RE 26 391/02.03

Replaces: 09.96

Pressure sequence valve, pilot operated Type DZ

Nominal sizes 10, 25, 32

Series 5X

Maximum operating pressure 315 bar

Maximum flow 600 L/min

K 4663-14

Type DZ 20 -2-5X/315XYM

Overview of contents

Features

- Suitable for use as a pressurising, sequence and bypass valve
- For subplate mounting:
  Porting pattern to DIN 24 340 form D, ISO 5781 and CETOP–RP 121 H, subplates to catalogue sheet RE 45 062 (separate order)
- For manifold block mounting
- 4 adjustment elements:
  - Rotary knob
  - Sleeve with hexagon and protective cap
  - Lockable rotary knob with scale
  - Rotary knob with scale
- 4 pressure stages
- Check valve, optional
- Details regarding the sea water resistant version see catalogue sheet RE 26 391-M

Ordering details

DZ | | – | – **5X** / | | | | *

Pilot operated valve = **No code**

Pilot operated valve **without** main spool insert (do **not** state nominal size) = **C**

Pilot operated valve **with** main spool insert (state valve size 30) = **C**

Nominal size 10 = **10**

Nominal size 25 = **20**

Nominal size 32 = **30**

Adjustment element

Rotary knob = **1**

Sleeve with hexagon and protective cap = **2**

Lockable rotary knob with scale = **3** [1)]

Rotary knob with scale = **7**

Series 50 to 59 (50 to 59: unchanged installation and connection dimensions) = **5X**

Further details in clear text

No code = NBR seals

V = FKM seals (other seals on request)

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

No code [2)] **=** **With** check valve

M = **Without** check valve

Pilot oil supply Ordering details to symbols, see below

No code =
X =
Y = [2)]
XY =

50 = Settable pressure up to 50 bar

100 = Settable pressure up to 100 bar

200 = Settable pressure up to 200 bar

315 = Settable pressure up to 315 bar

1) H-key with Material No. **R900008158** is included within the scope of supply

2) Not for versions DZC and DZC 30

Preferred types (readily available)

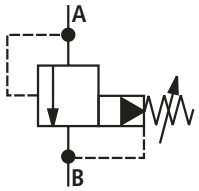
Material No.	Type
R900502839	DZ 10 -2-5X/100Y
R900596661	DZ 10 -2-5X/200Y
R900504251	DZ 10 -2-5X/315Y
R900507430	DZ 20 -2-5X/100Y
R900596863	DZ 20 -2-5X/200Y
R900597138	DZ 20 -2-5X/315Y

Material No.	Type
R900502158	DZ 30 -2-5X/100Y
R900599230	DZ 30 -2-5X/200Y
R900503456	DZ 30 -2-5X/315Y

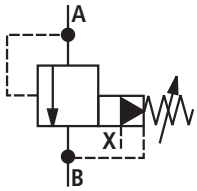
Further preferred types and standard components can be found in the EPS (Standard Price List) .

Symbols

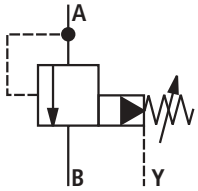
DZ..-.-5X/....M..
DZC..-.-5X/...M..



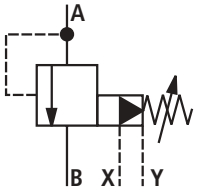
DZ..-.-5X/...XM..



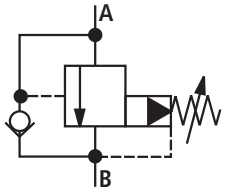
DZ..-.-5X/...YM..



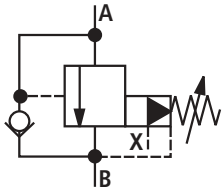
DZ..-.-5X/...XYM..
DZC..-.-5X/...XYM..



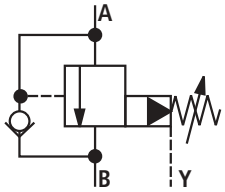
DZ..-.-5X/....



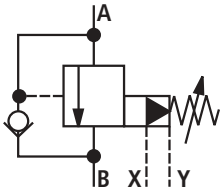
DZ..-.-5X/...X..



DZ..-.-5X/...Y..



DZ..-.-5X/...XY..



Function, section

Pressure valves type DZ are pilot operated pressure sequence valves. They are used for pressure dependent sequence switching of a second circuit.
The pressure sequence valves basically consist of main valve (1) with main spool insert (7) and pilot valve (2) with pressure adjustment element and optional check valve (3).
The valve function varies according to pilot oil drain configuration:

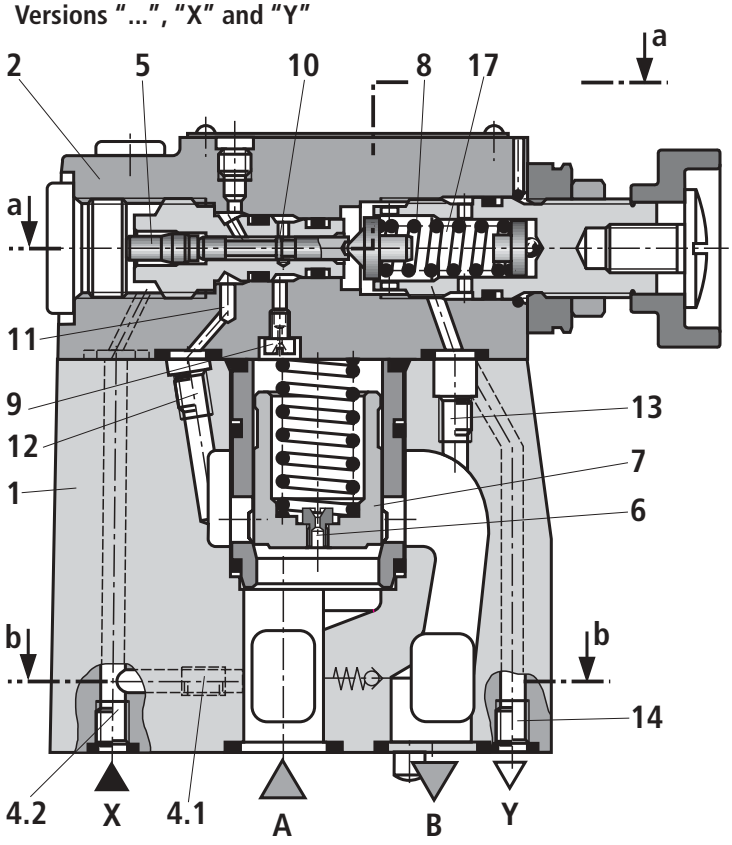
Pressurising valve type DZ..-.-5X/.....
(Control lines 4.1, 12 and 13 open;
Control lines 4.2, 14 and 15 plugged)
The pressure in line A acts on the pilot spool (5) in the pilot valve (2) via the control line (4.1). At the same time it acts on the spring loaded side of the main spool (7) via orifice (6). When the pressure exceeds the value set at spring (8), the pilot piston (5) is moved against the spring (8). The signal is obtained internally from port A via control line (4.1). The fluid on the spring loaded side of the main piston (7) now flows to port B via orifice (9), control land (10) and control lines (11) and (12). There is now a pressure drop at main spool (7), the connection from port A to port B is open maintaining the pressure set at spring (8). The leakage oil at pilot piston (5) is led to port B internally via control line (13). An optional check valve (3) can be fitted for free return flow from port B to port A.

Pressurising valve type DZ..-.-5X/...X..
(Control lines 4.2, 12 and 13 open;
control lines 4.1, 14 and 15 plugged)
The function of this valve is principally the same as for valve DZ..-.-5X/... .
However, with pressure sequence valve type DZ..-.-5X/...X.. the signal is given externally by means of control line (4.2).

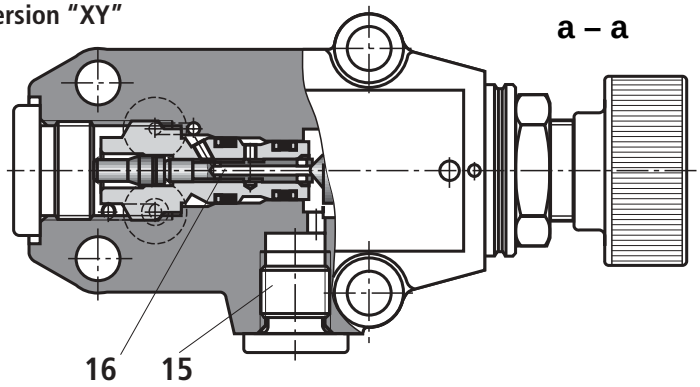
Sequence valve type DZ..-.-5X/...Y..
(Control lines 4.1, 12 and 14 or 15 open;
Control lines 4.2, and 13 plugged)
The function of this valve is principally the same as for valve type DZ..-.-5X/....
However, for type DZ..-.-5X/...Y.. leakage at pilot piston (5) **must** be drained to tank without pressure via lines (14) or (15). Pilot oil is fed to port B via line (12).

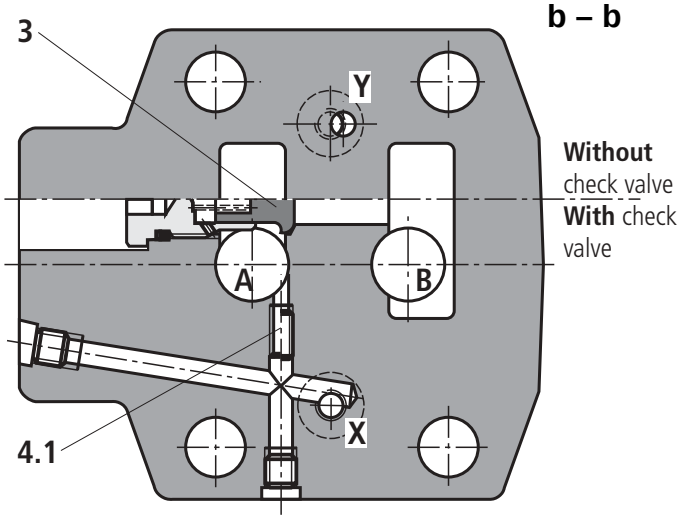
Bypass valve type DZ..-.-5X/...XY..
(Control lines 4.2, 14 or 15 open;
Control lines 4.1, 12 and 13 plugged)
Pressure in port X acts on the pilot piston (5) in the pilot valve (2) via control line (4.2). At the same time pressure in port A acts on the spring loaded side of the main spool (7) via orifice (6). When the pressure in port X exceeds the value set at the spring (8), the pilot piston (5) is moved against the spring (8) When the pilot piston (5) is moved against the spring (8), fluid can pass from the spring loaded side of the main spool (7) into the spring chamber (17) of the pilot valve (2) via orifice (9) and line (16) and pressure breaks down on the spring loaded side of the main spool (7). The fluid can, therefore, pass from port A to port B with minimum loss of pressure. The pilot oil is spring chamber (17) should be drained to tank without pressure via lines (14) or (15). An optional check valve (3) can be fitted for free return flow from port B to port A.

Versions "...", "X" and "Y"



Version "XY"





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

General

Installation			Optional		
Ambient temperature range		°C	– 30 to + 80 (NBR seals)		
			– 20 to + 80 (FKM seals)		
Weight	Nominal size		10	25	32
	DZ…	kg	3.4	5.3	8.0
	DZC…	kg	1.2		
	DZC 30…	kg	1.5		

Hydraulic

Maximum operating pressure	Ports A, B, X	bar	315		
Maximum back pressure	Port Y	bar	315		
Settable pressure	Minimum	bar	Flow dependent (see characteristic curves on page 5)		
	Maximum	bar	50; 100; 200; 315		
Maximum flow	Nominal size		10	25	32
		L/min	200	400	600
Pressure fluid			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 (polyglycole) [2]; HEES (synthetic ester) [2]; other pressure fluids on request		
Pressure fluid temperature range		°C	– 30 to + 80 (NBR seals)		
		°C	– 20 to + 80 (FKM seals)		
Viscosity range		mm^2/s	10 to 800		
ISO code cleanliness class			Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 [3]		

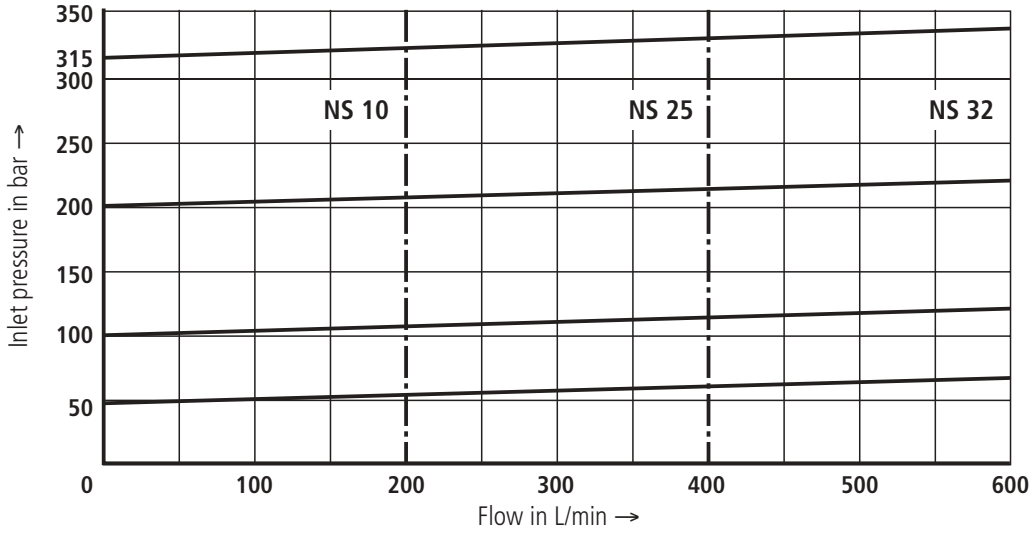
[1] Suitable for NBR **and** FKM seals

[2] **Only** suitable for FKM seals

[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 filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

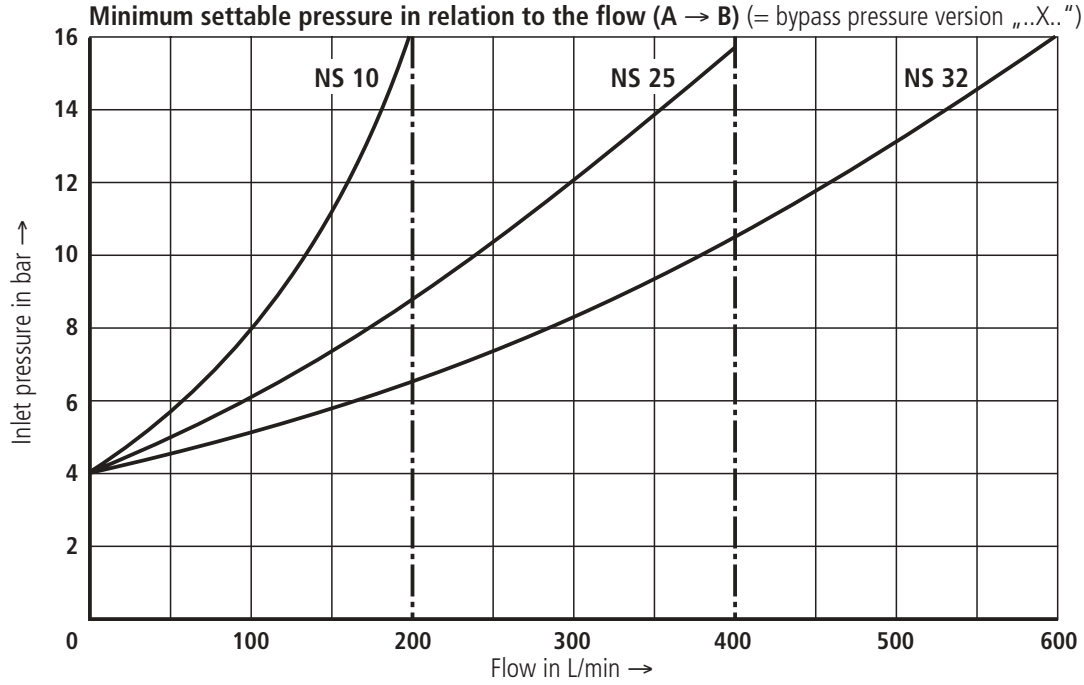
Characteristic curves (measured with HLP46, ϑ_{oil} = 40 °C ±5 °C)

Inlet pressure in relation to the flow (A → B)



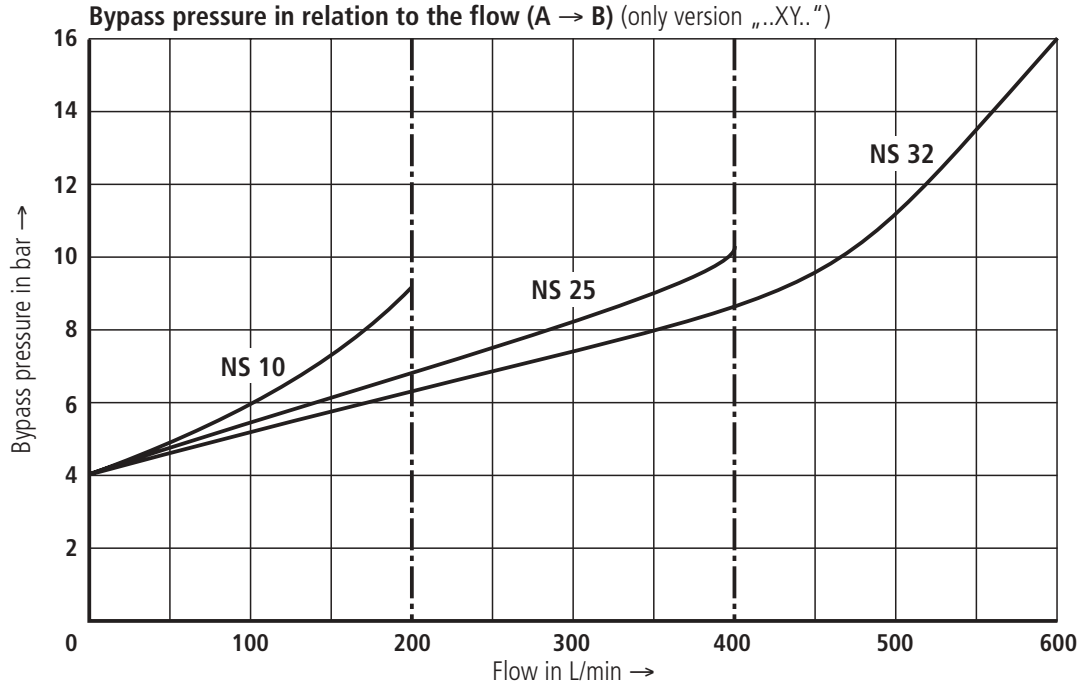
Characteristic curves (measured with HLP46, ϑ_{oil} = 40 °C ±5 °C)

Minimum settable pressure in relation to the flow (A → B) (= bypass pressure version „..X..")



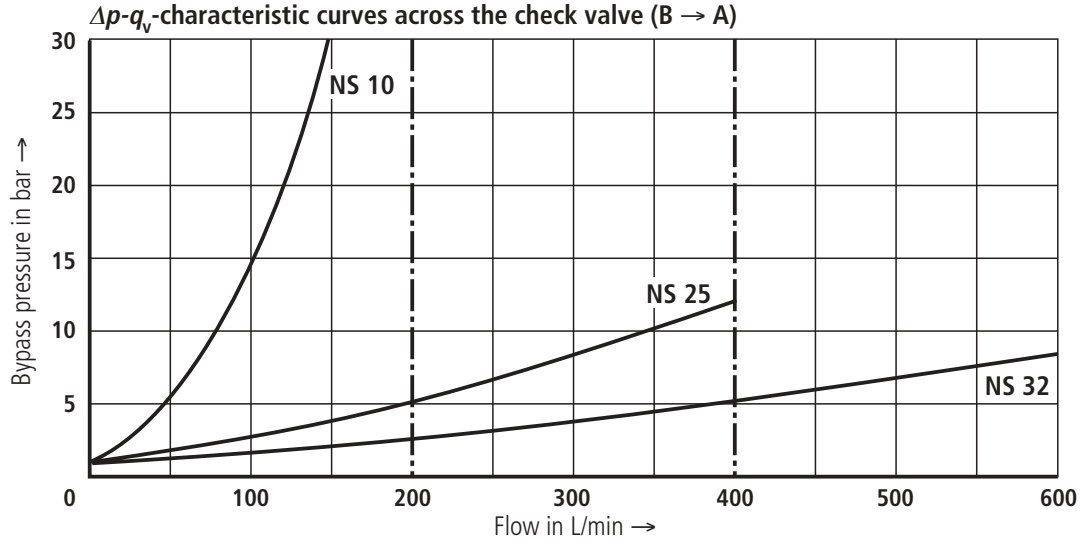
The characteristic curves are valid for outlet pressure p_B = 0 for the complete flow range

Bypass pressure in relation to the flow (A → B) (only version „..XY..")

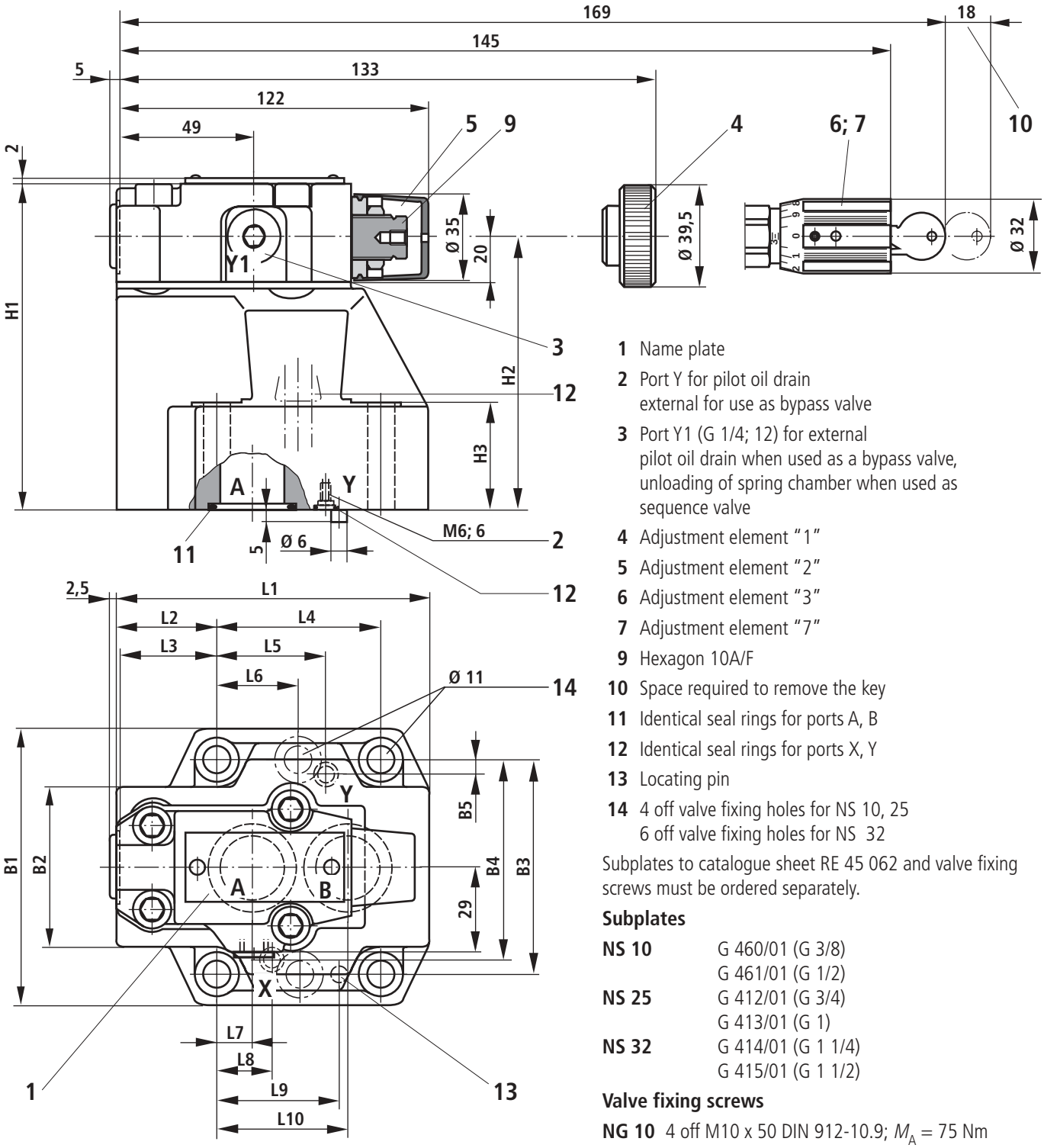


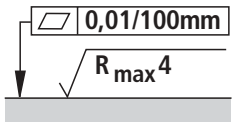
The characteristic curves are valid for outlet pressure p_B = 0 for the complete flow range

Δp-q_v-characteristic curves across the check valve (B → A)



Unit dimensions: pilot operated valve (dimensions in mm)





Requires surface finish of the mating piece

1 Name plate

2 Port Y for pilot oil drain external for use as bypass valve

3 Port Y1 (G 1/4; 12) for external pilot oil drain when used as a bypass valve, unloading of spring chamber when used as sequence valve

4 Adjustment element "1"

5 Adjustment element "2"

6 Adjustment element "3"

7 Adjustment element "7"

9 Hexagon 10A/F

10 Space required to remove the key

11 Identical seal rings for ports A, B

12 Identical seal rings for ports X, Y

13 Locating pin

14 4 off valve fixing holes for NS 10, 25
6 off valve fixing holes for NS 32

Subplates to catalogue sheet RE 45 062 and valve fixing screws must be ordered separately.

Subplates

NS 10	G 460/01 (G 3/8)
	G 461/01 (G 1/2)
NS 25	G 412/01 (G 3/4)
	G 413/01 (G 1)
NS 32	G 414/01 (G 1 1/4)
	G 415/01 (G 1 1/2)

Valve fixing screws

NG 10 4 off M10 x 50 DIN 912-10.9; M_A = 75 Nm

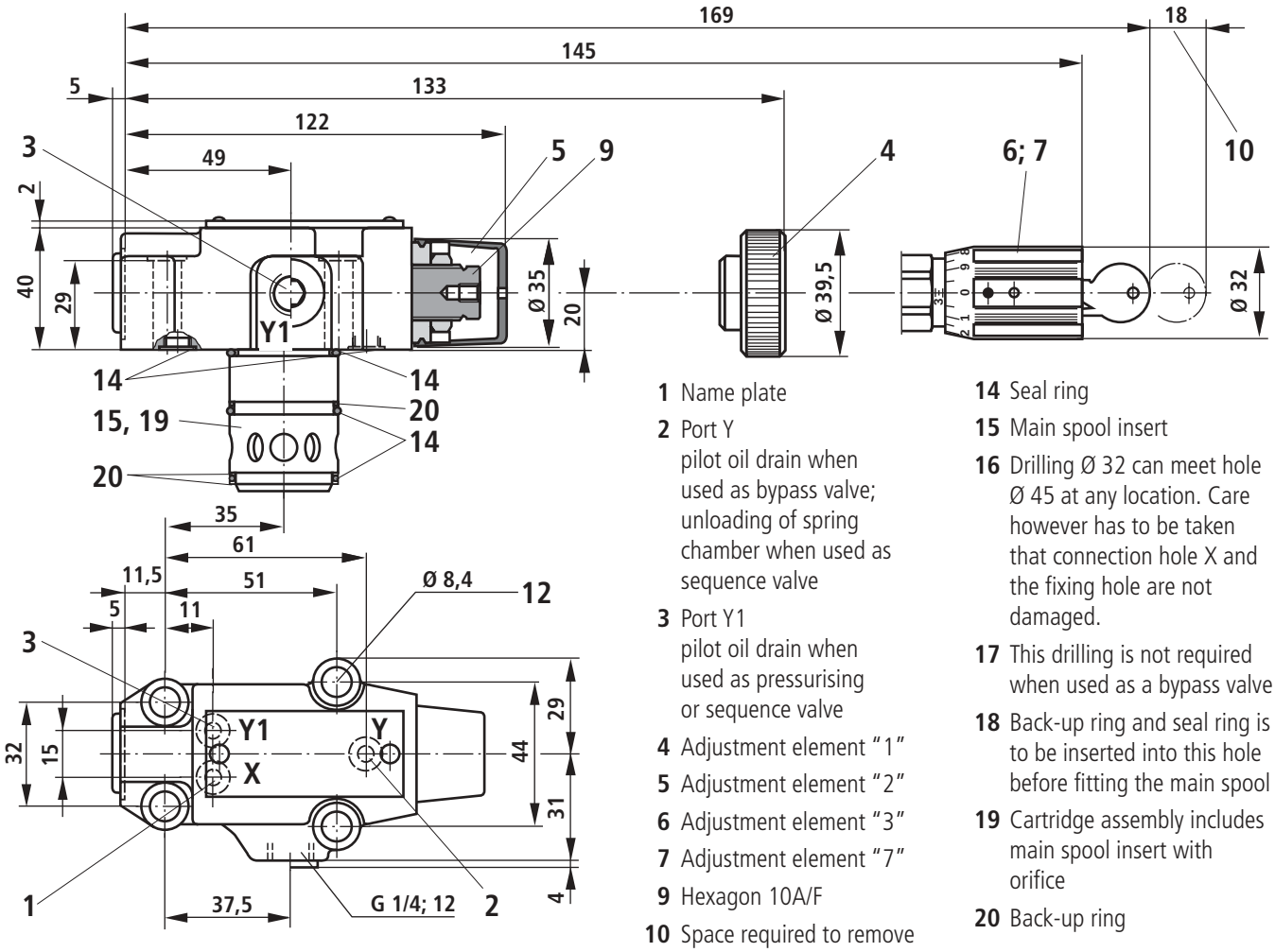
NG 25 4 off M10 x 60 DIN 912-10.9; M_A = 75 Nm

NG 32 6 off M10 x 70 DIN 912-10.9; M_A = 75 Nm

NS	L1	L2	L3	L4	L5	L6	L7	L8
10	96	35.5	33	42.9	21.5	–	7.2	21.5
25	116	37.5	35.4	60.3	39.7	–	11.1	20.6
32	145	33	29.8	84.2	59.5	42.1	16.7	24.6

NS	L9	L10	B1	B2	B3	B4	B5	H1	H2	H3
10	31.8	35.8	85	50	66.7	58.8	7.9	112	92	28
20	44.5	49.2	102	59.5	79.4	73	6.4	122	102	38
32	62.7	67.5	120	76	96.8	92.8	3.8	130	110	46

Unit dimensions: pilot valve **with** (DZC 30 or **without** (DZC) main spool insert (dimensions in mm)



1 Name plate

2 Port Y
pilot oil drain when used as bypass valve; unloading of spring chamber when used as sequence valve

3 Port Y1
pilot oil drain when used as pressurising or sequence valve

4 Adjustment element "1"

5 Adjustment element "2"

6 Adjustment element "3"

7 Adjustment element "7"

9 Hexagon 10A/F

10 Space required to remove the key

12 Valve fixing holes

14 Seal ring

15 Main spool insert

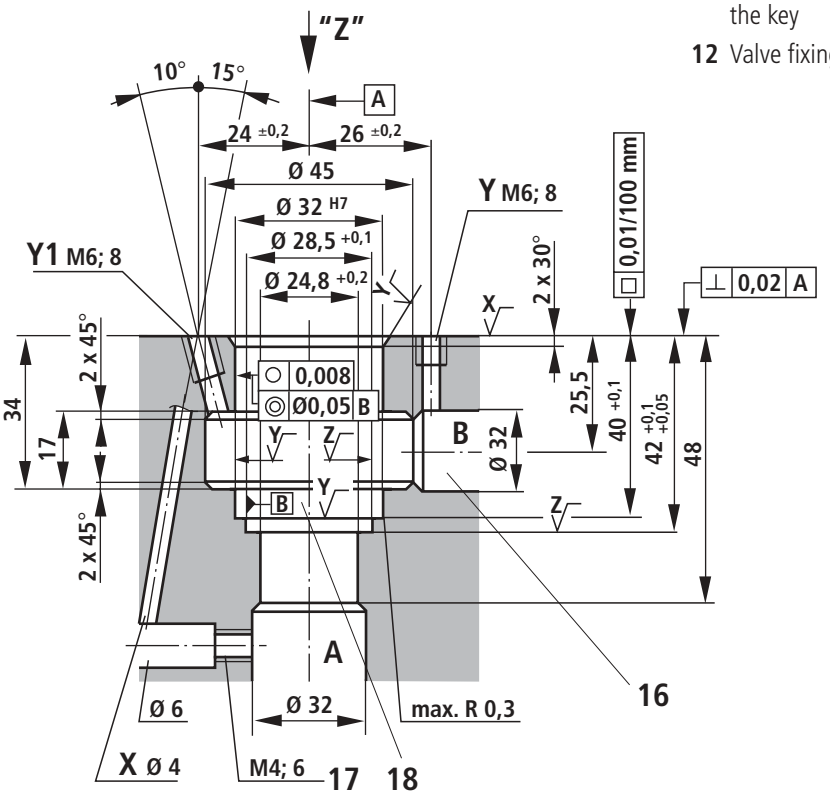
16 Drilling Ø 32 can meet hole Ø 45 at any location. Care however has to be taken that connection hole X and the fixing hole are not damaged.

17 This drilling is not required when used as a bypass valve

18 Back-up ring and seal ring is to be inserted into this hole before fitting the main spool

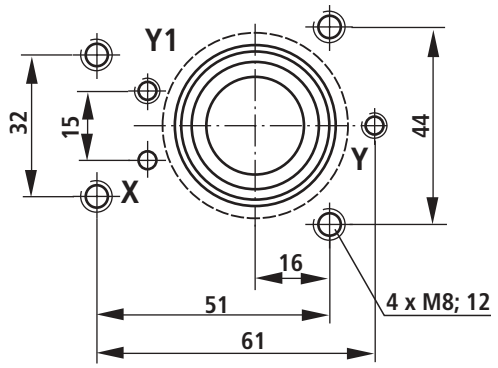
19 Cartridge assembly includes main spool insert with orifice

20 Back-up ring



Valve fixing screws	M_A
4 off M8 x 40 DIN 912-10.9 (must be ordered separately)	37 Nm

View "Z"



$\sqrt{X} = \sqrt{R_{max}\,4}$

$\sqrt{Y} = \sqrt{R_{max}\,8}$

$\sqrt{Z} = \sqrt{R_z\,16}$

Notes

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