

# Proportional pressure reducing - relief valve WZCPE 10

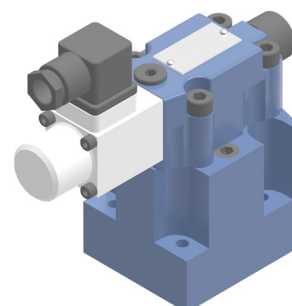
NS 10 |  $p_{max}$  35 MPa |  $Q_{max}$  80 dm<sup>3</sup>/min | WK 480 730



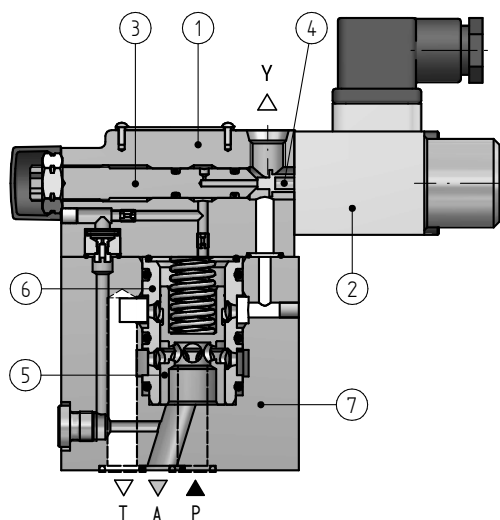
## DATA SHEET - OPERATION MANUAL

### APPLICATION

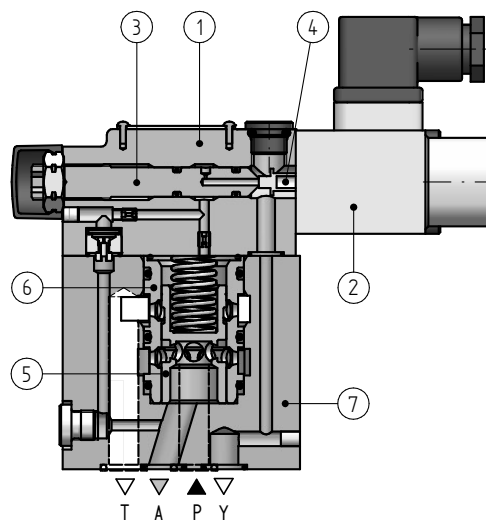
Proportional pilot operated, pressure reducing - relief valve **WZCPE10...** type is used for maintaining the constant pressure independently of the flow direction. Controlled pressure in hydraulic system is function of the set current. Digital current amplifier 20RE 10 or other electronic system are used to control the valve WZCPE.



version **WZCPE10-23/320YG**



version **WZCPE10-23/320YP**



### DESCRIPTION OF OPERATION

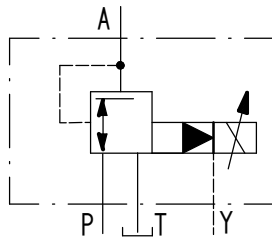
Proportional pressure reducing-relief valve **WZCPE10...** type among others consists of the pilot valve 1, WZEP... type, proportional solenoid 2, adjusting nozzle 3 and poppet 4. The reduced pressure from port A through the nozzles system acts on the bottom and top side of the spool 5 and on poppet 4 connected with the proportional solenoid core 2. The strength of poppet 4 clamp to the adjustment nozzle 3 is proportional to the solenoid current 2. If pressure in port A (of the control flow) will be higher than the pressure set on the pilot valve, it will

open and the fluid will be drained to the tank through port Y. The opening of the pilot valve interferes the balance state on the main spool, and causes self-emerging of new clearance throttling the pilot flow, so that the pressure behind is independent of the amount of fluid. The valve works as a pressure relief valve when in port A the pressure is raised to the value that will close the way from P to A and connect A and T ports. It secures the system from excessive pressure increase in A port, stabilising the pressure at the requested level, independently from the flow direction.

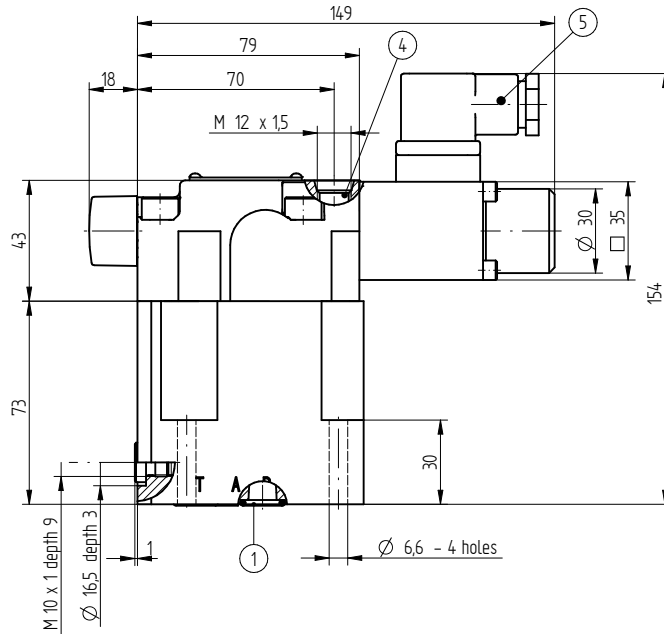
### TECHNICAL PARAMETERS

hydraulic fluid	mineral oil	resistance of solenoid coil winding at the temp. of 20°C	24,2 Ω
required fluid cleanliness class	ISO 4406 class 20/18/15	operating position	optional
nominal fluid viscosity	37 mm <sup>2</sup> /s at temp. 55°C	current amplifier (ordered separately)	20 RE10 - WK 495 771 20 RE10D - WK 420 810
viscosity range	2,8 ÷ 380 mm <sup>2</sup> /s	* - by stabilized voltage supply 24V DC set the maximal power value $I_{max}$	20 RE10E * - WK 420 820 20 RC10E *- WK 427 790
fluid temperature range (in a tank)	rec. 40 ÷ 55°C   max. - 20 ÷ 70°C	weight	~ 4,5 kg
ambient temperature range	- 20 ÷ 50°C		
max. working pressure	35 MPa		
max. current of the solenoid coil $I_{max}$	0,68 A		

assembly and operation requirements at: [www.operating-conditions.ponar.pl](http://www.operating-conditions.ponar.pl)



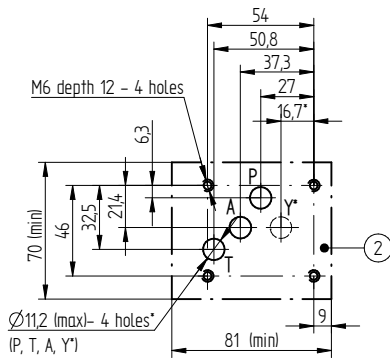
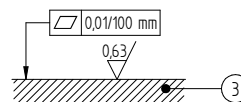
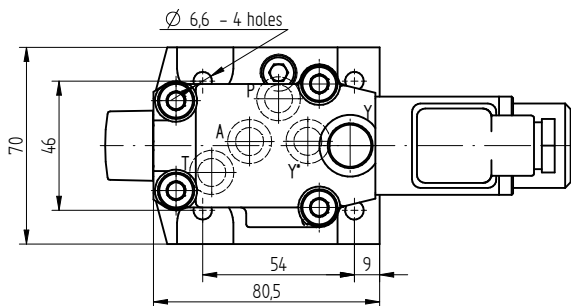
OVERALL AND CONNECTION DIMENSIONS



1. o-ring 12 x 2 - 4 pcs/set (P, T, A, Y)
2. porting pattern of the subplate surface compliant with ISO 4401; designation ISO 4401-05-04-0-94 (CETOP 05) mounting screws M6 x 40 - 10.9 in acc. with PN-EN ISO 4762 (PN/M-82302) - 4 pcs/set;
3. required surface quality of the valve contact surface
4. leakage drain port Y<sup>(1)</sup>
5. plug-in connector

**NOTE:**

<sup>(1)</sup>-port Y shall be directly connected to a tank with a hose with inner diameter min. Ø 8 in depressurized condition

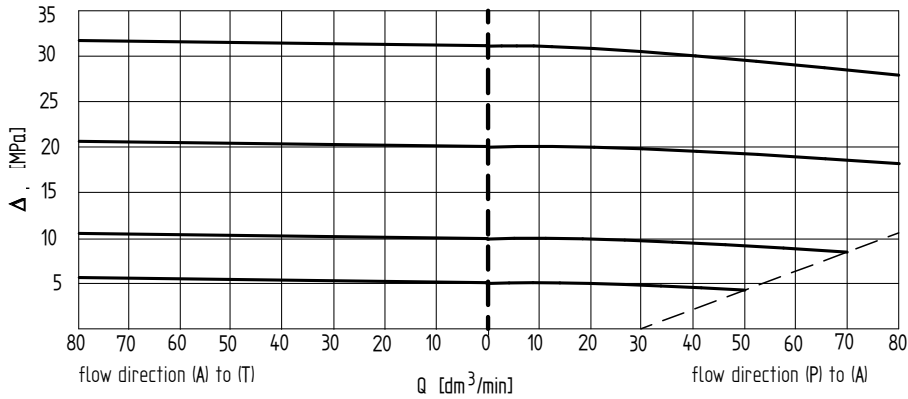


## PERFORMANCE CURVES

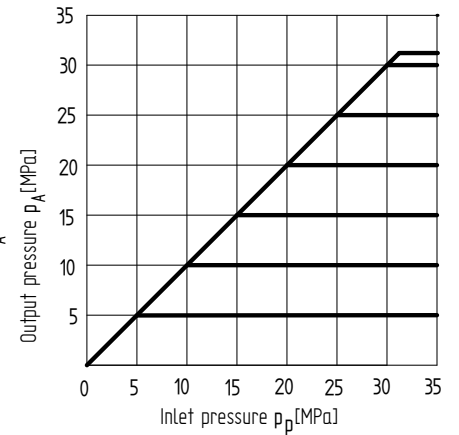
measured at viscosity  $\nu = 41 \text{ mm}^2/\text{s}$  and temp.  $t = 50^\circ\text{C}$

### characteristic of pressure changes at different flow

working pressure at different flow rate for nominal pressures set

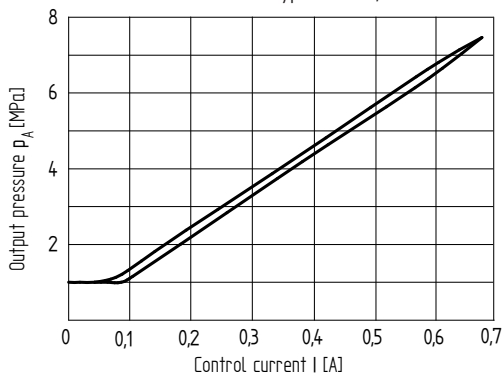


### characteristic of pressure flow direction P → A

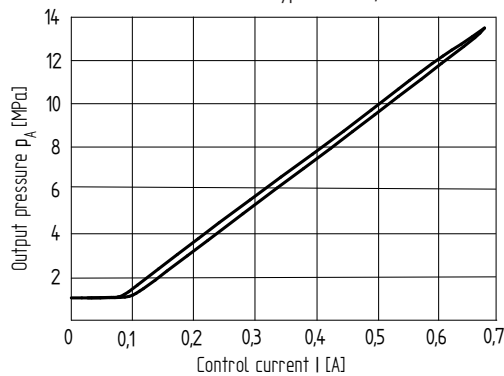


### characteristic of current

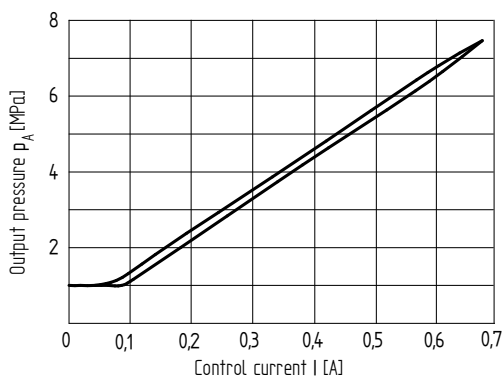
working pressure  $p_A$  at different values of the control current  $I$  for valve type WZEP.../50...



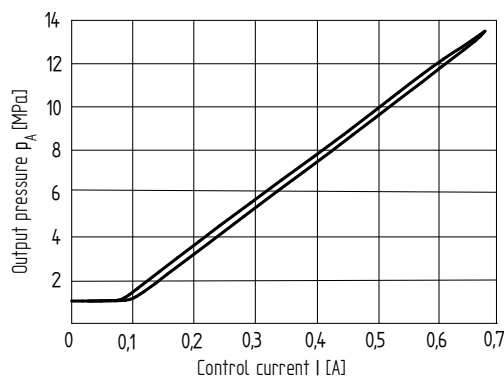
working pressure  $p_A$  at different values of the control current  $I$  for valve type WZEP.../100...



working pressure  $p_A$  at different values of the control current  $I$  for valve type WZEP.../200...



working pressure  $p_A$  at different values of the control current  $I$  for valve type WZEP.../320...



## HOW TO ORDER

WZCPE **10** -  /  -

1            2            3            4            5            6

### 1 nominal size

NS 10 = 10

### 2 series number

series 23 = 23  
(20 ÷ 29) connection and installation dimensions unchanged

### 3 pressure setting

up to 5 MPa = 50  
up to 20 MPa = 200  
up to 35 MPa = 350

### 4 control method

control flow separated from the main flow and drained by independent channel Y  
through subplate connection = YP  
through threaded connection = YG

### 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: **WZCPE10-23/350-YP**

## SUBPLATES AND MOUNTING SCREWS

Subplates must be ordered according to data sheet WK 496 520:

**G67/01** – threaded connections G $\frac{1}{2}$

G534/01 – threaded connections G $\frac{3}{4}$

Subplate and mounting screws for valve assembly M6 × 40–10.9 in accordance with PN – EN ISO 4762 (PN/M – 82302) 4 pcs/set. Tightening torque for screws  $M_d = 15 \text{ Nm}$ .

### NOTE:

The symbol in bold is the preferred version available in short delivery time. Subplate and mounting screws must be ordered separately.

## CONTACT

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