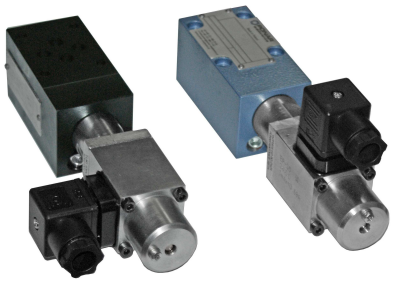
| PONAR wadowice | Proportional pressure relief valve type WZPPE6, WZPRE6 | | | WK 427 230 |
|---|---|---|---|---|
| | NS6 | up to 35 MPa | up to 60 dm³/min | 12.2015 |

DATA SHEET - OPERATION MANUAL

## APPLICATION

Pressure relief valves type **WZPPE6**... and **WZPRE6**... electrically and proportionally operated are used to adjust pressure in hydraulic system. The pressure setting in hydraulic system is related to the solenoid current.

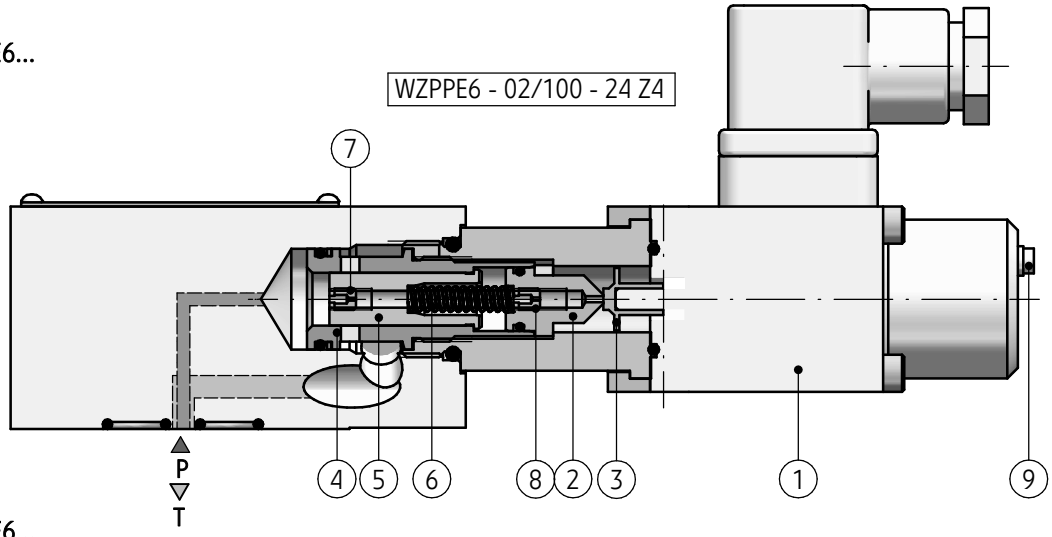


## DESCRIPTION OF OPERATION

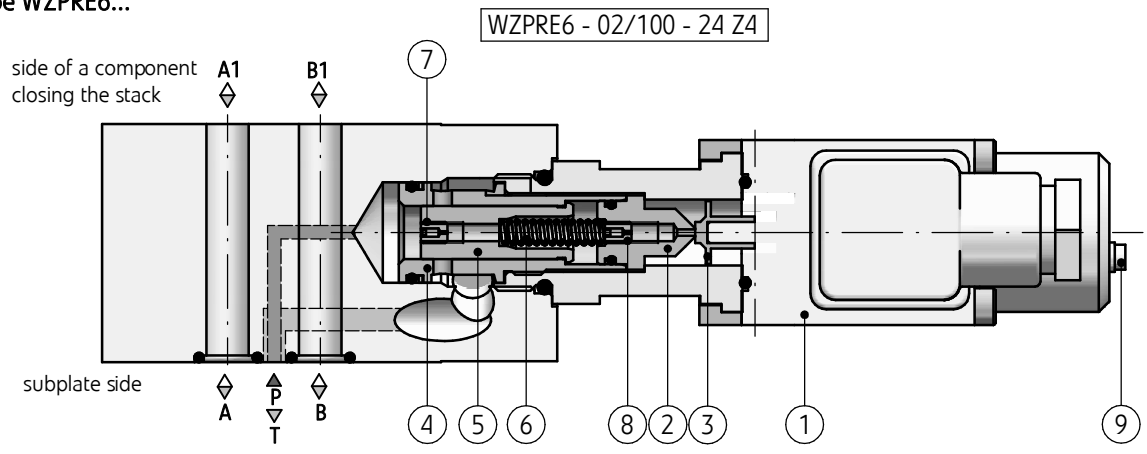
Proportional pressure relief valves type **WZPPE6...**; **WZPRE6...** are pilot-operated valves. The pressure in port **P** through the jets assembly (7) and (8) and adjusting jet (2) acts on the blind (3) connected with the plunger of proportional solenoid (1). Pushing force of the blind (3) to jet (2) is proportional to the strength of current flowing through the solenoid (1). One of the electronic regulator according to table on page 2 is used to supply the solenoid (1). If the pressure acting on the blind (3) exceeds the pressure set, then the blind (3) is pushed back and pressure at the top of the spool (5) drops. Thus, the spool is shifted in the sleeve (4) and the line **P** to **T** opens. The spring (6) maintains the spool (5) in position to cut off the flow.

NOTE:
**The valve must be precisely bled by means of bleeding screw (9) in order to work properly. In case of any vibrations, bias current at electronic regulator must be adjusted.**

type WZPPE6...




type WZPRE6...



## TECHNICAL DATA

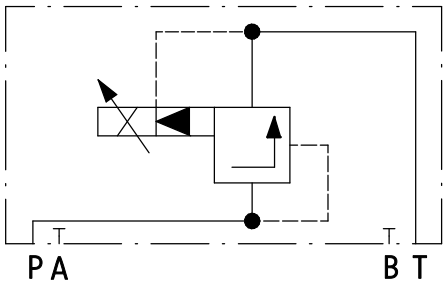
| | | |
|---|---|---|
| Hydraulic fluid | mineral oil | |
| **Required fluid cleanliness class** | **ISO 4406 class 20/18/15** | |
| Nominal fluid viscosity | 37 mm $^2$/s at temperature 55 $^{o}$C | |
| Viscosity range | 2,8 up to 380 mm $^2$/s | |
| Fluid temperature range (in a tank) | recommended | 40 $^{o}$C up to 55 $^{o}$C |
| | max | -20 $^{o}$C up to +70 $^{o}$C |
| Ambient temperature range | - 20 $^{o}$C up to +50 $^{o}$C | |
| **Maximum operating pressure** | ports **P, A, B** | **35 MPa** |
| | port **T** | **21 MPa** |
| **Max flow rate** | **60 dm$^3$/min** | |
| Working position | optional (horizontal position recommended) | |
| Hysteresis | 2,5 % max pressure | |
| Repetition accuracy | 2 % | |
| **Maximum supply current of the solenoid $I_{max}$** | **1,35 A** | **0,68 A** |
| Resistance of cold solenoid coils (20 $^{o}$C) | 6 Ω | 24,2 Ω |
| **Supply voltage** | **12 V** | **24 V** |
| **Electronic regulators**<br>• type **20RC10 E** - included in the order (only for valve versions WZPPE6...**C**...; WZPRE6...**C**...)<br>• type **20RE10 E** - included in the order (only for valve versions WZPPE6...**E**...; WZPRE6...**E**...)<br>• type **20RE10 D** - must be ordered separately | type **20RE10 E** in accordance with data sheet **WK 420 820** (when powered by a stabilized voltage **12** to **24 V DC**, set the maximum current **I max**, depends of the regulator supply voltage)<br>control voltage **0 - 5 V** \| control voltage **0 - 10 V** | |
| | type **20RC10 E** in accordance with data sheet **WK 427 790** (when powered by a stabilized voltage **12** to **24 V DC**, set the maximum current **I max**, depends of the regulator supply voltage) | |
| | type **20RE10 D** in accordance with data sheet **WK 420 810** (only when powered by a stabilized voltage **24 V**) | |
| Weight (without electronic regulator) | version **WZPPE6...** | 1,7 kg |
| | version **WZPRE6...** | 1,8 kg |

## INSTALLATION AND OPERATION REQUIREMENTS

1. Only fully functional and operational valve, properly connected to electrical installation must be used.
2. During the period of operation must be kept fluid viscosity acc. to requirements defined in this Data Sheet - Operation Manual
3. In order to ensure failure free and safe operation the following must be checked:
   - proper working of the valve
   - cleanliness of the hydraulic fluid
4. Due to heating of solenoid coils and the housing to high temp., the valve shall be placed in such way to eliminate the risk of accidental contact with the valve during operation or to apply suitable covers acc. to PN - EN ISO 13732 -1 and PN - EN 4413
5. In order to ensure tightness of the valve block, one should take care of dimension of sealing rings, tightening torques and valve operation parameters given in this Data Sheet - Operation Manual
6. A person that operates the valve must be thoroughly familiar with this Data Sheet - Operation Manual.

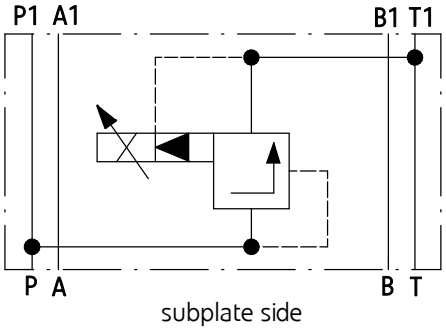
## DIAGRAMS

hydraulic diagram of valve type **WZPPE6...**




hydraulic diagram of valve type **WZPPE6...**

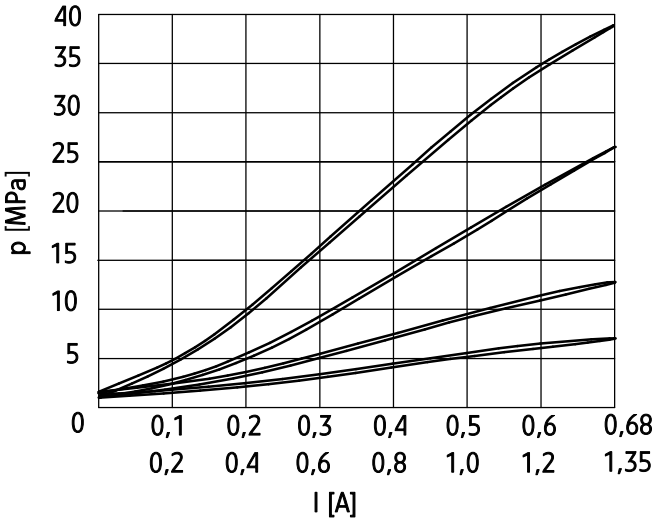
side of a component closing the stack




## PERFORMANCE CURVES

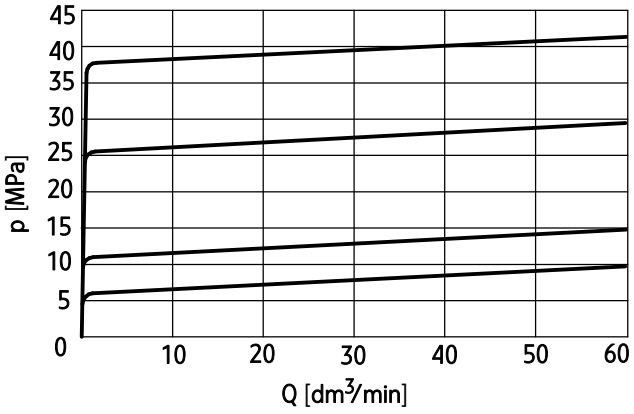
measured at viscosity $\nu$ = 41 mm$^2$/s and temperature t = 50°C

operating pressure **p** in relation to the supply current **I**; flow rate **Q = 10 dm³/min**

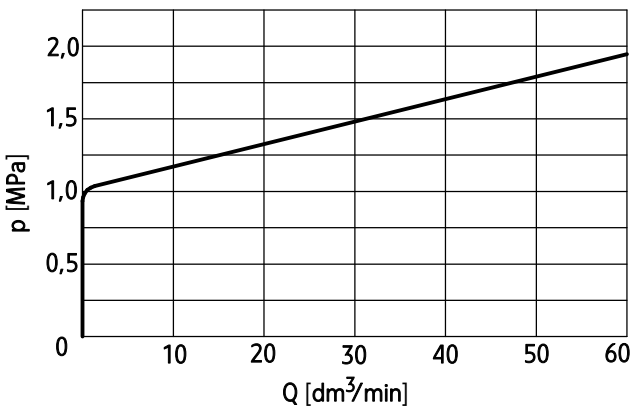



coil for $I_{max}$ = 0,68 A
coil for $I_{max}$ = 1,35 A

operating pressure **p** in relation to the flow rate **Q**; supply current **I = $I_{max}$**

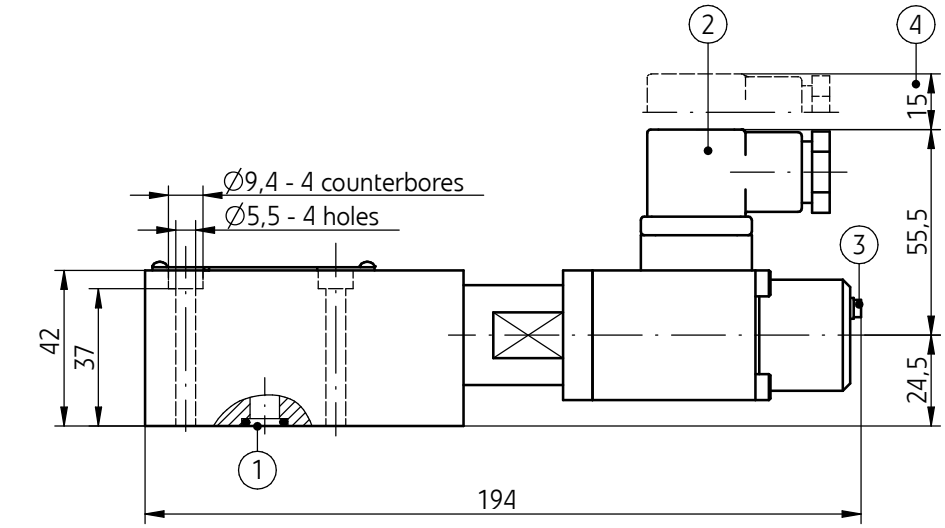


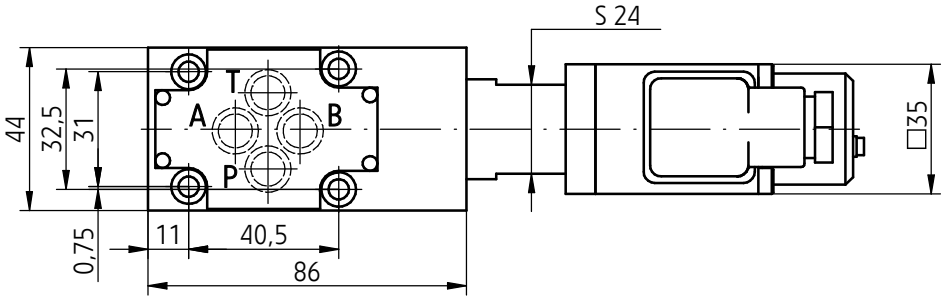

minimum settable pressure $p_{min}$ in relation to the flow rate **Q**; supply current **I = 0**

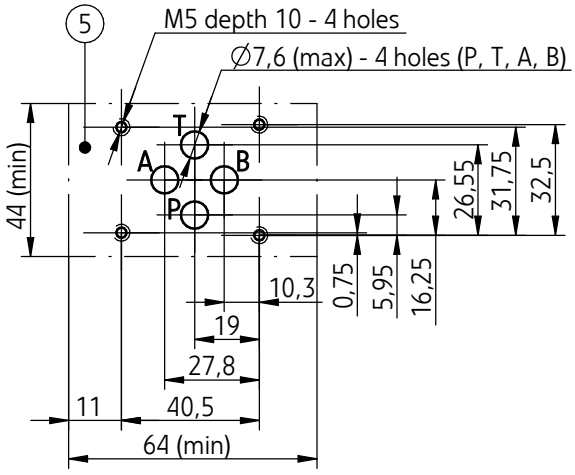


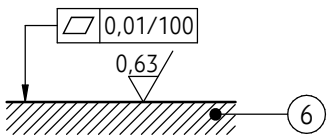
## OVERALL AND CONNECTION DIMENSIONS

version WZPPE6...Z4...



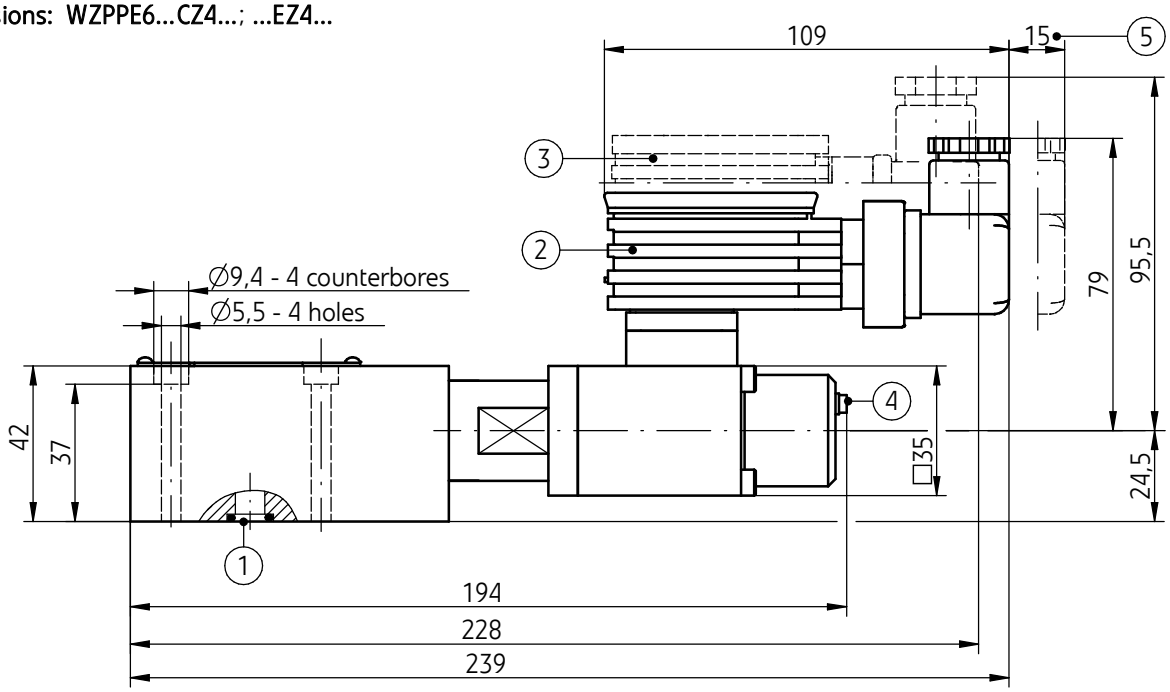



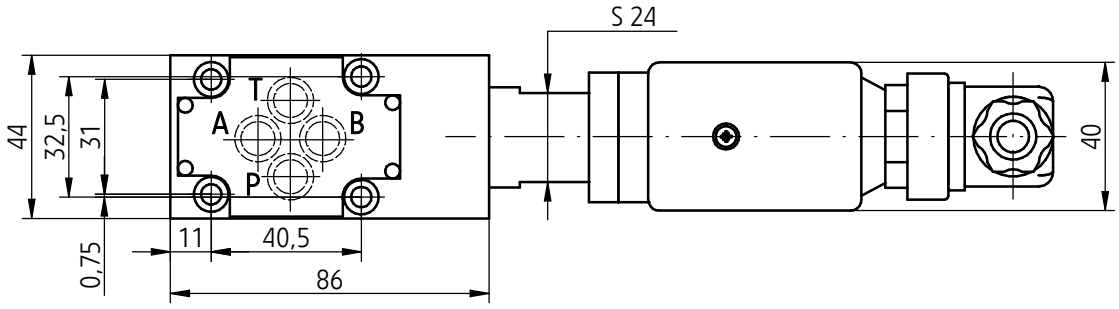



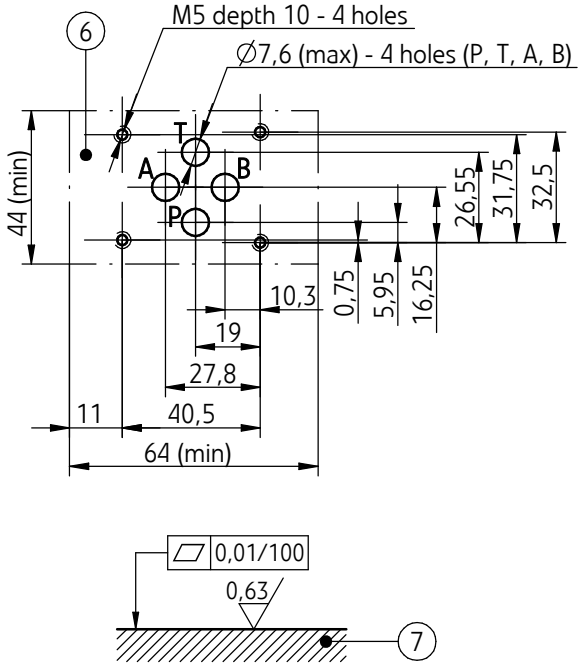

1 - Sealing **o-ring 9,25 x 1,78 -** 4 pcs/set
2 - Plug-in connector type **ISO 4400** (DIN 43650 - A)
3 - Bleed screw
4 - Space required to remove the plug-in connector - item 2
5 - Porting pattern for the valve - configuration of connection holes in subplate in accordance with the standard **ISO 4401**
designation **ISO 4401-03**-02-0-94 (CETOP 03)
fixing screws **M5 x 45 - 10.9** in accordance with **PN -EN ISO 4762** - 4 pcs/set; must be ordered separately; tightening torque **Md = 9 Nm**
6 - Subplate surface required

## OVERALL AND CONNECTION DIMENSIONS

versions: WZPPE6...CZ4...; ...EZ4...





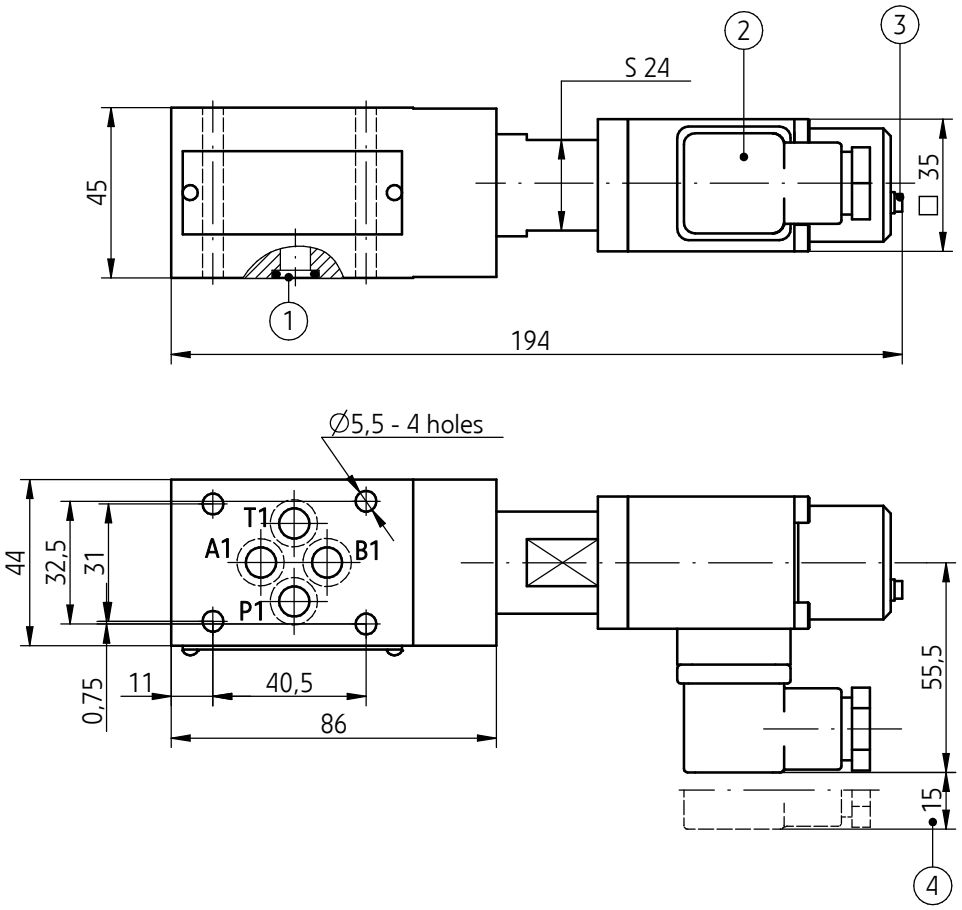


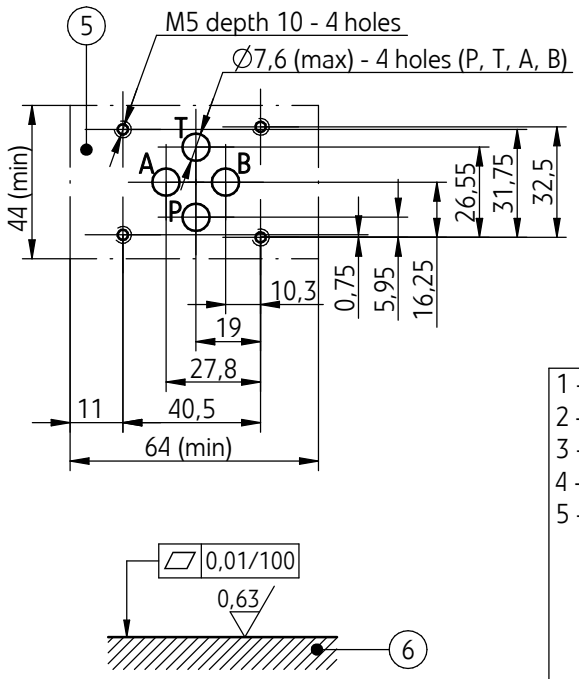
1 - Sealing **o-ring 9,25 x 1,78 -** 4 pcs/set
2 - Electronic regulator type **20RC10E***
in accordance with data sheet **WK 427 790 -** included in the order with plug-in connector type **ISO 4400** (DIN 43650 - A) for the valve version WZPPE6...**C**Z4...
3 - Electronic regulator type **20RE10E**
in accordance with data sheet **WK 420 820** (included in the order with the valve version WZPPE6...**E**Z4...)
4 - Bleed screw
5 - Space required to remove the plug-in connector - item 2
6 - Porting pattern for the valve - configuration of connection holes in subplate in accordance with the standard **ISO 4401** designation **ISO 4401-03**-02-0-94 (CETOP 03)
fixing screws **M5 x 45 - 10.9** in accordance with **PN -EN ISO 4762** - 4 pcs/set; must be ordered separately; tightening torque **Md = 9 Nm**
7 - Subplate surface required

**NOTE:**
(*) - Standard setting of the regulator control voltage **0 ÷ 10 V**

## OVERALL AND CONNECTION DIMENSIONS

version WZPRE6...Z4...







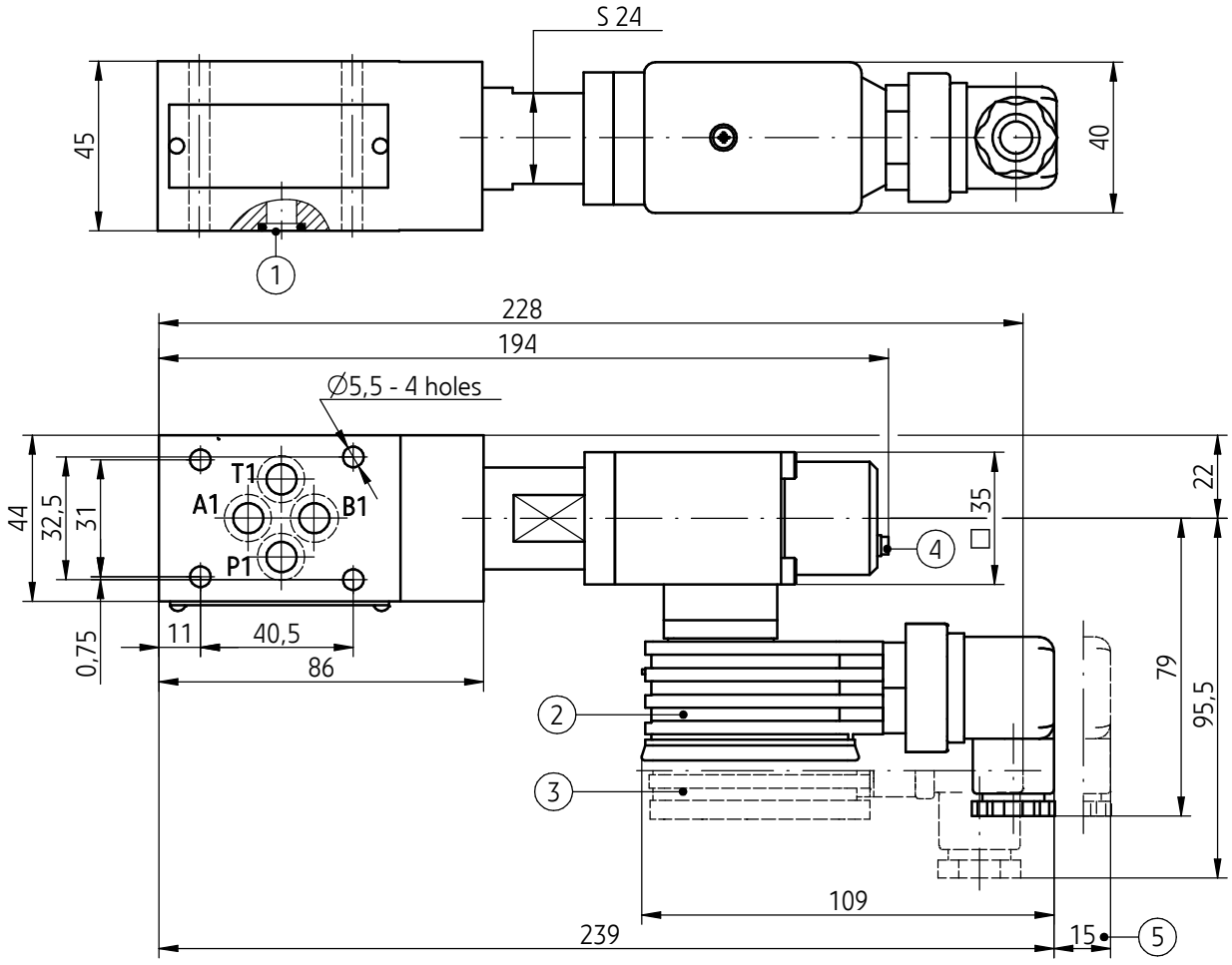
1 - Sealing **o-ring 9,25 x 1,78 -** 4 pcs/set
2 - Plug-in connector type **ISO 4400** (DIN 43650 - A)
3 - Bleed screw
4 - Space required to remove the plug-in connector - item 2
5 - Porting pattern for the valve - configuration of connection holes in subplate in accordance with the standard **ISO 4401** designation **ISO 4401-03**-02-0-94 (CETOP 03)
fixing screws **M5 x L* - 10.9** in accordance with **PN -EN ISO 4762** - 4 pcs/set; must be ordered separately; tightening torque **Md = 9 Nm**
6 - Subplate surface required

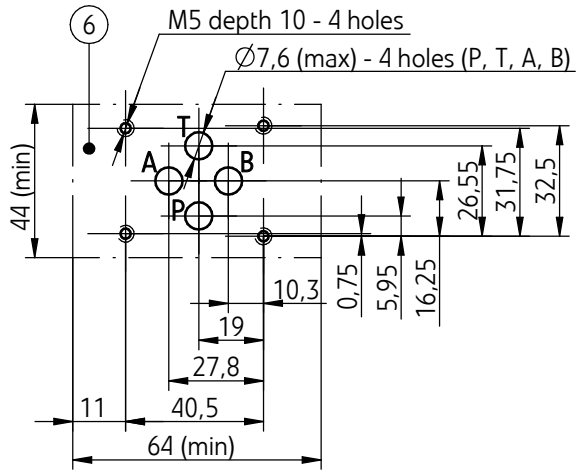
**NOTE:**

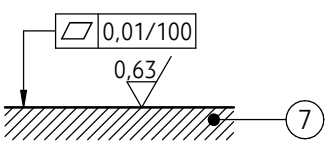
(*) - Required length of the screws **L** is related to type and the number of hydraulic components sanwich fitted

## OVERALL AND CONNECTION DIMENSIONS

versions: WZPRE6...CZ4...; ...EZ4...




1 - Sealing **o-ring 9,25 x 1,78 -** 4 pcs/set
2 - Electronic regulator type **20RC10E***
in accordance with data sheet **WK 427 790 -** included in the order with plug-in connector type **ISO 4400** (DIN 43650 - A) for the valve version WZPPE6...**C**Z4...
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fixing screws **M5 x L** - 10.9** in accordance with **PN -EN ISO 4762** - 4 pcs/set; must be ordered separately; tightening torque **Md = 9 Nm**
7 - Subplate surface required

**NOTE:**

(*) - Standard setting of the regulator control voltage **0 ÷ 10 V**
(**) - Required length of the screws **L** is related to type and the number of hydraulic cpomponents sanwich fitted

## HOW TO ORDER

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | + | / | + | | Z4 | | ★ |

**Valve type**
**subplate mounting** = **WZPPE**
**sandwich plate mounting** = **WZPRE**

**Nominal size** (NS)
**NS6** = **6**

**Series number**
(00-09) - installation and connection dimensions unchanged = 0X
**series 02** = **02**

**Set pressure range**
up to 5 MPa = 50
**up to 10 MPa** = **100**
up to 20 MPa = 200
**up to 35 MPa** = **350**

**Solenoid coil**
coil for max current I max = 1,35 A = 12
**coil for max current I max = 0,68 A** = **24**

**Electronic regulator**
without regulator = no designation
**with electronic regulator type 20RC10E** = **C**
with electronic regulator type 20RE10E = E

**Electrical connection**
**plug-in-connector type ISO 4400** (DIN 43650 - A) **without LED** = **Z4**

**Sealing**
**NBR** (for fluids on mineral oil base) = **no designation**
FKM (for fluids on phosphate ester base) = V

**Further requirements in dear text**
(to be agreed with the manufacturer)

NOTES:
Proportional pressure relief valve should be ordered according to the above coding.
The symbols in bold are preferred versions in short delivery time.
Coding example: WZPRE6 - 02/100 - 24 C Z4.

## SUBPLATES AND FIXING SCREWS

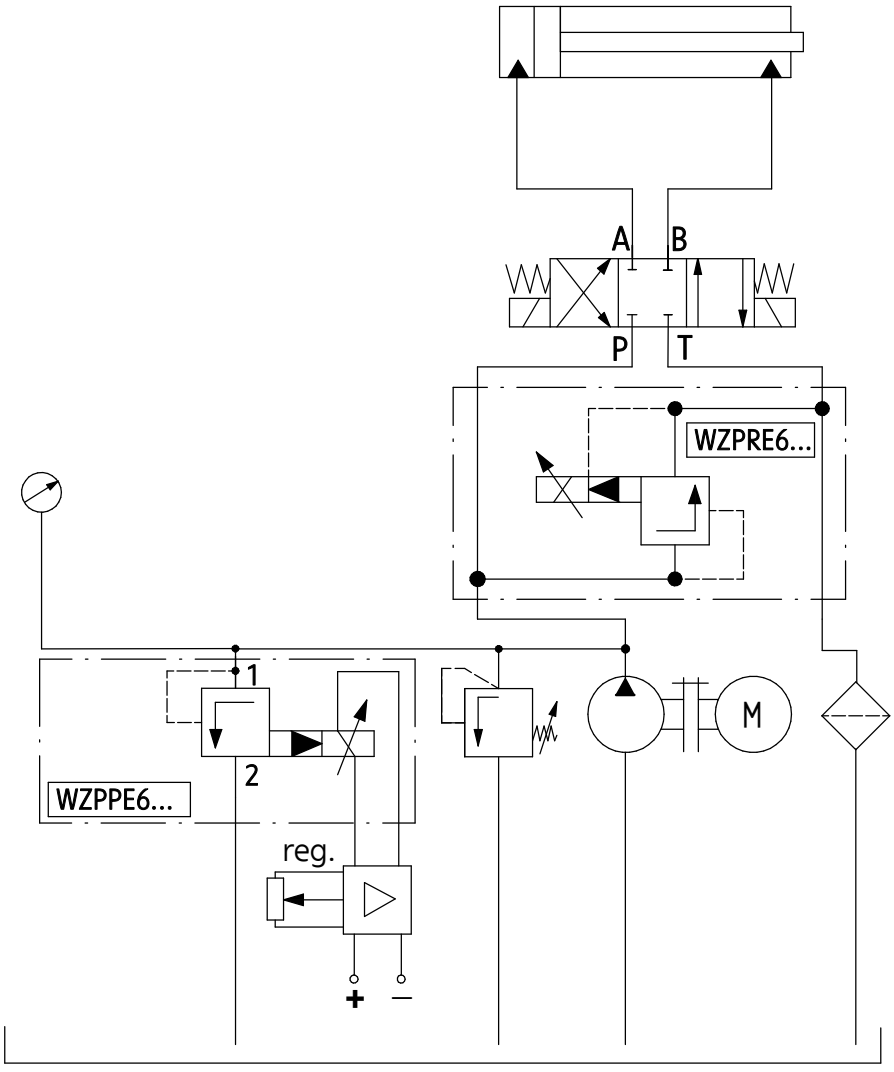
Subplates must be ordered according to catalogue sheet **WK 496 480**. Subplate symbols:
G 341/01 - threaded connections G 1/4
**G 342/01** - threaded connections **G 3/8**
G 502/01 - threaded connections G 1/2
G 341/02 - threaded connections M14 x 1,5
G 342/02 - threaded connections M16 x 1,5
The subplate symbol in bold is the preferred version available in short delivery time.

Subplates and fixing screws for mounting the valve:
- version **WZPPE6...** - **M5 x 45 - 10,9**
- version **WZPRE6...** - **M5 x L* - 10,9**

in acordance with **PN - EN ISO 4762** - 4 pcs/set must be ordered separately. Tightening torque **Md = 9 Nm**

NOTE:
(*) - Required length of the screws **L** is related to type and the number of hydraulic cpomponents sanwich fitted

## EXAMPLE OF APPLICATION IN HYDRAULIC SYSTEM



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