Control Valve

Model BZL
Model BZT
Model BZX
Model JZG
Model BZS

Directly-Attached Speed Control Valve, Air Bleed Valve, G-Thread Plug and Sequence Valve

Directly Attached to Clamps
Control Valves:
Speed control valve, air bleed valve, G-thread plug and sequence valve attached directly into Kosmek hydraulic clamp G-thread piping option.

Speed Control Valve

Adjusting Screw
Lock Nut

G Thread Plug

Speed Control Valve

Model BZL
Model BZT

Air Bleed Valve

Model BZX

G Thread Plug

Model JZG

Direct-Mount Sequence Valve

Model BZS
<table>
<thead>
<tr>
<th>Component Type</th>
<th>Pressure Range</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed Control Valve (For Low Pressure)</td>
<td>7MPa or less</td>
<td>Adjust the flow rate with a wrench. Able to adjust the clamping speed individually.</td>
</tr>
<tr>
<td>Model BZL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed Control Valve (For High Pressure)</td>
<td>35MPa or less</td>
<td>Air bleeding in the circuit is possible by loosening the speed control valve.</td>
</tr>
<tr>
<td>Model BZT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Bleed Valve</td>
<td>25MPa or less</td>
<td>Air bleeding in the circuit is possible by wrench.</td>
</tr>
<tr>
<td>Model BZX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G Thread Plug</td>
<td>35MPa or less</td>
<td>Air bleeding in the circuit is possible by loosening the G thread plug.</td>
</tr>
<tr>
<td>Model JZG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct-Mount Sequence Valve</td>
<td>7MPa or less</td>
<td>Sequence Valve directly attaches to KOSMEK hydraulic clamp’s G-thread piping option.</td>
</tr>
<tr>
<td>Model BZS</td>
<td></td>
<td>Controls the operating sequence of each actuator.</td>
</tr>
</tbody>
</table>
Model No. Indication (Speed Control Valve for High Pressure)

BZT 0101 - A

1 G Thread Size

10 : Thread Part G1/8A Thread
20 : Thread Part G1/4A Thread

2 Design No.

1 : Revision Number

3 Control Method

A : Meter-in

※ Meter-out option is not available for BZT.

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>BZT0101-A</th>
<th>BZT0201-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Operating Pressure</td>
<td>MPa</td>
<td>35</td>
</tr>
<tr>
<td>Min. Operating Pressure</td>
<td>MPa</td>
<td>10</td>
</tr>
<tr>
<td>Control Method</td>
<td></td>
<td>Meter-in</td>
</tr>
<tr>
<td>G Thread Size</td>
<td></td>
<td>G1/8A</td>
</tr>
<tr>
<td>Cracking Pressure</td>
<td>MPa</td>
<td>0.04</td>
</tr>
<tr>
<td>Max. Passage Area</td>
<td>mm²</td>
<td>2.6</td>
</tr>
<tr>
<td>Usable Fluid</td>
<td></td>
<td>General Hydraulic Oil Equivalent to ISO VG-32</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>°C</td>
<td>0 ~ 70</td>
</tr>
<tr>
<td>Tightening Torque for Main Body</td>
<td>N·m</td>
<td>10</td>
</tr>
<tr>
<td>Weight</td>
<td>g</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes:
1. It must be mounted with recommended torque. Because of the structure of the metal seal, if mounting torque is insufficient, the flow control valve may not be able to adjust the flow rate.
2. Do not attach a used BZT to other clamps.

Flow control will not be made because the bottom depth difference of G thread makes metal seal insufficient.

Applicable Products

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BZT0101-A</td>
<td>TLA0801-2C</td>
<td>TLA0801-2C</td>
<td>TLA0802-1C</td>
<td>TMA0250-2C</td>
<td>TMA0250-1C</td>
<td>TTA0360-CC</td>
</tr>
<tr>
<td>BZT0201-A</td>
<td>TLA2001-2C</td>
<td>TLA2001-2C</td>
<td>TLA2002-1C</td>
<td>TMA1600-2C</td>
<td>TMA1600-1C</td>
<td>TTA0650-CC</td>
</tr>
</tbody>
</table>

Notes:
1. It is not recommended to use BZT for TL0400 / TL0600 since they have small cylinder capacity and it is difficult to adjust the speed.
2. In case of controlling TMA, TLA, TTA, both lock side and release side should be meter-in circuit.

If meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.
### External Dimensions

![Diagram of external dimensions]

### Machining Dimensions of Mounting Area

<table>
<thead>
<tr>
<th>Model No.</th>
<th>BZT0101-A</th>
<th>BZT0201-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>B</td>
<td>15.5</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>D</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>E</td>
<td>8.5</td>
<td>9.5</td>
</tr>
<tr>
<td>F</td>
<td>12.6 (16.1)</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>G1/8</td>
<td>G1/4</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>J</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>K</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>L</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>M (Nominal × Pitch)</td>
<td>M₆ × 0.75</td>
<td>M₆ × 0.75</td>
</tr>
<tr>
<td>N</td>
<td>12.5</td>
<td>16</td>
</tr>
<tr>
<td>P</td>
<td>8.5</td>
<td>11</td>
</tr>
<tr>
<td>Q</td>
<td>9.5</td>
<td>12</td>
</tr>
<tr>
<td>R</td>
<td>16</td>
<td>20.5</td>
</tr>
<tr>
<td>S</td>
<td>10</td>
<td>13.5</td>
</tr>
<tr>
<td>T</td>
<td>8.7</td>
<td>11.5</td>
</tr>
<tr>
<td>U</td>
<td>G1/8</td>
<td>G1/4</td>
</tr>
<tr>
<td>V</td>
<td>2.5 ~ 3.5</td>
<td>3.5 ~ 4.5</td>
</tr>
<tr>
<td>W</td>
<td>2.5 ~ 5</td>
<td>3.5 ~ 7</td>
</tr>
</tbody>
</table>

### Notes

1. Since the [area] is the sealing part, be careful not to damage it.
2. Since the [area] is the metal sealing part of BZL, be careful not to damage it. (Especially when deburring)
3. Note that cutting chips or burr should be at the tolerance part of machining hole.
4. As shown in the drawing, P1 port is used as the hydraulic supply side and P2 port as the clamp side.

### Notes

1. Please read "Notes on Hydraulic Cylinder Speed Control Unit" for proper hydraulic circuit design.
2. Improper circuit design may lead to malfunctions and damages. (Refer to P.1356)
3. It is dangerous to release the air under high pressure. It must be done under lower pressure.
   (For reference: the minimum operating range of the product within the circuit.)
4. When the cylinder capacity is small, the speed of flow may not be controlled properly. (Recommended Cylinder Capacity: 3cm³ or more)
Cautions

Installation Notes (For Hydraulic Series)

1) Check the Usable Fluid
   - Please use the appropriate fluid by referring to the Hydraulic Fluid List.

2) Procedure before Piping
   - The pipeline, piping connector and fixture circuits should be cleaned
     by thorough flushing.
   - The dust and cutting chips in the circuit may lead to fluid leakage
     and malfunction.
   - There is no filter provided with Kosmek’s product except for a part
     of valves which prevents foreign materials and contaminants from
     getting into the circuit.

3) Applying Sealing Tape
   - Wrap with tape 1 to 2 times following the screw direction.
   - Pieces of the sealing tape can lead to oil leakage and malfunction.
   - Please implement piping construction in a clear environment to
     prevent anything getting in products.

4) Air Bleeding of the Hydraulic Circuit
   - If the hydraulic circuit has excessive air, the action time may become
     very long. If air enters the circuit after connecting the hydraulic port
     or under the condition of no air in the oil tank, please perform
     the following steps.

   ① Reduce hydraulic pressure to less than 2MPa.
   ② Loosen the cap nut of pipe fitting closest to the clamp by one full turn.
   ③ Shake the pipeline to loosen the outlet of pipe fitting.
     Hydraulic fluid mixed with air comes out.

   ④ Tighten the cap nut after bleeding.
   ⑤ It is more effective to release air at the highest point inside
     the circuit or at the end of the circuit.
     (Set an air bleeding valve at the highest point inside the circuit.)

Hydraulic Fluid List

<table>
<thead>
<tr>
<th>Maker</th>
<th>Anti-Wear Hydraulic Oil</th>
<th>Multi-Purpose Hydraulic Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showa Shell Sekiyu</td>
<td>Tellus S2 M 32</td>
<td>Morina S2 B 32</td>
</tr>
<tr>
<td>Idemitsu Kosan</td>
<td>Daphne Hydraulic Fluid 32</td>
<td>Daphne Super Multi Oil 32</td>
</tr>
<tr>
<td>JX Nippon Oil &amp; Energy</td>
<td>Super Hyrando 32</td>
<td>Super Mulpus DX 32</td>
</tr>
<tr>
<td>Cosmo Oil</td>
<td>Cosmo Hydro AWS32</td>
<td>Cosmo New Mighty Super 32</td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>Mobil DYE 24</td>
<td>Mobil DYE 24 Light</td>
</tr>
<tr>
<td>Matsumura Oil</td>
<td>Hydrol AW-32</td>
<td></td>
</tr>
<tr>
<td>Castrol</td>
<td>Hyspin AWS 32</td>
<td></td>
</tr>
</tbody>
</table>

Note: Please contact manufacturers when customers require products in the list above.
Notes on Hydraulic Cylinder Speed Control Unit

Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

Flow Control Circuit for Single Acting Cylinder
For spring return single acting cylinders, restricting flow during release can extremely slow down or disrupt release action. The preferred method is to control the flow during the lock action using a valve that has free-flow in the release direction. It is also preferred to provide a flow control valve at each actuator.

Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)

Flow Control at the Release Side

Flow Control Circuit for Double Acting Cylinder
Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system. However, in the case of controlling LKE, TMA, TLA, both lock side and release side should be meter-in circuit.

Refer to P.75 for speed adjustment of LKE.
For TMA and TLA, if meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.

[Meter-out Circuit] (Except LKE/TMA/TLA)

[Meter-in Circuit] (LKE/TMA/TLA must be controlled with meter-in.)

In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

1. Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.

Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

- Separate the control circuit.

- Reduce the influence of double acting cylinder control unit. However, due to the back pressure in tank line, single action cylinder is activated after double action cylinder works.

In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve or pressure switches for clamping detection, if the back pressure is more than the set pressure then the system will not work as it is designed to.
Cautions

1) It should be operated by qualified personnel.
2) Do not operate or remove the product unless the safety protocols are ensured.
3) Do not touch a clamp (cylinder) while it is working. Otherwise, your hands may be injured due to clinching.
4) Do not disassemble or modify. If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

Maintenance and Inspection
1) Removal of the Machine and Shut-off of Pressure Source
2) Regularly clean the area around the piston rod and plunger.
3) Please clean out the reference surfaces on a regular basis (taper reference surface and seating surface) of the locating products. (VS/VT/VFL/VFM/VFF/VFK/WWS/VMZ/VX/VXE/VXF)
4) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.
5) Regularly tighten nut, bolt, pin, cylinder, pipe line and others to ensure proper use.
6) Make sure the hydraulic fluid has not deteriorated.
7) Make sure there is a smooth action without an irregular noise. Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.
8) The products should be stored in the cool and dark place without direct sunshine or moisture.
9) Please contact us for overhaul and repair.
Warranty

1) Warranty Period
- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope
- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense. Defects or failures caused by the following are not covered.
  ① If the stipulated maintenance and inspection are not carried out.
  ② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
  ③ If it is used or operated in an inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
  ④ If the defect is caused by reasons other than our responsibility.
  ⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
  ⑥ Other caused by natural disasters or calamities not attributable to our company.
  ⑦ Parts or replacement expenses due to parts consumption and deterioration.
    (Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.
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