Feed valve

Type MHSV

Features

- Screw-in cartridge valve
- Available in 3 sizes (16, 22, 32)

Contents

Features 1
Ordering code, valve types 2
Function, section, symbol 3
Technical data 4
Characteristic curves 5
Dimensions 6
Mounting cavity 7
Available individual components 8
Ordering code (valve without coil) 1)

<table>
<thead>
<tr>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH</td>
<td>S</td>
<td>V</td>
<td>K</td>
<td>B</td>
<td>1</td>
<td>2X</td>
<td>/</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

- **01 Mobile hydraulics**
- **02 Feed valve**
- **03 Without leakage port**
- **04 Size 16**: 16
  - **Size 22**: 22
  - **Size 32**: 32
- **05 Screw-in cartridge valve**
- **06 Without pilot poppet**
- **07 Cracking pressure 0.5 bar**: 1
- **08 Component series 20 to 29 (20 to 29: Unchanged installation and connection dimensions)**: 2X

**Seal material**

- **09 NBR seals**: M
- **FKM seals**: V

(Other seals upon request) Attention! Compatibility of seals with hydraulic fluids used must be observed!

**Mounting cavity**

- **10 M 24 x 1 (size 16)**: FB
  - **M 28 x 1 (size 22)**: FC
  - **M 33 x 1 (size 32)**: FK

**Notice:**
For other valve types than those listed in the data sheet, please consult us!

**Valve types**

<table>
<thead>
<tr>
<th>Type</th>
<th>Material no.</th>
<th>Mounting cavity (see page)</th>
<th>Characteristic curves (see page)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHSV 16 KB1-2X/VFB</td>
<td>R900936508</td>
<td>FB</td>
<td>N1</td>
</tr>
<tr>
<td>MHSV 22 KB1-2X/MFC</td>
<td>R900786222</td>
<td>FC</td>
<td>N2</td>
</tr>
<tr>
<td>MHSV 22 KB1-2X/VFC</td>
<td>R900936725</td>
<td>FC</td>
<td>N2</td>
</tr>
<tr>
<td>MHSV 32 KB1-2X/VFK</td>
<td>R900936726</td>
<td>FK</td>
<td>N3</td>
</tr>
</tbody>
</table>
Function, section, symbol

General
The type MHSV screw-in cartridge valve is a direct operated feed valve for installation in block designs. It is used for the leakage-free isolation of pressurized working circuits. Due to the relatively low closing force of the compression spring (2) at the main poppet it is particularly well suited for use as an anti-cavitation valve.

Function
The feed function replaces oil volumes lost by leakage or responding pressure valves. The cracking pressure is greater than 0.5 bar most of the time, which is why the supply pressure must be higher than the atmospheric pressure. If the pressure at main port \(1\) is lower than the one at main port \(2\), the spool (1) will be lifted out of its seat. Now, hydraulic fluid flows from main port \(2\) to main port \(1\). Tank preloading should be \(\geq 4\) bar.

Symbol

\(\begin{align*}
1 \quad \text{\symbol{126}} \quad 2
\end{align*}\)

\(1\) = main port 1 (P)
\(2\) = main port 2 (T)

Type MHSV 22 KB1-2X...
Technical data
(For applications outside these parameters, please consult us!)

### General

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>see page 6</td>
</tr>
<tr>
<td>Installation position</td>
<td>Any</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>°C -20 ... +80</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>°C -20 ... +80</td>
</tr>
<tr>
<td>Surface protection</td>
<td>without – surface protection has to be ensured by painting the components or the whole assembly (e.g. valve with housing).</td>
</tr>
</tbody>
</table>

### Hydraulic

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating pressure</td>
<td>Main port ② (T) bar 420</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>Main port ② (T) → ① (P) l/min see characteristic curve page 5</td>
</tr>
<tr>
<td>Hydraulic fluid temperature range °C</td>
<td>-30 ... +80 (NBR seal) -20 ... +80 (FKM seal)</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s 10 ... 380</td>
</tr>
<tr>
<td>Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)</td>
<td>Class 20/18/15 1)</td>
</tr>
<tr>
<td>Load cycles</td>
<td>2 million 2)</td>
</tr>
</tbody>
</table>

### Hydraulic fluid

<table>
<thead>
<tr>
<th>Classification</th>
<th>Suitable sealing materials</th>
<th>Standards</th>
<th>Data sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral oils</td>
<td>NBR, FKM</td>
<td>DIN 51524</td>
<td>90220</td>
</tr>
<tr>
<td>Bio-degradable</td>
<td>HEES, HEPG</td>
<td>ISO 15380</td>
<td>90221</td>
</tr>
</tbody>
</table>

#### Important information on hydraulic fluids!

- For more information and data on the use of other hydraulic fluids, refer to data sheet 90220 or contact us!
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!

#### Notice:

- The following documentation must be observed: 64020-B1 Hydraulic valves for mobile applications
- When exchanging screw-in cartridge valves, use the correct tightening torque!
- The minimum cracking pressure is greater than 0.5 bar. Therefore, a supply pressure ≥ 4 bar is recommended.

1) The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components. For the selection of the filters, see www.boschrexroth.com/filter. We recommend using a filter with a minimum retention rate of β90 ≥ 75.

2) Rexroth standard test condition (HLP46; θₜ₀ = 40 °C ± 5 °C)
Characteristic curves
(measured with HLP46, $\theta_{oil} = 40 \pm 5 \, ^\circ C$ and 24 V coil)

$\Delta p$-$q_v$ characteristic curves – "N1"

$\Delta p$-$q_v$ characteristic curves – "N2"

$\Delta p$-$q_v$ characteristic curves – "N3"

Notice:
The characteristic curves apply to an output pressure $p$ at $\theta = 0$ bar over the entire flow range and without housing resistance.
## Dimensions
(dimensions in mm)

![Diagram of a feed valve](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>ØD1</th>
<th>L1</th>
<th>L2</th>
<th>Wrench size SW1</th>
<th>Tightening torque in Nm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHSV 16 KB1-2X/...</td>
<td>27.3</td>
<td>30.5</td>
<td>21.5</td>
<td>24</td>
<td>90 ± 10</td>
<td>0.16</td>
</tr>
</tbody>
</table>

1) Friction coefficients, tightening torques, and preload forces interact with each other. The friction coefficients are influenced by surface microstructure, material pairing etc. Thus, we recommend checking the mounting characteristics with genuine parts and boundary conditions.

![Diagram of a feed valve](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>ØD1</th>
<th>L1</th>
<th>L2</th>
<th>Wrench size SW1</th>
<th>Tightening torque in Nm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHSV 22 KB1-2X/...</td>
<td>32.0</td>
<td>31.5</td>
<td>31.6</td>
<td>30</td>
<td>100 ± 10</td>
<td>0.26</td>
</tr>
</tbody>
</table>

![Diagram of a feed valve](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>ØD1</th>
<th>L1</th>
<th>L2</th>
<th>Wrench size SW1</th>
<th>Tightening torque in Nm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHSV 32 KB1-2X/...</td>
<td>37.0</td>
<td>33.7</td>
<td>36.0</td>
<td>34</td>
<td>150 ± 10</td>
<td>0.38</td>
</tr>
</tbody>
</table>

① = main port 1 (P)
② = main port 2 (T)
Mounting cavity
(dimensions in mm)

Version "FB" (M24x1)
(drawing no. R901063585)

Version "FK" (M33x1)
(drawing no. R901148145)

Version "FC" (M28x1)
(drawing no. RA50151421)

1) Depth of fit
2) Visual inspection
3) Thread depth
4) Roughness up to ø32.5 required
5) Levelness up to ø32.5 required
6) Required opening cross-section for pump connection (P) and
   tank port (T) > 132 mm²

All seal ring insertion faces are rounded and free of burrs.

Standards:

- Workpiece edges: ISO 13715
- Form and position tolerance: ISO 1101
- General tolerances for metal-cutting procedures: ISO 2768 (mK)
- Tolerance: ISO 8015
- Surface condition: ISO 1302
Available individual components

<table>
<thead>
<tr>
<th>Item</th>
<th>Denomination</th>
<th>Seal material</th>
<th>Material no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>999</td>
<td>Seal kit of the valve for mounting cavity &quot;FB&quot;</td>
<td>FKM</td>
<td>R961003378</td>
</tr>
<tr>
<td>999</td>
<td>Seal kit of the valve for mounting cavity &quot;FC&quot;</td>
<td>FKM</td>
<td>R961003380</td>
</tr>
<tr>
<td>999</td>
<td>Seal kit of the valve for mounting cavity &quot;FC&quot;</td>
<td>NBR</td>
<td>R961008541</td>
</tr>
<tr>
<td>999</td>
<td>Seal kit of the valve for mounting cavity &quot;FK&quot;</td>
<td>FKM</td>
<td>R961003389</td>
</tr>
</tbody>
</table>

Seal kits with other seals upon request.