Double throttle/check valves serve to control the main flow or pilot flow rate in one direction and give free flow in the opposite direction. Valve type Z2FS22 is a double throttle/check adopted for vertical stack mounting (sandwich plate design). Two symmetrically fitted in one block throttle/check valves limit the flow rate in one direction by means of an adjustable throttle pin and allow free flow through the check valve in the opposite direction. The valve Z2FS22 is generally mounted between a subplate and direct operated directional valve of corresponding size and serves here to limit the main flow rate (to influence the speed of a user).

DESCRIPTION OF OPERATION

Hydraulic fluid in line A flows to a user through the throttle position 1. At the same time, the fluid being under operating pressure reaches the spring loaded side 3 of the spool 4 via the line 2. The spool 4 is thus held in the throttle position by both spring and pressure force.

Fluid returning from the user shifts the spool 5 to the right and permits the fluid to flow freely through the valve cartridge now acting as a check valve. According to the mounting position of the valve, throttle effect can be achieved in the supply or drain.
TECHNICAL DATA

<table>
<thead>
<tr>
<th>Hydraulic fluid</th>
<th>Mineral oil or phosphate ester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal fluid viscosity</td>
<td>37 mm²/s at the temperature of 328 K</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>2.8 to 380 mm²/s</td>
</tr>
<tr>
<td>Optimum working temperature (fluid in a tank)</td>
<td>313 - 328 K</td>
</tr>
<tr>
<td>Fluid temperature range</td>
<td>243 - 343 K</td>
</tr>
<tr>
<td>Filtration</td>
<td>up to 16 µm</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>31.5 MPa</td>
</tr>
</tbody>
</table>

OVERALL DIMENSIONS

Weight - 8 kg

1 - Name plate with scale
2 - Two locating pins
3 - Two holes for locating pins
4 - Set screw to change flow section
5 - Rotation to the left - decreasing switching time
   Rotation to the right - increasing switching time
6 - Six holes for valve mounting
7 - O-rings -27 × 3 - 4 pcs
8 - O-rings -19.2 × 3 - 3 pcs

Admissible surface roughness and flatness deviation for a subplate face.
PERFORMANCE CURVES, measured at $v = 41 \text{ mm}^3/\text{s}$ and $T = 323 \text{ K}$

Pressure drop $\Delta p$ in relation to flow rate $Q$ over check/throttle valve

Pressure drop $\Delta p$ in relation to flow rate $Q$ with constant throttling

SCHEMES

Graphical symbols and the examples of application of the valve with throttling in the supply and drain
HOW TO ORDER
Orders coded in the way showed below should be forwarded to the manufacturer.

Series number
20 = 20
(20 - 29) - installation and connection dimensions remain unchanged

Throttling in supply = S
Throttling in drain = S2

Sealing
Fluids on mineral oil base = no code
Fluids on phosphateester base = V

Further requirements in clear text
(to be agreed upon with the manufacturer)

Coding example: Z2FS22-20/S2

NOTES: