RE 25 751/03.02
Replaces: 12.95

Pressure relief valve, pilot operated
Types ZDB and Z2DB
Nominal size 6
Series 4X
Maximum operating pressure 315 bar
Maximum flow 60 L/min

Overview of contents

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Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 form A, **without** locating pin hole (standard)
- Porting pattern to ISO 4401 and CETOP–RP 121 H, **with** locating pin hole, (ordering code.../60 at the end of the valve type code)
- 4 pressure stages
- 5 circuit options
- With 1 or 2 pressure valve cartridges
- 4 adjustment elements:
  - Rotary knob
  - Sleeve with hexagon and protective cap
  - Lockable rotary knob with scale
  - Rotary knob with scale
Ordering details

Sandwich plate
With 2 pressure valve cartridges (only applies to versions „VC“ and „VD“)
Pressure relief valve
Nominal size 6
Relief function from – to:
A – T = VA
P – T = VP
B – T = VB
A – T and B – T = VC
A – T and B – A = VD
Adjustment element
Rotary knob
Sleeve with hexagon and protective cap
Lockable rotary knob with scale
Rotary knob with scale

Further details in clear text

No code = Without locating pin hole
/60 = With locating pin hole
V = FKM seals
(Other seals on request)

Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

50 = Settable pressure up to 50 bar
100 = Settable pressure up to 100 bar
200 = Settable pressure up to 200 bar
315 = Settable pressure up to 315 bar

4X = Series 40 to 49
(40 to 49: unchanged installation and connection dimensions)

1) H-key with Material No. 0008158 is included within the scope of supply
2) Locating pin 3 x 8 DIN EN ISO 8752, Material No. 00005694 (separate order)

Preferred types and standard components
are highlighted in the RPS
(Standard Price list).

Preferred types (readily available)

<table>
<thead>
<tr>
<th>Type</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDB 6 VA2-4X/100V</td>
<td>00409889</td>
</tr>
<tr>
<td>ZDB 6 VA2-4X/200V</td>
<td>00409886</td>
</tr>
<tr>
<td>ZDB 6 VA2-4X/315V</td>
<td>00409893</td>
</tr>
<tr>
<td>ZDB 6 VB2-4X/200V</td>
<td>00409854</td>
</tr>
<tr>
<td>ZDB 6 VB2-4X/315V</td>
<td>00409896</td>
</tr>
<tr>
<td>ZDB 6 VP2-4X/100V</td>
<td>00409933</td>
</tr>
<tr>
<td>ZDB 6 VP2-4X/200V</td>
<td>00409844</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDB 6 VP2-4X/315V</td>
<td>00409898</td>
</tr>
<tr>
<td>ZDB 6 VP2-4X/50V</td>
<td>00409847</td>
</tr>
<tr>
<td>Z2DB 6 VC2-4X/200V</td>
<td>00411312</td>
</tr>
<tr>
<td>Z2DB 6 VC2-4X/315V</td>
<td>00411318</td>
</tr>
<tr>
<td>Z2DB 6VD2-4X/100V</td>
<td>00411317</td>
</tr>
<tr>
<td>Z2DB 6VD2-4X/200V</td>
<td>00411314</td>
</tr>
<tr>
<td>Z2DB 6VD2-4X/315V</td>
<td>00411357</td>
</tr>
</tbody>
</table>
At rest, the valve is closed. Pressure in port A acts on the spool (1). At the same time pressure passes through orifice (2) on to the spring loaded side of spool (1) and via orifice (3) to the pilot poppet (6). If the pressure in port A rises above the value set on spring (5), the pilot poppet (6) opens. Fluid can now flow from the spring loaded side of the spool (1), then via orifice (3), and channel (8) into port T. The resulting pressure drop then moves the spool (1) thereby opening the connection A to T, while maintaining the pressure set at spring (5). Pilot oil return from the two spring chambers is taken externally via port T.

Symbols \( \overline{1} = \text{valve side}, \overline{2} = \text{subplate side} \)
Technical data (for applications outside these parameters, please consult us!)

### General

<table>
<thead>
<tr>
<th>Characteristic curves</th>
<th>(measured with HLP46 and $\vartheta_{oil} = 40 , ^\circ C \pm 5 , ^\circ C$)</th>
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#### Hydraulic

<table>
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<tr>
<th>Characteristic curves</th>
<th>(measured with HLP46 and $\vartheta_{oil} = 40 , ^\circ C \pm 5 , ^\circ C$)</th>
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</table>

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Type ZDB 6 kg</th>
<th>Approx. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type Z2DB 6 kg</td>
<td></td>
<td>Approx. 1.2</td>
</tr>
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</table>

**Pressure fluid**

Mineral oil (HL, HLP) to DIN 51 524; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic ester); other pressure fluids on request

**Pressure fluid temperature range**

$- 20 \ldots + 80 \, ^\circ C$

**Viscosity range**

$10 \ldots 800 \, \text{mm}^2/\text{s}$

**Degree of contamination**

Maximum permissible degree of contamination of the pressure fluid is to NAS 1638 class 9. We therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.  

**Maximum operating pressure**

bar 315

**Maximum settable pressure**

bar 50; 100; 200; 315

**Maximum flow**

L/min 60

**Characteristic curves**

The characteristic curves are valid for an outlet pressure $p_{out} = \text{zero}$ over the entire flow range!
Unit dimensions: type ZDB 6 VA... (dimensions in mm)

1. Name plate
2. Adjustment element "1"
3. Adjustment element "2"
4. Adjustment element "3"
5. Adjustment element "7"
6. Space required to remove the key
7. Valve fixing screw holes
8. Locknut 24A/F
9. Hexagon 10A/F
10. R–rings
    9.81 x 1.5 x 1.78 for ports A2, B2, P2, T2
11. Hexagon 24A/F
    Tightening torque \( M_a = 50 \) Nm
12. Porting pattern to ISO 4401 and CETOP–RP 121 H, with
    locating pin hole, Ø3 x 5 mm deep for locating pin Ø3 x 8 mm DIN EN ISO 8752, Material No. 00005694
    (separate order)
13. Porting pattern to ISO 4401 and CETOP–RP 121 H, with
    locating pin hole, Ø4 x 4 mm deep

Valve fixing screws
M5 DIN 912-10.9,
Tightening torque \( M_a = 8.9 \) Nm,
must be ordered separately.

Required surface finish of mating piece
Unit dimensions: type ZDB 6 VB... and type ZDB 6 VP... (dimensions in mm)

1. Name plate
2. Adjustment element "1"
3. Adjustment element "2"
4. Adjustment element "3"
5. Adjustment element "7"
6. Space required to remove the key
7. Valve fixing screw holes
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tightening torque $M_A = 50$ Nm
12. Porting pattern to ISO 4401 and CETOP–RP 121 H, with
    locating pin hole, $Ø3 \times 5$ mm deep for locating pin $Ø3 \times 8$
    mm DIN EN ISO 8752, Material No. 00005694
    (separate order)
13. Porting pattern to ISO 4401 and CETOP–RP 121 H, with
    locating pin hole, $Ø4 \times 4$ mm deep

Valve fixing screws
M5 DIN 912-10.9,
Tightening torque $M_A = 8.9$ Nm,
must be ordered separately.

Required surface finish of mating piece

0.01/100mm
$R_{max}$
Unit dimensions: type ZDB 6 VB... and type ZDB 6 VP... (dimensions in mm)

1. Name plate
2. Adjustment element "1"
3. Adjustment element "2"
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11. Hexagon 24A/F tightening torque $M_A = 50$ Nm
12. Porting pattern to ISO 4401 and CETOP–RP 121 H, with locating pin hole, Ø3 x 5 mm deep for locating pin Ø3 x 8 mm DIN EN ISO 8752, Material No. 00005694 (separate order)
13. Porting pattern to ISO 4401 und CETOP–RP 121 H, with locating pin hole, Ø4 x 4 mm deep

Valve fixing screws
M5 DIN 912-10.9,
Tightening torques $M_A = 8.9$ Nm,
must be ordered separately.

Required surface finish of mating piece

0.01/100mm

R max 4
The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. It must be remembered that our products are subject to a natural process of wear and ageing.