**CV10-28 Check Valve with Thermal Relief**

**DESCRIPTION**
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device. The cartridge incorporates a low flow thermal relief valve intended to prevent cylinder damage resulting from temperature-induced pressure intensification.

**OPERATION**
The CV10-28 allows flow from ➀ to ➁, while blocking oil flow in the opposite direction. If the pressure at ➁ exceeds the thermal relief valve setting, a small amount of oil will be allowed to pass from ➁ to ➀, preventing cylinder damage from pressure intensification.

**NOTE:** The relief valve feature is not intended for use in dynamic pressure limiting applications. Consult factory.

**FEATURES**
- Hardened seats for long life and low leakage.
- Industry common cavity.

**RATINGS**

**Formula for Thermal Expansion:** \[ \Delta P = 57.7 \times \Delta T \] (where \( \Delta P \) is in psi; \( \Delta T \) is in °F)

**Operating Pressure:** 241 bar (3500 psi)
**Proof Pressure:** 390 bar (5700 psi)

**Thermal Relief Settings:**
- 05 34.5 – 48.3 bar (500 – 700 psi)
- 10 69.0 – 93.1 bar (1000 – 1350 psi)
- 20 137.9 – 172.4 bar (2000 – 2500 psi)
- 25 172.4 – 217.2 bar (2500 – 3150 psi)
- 30 206.9 – 262.1 bar (3000 – 3800 psi)
- 40 275.9 – 344.8 bar (4000 – 5000 psi)
- 45 310.3 – 386.2 bar (4500 – 5600 psi)

**Flow:** See Performance Chart

**Internal Leakage:** 0.25 cc/minute (5 drops/minute) max. at 240 bar (3500 psi)

**Standard Check Bias Spring at Crack:** 4.5 bar (65 psi)

**Check ➀ to ➁ Crack Pressure Defined:** Gauge bar (psi) evident at ➀ at 16.4 cc/minute (1 cu. in./minute) attained at ➁

**Temperature:** -40 to 120°C

**Filtration:** See page 9.010.1

**Fluids:** Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu); See Temperature and Oil Viscosity, page 9.060.1

**Installation:** No restrictions; See page 9.020.1

**Cavity:** VC10-2; See page 9.110.1

**Cavity Tool:** CT10-2XX; See page 8.600.1

**Seal Kit:** SK10-2X-T; See page 8.650.1
**MATERIALS**

**Cartridge:** Weight: 0.08 kg. (0.18 lbs.) Steel with hardened work surfaces. Zinc-plated exposed surfaces. Buna N O-rings and polyester elastomer back-ups standard.

**Standard Ported Body:** Weight: 0.16 kg. (0.35 lbs.) Anodized high-strength 6061 T6 aluminum alloy, rated to 207 bar (3000 psi). Ductile iron bodies available; dimensions may differ. See page 8.010.1.

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**DIMENSIONS**

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**TO ORDER**

**CV10-28 -**

<table>
<thead>
<tr>
<th>Porting</th>
<th>Thermal Relief Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge Only 0</td>
<td>05 34.5 – 48.3 bar (500 – 700 psi)</td>
</tr>
<tr>
<td>SAE 6 6T</td>
<td>10 69.0 – 93.1 bar (1000 – 1350 psi)</td>
</tr>
<tr>
<td>SAE 8 8T</td>
<td>20 137.9 – 172.4 bar (2000 – 2500 psi)</td>
</tr>
<tr>
<td>1/4 in. BSP* 2B</td>
<td>25 172.4 – 217.2 bar (2500 – 3150 psi)</td>
</tr>
<tr>
<td>3/8 in. BSP* 3B</td>
<td>30 206.9 – 262.1 bar (3000 – 3800 psi)</td>
</tr>
<tr>
<td>1/2 in. BSP* 4B</td>
<td>40 275.9 – 344.8 bar (4000 – 5000 psi)</td>
</tr>
<tr>
<td>*BSP Body</td>
<td>45 310.3 – 386.2 bar (4500 – 5600 psi)</td>
</tr>
</tbody>
</table>
| U.K. Mfr. Only | **Non-standard check bias spring settings and thermal relief settings available for OEM applications. Consult factory.**

**Seals**

- Buna N (Std.)
- Fluorocarbon

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**Check Bias Spring Setting**

- 65 4.5 bar (65 psi) Std.**