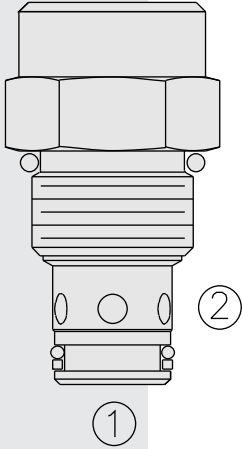


# DIRECTIONAL VALVES

## 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 ① to ②, while blocking oil flow in the opposite direction. If the pressure at ② exceeds the thermal relief valve setting, a small amount of oil will be allowed to pass from ② to ①, 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 ① to ② Crack Pressure Defined:** Gauge bar (psi) evident at ① at 16.4 cc/minute (1 cu. in./minute) attained at ②

**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 sus); See Temperature and Oil Viscosity, page 9.060.1

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

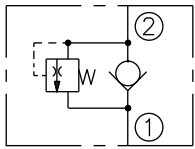
**Cavity:** VC10-2; See page 9.110.1

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

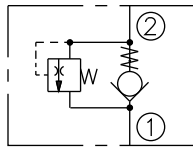
**Seal Kit:** SK10-2X-T; See page 8.650.1

### SYMBOLS

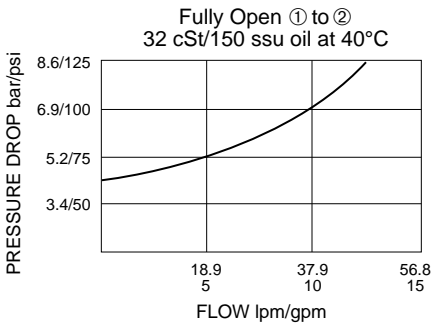
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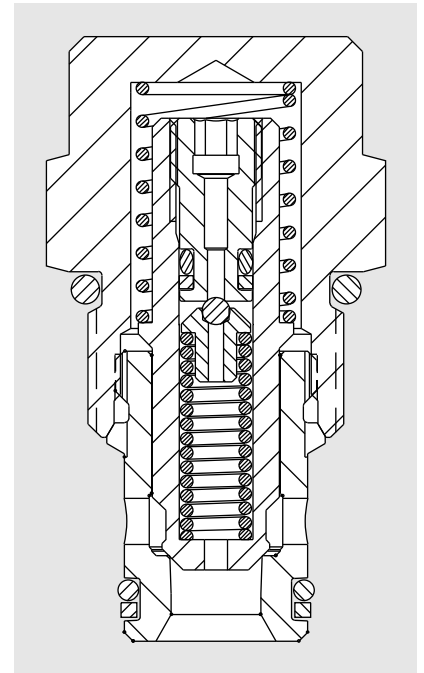
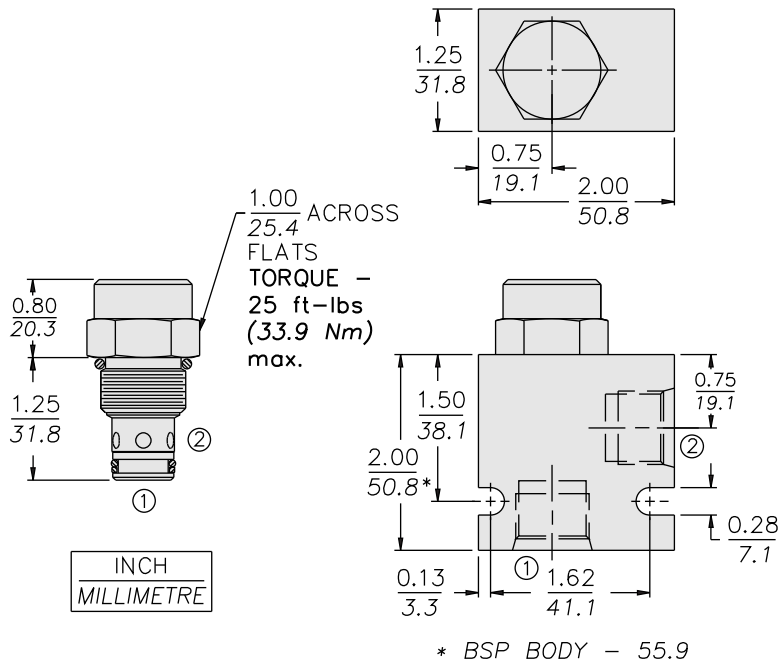
**ISO:**



### PERFORMANCE (Cartridge Only)



## DIMENSIONS



## 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.

## TO ORDER

CV10-28 -

**Porting**  
Cartridge Only **0**  
SAE 6 **6T**  
SAE 8 **8T**  
1/4 in. BSP\* **2B**  
3/8 in. BSP\* **3B**  
1/2 in. BSP\* **4B**

\*BSP Body  
U.K. Mfr. Only

**Seals**  
Buna N (Std.) **N**  
Fluorocarbon **V**

**Thermal Relief Setting**

**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)

**Check Bias Spring Setting**  
**65** 4.5 bar (65 psi) Std.\*\*

\*\*Non-standard check bias spring settings and thermal relief settings available for OEM applications. Consult factory.