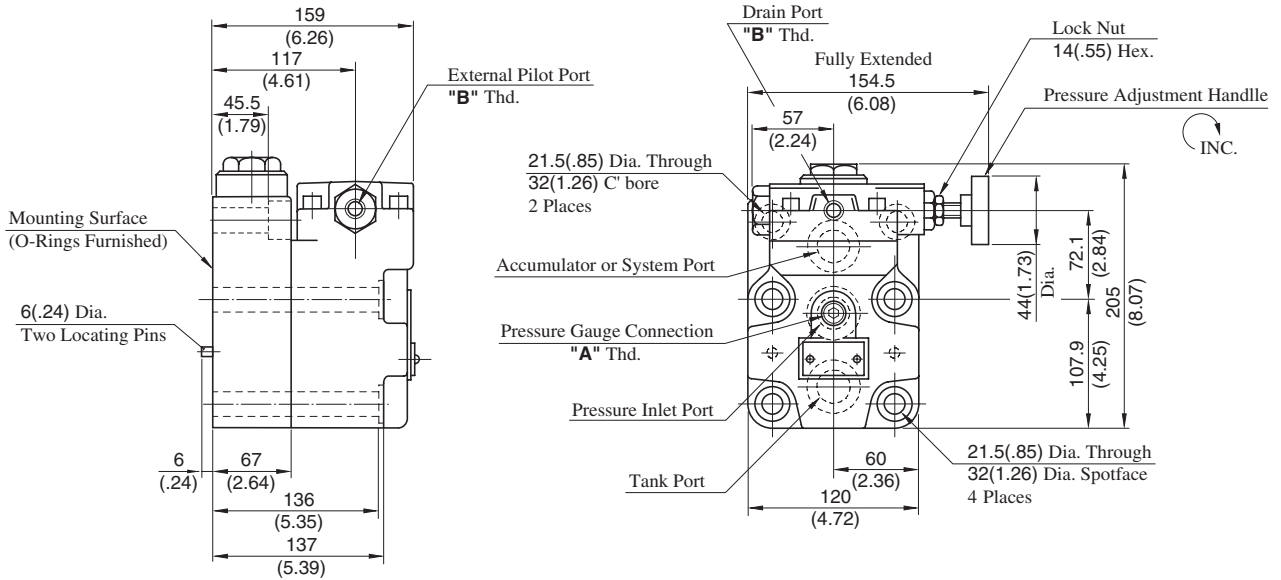


| Sub-plate Model No. | "A" Thd. | "B" Thd. |
|---------------------|------------|-----------|
| BUCGM-06-20 | M16 | Rc 3/4 |
| BUCGM-06-2080 | M16 | 3/4 BSP.F |
| BUCGM-06-2090 | 5/8-11 UNC | 3/4 NPT |



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

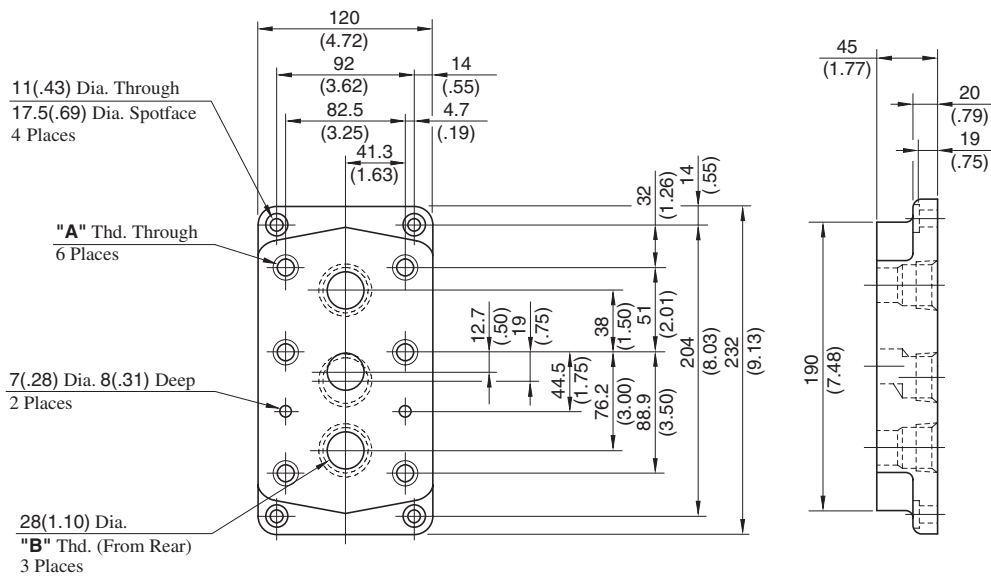
| Model Numbers | "A" Thd. | "B" Thd. |
|-----------------|------------|-----------|
| BUCG-10-**-25 | Rc 1/4 | Rc 1/4 |
| BUCG-10-**-2580 | 1/4 BSP.Tr | 1/4 BSP.F |
| BUCG-10-**-2590 | 1/4 NPT | 1/4 NPT |



DIMENSIONS IN MILLIMETRES (INCHES)

■ Sub-plate

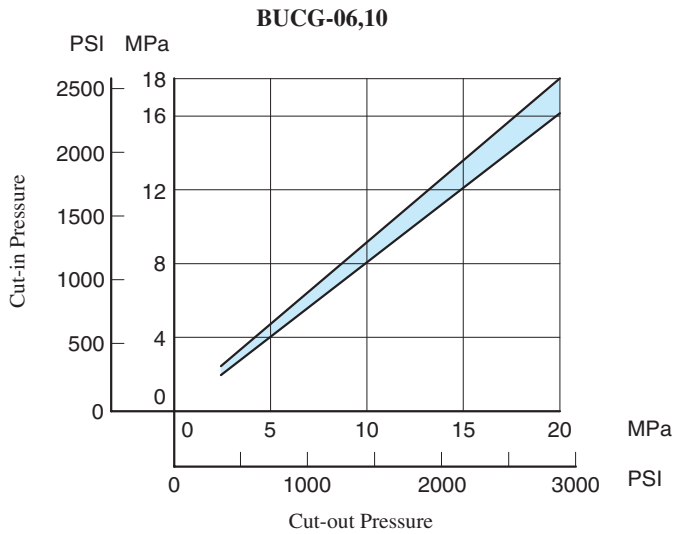
BUCGM-10-20/2080/2090



| 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 |

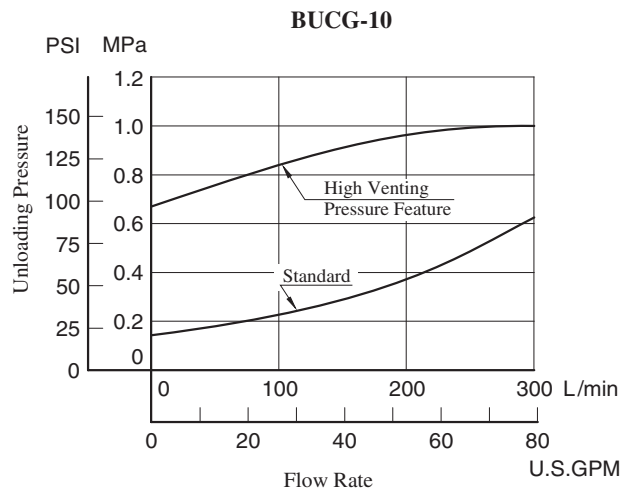
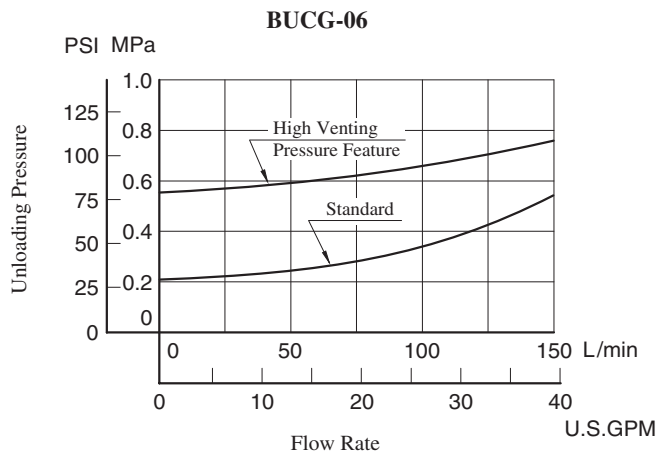
Cut-in Pressure vs. Cut-out Pressure

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



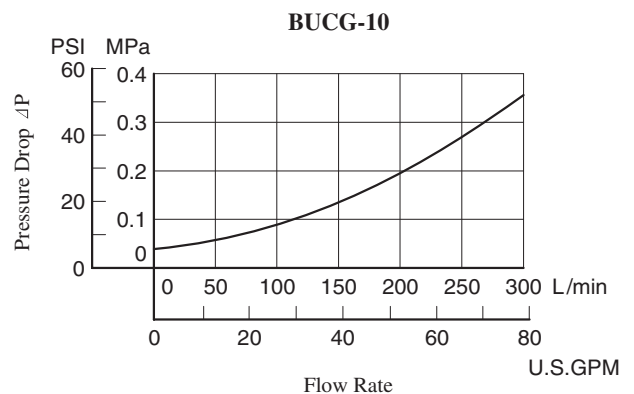
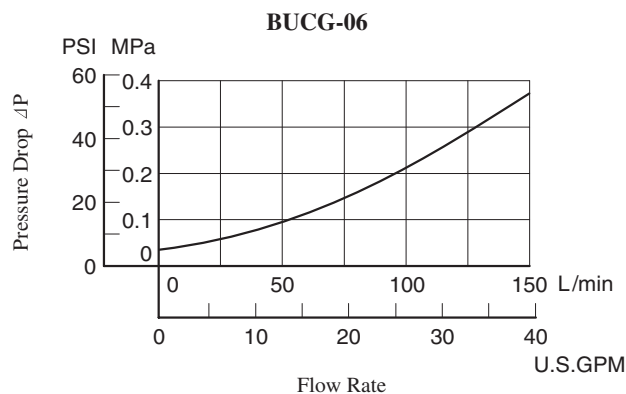
Unloading Pressure vs. Flow

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.

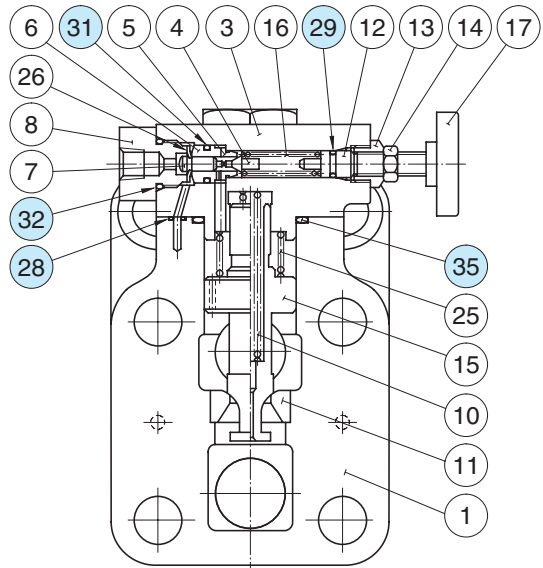
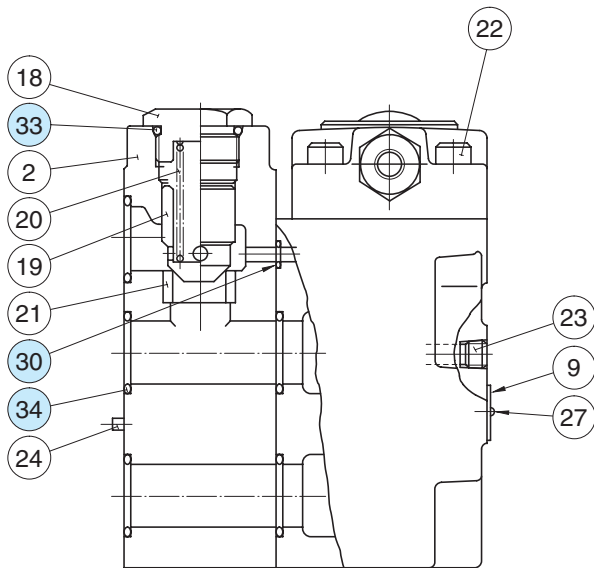
| Viscosity | mm ² /s | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----------|--------------------|------|------|------|------|------|------|------|------|------|------|
| | | SSU | 77 | 98 | 141 | 186 | 232 | 278 | 324 | 371 | 417 |
| Factor | | 0.81 | 0.87 | 0.96 | 1.03 | 1.09 | 1.14 | 1.19 | 1.23 | 1.27 | 1.30 |

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

$$\Delta P' = \Delta P (G'/0.850)$$

■ 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.

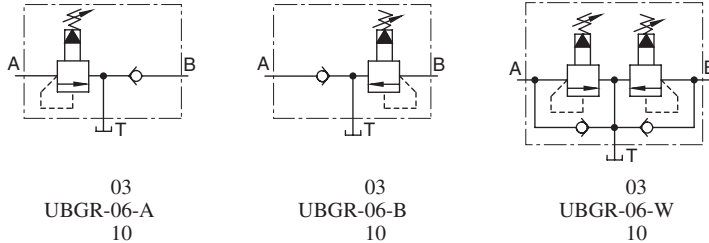
● List of Seal Kits

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

Brake Valves

Brake valves are used on hydraulic cylinders and in brake circuits of hydraulic motors. They can brake with any pressure, permitting smooth stopping.

Graphic Symbols



Specifications

| Model Numbers | Max. Operating Pressure MPa (PSI) | Pres. Adj. Range MPa (PSI) | Max. Flow L/min (U.S.GPM) |
|--------------------------|--------------------------------------|-------------------------------|------------------------------|
| UBGR - 03 - * - B - 20 * | 25 (3630) | 0.7 - 7.0 (100 - 1020) | 50 (13.2) |
| UBGR - 03 - * - H - 20 * | | 3.5 - 25 (510 - 3630) | |
| UBGR - 06 - * - 20 * | | 0.7 - 25 (100 - 3630) | 125 (33.0) |
| UBGR - 10 - * - 20 * | | 0.7 - 25 (100 - 3630) | 200 (52.8) |

Model Number Designation

| F- | UBGR | -03 | -A | -B | -20 | * |
|---|--|------------|--|---|---------------|------------------|
| Special Seals | Series Number | Valve Size | Type | Pres. Adj. Range MPa (PSI) | Design Number | Design Standards |
| F: Special Seals for Phosphate Ester Type Fluids (Omit if not required) | UBGR: Brake Valves, Sub-plate Mounting | 03 | A: For A-Line B: For B-Line W: For A•B-Lines | B: 0.7-7.0 (100-1020) H: 3.5-25 (510-3630) | 20 | Refer to ★ |
| | | 06 | | None: 0.7-25 (100-3630) | 20 | |
| | | 10 | | | 20 | |

★ Design Standards: None Japanese Standard "JIS" and European Design Standard 90 N. American Design Standard

- Consult Yuken when detailed material such as dimensions figures is required.