

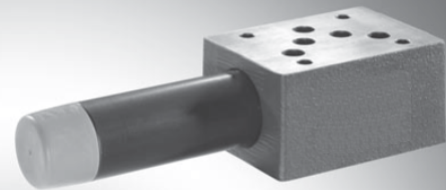
Pressure reducing valve, direct operated

RE 26585/05.11
Replaces: 06.03

1/8

Type ZDR

Size 10
Component series 5X
Maximum operating pressure 210 bar
Maximum flow 80 l/min



H7751

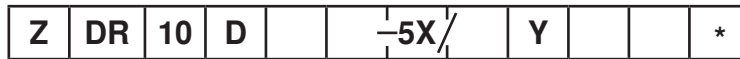
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Features

| Page | |
|------|--|
| | – Sandwich plate valve |
| 1 | – Porting pattern according to ISO 4401-05-04-0-05 |
| 2 | – 4 pressure ratings |
| 2 | – 4 adjustment types, optional: |
| 3 | • Rotary knob |
| 4 | • Bushing with hexagon and protective cap |
| 5 | • Lockable rotary knob with scale |
| 5 | • Rotary knob with scale |
| 6 | – Check valve, optional (version "A") |
| | – Pressure reduction in channel A, B or channel P |

Ordering code



| | |
|---|-------------------|
| Sandwich plate valve | = Z |
| Pressure reducing valve | = DR |
| Size 10 | = 10 |
| Direct operated | = D |
| Pressure reduction in channel A ^② | = A |
| Pressure reduction in channel P ^① (pilot oil supply from channel B) | = B |
| Pressure reduction in channel P ^① | = P |
| Adjustment type | |
| Rotary knob | = 1 |
| Bushing with hexagon and protective cap | = 2 |
| Lockable rotary knob with scale | = 3 ¹⁾ |
| Rotary knob with scale | = 7 |
| Component series 50 to 59 (50 to 59: unchanged installation and connection dimensions) | = 5X |

Further details in the plain text

Seal material
 No code = NBR seals
 V = FKM seals
 (other seals at request)
 Attention!
 Observe compatibility of seals with hydraulic fluid used!

No code = **With** check valve
 (only with version "A")
 M = **Without** check valve

Y = Pilot oil supply internal, pilot oil return external

| | |
|-------|----------------------------------|
| 25 = | Secondary pressure up to 25 bar |
| 75 = | Secondary pressure up to 75 bar |
| 150 = | Secondary pressure up to 150 bar |
| 210 = | Secondary pressure up to 210 bar |

¹⁾ H-key with material no. **R900008158** is included in the delivery

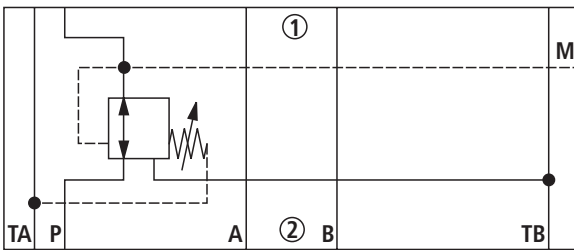
Standard types and standard units are contained in the EPS (standard price list).

Note!

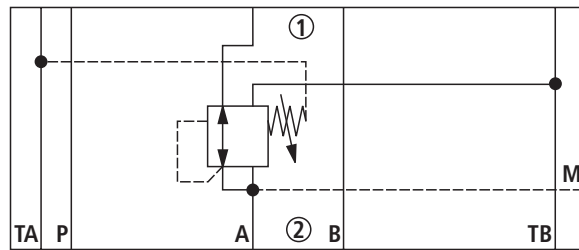
For port X and Y bored according to ISO 4401-05-05-0-05 (e.g. for pilot operated directional valve size 10), version "SO30" at the end of the order code applies!

Symbols (① = component side, ② = plate side)

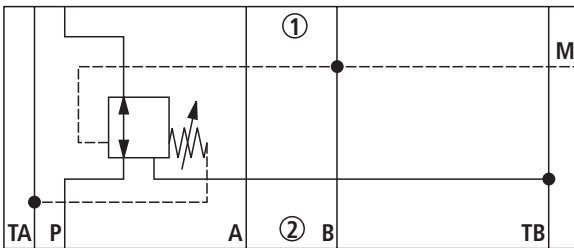
Type ZDR 10 DP...YM...



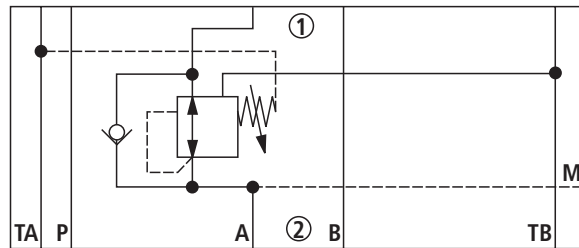
Type ZDR 10 DA...YM...



Type ZDR 10 DB...YM...



Type ZDR 10 DA...Y...



Note!

Deviating from ISO 4401, port T is in this data sheet called TA, port T1 is called TB.

Function, section

The valve type ZDR is a direct operated pressure reducing valve in sandwich plate design with pressure limitation of the secondary circuit. It is used to reduce the system pressure.

The pressure reducing valve basically comprises of a housing (1), a control spool (2), a compression spring (3), adjustment type (4) and an optional check valve.

The secondary pressure is set via the adjustment type (4).

Version "A"

In the initial position the valve is open. Hydraulic fluid can flow from channel A^① to channel A^② without limitation. Via the pilot line (5), the pressure in channel A^② is simultaneously applied to the spool face vis-à-vis the compression spring (3). If the pressure in channel A^② rises above the value set at the compression spring (3), the control spool (2) moves against the compression spring (3) into the control position and thereby holds the set pressure in channel A^② constant.

Control signal and pilot oil are provided internally, via the control line (5), from channel A^②.

If the pressure in channel A^② continues to increase due to external forces at the actuator, the control spool (2) moves further against the compression spring (3).

Thus, channel A^② is, via control edge (6) at the control spool (2) and housing (1) connected with the tank (channel TB). Hydraulic fluid continues to flow to the tank until the pressure no longer increases.

The leakage oil drain from the spring chamber (7) is always external, via channel TA.

A pressure gauge connection (8) allows for the control of the secondary pressure at the valve.

With version "A", a check valve can be used for free flow back from channel A^② to A^①.

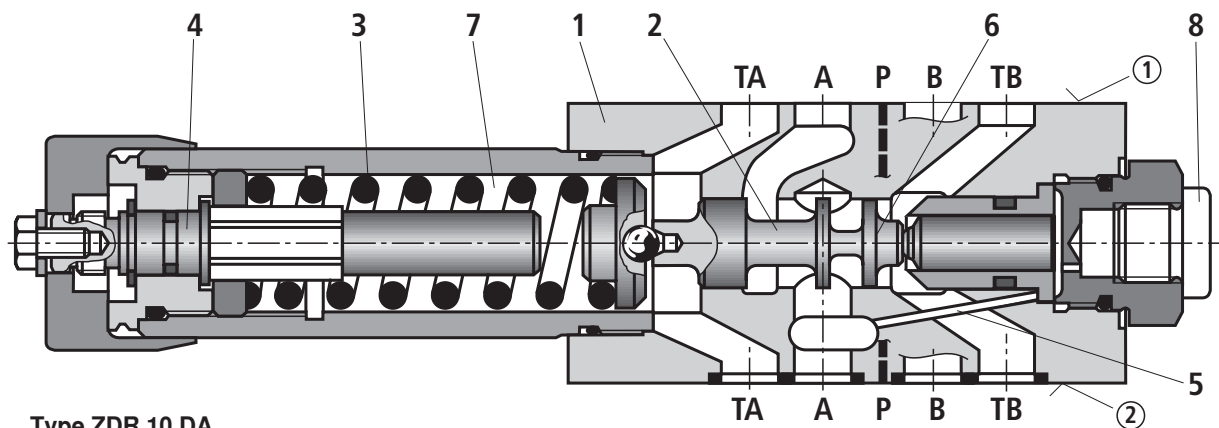
Versions "P" and "B"

With version "P", the pressure is reduced in channel P^①. Control signal and pilot oil are provided internally, from channel P^①.

With version "B", the pressure is reduced in channel P^①, the pilot oil is, however, taken from channel B. If the directional valve is in spool position P to A, the pressure in channel B must not exceed the set secondary pressure. Otherwise, the pressure in channel A will be reduced.

Attention!

- In case of use without directional valve, channels TA and TB must be connected with each other (e.g. in the cover plate).
- In the set-up of a directional seat valve size 10, a sandwich plate type HSZ10A078-3X/M00 (Material no. R900537264) must be used.



Type ZDR 10 DA ...

① = component side

② = plate side


Technical Data (For applications outside these parameters, please consult us!)**general**

| | | |
|---------------------------|----|--|
| Weight | kg | Approx. 2.8 |
| Installation position | | Any |
| Ambient temperature range | °C | -30 to +80 (NBR seals) -20 to +80 (FKM seals) |

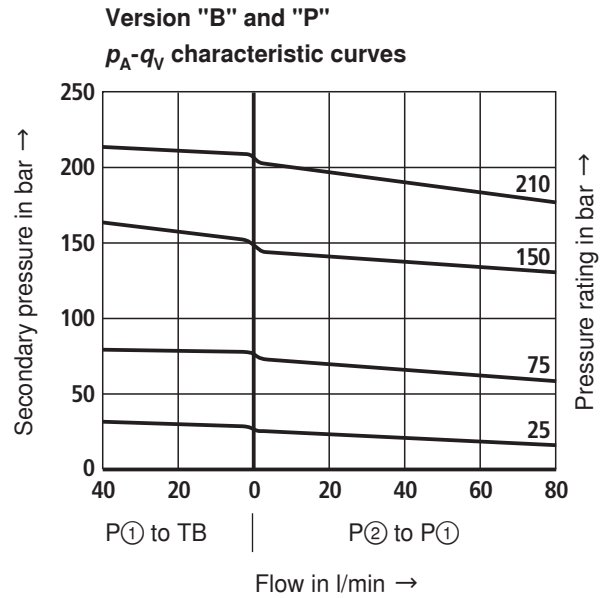
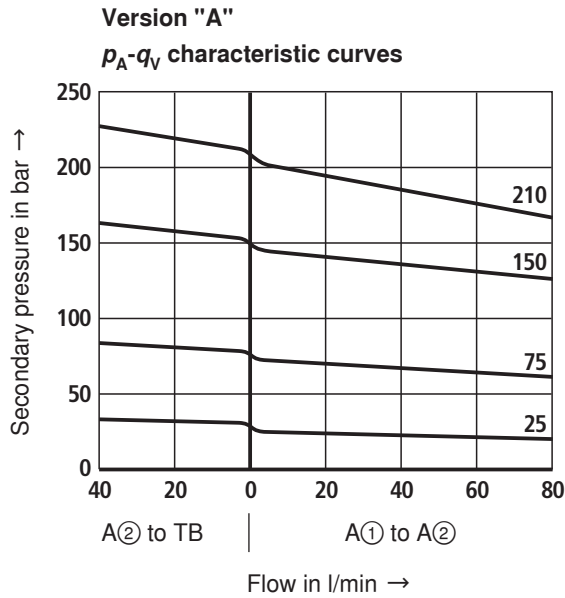
hydraulic

| | | |
|--|--------------------|--|
| Maximum operating pressure – Input | bar | 315 |
| Maximum secondary pressure – Output | bar | 25; 75; 150; 210 |
| Maximum backpressure – Port T | bar | 160 |
| Maximum flow | l/min | 80 |
| Hydraulic fluid | | See table below |
| Hydraulic fluid temperature range | °C | -30 to +80 (NBR seals) -20 to +80 (FKM seals) |
| Viscosity range | mm ² /s | 10 to 800 |
| Maximum permitted degree of contamination of the hydraulic fluid - cleanliness class according to ISO 4406 (c) | | Class 20/18/15 ¹⁾ |

| Hydraulic fluid | Classification | Suitable sealing materials | Standards |
|---------------------------------------|----------------------|---|-----------|
| Mineral oils and related hydrocarbons | HL, HLP, HLPD | NBR, FKM | DIN 51524 |
| Environmentally compatible | – Insoluble in water | HETG | ISO 15380 |
| | | HEES | |
| Flame-resistant | – Soluble in water | HEPG | ISO 15380 |
| | – Water-free | HFDU, HFDR | ISO 12922 |
| | – Water-containing | HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620) | ISO 12922 |

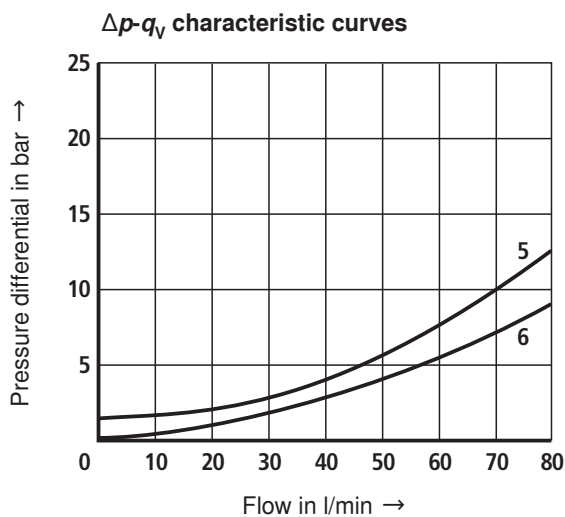
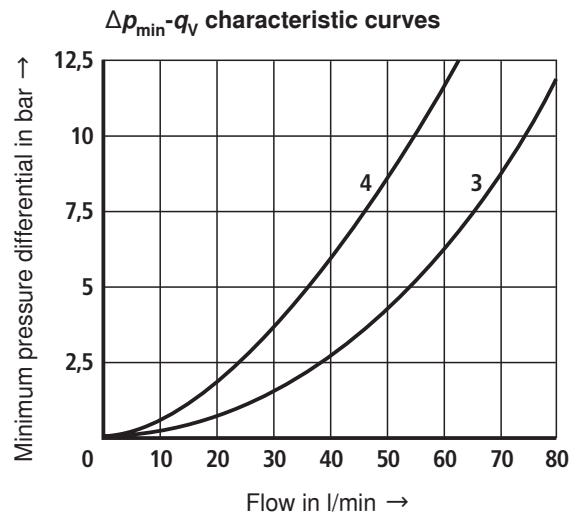
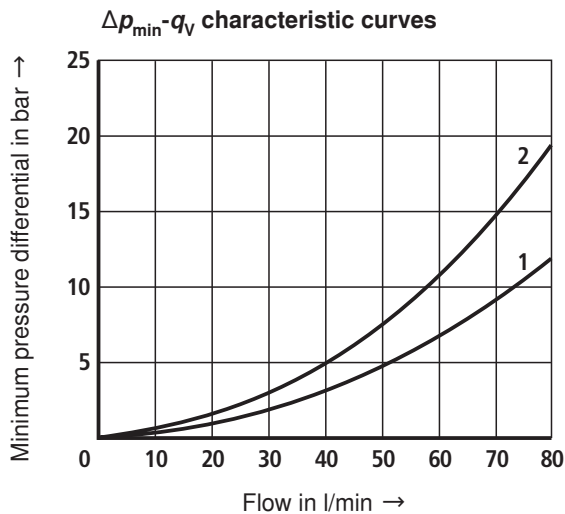
-  **Important information on hydraulic fluids!**
- For more information and data on the use of other hydraulic fluids refer to data sheet 90220 or contact us!
 - There may be limitations regarding the technical valve data (temperature, pressure range, service life, maintenance intervals, etc.)!
- Flame-resistant – water-containing:**
- Maximum operating pressure 210 bar
 - Maximum hydraulic fluid temperature 60 °C
 - Expected service life as compared to HLP hydraulic oil 30 % to 100 %

Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$)



Note!

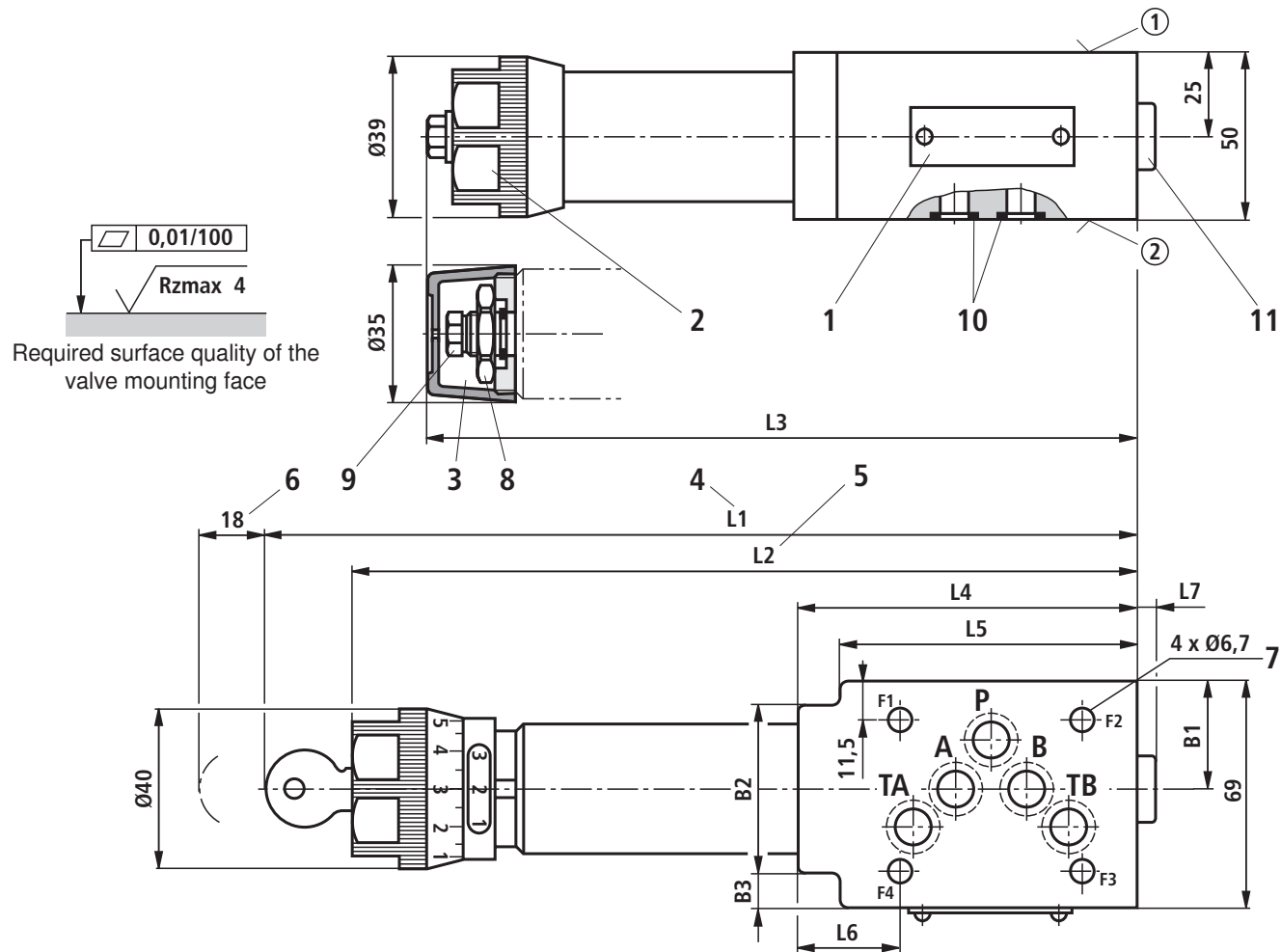
The curve development is maintained according to the pressure rating if the pressure is set lower.



- 1 A(1) to A(2)
- 2 A(2) to TB (3rd way)
- 3 P(2) to P(1)
- 4 P(1) to TB (3rd way)
- 5 A(2) to A(1); flow only via check valve
- 6 A(2) to A(1); flow via check valve and completely opened control cross-section

The characteristic curves apply to the pressure at the valve output $p_T = 0$ bar across the entire flow range.

Unit dimensions (dimensions in mm)



| Version | L1 | L2 | L3 | L4 | L5 | L6 | L7 | B1 | B2 | B3 |
|-------------|-----|-----|-----|-----|----|------|------|------|----|----|
| "A" | 254 | 230 | 210 | 104 | 93 | 31,5 | 3,8 | 32,9 | 51 | 12 |
| "B" and "P" | 242 | 218 | 198 | 91 | - | 18,5 | 15,8 | 35 | - | - |

- 1 Name plate
- 2 Adjustment type "1"
- 3 Adjustment type "2"
- 4 Adjustment type "3"
- 5 Adjustment type "7"
- 6 Space required to remove the key
- 7 Valve mounting bores
- 8 Lock nut SW24
- 9 Hexagon SW10
- 10 Identical seal rings for ports A, B, P, TA and TB
- 11 Pressure gauge connection G1/4; 12 deep; internal hexagon SW6

Valve mounting screws (separate order)

4 hexagon socket head cap screws ISO 4762 - M6 - 10.9

Notes!

- Length and tightening torque of the valve mounting screws must be calculated according to the components mounted under and over the sandwich plate valve.
- For port X and Y bored according to ISO 4401-05-05-0-05 (e.g. for pilot operated directional valve size 10), version "SO30" at the end of the order code applies!
- Deviating from ISO 4401, port T is in this data sheet called TA, port T1 is called TB.