**Pressure Relief Valve – Sandwich Plate Design**  
**Models ZDBK 6 and Z 2 DBK 6, Series 1X**

<table>
<thead>
<tr>
<th>Size 6 (D 03)</th>
<th>... 3000 PSI (210 bar)</th>
<th>... 10.6 GPM (40 L/min)</th>
</tr>
</thead>
</table>

**Features:**
- Mounting pattern to ISO 4401-3, NFPA T3.5.1 MR1 and ANSI B 93.7 D 03
- Sandwich plate design
- 3 pressure ranges
- Adjustment type: Screw adjustment with locknut and protective cap
- Available with 5 different pressure control configuration
- With one or two pressure relief valve cartridges

**Functional description**

Models ZDBK and Z 2 DBK are pilot operated sandwich type pressure relief valves. They limit maximum pressure in a hydraulic system. They consist of housing (7), and one or two pressure relief cartridges.

System pressure is set by adjustment element (4).

Pressure relief valves are normally closed. Pressure at port A acts upon spool (1). Simultaneously pressure passes through orifice (2) to the spring loaded side of spool (1) and via orifice (3), on to pilot valve poppet (6).

If the pressure at port A exceeds the value set on spring (5), pilot poppet (6) opens. Fluid flows from the spring-loaded side of spool (1), orifice (3) and channel (8) into port T. The pressure drop created opens spool (1), which permits flow from A to T, while the set pressure at spring (5) is maintained.

Pilot oil is returned externally via passage (8) to port T.

**Technical data**  
(For application outside these parameters, please consult us!)

- **Hydraulic fluid**  
  Petroleum oils (HL, HLP); phosphate ester fluids (HFD-R)
- **Fluid temperature range**  
  °F (°C)  
  – 4 to 176 (–20 to 80)
- **Viscosity range**  
  SUS (mm²/s)  
  60 to 3720 (10 to 800)
- **Fluid cleanliness**  
  Maximum permissible degree of contamination of the fluid to ISO 4406, Class 18/15. We therefore recommend a filter with a minimum retention rate of \( \beta_{10} \geq 75 \).
- **Nominal pressure**  
  PSI (bar)  
  3050 (210)
- **Adjustment pressure**  
  PSI (bar)  
  up to 725, 1450, 3050 (up to 50, 100, 210)
- **Flow**  
  GPM (L/min)  
  10.5 (40)
- **Weight**  
  Model ZDBK 6… lbs (kg)  
  1.3 (0.6)
  Model Z 2 DBK 6 VC… lbs (kg)  
  1.8 (0.8)
  Model Z 2 DBK 6 VD… lbs (kg)  
  3.1 (1.4)
### Ordering code, symbols

(Port codes: 1= valve side, 2= manifold side)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pressure relief</th>
<th>Setting pressure in PSI (bar)</th>
<th>Adjustment type</th>
<th>Part no.</th>
<th>Model designation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Diagram" /></td>
<td>A → T</td>
<td>725 (50)</td>
<td>RR00 564557</td>
<td>ZDBK6VA2-1X/50V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1450 (100)</td>
<td>RR00 501402</td>
<td>ZDBK6VA2-1X/100V</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>3000 (210)</td>
<td>RR00 564558</td>
<td>ZDBK6VA2-1X/210V</td>
<td></td>
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<tr>
<td><img src="#" alt="Diagram" /></td>
<td>B → T</td>
<td>725 (50)</td>
<td>RR00 564559</td>
<td>ZDBK6VB2-1X/50V</td>
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<tr>
<td></td>
<td></td>
<td>1450 (100)</td>
<td>RR00 564560</td>
<td>ZDBK6VB2-1X/100V</td>
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<td></td>
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<td>3000 (210)</td>
<td>RR00 564561</td>
<td>ZDBK6VB2-1X/210V</td>
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<tr>
<td><img src="#" alt="Diagram" /></td>
<td>P → T</td>
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<td>ZDBK6VP2-1X/50V</td>
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<td></td>
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<td>1450 (100)</td>
<td>RR00 564563</td>
<td>ZDBK6VP2-1X/100V</td>
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<td>3000 (210)</td>
<td>RR00 564564</td>
<td>ZDBK6VP2-1X/210V</td>
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<tr>
<td><img src="#" alt="Diagram" /></td>
<td>A → T and B → T</td>
<td>725 (50)</td>
<td>RR00 565005</td>
<td>Z2DBK6VC2-1X/50V</td>
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<td>1450 (100)</td>
<td>RR00 565006</td>
<td>Z2DBK6VC2-1X/100V</td>
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<tr>
<td></td>
<td></td>
<td>3000 (210)</td>
<td>RR00 565007</td>
<td>Z2DBK6VC2-1X/210V</td>
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<tr>
<td><img src="#" alt="Diagram" /></td>
<td>A B and B → A</td>
<td>725 (50)</td>
<td>RR00 564568</td>
<td>Z2DBK6VD2-1X/50V</td>
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<td>1450 (100)</td>
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<td></td>
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<td>3000 (210)</td>
<td>RR00 564570</td>
<td>Z2DBK6VD2-1X/210V</td>
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</tbody>
</table>

### Operating Curves, measured at $v = 190$ SUS (41 mm$^2$/s) and $t = 122^\circ$F (50 °C)

![Graph](#)

Pressure setting vs. flow

![Graph](#)

Pressure drop vs. flow

The operating curve slopes are valid for pressure values within the defined spring range.

1 VA, VB, VC
2 VD (A to B)
3 VP
4 VD (B to A)
Unit dimensions: dimensions in inches (millimeters)

ZDBK 6 VA and ZDBK 6 VP

<table>
<thead>
<tr>
<th></th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDBK 6 VA</td>
<td>3.46 (88)</td>
<td>5.83 (148)</td>
<td>2.933 (74.5)</td>
</tr>
<tr>
<td>ZDBK 6 VP</td>
<td>3.94 (100)</td>
<td>6.30 (160)</td>
<td>3.906 (96.5)</td>
</tr>
</tbody>
</table>

ZDBK 6 VB

1. Nameplate
2. Adjustment option (screw adjustment with protective cap)
3. Through holes for valve mounting
4. Locknut 24 mm A/F
5. Nut adjustment 10 mm A/F
6. R-rings 9.81 x 1.5 x 1.78 for ports A2, B2, P2, T2
7. Hole for locating pin, dia. 0.12 in (3 mm)

Valve mounting bolts
10-24 UNC (M5) diameter tightening torque 6.5 ft-lbs (8.9 Nm) must be ordered separately.

Required surface finish of interface when mounting the valve without our subplate
A/F = wrench size across flats
Unit dimensions: dimensions in inches (millimeters)

Z2DBK 6 VC

1. Nameplate
2. Adjustment option (screw adjustment with protective cap)
3. Through holes for valve mounting
4. Locknut 24 mm A/F
5. Nut adjustment 10 mm A/F

Z2DBK 6 VD

6. R-rings 9.81 x 1.5 x 1.78 for ports A2, B2, P2, T2
7. Hole for locating pin, dia. 0.12 in (3 mm)

Valve mounting bolts
10-24 UNC (M5) diameter tightening torque 6.5 ft-lbs (8.9 Nm) must be ordered separately.

A/F = wrench size across flats

Required surface finish of interface when mounting the valve without our subplate