Screw-in valve

Operating pressure $p_{\text{max}}$: 700 bar
Flow rate $Q_{\text{max}}$: 200 lpm
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Overview releasable check valve type RHC and RHCE

Check valves with hydraulic release are a type of check valve. They block one or both hydraulic consumer lines or are used as a hydraulically actuated drain or circulation valve.

Features and benefits:
- Screw-in valve
- Pressures up to 700 bar
- Flows up to 200 lpm
- Sturdy

Intended applications:
- Industrial hydraulics
- Construction machines
Available versions, main data

2.1 Releasable check valve type RHC

Circuit symbol:

Order coding example:

RHC 4 V

Basic type and size   Table 1 Basic type and size
### Table 1 Basic type and size

#### Standard version

<table>
<thead>
<tr>
<th>Basic type and size</th>
<th>Flow rate $Q_{\text{max}}$ (lpm)</th>
<th>Pressure $p_{\text{max}}$ (bar)</th>
<th>real pilot ratio $\psi$</th>
<th>Control oil volume (cm$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>with port A, B, Z</td>
<td>Main valve</td>
<td>Hydraulic release</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RHC 1</td>
<td>15</td>
<td>700</td>
<td>2.6:1</td>
<td>0.1</td>
</tr>
<tr>
<td>RHC 2</td>
<td>35</td>
<td>700</td>
<td>2.5:1</td>
<td>0.2</td>
</tr>
<tr>
<td>RHC 3</td>
<td>55</td>
<td>700</td>
<td>2.5:1</td>
<td>0.4</td>
</tr>
<tr>
<td>RHC 4</td>
<td>100</td>
<td>500</td>
<td>2.8:1</td>
<td>0.8</td>
</tr>
<tr>
<td>RHC 5</td>
<td>150</td>
<td>500</td>
<td>2.8:1</td>
<td>1.5</td>
</tr>
<tr>
<td>RHC 6</td>
<td>200</td>
<td>500</td>
<td>2.5:1</td>
<td>2.65</td>
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</table>

**without hydraulic release, nominal pilot ratio 2.5:1**

<table>
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<tr>
<th>Basic type and size</th>
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<th>Pressure $p_{\text{max}}$ (bar)</th>
<th>real pilot ratio $\psi$</th>
<th>Control oil volume (cm$^3$)</th>
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</thead>
<tbody>
<tr>
<td>RHC 1/0</td>
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<td>700</td>
<td>4.2:1</td>
<td>0.1</td>
</tr>
<tr>
<td>RHC 2/1</td>
<td>15</td>
<td>700</td>
<td>4.3:1</td>
<td>0.2</td>
</tr>
<tr>
<td>RHC 3/2</td>
<td>35</td>
<td>700</td>
<td>4.5:1</td>
<td>0.4</td>
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<tr>
<td>RHC 4/3</td>
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<td>500</td>
<td>4.3:1</td>
<td>0.8</td>
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<tr>
<td>RHC 5/4</td>
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<td></td>
<td>1.5</td>
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</table>

**with hydraulic release, nominal pilot ratio 2.5:1**

<table>
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<tr>
<th>Basic type and size</th>
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<th>Pressure $p_{\text{max}}$ (bar)</th>
<th>real pilot ratio $\psi$</th>
<th>Control oil volume (cm$^3$)</th>
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</thead>
<tbody>
<tr>
<td>RHC 1 V</td>
<td>15</td>
<td>700</td>
<td>2.6:1</td>
<td>10:1</td>
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<tr>
<td>RHC 3 V</td>
<td>55</td>
<td>700</td>
<td>2.5:1</td>
<td>12:1</td>
</tr>
<tr>
<td>RHC 4 V</td>
<td>100</td>
<td>500</td>
<td>2.5:1</td>
<td>19:1</td>
</tr>
<tr>
<td>RHC 5 V</td>
<td>150</td>
<td>500</td>
<td>2.8:1</td>
<td>12.9:1</td>
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<tr>
<td>RHC 6 V</td>
<td>200</td>
<td>500</td>
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<td>12.9:1</td>
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**with hydraulic release, nominal pilot ratio 4.5:1**

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<tr>
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<th>real pilot ratio $\psi$</th>
<th>Control oil volume (cm$^3$)</th>
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</thead>
<tbody>
<tr>
<td>RHC 4/3 V</td>
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<td>4.3:1</td>
<td>26:1</td>
</tr>
<tr>
<td>RHC 5/4 V</td>
<td>100</td>
<td>500</td>
<td>4.3:1</td>
<td>21:1</td>
</tr>
</tbody>
</table>
Version with thread and control piston sealing
(can be exchanged with standard version)

<table>
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<tr>
<th>Basic type and size</th>
<th>Flow rate $Q_{\text{max}}$ (lpm)</th>
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<tbody>
<tr>
<td></td>
<td>with port A, B, Z</td>
<td>Main valve</td>
<td>Hydraulic release</td>
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</tbody>
</table>

**without hydraulic release, nominal pilot ratio 2.5:1**

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<tbody>
<tr>
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<td>0.2</td>
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<tr>
<td>RHC 31</td>
<td>55</td>
<td></td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>RHC 41</td>
<td>100</td>
<td>500</td>
<td>2.5:1</td>
<td>0.8</td>
</tr>
<tr>
<td>RHC 51</td>
<td>150</td>
<td></td>
<td>2.8:1</td>
<td>1.5</td>
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**without hydraulic release, nominal pilot ratio 4.5:1**

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<td>15</td>
<td></td>
<td>4.3:1</td>
<td>0.2</td>
</tr>
<tr>
<td>RHC 31/2</td>
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<td></td>
<td>4.5:1</td>
<td>0.4</td>
</tr>
<tr>
<td>RHC 41/3</td>
<td>55</td>
<td>500</td>
<td>4.3:1</td>
<td>0.8</td>
</tr>
<tr>
<td>RHC 51/4</td>
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<td>1.5</td>
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</table>

**with hydraulic release, nominal pilot ratio 2.5:1**

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<td>0.1</td>
</tr>
<tr>
<td>RHC 31 V</td>
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<td></td>
<td>2.5:1</td>
<td>0.4</td>
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<tr>
<td>RHC 41 V</td>
<td>100</td>
<td>500</td>
<td>2.8:1</td>
<td>0.8</td>
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<td>RHC 51 V</td>
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**with hydraulic release, nominal pilot ratio 4.5:1**

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<td>500</td>
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<tr>
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<td>100</td>
<td>500</td>
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Version with thread and control piston sealing
(easy mounting, different mounting hole arrangement compared with standard version)

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<td></td>
</tr>
<tr>
<td>RHC 13</td>
<td>15</td>
<td>700</td>
<td>2.6:1</td>
<td>0.1</td>
</tr>
<tr>
<td>RHC 23</td>
<td>35</td>
<td>700</td>
<td>2.5:1</td>
<td>0.2</td>
</tr>
<tr>
<td>RHC 33</td>
<td>55</td>
<td>700</td>
<td>2.5:1</td>
<td>0.4</td>
</tr>
<tr>
<td>RHC 43</td>
<td>100</td>
<td>500</td>
<td>2.8:1</td>
<td>0.8</td>
</tr>
<tr>
<td>RHC 53</td>
<td>150</td>
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without hydraulic release, nominal pilot ratio 2.5:1

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<tr>
<td>RHC 13/0</td>
<td>8</td>
<td>700</td>
<td>4.2:1</td>
<td>0.1</td>
</tr>
<tr>
<td>RHC 23/1</td>
<td>15</td>
<td>700</td>
<td>4.3:1</td>
<td>0.2</td>
</tr>
<tr>
<td>RHC 33/2</td>
<td>35</td>
<td>700</td>
<td>4.5:1</td>
<td>0.4</td>
</tr>
<tr>
<td>RHC 43/3</td>
<td>55</td>
<td>500</td>
<td>4.3:1</td>
<td>0.8</td>
</tr>
<tr>
<td>RHC 53/4</td>
<td>100</td>
<td>500</td>
<td>4.3:1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

without hydraulic release, nominal pilot ratio 4.5:1

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<tr>
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<th>Control oil volume (cm$^3$)</th>
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<td>Main valve</td>
<td>Hydraulic release</td>
<td></td>
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<td>RHC 13/0</td>
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<td>700</td>
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<td>15</td>
<td>700</td>
<td>4.3:1</td>
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<td>RHC 33/2</td>
<td>35</td>
<td>700</td>
<td>4.5:1</td>
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<tr>
<td>RHC 43/3</td>
<td>55</td>
<td>500</td>
<td>4.3:1</td>
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</tr>
<tr>
<td>RHC 53/4</td>
<td>100</td>
<td>500</td>
<td>4.3:1</td>
<td>1.5</td>
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with hydraulic release, nominal pilot ratio 2.5:1

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<td>with port A, B, Z</td>
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<td>Hydraulic release</td>
<td></td>
</tr>
<tr>
<td>RHC 13 V</td>
<td>15</td>
<td>700</td>
<td>2.6:1</td>
<td>10:1</td>
</tr>
<tr>
<td>RHC 33 V</td>
<td>55</td>
<td>700</td>
<td>2.5:1</td>
<td>12:1</td>
</tr>
<tr>
<td>RHC 43 V</td>
<td>100</td>
<td>500</td>
<td>2.8:1</td>
<td>19:1</td>
</tr>
<tr>
<td>RHC 53 V</td>
<td>150</td>
<td>500</td>
<td>2.8:1</td>
<td>19:1</td>
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</table>

with hydraulic release, nominal pilot ratio 4.5:1

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<td></td>
<td>with port A, B, Z</td>
<td>Main valve</td>
<td>Hydraulic release</td>
<td></td>
</tr>
<tr>
<td>RHC 43/3 V</td>
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<td>500</td>
<td>4.3:1</td>
<td>26:1</td>
</tr>
<tr>
<td>RHC 53/4 V</td>
<td>100</td>
<td>500</td>
<td>4.3:1</td>
<td>21:1</td>
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</tbody>
</table>
2.2 Releasable check valve type RHCE with control piston relief via additional drain port

Circuit symbol:

Order coding example:

**RHCE 33 V**

**Basic type and size**  Table 2 Basic type and size

### Table 2 Basic type and size

<table>
<thead>
<tr>
<th>Basic type and size</th>
<th>Flow rate ( Q_{\text{max}} ) (lpm)</th>
<th>Pressure ( p_{\text{max}} ) (bar)</th>
<th>real pilot ratio ( \psi )</th>
<th>Control oil volume (cm³)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A, B, Z</td>
<td>L</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th><strong>without hydraulic release, nominal pilot ratio 2.5:1</strong></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>RHCE 1 <strong>V</strong></td>
<td>15</td>
<td>700</td>
<td>2.6:1</td>
<td>0.1</td>
</tr>
<tr>
<td>RHCE 3 <strong>V</strong></td>
<td>55</td>
<td>700</td>
<td>-unpressurised to the tank</td>
<td>2.8:1</td>
</tr>
<tr>
<td>RHCE 4 <strong>V</strong></td>
<td>100</td>
<td>500</td>
<td>2.5:1</td>
<td>12:1</td>
</tr>
<tr>
<td>RHCE 5 <strong>V</strong></td>
<td>150</td>
<td>500</td>
<td>2.8:1</td>
<td>19:1</td>
</tr>
<tr>
<td>RHCE 6 <strong>V</strong></td>
<td>200</td>
<td>500</td>
<td>2.5:1</td>
<td>12.9:1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td>700</td>
<td>2.6:1</td>
<td>10:1</td>
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<tr>
<td>RHCE 3 <strong>V</strong></td>
<td>55</td>
<td>700</td>
<td>- unpressurised to the tank</td>
<td>2.8:1</td>
</tr>
<tr>
<td>RHCE 4 <strong>V</strong></td>
<td>100</td>
<td>500</td>
<td>2.5:1</td>
<td>12:1</td>
</tr>
<tr>
<td>RHCE 5 <strong>V</strong></td>
<td>150</td>
<td>500</td>
<td>2.8:1</td>
<td>19:1</td>
</tr>
<tr>
<td>RHCE 6 <strong>V</strong></td>
<td>200</td>
<td>500</td>
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Version with thread and control piston sealing

(easy mounting, different mounting hole arrangement compared with standard version)

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<tr>
<th>Basic type and size</th>
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<th>real pilot ratio (\psi)</th>
<th>Control oil volume (cm(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>with port A, B, Z</td>
<td>L</td>
</tr>
<tr>
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<td>unpressurised to the tank</td>
<td>2.6:1</td>
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<tr>
<td>RHCE 23</td>
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<td>700</td>
<td>unpressurised to the tank</td>
<td>2.6:1</td>
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<tr>
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<td>55</td>
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<td>unpressurised to the tank</td>
<td>2.5:1</td>
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<td>2.8:1</td>
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<td>500</td>
<td>unpressurised to the tank</td>
<td>2.5:1</td>
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<td>RHCE 63</td>
<td>200</td>
<td>500</td>
<td>unpressurised to the tank</td>
<td>2.5:1</td>
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without hydraulic release, nominal pilot ratio 2.5:1

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<th>real pilot ratio (\psi)</th>
<th>Control oil volume (cm(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHCE 13 V</td>
<td>15</td>
<td>700</td>
<td>unpressurised to the tank</td>
<td>2.6:1</td>
</tr>
<tr>
<td>RHCE 33 V</td>
<td>55</td>
<td>700</td>
<td>unpressurised to the tank</td>
<td>2.5:1</td>
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<tr>
<td>RHCE 43 V</td>
<td>100</td>
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<td>unpressurised to the tank</td>
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<tr>
<td>RHCE 53 V</td>
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<tr>
<td>RHCE 63 V</td>
<td>200</td>
<td>500</td>
<td>unpressurised to the tank</td>
<td>2.5:1</td>
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</tbody>
</table>

with hydraulic release, nominal pilot ratio 4.5:1

<table>
<thead>
<tr>
<th>Basic type and size</th>
<th>Flow rate Q_{max} (lpm)</th>
<th>Pressure p_{max} (bar)</th>
<th>real pilot ratio (\psi)</th>
<th>Control oil volume (cm(^3))</th>
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</thead>
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<td>RHCE 23/1 V</td>
<td>15</td>
<td>700</td>
<td>unpressurised to the tank</td>
<td>4.1:1</td>
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### Parameters

<table>
<thead>
<tr>
<th>Designation</th>
<th>Releasable check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Spring-loaded ball seated valve</td>
</tr>
<tr>
<td>Model</td>
<td>Screw-in valve</td>
</tr>
<tr>
<td>Material</td>
<td>Balls made of rolling bearing steel</td>
</tr>
<tr>
<td></td>
<td>All-steel version; valve-controlled housing part hardened, valve seat polished</td>
</tr>
<tr>
<td>Attachment</td>
<td>screwed in to the mounting hole of a housing body observe dimensional tolerance for threaded core drilling D1 in position 4, as well as footnote 1)</td>
</tr>
<tr>
<td>Tightening torques</td>
<td>See Chapter 4, &quot;Dimensions&quot;</td>
</tr>
<tr>
<td>Installation position</td>
<td>As desired</td>
</tr>
<tr>
<td>Ports</td>
<td>A, B = main passage</td>
</tr>
<tr>
<td></td>
<td>Z = control port</td>
</tr>
<tr>
<td></td>
<td>L = drain port unpressurised to the tank</td>
</tr>
<tr>
<td>Flow direction</td>
<td>B → A Free</td>
</tr>
<tr>
<td></td>
<td>A → B blocked with zero-leakage in idle position (Z port depressurised) if there is no pressure at B or the pressure is lower than at A</td>
</tr>
<tr>
<td></td>
<td>A → B free, if the valve is released with pilot pressure on Z (see also pilot pressure $p_{st}$)</td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td>Hydraulic oil: according to Part 1 to 3;</td>
</tr>
<tr>
<td></td>
<td>ISO VG 10 to 68 according to DIN ISO 3448</td>
</tr>
<tr>
<td></td>
<td>Viscosity limits: min. approx. 4, max. approx. 1500 mm$^2$/s</td>
</tr>
<tr>
<td></td>
<td>opt. operation approx. 10... 500 mm$^2$/s</td>
</tr>
<tr>
<td></td>
<td>Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. +70°C.</td>
</tr>
<tr>
<td>Cleanliness level</td>
<td>ISO 4406</td>
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<tr>
<td></td>
<td>21/18/15...19/17/13</td>
</tr>
<tr>
<td>Temperatures</td>
<td>Ambient: approx. -40 ... +80°C, Fluid: -25 ... +80°C, Note the viscosity range!</td>
</tr>
<tr>
<td></td>
<td>Permissible temperature during start: -40°C (observe start-viscosity!), as long as the service temperature is at least 20K higher for the following operation.</td>
</tr>
<tr>
<td></td>
<td>Biologically degradable pressure fluids: Observe manufacturer's specifications. By consideration of the compatibility with seal material not over +70°C.</td>
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</table>
Pressure and flow rate

Opening pressure

<table>
<thead>
<tr>
<th>Direction</th>
<th>Pressure</th>
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<tr>
<td>B → A</td>
<td>Approx. 0.5 bar</td>
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<tr>
<td>with RHC 1/0</td>
<td>Approx. 1 bar</td>
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</tbody>
</table>

Pilot pressure \( p_{\alpha} \) (bar)
(reference value calculation)

For releasing

\[
P_{St} = \frac{p_S}{\psi} + 2.5
\]

For holding open

\[
P_{St} = kp_B + \frac{\Delta p}{\psi} + 4.5
\]

\( \psi \) Pilot ratio, see tables Chapter 2, "Available versions, main data".

\( p_A \) = Pressure at A

\( p_B \) = Pressure at B

\( \Delta p \) see following characteristics

\( k \) = 1 with type RHC

= 0.05 ... 0.1 with type RHCE

Characteristics

Oil viscosity approx. 60 mm²/s

\( \Delta p \)-Q characteristics

\( Q \) flow rate (lpm); \( \Delta p \) flow resistance (bar)

\( Q \) flow rate (lpm); \( \Delta p \) flow resistance (bar)
## Weight

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
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<tbody>
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<td>RHC 1, RHC 11, RHC 13</td>
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</tr>
<tr>
<td>RHC 1 V, RHC 11 V, RHC 13 V</td>
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</tr>
<tr>
<td>RHC 1/0, RHC 11/0, RHC 13/0</td>
<td>20 g</td>
</tr>
<tr>
<td>RHC 2, RHC 21, RHC 23</td>
<td>40 g</td>
</tr>
<tr>
<td>RHC 2/1, RHC 21/1, RHC 23/1</td>
<td>40 g</td>
</tr>
<tr>
<td>RHC 3, RHC 31, RHC 33</td>
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<tr>
<td>RHC 3/2, RHC 31/2, RHC 33/2</td>
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<td>RHC 3 V, RHC 31 V, RHC 33 V</td>
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<tr>
<td>RHC 4, RHC 41, RHC 43</td>
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<tr>
<td>RHC 4/3, RHC 41/3, RHC 43/3</td>
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<td>RHC 4 V, RHC 41 V, RHC 43 V</td>
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<tr>
<td>RHC 4/3 V, RHC 41/3 V, RHC 43/3 V</td>
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<td>RHC 6</td>
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<tr>
<td>RHC 6 V</td>
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4 Dimensions

All dimensions in mm, subject to change.

4.1 Check valves, type RHC 1 ... 6(V)

1 O-ring NBR 90 Shore
2 only with type RHC 6(V)
3 Sealing ring with type RHC 11 ... 51(V)
4 Hexalobular socket ISO 10664-70 (Torx ® TX70), only with type RHC 5(V)

Mounting hole

Finished with tapped plugs DIN 908 and DIN 910 sealing rings according to DIN 7603
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<th>Type</th>
<th>G</th>
<th>l1</th>
<th>l2</th>
<th>l3</th>
<th>ød1</th>
<th>ød2</th>
<th>SW</th>
<th>O-ring</th>
<th>Tightening torque M&lt;sub&gt;max&lt;/sub&gt; (Nm)</th>
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<th>øD2</th>
<th>øD3</th>
<th>øD4</th>
<th>øD5</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Sealing ring on the tapped plug</th>
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### 4.2 Check valves, type RHC 13 ... 53/4(V)

1. O-ring 1 NBR 90 Shore
2. O-ring 2 AU 90 Shore (type RHC 43..., NBR 90 Shore)
3. Hexalobular socket ISO 10664-70 (Torx ® TX70), only with type RHC 53(V)

**Mounting hole**

Finished with tapped plugs DIN 908 and DIN 910 sealing rings according to DIN 7603

1. Sealing ring

---

Edge burr-free!

max. R 0.3 rounded
<table>
<thead>
<tr>
<th>Type</th>
<th>G</th>
<th>l1</th>
<th>l2</th>
<th>l3</th>
<th>l4</th>
<th>l5</th>
<th>SW</th>
<th>O-ring 1</th>
<th>O-ring 2</th>
<th>Tightening torque M_{\text{max}} (Nm)</th>
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<th>D4</th>
<th>D5</th>
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<th>T2</th>
<th>T3 +0.5</th>
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<td>1 22x27x1.5</td>
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<td>27</td>
<td>18</td>
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<td>1 38x44x2</td>
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4.3 Check valves, type RHCE 1 ... 6(V)

1. O-ring NBR 90 Shore
2. Only with RHCE 6(V)
3. Hexalobular socket ISO 10664-70 (Torx ® TX70), only with type RHCE 5(V)

Mounting hole

Finished with tapped plugs DIN 908 and DIN 910 sealing rings according to DIN 7603

1. Sealing ring
<table>
<thead>
<tr>
<th>Type</th>
<th>G</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>SW</th>
<th>O-ring</th>
<th>Tightening torque M&lt;sub&gt;max&lt;/sub&gt; (Nm)</th>
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</thead>
<tbody>
<tr>
<td>RHCE 1(V)</td>
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<td>38</td>
<td>26</td>
<td>8.5</td>
<td>11</td>
<td>6</td>
<td>10x1.5</td>
<td>40</td>
</tr>
<tr>
<td>RHCE 2</td>
<td>M20x1.5</td>
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<td>8</td>
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<td>RHCE 3(V)</td>
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<td>16</td>
<td>10</td>
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<tr>
<td>RHCE 6(V)</td>
<td>M42x1.5</td>
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<td>59</td>
<td>15</td>
<td>29</td>
<td>19</td>
<td>31.42x2.62</td>
<td>350</td>
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</tbody>
</table>

| RHCE 1(V) | 12 | 22  | 35  | 8   | 11  | 20  | 8  | 14.4 | 39.5 | 13  | 32  | 16x20x1.5 |
| RHCE 2    | 14 | 24  | 41  | 10  | 14  | 25  | 10 | 18.4 | 46   | 16  | 36  | 20x24x1.5 |
| RHCE 3(V) | 16 | 29  | 48  | 12  | 16  | 29  | 12 | 22.5 | 55   | 19  | 42  | 24x29x2 |
| RHCE 4(V) | 16 | 31  | 50  | 14  | 22  | 36  | 14 | 28.4 | 58   | 24  | 45  | 30x36x2 |
| RHCE 5(V) | 16 | 36.5| 59  | 18  | 27  | 42  | 18 | 34.4 | 68.5 | 28  | 52  | 36x42x2 |
| RHCE 6(V) | 16 | 43  | 67  | 20  | 32  | 50  | 20 | 40.4 | 77.5 | 42  | 60  | 42x49x2 |
4.4 Check valves, type RHCE 13 ... 53/4(V)

1 O-ring 1 NBR 90 Shore
2 O-ring 3 NBR 90 Shore
3 O-ring 2 NBR 90 Shore
4 Hexalobular socket ISO 10664-70 (Torx ® TX70), only with type RHC 5(V)

**Mounting hole**

Finished with tapped plugs DIN 908 and DIN 910 sealing rings according to DIN 7603

1 Sealing ring
<table>
<thead>
<tr>
<th>Type</th>
<th>G</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>SW</th>
<th>O-ring 1</th>
<th>O-ring 2</th>
<th>O-ring 3</th>
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<td>8</td>
<td>10x1.5</td>
<td>14x1.78</td>
<td>12x1.5</td>
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<td>7.5</td>
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<td>15.5x2.62</td>
<td>15.6x1.78</td>
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<td>42</td>
<td>52</td>
<td>20</td>
</tr>
</tbody>
</table>
5 Assembly, operation and maintenance recommendations

5.1 Intended use

This valve is exclusively intended for hydraulic applications (fluid engineering). The user must observe the safety measures and warnings in this documentation.

**Essential requirements for the product to function correctly and safely:**
- All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- The product must only be assembled and put into operation by qualified personnel.
- The product must only be operated within the specified technical parameters. The technical parameters are described in detail in this documentation.
- The operating and maintenance manual of the specific complete system must also always be observed.

☑️ If the product can no longer be operated safely:
1. Remove the product from operation and mark it accordingly
☑️ It is then not permissible to continue using or operating the product

5.2 Assembly information

**Danger**
Risk to life caused by sudden movement of the hydraulic drives when dismantled incorrectly!
Risk of serious injury or death.
- Depressurise the hydraulic system.
- Perform safety measures in preparation for maintenance.

5.2.1 Creating the mounting hole

See description in Chapter 4, "Dimensions".
5.3 Operating instructions

Note
- Read the documentation carefully before usage.
- The documentation must be accessible to the operating and maintenance staff at all times.
- Keep documentation up to date after every addition or update.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of the hydraulic component. Contamination can cause irreparable damage.

Examples of fine contamination include:
- Metal chips
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

Note
Fresh hydraulic fluid from the drum does not always have the highest degree of purity. Under some circumstances the fresh hydraulic fluid must be filtered before use.

Pay attention to the cleanliness level of the hydraulic fluid in order to maintain faultless operation.
(Also see cleanliness level in Chapter 3, "Parameters").

5.4 Maintenance information

This product is maintenance-free.
6 Other information

6.1 Typical application examples

Zero-leakage blockage of hydraulic cylinders
(Shown here with dampened control line)

Use for pulling loads

1. Type RHC

additional return flow relief for large flow rates
($A_1/A_3$ is very high)

Use as idle circulation valve

1. Type RHCE
2. e.g. type WH 1H-G 24 in accordance with D 7470 A/1

1. Type SVC in accordance with D 7000/1
2. Type RHC

1. Type RHC
6.2 Planning information

**Versions**

- **Valves without hydraulic release (type RHC..)**

  The valve element is a ball. Quick release of the full flow cross section $A \rightarrow B$ during release. The switching speed of the piston is dampened. This largely prevents an abrupt opening and possible decompression surges. If they do still occur during the test run, install an additional throttling point in the control oil supply line or use a valve with hydraulic release.

- **Valves with hydraulic release (type RHC..V)**

  The valve element is a spherical ground piston (ball seat) with installed ball check valve, which is opened during release before the main piston and releases a throttling cross-section for the surge-free decompression of the consumer volume. To be used mainly for high operating pressures and large consumer volumes. Additional throttling of the control oil line increases the effectiveness of the hydraulic release.

- **Valves with control piston relief (type RHCE..)**

  Available without and with hydraulic release (see above).

  This version enables an opening pressure that is largely independent from the return pressure ($p_B$). This is achieved via an additional control piston relief via the drain port $L$. 

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1. Additional sealing of the pilot pressure side

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Further information

Additional versions

- Check valve type CRK, CRB and CRH: D 7712
- Releasable check valve type HRP: D 5116