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Ordering details, symbols and unit dimensions:

- Type DZ 64 to 65
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Function, section, symbols

General

The 2-way cartridge valves for pressure control functions are pilot operated poppet or spool valves. The main component designed as a cartridge valve (1) is inserted into a cavity which is standardised to DIN ISO 7368 and is sealed by the control cover (2).

The pilot valve (4) for either manual or electrical proportional pressure control is integrated into the control cover (2) or mounted onto the control cover (2) as a pilot valve with interface connections to DIN 24 340.

By combining the cartridge valve with the control covers different pressure functions can be realised.

Pressure relief function

Control cover type LFA..DB...

Cartridge valve type LC..DB...

The cartridge valve (1) for the pressure relief function (type LC . DB….) is a poppet valve without an area differential (no effective area at port B). The pressure acting at port A is fed via the pilot supply orifice (5) to the spring side (6) of the element. At pressures below the setting of pilot valve (4) the forces on spool (3) are balanced and the spool remains closed due to the spring force. On reaching the set pressure, spool (3) opens and limits the pressure at port A in relation to the pressure-flow characteristics.

Pressure reducing function

a) Normally open: Control cover type LFA..DB...

Cartridge valve type LC..DR...

The cartridge valve for the pressure reducing function is a spool valve without an area differential (no effective area at port B).

The same types of cover are used as pilot valves that are used for the pressure relief functions (type LFA..DB…).

The pressure acting at port A is fed to the spring side of the spool via the pilot oil supply orifice. Below the performance limit and pressure set at the pilot valve, the spool is pressure-balanced and is held open by the spring force, so that oil is free to flow from port B to port A.

On reaching the set pressure, the spool closes and reduces the pressure at port A in relation to the pressure-flow characteristics.
**Function, symbols**

**b) Normally closed:**

Control cover type LFA..DR...
Cartridge valve type LC..DB40D...

For the pressure reducing function with opening characteristics a pressure relief valve cartridge (type LC..DB40D...) and a control cover with a pressure reducing valve (type LFA..DR...) as the pilot valve are used. The pilot oil is fed from port A via the pilot supply orifice and the open pilot valve to side B.
The main spool opens and allows free-flow from port A to port B.
On reaching the set pressure, the spool closes and reduces the pressure at port B in relation to the pressure-flow characteristics. Possible excess pressures occurring on the secondary side are led away to tank via the third port of the pilot valve. By fitting a directional valve, an additional isolating function can also be attained (type LFA..DRW...).

**Pressure sequencing function**

Control cover type LFA..DZ...
Cartridge valve type LC..DB...

This function enables a pressure-dependent sequencing of a second system.
The required sequencing pressure is set by the pilot valve which is integrated into the control cover.
The pilot oil supply may be either external (pilot oil port X) or internal (from port A via pilot oil port X or Z2).
The spring chamber of the pilot control is drained at zero pressure via ports Y or Z1 to tank.

When the pressure set at the pilot control spring is reached, the pilot valve switches and unloads the spring chamber of the main valve to tank. The main spools opens and makes the connection from port A to B possible.
In version LFA..DZW..., the required spool position may be selected by means of an electrically operated pilot valve (not included with the scope of control cover LFA..DZW... supply) in addition to the normal hydraulic control.

**Circuit examples**

**Example 1:** (circuit for the pressure dependent unloading of the low pressure system)

In the circuit shown, the system is fed by a high pressure pump and a low pressure pump. The system pressure $p_s$ acts externally from the high pressure side via the pilot oil port X on the pilot valve which, on reaching the set pressure, switches the low pressure side to give zero pressure circulation. The check valve RV (not included within the scope of supply) prevents the high pressure system from flowing into the low pressure system which is now at zero pressure.

When the pressure set at the pilot control spring is reached, the pilot valve switches and unloads the spring chamber of the main valve to tank. The main spools opens and makes the connection from port A to B possible.

In version LFA..DZW..., the required spool position may be selected by means of an electrically operated pilot valve (not included with the scope of control cover LFA..DZW... supply) in addition to the normal hydraulic control.

**Example 2:** (circuit for the pressure dependent sequencing of a 2nd system)

With this circuit, oil is allowed to flow into system 2 when the pressure in system 1 has reached a pre-set value. The pilot oil supply is internal from port A of the main valve.

When the pressure set at the pilot control spring is reached, the pilot valve switches and unloads the spring chamber of the main valve to tank. The main spools opens and makes the connection from port A to B possible.

In version LFA..DZW..., the required spool position may be selected by means of an electrically operated pilot valve (not included with the scope of control cover LFA..DZW... supply) in addition to the normal hydraulic control.
Installation cavity and porting pattern to DIN ISO 7368

(Dimensions in mm)

<table>
<thead>
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<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
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<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
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</tr>
</tbody>
</table>

1) Max. dim.

1) Depth of fit
2) Reference dimension
3) For diameters of port B other than ØD3 or (ØD3*), the distance from the cover mounting surface to the centre of this hole must be calculated.
4) Port B may be moved about the central axis of port A. Care must however be taken to ensure that the fixing holes and control holes are not damaged.
5) Drilling for location pin (cover location pin fitted to DIN 24 342)
6) Note on NS 16 porting pattern:
   Length L1 (axis x–y drilling) is 80 mm.
7) For Ø ≤ 45 mm → fit H8 is permitted!
8) Drilling for locating pin with functions as a main pressure relief valve (cover locating pin has to be appropriately relocated during assembly)
Pressure relief function

Ordering details: pressure relief cartridge valve (without control cover)

<table>
<thead>
<tr>
<th>LC</th>
<th>DB</th>
<th>/</th>
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<tr>
<td>Nominal size 16</td>
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<tr>
<td>Nominal size 25</td>
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<td>Nominal size 32</td>
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<td>Nominal size 40</td>
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<td>Nominal size 50</td>
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<tr>
<td>Nominal size 63</td>
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<tr>
<td>Nominal size 80</td>
<td>80</td>
<td></td>
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<tr>
<td>Nominal size 100</td>
<td>100</td>
<td></td>
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</tbody>
</table>

Opening pressure approx. 0 bar (without spring) = 00
Opening pressure approx. 2 bar = 20
Opening pressure approx. 3 bar = 30
Opening pressure approx. 4 bar = 40
Opening pressure approx. 5 bar = 50
Opening pressure approx. 8 bar = 80

1) Opening pressure 3.0 bar only with NS16 for fitting a pilot operated pressure relief valve type DBC . -5X/…SO187 (see catalogue sheet RE 25 802)
2) Only with NS 16, 25 and 32
3) Special installation space is required (see page 12)

Symbols: cartridge valves (for versions see ordering details)

- Poppet valve without orifice
  - Version “E”
- Poppet valve with orifice
  - Version “A”
- Spool poppet valve without orifice
  - Version “D”
- Spool poppet valve with orifice
  - Version “B”

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

- 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 (polyglycols) 2); HEES (synthetic ester) 2); Other pressure fluids on request
- Pressure fluid temperature range °C
  - – 30 to + 80 for NBR seals
  - – 20 to + 80 for FKM seals
- Viscosity range mm²/s
  - 2.8 to 380
- Cleanliness class to ISO code
  - Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 3)

2-way cartridge valve

- Maximum operating pressure – Ports A and B bar
  - 420
- Maximum flow (recommended) L/min
  - Poppet valve cartridges „E“ and „A“
    - NS 16 300
    - NS 25 450
    - NS 32 600
    - NS 40 1000
    - NS 50 1600
    - NS 63 2500
    - NS 80 4500
    - NS 100 7000
  - Spool valve cartridges „D“ and „B“
    - NS 16 175
    - NS 25 300
    - NS 32 450
    - NS 40 700
    - NS 50 1400
    - NS 63 1750
    - NS 80 3200
    - NS 100 4900

3) The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.
**Characteristic curves:** NS 16 (measured with HLP 46; $\theta_{\text{oil}} = 40^\circ \text{C} \pm 5^\circ \text{C}$)

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased by the pressure being applied at port B.

**Manual pressure adjustment, type LFA 16 DB… and type LFA 16 DBW…**

**Electrical proportional pressure adjustment, type LFA 16 DBE…**
Characteristic curves: NS 25 (measured with HLP 46; \(\theta_{oil} = 40 \, ^\circ C \pm 5 \, ^\circ C\))

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased by the pressure being applied at port B.

**Manual pressure adjustment, type LFA 25 DB… and type LFA 25 DBW…**

**Electrical proportional pressure adjustment, type LFA 25 DBE…**
**Characteristic curves:** NS 32 (measured with HLP 46; \( \theta_{\text{oil}} = 40^{\circ} \text{C} \pm 5^{\circ} \text{C} \))

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased by the pressure being applied at port B.

**Manual pressure adjustment, type LFA 32 DB… and type LFA 32 DBW…**

**Electrical proportional pressure adjustment, type LFA 32 DBE…**
Characteristic curves: NS 40 (measured with HLP 46; \( \Theta_{\text{oil}} = 40 \, ^\circ\text{C} \pm 5 \, ^\circ\text{C} \))

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased by the pressure being applied at port B.

Manual pressure adjustment, type LFA 40 DB... and type LFA 40 DBW...

Electrical proportional pressure adjustment, type LFA 40 DBE...
Characteristic curves: NS 50 (measured with HLP 46; \( \vartheta_{\text{oil}} = 40 ^\circ \text{C} \pm 5 ^\circ \text{C} \))

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased by the pressure being applied at port B.

**Manual pressure adjustment, type LFA 50 DB… and type LFA 50 DBW…**

**Electrical proportional pressure adjustment, type LFA 50 DBE…**
Characteristic curves: NS 63 (measured with HLP 46; \( \theta_{\text{oil}} = 40 ^\circ \text{C} \pm 5 ^\circ \text{C} \))

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased by the pressure being applied at port B.

Manual pressure adjustment, type LFA 63 DB… and type LFA 63 DBW…

Electrical proportional pressure adjustment, type LFA 63 DBE…
Seal kits for cartridge valves type LC...

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<th>Nominal size</th>
<th>NBR seals</th>
<th>Material No.</th>
<th>FKM seals</th>
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Compression springs for cartridge valves type LC...

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<th>Spring dimensions in mm</th>
<th>Opening pressure in bar</th>
<th>Material No.</th>
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<tr>
<td></td>
<td>14.1/3.5 x 78.5/12.0</td>
<td>8.0</td>
<td>R900082072</td>
</tr>
<tr>
<td></td>
<td>19.6/2.8 x 69.5/7.5</td>
<td>2.0</td>
<td>R900062813</td>
</tr>
<tr>
<td></td>
<td>19.2/3.2 x 71.0/8.5</td>
<td>3.0</td>
<td>R900062783</td>
</tr>
<tr>
<td></td>
<td>19.1/3.4 x 72.0/9.5</td>
<td>4.0</td>
<td>R900062810</td>
</tr>
<tr>
<td>32</td>
<td>19.1/3.5 x 72.8/9.0</td>
<td>5.0</td>
<td>R900062805</td>
</tr>
<tr>
<td></td>
<td>18.5/4.0 x 109/14.5</td>
<td>8.0</td>
<td>R900082071</td>
</tr>
<tr>
<td>25</td>
<td>20.2/2.5 x 69.5/7.5</td>
<td>2.0</td>
<td>R900062813</td>
</tr>
<tr>
<td></td>
<td>19.2/3.2 x 71.0/8.5</td>
<td>3.0</td>
<td>R900062783</td>
</tr>
<tr>
<td></td>
<td>19.1/3.4 x 72.0/9.5</td>
<td>4.0</td>
<td>R900062810</td>
</tr>
<tr>
<td></td>
<td>18.5/4.0 x 109/14.5</td>
<td>8.0</td>
<td>R900082071</td>
</tr>
<tr>
<td>50</td>
<td>21.2/2.5 x 69.5/7.5</td>
<td>2.0</td>
<td>R900062813</td>
</tr>
<tr>
<td></td>
<td>20.2/3.2 x 71.0/8.5</td>
<td>3.0</td>
<td>R900062783</td>
</tr>
<tr>
<td></td>
<td>20.1/3.4 x 72.0/9.5</td>
<td>4.0</td>
<td>R900062810</td>
</tr>
<tr>
<td></td>
<td>18.5/4.0 x 109/14.5</td>
<td>8.0</td>
<td>R900082071</td>
</tr>
</tbody>
</table>

1) These springs require an additional installation length. When using standard control covers an additional sandwich plate type LFA..D22... must be used.

⚠️ Exception:
Control cover type “D” can be replaced by type LFA..D8-../F (no sandwich plate required).

Preferred types (readily available)

<table>
<thead>
<tr>
<th>Typ LC (Einbauventil)</th>
<th>Material-Nummer</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 16 DB40E7X/</td>
<td>R900912532</td>
</tr>
<tr>
<td>LC 16 DB40D7X/</td>
<td>R900912547</td>
</tr>
<tr>
<td>LC 40 DB40E7X/</td>
<td>R900927969</td>
</tr>
<tr>
<td>LC 40 DB40D7X/</td>
<td>R900938014</td>
</tr>
<tr>
<td>LC 50 DB40E7X/</td>
<td>R900938041</td>
</tr>
<tr>
<td>LC 50 DB40D7X/</td>
<td>R900938040</td>
</tr>
<tr>
<td>LC 63 DB40E7X/</td>
<td>R900938070</td>
</tr>
<tr>
<td>LC 63 DB40D7X/</td>
<td>R900938069</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typ LFA (Steuerdeckel)</th>
<th>Material-Nummer</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFA 16 DB2-7X/315</td>
<td>R900912757</td>
</tr>
<tr>
<td>LFA 32 DB2-7X/315</td>
<td>R900912768</td>
</tr>
<tr>
<td>LFA 40 DB2-7X/315</td>
<td>R900927972</td>
</tr>
<tr>
<td>LFA 50 DB2-7X/315</td>
<td>R900938163</td>
</tr>
<tr>
<td>LFA 63 DB2-7X/315</td>
<td>R900938230</td>
</tr>
<tr>
<td>LFA 16 DBW2-7X/315</td>
<td>R900912805</td>
</tr>
<tr>
<td>LFA 25 DBW2-7X/315</td>
<td>R900912810</td>
</tr>
<tr>
<td>LFA 32 DBW2-7X/315</td>
<td>R900912815</td>
</tr>
<tr>
<td>LFA 40 DBW2-7X/315</td>
<td>R900938096</td>
</tr>
<tr>
<td>LFA 50 DBW2-7X/315</td>
<td>R900938191</td>
</tr>
<tr>
<td>LFA 63 DBW2-7X/315</td>
<td>R900938238</td>
</tr>
</tbody>
</table>

Further preferred types and standard components are shown in the EPS (standard price list).
### General notes on the ordering details for control covers

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>Type ¹)</th>
<th>Adjustment type</th>
<th>Series</th>
<th>Pressure stage in bar for nominal sizes</th>
<th>Seal material</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 25 32 40 50 63 80 100</td>
<td></td>
<td>7X</td>
<td></td>
<td>025 025</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6X</td>
<td></td>
<td>025 050 100 200 315 420</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DB</td>
<td></td>
<td>025 050 100 200 315 420</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBW</td>
<td></td>
<td>025 025 050 100 200 315 400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBS</td>
<td></td>
<td>025 025 050 100 200 315 400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBU2A</td>
<td></td>
<td>025 050 100 200 315 420</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBU2B</td>
<td></td>
<td>025 025 050 100 200 315 400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBU3D</td>
<td></td>
<td>025 025 050 100 200 315 400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBE</td>
<td></td>
<td>025 025 050 100 200 315 400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBEM</td>
<td></td>
<td>025 025 050 100 200 315 400</td>
<td></td>
</tr>
</tbody>
</table>

¹) For functions, see selection table on page 15

**Adjustment types for pressure relief valves**

1 = Rotary knob
2 = Hexagon with protective cap
3 = Lockable rotary knob with scale
4 = Rotary knob with scale, not lockable

**Series**

7X = Series 70 to 79 and
6X = Series 60 to 69
(unchanged installation and connection dimensions)

**Pressure stages**

Dependent on the nominal size and permissible working pressure of the pilot valve. For further details see ordering details for the control cover.

---

**Preferred types and standard components can be found in the EPS (Standard Price List).**

7

A...

Pressure data for DB1, only required for types DBU2 and DBU3D

8

B...

Pressure data for DB2, only required for type DBU3D

**Ordering example** for type DBU3D

.../315* A 100 B 200 (DB max/DB1/DB2)

*DB max. always first

The control covers are always fitted with a, optimised on our test rig, standard orifice. Orifice details are therefore not required in the type code. Deviating operating conditions could make it necessary to match the orifice size. The orifices are of the threaded type.

Orifice as shown within the main symbol
General notes on the ordering details for control covers: pilot control valve (max. operating pressure)

<table>
<thead>
<tr>
<th>Pilot control valve</th>
<th>Control cover</th>
<th>Max. operating pressure in bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme</td>
<td>NS</td>
<td>Type</td>
</tr>
<tr>
<td>DBD. 2 K2X/… 1)</td>
<td>16 to 32</td>
<td>DB, DBW, DBWD, DBEM</td>
</tr>
<tr>
<td>DBD. 6 K1X/… 2)</td>
<td>40 to 63</td>
<td>DBU2, DBU3D, DBS</td>
</tr>
<tr>
<td>DBD. 10 K1X/… 2)</td>
<td>80, 100</td>
<td>DBW, DBWD, DBS</td>
</tr>
<tr>
<td>.WE 6 …</td>
<td>23 178</td>
<td>DBW, DBWD</td>
</tr>
<tr>
<td>.WE 10 …</td>
<td>23 327</td>
<td>DBU2, DBU3D</td>
</tr>
<tr>
<td>M-3SEW 6 …</td>
<td>22 058</td>
<td>DBW, DBS</td>
</tr>
<tr>
<td>M-3SEW 10 …</td>
<td>22 049</td>
<td>DBW, DBS</td>
</tr>
<tr>
<td>M-3SED 6 …</td>
<td>22 075</td>
<td>DBW, DBS</td>
</tr>
<tr>
<td>M-3SED 10 …</td>
<td>22 045</td>
<td>DBW, DBS</td>
</tr>
<tr>
<td>DBET-5X/.G24-1 3)</td>
<td>29 165</td>
<td>DBE, DBEM</td>
</tr>
<tr>
<td>DBET-5X/.Y24-1 3)</td>
<td>29 165</td>
<td>DBE, DBEM</td>
</tr>
<tr>
<td>.WE 6 …</td>
<td>23 178</td>
<td>DBW, DBS</td>
</tr>
<tr>
<td>.WE 10 …</td>
<td>23 327</td>
<td>DBU2, DBU3D</td>
</tr>
<tr>
<td>M-3SEW 6 …</td>
<td>22 058</td>
<td>DBE, DBEM</td>
</tr>
<tr>
<td>M-3SEW 10 …</td>
<td>22 049</td>
<td>DBE, DBEM</td>
</tr>
<tr>
<td>DBET-5X/.G24-1 3)</td>
<td>29 165</td>
<td>DBE, DBEM</td>
</tr>
<tr>
<td>DBETR…</td>
<td>50 to 100</td>
<td>DBE, DBEM</td>
</tr>
</tbody>
</table>

1) Possible pressure stages: 25, 50, 100, 200, 315, 420
2) Possible pressure stages: 25, 50, 100, 200, 315, 400
3) Possible pressure stages: 50, 100, 200, 315, 350

1 = G 1/4 threaded connection T; special poppet

Note:
By combining a 2-way cartridge valve with a pilot control valve, various valve functions can be obtained. The following components may be considered with porting pattern form A6 (up to NS 63) and form A10 (NS 80 to 100) DIN 24 340.

Fixing screws: S.H.C.S. to DIN 912-10.9

<table>
<thead>
<tr>
<th>Pilot control valve</th>
<th>Dimensions</th>
<th>Tightening torque in Nm</th>
<th>Pilot control valve</th>
<th>Dimensions</th>
<th>Tightening torque in Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-3SEW 6 …</td>
<td>M5 x 45</td>
<td>8.9</td>
<td>.WE 6 …</td>
<td>M5 x 50</td>
<td>8.9</td>
</tr>
<tr>
<td>M-3SEW 10 …</td>
<td>M6 x 40</td>
<td>15.5</td>
<td>.WE 10 …</td>
<td>M6 x 40</td>
<td>15.5</td>
</tr>
<tr>
<td>M-3SED 6 …</td>
<td>M5 x 50</td>
<td>8.9</td>
<td>DBET …</td>
<td>M5 x 30</td>
<td>8.9</td>
</tr>
<tr>
<td>M-3SED 10 …</td>
<td>M6 x 40</td>
<td>15.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating pressure</td>
<td>420 bar</td>
</tr>
<tr>
<td>Attention: $p_{\text{max}}$ Take the pilot control valve into account!</td>
<td></td>
</tr>
<tr>
<td>Pressure fluid</td>
<td>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 (polyglycols) 2); HEES (synthetic ester) 2); Other pressure fluids on request</td>
</tr>
<tr>
<td>Pressure fluid temperature range</td>
<td>°C – 30 to + 80 for NBR seals – 20 to + 80 for FKM seals</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s 2.8 to 380</td>
</tr>
<tr>
<td>Cleanliness class to ISO code</td>
<td>Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 3)</td>
</tr>
</tbody>
</table>

3) The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.
## Pilot control valves (selection table)

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Type</th>
<th>Pilot control valve</th>
<th>Manual pressure setting</th>
<th>Symbols (see page 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 32</td>
<td>DB</td>
<td>Open</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>40 to 63</td>
<td>DB</td>
<td>Position &quot;a&quot;</td>
<td>With</td>
<td></td>
</tr>
<tr>
<td>80 and 100</td>
<td></td>
<td>Position &quot;b&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Directional valve unloading

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Type</th>
<th>Pilot control valve</th>
<th>Manual pressure setting</th>
<th>Symbols (see page 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 32</td>
<td>DBW</td>
<td>3WE6B9-...</td>
<td>Open</td>
<td>2</td>
</tr>
<tr>
<td>40 to 63</td>
<td>DBW</td>
<td>M-3SE.6C...</td>
<td>DB function</td>
<td>3</td>
</tr>
<tr>
<td>80 and 100</td>
<td>DBW</td>
<td>4WE6D...</td>
<td>DB function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M-3SE.6U...</td>
<td>Open</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3WE10B9-...</td>
<td>DB function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE10D...</td>
<td>DB function</td>
<td></td>
</tr>
</tbody>
</table>

### Isolating function

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Type</th>
<th>Pilot control valve</th>
<th>Manual pressure setting</th>
<th>Symbols (see page 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 32</td>
<td>DBWD</td>
<td>3WE6B9-...</td>
<td>Closed</td>
<td>5</td>
</tr>
<tr>
<td>40 to 63</td>
<td>DBWD</td>
<td>3WE10B9-...</td>
<td>DB function</td>
<td></td>
</tr>
<tr>
<td>80 and 100</td>
<td>DBWD</td>
<td>3WE6A...</td>
<td>DB function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE6M...</td>
<td>Closed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3WE10A...</td>
<td>DB function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE10M...</td>
<td>Open</td>
<td></td>
</tr>
</tbody>
</table>

### 2 pressure stages

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Type</th>
<th>Pilot control valve</th>
<th>Manual pressure setting</th>
<th>Symbols (see page 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 32</td>
<td>DBU2A</td>
<td>4WE6H...</td>
<td>DBmax. function</td>
<td>6</td>
</tr>
<tr>
<td>40 to 63</td>
<td>DBU2A</td>
<td>4WE10H...</td>
<td>DB1 function</td>
<td></td>
</tr>
<tr>
<td>80 and 100</td>
<td>DBU2A</td>
<td>4WE6D...</td>
<td>DB1 function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE10D...</td>
<td>DB1 function</td>
<td></td>
</tr>
</tbody>
</table>

### 3 pressure stages

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Type</th>
<th>Pilot control valve</th>
<th>Manual pressure setting</th>
<th>Symbols (see page 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 32</td>
<td>DBU3D</td>
<td>4WE6H...</td>
<td>DB2 function</td>
<td>7</td>
</tr>
<tr>
<td>40 to 63</td>
<td>DBU3D</td>
<td>4WE10H...</td>
<td>DBmax. function</td>
<td></td>
</tr>
<tr>
<td>80 and 100</td>
<td>DBU3D</td>
<td>4WE6E...</td>
<td>DB1 function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE10E...</td>
<td>DB1 function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE6D...</td>
<td>DB1 function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WE10D...</td>
<td>DB1 function</td>
<td></td>
</tr>
</tbody>
</table>

### Proportional pressure setting version

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Type</th>
<th>Pilot control valve</th>
<th>Manual pressure setting</th>
<th>Symbols (see page 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 32</td>
<td>DBE</td>
<td>DBET-5X/...</td>
<td>Without max. pressure safety limitation</td>
<td>8</td>
</tr>
<tr>
<td>40 to 63</td>
<td>DBEM</td>
<td>DBET-5X/...</td>
<td>With max. pressure safety limitation</td>
<td>9</td>
</tr>
</tbody>
</table>

Open = Bypass circuit
Closed = Cartridge valve is hydraulically locked
DB function = Pressure relief function
Symbol overview (basic symbols), pressure relief function

Valid symbols are shown in the following type descriptions:

1. LFA..DB-../..NS16 to 100
   
2. LFA..DWB-../..NS16 to 32
   
3. LFA..DWB-../..NS40 to 100
   
4. LFA..DBS-../..NS40 to 100
   
5. LFA..DBWD-../..NS16 to 100
   
6. LFA..DBU2A-../..NS16 to 100
   
7. LFA..DBU3D-../..NS16 to 100
   
8. LFA..DBE-../..NS16 to 63
   
9. LFA..DBEM-../..NS16 to 100

See pages 18 to 20
See pages 21, 22
See pages 21 to 25
See pages 21 to 25
See pages 26 to 28
See pages 29 to 32
See pages 33 to 37
See page 38
See pages 39 to 42
### R-rings dimensions for ports X, Y (included within the scope of supply)

<table>
<thead>
<tr>
<th>NS</th>
<th>Dimensions mm</th>
<th>NBR</th>
<th>Material No.</th>
<th>FKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>8.41 x 1.40 x 1.78</td>
<td>R900025407</td>
<td>R900025408</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>9.81 x 1.50 x 1.78</td>
<td>R900017453</td>
<td>R900017610</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>11.18 x 1.60 x 1.78</td>
<td>R900017455</td>
<td>R900017611</td>
<td></td>
</tr>
<tr>
<td>40, 50</td>
<td>13.00 x 2.30 x 2.62</td>
<td>R900017457</td>
<td>R900017617</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>18.72 x 2.62 x 2.62</td>
<td>R900024445</td>
<td>R900024446</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>26.57 x 3.53 x 3.53</td>
<td>R900017466</td>
<td>R900017630</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>34.52 x 3.53 x 3.53</td>
<td>R900017472</td>
<td>R900017633</td>
<td></td>
</tr>
</tbody>
</table>

### Seal kits for control cover type LFA..

#### Seal kit for LFA...

<table>
<thead>
<tr>
<th>Seal kit for LFA...</th>
<th>NS 16</th>
<th>NS 25</th>
<th>NS 32</th>
<th>NS 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material No.</td>
<td>NBR</td>
<td>FKM</td>
<td>NBR</td>
<td>FKM</td>
</tr>
<tr>
<td>DB...; DBW...; DBS...; DBWD...; DBEM...</td>
<td>R900313955</td>
<td>R900313956</td>
<td>R900313957</td>
<td>R900313958</td>
</tr>
<tr>
<td>DBU2...; DBU3...</td>
<td>R900313709</td>
<td>R900313710</td>
<td>R900313711</td>
<td>R900313712</td>
</tr>
<tr>
<td>DBE...</td>
<td>R900313701</td>
<td>R900313702</td>
<td>R900313703</td>
<td>R900313704</td>
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</table>

#### Seal kit for LFA...

<table>
<thead>
<tr>
<th>Seal kit for LFA...</th>
<th>NS 50</th>
<th>NS 63</th>
<th>NS 80</th>
<th>NS 100</th>
</tr>
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<td>NBR</td>
<td>FKM</td>
<td>NBR</td>
<td>FKM</td>
</tr>
<tr>
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<td>R900895786</td>
<td>R900313725</td>
<td>R900313726</td>
<td>R900313727</td>
</tr>
<tr>
<td>DBU2...; DBU3...</td>
<td>R900313717</td>
<td>R900313718</td>
<td>R900313719</td>
<td>R900313720</td>
</tr>
<tr>
<td>DBE...</td>
<td>R900313897</td>
<td>R900313898</td>
<td>R900313899</td>
<td>R900313700</td>
</tr>
<tr>
<td>DBEM...</td>
<td>R900313893</td>
<td>R900313894</td>
<td>R900313895</td>
<td>R900313896</td>
</tr>
</tbody>
</table>

### Fixing screws (included within the scope of supply)

S.H.C.S. to DIN 912-10.9

<table>
<thead>
<tr>
<th>NS</th>
<th>Qty.</th>
<th>Dimensions</th>
<th>Tightening torque in Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4</td>
<td>M 8 x 45</td>
<td>32</td>
</tr>
<tr>
<td>25</td>
<td>4</td>
<td>M 12 x 50</td>
<td>110</td>
</tr>
<tr>
<td>32</td>
<td>4</td>
<td>M 16 x 60</td>
<td>270</td>
</tr>
<tr>
<td>40</td>
<td>4</td>
<td>M 20 x 70</td>
<td>520</td>
</tr>
<tr>
<td>50</td>
<td>4</td>
<td>M 20 x 80</td>
<td>520</td>
</tr>
<tr>
<td>63</td>
<td>4</td>
<td>M 30 x 100</td>
<td>1800</td>
</tr>
<tr>
<td>80</td>
<td>8</td>
<td>M 24 x 120</td>
<td>900</td>
</tr>
<tr>
<td>100</td>
<td>8</td>
<td>M 30 x 120</td>
<td>1800</td>
</tr>
</tbody>
</table>

### Orifice thread size

- D orifices for type ..DBE.. NS 25 to 63: M8 x 1 tapered
- Orifices for NS 80, 100 (A**, B**, P**, D**) or G 1/4 (X**, F**): M6 x 1 tapered
Control cover with manual pressure adjustment

NS 16 to 100

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>LFA</td>
<td>DB</td>
<td>1</td>
<td>/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustment type

- Rotary knob = 1
- Hexagon with protective cap = 2
- Lockable rotary knob with scale = 3
- (H-key to automotive industry standards)
- Rotary knob with scale **not** lockable = 4

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

NS 16, 25, 32

Dimensions in mm

1 Port X optionally as threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut

** Orifice Ø
1) Orifice M6 tapered

Pressure stages

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>025 = 25 bar</th>
<th>050 = 50 bar</th>
<th>100 = 100 bar</th>
<th>200 = 200 bar</th>
<th>315 = 315 bar</th>
<th>420 = 400 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>25 bar</td>
<td>50 bar</td>
<td>100 bar</td>
<td>200 bar</td>
<td>315 bar</td>
<td>400 bar</td>
</tr>
<tr>
<td>25</td>
<td>25 bar</td>
<td>50 bar</td>
<td>100 bar</td>
<td>200 bar</td>
<td>315 bar</td>
<td>400 bar</td>
</tr>
<tr>
<td>32</td>
<td>25 bar</td>
<td>50 bar</td>
<td>100 bar</td>
<td>200 bar</td>
<td>315 bar</td>
<td>400 bar</td>
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<tr>
<td>40</td>
<td>25 bar</td>
<td>50 bar</td>
<td>100 bar</td>
<td>200 bar</td>
<td>315 bar</td>
<td>400 bar</td>
</tr>
</tbody>
</table>

Series 7X

NS 16 to 63

Series 6X

NS 80 and 100

NS

X

F

D

H

L

Ø

22A/F
10A/F
80 max
80
52 max
32
53
52
49
45.5
36.5
32.5
26
28
30
32
36.5
40
45.5
53
Control cover with manual pressure adjustment

**NS 40, 50**

1. Port X optionally as a threaded port
2. Port Y optionally as a threaded port
3. Locating pin
4. Adjustment "2"
5. Adjustment "1"
6. Adjustment "3"
7. Adjustment "4"
8. Space required to remove the key
9. Name plate
10. Locknut

**NS 63**

1. Port X optionally as a threaded port
2. Port Y optionally as a threaded port
3. Locating pin
4. Adjustment "2"
5. Adjustment "1"
6. Adjustment "3"
7. Adjustment "4"
8. Space required to remove the key
9. Name plate
10. Locknut
Control cover with manual pressure adjustment

NS 80, 100

Dimensions in mm

<table>
<thead>
<tr>
<th>NS</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>X** 1)</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>F** 1)</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>D2</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>H1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>H2</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>H3</td>
<td>45</td>
<td>51</td>
</tr>
<tr>
<td>H4</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>L8</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

1) Orifice G 1/4 tapered

** Orifice Ø

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
Control cover with manual pressure adjustment, for electrical unloading

NS 16 to 100

| NS 16  | 16 |
| NS 25  | 25 |
| NS 32  | Series = 32 |
| NS 40  | Series = 40 |
| NS 50  | 50 |
| NS 63  | 63 |

Control cover type
For mounting a
directional spool (NS 16 to 100)
or directional poppet valve (for NS 16, 25, 32)

For mounting a directional poppet valve
(forNS 40, 50, 63, 80, 100)

Adjustment type
Rotary knob
Hexagon with protective cap
Lockable rotary knob with scale
(H-key to automotive industry standards)
Rotary knob with scale not lockable

NS 16 to 63

4WE 6 D../..
3WE 6 B9-../..
M-3SED 6 C../350…
M-3SED 6 U../350…
M-3SEW 6 U../420…
M-3SEW 6 U../420…
M-3SED 6 C../350…
M-3SEW 6 C../420…
M-3SEW 6 C../420…

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

Pressure stages
(take max. perm. pressure of pilot valve into account)

| NS 16, 25, 32 | NS 40, 50, 63, 80, 100 |
| 025 = 25 bar | 025 = 25 bar |
| 050 = 50 bar | 050 = 50 bar |
| 100 = 100 bar | 100 = 100 bar |
| 200 = 200 bar | 200 = 200 bar |
| 315 = 315 bar | 315 = 315 bar |
| 420 = 420 bar | 400 = 400 bar |

6X = Series 6X (NS 80 and 100)
7X = Series 7X (NS 16 to 63)
Control cover with manual pressure adjustment, for electrical unloading

NS 16, 25, 32

Dimensions in mm

<table>
<thead>
<tr>
<th>NS</th>
<th>P**1</th>
<th>X**1</th>
<th>F**1</th>
<th>D**1</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>40</td>
<td>17</td>
<td>15</td>
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<td>80</td>
<td>36.5</td>
<td>32.5</td>
<td>35</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>25</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>40</td>
<td>19</td>
<td>24</td>
<td>19</td>
<td>28</td>
<td>85</td>
<td>85</td>
<td>49</td>
<td>45.5</td>
<td>36</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>32</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>50</td>
<td>26</td>
<td>28</td>
<td>26</td>
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<td>56.5</td>
<td>53</td>
<td>57</td>
<td>31</td>
<td>34.5</td>
</tr>
</tbody>
</table>

** Orifice Ø
1) Orifice M6 tapered

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply
Control cover with manual pressure adjustment, for electrical unloading

NS 40, 50

Dimensions in mm

<table>
<thead>
<tr>
<th>NS</th>
<th>A**1)</th>
<th>P**1)</th>
<th>F**1)</th>
<th>D**1)</th>
<th>D1</th>
<th>T1</th>
<th>H1</th>
<th>H2*</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>□L1</th>
<th>L3</th>
<th>L3*</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>0.8</td>
<td>1.2</td>
<td>1.2</td>
<td>1.0</td>
<td>12</td>
<td>60</td>
<td>46</td>
<td>17</td>
<td>32</td>
<td>27</td>
<td>40</td>
<td>125</td>
<td>62.5</td>
<td>69</td>
<td>76</td>
<td>68</td>
<td>43.5</td>
<td>47</td>
</tr>
<tr>
<td>50</td>
<td>0.8</td>
<td>1.5</td>
<td>1.5</td>
<td>2.0</td>
<td>14</td>
<td>68</td>
<td>51</td>
<td>19.5</td>
<td>34</td>
<td>35</td>
<td>50</td>
<td>140</td>
<td>67.5</td>
<td>80</td>
<td>84</td>
<td>74.5</td>
<td>51</td>
<td>54.5</td>
</tr>
</tbody>
</table>

* Dimensions for control cover LFA..DBS..
** Orifice Ø
1) Orifice M6 tapered

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply
Control cover with manual pressure adjustment, for electrical unloading

**NS 63**

*Dimensions in mm*

**LFA..DBW..-7X/...**

**LFA..DBS..-.../...**

**Directional spool valve WE 6...**

**Directional poppet valve M-3SEW 6 U**

**Directional poppet valve M-3SED 6 U**

1. Port X optionally as a threaded port
2. Port Y optionally as a threaded port
3. Locating pin
4. Adjustment type "2"
5. Adjustment type "1"
6. Adjustment type "3"
7. Adjustment type "4"
8. Space required to remove the key
9. Name plate
10. Locknut
11. Valve fixing screws are included within the control cover scope of supply

**Table:**

<table>
<thead>
<tr>
<th></th>
<th>A**</th>
<th>P**</th>
<th>F**</th>
<th>D**</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBW</td>
<td>1.0</td>
<td>2.0</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>DBS</td>
<td>1.8</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

**Orifice Ø**

(1) Orifice M6 tapered
Control cover with manual pressure adjustment, for electrical unloading

NS 80, 100

<table>
<thead>
<tr>
<th>NS</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>A**</td>
<td>1.2</td>
<td>1.5</td>
</tr>
<tr>
<td>B**</td>
<td>3.0</td>
<td>3.0</td>
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<tr>
<td>P**</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>X**</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>F**</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>D2</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>H1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>H2</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>H3</td>
<td>45</td>
<td>51</td>
</tr>
<tr>
<td>H4</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>L8</td>
<td>75</td>
<td>85</td>
</tr>
</tbody>
</table>

** Orifice Ø
1) Orifice M8 x 1 tapered
2) Orifice G 1/4 tapered

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply
Control cover with manual pressure adjustment, for isolation functions

### NS 16 to 100

<table>
<thead>
<tr>
<th>Adjustment type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary knob</td>
<td>1</td>
</tr>
<tr>
<td>Hexagon with protective cap</td>
<td>2</td>
</tr>
<tr>
<td>Lockable rotary knob with scale</td>
<td>3</td>
</tr>
<tr>
<td>(H-key to automotive industry standard)</td>
<td>4</td>
</tr>
</tbody>
</table>

| Series 6X (NS 80 and 100)             | 6X   |
| Series 7X (NS 16 to 63)              | 7X   |

No code = NBR seals

V = FKM seals

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

### Pressure stages

<table>
<thead>
<tr>
<th>NS 16, 25, 32</th>
<th>NS 40, 50, 63, 80, 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>025 = 25 bar</td>
<td>025 = 25 bar</td>
</tr>
<tr>
<td>050 = 50 bar</td>
<td>050 = 50 bar</td>
</tr>
<tr>
<td>100 = 100 bar</td>
<td>100 = 100 bar</td>
</tr>
<tr>
<td>200 = 200 bar</td>
<td>200 = 200 bar</td>
</tr>
<tr>
<td>315 = 315 bar</td>
<td>315 = 315 bar</td>
</tr>
<tr>
<td>420 = 420 bar</td>
<td>400 = 400 bar</td>
</tr>
</tbody>
</table>

Pressure stages (take max. perm. pressure of pilot valve into account)

### 3 WE 6 A...

3 WE 6 A...

### 3 WE 6 B9...

3 WE 6 B9...

### 3 WE 6 B9...

3 WE 6 B9...

### 3 WE 10 A...

3 WE 10 A...

### 3 WE 10 B9...

3 WE 10 B9...

### 3 WE 10 B9...

3 WE 10 B9...

### 3 WE 10 B9...

3 WE 10 B9...

### LFA..DBWD.-7X/

NS 16

### LFA..DBWD.-7X/

NS 16

### LFA..DBWD.-7X/

NS 16
Control cover with manual pressure adjustment, for isolation functions

NS 16, 25, 32

Dimensions in mm

Directional spool valve . WE 6...

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply

For dimension table see page 28
Control cover with manual pressure adjustment, for isolation functions

### Table: NS 63

<table>
<thead>
<tr>
<th>NS</th>
<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B</strong></td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td>1.8</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>X</strong></td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.2</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>1.0</td>
<td>2.0</td>
<td>2.5</td>
<td>2.5</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Dimensions in mm

**NS 80, 100**

### Diagram: Directional Spool Valve

1. Port X optionally as a threaded port
2. Port Y optionally as a threaded port
3. Locating pin
4. Adjustment type "2"
5. Adjustment type "1"
6. Adjustment type "3"
7. Adjustment type "4"
8. Space required to remove the key
9. Name plate
10. Locknut
11. Valve fixing screws are included within the control cover scope of supply

**Orifice Ø**

1. Orifice M6 tapered (NS 16...63) or M8 x 1 tapered (NS 80 and 100)
2. Orifice M6 tapered (NS 16...63) or G 1/4 tapered (NS 80 and 100)
Control cover with 2 manual pressure adjusters, electrically selectable

### NS 16 to 100

| NS 16 | 16 |
| NS 25 | 25 |
| NS 32 | Series = 32 NS 80 |
| NS 40 | 40 NS 100 |
| NS 50 | 50 |
| NS 63 | 63 |

#### Control cover type
- De-energised - DB1 (4 WE.. D) = DBU2A
- De-energised - open (4 WE.. H) = DBU2B
- De-energised - DB max. (4 WE.. D) = DBU2B (see symbols)

#### Adjustment type (details only required for DB1)
- Rotary knob = 1
- Hexagon with protective cap = 2
- Lockable rotary knob with scale = 3
- Lockable rotary knob with scale (H-key to automotive industry standards) = 3
- Rotary knob with scale not lockable = 4

#### Pressure stages
(take max. perm. pressure of pilot valve into account)

<table>
<thead>
<tr>
<th>NS 16, 25, 32</th>
<th>NS 40, 50, 63, 80, 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>025 = 25 bar</td>
<td>025 = 25 bar</td>
</tr>
<tr>
<td>050 = 50 bar</td>
<td>050 = 50 bar</td>
</tr>
<tr>
<td>100 = 100 bar</td>
<td>100 = 100 bar</td>
</tr>
<tr>
<td>200 = 200 bar</td>
<td>200 = 200 bar</td>
</tr>
<tr>
<td>315 = 315 bar</td>
<td>315 = 315 bar</td>
</tr>
<tr>
<td>420 = 420 bar</td>
<td>400 = 400 bar</td>
</tr>
</tbody>
</table>

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

### Control cover type

- De-energised - DB1 (4 WE.. D)
- De-energised - DB max. (4 WE.. D)

### Adjustment type

- Rotary knob
- Hexagon with protective cap
- Lockable rotary knob with scale
- (H-key to automotive industry standards)
- Rotary knob with scale not lockable

### Control cover type

- De-energised - DB1 (4 WE.. D)
- De-energised - DB max. (4 WE.. D)

### Adjustment type

- Rotary knob
- Hexagon with protective cap
- Lockable rotary knob with scale
- Lockable rotary knob with scale (H-key to automotive industry standards)
- Rotary knob with scale not lockable

### Control cover type

- De-energised - DB1 (4 WE.. D)
- De-energised - DB max. (4 WE.. D)

### Adjustment type

- Rotary knob
- Hexagon with protective cap
- Lockable rotary knob with scale
- Lockable rotary knob with scale (H-key to automotive industry standards)
- Rotary knob with scale not lockable

### Control cover type

- De-energised - DB1 (4 WE.. D)
- De-energised - DB max. (4 WE.. D)

### Adjustment type

- Rotary knob
- Hexagon with protective cap
- Lockable rotary knob with scale
- Lockable rotary knob with scale (H-key to automotive industry standards)
- Rotary knob with scale not lockable

### Control cover type

- De-energised - DB1 (4 WE.. D)
- De-energised - DB max. (4 WE.. D)

### Adjustment type

- Rotary knob
- Hexagon with protective cap
- Lockable rotary knob with scale
- Lockable rotary knob with scale (H-key to automotive industry standards)
- Rotary knob with scale not lockable
Control cover with 2 manual pressure adjusters, electrically selectable

NS 16, 25, 32

Directional spool valve 4 WE 6...

** Orifice Ø

1) Orifice M6 tapered

<table>
<thead>
<tr>
<th>NS</th>
<th>P**1)</th>
<th>X**1)</th>
<th>F**1)</th>
<th>D**1)</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
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<tbody>
<tr>
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<td>1.0</td>
<td>0.8</td>
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<td>80</td>
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<td>32.5</td>
<td>35</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>25</td>
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<td>1.0</td>
<td>0.8</td>
<td>40</td>
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<td>27</td>
</tr>
<tr>
<td>32</td>
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<td>1.2</td>
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<td>28</td>
<td>26</td>
<td>37</td>
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<td>56.5</td>
<td>53</td>
<td>57</td>
<td>31</td>
<td>34.5</td>
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</tbody>
</table>

** Orifice Ø

1) Orifice M6 tapered

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws M5 x 90 are included within the scope of the control cover supply
12 Plug M6 tapered for ..DBU 2A..
13 Plug M6 tapered for ..DBU 2B..
*) For DB max. only adjustment type "2" is possible
Control cover with 2 manual pressure adjusters, electrically selectable

**NS 40, 50**

Directional spool valve 4 WE 6...

11 Port X optionally as a threaded port
12 Port Y optionally as a threaded port
13 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws M5 x 90 are included within the control cover scope
12 Plug M6 tapered for ..DBU 2A..
13 Plug M6 tapered for ..DBU 2B..
*) For DB max. only adjustment type "2" is possible

**NS 63**

Directional spool valve 4 WE 6...

<table>
<thead>
<tr>
<th>NS</th>
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<th>F**1)</th>
<th>D**1)</th>
<th>D1</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>T1</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1.2</td>
<td>1.2</td>
<td>1.0</td>
<td>G1/4</td>
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<td>17</td>
<td>32</td>
<td>27</td>
<td>40</td>
<td>125</td>
<td>69</td>
<td>76</td>
<td>68</td>
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<td>50</td>
<td>1.5</td>
<td>1.5</td>
<td>2.0</td>
<td>G1/2</td>
<td>68</td>
<td>19.5</td>
<td>34</td>
<td>35</td>
<td>50</td>
<td>140</td>
<td>80</td>
<td>84</td>
<td>74.5</td>
<td>51</td>
<td>54.5</td>
<td>14</td>
</tr>
<tr>
<td>63</td>
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<td>2.0</td>
<td>2.5</td>
<td>82</td>
<td>55</td>
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<td></td>
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</tbody>
</table>

** Orifice Ø
1) Orifice M6 tapered
Control cover with 2 manual pressure adjusters, electrically selectable

NS 80, 100

Dimensions in mm

Directional spool valve 4 WE 10...

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply
12 Plug M8 x 1 tapered for ...DBU2A...
13 Plug M8 x 1 tapered for ...DBU2B...
*) For DB max. only adjustment type "2" is possible

<table>
<thead>
<tr>
<th>NS</th>
<th>P **1)</th>
<th>X **2)</th>
<th>F **2)</th>
<th>D2</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
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<tbody>
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<td>2.5</td>
<td>250</td>
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<td>45</td>
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<td>75</td>
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<tr>
<td>100</td>
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<td>3.0</td>
<td>2.5</td>
<td>300</td>
<td>100</td>
<td>30</td>
<td>51</td>
<td>52</td>
<td>85</td>
</tr>
</tbody>
</table>

** Orifice Ø
1) Orifice M8 x 1 tapered
2) Orifice G 1/4 tapered

---

** Orifice Ø
1) Orifice M8 x 1 tapered
2) Orifice G 1/4 tapered

---

32/68  LC; LFA
Control cover with 3 manual manual pressure adjusters, electrically selectable

**NS 16 to 100**

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
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<th>100</th>
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<tbody>
<tr>
<td>LFA</td>
<td>DBU3D</td>
<td>DB max</td>
<td>DB1</td>
<td>DB max</td>
<td>DB2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No code =

| Series 7X (NS 16 to 63) | = 7X |
| Series 6X (NS 80 and 100) | = 6X |

Adjustment type (details only for DB1 or DB2)*

- Rotary knob = 1
- Hexagon with protective cap = 2
- Lockable rotary knob with scale = 3
- (H-key to automotive industry standards)
- Rotary knob with scale not lockable = 4

Pressure stages

(take max. perm. pressure of pilot valve into account)

<table>
<thead>
<tr>
<th>NS 16, 25, 32</th>
<th>NS 40, 50, 63, 80, 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>025 = 25 bar</td>
<td>025 = 25 bar</td>
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<tr>
<td>050 = 50 bar</td>
<td>050 = 50 bar</td>
</tr>
<tr>
<td>100 = 100 bar</td>
<td>100 = 100 bar</td>
</tr>
<tr>
<td>200 = 200 bar</td>
<td>200 = 200 bar</td>
</tr>
<tr>
<td>315 = 315 bar</td>
<td>315 = 315 bar</td>
</tr>
<tr>
<td>420 = 420 bar</td>
<td>400 = 400 bar</td>
</tr>
</tbody>
</table>

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

No code = NBR seals

V = FKM seals

(Other seals on request)

*) For DB1 and DB2 select the same adjustment type
Control cover with 3 manual pressure adjusters, electrically selectable

NS 16, 25, 32

Dimensions in mm

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply

*) For DB1 and DB2 select the same adjustment type
**) For DB max. only adjustment type "2" is possible

<table>
<thead>
<tr>
<th>NS</th>
<th>P**1</th>
<th>X**1</th>
<th>F**1</th>
<th>D**1</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>40</td>
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<td>80</td>
<td>36.5</td>
<td>32.5</td>
<td>35</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>25</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>40</td>
<td>19</td>
<td>24</td>
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<td>45.5</td>
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</tr>
<tr>
<td>32</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>50</td>
<td>26</td>
<td>28</td>
<td>26</td>
<td>37</td>
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<td>100</td>
<td>56.5</td>
<td>53</td>
<td>57</td>
<td>31</td>
<td>34.5</td>
</tr>
</tbody>
</table>

** Orifice Ø
1) Orifice M6 tapered
Control cover with 3 manual pressure adjustmers, electrically selectable

NS 40, 50

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply

*) For DB1 and DB2 select the same adjustment type
**) For DB max. only adjustment type "2" is possible

** Orifice Ø
1) Orifice M6 tapered

<table>
<thead>
<tr>
<th>NS</th>
<th>P**</th>
<th>F**</th>
<th>D**</th>
<th>D1</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>T1</th>
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</thead>
<tbody>
<tr>
<td>40</td>
<td>1.2</td>
<td>1.2</td>
<td>1.0</td>
<td>G1/4</td>
<td>60</td>
<td>17</td>
<td>32</td>
<td>27</td>
<td>40</td>
<td>125</td>
<td>69</td>
<td>76</td>
<td>68</td>
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<tr>
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<td>1.5</td>
<td>2.0</td>
<td>G1/2</td>
<td>68</td>
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<td>34</td>
<td>35</td>
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<td>140</td>
<td>80</td>
<td>84</td>
<td>74.5</td>
<td>51</td>
<td>54.5</td>
<td>14</td>
</tr>
</tbody>
</table>
Control cover with 3 manual pressure adjusters, electrically selectable

**NS 63**

Dimensions in mm

Directional spool valve 4 WE 6...

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply

*) For DB1 and DB2 select the same adjustment type

**) For DB max. only adjustment type "2" is possible

** Orifice Ø

1) Orifice M6 tapered

---

**NS**

<table>
<thead>
<tr>
<th>P**1)</th>
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<td>D**1)</td>
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</table>

---

105
94
94 max
124
20
180
103
45
51
31
322/14
50
82
55
45
35
90
87
71
40.5
90
20
60
60

---

---
Control cover with 3 manual pressure adjusters, electrically selectable

NS 80, 100

Dimensions in mm

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
5 Adjustment type "1"
6 Adjustment type "3"
7 Adjustment type "4"
8 Space required to remove the key
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply

*) For DB1 and DB2 select the same adjustment type
**) For DB max. only adjustment type "2" is possible

<table>
<thead>
<tr>
<th>NS</th>
<th>P**1)</th>
<th>X**2)</th>
<th>F**2)</th>
<th>D2</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>L8</th>
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</thead>
<tbody>
<tr>
<td>80</td>
<td>3.5</td>
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<td>100</td>
<td>30</td>
<td>51</td>
<td>52</td>
<td>85</td>
</tr>
</tbody>
</table>

** Orifice Ø
1) Orifice M8 x 1 tapered
2) Orifice G 1/4 tapered
Control cover for electrical-proportional pressure adjustment, without maximum pressure limitation

NS 16 to 63

For mounting a proportional pressure relief valve
without electrical feedback

Series 7X (NS 16 to 63)

Dimensions in mm

No code = DBE

NS 16 = 16 NS 40 = 40
NS 25 = 25 NS 50 = 50
NS 32 = 32 NS 63 = 63

For mounting a proportional pressure relief valve
without electrical feedback

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

Series 7X (NS 16 to 63)

LFA...DBE-7X/ NS 16

LFA...DBE-7X/ NS 25, 32, 40

LFA...DBE-7X/ NS 50, 63

NS 16 to 40

NS 50, 63

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
9 Name plate
11 Valve fixing screws are included within the control
cover scope of supply
14 Prop. pressure relief valve
type DBET-5X/... (see summary on page 14,
also catalogue sheet RE 29 165)
15 Pressure relief valve
NS 6 (included within the scope of supply)

** Orifice Ø

1) Orifice M6 tapered
2) Orifice M6 tapered (NS 16), M8 x 1 tapered (NS 25 ... 63)

<table>
<thead>
<tr>
<th>NS 16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
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<td>G1/4</td>
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<td>G1/2</td>
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<td>28</td>
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<td>34</td>
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<tr>
<td>H4</td>
<td>20</td>
<td>19</td>
<td>26</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>L1</td>
<td>65</td>
<td>85</td>
<td>100</td>
<td>125</td>
<td>140</td>
</tr>
<tr>
<td>L2</td>
<td>80</td>
<td>85</td>
<td>100</td>
<td>125</td>
<td>140</td>
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<tr>
<td>L3</td>
<td>36.5</td>
<td>49</td>
<td>56.5</td>
<td>72</td>
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<tr>
<td>L4</td>
<td>23.5</td>
<td>36</td>
<td>43.5</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>L5</td>
<td>7</td>
<td>23.5</td>
<td>31</td>
<td>43.5</td>
<td>51</td>
</tr>
<tr>
<td>L6</td>
<td>17</td>
<td>27</td>
<td>34.5</td>
<td>47</td>
<td>54.5</td>
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<tr>
<td>T1</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>
Control cover for electrical-proportional pressure adjustment, with maximum pressure limitation

NS 16 to 100

For mounting a proportional pressure relief valve
\[ \text{Without electrical feedback and} \]
\[ \text{with maximum pressure safety} \]
\[ = \text{DBEM} \]

Series 6X (NS 80 to 100)
Series 7X (NS 16 to 63)

Pressure stages
(take max. perm. pressure of pilot valve into account)

<table>
<thead>
<tr>
<th>NS 16, 25, 32</th>
<th>NS 40, 50, 63, 80, 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>025 = 25 bar</td>
<td>025 = 25 bar</td>
</tr>
<tr>
<td>050 = 50 bar</td>
<td>050 = 50 bar</td>
</tr>
<tr>
<td>100 = 100 bar</td>
<td>100 = 100 bar</td>
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<tr>
<td>200 = 200 bar</td>
<td>200 = 200 bar</td>
</tr>
<tr>
<td>315 = 315 bar</td>
<td>315 = 315 bar</td>
</tr>
<tr>
<td>420 = 420 bar</td>
<td>400 = 400 bar</td>
</tr>
</tbody>
</table>

NBR seals
FKM seals
(Other seals on request)

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

For item nos. see page 40
Control cover for electrical-proportional pressure adjustment, with maximum pressure limitation

NS 16, 25, 32

Dimensions in mm

<table>
<thead>
<tr>
<th>NS</th>
<th>P**</th>
<th>X**</th>
<th>F**</th>
<th>D**</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>40</td>
<td>17</td>
<td>15</td>
<td>19</td>
<td>28</td>
<td>65</td>
<td>80</td>
<td>36.5</td>
<td>32.5</td>
<td>7</td>
<td>17</td>
<td>35</td>
</tr>
<tr>
<td>25</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>40</td>
<td>19</td>
<td>24</td>
<td>19</td>
<td>28</td>
<td>85</td>
<td>85</td>
<td>49</td>
<td>45.5</td>
<td>8</td>
<td>27</td>
<td>36</td>
</tr>
<tr>
<td>32</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>50</td>
<td>26</td>
<td>28</td>
<td>26</td>
<td>37</td>
<td>100</td>
<td>100</td>
<td>56.5</td>
<td>53</td>
<td>31</td>
<td>34.5</td>
<td>57</td>
</tr>
</tbody>
</table>

** Orifice Ø

1) Orifice M6 tapered

Ports T and Y - zero pressure

1 Port X optionally as a threaded port

2 Port Y optionally as a threaded port

3 Locating pin

4 Adjustment type “2”

9 Name plate

10 Locknut

11 Valve fixing screws are included within the control cover scope of supply

14 Proportional pressure relief valve type DBET-5X/…–1

(see summary on page 14, also catalogue sheet RE 29 165)

3) 1 = G 1/4 threaded port T, special poppet
Control cover for electrical-proportional pressure adjustment, with maximum pressure limitation

NS 40

1 Port X optionally as a threaded port
2 Port Y optionally as a threaded port
3 Locating pin
4 Adjustment type "2"
9 Name plate
10 Locknut
11 Valve fixing screws are included within the control cover scope of supply

14 Proportional pressure relief valve type DBET-SX/…G24 (NS 40)
type DBET-SX/…Y G24-13) (NS 50)
(see summary on page 14, also catalogue sheet RE 29 165)

15 Pressure relief valve NS 6
(is included within the scope of supply)

3) \( 1 = G \) 1/4 threaded port T, special poppet

<table>
<thead>
<tr>
<th>NS</th>
<th>B**1)</th>
<th>P**1)</th>
<th>F**1)</th>
<th>D**1)</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
<th>L1</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
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</thead>
<tbody>
<tr>
<td>40</td>
<td>0.8</td>
<td>1.5</td>
<td>2.0</td>
<td>68</td>
<td>19.5</td>
<td>34</td>
<td>35</td>
<td>50</td>
<td>140</td>
<td>80</td>
<td>84</td>
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<tr>
<td>50</td>
<td>1.5</td>
<td>2.0</td>
<td>68</td>
<td>19.5</td>
<td>34</td>
<td>35</td>
<td>50</td>
<td>140</td>
<td>80</td>
<td>84</td>
<td>51</td>
<td>54.5</td>
<td>74.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Orifice Ø

1) Orifice M6 tapered
Control cover for electrical-proportional pressure adjustment, with maximum pressure limitation

** NS 63 **

1. Port X optionally as a threaded port
2. Port Y optionally as a threaded port
3. Locating pin
4. Adjustment type "2"
9. Name plate
10. Locknut

---

** NS 80, 100 **

11. Valve fixing screws are included within the control cover scope of supply
14. Proportional pressure relief valve type DBET-5X/...Y G24-1 (see summary on page 14, also catalogue sheet Re 29 165)
15. Pressure relief valve NS 6 (is included within the scope of supply)

3) 1 = G 1/4 threaded port T, special poppet

### Dimensions in mm

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>63</td>
<td>0.8</td>
<td>1.0</td>
<td>3.0</td>
<td>1.0</td>
<td>2.0</td>
<td>2.5</td>
<td>82</td>
<td>55</td>
<td>45</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>0.8</td>
<td>1.0</td>
<td>3.5</td>
<td>1.0</td>
<td>2.0</td>
<td>2.5</td>
<td>82</td>
<td>55</td>
<td>45</td>
<td>180</td>
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</tr>
<tr>
<td>100</td>
<td>0.8</td>
<td>1.0</td>
<td>3.5</td>
<td>1.0</td>
<td>2.0</td>
<td>2.5</td>
<td>82</td>
<td>55</td>
<td>45</td>
<td>180</td>
<td></td>
</tr>
</tbody>
</table>

** * Orifice Ø**

1) Orifice M6 tapered (NS 63) orifice M8 x 1 tapered (NS 80, 100)
2) Orifice M6 tapered (NS 63) orifice G 1/4 tapered (NS 80, 100)
**Pressure reducing function**

**Ordering details:** pressure reducing cartridge valve (without associated control cover LFA..DB..)

| LC | DR | E | 7X | /
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
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<tr>
<td>32</td>
<td></td>
<td></td>
<td>20</td>
<td>V =</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td></td>
<td></td>
<td>80</td>
<td>(other seals on request)</td>
</tr>
</tbody>
</table>

**Maximum operating pressure – Ports A and B bar**
- 315

**Maximum flow (recommended) NS L/min**
- 100
- 200
- 300
- 750
- 1000
- 1600

- LC..DR20.../.. L/min
- 150
- 300
- 450
- 1000
- 1300
- 2000

**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 (polyglycols) 2); HEES (synthetic ester) 2);
- other pressure fluids on request

**Pressure fluid temperature range °C**
- 30 to + 80 for NBR seals
- 20 to + 80 for FKM seals

**Viscosity range mm²/s**
- 2.8 to 380

**Cleanliness class to ISO code**
- Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 3)
- The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.
- For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

**Preferred types and standard components can be found in the EPS (Standard Price List).**

**Symbol:** cartridge valves

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

| Maximum operating pressure – Ports A and B bar | 315 |
| Maximum flow (recommended) NS L/min | 100 200 300 750 1000 1600 |
| Maximum flow (recommended) NS L/min | 150 300 450 1000 1300 2000 |

- 1) Suitable for NBR and FKM seals
- 2) Only suitable for FKM seals

**Pressure reducing function**
- Normally open

**Attention!**

2-way cartridge valves type LC..DR... are combined with control covers type LFA..DB... (for ordering details see page 13).
Characteristic curves (measured with HLP 46; $\vartheta_{oil} = 40 \, ^\circ C \pm 5 \, ^\circ C$)

**LC 16 DR...**

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Measured at: $p_a = 50$ bar

**LC 25 DR...**

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Measured at: $p_a = 50$ bar
Characteristic curves (measured with HLP 46; $\theta_{\text{oil}} = 40 \, ^{\circ}\text{C} \pm 5 \, ^{\circ}\text{C}$)

**LC 32 DR...**

Outlet pressure in bar

<table>
<thead>
<tr>
<th>Outlet pressure in bar</th>
<th>Flow in L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>600</td>
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<tr>
<td>250</td>
<td>500</td>
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<tr>
<td>200</td>
<td>400</td>
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<td>150</td>
<td>300</td>
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<tr>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Inlet pressure in bar

<table>
<thead>
<tr>
<th>Inlet pressure in bar</th>
<th>Flow in L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>200</td>
<td>400</td>
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<td>150</td>
<td>300</td>
</tr>
<tr>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Flow in L/min

<table>
<thead>
<tr>
<th>Flow in L/min</th>
<th>Pressure differential in bar</th>
<th>Lowest settable pressure in bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>8 bar</td>
<td>2 bar</td>
</tr>
<tr>
<td>500</td>
<td>4 bar</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>2 bar</td>
<td></td>
</tr>
</tbody>
</table>

**LC 40 DR...**

Outlet pressure in bar

<table>
<thead>
<tr>
<th>Outlet pressure in bar</th>
<th>Flow in L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>1000</td>
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<tr>
<td>250</td>
<td>800</td>
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<tr>
<td>200</td>
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<td>150</td>
<td>400</td>
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<tr>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>50</td>
<td>100</td>
</tr>
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</table>

Inlet pressure in bar

<table>
<thead>
<tr>
<th>Inlet pressure in bar</th>
<th>Flow in L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>1000</td>
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<tr>
<td>250</td>
<td>800</td>
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<td>200</td>
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<tr>
<td>50</td>
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</table>

Flow in L/min

<table>
<thead>
<tr>
<th>Flow in L/min</th>
<th>Pressure differential in bar</th>
<th>Lowest settable pressure in bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>8 bar</td>
<td>2 bar</td>
</tr>
<tr>
<td>800</td>
<td>4 bar</td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>2 bar</td>
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</tbody>
</table>

Pilot oil flow in L/min

<table>
<thead>
<tr>
<th>Flow in L/min</th>
<th>8 bar</th>
<th>4 bar</th>
<th>2 bar</th>
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</thead>
<tbody>
<tr>
<td>600</td>
<td>0.15</td>
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<td>0.05</td>
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<tr>
<td>500</td>
<td>0.12</td>
<td>0.08</td>
<td>0.04</td>
</tr>
<tr>
<td>400</td>
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<tr>
<td>100</td>
<td>0.02</td>
<td>0.01</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Measured at: $p_a = 50$ bar

---

**LC; LFA**

Page 45/68

RE 21 050/11.02
Characteristic curves (measured with HLP 46; $\vartheta_{oil} = 40 \, ^\circ C \pm 5 \, ^\circ C$)

**LC 50 DR...**

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Measured at:

\[ p_a = 50 \, \text{bar} \]

\[ p_e = 100 \, \text{bar} \]

\[ p_e = 350 \, \text{bar} \]

**LC 63 DR...**

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Outlet pressure in bar $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Flow in L/min $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Pressure differential in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Lowest settable pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Inlet pressure in bar $\rightarrow$

Measured at:

\[ p_a = 50 \, \text{bar} \]

\[ p_e = 100 \, \text{bar} \]

\[ p_e = 350 \, \text{bar} \]
**Seal kits for cartridge valves type LC...**

<table>
<thead>
<tr>
<th>Nom. size</th>
<th>Material No.</th>
<th>NBR seals</th>
<th>FKM seals</th>
</tr>
</thead>
<tbody>
<tr>
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<td>R900313107</td>
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<tr>
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<td>32</td>
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<td>63</td>
<td>R900873024</td>
<td>R900873027</td>
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</table>

**Compression springs for cartridge valves type LC...**

<table>
<thead>
<tr>
<th>NS</th>
<th>Spring dimensions in mm</th>
<th>Opening pressure in bar</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>10.2/1.3 x 40.5/8.0</td>
<td>2.0</td>
<td>R900062747</td>
</tr>
<tr>
<td></td>
<td>10.0/1.6 x 38.2/9.0</td>
<td>3.0</td>
<td>R900062753</td>
</tr>
<tr>
<td></td>
<td>9.8/1.7 x 38.0/9.0</td>
<td>4.0</td>
<td>R900062754</td>
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<tr>
<td></td>
<td>9.7/1.9 x 35.7/8.5</td>
<td>5.0</td>
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</tr>
<tr>
<td></td>
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<td>8.0&lt;sup&gt;1)&lt;/sup&gt;</td>
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<td>14.9/2.7 x 53.4/8.5</td>
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<tr>
<td></td>
<td>14.7/2.8 x 53.5/8.5</td>
<td>4.0</td>
<td>R900062820</td>
</tr>
<tr>
<td></td>
<td>14.6/3.0 x 52.5/8.5</td>
<td>5.0</td>
<td>R900062819</td>
</tr>
<tr>
<td></td>
<td>14.1/3.5 x 78.5/12.0</td>
<td>8.0&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>R900082072</td>
</tr>
<tr>
<td>25</td>
<td>19.6/2.8 x 69.5/7.5</td>
<td>2.0</td>
<td>R900062813</td>
</tr>
<tr>
<td></td>
<td>19.2/3.2 x 71.0/8.5</td>
<td>3.0</td>
<td>R900062783</td>
</tr>
<tr>
<td></td>
<td>19.1/3.4 x 72.0/9.5</td>
<td>4.0</td>
<td>R900062810</td>
</tr>
<tr>
<td></td>
<td>19.1/3.5 x 72.8/9.0</td>
<td>5.0</td>
<td>R900062805</td>
</tr>
<tr>
<td></td>
<td>18.5/4.0 x 109/14.5</td>
<td>8.0&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>R900082071</td>
</tr>
<tr>
<td>40</td>
<td>25.9/4.25 x 63/6</td>
<td>2.0</td>
<td>R900206675</td>
</tr>
<tr>
<td></td>
<td>25.7/4.5 x 68.5/6</td>
<td>4.0</td>
<td>R900206673</td>
</tr>
<tr>
<td></td>
<td>24.8/5.3 x 105/10</td>
<td>8.0&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>R900206671</td>
</tr>
<tr>
<td>50</td>
<td>32.8/5.3 x 92/6.5</td>
<td>4.0</td>
<td>R900206681</td>
</tr>
<tr>
<td></td>
<td>31.7/6.5 x 137/10.5</td>
<td>8.0&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>R900206680</td>
</tr>
<tr>
<td>63</td>
<td>40.6/6.5 x 108/7</td>
<td>2.0</td>
<td>R900206690</td>
</tr>
<tr>
<td></td>
<td>40.7/6.5 x 127.5/7.5</td>
<td>4.0</td>
<td>R900206692</td>
</tr>
<tr>
<td></td>
<td>38.6/8.5 x 183.5/11.5</td>
<td>8.0&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>R900206689</td>
</tr>
</tbody>
</table>

<sup>1)</sup> These springs require an additional installation length. When using standard control covers an additional sandwich plate type LFA . D22... must be used.

**Exception:**
Control cover type "D" can be replaced by type LFA . D8.../F (no sandwich plate is required).
Control cover for pressure reducing function

Main spool normally closed - LC..DB 40 D.. – separate order

General notes

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>Type</th>
<th>Adjustment type</th>
<th>Series</th>
<th>Pressure stage in bar for nominal size</th>
<th>Seal material</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>25</td>
<td>32</td>
<td>40</td>
<td>50 63</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DR</td>
<td>.DR..</td>
<td>53, 54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DRW</td>
<td>.DRW..</td>
<td>53, 54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DREV</td>
<td>06</td>
<td>57, 58</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DREZ</td>
<td>006</td>
<td>57, 58</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>DREWV</td>
<td>014</td>
<td>59, 60</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>DREWZ</td>
<td>014</td>
<td>59, 60</td>
</tr>
</tbody>
</table>

Preferred types and standard components can be found in the EPS (Standard Price List).

Adjustment elements for pressure reducing valves
1 = Rotary knob
2 = Hexagon with protective cap
3 = Rotary knob with scale
   (H-key to automotive industry standards)
4 = Rotary knob with scale

Attention!
Control covers type LFA..DR... are combined with 2-way cartridge valves type LC..DB 40 D...
(for ordering details see page 5)

Pressure reducing function
Normally closed

E.g.
Type LFA...DR...
Type LC..DB 40 D..
Control cover for pressure reducing function

Main spool normally closed - LC..DB 40 D.. – separate order

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

| 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 (polyglycols) ²; HEES (synthetic ester) ²; Other pressure fluids on request |
| Pressure fluid temperature range | °C | – 30 to + 80 for NBR seals |
| Viscosity range | mm²/s | 2.8 to 380 |
| Cleanliness class to ISO code | Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 ³ |

¹) Suitable for NBR and FKM seals
²) Only suitable for FKM seals
³) The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

Notes on pilot control valves (not included within the scope of supply, must be ordered separately!)

Control cover

<table>
<thead>
<tr>
<th>Max. perm. operating pressure at port ...</th>
<th>Control cover type</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFA..DR-../...</td>
<td>LFA..DRE-../...</td>
</tr>
</tbody>
</table>

| X (primary pressure) | 315 bar | 350 bar |
| Y (secondary pressure = max. settable pressure) | 315 bar | 350 bar |

Zero pressure (up to ≈ 2 bar)

Static

When regulating the pressure

| Control cover type | LFA..DR-../... | LFA..DRE-../... |
| --- | --- |
| X (primary pressure) | 315 bar | 350 bar |
| Y (secondary pressure = max. settable pressure) | 315 bar | 350 bar |

Zero pressure (up to ≈ 2 bar)

Static

When regulating the pressure

3) The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

Notes on pilot control valves (not included within the scope of supply, must be ordered separately!)

Directional spool valve (porting pattern form A 6 to DIN 24 340)

<table>
<thead>
<tr>
<th>Directional spool valve</th>
<th>Nominal size</th>
<th>Catalogue sheet No.</th>
<th>Control cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>3WE 6 A-../...</td>
<td>6</td>
<td>23 178</td>
<td>DREWV, DREWZ</td>
</tr>
<tr>
<td>3WE 6 B9-../...</td>
<td>6</td>
<td>23 178</td>
<td>DRW</td>
</tr>
</tbody>
</table>

Prop. pressure relief valve

<table>
<thead>
<tr>
<th>Prop. pressure relief valve</th>
<th>Nominal size</th>
<th>Catalogue sheet No.</th>
<th>Control cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBET-5X/...⁴ Y G24-1</td>
<td>6</td>
<td>29 165</td>
<td>DREV, DREWV</td>
</tr>
<tr>
<td>DBETR-1X/...</td>
<td>On request</td>
<td>On request</td>
<td>DREZ, DREWZ</td>
</tr>
</tbody>
</table>

⁴) Possible pressure stages 50, 100, 200, 315, 350

Valve fixing screws are included within the control cover scope of supply.
Overview of symbols (basic symbols) - pressure reducing function

Valid symbols are shown in the following type descriptions!

**LFA..DR..-./.. NS 16 to 63**
Control cover with manual pressure adjustment
Port T - zero pressure

See pages 53; 54

**LFA..DRW..-./.. NS 16 to 63**
Control cover with manual pressure adjustment and isolating function
Port T - zero pressure

3WE 6 B9-./..
Solenoid de-energised → closed
Solenoid energised → pressure reducing function

See pages 55; 56

**LFA..DREV..-./.. NS 25 to 63**
Control cover for electrical-proportional pressure adjustment
Port T - zero pressure

See pages 57; 58

**LFA..DREZ..-./.. NS 25 to 63**
Control cover for electrical-proportional pressure adjustment
Port T - zero pressure

See pages 57; 58

**LFA..DREWV..-./.. NS 25 to 63**
Control cover for electrical-proportional pressure adjustment and isolating function
Port T - zero pressure

3WE 6 A-./..
Solenoid de-energised → closed
Solenoid energised → pressure reducing function

See pages 59; 60

**LFA..DREWZ..-./.. NS 25 to 63**
Control cover for electrical-proportional pressure adjustment and isolating function
Port T - zero pressure

3WE 6 A-./..
Solenoid de-energised → closed
Solenoid energised → pressure reducing function

See pages 59; 60

The orifices built into the control covers are threaded type orifices. These are standard orifices. **No** type is entered in the ordering detail.

Orifice as shown within the main symbol
**R-rings dimensions for ports X, Y, Z1, Z2** (are included within the scope of supply)

<table>
<thead>
<tr>
<th>NS</th>
<th>Dimensions in mm</th>
<th>Material No. NBR</th>
<th>Material No. FKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>8.41 x 1.40 x 1.78</td>
<td>R900025407</td>
<td>R900025408</td>
</tr>
<tr>
<td>25</td>
<td>9.81 x 1.50 x 1.78</td>
<td>R900017453</td>
<td>R900017610</td>
</tr>
<tr>
<td>32</td>
<td>11.18 x 1.60 x 1.78</td>
<td>R900017455</td>
<td>R900017611</td>
</tr>
<tr>
<td>40, 50</td>
<td>13.00 x 2.30 x 2.62</td>
<td>R900017457</td>
<td>R900017617</td>
</tr>
<tr>
<td>63</td>
<td>18.72 x 2.62 x 2.62</td>
<td>R900024445</td>
<td>R900024446</td>
</tr>
<tr>
<td>80</td>
<td>26.57 x 3.53 x 3.53</td>
<td>R900017466</td>
<td>R900017630</td>
</tr>
<tr>
<td>100</td>
<td>34.52 x 3.53 x 3.53</td>
<td>R900017472</td>
<td>R900017633</td>
</tr>
</tbody>
</table>

**Seal kits for control cover type LFA../.. (NS 16 to 63)**

<table>
<thead>
<tr>
<th>Seal kit for LFA...</th>
<th>NS 16</th>
<th>Material No.</th>
<th>NS 25</th>
<th>Material No.</th>
<th>NS 32</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>..DR.. 1) Pilot control ..DR6..</td>
<td>NBR</td>
<td>R900311273</td>
<td>FKM</td>
<td>R900311276</td>
<td>NBR</td>
<td>R900311273</td>
</tr>
<tr>
<td>..DR.. 1) Control ..DR.. cover LFA..DRW..</td>
<td>NBR</td>
<td>R900313701</td>
<td>FKM</td>
<td>R900313702</td>
<td>NBR</td>
<td>R900313703</td>
</tr>
<tr>
<td>..DRW.. 1) Pilot control ..ZDR6..</td>
<td>NBR</td>
<td>R900314298</td>
<td>FKM</td>
<td>R900314299</td>
<td>NBR</td>
<td>R900314298</td>
</tr>
<tr>
<td>..DREV..; ..DREWW..; ..DREZ..; ..DREWZ..</td>
<td>NBR</td>
<td>R900313885</td>
<td>FKM</td>
<td>R900313886</td>
<td>NBR</td>
<td>R900313887</td>
</tr>
</tbody>
</table>

**Seal kit for LFA...**

<table>
<thead>
<tr>
<th>Seal kit for LFA...</th>
<th>NS 40</th>
<th>Material No.</th>
<th>NS 50</th>
<th>Material No.</th>
<th>NS 63</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>..DR.. 1) Pilot control ..DR6..</td>
<td>NBR</td>
<td>R900311273</td>
<td>FKM</td>
<td>R900311276</td>
<td>NBR</td>
<td>R900311273</td>
</tr>
<tr>
<td>..DR.. 1) Control ..DR.. cover LFA..DRW..</td>
<td>NBR</td>
<td>R900313889</td>
<td>FKM</td>
<td>R900313890</td>
<td>NBR</td>
<td>R900313891</td>
</tr>
<tr>
<td>..DRW.. 1) Pilot control ..ZDR6..</td>
<td>NBR</td>
<td>R900314298</td>
<td>FKM</td>
<td>R900314299</td>
<td>NBR</td>
<td>R900314298</td>
</tr>
<tr>
<td>..DREV..; ..DREWW..; ..DREZ..; ..DREWZ.. 2)</td>
<td>NBR</td>
<td>R900313881</td>
<td>FKM</td>
<td>R900313882</td>
<td>NBR</td>
<td>R900313883</td>
</tr>
</tbody>
</table>

1) The seals for the pilot valves (DR6..., ZDR...) are **not** included within the scope of supply.
2) For pilot valve seal kits see the relevant catalogue sheet.

**Fixing screws** (are included within the scope of supply)

S.H.C.S. to DIN 912-10.9

<table>
<thead>
<tr>
<th>NS</th>
<th>Qty.</th>
<th>Dimensions</th>
<th>Tightening torque in Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4</td>
<td>M 8 x 45</td>
<td>32</td>
</tr>
<tr>
<td>25</td>
<td>4</td>
<td>M 12 x 50</td>
<td>110</td>
</tr>
<tr>
<td>32</td>
<td>4</td>
<td>M 16 x 60</td>
<td>270</td>
</tr>
<tr>
<td>40</td>
<td>4</td>
<td>M 20 x 70</td>
<td>520</td>
</tr>
<tr>
<td>50</td>
<td>4</td>
<td>M 20 x 80</td>
<td>520</td>
</tr>
<tr>
<td>63</td>
<td>4</td>
<td>M 30 x 100</td>
<td>1800</td>
</tr>
</tbody>
</table>
Control covers for versions DR, DRW, DREV, DREZ, DREWV and DREWZ

**NS 16, 25, 32**

1. G1/4; 12
2. Z1
3. Port X optionally as a threaded port (for NS 16...50)
4. Locating pin
9.1 Name plate (NS 16)
9.2 Name plate (NS 25, 32)
9.3 Name plate (NS 40, 50, 63)

**NS 40, 50**

1. G1/4; 12
2. Z1
3. Port X optionally as a threaded port (for NS 16...50)
4. Locating pin
9.1 Name plate (NS 16)
9.2 Name plate (NS 25, 32)
9.3 Name plate (NS 40, 50, 63)
10. Check valve (for NS 63 orifice F in poppet)
11. For control cover NS 63

**NS 63**

1. G1/4; 12
2. Z1
3. Port Z1 optionally as threaded port (for LFA..DREZ..., LFA..DREWZ..., NS 25..63)
4. Locating pin
9.1 Name plate (NS 16)
9.2 Name plate (NS 25, 32)
9.3 Name plate (NS 40, 50, 63)
10. Check valve (for NS 63 orifice F in poppet)
11. For control cover NS 63

Logic element NS 16
Control cover for pressure reducing functions

Main spool normally closed - LC..DB 40 D.. – separate order

NS 16 to 63

<table>
<thead>
<tr>
<th>Adjustment type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary knob</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Set screw with hexagon and cap</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Lockable rotary knob with scale</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Rotary knob with scale</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

1) H-key to Material No. R900008158 is included within the scope of supply

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

No code = NBR seals
V = FKM seals
(Other seals on request)

025 = Max. secondary pressure 25 bar
075 = Max. secondary pressure 75 bar
150 = Max. secondary pressure 150 bar
210 = Max. secondary pressure 210 bar
315 = Max. secondary pressure 315 bar

Series 7X (NS 16 to 63)
Control cover for pressure reducing functions

Main spool normally closed - LC..DB 40 D. – separate order

NS 16 to 63

Dimensions in mm

5.1 Adjustment element "4"
5.2 Adjustment element "3"
6 Adjustment element "2"
7 Adjustment element "1"
8 Direct operated pressure reducing valve
   (is included within the scope of supply)
9 Name plate for pressure reducing valves
11 Valve fixing screws
   M5x50 DIN 912-10.9 $M_A = 8.9$ Nm are included within the control cover
   scope of supply
12 Pressure gauge port G 1/4, 12 deep;
   Socket screw 6A/F
13 Space required to remove the key
14 Control cover, see page 52
15 Locknut 24A/F
16 For type .../315 → 50 mm

<table>
<thead>
<tr>
<th>NS</th>
<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
</tr>
</thead>
<tbody>
<tr>
<td>A**1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>F**1)</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>X**1)</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D*2)</td>
<td>0.8</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>.../315</td>
<td>0.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
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<tr>
<td>L8</td>
<td>22</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.../315</td>
<td>30.5</td>
<td>14</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L9</td>
<td>119.5</td>
<td>131</td>
<td>123.5</td>
<td>111</td>
<td>103.5</td>
<td>87.5</td>
</tr>
<tr>
<td>.../315</td>
<td>116.5</td>
<td>128</td>
<td>120.5</td>
<td>108</td>
<td>100.5</td>
<td>84.5</td>
</tr>
<tr>
<td>L10</td>
<td>143.5</td>
<td>155</td>
<td>148.5</td>
<td>135</td>
<td>128.5</td>
<td>111.5</td>
</tr>
<tr>
<td>.../315</td>
<td>140.5</td>
<td>152</td>
<td>145.5</td>
<td>132</td>
<td>125.5</td>
<td>108.5</td>
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<td>L11</td>
<td>99.5</td>
<td>111</td>
<td>103.5</td>
<td>91</td>
<td>83.5</td>
<td>67.5</td>
</tr>
<tr>
<td>.../315</td>
<td>96.5</td>
<td>108</td>
<td>100.5</td>
<td>88</td>
<td>80.5</td>
<td>64.5</td>
</tr>
<tr>
<td>L12</td>
<td>99.5</td>
<td>111</td>
<td>103.5</td>
<td>91</td>
<td>83.5</td>
<td>67.5</td>
</tr>
<tr>
<td>.../315</td>
<td>96.5</td>
<td>108</td>
<td>100.5</td>
<td>88</td>
<td>80.5</td>
<td>64.5</td>
</tr>
</tbody>
</table>

Special dim. See page 52

** Orifice Ø
1) Orifice M6 tapered
2) Orifice M6 tapered (NS16, 63), orifice M8 x 1 tapered (NS25...50)
Control cover for pressure reducing and isolating functions

Main spool normally closed - LC..DB 40 D.. – separate order

NS 16 to 63

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>DRW</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

No code = NBR seals
V = FKM seals
(other seals on request)

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

025 = Max. secondary pressure 25 bar
075 = Max. secondary pressure 75 bar
150 = Max. secondary pressure 150 bar
210 = Max. secondary pressure 210 bar
315 = Max. secondary pressure 315 bar

Adjustment type
- Rotary knob = 1
- Set screw with hexagon and protection cap = 2
- Lockable rotary knob with scale = 3
- Rotary knob with scale = 4

1) H-key for Material No. R900008158 is included within scope of supply

3WE 6 B9-../..
Solenoid de-energised → closed
Solenoid energised → pressure reducing function

3WE 6 B9-../..
Solenoid de-energised → closed
Solenoid energised → pressure reducing function
Control cover for pressure reducing and isolating functions

Main spool normally closed - LC..DB 40 D.. – separate order

NS 16 to 63

Dimensions in mm

5.1 Adjustment element "4"
5.2 Adjustment element "3"
6 Adjustment element "2"
7 Adjustment element "1"
8 Direct operated pressure reducing valve (included within the scope of supply)
9 Pressure reducing valve name plate
11 Valve fixing screws
M5x50 DIN 912-10.9 M₁₅ = 8.9 Nm are included within the control cover scope of supply
12 Pressure gauge port G 1/4, 12 deep; Socket screw 6A/F
13 Space required to remove the key
14 Control cover, see page 52
15 Locknut 24A/F
16 For type .../315 → □50 mm

** Orifice Ø

1) Orifice M6 tapered
2) Orifice M6 tapered (NS16, 63), orifice M8 x 1 tapered (NS25...50)
Control cover for pressure reducing functions; electrical-proportional

Main spool normally closed - LC..DB 40 D. – separate order

**NS 25 to 63**

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFA 7X/006</td>
<td>25</td>
<td>32</td>
<td>40</td>
<td>50</td>
<td>63</td>
</tr>
</tbody>
</table>

Pressure reducing function; electrical-proportional
Pressure reducing function; electrical-prop. and possibility for 2-way flow control function

Series 7X (NS 25 to 63)

**No code =**

NBR seals
FKM seals
( other seals on request)

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

**Pressure stages (pressure reducing valve)**

| 006 | 7.0 bar (only for DREV) |
| 014 | 16.0 bar (only for DREZ) |

**LFA..DREV-7X/006**
NS 25, 32

**LFA..DREV-7X/006**
NS 40, 50

**LFA..DREV-7X/006**
NS 63

**LFA..DREZ-7X/014**
NS 25, 32

**LFA..DREZ-7X/014**
NS 40, 50

**LFA..DREZ-7X/014**
NS 63
Control cover for pressure reducing functions; electrical-proportional

Main spool normally closed - LC..DB 40 D.. – separate order

NS 25 to 63

Dimensions in mm

<table>
<thead>
<tr>
<th>NS</th>
<th>A**</th>
<th>F**</th>
<th>D***</th>
<th>L1</th>
<th>L2</th>
<th>L8</th>
<th>L9</th>
<th>Special dim.</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.8</td>
<td>1.5</td>
<td>85</td>
<td>85</td>
<td>15</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>1.0</td>
<td>1.5</td>
<td>100</td>
<td>100</td>
<td>7.5</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>1.2</td>
<td>1.8</td>
<td>125</td>
<td>125</td>
<td></td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>1.5</td>
<td>1.8</td>
<td>140</td>
<td>140</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>2.0</td>
<td>1.5</td>
<td>1.8</td>
<td>180</td>
<td>180</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Orifice Ø
1) Orifice M6 tapered
2) Orifice M8 x 1 tapered (NS25...50), orifice M6 tapered (NS63)

8 Pressure reducing valve (is included within the scope of supply)
11 Valve fixing screws
M5 DIN 912-10.9 Mₙ = 8.9 Nm
are included within the scope of supply
14 Control cover, see page 52
16 Proportional pressure relief valve
DBET-5X/...3)Y G24-14)
(must be ordered separately)
3) Pressure stages for valve type:
   DBET-5X/...  50, 100, 200, 315
   and 350 bar
4) 1 = G 1/4 threaded port T,
special poppet
Control cover for pressure reducing functions and isolating functions; electrical-proportional

Main spool normally closed - LC..DB 40 D.. – separate order

NS 25 to 63

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure reducing function, electrical-proportional and isolating function</td>
<td>= DREWV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure reducing function, electr.-prop. and isolating function, including possibility for 2-way flow control function</td>
<td>= DREWZ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LFA</th>
<th>7X</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 25</td>
<td></td>
</tr>
<tr>
<td>= 32</td>
<td></td>
</tr>
<tr>
<td>= 40</td>
<td></td>
</tr>
<tr>
<td>= 50</td>
<td></td>
</tr>
<tr>
<td>= 63</td>
<td></td>
</tr>
</tbody>
</table>

No code =

- V = NBR seals
- V = FKM seals
- (other seals on request)

Attention!

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

Pressure stages

<table>
<thead>
<tr>
<th>006</th>
<th>014</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0 bar (only for DREWV)</td>
<td></td>
</tr>
<tr>
<td>16.0 bar (only for DREWZ)</td>
<td></td>
</tr>
</tbody>
</table>

Series 7X (NS 25 to 63)

1 3WE 6 A-... Solenoid de-energised → closed
Solenoid energised → pressure reducing function
Control cover for pressure reducing functions and isolating functions; electrical-proportional
Main spool normally closed - LC..DB 40 D.. – separate order

**NS 25 to 63**

Dimensions in mm

8 Pressured reducing valve (is included within the scope of supply)
11 Valve fixing screws
   M5 DIN 912-10.9 Mₘ = 8.9 Nm
   are included with the scope of supply
14 Control cover, see page 52
16 Proportional pressure relief valve
   DBET-5X/...3)Y G24-1)²
   (must be ordered separately,
   see page 49)
17 Directional spool valve 3WE 6 A...
   (must be ordered separately,
   see page 49)

3) Pressure stages of valve type:
   DBET-5X/... 50, 100, 200, 315
   and 350 bar
4) 1 = G 1/4 threaded port T,
   special port

---

**Table**

<table>
<thead>
<tr>
<th>NS</th>
<th>A²¹</th>
<th>F²¹</th>
<th>D²²</th>
<th>L1</th>
<th>L2</th>
<th>L8</th>
<th>L9</th>
<th>L10</th>
<th>Special dim.</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.8</td>
<td>1.5</td>
<td>85</td>
<td>85</td>
<td>15</td>
<td>42</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>1.0</td>
<td>1.5</td>
<td>100</td>
<td>100</td>
<td>7.5</td>
<td>35</td>
<td>37.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>1.2</td>
<td>1.8</td>
<td>125</td>
<td>125</td>
<td></td>
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<tr>
<td>50</td>
<td>1.5</td>
<td>1.8</td>
<td>140</td>
<td>140</td>
<td></td>
<td>15</td>
<td>57.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>2.0</td>
<td>1.5</td>
<td>1.8</td>
<td>180</td>
<td>180</td>
<td></td>
<td>81.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

²¹ Orifice Ø
   1) Orifice M6 tapered
   2) Orifice M8 x 1 tapered (NS 25...50), orifice M6 tapered (NS 63)
Pressure sequencing functions

General information regarding control cover for pressure sequencing functions

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>Type</th>
<th>Adjustment type</th>
<th>Series</th>
<th>Max. settable sequencing pressure in bar</th>
<th>Pilot oil supply</th>
<th>Seal material</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DZ</td>
<td></td>
<td>210</td>
<td>Ordering details</td>
<td></td>
<td></td>
<td>63, 64</td>
</tr>
<tr>
<td></td>
<td>DZWA</td>
<td></td>
<td>315</td>
<td>see pages</td>
<td></td>
<td></td>
<td>65, 66</td>
</tr>
<tr>
<td></td>
<td>DZWB</td>
<td></td>
<td>350</td>
<td>63 and 65</td>
<td></td>
<td></td>
<td>65, 66</td>
</tr>
</tbody>
</table>

Preferred types and standard components can be found in the EPS (Standard Price List).

4 = Available

Adjustment type for pressure sequence valves
1 = Rotary knob
2 = Hexagon with protective cap
3 = Lockable rotary knob with scale
(H-key to automotive industry standard)
4 = Rotary knob with scale not lockable

For seal kits see page 62

⚠️ Attention !
Control cover types LFA..DZ...are combined with 2-way cartridge valves type LC..DB...
(for ordering details see page 5)

Directional spool valve (porting pattern to DIN 24 340 form A6)

<table>
<thead>
<tr>
<th>Directional spool valve Type</th>
<th>NS</th>
<th>Catalogue sheet RE No.</th>
<th>Control cover Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4WE 6 D../..</td>
<td>6</td>
<td>23 178</td>
<td>DZWA, DZWB</td>
</tr>
</tbody>
</table>

5 = Series
7X = Series 70 to 79
(unchanged installation and connection dimensions)

7 = Pilot oil supply
No code =
X =
Y =
XY =

The orifices built into the control cover are threaded type orifices.
These are standard orifices. No type coded is entered in the ordering code.

Orifice as shown within the main symbol

⚠️ Attention !
Pilot valves (electrical directional spool valves type 4WE 6 D...) must be ordered separately, for further details see catalogue sheet RE 23 178.
Valve fixing screws M5 x 50 DIN 912-10.9, Mₙ = 8.9 Nm are included within the control cover scope of supply.

Overview of symbols (basic symbols), pressure sequencing functions

Valid symbols are shown in the following type descriptions !

Control cover with manual pressure adjustment and pressure dependent or pressure independent sequencing functions

Solenoid de-energised: Sequencing function
Solenoid energised: Sequencing function

Control cover with manual pressure adjustment

Solenoid de-energised: Sequencing function
Solenoid energised: Sequencing function

Valid symbols are shown in the following type descriptions !
Control cover for pressure sequencing functions

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

<table>
<thead>
<tr>
<th>Pressure fluid</th>
<th>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 (polyglycols) ²; HEES (synthetic ester) ²; Other pressure fluids on request</th>
</tr>
</thead>
</table>

1) Suitable for NBR and FKM seals
2) Only suitable for FKM seals

<table>
<thead>
<tr>
<th>Pressure fluid temperature range</th>
<th>°C</th>
<th>– 30 to + 80 for NBR seals</th>
<th>– 20 to + 80 for FKM seals</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Viscosity range</th>
<th>mm²/s</th>
<th>2.8 to 380</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cleanliness class to ISO code</th>
<th>Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 ³</th>
</tr>
</thead>
</table>

3) The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life. For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

Control cover

<table>
<thead>
<tr>
<th>Max. perm operating pressure im Anschluss ...</th>
<th>Control cover type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LFA..DZ../*/...</td>
</tr>
<tr>
<td></td>
<td>/...</td>
</tr>
<tr>
<td></td>
<td>/...X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>...X; ...Z2</th>
<th>315 bar</th>
</tr>
</thead>
</table>

| ...Y | When regulating the pressure | Zero pressure (up to ≈ 2 bar) |
| Static | 315 bar | 210 bar (=) ¹ |
|       |         | 160 bar (–) ¹ |

| ...Z1 | When regulating the pressure | Zero pressure (up to ≈ 2 bar) |
| Static | 315 bar | 210 bar (=) ¹ |
|        |         | 160 bar (–) ¹ |
| Settable sequencing pressure | 315 | 350 |

R-rings dimensions for ports X, Y, Z1, Z2 (are included within the scope of supply)

<table>
<thead>
<tr>
<th>NS</th>
<th>Dimensions in mm</th>
<th>NBR</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>8.41 x 1.40 x 1.78</td>
<td>R900025407</td>
<td>R900025408</td>
</tr>
<tr>
<td>25</td>
<td>9.81 x 1.50 x 1.78</td>
<td>R900017453</td>
<td>R900017610</td>
</tr>
<tr>
<td>32</td>
<td>11.18 x 1.60 x 1.78</td>
<td>R900017455</td>
<td>R900017611</td>
</tr>
<tr>
<td>40, 50</td>
<td>13.00 x 2.30 x 2.62</td>
<td>R900017457</td>
<td>R900017617</td>
</tr>
</tbody>
</table>

¹) Max. perm. value 4WE 6 D
## Seal kits for cartridge valves and control covers

### Seal kits for cartridge valves

Type LC. DB./... (NS 16 ... 50)

<table>
<thead>
<tr>
<th>Seal kit for</th>
<th>NBR</th>
<th>Material No.</th>
<th>FKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 16 DB..7X/..</td>
<td>R900313104</td>
<td>R900313107</td>
<td></td>
</tr>
<tr>
<td>LC 25 DB..7X/..</td>
<td>R900313105</td>
<td>R900313108</td>
<td></td>
</tr>
<tr>
<td>LC 32 DB..7X/..</td>
<td>R900313106</td>
<td>R900313109</td>
<td></td>
</tr>
<tr>
<td>LC 40 DB..7X/..</td>
<td>R900873022</td>
<td>R900873025</td>
<td></td>
</tr>
<tr>
<td>LC 50 DB..7X/..</td>
<td>R900873023</td>
<td>R900873026</td>
<td></td>
</tr>
</tbody>
</table>

### Seal kits for control cover

Type LFA. /... (NS 16 ... 50)

<table>
<thead>
<tr>
<th>Seal kit for LFA...</th>
<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NBR</td>
<td>FKM</td>
<td>NBR</td>
<td>FKM</td>
<td>NBR</td>
</tr>
<tr>
<td>...DZ...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...DZW...</td>
<td>R900860006</td>
<td>R900869115</td>
<td>R900311540</td>
<td>R900311541</td>
<td>R900309378</td>
</tr>
</tbody>
</table>

### Fixing screws

(are included within the scope of supply)

S.H.C.S to DIN 912-10.9

<table>
<thead>
<tr>
<th>NS</th>
<th>Qty.</th>
<th>Dimensions</th>
<th>Tightening torque in Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4</td>
<td>M 8 x 115</td>
<td>32</td>
</tr>
<tr>
<td>25</td>
<td>4</td>
<td>M 12 x 120</td>
<td>110</td>
</tr>
<tr>
<td>32</td>
<td>4</td>
<td>M 16 x 120</td>
<td>270</td>
</tr>
<tr>
<td>40</td>
<td>4</td>
<td>M 20 x 70</td>
<td>520</td>
</tr>
<tr>
<td>50</td>
<td>4</td>
<td>M 20 x 80</td>
<td>520</td>
</tr>
</tbody>
</table>

### Orifice thread size

all built-in orifices: M6 tapered
Control cover for pressure sequencing functions

NS 16 to 50

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFA</td>
<td>DZ</td>
<td>7X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nominal size 16 = 16
Nominal size 25 = 25
Nominal size 32 = 32
Nominal size 40 = 40
Nominal size 50 = 50

Adjustment type
- Rotary knob = 1
- Hexagon with protective cap = 2
- Lockable rotary knob with scale = 3
  (H-key to automotive industry standards)
- Rotary knob with scale not lockable = 4

Series 7X (NS 16 to 50) = 7X

Pressure stages (max. settable sequencing pressure)
- 210 bar = 210
- 315 bar = 315
- 350 bar = 350

No code = NBR seals
V = FKM seals
(Other seals on request)

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

Pilot oil supply

<table>
<thead>
<tr>
<th>No code</th>
<th>Pilot oil supply</th>
<th>Pilot oil drain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>X =</td>
<td>External</td>
<td>Internal</td>
</tr>
<tr>
<td>Y =</td>
<td>Internal</td>
<td>External</td>
</tr>
<tr>
<td>XY =</td>
<td>External</td>
<td>External</td>
</tr>
</tbody>
</table>

Series 7X (NS 16 to 50)

<table>
<thead>
<tr>
<th>210</th>
<th>315</th>
<th>350</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFA..DZ.-../</td>
<td></td>
<td></td>
</tr>
<tr>
<td>210</td>
<td>315</td>
<td>350</td>
</tr>
<tr>
<td>LFA..DZ.-../</td>
<td></td>
<td></td>
</tr>
<tr>
<td>210</td>
<td>315</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>210</td>
<td>315</td>
<td>350</td>
</tr>
<tr>
<td>LFA..DZ.-../</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Control cover for pressure sequencing functions

NS 16 bis 50

### Control Cover Details

1. Adjustment type "2"
2. Adjustment type "1"
3. Adjustment type "3"
4. Adjustment type "4"
5. Space required to remove the key
6. Locating pin
7. Name plate
8. Locknut

#### Dimensions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>1.0</td>
<td>40</td>
<td>16</td>
<td>20</td>
<td>65</td>
<td>105</td>
<td>39.5</td>
</tr>
<tr>
<td>25</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>1.0</td>
<td>40</td>
<td>24</td>
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<td>110</td>
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</tr>
<tr>
<td>32</td>
<td>1.0</td>
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<td>1.2</td>
<td>1.2</td>
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** Orifice Ø

[1] All orifices M6 tapered
Control cover for pressure dependent and independent sequencing functions

### NS 16 to 50

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<tr>
<th>Adjustment type</th>
<th>1</th>
<th>2</th>
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Solenoid de-energised: Pressure sequence function = **DZWA**
Solenoid energised: Open
Solenoid de-energised: Open = **DZWB**
solenoid energised: Pressure sequence function

### Adjustment type

- **Rotary knob** = 1
- **Hexagon with protective cap** = 2
- **Lockable rotary knob with scale** (H-key to automotive industry standards) = 3
- **Rotary knob with scale not lockable** = 4

Series 7X (NS 16 to 50) = **7X**

### Pilot oil supply

- **No code** =
- **V** =

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

### Pressure stages (max. settable sequencing pressure)

- 210 = 210 bar
- 315 = 315 bar
- 350 = 350 bar

---

**4 WE 6 D ../..**

LFA..DZWA.-../ 210 315 350

LFA..DZWA.-../ 210 315 Y 350

LFA..DZWA.-../ 210 315 X 350

LFA..DZWA.-../ 210 315 XY 350

---

**4 WE 6 D ../..**

LFA..DZWB.-../ 210 315 350

LFA..DZWB.-../ 210 315 Y 350

LFA..DZWB.-../ 210 315 X 350

LFA..DZWB.-../ 210 315 XY 350
Control cover for pressure dependent and independent sequencing functions

NS 16 to 50

Directional spool valve . WE 6 D...

1 Adjustment type "2"
2 Adjustment type "1"
3 Adjustment type "3"
4 Adjustment type "4"
5 Space required to remove the key
6 Locating pin
7 Name plate
8 Locknut
9 Plug M6 tapered for DZWA..
10 Plug M6 tapered for DZWB..
11 Valve fixing screws are included within the control cover scope of supply

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<th>S**1)</th>
<th>Y**1)</th>
<th>Z**1)</th>
<th>P**1)</th>
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** Orifice Ø
1) All orifices 6 tapered
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.