

Bosch Rexroth DR6DP2-5X/210YMV

direct-operated pressure-reducing valve

Manufacturer: Bosch Rexroth

Manufacturer part number / published order designation: R900435680

Published model: DR6DP2-5X/210YMV

About this compilation

Prepared by Hydmaster from selected manufacturer documentation. Original technical pages follow without cropped drawings, rewritten data or altered units. This cover and index are Hydmaster editorial material, not a manufacturer-issued exact-execution datasheet.

Coverage: selected pages relevant to the identified size and configuration. Other options or neighbouring models retained on an original page apply only where explicitly identified.

Source-page index

Source page numbers below are physical pages of each complete original PDF. The original printed page labels and technical content remain unchanged. Compiled page numbers count this cover/index.

Source A: Bosch Rexroth Pressure Reducing Valve Direct Operated Re26564

Original pages	Compiled pages	Relevant content
1-9	2-10	DR6DP 5X series and nominal-size6 overview; Decode the actual existing type: adjustment2, pressure-stage210, Y return, M/noM check option and V/noV seals; Hydraulic symbol with no integral check valve; Direct-operated pressure-reducing function and relevant check/no-check arrangement; Current series port limits and seal-specific operating conditions; no article-specific scalar limits inferred; Hydraulic-fluid compatibility and restrictions; Series pressure/flow curves for pressure-stage210 and applicable check/no-check path; Applicable adjustment2 drawing/item3 plus subplate mounting and check/no-check legend; Mounting screws, subplate references and further operating requirements

Pressure reducing valve, direct operated

Type DR 6 DP



- Size 6
- Component series 5X
- Maximum operating pressure 350 bar
- Maximum flow 80 l/min

Features

- For subplate mounting
- Porting pattern according to ISO 4401-03-02-0-05 (with or without locating hole)
- 5 pressure ratings
- 4 adjustment types, optionally:
 - Rotary knob
 - Grub screw with hexagon and protective cap
 - Lockable rotary knob with scale
 - Rotary knob with scale
- Check valve, optional
- Corrosion-protected design

Contents

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Ordering code	2
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Ordering code

01	02	03	04	05	06	07	08	09
DR 6 DP		-	5X	/		Y		

01	Pressure reducing valve, direct operated, size 6	DR 6 DP
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Adjustment type

02	Rotary knob	1	◇
	Grub screw with hexagon and protective cap ("J3" version without protective cap)	2	
	Lockable rotary knob with scale	3¹⁾	
	Rotary knob with scale	7	

03	Component series 50 ... 59 (50 ... 59: unchanged installation and connection dimensions)	5X
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Maximum secondary pressure

04	25 bar	25	◇
	75 bar	75	
	150 bar	150	
	210 bar	210	
	315 bar (Only with adjustment type "2" and without check valve)	315	

05	Internal pilot oil supply, external pilot oil return	Y
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06	With check valve	no code	◇
	Without check valve	M	

Corrosion resistance

07	None	no code
	Improved corrosion protection (240 h salt spray test according to EN ISO 9227); (only version "1" and "2")	J3

Seal material (observe compatibility of seals with hydraulic fluid used, see page 6)

08	NBR seals	no code	◇
	FKM seals	V	

09	Without locating hole	no code	◇
	With locating hole and locking pin ISO 8752-3x8-St	/62	

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

**Notice:**

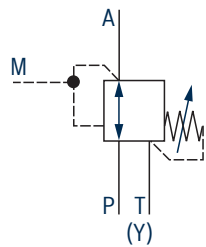
For valve types for use in potentially explosive zones, refer to data sheet 07011.



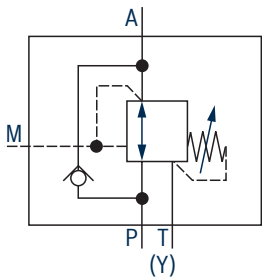
Note: ◇ = Preferred type

Symbols

Without check valve "M"



With check valve "no code"



Function, section

DR 6 DP type valves are direct operated pressure reducing valves in 3-way version, i.e. with pressure limitation of the secondary circuit.

They are used for reducing a system pressure. The secondary pressure is set using the adjustment type (4). The valve is open in initial position. Hydraulic fluid can flow freely from channel P→A. The pressure in channel A is simultaneously applied via the control line (6) to the control spool surface opposite the compression spring (3). If the pressure in channel A exceeds the value set at the compression spring (3), the control spool (2) moves into control position and keeps the set pressure in channel A at a constant level.

Signal and pilot oil are supplied internally via the control line (6) from channel A.

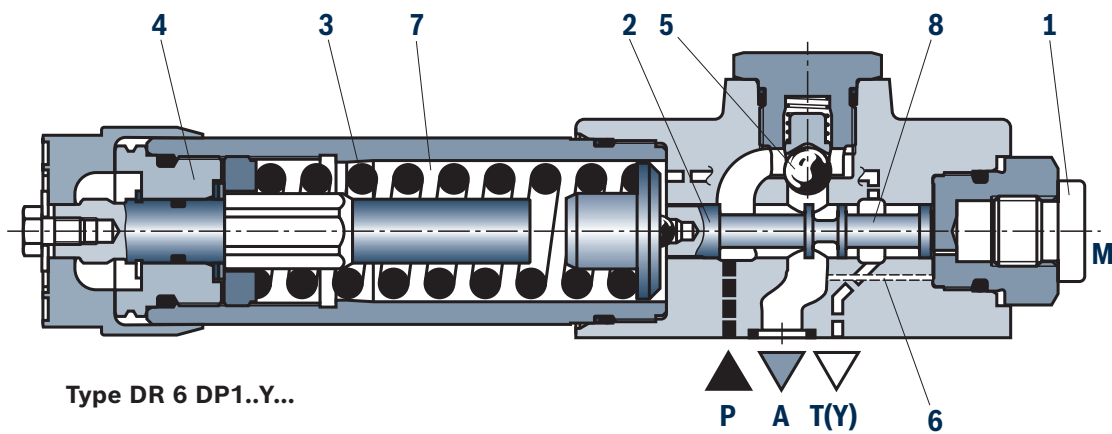
If the pressure in channel A increases further due to an external force effect at the actuator, it pushes the control spool (2) even further against the compression spring (3). In this way, channel A is connected to the channel T(Y) via the control edge (8) at the control spool (2).

Hydraulic fluid is discharged into the tank to an extent that the pressure can only slightly increase.

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

A check valve (5) can optionally be installed to allow free flow back from channel A→P.

A pressure gauge connection (1) allows for the control of the secondary pressure.



Technical data

(For applications outside these values, please consult us.)

General		
Type of connection		Subplate mounting
Porting pattern		ISO 4401-03-02-0-05
Weight	kg	Approx. 1.2
Installation position		Any
Ambient temperature range	°C	–20 ... +80 (NBR seals) –15 ... +80 (FKM seals)
Storage temperature range	°C	+5 ... +40
MTTF _D values according to EN ISO 13849	Years	150 ... 1200 (see data sheet 08012 for further information)

Hydraulic		
Maximum operating pressure	► Port P	bar 350
	► Port T (Y)	bar 160
Hydraulic fluid		See table, page 6
Hydraulic fluid temperature range (at the valve working ports)	°C	–20 ... +80 (NBR seals) –15 ... +80 (FKM seals)
Viscosity range	mm ² /s	10 ... 800
Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c)		Class 20/18/15 ¹⁾
Maximum flow	l/min	80
Maximum set pressure	bar	25; 75; 150; 210; 315

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.

Technical data

(For applications outside these values, please consult us.)

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	FKM	ISO 15380	90221
		HEES	FKM		
	► Soluble in water	HEPG	FKM	ISO 15380	
Flame-resistant	► Water-free	HFDU (glycol base)	FKM	ISO 12922	90222
		HFDU (ester base)	FKM		
		HFDR	FKM		
	► Containing water	HFC (Fuchs: Hydrotherm 46M, Renosafe 500; Petrofer: Ultra Safe 620; Houghton: Safe 620; Union: Carbide HP5046)	NBR	ISO 12922	90223

**Important information on hydraulic fluids:**

- For further information and data on the use of other hydraulic fluids, see the data sheets above or contact us.
- There may be restrictions on the technical data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum surface temperature.
- **Bio-degradable and flame-resistant – containing water:** If components with galvanic zinc coating (e.g. version "J3" or "J5") or parts containing zinc are used, small amounts of dissolved zinc may get into the hydraulic system and cause accelerated aging of the hydraulic fluid. Zinc soap may form as a chemical reaction product, which may clog filters, nozzles and solenoid valves – particularly in connection with local heat input.

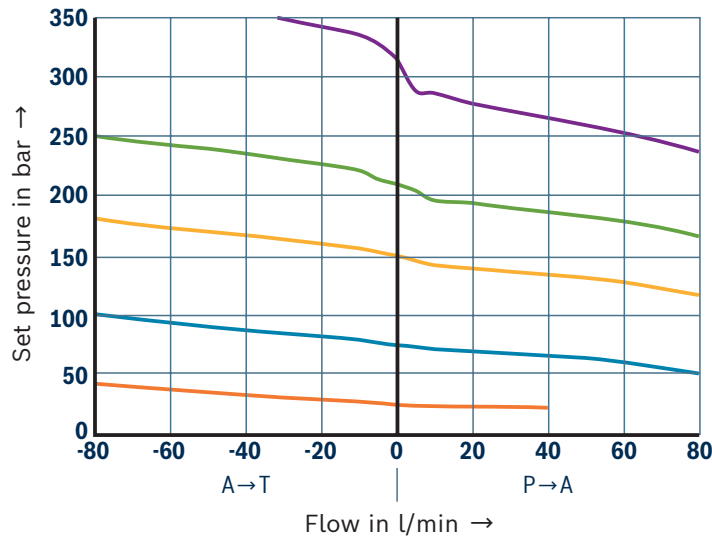
► Flame-resistant – containing water:

Due to an increased cavitation tendency with the use of HFC hydraulic fluids, the life cycle of the component may be reduced by up to 30% as compared to use with HLP mineral oil. In order to reduce the cavitation effect, it is recommended – if possible, specific to the installation – to back up the return flow pressure in ports T to approx. 20% of the pressure differential at the component.

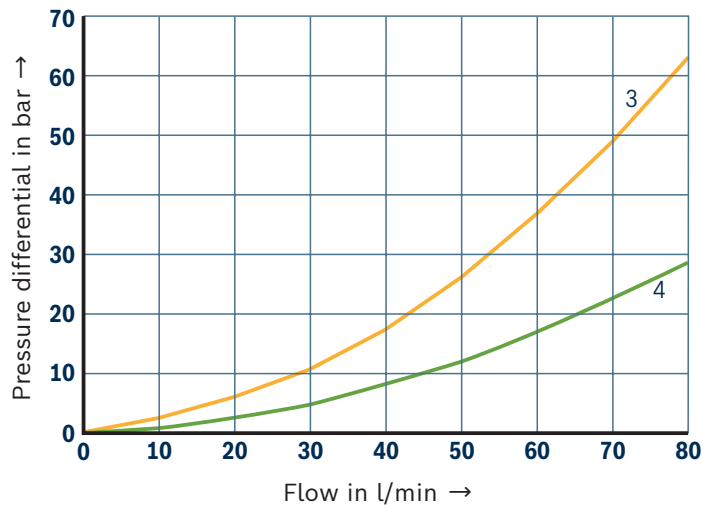
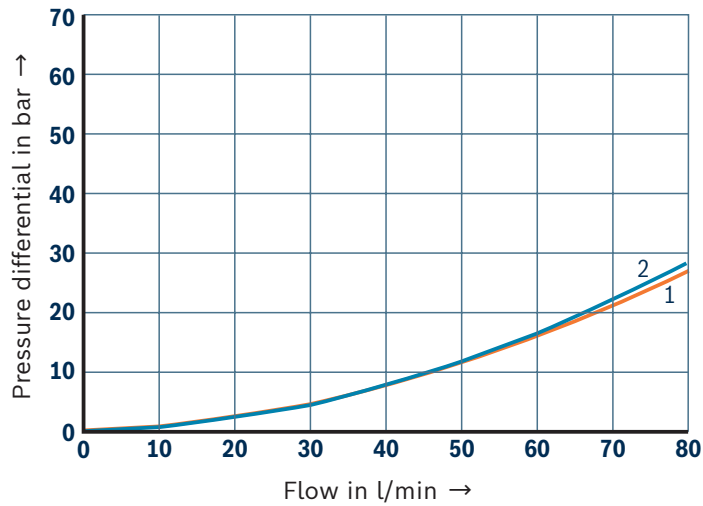
Characteristic curves

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

Set pressure depending on the flow



Δp - q_v characteristic curves



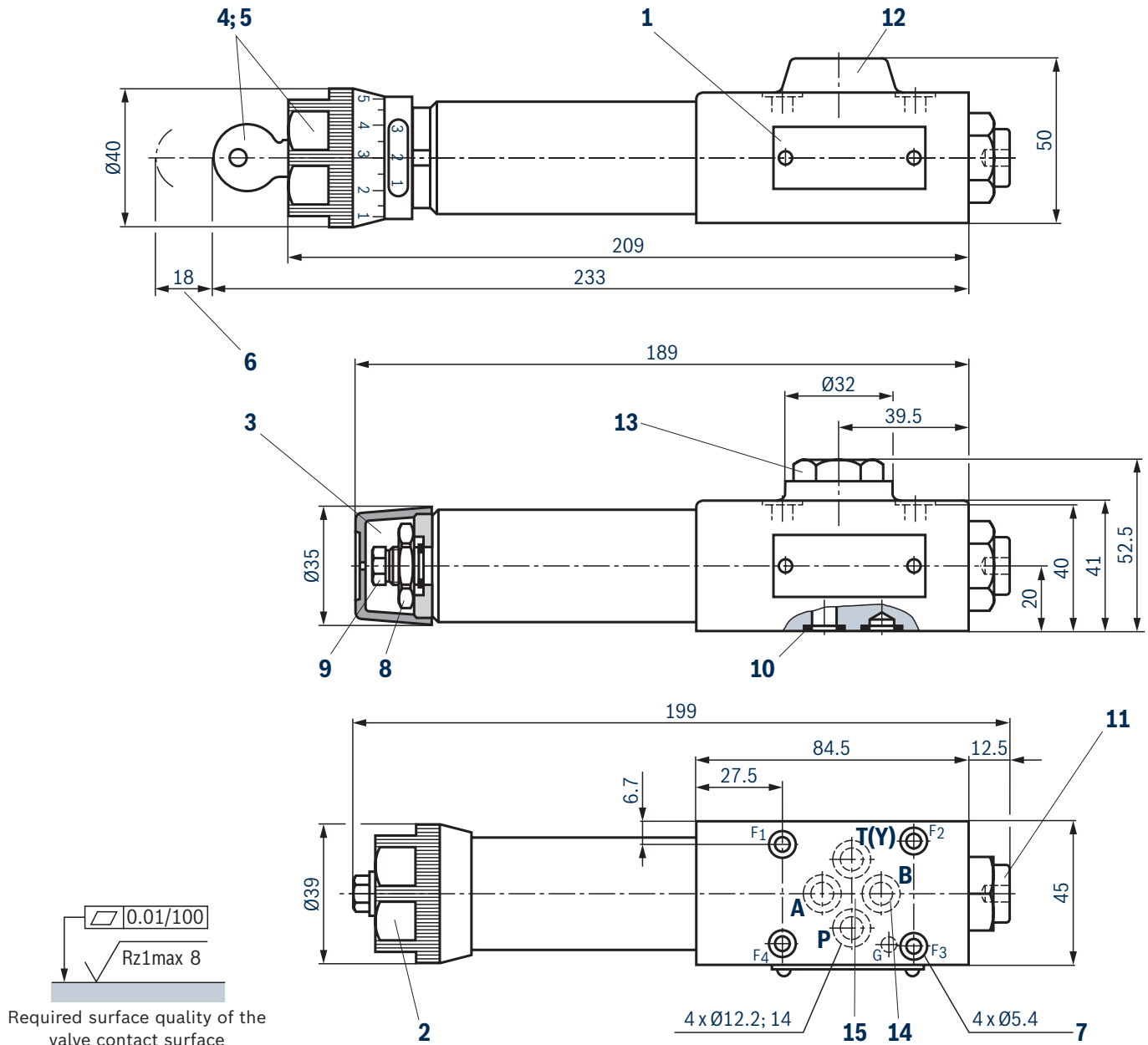
- 1 P→A (minimum pressure differential)
- 2 A→T(Y) (minimum pressure differential)
- 3 Δp only via check valve
- 4 Δp via check valve and fully opened control cross-section

Notice:

- The curve development is maintained if the pressure is set lower according to the pressure rating.
- The characteristic curves apply to the pressure at the valve output $p_T = 0 \text{ bar}$ across the entire flow range.
- Typical characteristic curves which are subject to tolerance variations.

Dimensions

(Dimensions in mm)



- 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, T(Y)
- 11 Pressure gauge connection G 1/4, 12 mm deep; internal hexagon SW6

- 12 Without check valve
- 13 With check valve
- 14 Without function
- 15 Porting pattern according to ISO 4401-03-02-0-05 (with or without locating hole)

Notice:

The dimensions are nominal dimensions which are subject to tolerances.

Valve mounting screws and subplates, see page 9.

Dimensions

Valve mounting screws (separate order)

Size	Quantity	Hexagon socket head cap screws	Material number
6	4	ISO 4762 - M5 x 50 - 10.9-CM-Fe-ZnNi-5-Cn-T0-H-B Friction coefficient $\mu_{\text{total}} = 0.09 \dots 0.14$; tightening torque $M_A = 7 \text{ Nm} \pm 10\%$	R913043758
	or		
	4	UNC 10-24 UNC x 2" ASTM-A574 Friction coefficient $\mu_{\text{total}} = 0.19 \text{ to } 0.24$; tightening torque $M_A = 11 \text{ Nm} [8.2 \text{ ft-lbs}] \pm 15\%$ Friction coefficient $\mu_{\text{total}} = 0.12 \text{ to } 0.17$; tightening torque $M_A = 8 \text{ Nm} [5.9 \text{ ft-lbs}] \pm 10 \%$	R978800693

Subplates (separate order) with porting pattern according to ISO 4401-03-02-0-05 see data sheet 45100.

Further information

► Hydraulic valves for industrial applications	Operating instructions 07600-B
► Subplates	Data sheet 45100
► 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
► Reliability characteristics according to EN ISO 13849	Data sheet 08012
► Use of non-electrical hydraulic components in an explosive environment (ATEX)	Data sheet 07011
► Information on available spare parts	www.boschrexroth.com/spc