RE 26 411/02.03
Replaces: 26 412

Pressure shut-off valve,
Pilot operated
Types DA and DAW

Nominal sizes 10, 25, 32
Series 5X
Maximum operating pressure 315 bar
Maximum flow 240 L/min

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<td>Solenoid actuated unloading via a built-on directional valve</td>
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</table>
Ordering details

Without directional valve = No code

With built-on directional valve = W

Pilot operated valve = No code

Pilot valve without main spool assembly = C

(Do not state nominal size)

Pilot valve with main spool assembly = C

(state nominal size 30)

Nominal size 10 = 10
Nominal size 25 = 20
Nominal size 32 = 30

De-energised closed = A ¹)

De-energised open = B ¹)

Adjustment elements

Rotary knob = 1

Sleeve with internal hexagon and protective cap = 2

Lockable rotary knob with scale = 3 ²)

Rotary knob with scale = 7

Series 50 to 59 = 5X

(50 to 59: unchanged installation and connection dimensions)

Settable pressure range

0 to 50 bar = 50
50 to 100 bar = 100
100 to 200 bar = 200
200 to 315 bar = 315

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

Ordering details: plug-in connectors to DIN 43 650 A and ISO 4400 for component plug "K4"

<table>
<thead>
<tr>
<th>Valve side</th>
<th>Colour</th>
<th>Material no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>grey</td>
<td>R900074683</td>
</tr>
<tr>
<td>a</td>
<td>black</td>
<td>R900057292</td>
</tr>
</tbody>
</table>

Material no.

Without circuitry

With indicator light 12 ... 240 V

With rectifier 12 ... 240 V

With dindicater light and Z diode protective circuitry 24 V

1) Ordering details only required for the version with built-on directional valve „DAW“

2) H-key to material no. 00008158 is included within the scope of supply

3) Plug-in connector must be ordered separately (see below).

4) Catalogue sheet RE 23 178

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RE 26 411/02.03

DA, DAW
Pressure control valves type DA/DAW are pilot operated pressure shut-off valves. They are used to switch a pump flow over to unpressurised by-pass as soon as the accumulator loading pressure is reached. Further applications for the valve are in systems that have high and low pressure pumps. In this case the low pressure pump is switched to unpressurised by-pass as soon as the set high pressure is reached.

Pressure shut-off valves basically consist of the main valve (1) with the main spool assembly (3), pilot valve (2) with pressure adjustment element and check valve (4). In size 10 valves, the check valve (4.1) is built into the main valve (1). In valve sizes 25 and 32 the check valve (4.2) is built into a separate plate installed under the main valve (1).

Pressure shut-off valve type DA

- Diverting pump flow from P to A to P to T.

The pump delivers flow via check valve (4) into the hydraulic system (P to A). Pressure in port A acts via pilot line (5) on the pilot control spool (6). At the same time, pressure in port P passes via orifices (7) and (8) to the spring loaded side of the main spool (3) and ball (9) in the pilot valve (2). As soon as the set cut-off pressure in the hydraulic system is reached, the ball (9) lifts off against spring (10). Pressure fluid now flows via orifices (7) and (8) into spring chamber (11). From here, the fluid is returned to tank either internally via control line (12) in valve type DA..5X/... or externally via control line (13) in valve type DA..5X/.Y... Due to orifices (7) and (8), a pressure drop is now present at the main spool (3). The main spool (3) now lifts off its seat and opens the connection from P to T. The check valve (4) now closes the connection from A to P. The ball (9) is now held open by the system pressure via pilot spool (6).

- Diverting pump flow from P to T to P to A.

The area of the pilot spool (6) is 10 % or optionally 17 % greater than the effective area of the ball (9). The effective force on the pilot spool (6) is, therefore, 10 or 17 % greater than the effective force on the ball (9).

When the actuator pressure falls in relation to the cut-off pressure by a value which corresponds to the switching pressure differential, (see characteristic curve on page 5) spring (10) pushes ball (9) on to its seat. Pressure is then built up on the spring loaded side of the main spool (3). In conjunction with spring (14), this closes the main spool (3) and isolates the connection from P to T. The pump flow passes once more via the check valve (4) into the hydraulic system (P to A).

Pressure shut-off valve type DAW

The function of this valve is basically the same as the DA valve. A solenoid actuated directional valve (15) can, however switch the set cut-off pressure which is under the pilot valve (2) either from P to T or from P to A.
Symbols

Type DA—5X/...–Y...

De-energised closed

Type DAW...A...5X/...

De-energised open

Type DAW...B...5X/...

De-energised open

Type DAW...A...5X/...

De-energised closed

Type DAW...B...5X/...

De-energised open

Type DAW...A...5X/...

De-energised closed

Type DAW...B...5X/...

De-energised open

Technical data (for applications outside these parameters, please consult us!)

General

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>Size 10</th>
<th>Size 25</th>
<th>Size 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight DA...</td>
<td>kg</td>
<td>2.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Weight DAW...</td>
<td>kg</td>
<td>3.8</td>
<td>7.8</td>
</tr>
<tr>
<td>Weight DAC...</td>
<td>kg</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Weight DAWC...</td>
<td>kg</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Weight DAC 30...</td>
<td>kg</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Weight DAWC 30...</td>
<td>kg</td>
<td>2.7</td>
<td></td>
</tr>
</tbody>
</table>

Installation

optional

Hydraulic technical data

<table>
<thead>
<tr>
<th>Nominal pressure</th>
<th>bar</th>
<th>315</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating pressure at port A</td>
<td>bar</td>
<td>315 (after switching from P to T)</td>
</tr>
</tbody>
</table>

Pressure fluid

Mineral oil (HL, HLP) to DIN 51 524 1);
Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) 1);
HEPG (polyglycole) 2);
HEES (synthetic ester) 2);
other pressure fluids on request

Pressure fluid temperature range

°C – 30 to + 80 for NBR seals
°C – 20 to + 80 for FPM seals

Viscosity range

mm²/s 10 to 800

Maximum flow

<table>
<thead>
<tr>
<th>10 % version</th>
<th>L/min</th>
<th>40</th>
<th>80</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 % version</td>
<td>L/min</td>
<td>60</td>
<td>120</td>
<td>240</td>
</tr>
</tbody>
</table>

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 set pressure

bar 50; 100; 200; 315

1) suitable for NBR and FPM seals
2) only suitable for FPM seals
**Characteristic curves** (measured at $v = 41 \text{ mm}^2/\text{s}$ and $\vartheta = 50 \, ^\circ\text{C}$)

**By-pass pressure in relation to the pump flow $q_{VP}$ ($P \rightarrow T$)**

- **Size 10**
  - By-pass pressure in bar vs. Flow in L/min
  - $q_{VP_{\text{max}}}$ for 10% version
  - $q_{VP_{\text{max}}}$ for 17% version

- **Size 25**
  - By-pass pressure in bar vs. Flow in L/min
  - $q_{VP_{\text{max}}}$ for 10% version
  - $q_{VP_{\text{max}}}$ for 17% version

These characteristic curves are valid for an outlet pressure ($T$) = zero over the entire flow range.

**Switching pressure differential in relation to the cut-off pressure ($P \rightarrow A$)**

- **50 bar pressure range**
  - Switching pressure differential in % vs. Cut-off pressure in bar

- **100 bar pressure range**
  - Switching pressure differential in % vs. Cut-off pressure in bar

- **200 bar pressure range**
  - Switching pressure differential in % vs. Cut-off pressure in bar

- **315 bar pressure range**
  - Switching pressure differential in % vs. Cut-off pressure in bar

- [ = Deviation range for the 10% version]
- [ = Deviation range for the 17% version]
**Unit dimensions:** size 10

(Dimensions in mm)

1. Name plate
2. Not with internal pilot oil drain
3. Port Y for external pilot oil drain
4. Adjustment element "1"
5. Adjustment element "2"
6. Adjustment element "3"
7. Adjustment element "7"
8. Locknut 22 A/F
9. Hexagon 10 A/F
10. Space required to remove key
11. Locating pin
12. Valve fixing screw holes
   (for valve fixing screws see pages 9 and 10)
13. Size 6 directional valve
   (see catalogue sheet RE 23 178)
14. Solenoid "a"
15. Hand override, optional
16. Plug-in connector without circuitry to DIN 43 650
17. Plug-in connector with circuitry to DIN 43 650
18. Space required to remove the plug-in connector
19. R-ring 17.56 x 2.4 x 2.62 for ports A, P, T
20. Integrated check valve

1) Must be ordered specially, see page 2.

Required surface finish of mating piece
**Unit dimensions:** sizes 25 and 32

**Dimensions in mm**

| Size | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | B1 | B2 | H1 | H2 | H3 | H4 | H5 | ØD1 |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 25   | 153| 25 | 101.6| 57.1| 12.7| 46 | 112.7| 10.5| 48.2| 100| 70 | 144| 124| 72 | 46 | 28 | 18  |
| 32   | 198| 41 | 127 | 63.5| 12.7| 50.8| 139.7| 21 | 69.8| 115| 82.5| 165| 145| 93 | 67 | 45 | 20  |

1. Name plate
2. Not with internal pilot oil drain
3. Port Y for external pilot oil drain
4. Adjustment element “1”
5. Adjustment element “2”
6. Adjustment element “3”
7. Adjustment element “7”
8. Locknut 22 A/F
9. Hexagon 10 A/F
10. Space required to remove key
11. Valve fixing screw holes
   (for valve fixing screws see pages 9 and 10)
12. R-rings for ports A, P, T
   Size 25: 28.43 x 3.4 x 3.53
   Size 32: 34.52 x 3.53 x 3.53
13. Integrated check valve (sandwich plate)

Dimensions for the built-on directional valve see page 6

Required surface finish of mating piece

0.01/100mm

$R_{max}$
**Unit dimensions:** pilot valve with (DAC 30) or without (DAC) main spool assembly

(Dimenions in mm)

- **1** Name plate
- **3** Port Y for external pilot oil drain
- **4** Adjustment element "1"
- **5** Adjustment element "2"
- **6** Adjustment element "3"
- **7** Adjustment element "7"
- **8** Locknut 22 A/F
- **9** Hexagon 10 A/F
- **10** Space required to remove key
- **12** Valve fixing screw holes
  (valve fixing screws M8 x 40 DIN 912–10.9; \( M_a = 37 \text{ Nm} \) must be ordered specially)
- **21** R-rings 9.81 x 1.5 x 1.78 for ports A, T
- **22** Main spool
- **23** The Ø32 hole can intersect the Ø45 hole in any position. Care, however, must be taken to ensure that the connection hole A and the fixing screw holes are not damaged.
- **24** The back-up ring and O-ring are to be fitted into this bore before the main spool assembly is fitted.
- **25** O-ring 28.3 x 1.78
- **26** O-ring 27.3 x 2.4
- **27** O-ring 28.24 x 2.62
- **28** Back-up ring 8–024; 29.03 x 1.35
- **29** Back-up ring 28.4 x 32 x 0.7

For dimensions of the built-on directional valve see page 6

\[
\begin{align*}
X &= \sqrt{R_{\text{max}}}, \\
Y &= \sqrt{R_2}, \\
Z &= \sqrt{R_2'},
\end{align*}
\]

For dimensions of the built-on directional valve see page 6

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RE 26 411/02.03  
8/12  
DA, DAW
Subplates size 10 and size 25 (must be ordered separately) (Dimensions in mm)

Size 10

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>ØD1</th>
<th>D2</th>
<th>T1</th>
<th>Valve fixing screws 1)</th>
<th>$M_A$</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>G467/01</td>
<td>28</td>
<td>G 3/8</td>
<td>12</td>
<td>4 off M10 x 50 DIN 912–10.9</td>
<td>75 Nm</td>
<td>1.7 kg</td>
</tr>
<tr>
<td></td>
<td>G468/01</td>
<td>34</td>
<td>G 1/2</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Size 25

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>ØD1</th>
<th>D2</th>
<th>T1</th>
<th>Valve fixing screws 1)</th>
<th>$M_A$</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>G469/01</td>
<td>42</td>
<td>G 3/4</td>
<td>16</td>
<td>4 off M16 x 100 DIN 912–10.9</td>
<td>310 Nm</td>
<td>5.2 kg</td>
</tr>
<tr>
<td></td>
<td>G470/01</td>
<td>47</td>
<td>G 1</td>
<td>18</td>
<td>2 off M16 x 60 DIN 912–10.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30 Hole for locating pin
31 Valve fixing screw holes
32 Valve mounting surface
33 Valve panel cut-out

1) Must be ordered separately
Subplates size 32 (must be ordered separately)

(Dimensions in mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>ØD1</th>
<th>D2</th>
<th>T1</th>
<th>Valve fixing screws</th>
<th>$M_A$</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>G471/01</td>
<td>56</td>
<td>G 1/4</td>
<td>20</td>
<td>4 off M18 x 120 DIN 912–10.9</td>
<td>430 Nm</td>
<td>8.2 kg</td>
</tr>
<tr>
<td></td>
<td>G472/01</td>
<td>61</td>
<td>G 1/2</td>
<td>22</td>
<td>2 off M18 x 80 DIN 912–10.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30 Hole for locating pin
31 Valve fixing screw holes
32 Valve mounting surface
33 Valve panel cut-out

1) Must be ordered specially

Prefered types

<table>
<thead>
<tr>
<th>Typ</th>
<th>Material-Nummer</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA 10-2-5X/100-10</td>
<td>R900597976</td>
</tr>
<tr>
<td>DA 10-2-5X/100-17</td>
<td>R900597357</td>
</tr>
<tr>
<td>DA 10-2-5X/200-10</td>
<td>R900504453</td>
</tr>
<tr>
<td>DA 10-2-5X/200-17</td>
<td>R900597015</td>
</tr>
<tr>
<td>DA 10-2-5X/315-10</td>
<td>R900596908</td>
</tr>
<tr>
<td>DA 10-2-5X/315-17</td>
<td>R900596998</td>
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<tr>
<td>DA 20-2-5X/100-17</td>
<td>R900596761</td>
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<tr>
<td>DA 20-2-5X/200-17</td>
<td>R900597135</td>
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<tr>
<td>DA 20-2-5X/315-17</td>
<td>R900590621</td>
</tr>
<tr>
<td>DA 30-2-5X/100-17</td>
<td>R900500791</td>
</tr>
<tr>
<td>DA 30-2-5X/200-17</td>
<td>R900501857</td>
</tr>
<tr>
<td>DA 30-2-5X/315-17</td>
<td>R900503396</td>
</tr>
</tbody>
</table>
Circuit examples

Hydraulic system with accumulator

Application guidelines:
- The connection between the DA valve and the hydraulic accumulator should be as short as possible and with a low pressure drop!
- If there are high pressure drops in the piping then use the DA.../SO80 version of the valve. (Separate pilot line from the pilot valve to the hydraulic accumulator!)
- With high pump flows as well as small switching differentials (10%) then preferably the "Y" version should be used.

Hydraulic system with high and low pressure pumps
The data specified above only serves to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The details stated do not release you from the responsibility for carrying out your own assessment and verification. It must be remembered that our products are subject to a natural process of wear and ageing.