

Pressure-reducing valves, directly operated

RE 26564-XC-B2/06.09
Replaces: 12.05

Types DR 6 DP...XC and ZDR 6 D...XC

Nominal size 6
Unit series 5X (DR 6...) and 4X (ZDR 6...)
Maximum operating pressure, primary 315 bar (DR 6... and ZDR 6...)
Maximum flow rates 60 l/min (DR 6...) and 50 l/min (ZDR 6...)



ATEX units
For potentially explosive atmospheres

Part II Technical Data Sheet



Information on explosion protection:

Range of application in accordance with the Explosion Protection Directive and type of protection

- Range of application as per Directive 94/9/EG **IM2, II2G**
- Type of protection of valve: c (EN 13463-5:2004-03)

What you need to know about these Operating Instructions

These Operating Instructions apply to the explosion-proof version of Rexroth valves, and consist of the following three parts:

- Part I General Information RE 07010-X-B1
- Part II Technical Data Sheet RE 26564-XC-B2
- Part III Product-specific Instructions RE 26564-XC-B3

RE 26564-XC-B0

You can find further information on the correct handling of Rexroth hydraulic products in our publication "General Product Information on Hydraulic Products", RE 07008.

Overview of Contents

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Features

- For subplate mounting type Typ DR6DP...XC
 - Position of ports to DIN 24340-A6 (standard) and ISO 4401-03-02-0-05
 - 5 pressure stages
 - Setting element in the form of a rotary knob
 - Optional non-return valve, see ordering data
- As modular valve type Typ ZDR6DP...XC
 - Position of ports to DIN 24340-A6, **without** locating bore (standard) and ISO 4401-03-02-0-05 **with** locating bore (order code .../60)
 - 4 pressure stages
 - Setting element in the form of a rotary knob
 - Optional non-return valve, see ordering data

Function, sectional diagram, DR 6 DP...XC

The DR 6 DP...XC type valve is a directly operated pressure-reducing valve in subplate-mounted design. It is a 3-way version, i.e. it limits the pressure of the secondary circuit.

It is used to reduce system pressure.

The secondary pressure is set by means of the setting element (4).

In the initial position, the valve is open. Pressure fluid can flow from channel P to channel A unimpeded. The pilot line (6) also makes the pressure in channel A available to the piston surface area opposite the compression spring (3). If the pressure in channel A exceeds the value set at the compression spring (3), the control piston (2) moves into the control position and keeps the set pressure in channel A at a constant level.

The control signal and control oil arrive internally from channel A via the pilot line (6).

If the pressure in channel A continues to increase due to external forces being exerted on the load, the control piston (2) is pushed even harder against the compression spring (3).

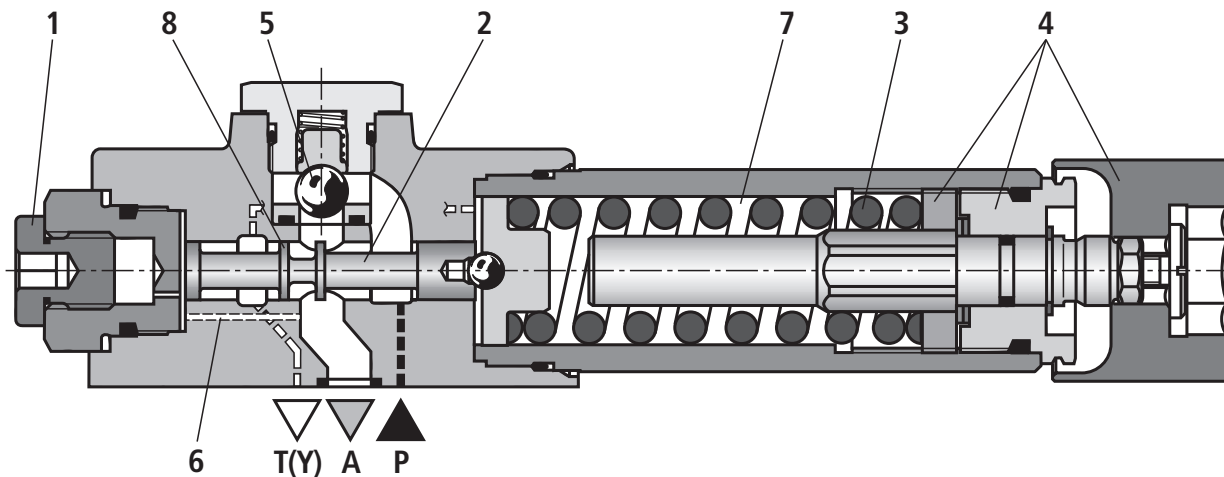
This causes channel A to be connected to the tank via the metering edge (8) on the control piston (2). In this way, the amount of pressure fluid that flows to the tank ensures that the pressure cannot rise any further.

The leakage oil from the spring chamber (7) is always returned externally via channel T (Y).

An optional non-return valve (5) may be installed to ensure a free return flow from channel A to channel P.

A gage connection (1) enables the secondary pressure to be monitored (see page 9 for connection dimensions).

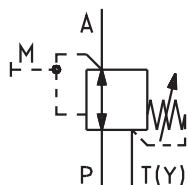
Type DR 6 DP1-5X/...XCYV



Symbols, DR 6 DP...XC

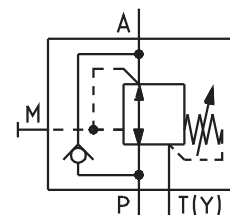
"YM" version

Internal control oil supply
External leakage oil return
Without non-return valve



"Y" version

Internal control oil supply
External leakage oil return
With non-return valve



Function, sectional diagram, ZDR 6 D...XC

The ZDR 6 D...XC type valve is a directly operated pressure-reducing valve in modular design. It is a 3-way version, i.e. it limits the pressure of the secondary circuit.

It is used to reduce system pressure. The pressure-reducing valve basically consists of a housing (1), a control piston (2), a compression spring (3), a setting element (4) and an optional non-return valve.

The secondary pressure is set by means of the setting element (4).

“DA” version

In the initial position, the valve is open. Pressure fluid can flow from channel A1 to channel A2 unimpeded. The pilot line (5) also makes the pressure in channel A2 available to the piston surface area opposite the compression spring (3). If the pressure in channel A2 exceeds the value set at the compression spring (3), the control piston (2) moves into the control position and keeps the set pressure in channel A2 at a constant level. The control signal and control oil arrive internally from channel A2 via the pilot line (5).

If the pressure in channel A2 continues to increase due to external forces being exerted on the load, the control piston (2) is pushed even harder against the compression spring (3).

This causes channel A2 to be connected to the tank via the metering edge (9) on the control piston (2). In this way, the amount of pressure fluid that flows to the tank ensures that the pressure cannot rise any further. The leakage oil from the spring chamber (7) is always returned externally to channel T(Y) via the bore (6). A gage connection (8) enables the secondary pressure to be monitored (see page 10 for connection dimensions).

A non-return valve to ensure a free flow from channel A2 to A1 can only be inserted in the “DA” version

“DP” and “DB” versions

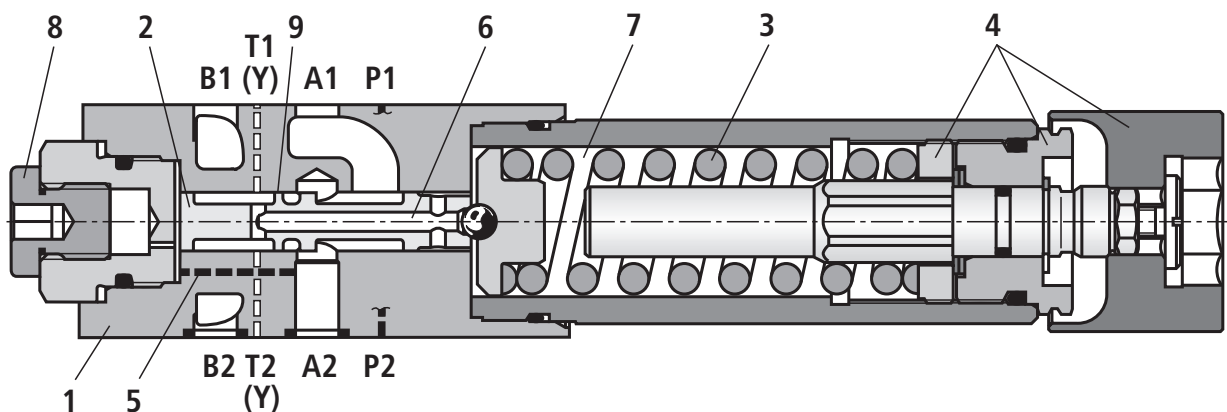
In the DP version, the pressure is reduced in channel P1. The control signal and control oil come internally from channel P1.

In the DB version, the pressure in channel P1 is reduced, but the control oil is derived internally from channel B.

Note:

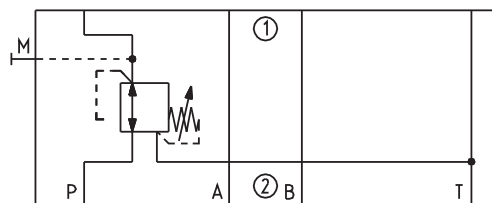
In the DB version, care must be taken to ensure that the pressure in channel B does not exceed the set pressure when the directional control valve is in the P to A switching position. Otherwise, the pressure will be reduced in channel A.

Type ZDR 6 DA1-4X/...XCYM

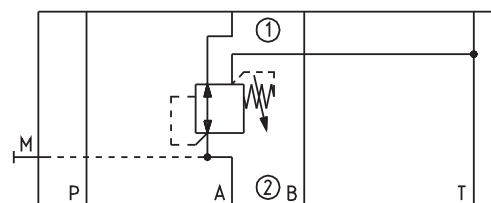


Symbols, ZDR 6 D...XC

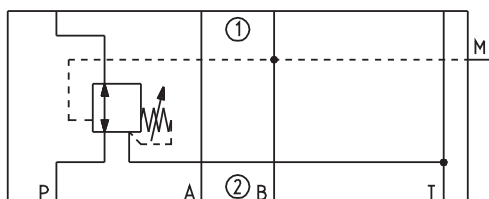
Type ZDR 6 DP...YM...



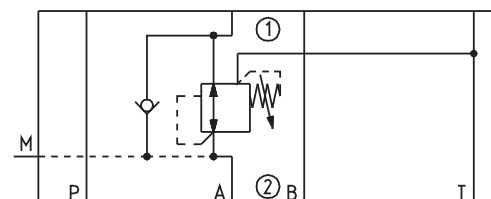
Type ZDR 6 DA...YM...



Type ZDR 6 DB...YM...



Type ZDR 6 DA...Y...



Technical data

General

Installation position		Optional
Ambient temperature range	°C	-20 ... +80 (FKM-seals) -30 ... +80 (NBR-seals)
Storage temperature range	°C	-20 ... +80 (FKM-seals) -30 ... +80 (NBR-seals)
Weight	kg	1.2
Surface protection	Standard	Paint, layer thickness max. 100 µm

Hydraulic

Valve type		DR 6 DP...XC	ZDR 6 D...XC
Maximum operating pressure, primary	bar	315	315
Maximum secondary pressure ¹⁾	bar	25 / 75 / 150 / 210 / 315	25 / 75 / 150 / 210
Maximum counter pressure Port T(Y)	bar	50	160
Maximum flow rate	l/min	60	50
Pressure fluid		Mineral oil (HL, HLP) to DIN 51524 other pressure fluids available on request Ignition temperature > 180 °C	
Pressure fluid temperature range	°C	-20 ... +80 (FKM-seals) -30 ... +80 (NBR-seals)	
Viscosity range	mm ² /s	10 ... 800	
Maximum permissible degree of contamination of pressure fluid Purity class to ISO 4406 (c)		Class 20/18/15 ²⁾	

Information on explosion protection

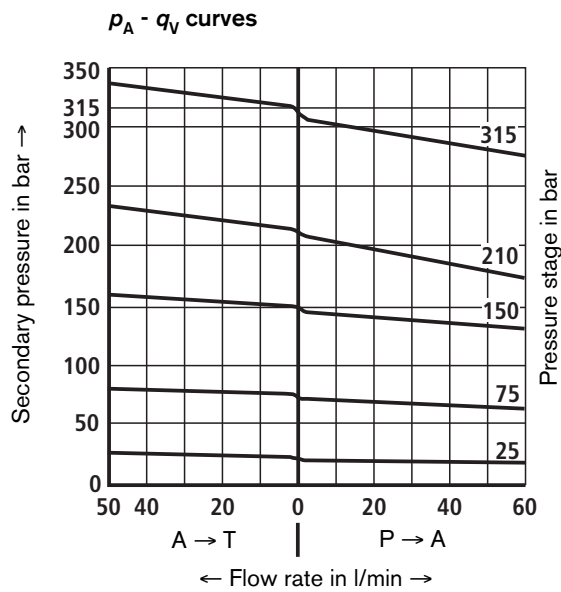
Range of application as per Directive 94/9/EG		IM2, II2G
Type of protection of valve		c (EN 13463-5:2004-03)
Maximum surface temperature ³⁾	°C	125
Temperature class		T4

¹⁾ In order to prevent the maximum permitted secondary pressure from being exceeded, it must be checked with a suitable measuring instrument if it is altered.

²⁾ The purity classes stated for the components must be complied with in hydraulic systems. Effective filtration prevents problems and also extends the service life of components. For a selection of filters, see Technical Data Sheets RE 50070, RE 50076 and RE 50081.

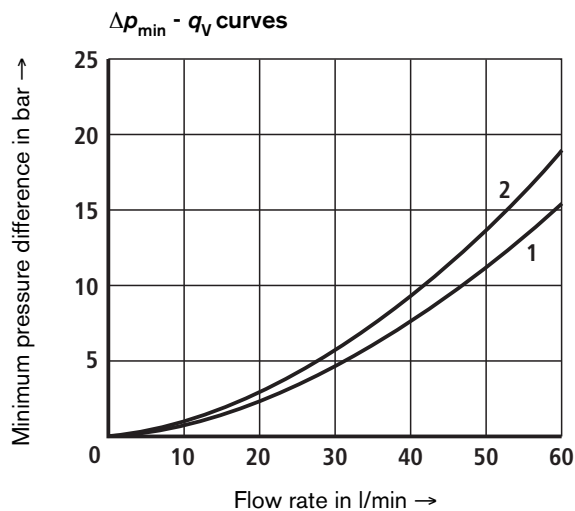
³⁾ As high surface temperatures may occur, European standards ISO 13732-1 and EN 982 on the prevention of accidental contact must be observed.

Characteristic curves, DR 6 DP...XC (measured with HLP46, $\vartheta_{oil} = 40 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$)

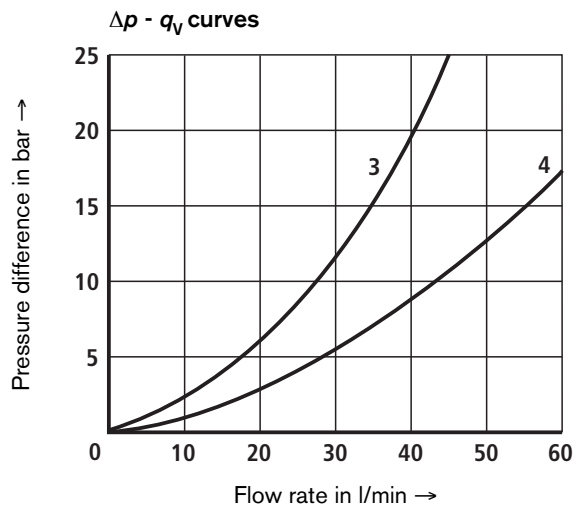
**Note:**

When the pressure is set lower, the curve shape still corresponds to the pressure stage

The curves for the pressure relief function apply to an initial pressure of 0 in the overall flow range!

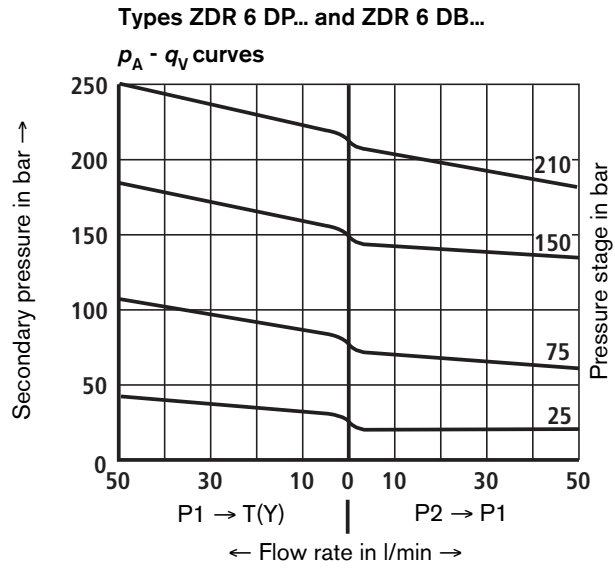
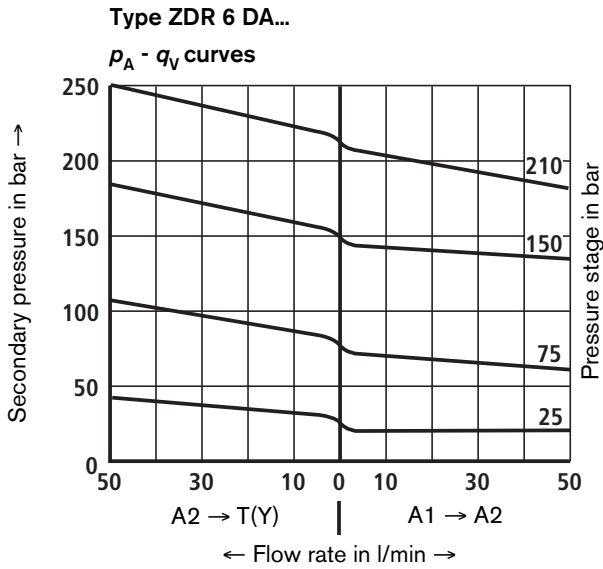


- 1 Minimum pressure difference Δp_{min} with flow P → A
- 2 Minimum pressure difference Δp_{min} with flow A → T (Y)



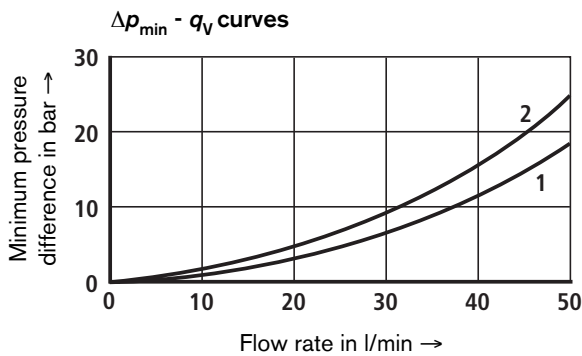
- 3 Pressure difference Δp with flow via non-return valve only
- 4 Pressure difference Δp with flow via non-return valve and fully open control cross-section

Characteristic curves, ZDR 6 D...XC (measured with HLP46, $\vartheta_{oil} = 40 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$)

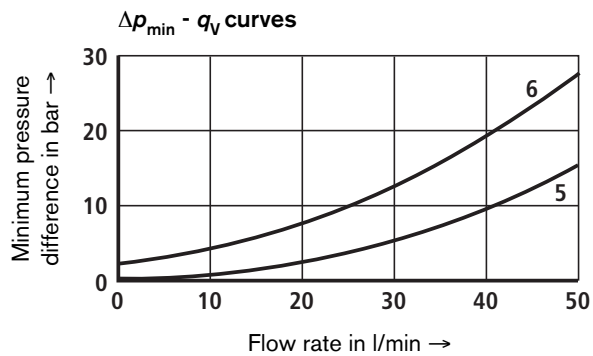


When the pressure is set lower, the curve shape still corresponds to the pressure stage.

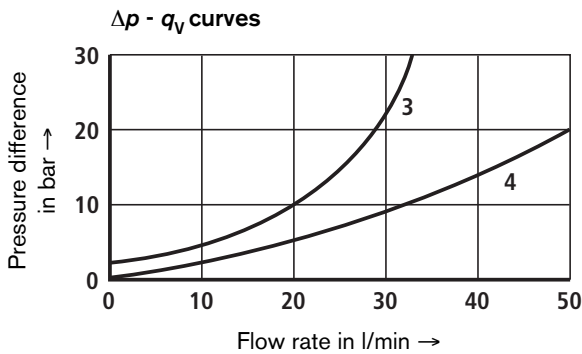
The curves for the pressure relief function apply to an initial pressure of 0 in the overall flow range!



- 1 Minimum pressure difference Δp_{min} with flow A1 \rightarrow A2
- 2 Minimum pressure difference Δp_{min} with flow A2 \rightarrow T (Y) (3rd way)



- 5 Minimum pressure difference Δp_{min} with flow P2 \rightarrow P1
- 6 Minimum pressure difference Δp_{min} with flow P1 \rightarrow T (Y) (3rd way)



- 3 Pressure difference Δp with flow A2 \rightarrow A1 via non-return valve only
- 4 Pressure difference Δp with flow A2 \rightarrow A1 via non-return valve and fully open control cross-section

Notes

Notes

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