PRESSURE CONTROLS

**HRVD08-20 Relief, Poppet-Type, High Pressure**

**DESCRIPTION**
A screw-in, cartridge-style, direct-acting, poppet-type, hydraulic relief valve with dampening intended for use as a pressure limiting device for common hydraulic circuit protection. This valve can be used in bi-directional/cross-over relief applications.

**OPERATION**
The HRVD08-20 blocks flow from 1 to 2 until sufficient pressure is present at 1 to force the poppet from its seat. The cartridge offers fast response to load changes in typical hydraulic circuits requiring low hysteresis, low pressure rise and low internal leakage. A built-in dashpot helps stabilize the valve and minimize poppet noise.

**FEATURES**
- Height of the adjuster does not change when the pressure setting is adjusted.
- All adjustment options have positive stops that prevent springs from going solid.
- Dashpot quiets poppet movement.
- Variety of spring ranges to 420 bar (6100 psi).
- Variety of adjustment options.
- Rapid response to pressure surges.
- Low leakage.
- Stable performance.
- Flat pressure rise.

**RATINGS**
- **Pressure Rating**: 420.6 bar (6100 psi) at Port 1; Cross-over/bi-directional relief pressure: 241.3 bar (3500 psi) at Port 2.
- **Proof Pressure**: 785.4 bar (11000 psi)
- **Burst Pressure**: 1516 bar (22000 psi)
- **Flow Rating**: Port 1 to 2: 52.9 lpm (14 gpm) at max pressure
  - The Performance Chart illustrates flow handling capacity at maximum setting for each spring range option. Pressure rise will vary with spring (range) and with setting within range due to flow forces. Consult factory for specific flow characteristic values.
- **Crack (Set) Pressure Defined**: bar (psi) evident at 0.95 lpm (0.25 gpm)
- **Reseat Pressure**: Nominal 85% of crack pressure; leakage to 1 ml/min (20 drops/min)
- **Maximum Internal Leakage**: .25 ml/minute (5 drops/minute) max. to 75% of nominal setting
- **Operating Temperature**: -40 to 100°C (-40 to 212°F) with standard Buna N seals; -26 to 204°C (-15 to 400°F) with fluorocarbon seals; -54 to 107°C (-65 to 225°F) with polyurethane or urethane seals
- **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**: Urethane seals are required for bi-directional/cross-over relief applications. For general installation instructions; see page 9.020.1
- **Cavity**: VC08-2 Variation A or HVC08-2 Variation A; See page 9.108.1
- **Cavity Tool**: CT08-2XX. If used with HVC08-2, use cavity tool HCT08-2XX; See page 8.600.1
- **Seal Kit**: SK08-2X-B (X = N, V, HV, P); SK08-2U-O (Urethane seals required for bi-directional and cross-over relief applications); See page 8.650.1

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**Differential Relief Pressure vs. Flow**

### Differential Pressure bar/psi
- Spring Option 61
- Spring Option 58
- Spring Option 40
- Spring Option 30
- Spring Option 20
- Spring Option 14
- Spring Option 07

### Flow Rate lpm/gpm
- 35/500
- 49/650
- 414/6000
- 417/6000
- 418/6000
- 419/6000
- 420/6000

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**Differential Internal Leakage**

### Internal Leakage
- 0.75 ml/minute (15 drops/minute) max. to 75% of nominal setting

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**Operating Temperature**

### Temperature
- -40 to 100°C (-40 to 212°F) with standard Buna N seals; -26 to 204°C (-15 to 400°F) with fluorocarbon seals; -54 to 107°C (-65 to 225°F) with polyurethane or urethane seals

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**Filtration**

### Filtration
- See page 9.010.1

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**Fluids**

### 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
**Bi-Directional and Cross-over Relief**

**HRVD08-20**

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Option A</th>
<th>Option B</th>
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<tbody>
<tr>
<td>Knob Dia.</td>
<td>1.50</td>
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<tbody>
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<td>79.7 FLATS</td>
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<tr>
<td>1.00 ACROSS</td>
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<tr>
<td>25.7 FLATS</td>
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<tr>
<td>TORQUE:</td>
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<tr>
<td>33 – 37 f-lbs</td>
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<td>44.7 – 50.2 Nm</td>
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**Seals**

- Bi-Directional and Cross-over Relief

For crossover relief applications 241.3 bar (3500 psi) maximum

**MATERIALS**

**Cartridge:** Weight: Depending on adjustment option, cartridge weight varies from 0.19 to 0.22 kg. (0.41 to 0.48 lbs.) Steel with hardened work surfaces. Zinc-plated exposed surfaces. Anodized aluminum knobs.

**Standard Ported Body:** Weight: 0.63 kg. (1.38 lbs.) ductile iron. For pressures over 206 bar (3,000 psi), use H-series ductile iron body cavity; dimensions and weight will differ. See page 8.008.1.

**TO ORDER**

| HRVD08-20 | - | - | - |

**Adjustment Option**

1/4 in. Hex Allen Head

1-1/2 in. Dia. Alum. Knob

Option A w/ Cover Cap

Factory Preset Non-Adj.

Factory Preset Hidden Adjustment

Option C w/Lockwire Holes

**Seals**

Pressure on Port 1 Only:

- N Buna N (Std.)
- V Fluorocarbon
- HV 90 Durometer Fluorocarbon
- P Polyurethane
- U Urethane

**Bi-directional Pressure:**

- * Urethane

*Urethane seals should be used in bi-directional and cross-over relief applications.

**Spring Range**

- Setting in bar¹

| 07 | 13.8 to 48.3 bar (200 to 700 psi) |
| 14 | 48.3 to 96.5 bar (700 to 1400 psi) |
| 20 | 96.5 to 137.9 bar (1400 to 2000 psi) |
| 30 | 137.9 to 206.8 bar (2000 to 3000 psi) |
| 40 | 206.8 to 275.8 bar (3000 to 4000 psi) |
| 50 | 275.8 to 344.7 bar (4000 to 5000 psi) |
| 61 | 344.7 to 420.5 bar (5000 to 6100 psi) |

¹Adjustable valves will be preset to approx. 50% of spring max.

**Due to manufacturing tolerances, it may be possible to adjust the valve either lower or higher than the nominal ratings shown below. If the valve is adjusted beyond the recommended maximum pressure range for any style adjuster option, the valve may not open to relieve system pressure.**

**ORIFICE DISCS SHOULD NOT BE USED WITH THIS VALVE.**

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