RE 26 915/10.97

Replaces: 01.97

engineering mannesmann Rexroth

Pressure reducing valve, pilot operated, type 3DR

Nominal size 10
Series 6X
Maximum operating pressure 315 bar
Maximum flow 120 L/min

H/A/D 5845/97

Type 3DR 10 P5-6X/315Y/00M

Contents

Features

- Valve for the reduction (P to A) and limitation (A to T) of a pressure in a hydraulic system
- For sub-plate mounting, porting pattern DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H, sub-plates to catalogue sheet RE 45 054 (separate order)
- 4 pressure stages
- 4 adjustiment elements:
  - rotary knob
  - sleeve with hexagon and protective cap
  - lockable rotary knob with scale
  - rotary knob with scale

Ordering details

3DR	10	P	–6X/	Y/	00		*

3-way pressure reducing valve

Nominal size 10 **= 10**

Sub-plate mounting **= P**

Adjustment element

Rotary knob **= 4**
Sleeve with hexagon and protective cap **= 5**
Lockable rotary knob with scale **= 6** [1)]
Rotary knob with scale **= 7**

Series 60 to 69 (60 to 69: unchanged installation and connection dimensions) **= 6X**

Setable pressure up to 50 bar **= 50**
Setable pressure up to 100 bar **= 100**
Setable pressure up to 200 bar **= 200**
Setable pressure up to 315 bar **= 315**

Pilot oil supply

Y = pilot oil supply internal, pilot oil supply external

00 = without stroke limiter

M = NBR seals
V = FPM seals
(other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

Further details in clear text

Preferred types and standard components are highlighted in the RPS (Rexroth Price list Standard).

[1)] H-key with material no. 00008158 is included within the scope of supply

Function, section, symbol

The pressure valve type 3DR is a pilot operated 3-way pressure reducing valve with pressure limitation in the secondary circuit. It is used for the reduction of pressure in a hydraulic system.

The pressure reducing valve consists mainly of main valve (1) with control spool (2) and pilot control valve (3) with pressure adjusment element (10).

At rest the valve is open. Pressure fluid can flow unrestricted from port P to port A. The pressure in port A is applied via the channel (4) to the spool area opposite to the compression spring (9). At the same time the pressure is applied via the orifice (6) to the spring loaded side of the control spool (2) and via channel (5) to the ball (7) in the pilot control valve (3).

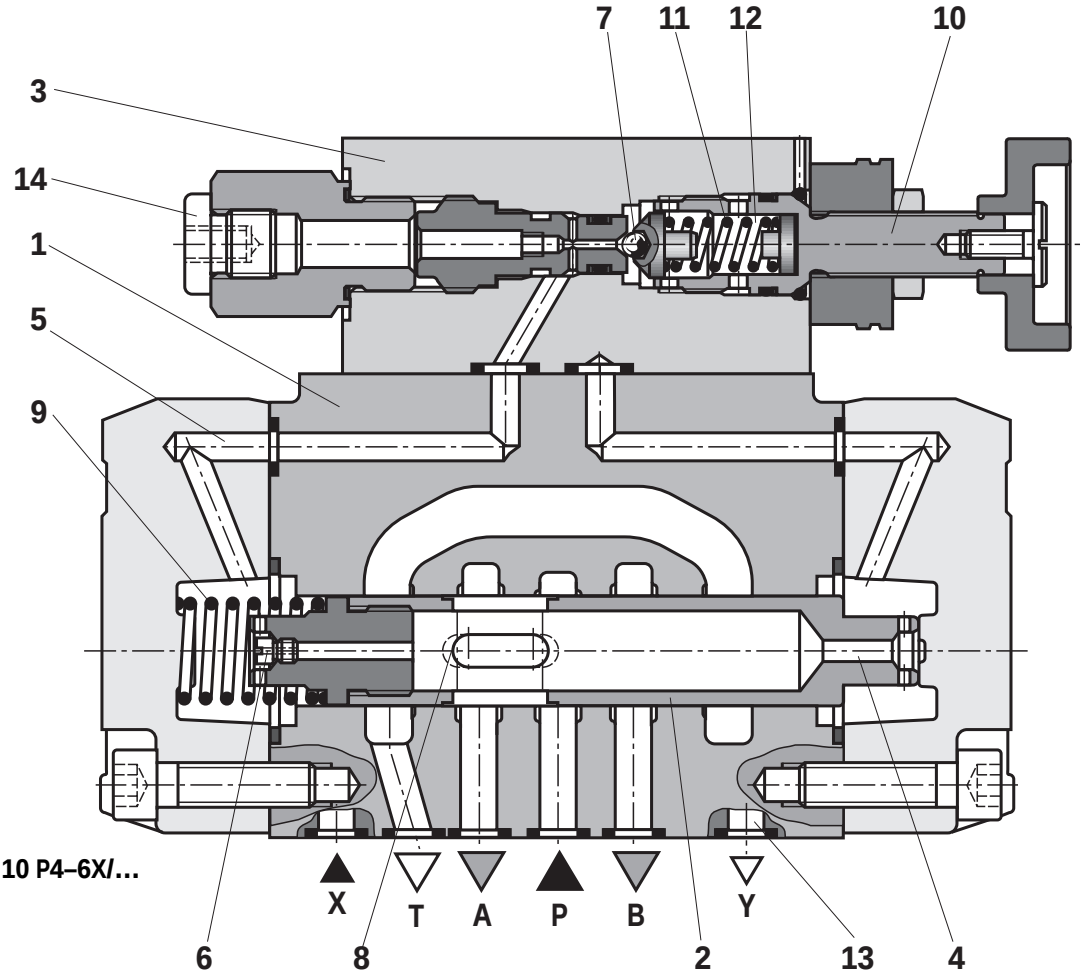
Dependent on the setting of the compression spring (11) a pressure builds up in front of the ball (7) and in channel (5) which holds the control spool (2) in an open position. Pressure fluids flows from port P via the control spool (2) into port A, until a pressure is built up in port A, which exceeds the pressure value set at the compression spring (11) and lifts the ball (7).

The control spool (2) moves into the closed position. The required reduced pressure is achieved when a balance between the pressure in port A and the pressure value set at the compression spring (11) is reached.

If the pressure in port A continues to rise at the actuator through external forces the control spool (2) is moved still further against the compression spring (9). Thus port A is connected to port T via the control lands (8) at the control spool (2). Enough pressure fluid flows to tank to ensure that the pressure does not rise any further.

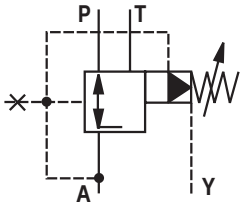
The pilot oil return from the spring chamber (12) is always external via the control line (13) to port Y. This must always flow at zero pressure to tank.

The pressure gauge connection (14) makes it possible to monitor the reduced pressure in port A.



Type 3DR 10 P4–6X/…

Symbol



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

General

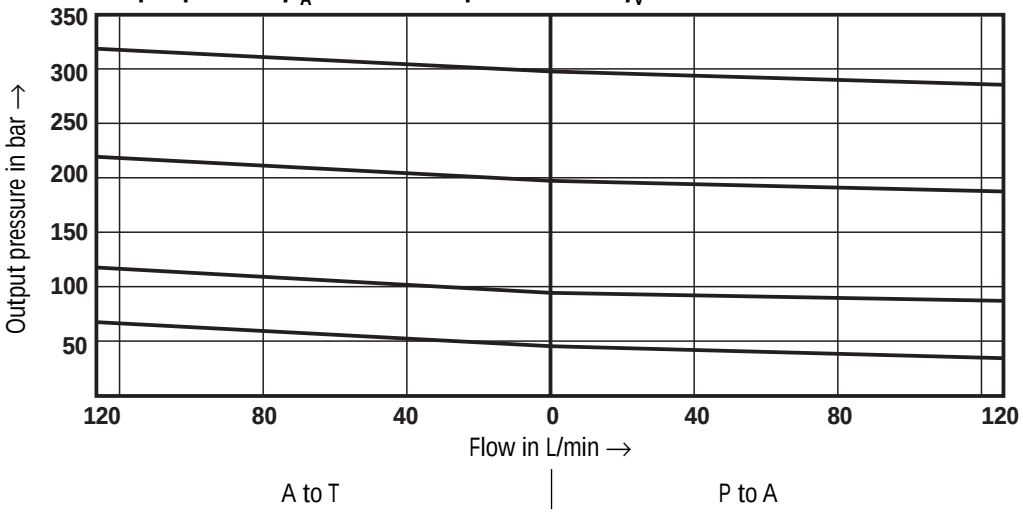
Description			pressure reducing valve
Graphic symbol			see page 2
Type code			see page 1
Mounting style			sub-plate mounting
Connection type			indirect connection via sub-plate or manifold block, porting pattern to DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H
Nominal size			10
Weight		kg	6.0
Installation			optional
Direction of flow			see graphic symbol on page 2
Ambient temperature range		°C	– 30 to + 50

Hydraulic data

Nominal pressure		bar	315
Maximmum operating pressure at ports P and A		bar	315
Maximum operating pressure at port Y		bar	separate and at zero pressure to tank
Setable pressure	minimum	bar	dependent on the flow (see characteristic curves on page 4)
	maximum	bar	50; 100; 200; 315
Pressure fluid [1] suitable for NBR **and** FPM seals [2] **only** suitable for FPM seals			mineral oil (HL, HLP) to DIN 51 524 [1]; fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) [1]; HEPG (polyglycol) [2]; HEES (synthetic ester) [2]; other pressure fluids on request
Pressure fluid temperature range		°C	– 30 to + 80 with NBR seals
		°C	– 20 to + 80 with FPM seals
Viscosity range		mm^2/s	10 to 800
Maximum flow		L/min	120
Degree of contamination			maximum permissible degree of contamination of the pressure fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.

Characteristic curves (measured at $\nu = 41\ mm^2/s$ and $\vartheta = 50\ °C$)

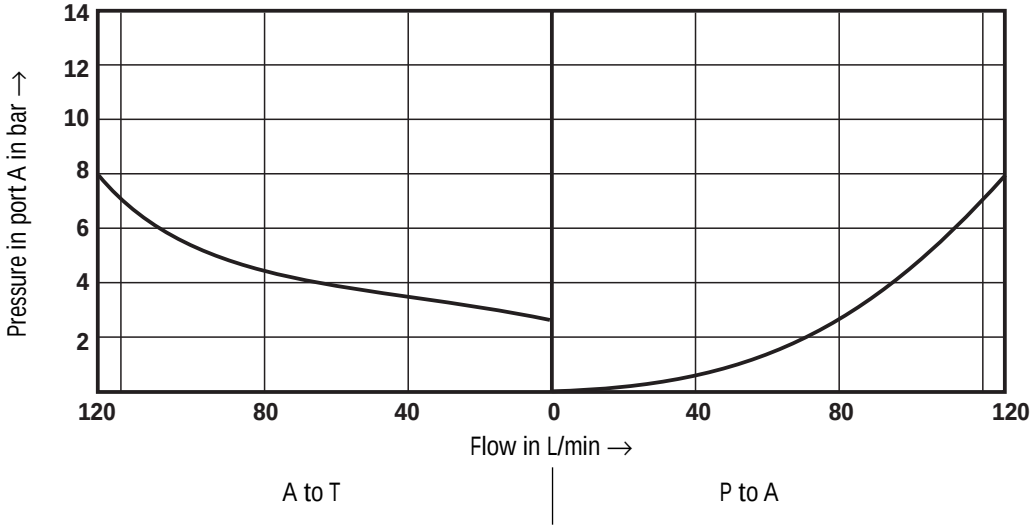
Output pressure p_A in relationship to the flow q_V



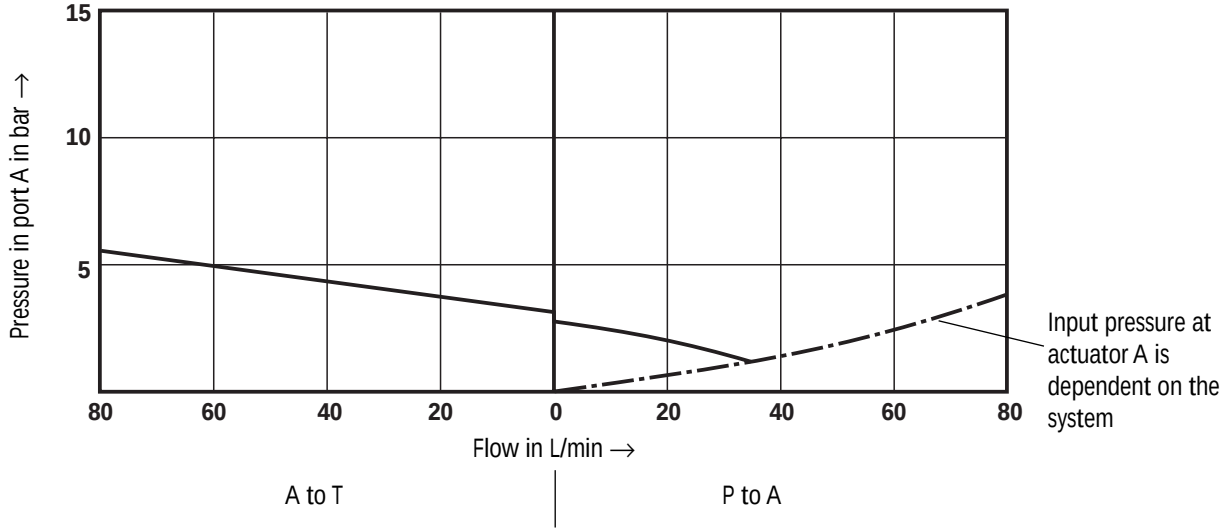
The characteristic curves are valid for output pressure p_T = zero over the entire flow range.

Characteristic curves (measured at ν = 41 mm²/s and ϑ = 50 °C)

Flow resistance

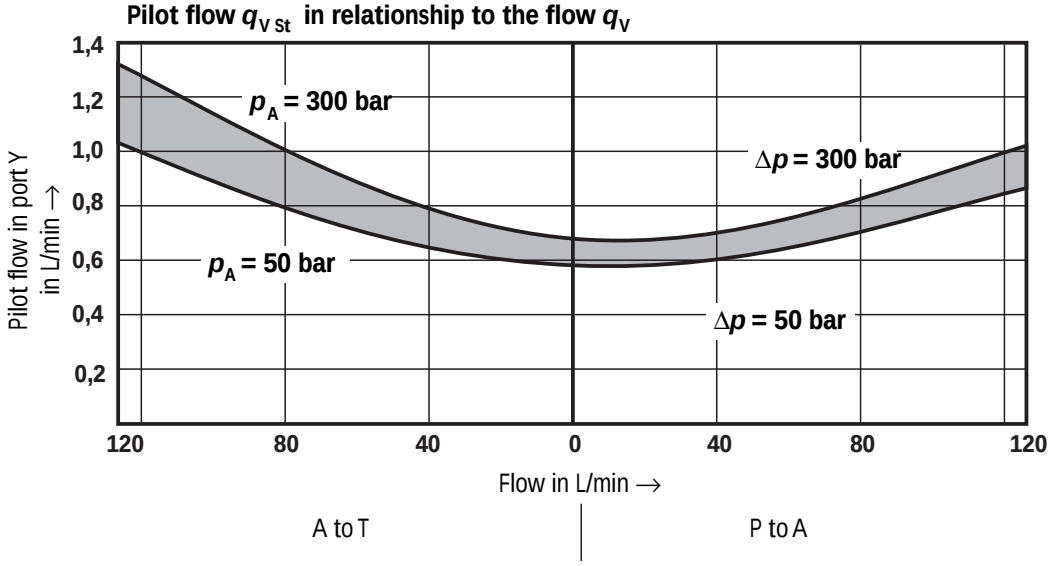


Minimum setable pressure p_{min} in relationship to the flow q_V



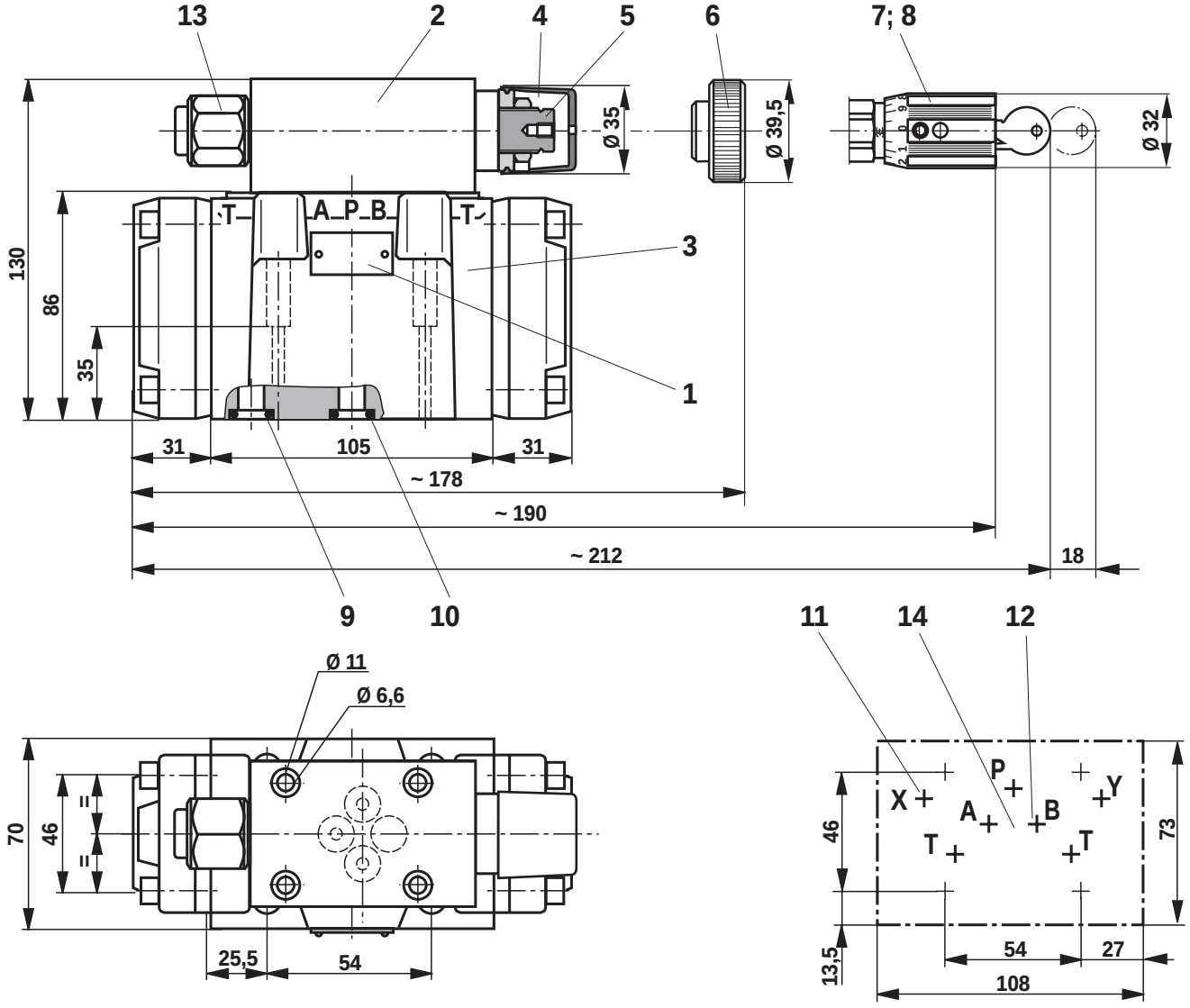
The characteristic curves are valid for output pressure p_T = zero over the entire flow range.

Pilot flow $q_{V\,St}$ in relationship to the flow q_V



Unit dimensions

(Dimensions in mm)

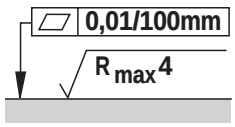


1 Name plate
2 Pilot control valve
3 Main valve
4 Adjustment element “5”
5 Hexagon A/F 10
6 Adjustment element “4”
7 Adjustment element“6”
8 Adjustment element“7”
9 O-rings 10.82 x 1.78 for ports X and Y
10 O-rings 12 x 2 for ports A, B, P and T
11 Port X has to be plugged in the sub-plate.
12 Port B has to be plugged in the sub-plate.
13 Pressure gauge connection
14 Valve mounting surface, porting pattern to DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H

sub-plates G535/01 (G 3/4)
G536/01 (G 1)

to catalogue sheet RE 45 054 must be ordered separately.

Valve fixing screws
4 off M6 x 45 DIN 912-10.9,
M_A = 15.5 Nm,
must be ordered separately.



Required surface finish of mating piece

Notes

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