Overview

Description
RV10-22X is a screw in, cartridge style, direct acting, differential area, poppet type hydraulic relief valve intended for use as a pressure limiting device in more demanding hydraulic circuits requiring low hysteresis and low internal leakage.

Operation
The RV10-22X blocks flow from port 2 to port 1 until sufficient pressure is present at port 2 to force the poppet from its seat. The cartridge offers smooth transition in response to loads in common hydraulic circuits.

Features
- Adjustments cannot be backed out of the valve.
- Adjustments options A, B, and C: positive stops prevent springs from going solid.
- Hardened poppet and cage for long life.
- Optional spring ranges to 241 bar (3500 psi).
- Rapid response to pressure surges.
- Industry-common size.

Ratings

Pressure Ratings
- Pressure rating: 241.3 bar (3500 psi)
- Proof pressure: 482.6 bar (7000 psi)
- Burst pressure: 965.3 bar (14000 psi)
- Relief pressure defined: Pressure evident at 0.95 lpm (0.25 gpm)

Flow Ratings
- Flow rating: 113.6 lpm (30 gpm)
- Maximum internal leakage: 5 drops/min - Note: To 85% of nominal setting

Temperature Ratings
- Maximum operating fluid temperature: -40 to 100 °C (-40 to 212 °F) - Note: With buna N seals
- -26 to 204 °C (-15 to 400 °F) - Note: With fluorocarbon seals
RELIEF VALVE CARTRIDGE DIRECT ACTING POPPET

-54 to 107 °C (-65 to 225 °F) - Note: With polyurethane seals

Storage temperature -40 to 70 °C (-40 to 160 °F)
Ambient temperature -40 to 70 °C (-40 to 160 °F)

Other Ratings
Corrosion protection Grv10-22x 960 hr salt spray per ASTM b117

Operating Parameters

Fluids
Mineral based or synthetic hydraulic fluid with lubricating properties

Fluid viscosity range
7.4 to 420 cSt

Maximum operating contamination level
18/16/13 per ISO 4406

Properties

Cartridge weight
0.23 kg (0.51 lb) - Note: RV10-22A
0.25 kg (0.56 lb) - Note: RV10-22B
0.28 kg (0.61 lb) - Note: RV10-22C RV10-22L
0.22 kg (0.49 lb) - Note: RV10-22F RV10-22H

Internal wetted surface area
114 cm²; (17.7 in²) Note: A b c l
126 cm²; (19.5 in²) Note: F h

Performance
Flow Characteristic
32 cSt/150 sus oil at 40C

Dimensions
**Materials**

**Cartridge:** Weight: 0.23 kg. (0.50 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces; Buna N O-rings and polyester elastomer back-up standard. Optional polyurethane seals with Fluorocarbon back-ups recommended for pressures over 207 bar (3000 psi). Anodized aluminum knobs.

**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. Note: For higher flow applications, bodies with SAE 10 and SAE 12 ports are available.

**Adjustment Option Details:** See [adjustment options](#).

**Installation Specifications**

<table>
<thead>
<tr>
<th>Cavity</th>
<th>VC10-2</th>
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<tr>
<td>Cartridge installation torque</td>
<td>33.9 to 36.7 N-m (25 to 27 ft-lb)</td>
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</tbody>
</table>
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66.7 N-m (50 ft-lb) - **Note:** Maximum allowable

Adjuster cap torque 32.5 to 35.3 N-m (24 to 26 ft-lb) - **Note:** H-style plug

Orientation restriction None

### Accessories

**Seal kit**
- SK10-2X-T - **Note:** X = n, v, P
- SK10-2X-M - **Note:** X = n, v, P
- SK10-2X-O - **Note:** X = U

**Housings**

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<th>ORDER CODE</th>
<th>DESCRIPTION</th>
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<tr>
<td>RV10-22F-H-J-R/S</td>
<td>Adjustment Option</td>
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<tr>
<td>F</td>
<td>1/4&quot; Hex Allen Head</td>
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<tr>
<td>F</td>
<td>1-1/2&quot; Diameter Aluminum Knob with Aluminum Lock Knob</td>
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<tr>
<td>F</td>
<td>1/4&quot; Hex Allen Head with Cover Cap</td>
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<tr>
<td>F</td>
<td>Factory Preset Non-Adjustable</td>
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<tr>
<td>F</td>
<td>Factory Preset Hidden Adjustment</td>
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<tr>
<td>F</td>
<td>1/4&quot; Hex Allen Head with Cover Cap and Lockwire Holes</td>
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<tr>
<td>H</td>
<td>Line Body</td>
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<td>H</td>
<td>No Body</td>
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<tr>
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<td>Aluminum SAE 6</td>
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<td>H</td>
<td>Aluminum SAE 8</td>
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<td>Ductile Iron SAE 8</td>
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<td>Aluminum BSPP 1/4&quot; (2)</td>
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<td>Aluminum BSPP 3/8&quot; (3)</td>
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<td>Aluminum BSPP 1/2&quot; (4)</td>
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<tr>
<td>J</td>
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<td>Buna-N</td>
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<td>J</td>
<td>Buna-N for Crossover Applications</td>
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<tr>
<td>J</td>
<td>Fluorocarbon</td>
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<td>Fluorocarbon for Crossover Applications</td>
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<tr>
<td>J</td>
<td>Polyurethane</td>
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</table>
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| J | PC | Polyurethane for Crossover Applications |
| J | U  | PPDI Urethane                              |
| R |     | Spring                                      |
| R | 06  | 6.9 to 41.5 bar (100 to 600 psi) Spring Range |
| R | 13  | 10.3 to 89.6 bar (150 to 1300 psi) Spring Range |
| R | 25  | 17.2 to 172.4 bar (250 to 2500 psi) Spring Range |
| R | 35  | 20.7 to 241.3 bar (300 to 3500 psi) Spring Range |
| S |     | Setting                                     |
| S | MXXX| Spring Setting in XXX bar                   |
| S | XX  | Spring Setting in XX psi (x 100)            |

**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 Adj.
- Option C w/ Lockwire Holes

**Seals**
- Pressure on P Only:
  - 6T: Buna N (Std.)
  - 8T: Fluorocarbon
  - 2B: Polyurethane
  - 3B: Bidirectional
  - 4B: Pressure

**Porting**
- Cartridge Only
- SAE 6
- SAE 8
- 1/4 in. BSP*: 2B
- 3/8 in. BSP*: 3B
- 1/2 in. BSP*: 4B

*BSP Body; U.K. Mfr. Only

**Setting in bar**
- (Blank) for Adjustable, or Specify, for example:
  - M25: 25 bar
  - M100: 100 bar

**Setting in psi**
- (Blank) for Adjustable, or Specify, for example:
  - 9.0: 900 psi
  - 23.5: 2350 psi

**Spring Range**
- 6: 6.9 to 41.4 bar (100 to 600 psi)
- 13: 10.3 to 89.6 bar (150 to 1300 psi)
- 25: 17.2 to 172.4 bar (250 to 2500 psi)
- 35: 20.7 to 241.3 bar (300 to 3500 psi)

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