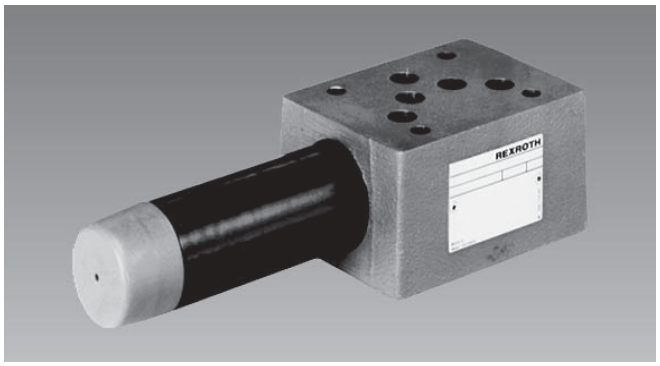
RE 26 585/06.03

Replaces: 02.03

Pressure reducing valve direct operated, Type ZDR 10 D

Nominal size 10
Series 5X
Maximum operating pressure 210 bar
Maximum flow 80 L/min



K 4805

Type ZDR 10 DP 2–5X/..Y..

Overview of contents

Features

- Sandwich plate design
- Porting pattern to DIN 24 340 form A, ISO 4401 and CETOP–RP 121 H
- 4 pressure ratings
- 4 adjustment elements:
  - Rotary knob
  - Sleeve with hexagon and protective cap
  - Lockable rotary knob with scale
  - Rotary knob with scale
- Pressure reduction in ports A, B or P
- Check valve, optional

Function, section

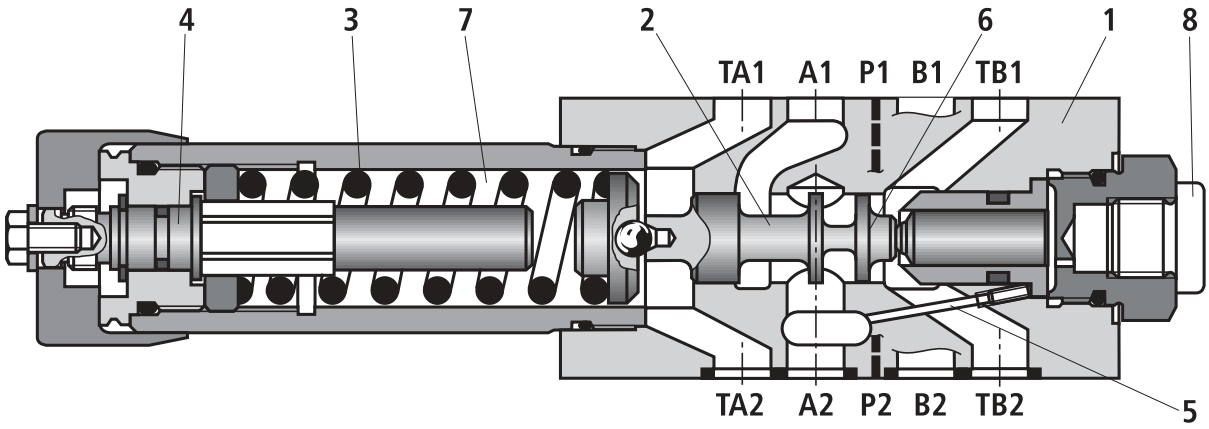
Valves of type ZDR 10 D.. are direct operated pressure reducing valves of sandwich plate design with pressure relief function of the secondary circuit. They are used for reducing the system pressure.
Pressure reducing valves basically consist of the housing (1), a control spool (2), a compression spring (3), an adjustment element (4) as well as an optional check valve.
The secondary pressure can be set using the adjustment element (4).

Version "DA"
In the initial position the valve is open. The hydraulic fluid can freely flow from channel A1 to channel A2. At the same time the pressure in channel A2 is applied via the pilot line (5) to the spool area opposite the compression spring (3). When the pressure in channel A2 increases to a value higher than that set on the compression spring (3), the control spool (2) moves against the compression spring (3) to the control position and maintains the set pressure constant in channel A2.
The pilot signal and pilot oil are provided internally from channel A2 via the pilot line (5).
When the pressure in channel A2 continues to increase due to external forces acting on the consumer, the control spool (2) is shifted further against the compression spring (3).
This causes channel A2 to be connected to tank (channel TB) via the control edge (6) on the control spool (2) and housing (1). The amount of oil flowing to the tank prevents the pressure from increasing any further.
The leakage oil is always drained externally from the spring chamber (7) via channel TA.
A pressure gauge port (8) allows the secondary pressure of the valve to be checked.
A check valve can only be used with version "DA" to allow a free flow from channel A2 back to A1.

Versions "DP" and "DB"
With version "DP" the pressure is reduced in channel P1. The pilot signal and pilot oil are provided internally from channel P1.
With version "DB" the pressure is reduced in channel P1; however, the pilot oil is taken from channel B.

⚠ Caution!
When 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 is reduced in channel A.

When used without directional valve, TA and TB must be interconnected (e.g. in a cover plate).
When a directional poppet valve of type SE 10... is mounted, sandwich plate type HSZ10A078-3X/M00 (R900537264) must be used.



Ordering details

Z	DR	10	D		–5X/		Y			*

Sandwich plate valve = **Z**
Pressure reducing valve = **DR**
Nominal size 10 = **10**
Direct operated = **D**
Pressure reduction in port A2 = **A**
Pressure reduction in port P1 (pilot oil from port B) = **B**
Pressure reduction in port P1 = **P**

Adjustment element
Rotary knob = **1**
Sleeve with hexagon and protective cap = **2**
Lockable rotary knob with scale = **3** [1)]
Rotary knob with scale = **7**

Series 50 to 59 = **5X**
(50 to 59: unchanged installation and connection dimensions)

25 = Max. secondary pressure 25 bar
75 = Max. secondary pressure 75 bar
150 = Max. secondary pressure 150 bar
210 = Max. secondary pressure 210 bar

Y = Internal pilot oil supply, external leakage oil drain

M = Without check valve

No code = With check valve (only possible for type ZDR 10 **DA**)

V = FKM seals (other seals on request)

No code = NBR seals

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

Further details in clear text

[1)] H-key with Material No. **R9008158** is included within the scope of supply.

Preferred types (readily available)

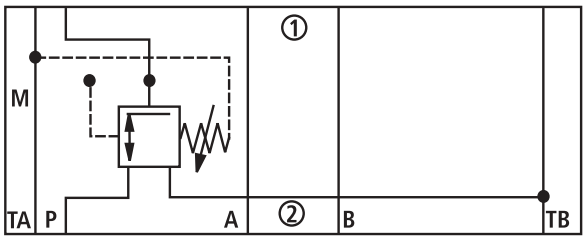
Type	Material number
ZDR 10 DA2-5X/25Y	R900407334
ZDR 10 DA2-5X/75Y	R900438008
ZDR 10 DA2-5X/150Y	R900410884
ZDR 10 DA2-5X/210Y	R900406651
ZDR 10 DB2-5X/25YM	R900426202
ZDR 10 DB2-5X/75YM	R900431509
ZDR 10 DB2-5X/150YM	R900408340
ZDR 10 DB2-5X/210YM	R900443484

Typ	Material number
ZDR 10 DP2-5X/25YM	R900410899
ZDR 10 DP2-5X/75YM	R900410875
ZDR 10 DP2-5X/150YM	R900410880
ZDR 10 DP2-5X/210YM	R900410876

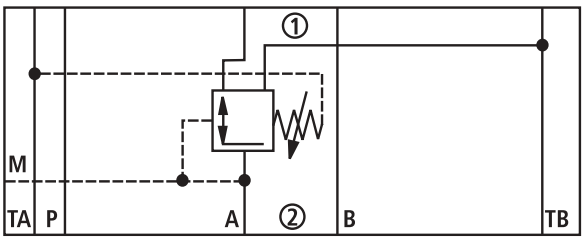
Further preferred types and standard units can be found in the EPS (Standard Price List).

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

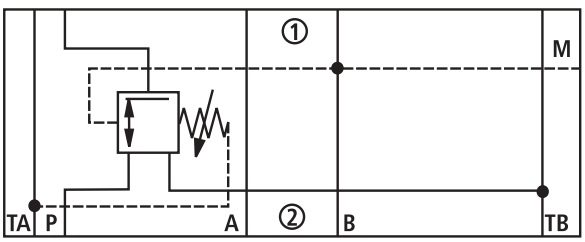
Type ZDR 10 DP..–5X/..YM..



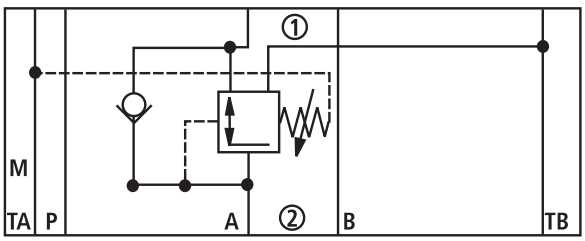
Type ZDR 10 DA..–5X/..YM..



Type ZDR 10 DB..–5X/..YM..



Type ZDR 10 DA..–5X/..Y



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

General		
Installation		Optional
Ambient temperature range	°C	–30 to +80 for NBR seals
		–20 to +80 for FKM seals
Weight	kg	Approx. 2.8
Hydraulic		
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
Cleanliness class to ISO code		Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 [3]
Pressure fluid temperature range	°C	–30 to +80 for NBR seals
		–20 to +80 for FKM seals
Viscosity range	mm^2/s	10 to 800
Max. operating pressure (input)	bar	Up to 315
Secondary pressure, (output)	bar	25; 75; 150; 210
Back pressure port T	bar	Up to 160
Max. flow	L/min	Up to 80

1) Suitable for NBR a**nd** FKM seals

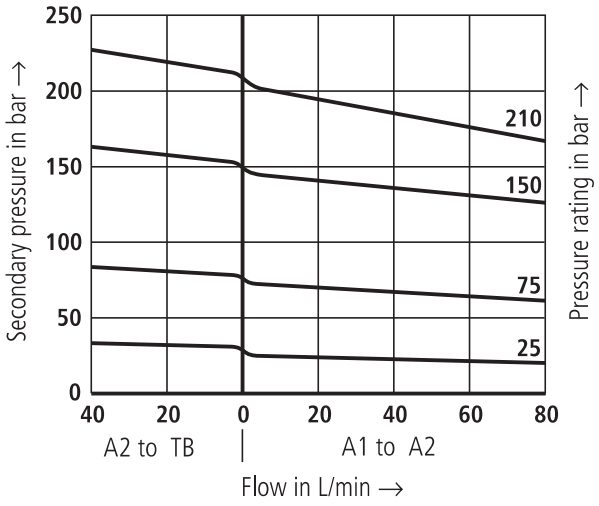
2) **Only** suitable for FKM seals

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

Characteristic curves (measured at HLP46, ϑ_{oil} = 40 °C ± 5 °C)

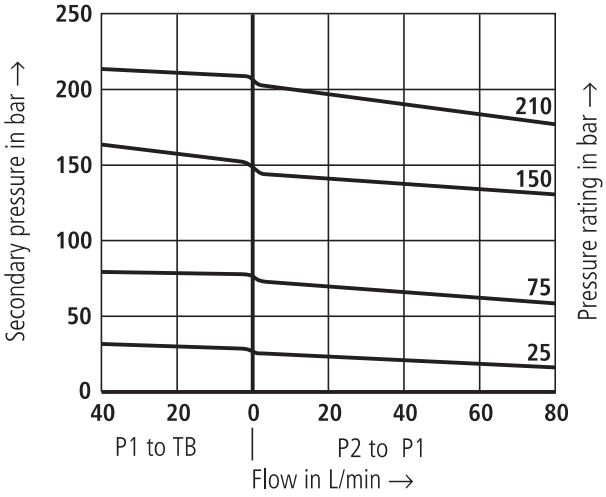
Type ZDR 10 DA..–5X/..

p_A-q_V-characteristic curves



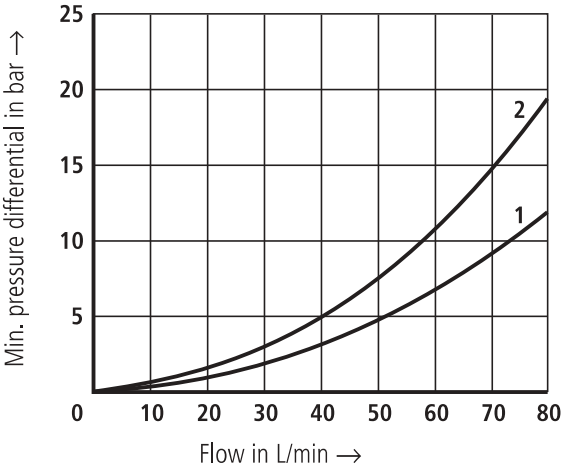
Type ZDR 10 DP..–5X/.. and
Type ZDR 10 DB..-5X/..

p_A-q_V-characteristic curves

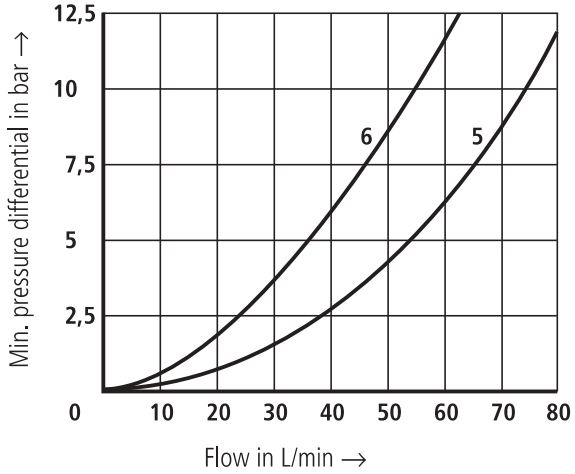


Note
The curve characteristics remain, with low set pressures, the same in relation to the pressue rating.

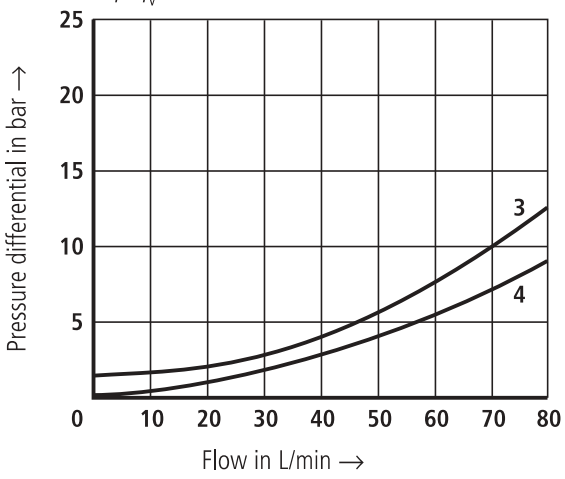
Δp_{min}-q_V-characteristic curves



Δp_{min}-q_V-characteristic curves



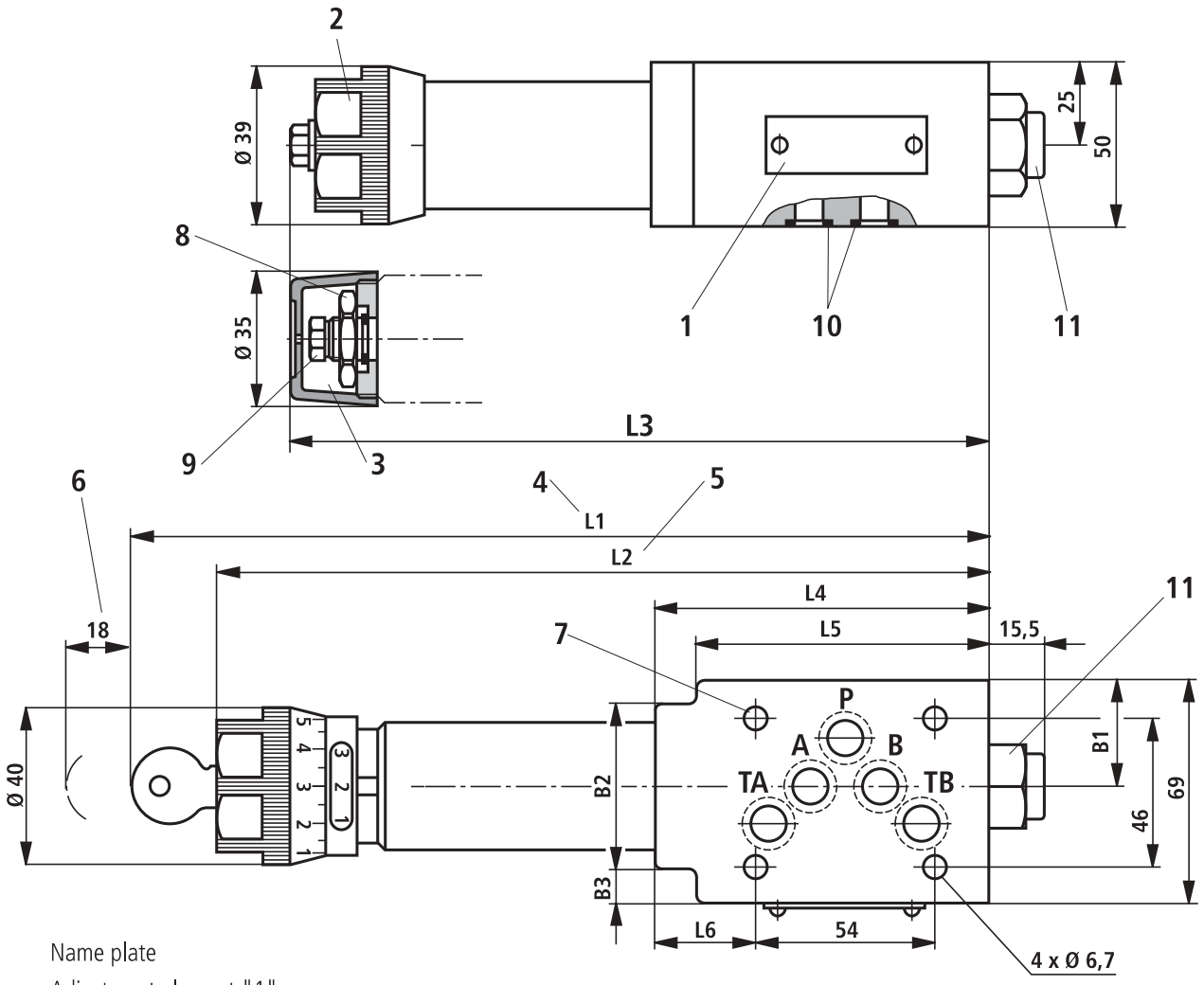
Δp-q_V-characteristic curves



1 A1 to A2
2 A2 to TB (3rd flow path)
3 A2 to A1 flow via check valve only
4 A2 to A1 flow via check valve and fully open control cross-section
5 P2 to P1
6 P1 to TB (3rd flow path)

The characteristic curves for the pressure relief function are valid for the output pressure = zero over the entire flow range!

Unit dimensions (dimensions in mm)



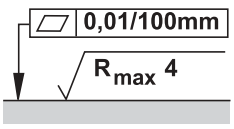
1 Name plate
2 Adjustment element "1"
3 Adjustment element "2"
4 Adjustment element"3"
5 Adjustment element "7"
6 Space required to remove the key
7 Valve fixing screw holes
8 Locknut 24A/F
9 Hexagon 10A/F
10 Same seal rings for ports A, B, P, TA and TB
11 Pressure gauge port G 1/4; 12 deep; internal hexagon 6A/F

Valve fixing screws
M6 DIN 912 - 10.9,
Tighenting torque M_A = 15.5 Nm,
must be ordered separately.

Note:
For X and Y ports
(e. g. for NS 10 pilot operated directional valves)
the special version code is **SO30!**

Version	L1	L2	L3	L4	L5	L6	B1	B2	B3
"DA"	254	230	210	104	93	31.5	32.9	51	12
"DB" and "DP"	242	218	198	91	–	18.5	35	–	–

Pipe threads "G" to ISO 228/1



Required surface finish of mating piece

Notes

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Notes

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