Pressure relief valve, direct operated

Type DBD..K

RE 25715
Edition: 2015-06

H8070

- Size 2
- Component series 2X
- Maximum operating pressure 420 bar
- Maximum flow 2 l/min

Features

- Screw-in cartridge valve
- 6 pressure ratings
- 4 adjustment types, optionally:
  - Hexagon with protective cap
  - Rotary knob with scale
  - Lockable rotary knob with scale
  - Hand wheel

Contents

Ordering codes

01	02	03	04	05		06	07	08	09
DBD		**2**	**K**	**2X**	**/**			**V**	*****

01	Pressure relief valve, direct operated	**DBD**

Adjustment type

02	Hexagon with protective cap	**S**
	Rotary knob with scale	**L**
	Lockable rotary knob with scale	**A**
	Hand wheel	**H**

03	Size 2	**2**

04	Screw-in cartridge valve	**K**

05	Component series 20 ... 29 (20 ... 29: Unchanged installation and connection dimensions)	**2X**

Pressure rating

06	Set pressure up to 25 bar	**25**
	Set pressure up to 50 bar	**50**
	Set pressure up to 100 bar	**100**
	Set pressure up to 200 bar	**200**
	Set pressure up to 315 bar	**315**
	Set pressure up to 420 bar	**420**

Sealed set pressure (adjustment type "S" only)

07	Unsealed	**no code**
	Sealed – please specify set pressure (setting interval 5 bar)	**P...** [1]

Seal material

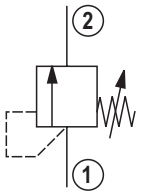
08	NBR seals	**no code**
	FKM seals	**V**
	Observe compatibility of seals with hydraulic fluid used! (Other seals upon request)	

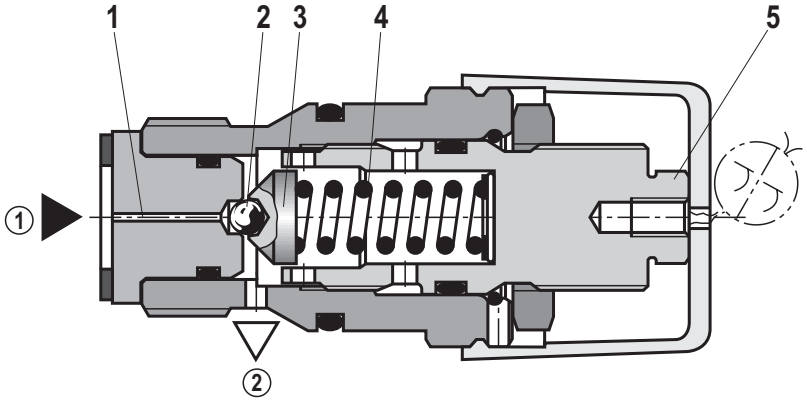
09	Further details in the plain text	*****

[1] Order example:
Set pressure 190 bar → DBDS 2 K2X/200**P180**V

Function, section, symbol

Pressure valve type DBD.. K refers to direct operated pressure relief valves to be installed in block designs. They are used for system pressure limitation. The system pressure can be set via the adjustment type (5).
The valve is closed in initial position. Via control line (1) and ball (2), the pressure in the main port ① acts on the spring plate (3). If the pressure in the main port ① rises above the value set at the compression spring (4), the ball (2) opens and the hydraulic fluid flows into the main port ②.





Type DBDS 2 K2X/...

① = Main port 1 (P)
② = Main port 2 (T)

Technical data
(For applications outside these parameters, please consult us.)

general		
Weight	kg	Approx. 0.3
Installation position		Any
Ambient temperature range	°C	–20 ... +80

hydraulic			
Maximum operating pressure	▶ Input	bar	420
	▶ Output	bar	315
Maximum set pressure		bar	25; 50; 100; 200; 315; 420
Maximum flow		l/min	2 (recommended 1.5)
Hydraulic fluid			See table below
Hydraulic fluid temperature range		°C	–20 ... +80
Viscosity range		mm^2/s	10 ... 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**	**Data sheet**
Mineral oils		HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524	90220
Bio-degradable	▶ insoluble in water	HETG	NBR, FKM	ISO 15380	90221
		HEES	FKM		
	▶ soluble in water	HEPG	FKM	ISO 15380	
Flame-resistant	▶ water-free	HFDU, HFDR	FKM	ISO 12922	90222
	▶ containing water	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	NBR	ISO 12922	90223

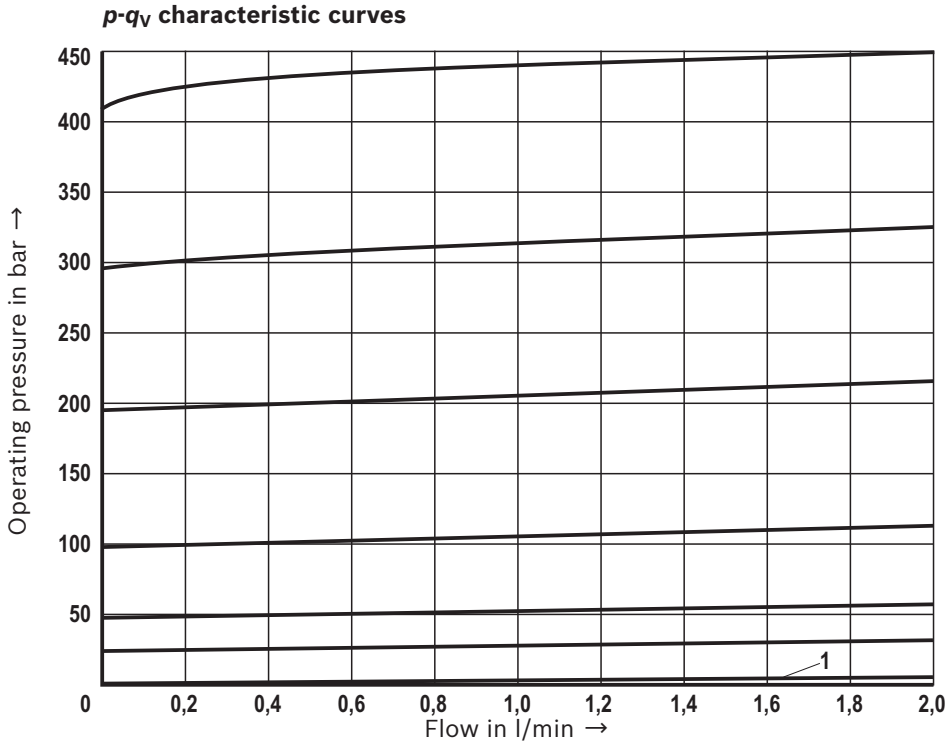
☞ **Important information on hydraulic fluids!**

- ▶ For more information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us!
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- ▶ The flash point of the hydraulic fluid used must be 40 K higher than the maximum solenoid surface temperature.
- ▶ **Flame-resistant – containing water:**
  - – Maximum pressure difference per control edge 50 bar
  - – Pressure pre-loading at the tank port > 20 % of the pressure differential, otherwise increased cavitation
  - – Life cycle as compared to operation with mineral oil HL, HLP 50 to 100 %
- ▶ **Bio-degradable and flame-resistant:** When using hydraulic fluids that are simultaneously zinc-solving, zinc may accumulate (700 mg zinc per pole tube).

[1] The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.
Available filters can be found at www.boschrexroth.com/filter.

Characteristic curves

(measured with HLP46, ϑ_{Oil} = 40 ± 5 °C)



1 Minimum adjustable pressure

☞ **Notice:**
The characteristic curves apply to output pressure = zero in the entire volume flow range and were measured without housing resistance.

General information

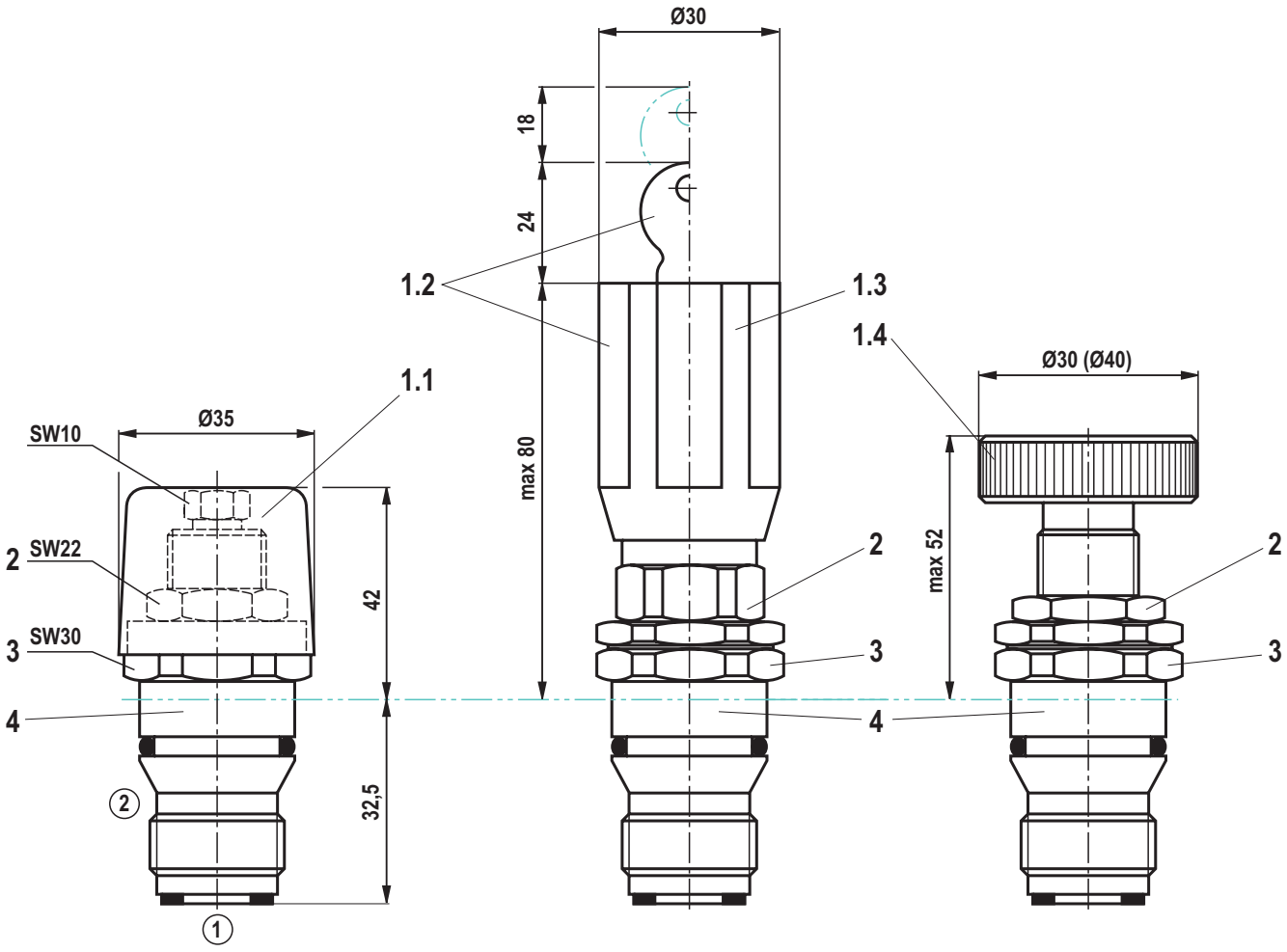
Hydraulic counter pressures in the main port ② (T) add 1:1 to the response pressure of the valve set at the adjustment.

Example:

- Pressure adjustment of the valve due to spring preload (pos. 4 on page 3) p_{spring} **= 200 bar**
- Hydraulic counter pressure in the main port ② (T): $p_{hydraulic}$ **= 50 bar**

⇒ Response pressure = p_{spring} + $p_{hydraulic}$ **= 250 bar**

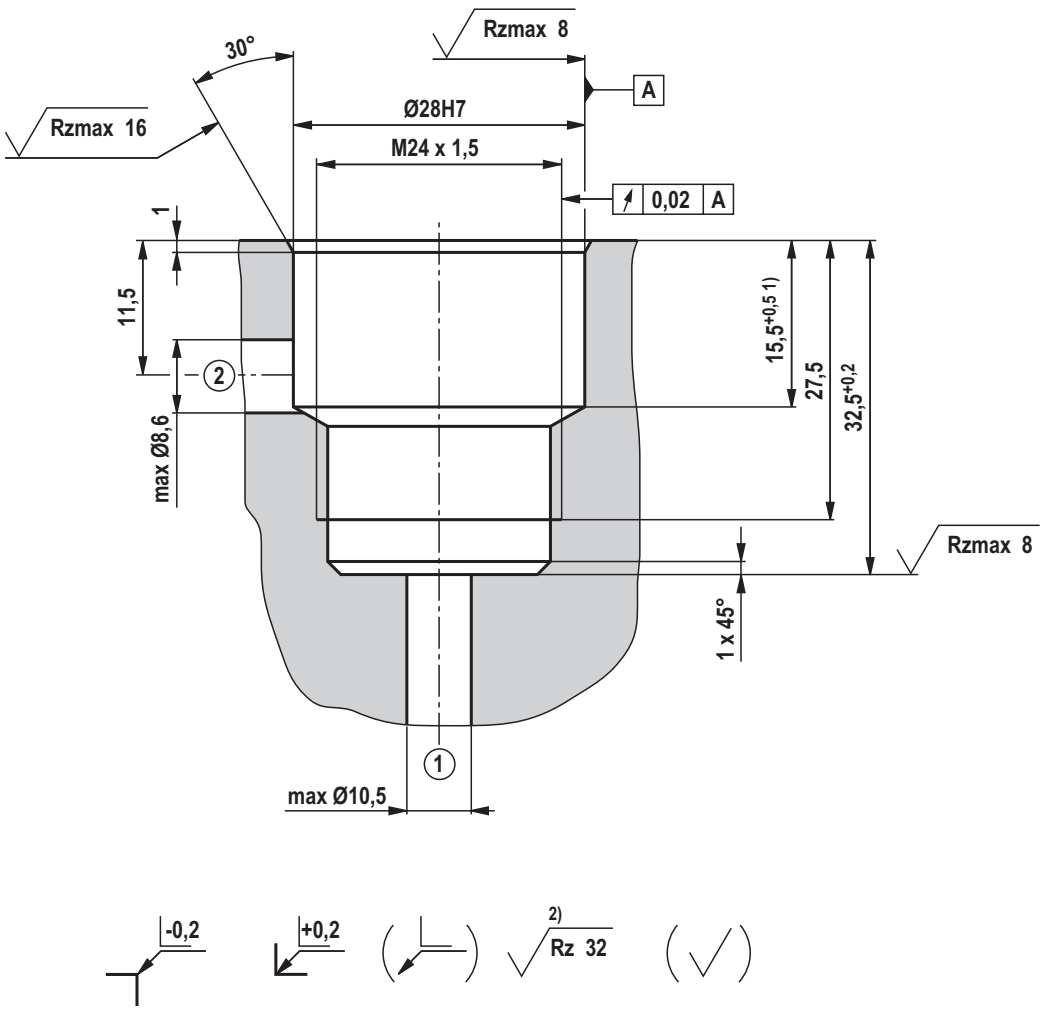
Dimensions
(dimensions in mm)



1.1 Adjustment type "S", hexagon with protective cap
1.2 Adjustment type "L", rotary knob with scale
1.3 Adjustment type "A", lockable rotary knob with scale
1.4 Adjustment type "H", hand wheel
2 Lock nut SW22
3 Hexagon SW30, tightening torque when screwing in $M_A = 60^{+5}$ Nm
4 Embossed type designation

① = Main port 1 (P)
② = Main port 2 (T)

Mounting cavity: R/DBD . 2K; 2 main ports; thread M24 x 1.5
(dimensions in mm)



1) Depth of fit
2) Visual inspection

① = Main port 1 (P)
② = Main port 2 (T)
LS = Location shoulder
Tolerance for all angles ±0.5°

Additional information

▶ Hydraulic fluids on mineral oil basis	Data sheet 90220
▶ Environmentally compatible hydraulic fluids	Data sheet 90221
▶ Flame-resistant, water-free hydraulic fluids	Data sheet 90222
▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC)	Data sheet 90223
▶ Hydraulic valves for industrial applications	Operating instructions 07600-B
▶ General product information on hydraulic products	Data sheet 07008
▶ Assembly, commissioning and maintenance of industrial valves	Data sheet 07300
▶ Selection of filters	www.boschrexroth.com/filter
▶ Information on available spare parts:	www.boschrexroth.com/spc

Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52 / 18-0
documentation@boschrexroth.de
www.boschrexroth.de