Rexroth
Bosch Group

3-way pressure reducing valve, direct operated

RE 18111-04/10.10 1/8
Replaces: 05.09

Type MHDRDB (Standard Performance)

Size 4
Component series 1X
Maximum operating pressure 420 bar
Maximum flow 15 l/min

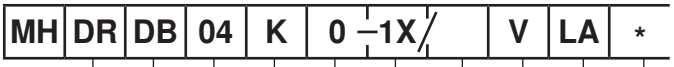
Table of contents

Features

- Cartridge valve
- Mounting cavity R/LA
- 2 pressure ratings, optional (35 and 40 bar)
- Versatile use for pressure reducing functions with leakage oil drain to channel T
- Integrated pressure relief function

Information on available spare parts:
www.boschrexroth.com/spc

Ordering code



3-way pressure reducing valve, direct operated **= DR**

Integrated pressure relief function **= DB**

Size 4 **= 04**

Cartridge valve **= K**

Adjustment element

None **= 0**

Component series 10 to 19 (10 to 19: unchanged installation and connection dimensions) **= 1X**

035 = 35 bar

040 = 40 bar

(lower pressure ratings on request)

Pressure rating

V = FKM seals

(other seals on request)

Attention!

Observe compatibility of seals with hydraulic fluid used!

LA = Standard Performance and mounting cavity (see page 6)

Further details in clear text

Standard types

Pressure rating	Type	Material number
35 bar	MHDRDB 04 K0-1X/035VLA	R900641606
40 bar	MHDRDB 04 K0-1X/040VLA	R900751628

Function, section, symbol

General

Direct operated 3-way pressure reducing valves of type MHDRDB are used to reduce a system pressure. They basically consist of control spool (1), compression spring (2) and spring plate (3).

Pressure reducing function

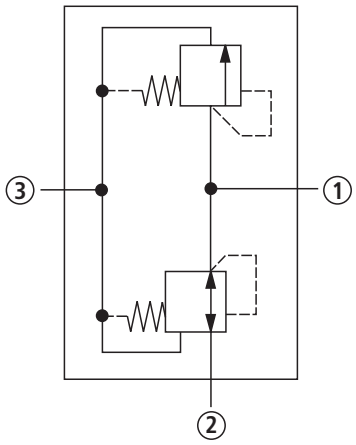
In the starting position the valve is closed. Hydraulic fluid flows from main port ② to ①. When the pressure in main port ① increases to the value preset on compression spring (2), the connection from ② to ① is closed. A further increase in the system pressure (main port ②) has no longer an influence on the pressure in main port ① (pressure-holding function). Pressure losses in main port ① (actuator) are compensated for by the valve.

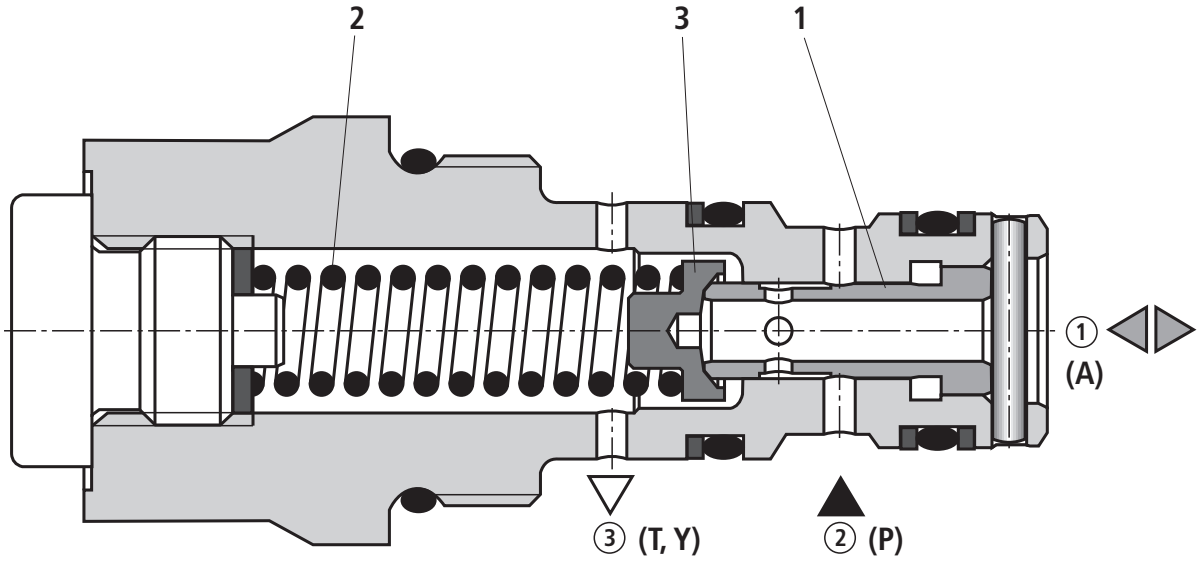
Pressure relief function

When the pressure in main port ① exceeds the set value, control spool (1) is shifted against compression spring (2) and main port ① is connected to ③. An undesirable increase in pressure in main port ① is additionally prevented by lifting spring plate (3) off the control spool (1).

The pressure in main port ① increases in dependence on the inlet pressure and flow (see characteristic curves on page 5).

Symbol





① = main port 1 (A)
② = main port 2 (P)
③ = main port 3 (T, Y)

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

General

Weight		kg	0.17
Installation position			Optional
Ambient temperature range		°C	–20 to +80
Surface protection			The valves are not provided with any surface protection. Surface protection must be ensured by paint-coating of the components or the entire assembly (e.g. valve with housing).

Hydraulic

Maximum operating pressure	– main port ② (P)	bar	420
Maximum control pressure [1, 2)]	– main port ① (A)	bar	35, 40
Maximum tank pressure [1)]	– main port ③ (T, Y)	bar	30
Maximum flow		l/min	15
Hydraulic fluid			Mineral oil (HL, HLP) to DIN 51524; fast bio-degradable hydraulic fluids to VDMT 24568 (see also RE 90221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic esters); other hydraulic fluids on request
Hydraulic fluid temperature range		°C	–20 to +80
Viscosity range		mm^2/s	10 to 800
Permissible max. degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)			Class 20/18/15 [3)]
Load cycles			2 million

[1)] The tank pressure (main port ③) adds to the set control pressure (main port ①).

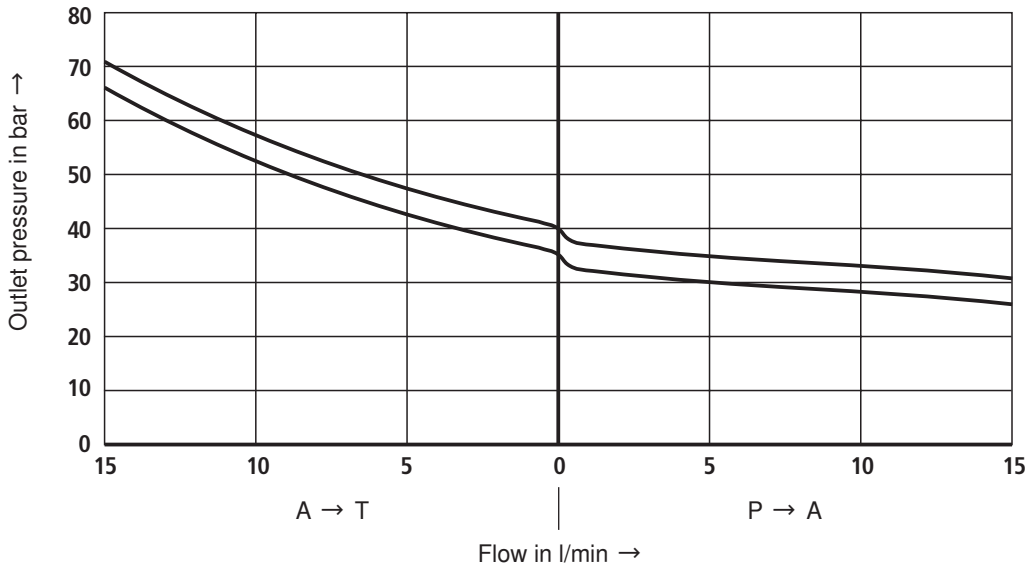
[2)] The control pressure is checked and adjusted with zero flow.

[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 the filters see www.boschrexroth.com/filter.

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

p_A-q_V characteristic curves [1)]

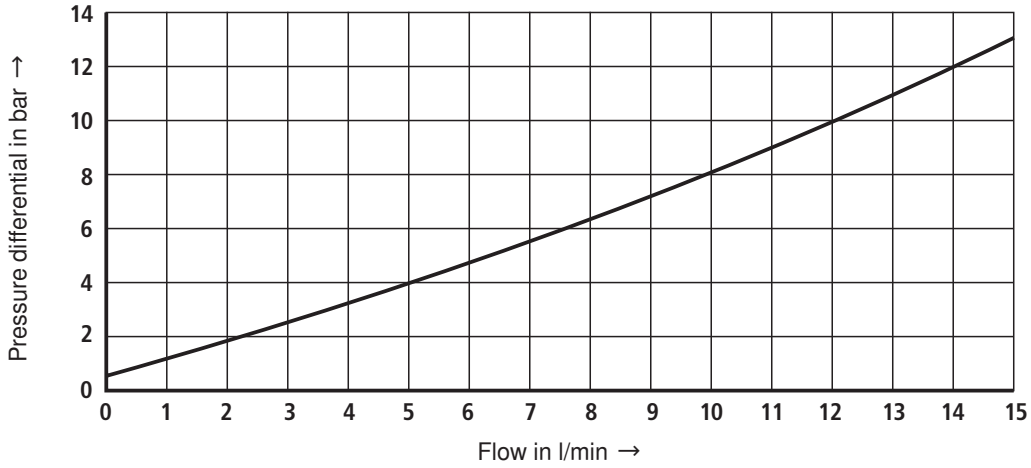


1) The characteristic curves for the pressure relief function are valid at an outlet pressure of 0 bar within the entire flow range!

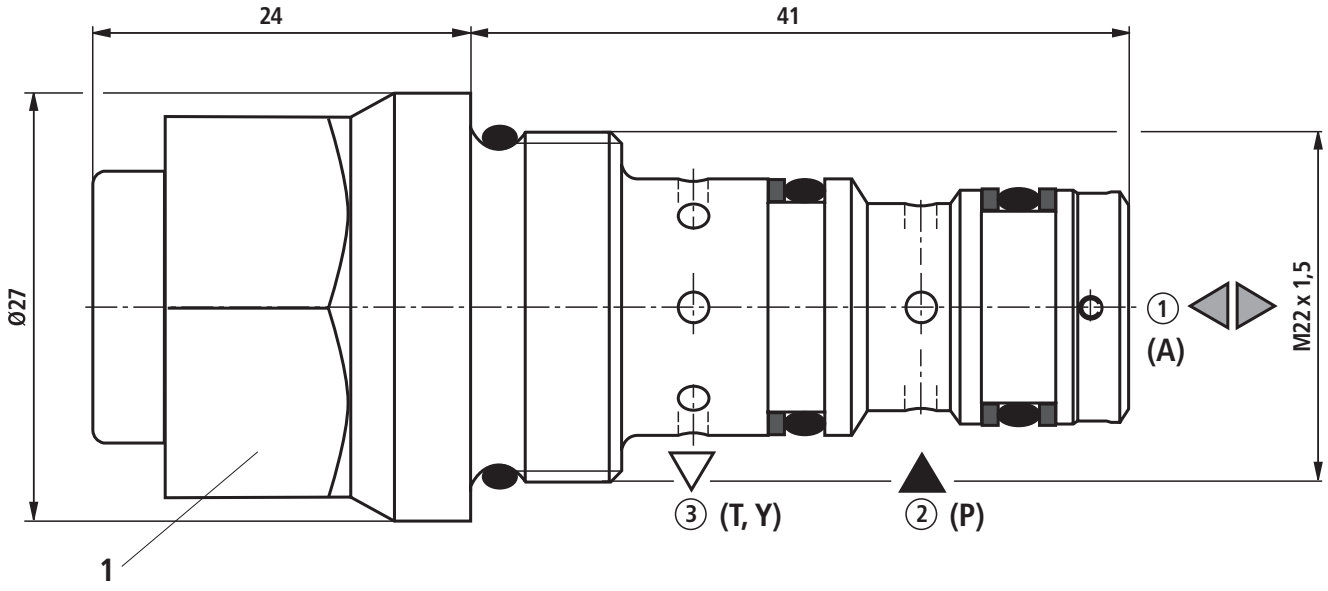
☞ **Note!**

Beginning of the pressure relief function at approx. +10% above the pressure rating.

Δp-q_V characteristic curves (P → A)



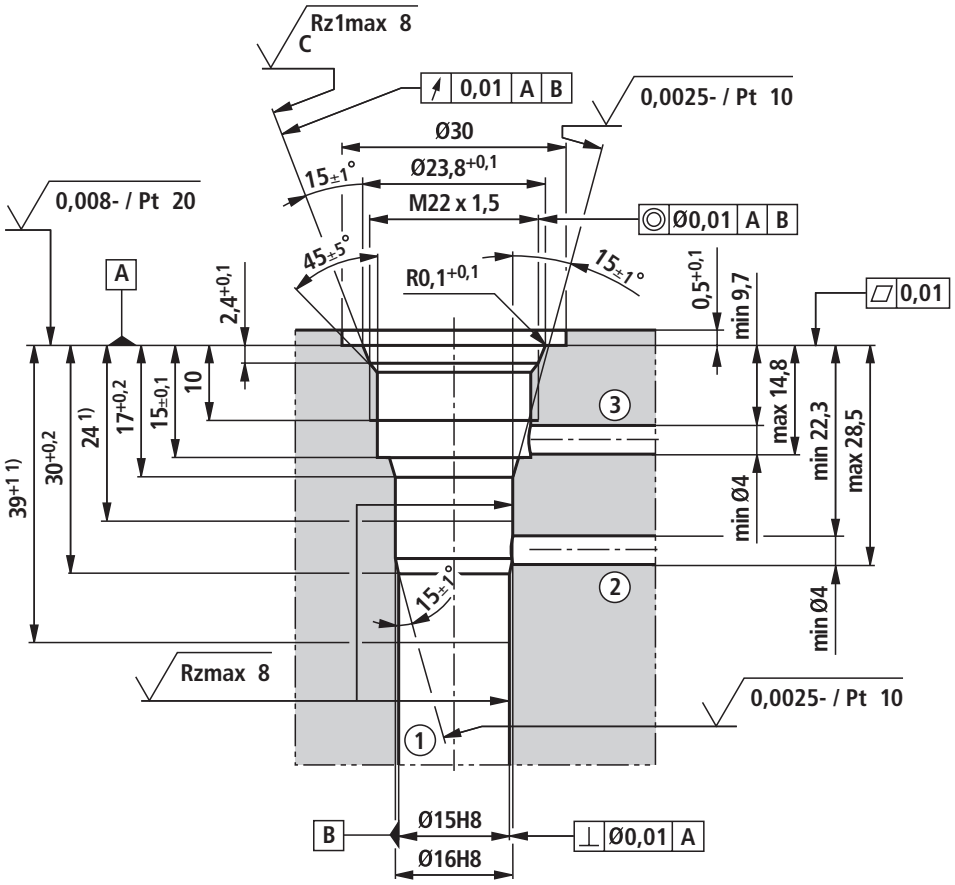
Unit dimensions (dimensions in mm)

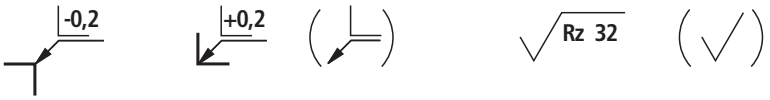


1 Hexagon 24 A/F,
tightening torque M_T = 60 ±5 Nm

Screw-in hole see page 7.

Mounting cavity R/LA: 3 main ports, thread M22 x 1.5 (dimensions in mm)





① = main port 1 (A)
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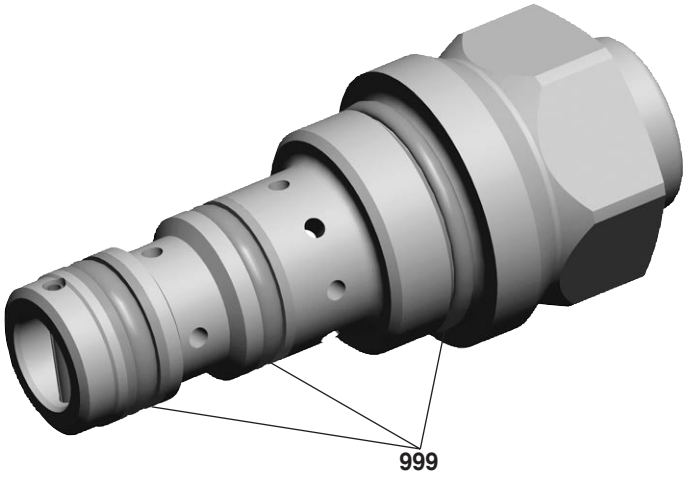
③ = main port 3 (T, Y)

1) Depth of fit

Standards:

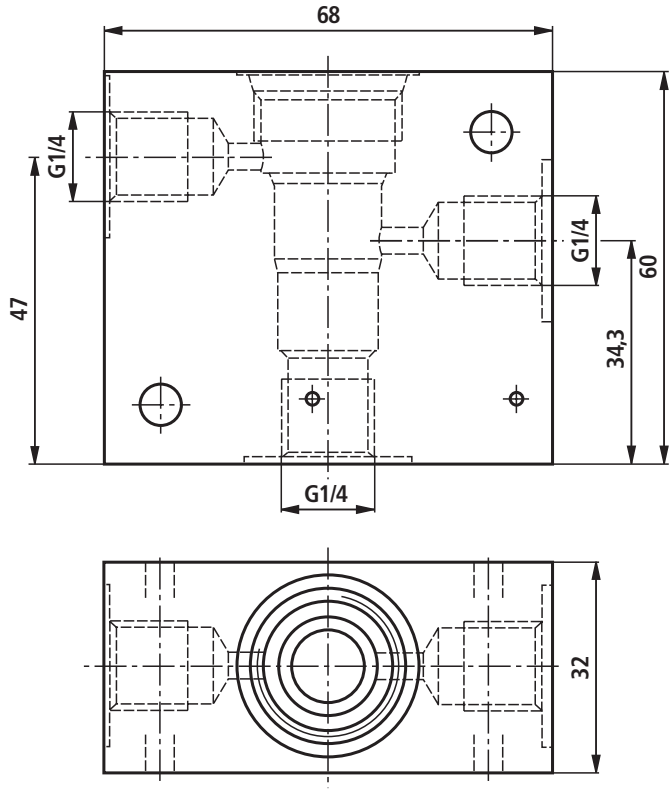
Workpiece edges	DIN ISO 13715
Form and position tolerance	DIN EN ISO 1101
General tolerances for chip-producing processes	DIN ISO 2768-mK
Tolerance	DIN ISO 8015
Surface quality	DIN EN ISO 1302

Available individual components



Item	Designation	Material no.
999	Valve seal kit	R900870592
	Housing FTDRE 4 G10/01 G1/4, M22X1.5 (see below) [1)]	R900862813

[1)] Maximum operating pressure 350 bar



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