Unloading relief valves URG

**Functional Symbols**

<table>
<thead>
<tr>
<th>URG 1</th>
<th>Internal Pilot External Drain</th>
<th>External Pilot External Drain (S9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>X1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>URG 2</th>
<th>Internal Pilot Internal Drain</th>
<th>External Pilot External Drain (S9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>X1</td>
</tr>
</tbody>
</table>

- Valve is used in accumulator circuits. When circuit pressure rises to the setting pressure, valve acts to automatically unloads pump.
- When circuit pressure falls to 85 or 95% of the setting pressure, the valve onloads the pump to recharge the accumulators.

**Application Examples**

Internal Pilot

External Pilot

**Model Code**

(F3)-URG 1-10-B(V)-12-(S9)-JA-(S1)-J/M

1. Hydraulic fluid
   - Omitted for mineral oil based fluid, water-glycol based fluid
   - F3: phosphate ester fluid
2. Unloading relief valve (gasket mounting)
3. Drain
   - 1: external drain
   - 2: internal drain
4. Size
5. Pressure adjustment ranges
   - Refer to “Specifications”.
6. Vent pressure
   - Omitted for low vent pressure (standard)
   - V: high vent pressure
7. Design no.
   - 12: URG*-10
   - 13: URG*-06
8. Pilot
   - Omitted for internal pilot (standard)
   - S9: external pilot
9. Cut-in pressure
   - Omitted for 85% of setting pressure (standard)
   - S1: 95% of setting pressure
10. Mounting bolts
    - URG*-06
    - Enter J (main valve for both unified and metric threads)
    - URG*-10
    - J: 3/4-10UNC
    - M: M20

TOKYO KEIKI INC.
Specifications

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Size</th>
<th>Max. Working Pressure MPa</th>
<th>Rated Flow L/min</th>
<th>Pressure Adjustment Ranges MPa</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>URG1-06</td>
<td>06</td>
<td>21</td>
<td>100</td>
<td>B: 2.5~7</td>
<td></td>
</tr>
<tr>
<td>URG2-06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.5</td>
</tr>
<tr>
<td>URG1-10</td>
<td>10</td>
<td>21</td>
<td>250</td>
<td>C: 3.5~14</td>
<td></td>
</tr>
<tr>
<td>URG2-10</td>
<td></td>
<td></td>
<td></td>
<td>F: 10.5~21</td>
<td>22</td>
</tr>
</tbody>
</table>

Characteristics Curve (at 20 mm²/s) (typical examples)

Notes on Operation

- If distance between valve and accumulator is long (piping) and internal pilot type (standard) valve is used, piping resistance may cause valve to cutoff prematurely before setting pressure of valve is accumulated in the accumulator. In this case, use external pilot type (S9) valve with pilot pressure taken from point close to accumulator and connected to external pilot port X1. (Rc1/4 taper thread connection)
- Internal drain type (URG2) may be used when tank line back pressure is set at 5% or less than the setting pressure. If back pressure exceeds this condition, use external drain (URG1).
- Do not connect drain line with other tank lines and return drain directly to tank. Ensure that end of the piping is always below the fluid level.
- For faster unload to onload response, use high vent pressure type (V).
- Loosen the lock nut and turn pressure adjustment screw clockwise to increase the setting pressure and counterclockwise to decrease the setting pressure.

Mounting Bolts (JIS B 1176, Strength Class 12.9)

<table>
<thead>
<tr>
<th>Valve Model</th>
<th>Metric Thread</th>
<th>Unified Thread</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>URG1-06</td>
<td>M16× 60</td>
<td>5/8-11UNC×57.1</td>
<td>2</td>
</tr>
<tr>
<td>URG2-06</td>
<td>M16×130</td>
<td>5/8-11UNC×133.4</td>
<td>4</td>
</tr>
<tr>
<td>URG1-10</td>
<td>M20× 80</td>
<td>3/4-10UNC×76.2</td>
<td>2</td>
</tr>
<tr>
<td>URG2-10</td>
<td>M20×170</td>
<td>3/4-10UNC×165.1</td>
<td>4</td>
</tr>
</tbody>
</table>

- Mounting bolts must be ordered separately.
- Mounting bolt tightening torque
  - URG1-06 : 90 to 110 N·m
  - URG2-06
  - URG1-10 : 180 to 220 N·m
  - URG2-10

Subplate

<table>
<thead>
<tr>
<th>Valve Model</th>
<th>Subplate</th>
<th>Connection Port Diameter Rc</th>
</tr>
</thead>
<tbody>
<tr>
<td>URG1-06</td>
<td>URG1M-06-10-JA-J</td>
<td>3/4</td>
</tr>
<tr>
<td>URG2-06</td>
<td>URG1M-06-10-JA-J</td>
<td>3/4</td>
</tr>
<tr>
<td>URG1-10</td>
<td>URG1M-10-10-JA-J</td>
<td>1-1/4</td>
</tr>
<tr>
<td>URG2-10</td>
<td>URG1M-10-10-JA-J</td>
<td>1-1/4</td>
</tr>
</tbody>
</table>

- Subplate must be ordered separately.
- Hex socket bolts for mounting valve included (unified thread).
- See page R6-3 for dimensions.
Pressure Control Valves

Dimensions

URG1-06
URG2-06

Mounting dimensions

P port
T port
4 - ø16.7 hole
ø23.4 counterbore depth
Pressure gauge port Rc1/4
(external side)

2 = ø16.7 hole
A port
2 = ø7.1, 8 deep

3 = ø2.3

6-M16, 28 deep or
5/8-11UNC, 28 deep

69.8
34.9
0

ø25.4 counterbore depth

A port

Y port (drain) Rc1/4

2-ø23 hole

2-ø6.4 locating pin

For URG1 (external drain),
connect directly to tank.

T port

P port

Pressure gauge port (primary side)

4 - ø16.7 hole

ø23.4 counterbore depth

X port (vent) Rc1/4

Pressure adjustment screw 14 across flats

Locknut, 14 across flats

URG1-10
URG2-10

Mounting dimensions

2-ø7.1, 8 deep

2-ø23.9

6-M20, 35 deep or
3/4-10UNC, 31 deep

2 = ø21 hole
ø32 counterbore depth (M type)

2-ø19.8 hole
ø29.4 counterbore depth (J type)

4-ø19.8 hole, ø29.4 counterbore depth (J type)

ø21 hole, ø32 counterbore depth (M type)

Pressure adjustment screw 14 across flats

Locknut, 14 across flats

Y port (drain)

For URG1
(external drain),
connect directly to tank.
### Construction

#### Note:
- ※1 シートは, カバーに圧入
- ※2 シートは, ボディに圧入
- ※3 シートは, ボディに圧入

<table>
<thead>
<tr>
<th>Size</th>
<th>Name</th>
<th>Part No.</th>
<th>Standard</th>
<th>Part No.</th>
<th>Standard</th>
<th>Qty</th>
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<tbody>
<tr>
<td>6</td>
<td>O-ring</td>
<td>007901517</td>
<td>AS568-015(NBR, Hs70)</td>
<td>007901517</td>
<td>AS568-015(NBR, Hs70)</td>
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<tr>
<td>15</td>
<td>O-ring</td>
<td>007901019</td>
<td>AS568-010(NBR, Hs90)</td>
<td>007901019</td>
<td>AS568-010(NBR, Hs90)</td>
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<tr>
<td>16</td>
<td>O-ring</td>
<td>VA11168</td>
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<tr>
<td>21</td>
<td>O-ring</td>
<td>007901319</td>
<td>AS568-013(NBR, Hs90)</td>
<td>007901319</td>
<td>AS568-013(NBR, Hs90)</td>
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<tr>
<td>22</td>
<td>O-ring</td>
<td>007921619</td>
<td>AS568-216(NBR, Hs90)</td>
<td>007922019</td>
<td>AS568-220(NBR, Hs90)</td>
<td>2</td>
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<tr>
<td>26</td>
<td>Backup ring</td>
<td>48197629</td>
<td>MS28774-212</td>
<td>48197637</td>
<td>MS28774-220</td>
<td>1</td>
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<tr>
<td>27</td>
<td>O-ring</td>
<td>007921219</td>
<td>AS568-212(NBR, Hs90)</td>
<td>007922019</td>
<td>AS568-220(NBR, Hs90)</td>
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<tr>
<td>32</td>
<td>O-ring</td>
<td>007921619</td>
<td>AS568-216(NBR, Hs90)</td>
<td>007922019</td>
<td>AS568-220(NBR, Hs90)</td>
<td>3</td>
</tr>
</tbody>
</table>