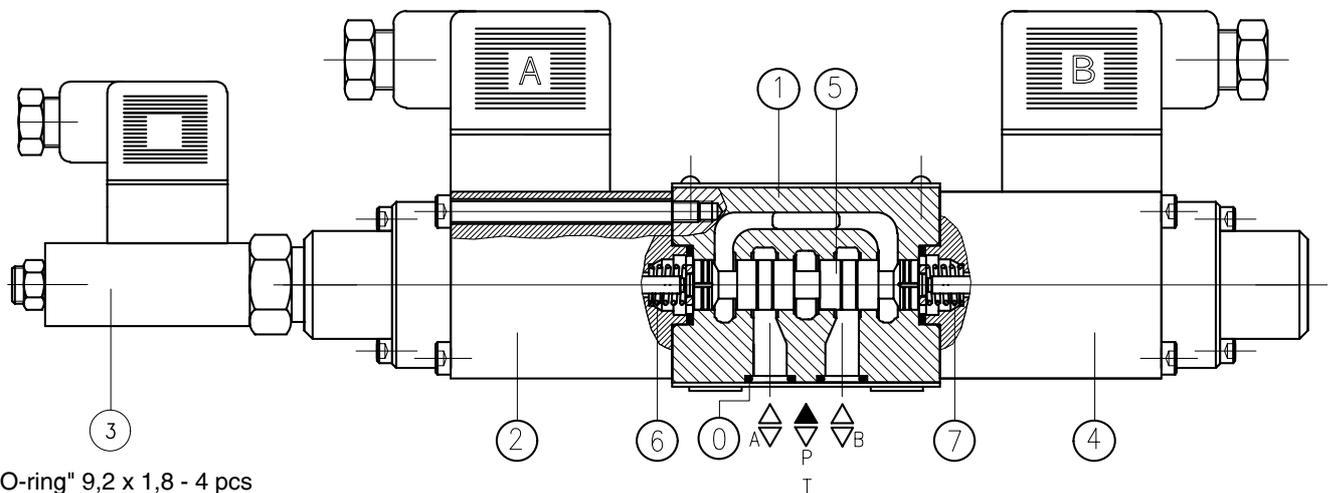


### APPLICATION

Proportional directional valves type USEB 6 are used to control the direction and speed of a user movement. The output flow is proportional to electrical input signal.



"O-ring" 9,2 x 1,8 - 4 pcs

### DESCRIPTION OF OPERATION

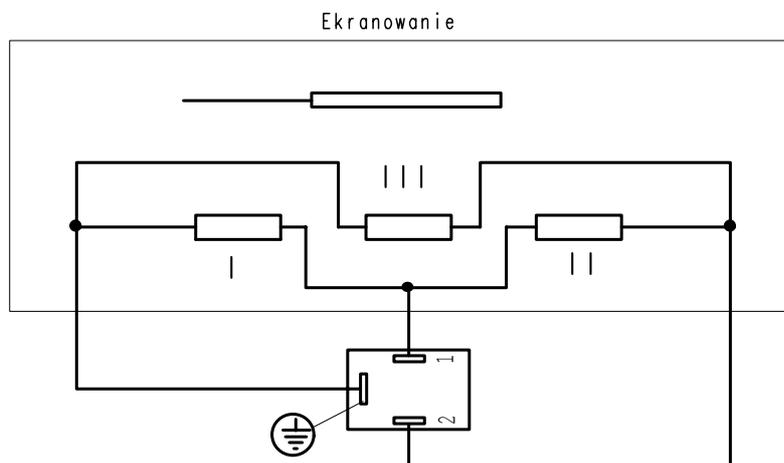
The proportional directional valve type USEB 6 comprises mainly the housing 1, solenoids 2 and 4, inductive offset detector 3, spool 5, springs 6 and 7. Electric regulator (30 RE ...) can be included with the valve. The regulator is applied to control proportional solenoids and receive the signals from offset detector. The proportional solenoid 2 or 4 pushes the spool from its neutral position. The neutral position is held by the springs 6 and 7. The inductive offset detector has double stroke. Its range allows to measure the offset of the spool from neutral position to the right or left. The offset of the spool 5 is transmitted electrically as initial data. It is held in the signal sent by the electronic

regulator in form of current with certain intensity that is changed by the solenoid 2 or 4 into force pushing the spool 5 against spring 6 or 7. Simultaneously the offset detector 3 determines actual position of the spool and in form of electrical signals sends as feedback to the electronic regulator. The both signals: initial data and actual value are compared in the electronic regulator, which sends a new signal correcting the position of the spool 5 in order to adjust it in conforming with the initial signal.

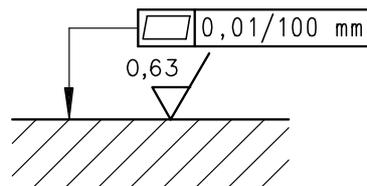
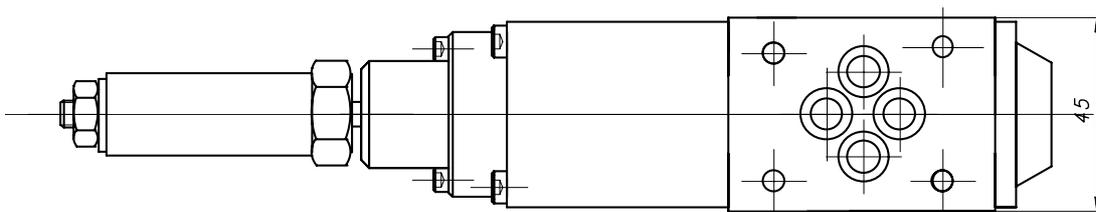
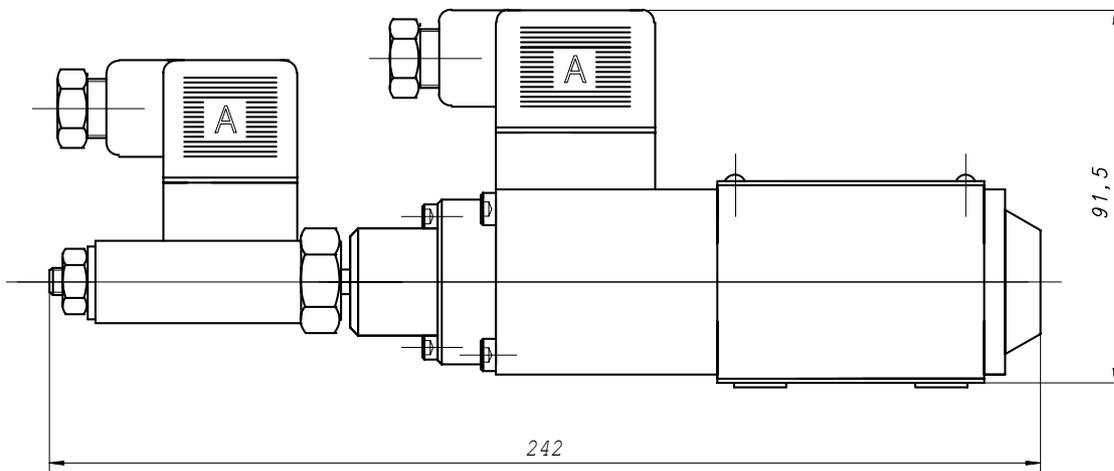
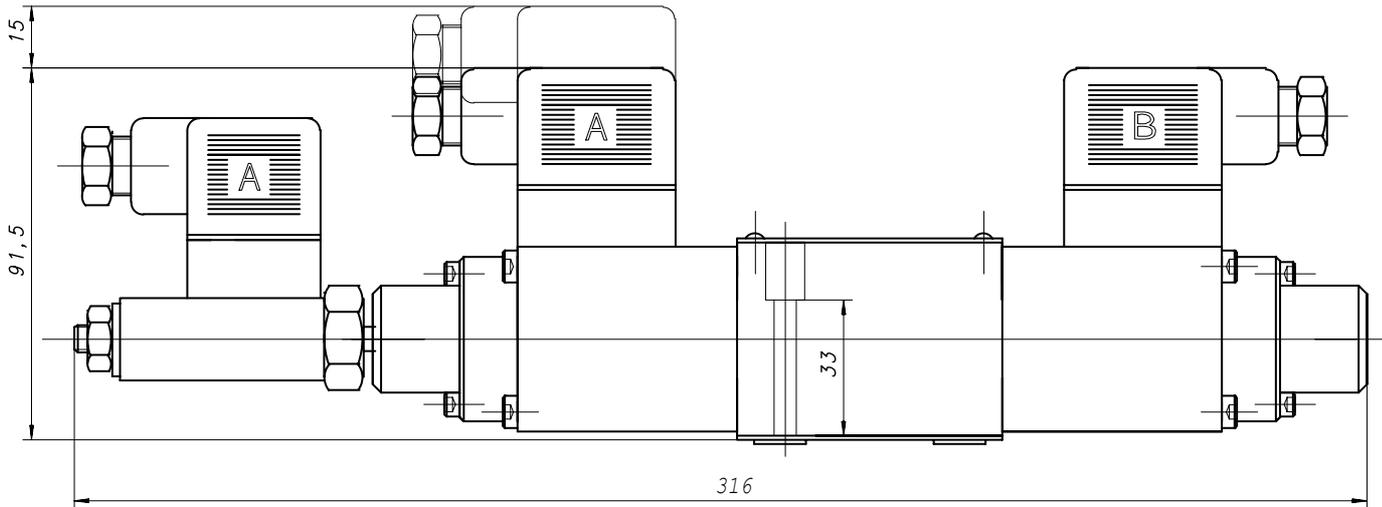
## TECHNICAL DATA

Working medium	Mineral oil
Operating pressure at port P, A, B	up to 31,5 MPa
Operating pressure at port T	up to 16 MPa
Required filtration	16 mm
Recommended filtration	10 mm
Nominal fluid viscosity	37 mm <sup>2</sup> /s at temp. 328 K
Viscosity range	2,8 to 380 mm <sup>2</sup> /s
Working temperature (in tank)	313 to 328 K
Hysteresis	< 1 %
Repetition accuracy	< 1 %
Sensitivity	≤ 0,5 nominal signal
Zero offset	0,15% /K
Operating position	optional
Electrical characteristics	
Nominal solenoid power	~ 13 W
3-position valve weight	~ 3 kg
2-position valve weight	~ 1,8 kg
Resistance of cold solenoid coil (293K)	5,4W
Resistance of max hot solenoid coil	8,5W
Inductive detector - adjustable stroke	+/- 4,5mm linear
Linearity tolerance	1%
Resistance of detector winding:           turn 1	56W
turns 2	56W
turns 3	112W
Electronic regulators	30 RE 21 - for USEB 6 - 3 -position, data card WK 495 774
	30 RE 11 - for USEB 6 - 2 -position , data card WK 495 772

## CONNECTIONS OF WINDING IN OFFSET DETECTOR

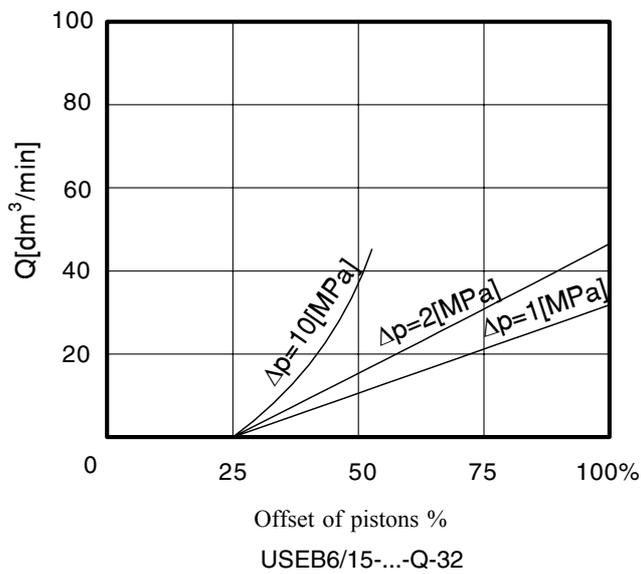
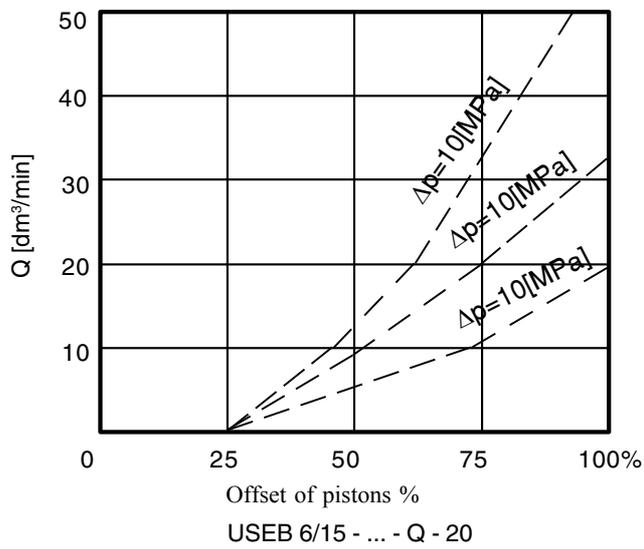
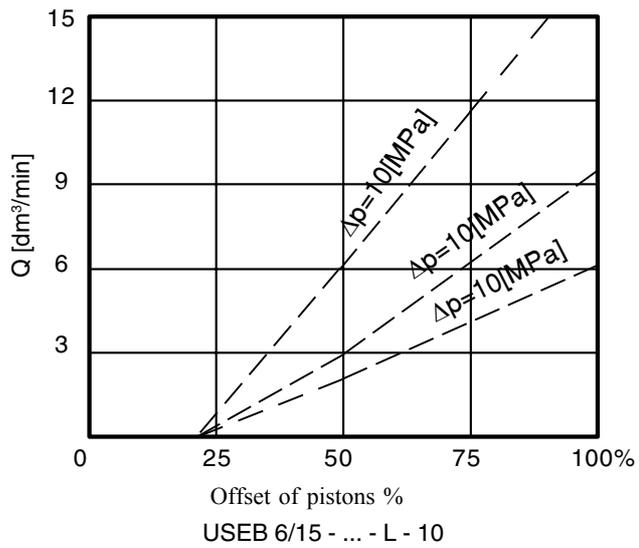


# OVERALL AND CONNECTION DIMENSIONS

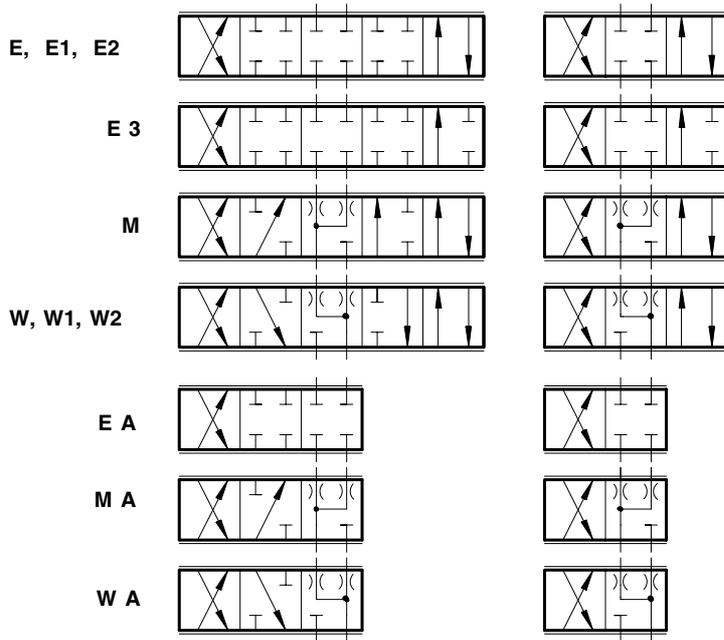


Admissible surface roughness and flatness deviation for a subplate face.

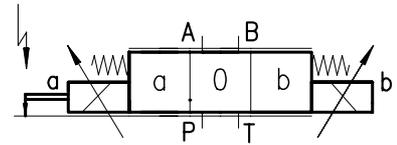
**PERFORMANCE CURVES**, measured at  $\nu = 41 \text{ mm}^2/\text{s}$  and  $T = 323 \text{ K}$



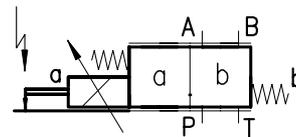
## SPOOL SCHEMES



## GRAPHICAL SYMBOL



USEB 6/ ...



USEB 6/ ... A

For symbol **E1** i **W1**-:

$P \rightarrow A: Q_{\max}$   
 $P \rightarrow B: Q/2$

For symbol **E2** i **W2**-:

$P \rightarrow A: Q/2$   
 $P \rightarrow B: Q_{\max}$

$B \rightarrow T: Q/2$   
 $A \rightarrow T: Q_{\max}$

$B \rightarrow T: Q_{\max}$   
 $A \rightarrow T: Q/2$

For symbol **E3** i **W3**-:

$P \rightarrow A: Q_{\max}$   
 $P \rightarrow B: Q/2$

$B \rightarrow T: \text{close}$   
 $A \rightarrow T: Q_{\max}$

## HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.

**USEB 6/**

\*

### Series number

15 = 15  
 ( 15 - 19 ) - installation and connection dimensions remain unchanged

### Designation of connections to schemes on page 3.

### Flow changes

Linear (only for 10 dm<sup>3</sup>/min) = L  
 Progressive = Q

### Nominal flow at $\Delta p$ 1MPa

10dm<sup>3</sup>/min = 10  
 20dm<sup>3</sup>/min = 20  
 32dm<sup>3</sup>/min = 32

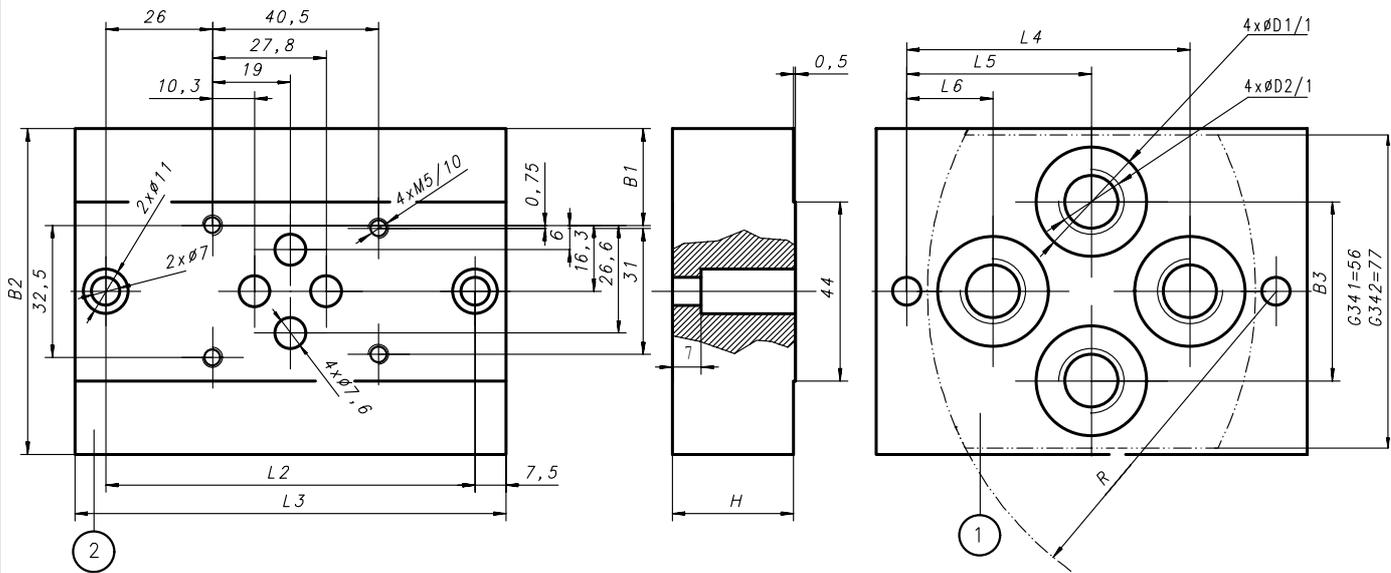
### Sealing

Fluids on mineral oil base = with no code  
 Fluids on phosphate-ester base = V

Further requirements in clear text ( to be agreed upon with the manufacturer )

Coding example : USEB 6 / 15 E L 10

## CONNECTION DIMENSIONS FOR SUBPLATE



item 1 - recess in subplate face  
item 2 - connecting face

Weight ~ 0,8 kg

Type	B1	B2	B3	L1	L2	L3	L4	L5	L6	H	D1	D2	R	T
G341/01	12,7	58	34	21	80	95	55	40	25	25	22	G <sup>1</sup> / <sub>4</sub>	70	13
G342/01	23,7	80	44	26	90	105	69	45	21	30	28	G <sup>3</sup> / <sub>8</sub>	85	13
G341/02	12,7	58	34	21	80	95	55	40	25	25	22	M14 x 1,5	70	15
G342/02	23,7	80	44	26	90	105	69	45	21	30	27	M16 x 1,5	85	16

Fixing the valve to the subplate by means of 4 bolts  
M5 × 45 - 10.9 PN-74/M-82302 ( DIN 912 )  
Tightening torque - 9 Nm.  
Bolts and subplates have to be ordered separately.

PONAR WADOWICE S.A.  
ul. Wojska Polskiego 29  
34-100 Wadowice  
tel. 033/ 823 39 43, 823 30 41  
fax 033/ 873 48 80  
e-mail: ponar@ponar-wadowice.pl

