

**RE 29224**

Edition: 2024-01

Replaces: 11.07

**rexroth**  
A Bosch Company

## Supply pressure compensator, direct operated

### Type ZDC



TB0217

- ▶ Size 10 ... 32
- ▶ Component series 2X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 520 l/min

#### Features

- ▶ Sandwich plate valve
- ▶ Porting pattern according to ISO 4401
- ▶ Load compensation in channel P→A or P→B by integral shuttle valve
- ▶ 2-way version "P"
- ▶ 3-way version "PT" (NG10 ... 25)
- ▶ Flow control in case of interaction with proportional directional valve
- ▶ Corrosion-protected design

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2/20      ZDC | Supply pressure compensator

Ordering code

01	02	03	04	05	06	07
ZDC			-	2X	/	


01	Supply pressure compensator, sandwich plate design	ZDC
02	Size 10	10
	Size 16	16
	Size 25	25
	Size 32 (type "P" only)	32
03	2-way version (pressure reducing function)	P
	3-way version (pressure limiting function)	PT
04	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	2X
05	Internal pilot oil supply	no code
	External pilot oil supply	X
	Pilot oil supply extern, port X closed on the component side (only size 10)	XL

Corrosion resistance

06	None (valve housing with standard paint coating)	no code
	Improved corrosion protection (240 h salt spray test according to EN ISO 9227) (size 10 ... 25)	J3
	Seawater-resistant (size 32)	J

Seal material (observe compatibility of seals with hydraulic fluid used, see page 8)

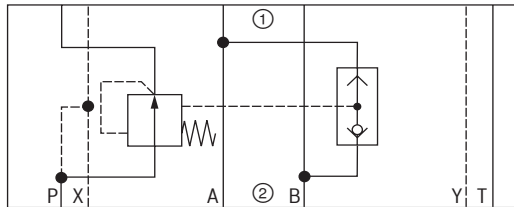
07	NBR seals	M
	FKM seals	V

 **Notice:** ♦ = Preferred type

**Symbols:** 2-way version "P" (①=component side, ②=plate side)

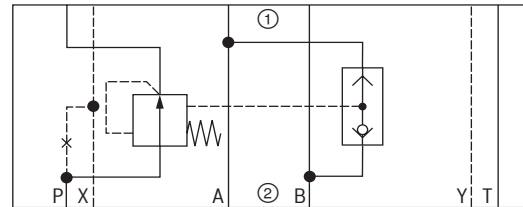
### Internal pilot oil supply

(Version "No code")

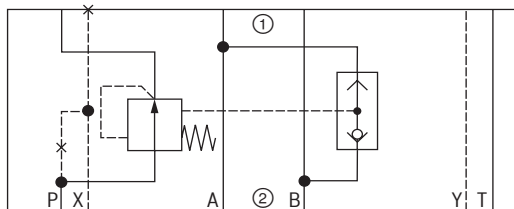


## External pilot oil supply

(Version "X")

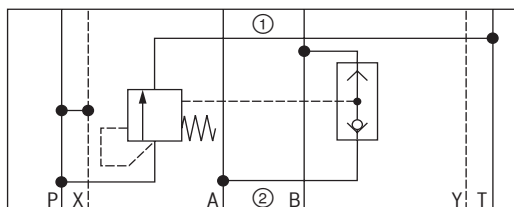


## External pilot oil supply (Version "XL")

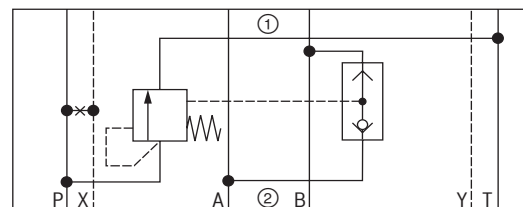


**Symbols:** 3-way version "PT" (① = component side, ② = plate side)

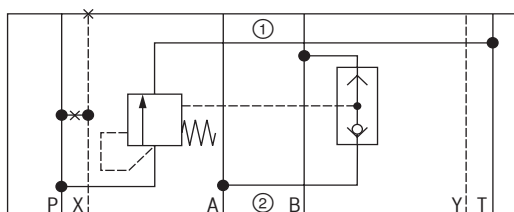
### Internal pilot oil supply (Version "No code")



### External pilot oil supply (Version "X")



### External pilot oil supply (Version "XL")



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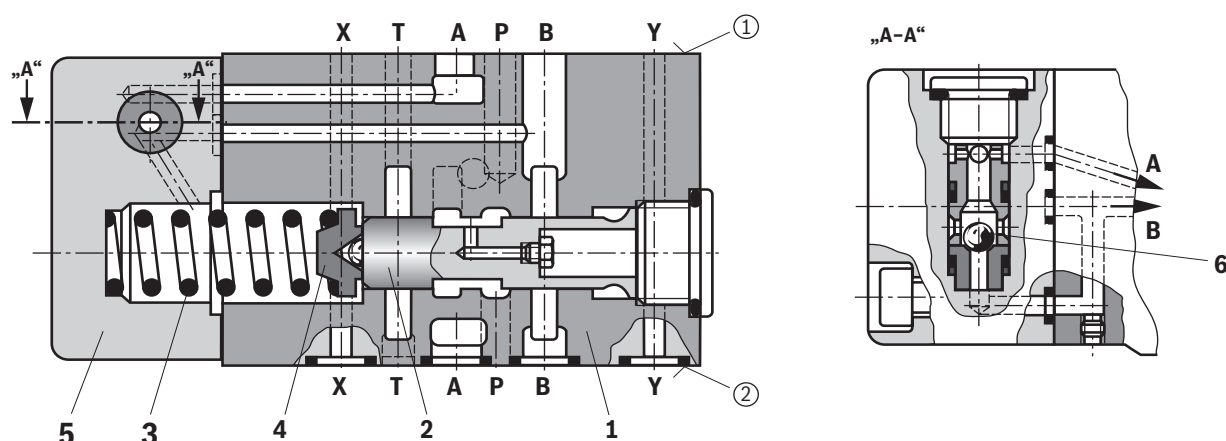
## Function, section

Valves of type ZDC are direct operated supply pressure compensators available in a 2- or 3-way version. They are used for the load compensation as supply pressure compensators in channel P.

These valves basically consist of the housing (1), the control spool (2), compression spring (3) with spring plate (4) and the cover (5) with installed shuttle valve (6).

The compression spring (3) keeps the control spool (2) in open position of P2→P1 if the pressure differential P1→A1 or P1→B1 is below 10 bar.

If the pressure differential exceeds 10 bar, the control spool (2) is moved to the left until the pressure differential is restored again.

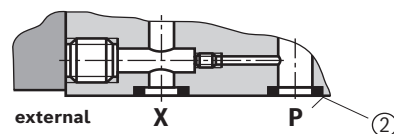
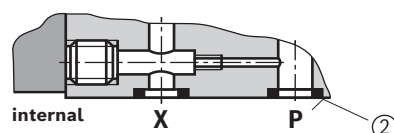
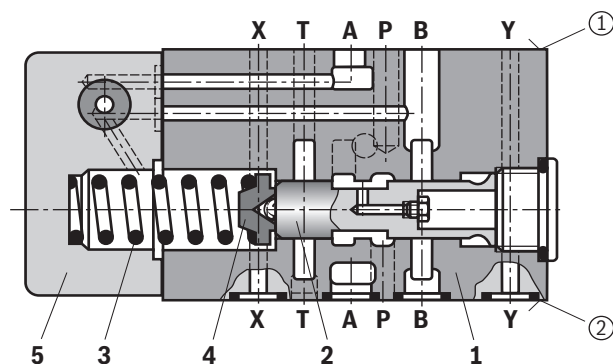


## Pilot oil supply

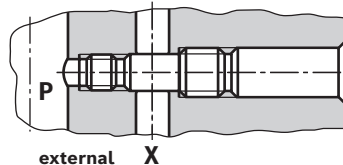
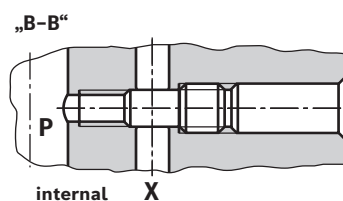
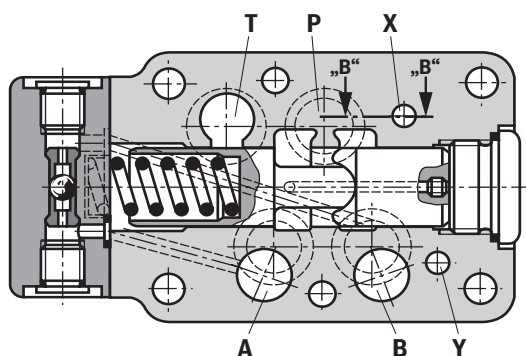
With **external** pilot oil supply, the connection to channel P is blocked. The pilot oil is sampled from a separate control circuit.

With **internal** pilot oil supply, the connection to channel P is open. The pilot oil is sampled upstream the throttle side of the pressure compensator (port X in the subplate is blocked).

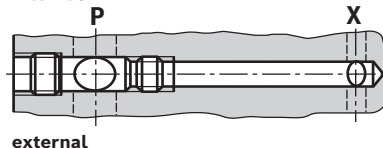
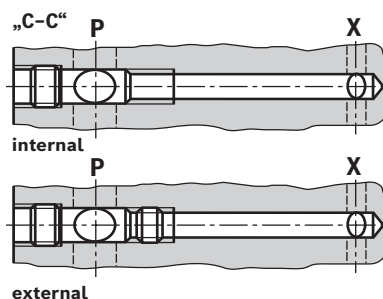
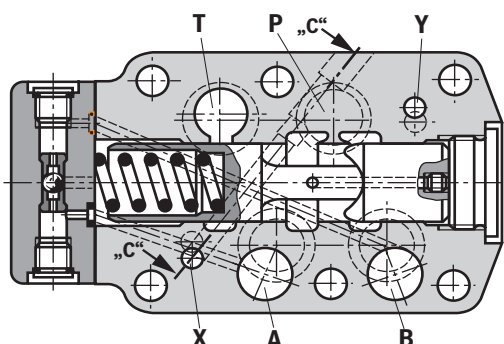
### Size 10



### Size 16



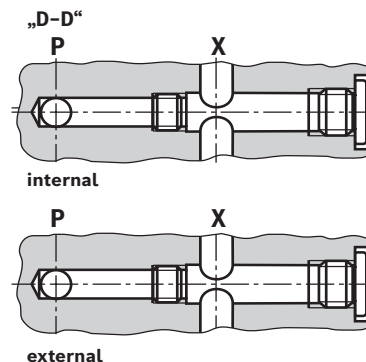
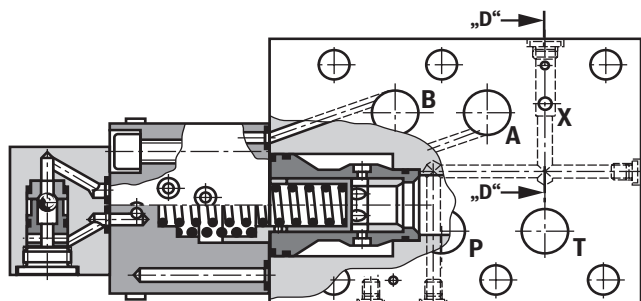
### Size 25



6/20 ZDC | Supply pressure compensator

## Pilot oil supply

Size 32

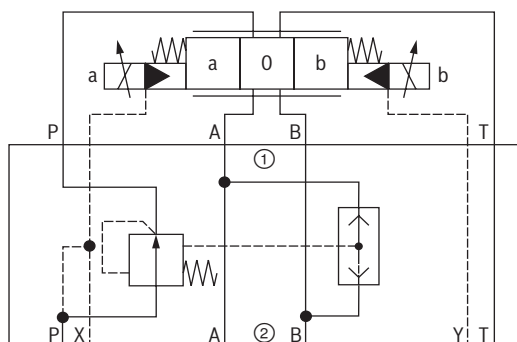


### Notice:

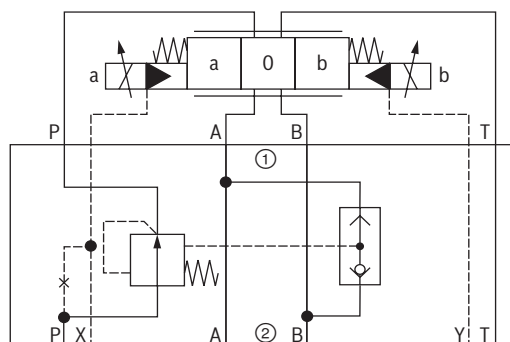
In connection with the supply pressure compensator, the pilot-operated proportional directional valve is to be used with **external pilot oil supply**.

## Examples

Supply pressure compensator version "ZDC . P" with proportional directional valve type 4WRZ



Supply pressure compensator version "ZDC . P.X" with proportional directional valve type 4WRZ



## Technical data

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

General					
Size	NG	10	16	25	32
Type of connection	Sandwich plate design				
Porting pattern		ISO 4401-05-05-0-05	ISO 4401-07-07-0-05	ISO 4401-08-08-0-05	ISO 4401-10-09-0-05
Weight	kg	3.0	3.5	8.9	64.7
Installation position	Any				
Ambient temperature range	°C	-20 ... +80 (NBR seals) -15 ... +80 (FKM seals)			

Hydraulic						
Maximum operating pressure	Ports A, B, P	bar	350			
	Port T	bar	250			
	Port X	bar	30 ... 100			
	Port Y	bar	150 (up to 30 in connection with pilot-operated proportional directional valve)			
Hydraulic fluid			See table page 8			
Hydraulic fluid temperature range		°C	-20 ... +80 (NBR seals) -15 ... +80 (FKM seals)			
Viscosity range		mm²/s	15 ... 380			
Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c)			Class 20/18/15 <sup>1)</sup>			
Maximum flow		l/min	85	150	325	520

<sup>1)</sup> 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.

8/20 **ZDC** | Supply pressure compensator

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



### Important information on hydraulic fluids:

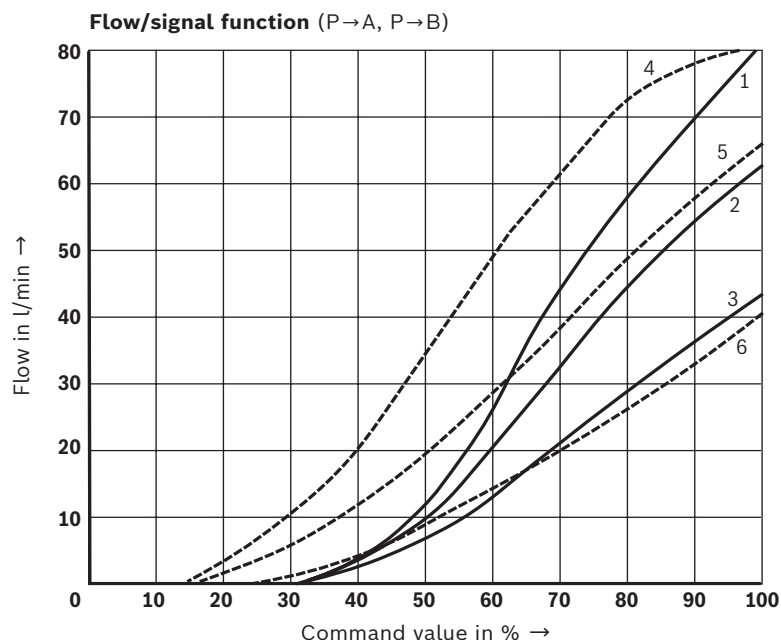
- For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- The ignition temperature of the hydraulic 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 the increased cavitation tendency with HFC hydraulic fluids, the life cycle of the component may be reduced by up to 30% as compared to the use with mineral oil HLP. In order to reduce the cavitation effect, it is recommended – if possible specific to the installation – backing up the return flow pressure in ports T to approx. 20% of the pressure differential at the component.

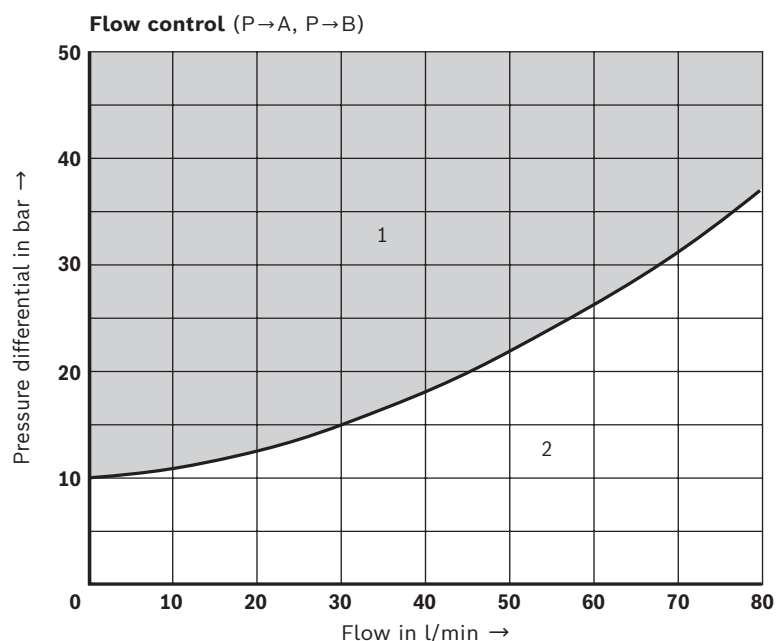


**Characteristic curves: Size 10**  
(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$ )



With proportional directional valve

- 1 Type 4WRZ 10 ..85...
- 2 Type 4WRZ 10 ..50...
- 3 Type 4WRZ 10 ..25...
- 4 Type 4WRZ 10 ..64...
- 5 Type 4WRZ 10 ..32...
- 6 Type 4WRZ 10 ..16...



- 1 Flow control range
- 2 Throttling range

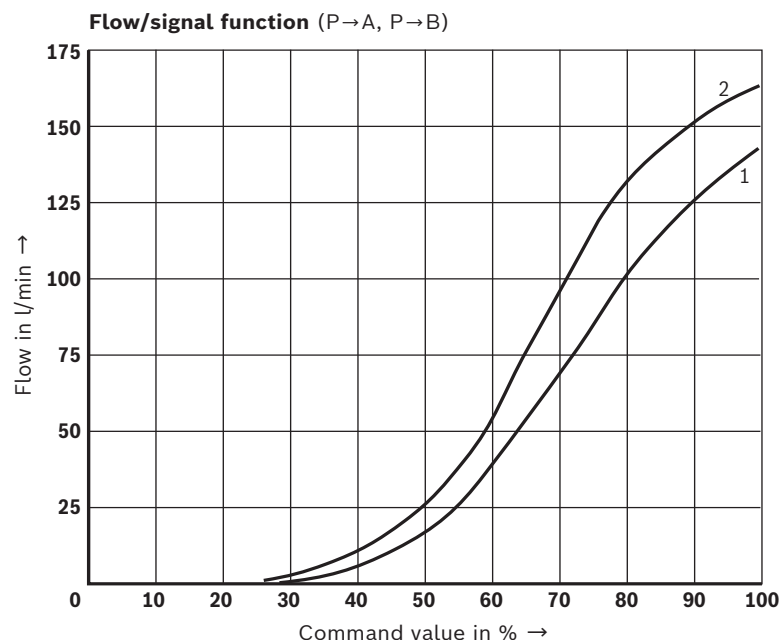


**Notice:**

- Typical characteristic curves which are subject to tolerance variations.
- Pressure differential  $\Delta p = p_{Pump} - p_{Load}$

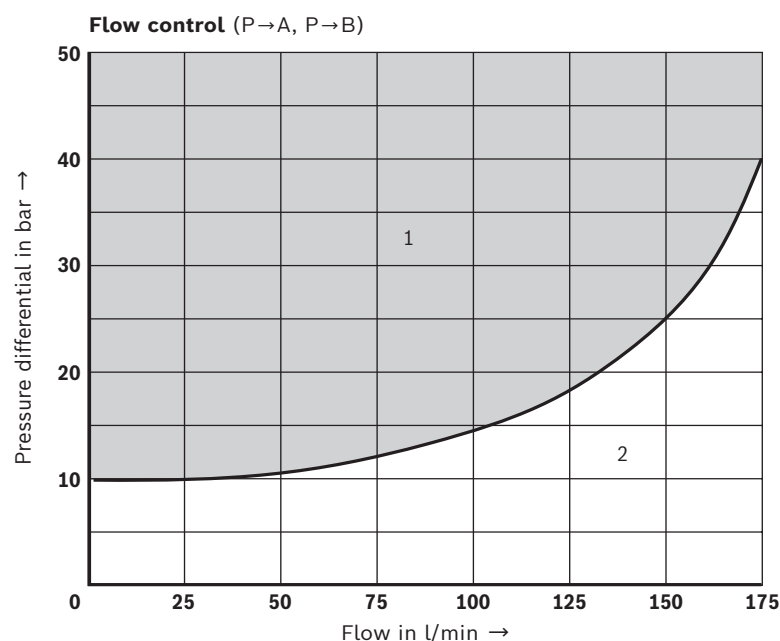
10/20 ZDC | Supply pressure compensator

**Characteristic curves: Size 16**  
(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$ )



With proportional directional valve

- 1 Type 4WRZ 16 ..100...
- 2 Type 4WRZ 16 ..150...



- 1 Flow control range
- 2 Throttling range

**Notice:**

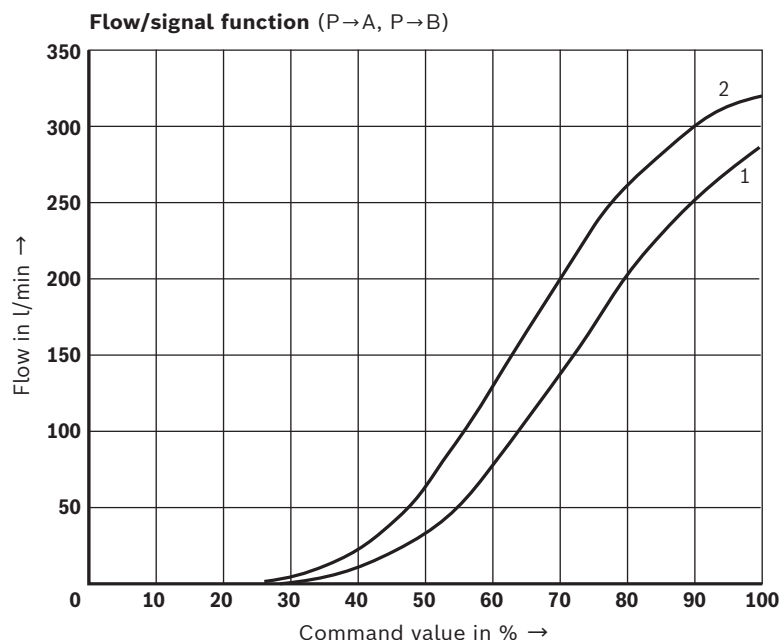
- ▶ Typical characteristic curves which are subject to tolerance variations.
- ▶ Pressure differential  $\Delta p = p_{\text{Pump}} - p_{\text{Load}}$

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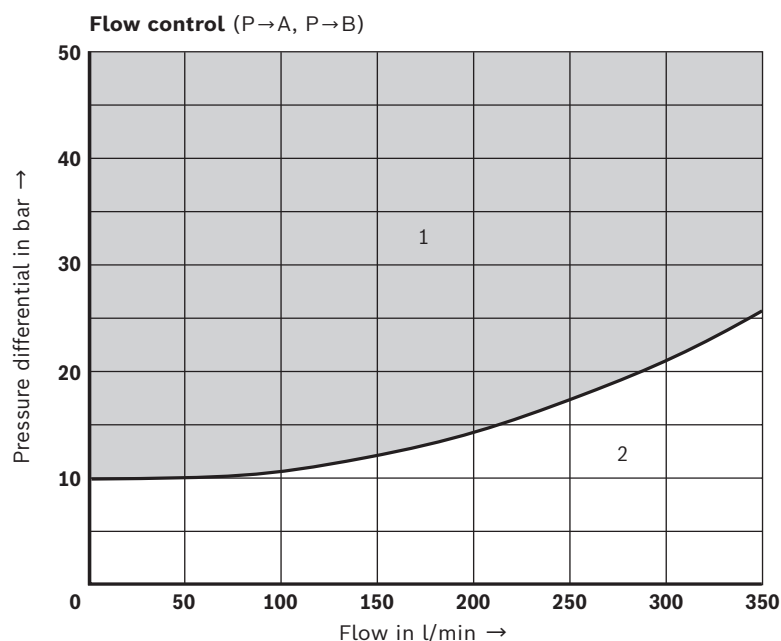
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**Characteristic curves: Size 25**  
(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$ )



With proportional directional valve

- 1 Type 4WRZ 25 ..270...
- 2 Type 4WRZ 25 ..325...



- 1 Flow control range
- 2 Throttling range

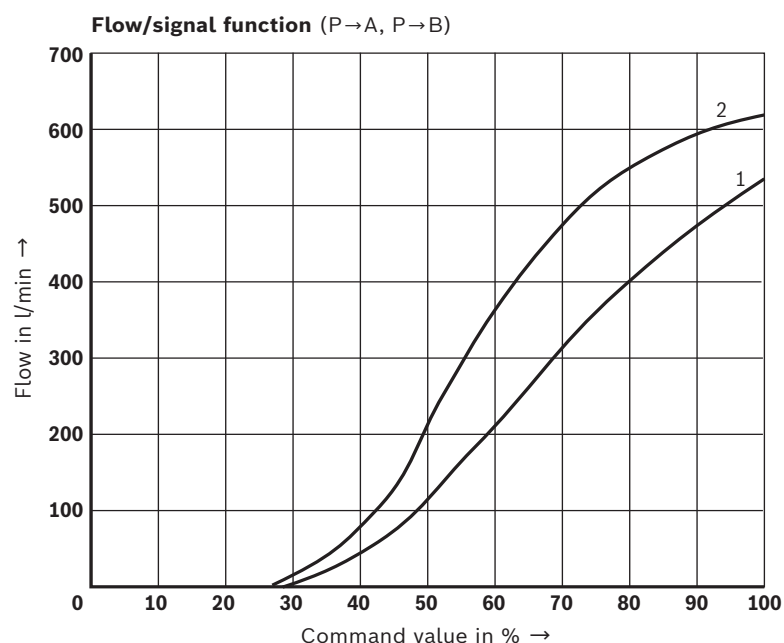


**Notice:**

- Typical characteristic curves which are subject to tolerance variations.
- Pressure differential  $\Delta p = p_{\text{Pump}} - p_{\text{Load}}$

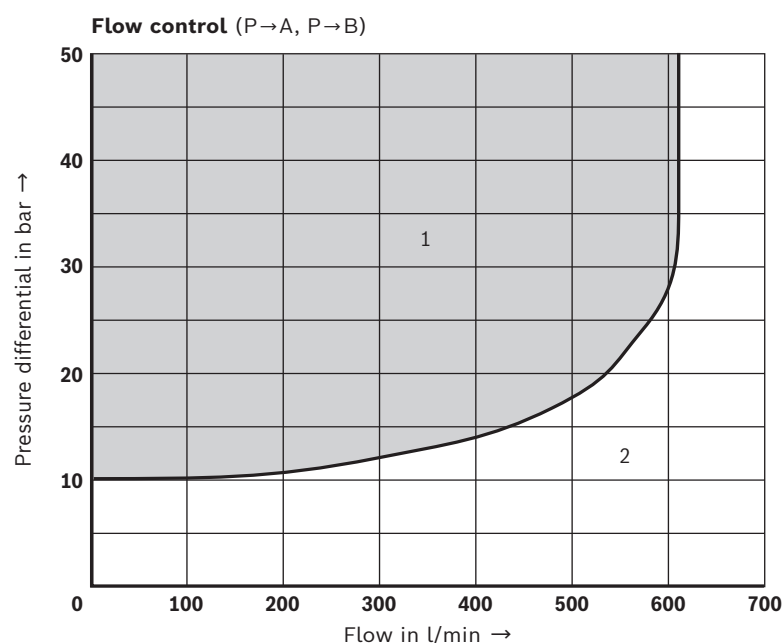
12/20 ZDC | Supply pressure compensator

**Characteristic curves:** Size 32  
(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$ )



With proportional directional valve

- 1 Type 4WRZ 32 ..360...
- 2 Type 4WRZ 32 ..520...



- 1 Flow control range
- 2 Throttling range

**Notice:**

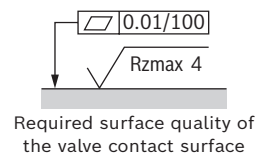
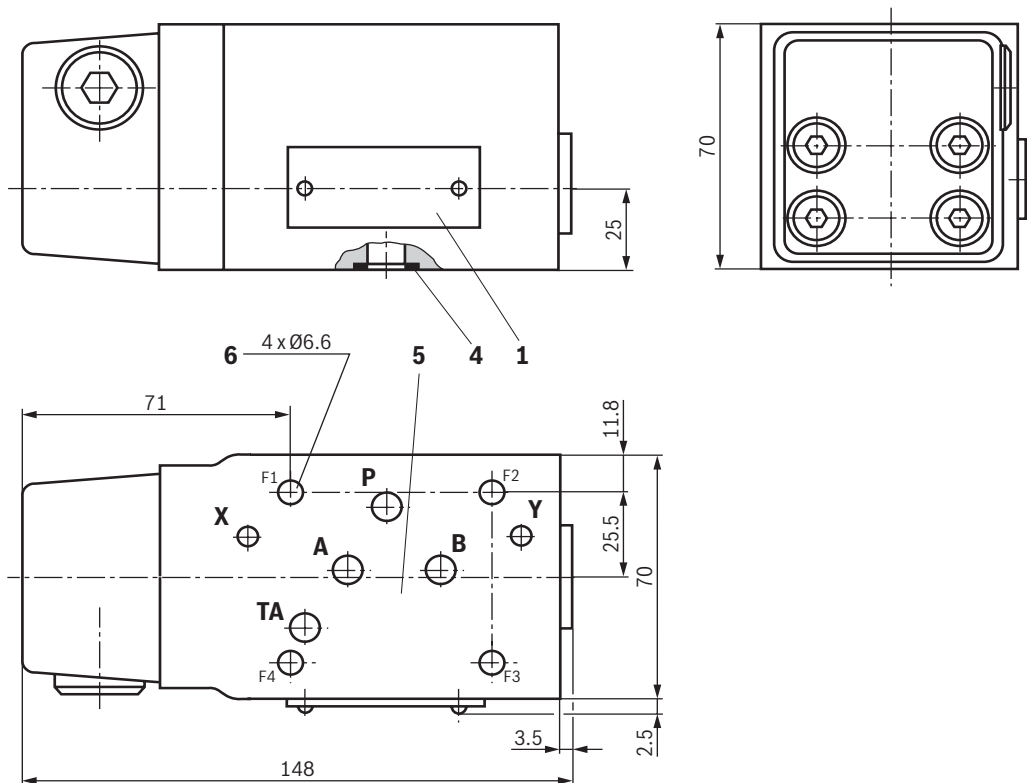
- ▶ Typical characteristic curves which are subject to tolerance variations.
- ▶ Pressure differential  $\Delta p = p_{\text{Pump}} - p_{\text{Load}}$

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**Dimensions:** Size 10  
(dimensions in mm)



- 1 Name plate
- 4 Identical seal rings for ports A, B, P, T;  
Identical seal rings for ports X, Y (plate side)
- 5 Porting pattern according to ISO 4401-05-05-0-05
- 6 Valve mounting bores

**Valve mounting screws** (separate order)  
**4 hexagon socket head cap screws ISO 4762 - M6 - 10.9**

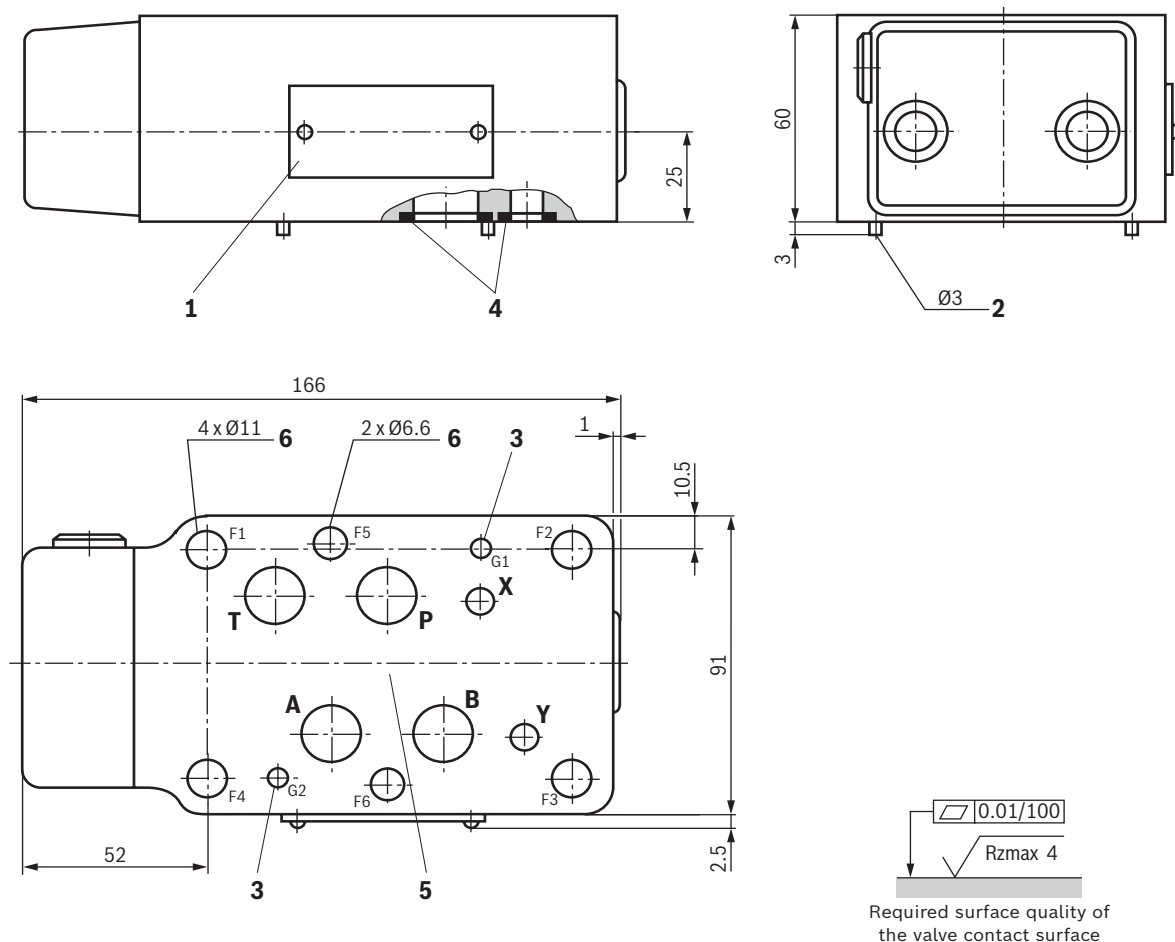


**Notice:**

Length and tightening torque of the valve mounting screws must be calculated in connection with the components mounted underneath and above the sandwich plate valve.

14/20 ZDC | Supply pressure compensator

**Dimensions:** Size 16  
(dimensions in mm)



- 1 Name plate
- 2 Locking pin
- 3 Bore for locking pin
- 4 Identical seal rings for ports A, B, P, T;  
Identical seal rings for ports X, Y (plate side)
- 5 porting pattern according to ISO 4401-07-07-0-05
- 6 Valve mounting bores

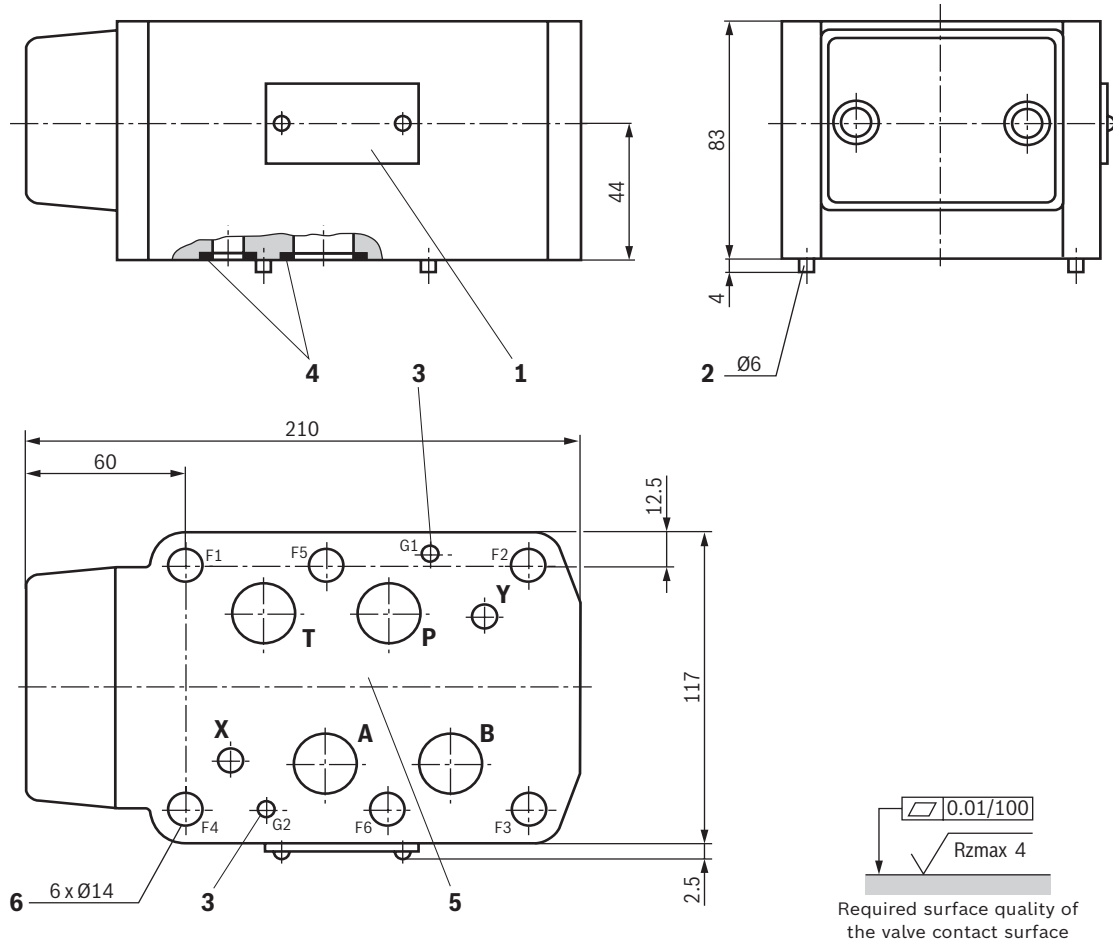
**Valve mounting screws** (separate order)

- 4 hexagon socket head cap screws ISO 4762 - M10 - 10.9
- 2 hexagon socket head cap screws ISO 4762 - M6 - 10.9

**Notice:**

Length and tightening torque of the valve mounting screws must be calculated in connection with the components mounted underneath and above the sandwich plate valve.

**Dimensions:** Size 25  
(dimensions in mm)



- 1 Name plate
- 2 Locking pin
- 3 Bore for locking pin
- 4 Identical seal rings for ports A, B, P, T;  
Identical seal rings for ports X, Y (plate side)
- 5 Porting pattern according to ISO 4401-08-08-0-05
- 6 Valve mounting bores

**Valve mounting screws** (separate order)

**6 hexagon socket head cap screws ISO 4762 - M12 - 10.9**

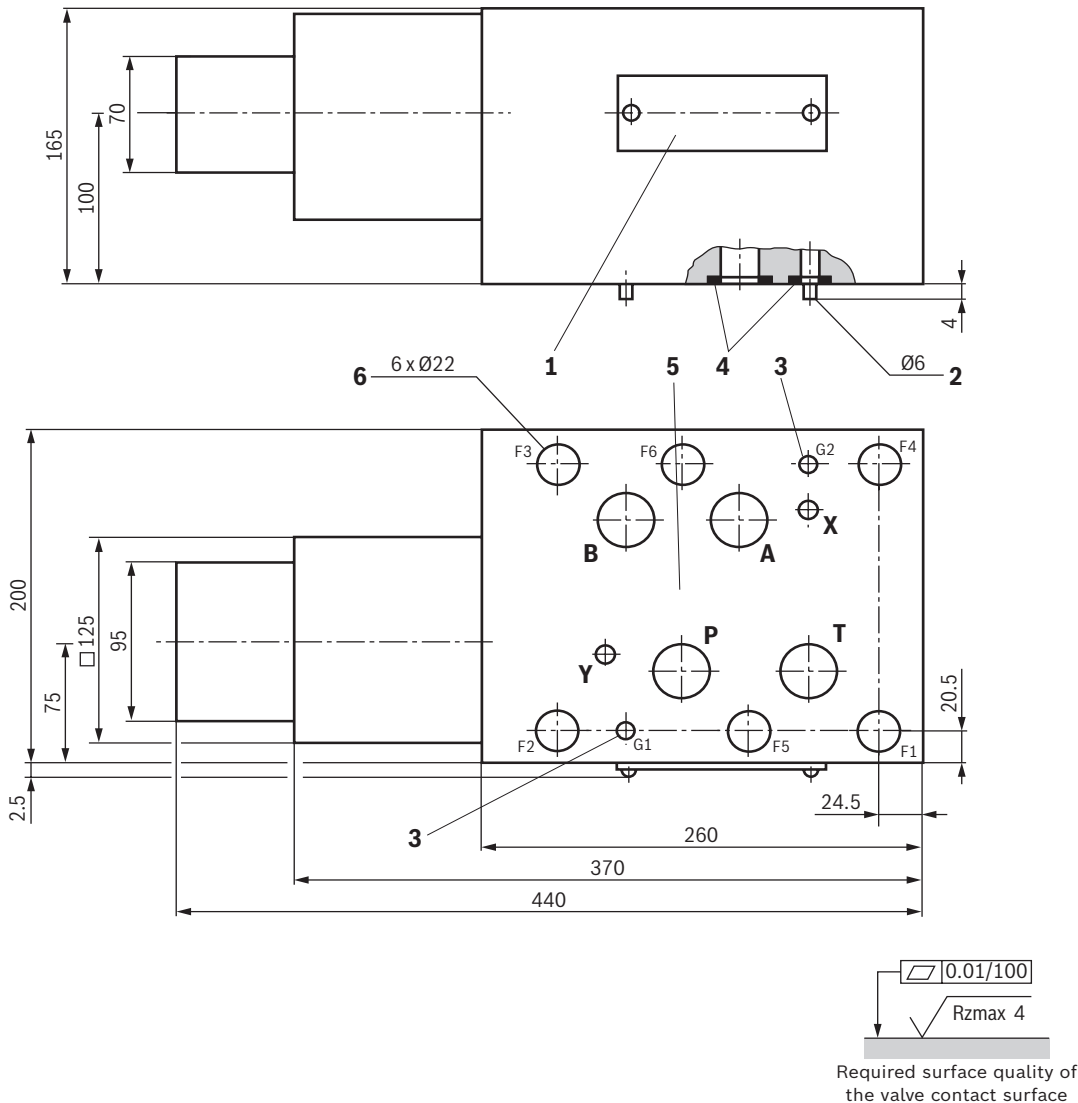


**Notice:**

Length and tightening torque of the valve mounting screws must be calculated in connection with the components mounted underneath and above the sandwich plate valve.

16/20 **ZDC** | Supply pressure compensator

**Dimensions:** Size 32  
(dimensions in mm)



- 1 Name plate
- 2 Locking pin
- 3 Bore for locking pin
- 4 Identical seal rings for ports A, B, P, T;  
Identical seal rings for ports X, Y (plate side)
- 5 Porting pattern according to ISO 4401-10-09-0-05
- 6 Valve mounting bores

**Valve mounting screws** (separate order)  
**6 hexagon socket head cap screws ISO 4762 - M20 - 10.9**

**Notice:**

Length and tightening torque of the valve mounting screws must be calculated in connection with the components mounted underneath and above the sandwich plate valve.



## Further information

- |   |                                |
|---|--------------------------------|
| ▶ Proportional directional valves, pilot-operated, without electrical position feedback | Data sheet 29115               |
| ▶ Subplates   | Data sheet 45100               |
| ▶ Hydraulic fluids based on mineral oils  | 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                                   | Data sheet 90223               |
| ▶ Mating connectors and cable sets for valves and sensors                               | Data sheet 08006               |
| ▶ Hydraulic valves for industrial applications  | Operating instructions 07600-B |
| ▶ Information on available spare parts  |                                |