Proportional directional control valve USHB25

NS 25 | p_{max} 35 MPa | Q_{max} 800 dm³/min | WK 433 260

PONAR wadowice

DATA SHEET - OPERATION MANUAL

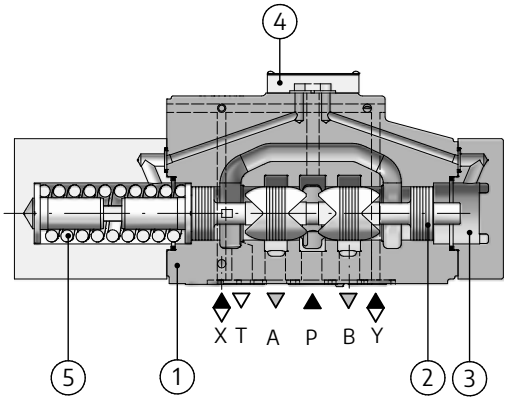
APPLICATION

Hydraulically operated proportional directional control valve **USHB25...** is used for changing the direction and fluid flow in a hydraulic system by pressure changing in the X or Y port, which allows the change of receiver movement – mostly cylinder piston rod or hydraulic motor as well as functions **start**, **stop**.

The valve is adapted for subplate mounting in any position in a hydraulic system. The valve is intended for use with hydraulic joysticks and external pilot valves.

DESCRIPTION OF OPERATION

In the housing **1** there are: main hole and ring ports P, T, A, B which are connected with the subplate of the housing **1**. Directional valve is switched by shifting the spool **2**. Various control functions depend on the spool **2** version, which affects the change in configuration of connections between ports P, T, A, B of housing **1**. Shifting the spool **2** from its neutral position is proportional to the pressure set of hydraulic fluid led to one of the covers chambers **3**. Chambers **3** are connected with pilot lines – one with port X, and the second with port Y respectively, by means of cover **4**. The spool **2** is centred in neutral position by means of the spring **5**. Ports functions: P – pump connection; A,B – receiver connection; T; drain to the tank; X – control from A port side; Y - control from B port side.

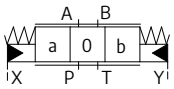


TECHNICAL PARAMETERS

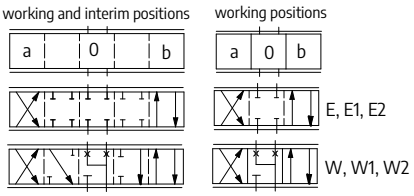
hydraulic fluid	mineral oil
required fluid cleanliness class	ISO 4406 class 20/18/15
nominal fluid viscosity	37 mm²/s at temperature 55°C
viscosity range	2,8 ÷ 380 mm²/s
fluid temperature range (in a tank)	recommended 40 ÷ 55°C max. - 20 ÷ 70°C
ambient temperature range	- 20 ÷ 70°C
max. operating pressure	ports P, A, B: 35 MPa port T: 25 MPa
control pressure, port X and Y	0 ÷ 3 MPa
working position	optional
weight	~ 1,5 kg

assembly and operation requirements at www.operating-conditions.ponar.pl

DIAGRAMS



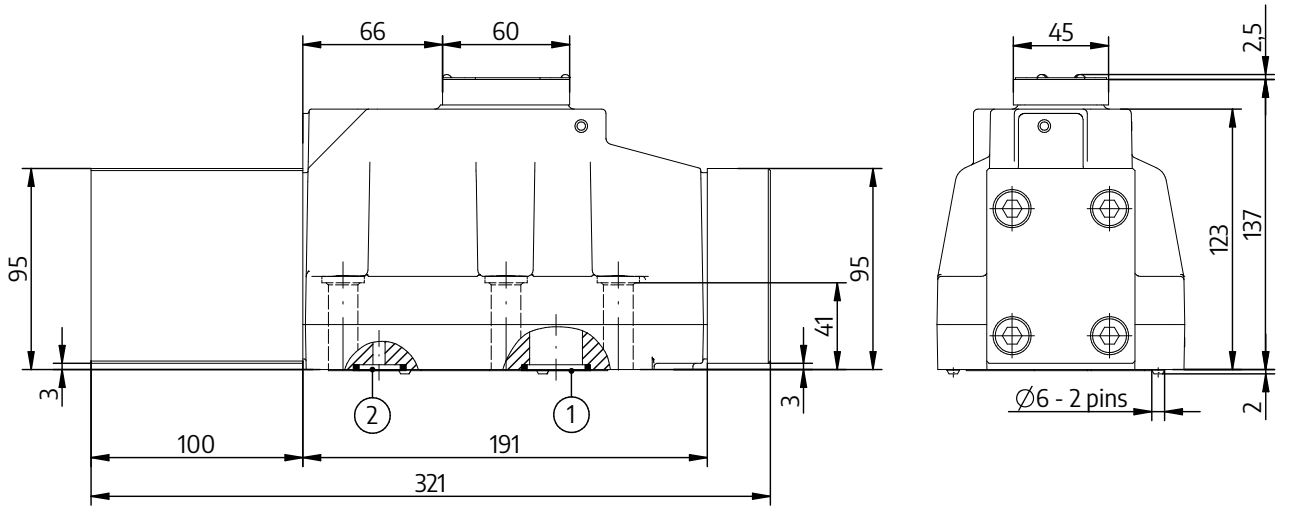
Graphic symbols of the spools

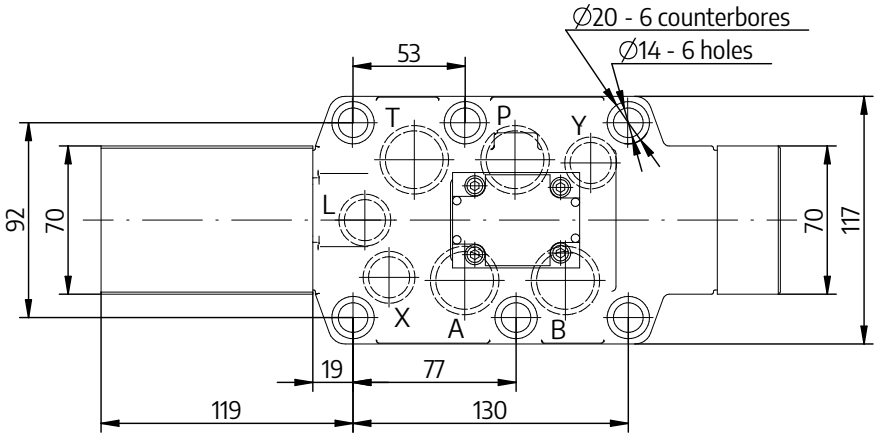


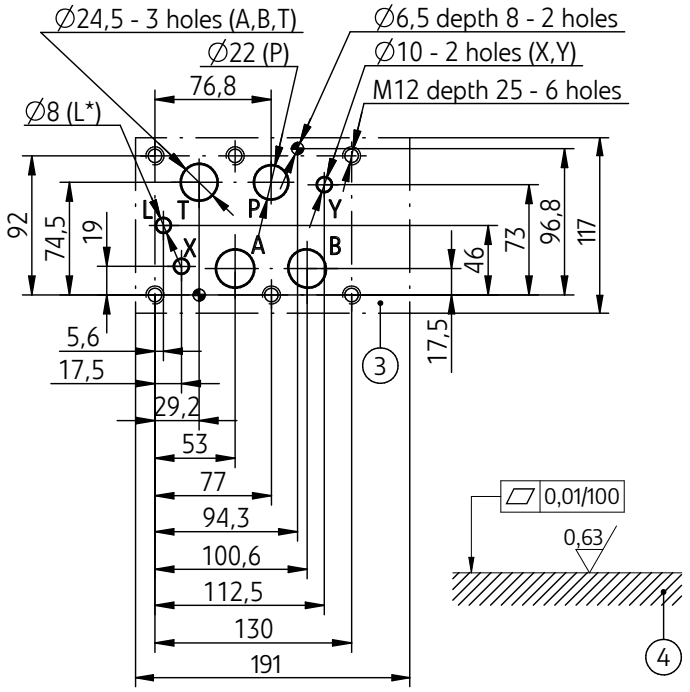
FLOW VALUES

spool type	flow values			
	P → A	P → B	A → T	B → T
E1, W1	Q_{max}	Q/2	Q_{max}	Q/2
E2, W2	Q/2	Q_{max}	Q/2	Q_{max}

OVERALL AND CONNECTION DIMENSIONS







1. square section ring 27,3 x 2,8 – 4 pcs/set (P, T, A, B)
2. square section ring 19,4 x 2,9 – 3 pcs/set (X, Y, L)
3. porting pattern of the subplate surface compliant with ISO 4401; designation ISO 4401-08-07-0-94 (CETOP 08) mounting screws M12x60 – 10.9 in accordance with PN – EN ISO 4762 (PN/M – 82302) – 6 pcs; tightening torque M_d = 105 Nm
4. required surface quality of the valve contact surface

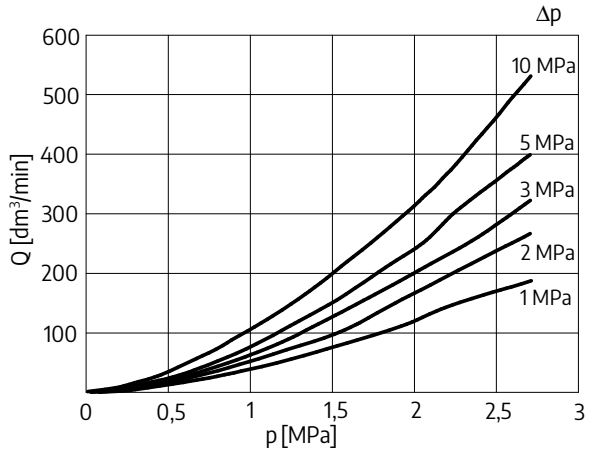
L* - unused port

PERFORMANCE CURVES

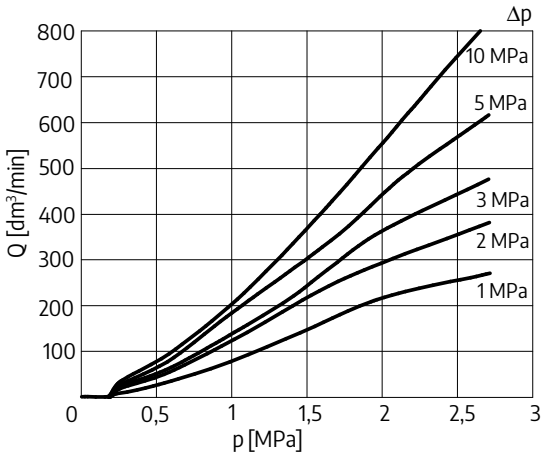
measured at viscosity ν = 41 mm²/s and temp. t = 50°C

flow rates
depending on X and Y pilot pressure by constant values Δp

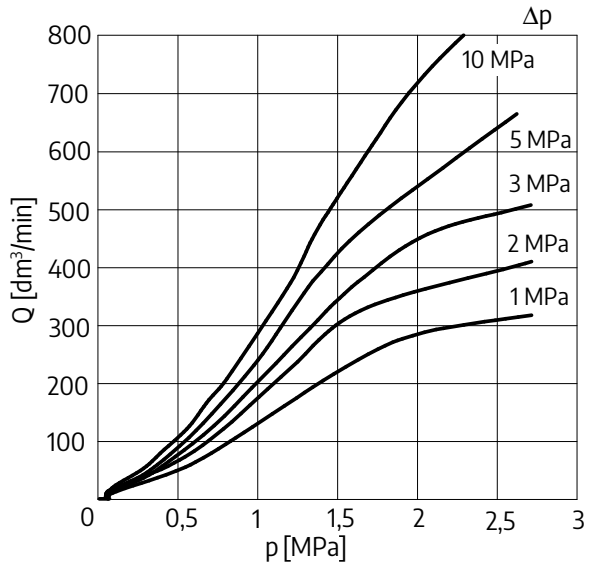
Spool E200



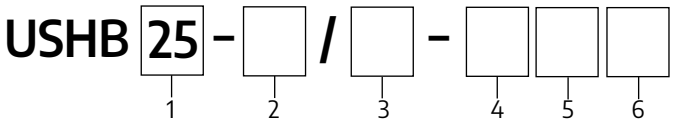
Spool E250



Spool E300



HOW TO ORDER



1 nominal size (NS)
NS 25 = 25

2 series number
series 12 = 12
(12 ÷ 19) connection and installation dimensions unchanged

3 spool symbol
(spool symbols acc. to page 1)
3-position = E, E1, E2, W, W1, W2

4 nominal flow by Δp = 1 MPa
200 dm³/min = 200
250 dm³/min = 250
300 dm³/min = 300

5 sealing
NBR (for fluids on mineral oil base) = Ø
FPM (for fluids on phosphate ester base) = V

6 further requirements = *
(to be agreed with the manufacturer)

Ø indicates that the box should be left blank.
The **symbols in bold** are the preferred versions available in short delivery time.

Coding example: **USHB25-12/E-200**

SUBPLATES AND MOUNTING SCREWS

Subplates must be ordered according to catalogue sheet WK 491 800.

Subplates symbols:
G151/01 – threaded connections: P, T, A, B - G1; X, Y, L - G¼
G154/01 – threaded connections: P, T, A, B - G1 ¼; X, Y, L - G¼
G156/01 – threaded connections: P, T, A, B - G1½; X, Y, L - G¼

The **symbol in bold** is the preferred version available in short delivery time.

Subplate and mounting screws for valve assembly M12 x 60 – 10.9
in accordance with PN - EN ISO 4762 (PN/M-82302) 6 pcs/set.
Tightening torque for screws M_d = 105 Nm.

Subplate and mounting screws must be ordered separately.

CONTACT

PONAR Wadowice S.A.
ul. Wojska Polskiego 29
34-100 Wadowice

tel. +48 33 488 21 00
www.ponar-wadowice.pl