

# OUTDOOR EPOXY RESIN CAST VOLTAGE TRANSFORMERS

for highest system voltage up to 36 kV

# VPV

## APPLICATION

Voltage transformers are used to separate measuring and protection equipment from high voltage and to transform the measured voltages to the values required by the measuring and protection equipment.

## STANDARDS

Voltage transformers are made in accordance with IEC, VDE, ANSI, BS and other standards.

## DESCRIPTION OF MAIN PARTS

- Cores used in voltage transformers are made of quality cold-rolled grain oriented steel sheets. All cores used in the transformers are thermally treated.
- Low and high voltage windings are designed as multilayer windings. They are wound of lacquered copper wire.

The insulation between layers is foil with insulating paper on both sides.

- The main insulation of voltage transformers is an epoxy compound based on cycloaliphatic resin for outdoor installation, cast in high vacuum and with superior dielectric and mechanical properties.
- Primary terminals are made of stainless steel screws M10 (inox).
- Secondary terminals are made of stainless steel screws M8 (inox) and are placed inside the terminal box. The terminal marked with symbol  $\perp$  must be properly earthed. Terminal box is equipped with cable gland for cable of 16 mm diameter.
- The earthing screw (red marked) on the lower part of transformer has to be earthed.



Single-pole insulated voltage transformer



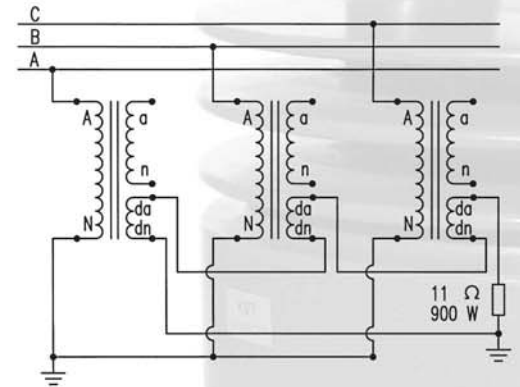
Double-pole insulated voltage transformer

## MAIN CHARACTERISTICS

| Type  |      | VPV1-12          | VPV1-24          | VPV1-24x                | VPV1-38          | VPV1-24    | VPV1-24x          |
|---|------|------------------|------------------|-------------------------|------------------|------------|-------------------|
| Highest voltage of equipment  | (kV) | 12               | 24               | 24                      | 36               | 24         | 24                |
| Rated power-frequency short-duration withstand voltage                        | (kV) | 28               | 50               | 50                      | 70               | 50         | 50                |
| Rated lightning-impulse withstand voltage                                     | (kV) | 75               | 125              | 125                     | 170              | 125        | 125               |
| Rated power-frequency short-duration withstand voltage of secondary terminals | (kV) | 3                | 3                | 3                       | 3                | 3          | 3                 |
| Creepage distance   | (mm) | 990              | 990              | 990                     | 990              | 660        | 660               |
| Rated primary voltage   | (kV) | 10/√3 to 11/√3   | 18/√3 to 22/√3   | 10(11)/√3 and 20(22)/√3 | 30/√3 to 35/√3   | 18 to 22   | 10(11) and 20(22) |
| Rated secondary voltage   | (V)  | 100/√3 or 110/√3 | 100/√3 or 110/√3 | 100/√3 or 110/√3        | 100/√3 or 110/√3 | 100 or 110 | 100 or 110        |
| Rated tertiary voltage  | (V)  | 100/3 or 110/3   | 100/3 or 110/3   | 100/3 or 110/3          | 100/3 or 110/3   | -          | -                 |
| Rated output of secondary windings:   |      |                  |                  |                         |                  |            |                   |
| Power for class 0.2 - up to   | (VA) | 30               | 30               | -                       | 30               | 30         | 10                |
| Power for class 0.5 - up to   | (VA) | 75               | 75               | 30                      | 75               | 75         | 30                |
| Power for class 1 - up to   | (VA) | 180              | 180              | 60                      | 180              | 180        | 60                |
| Continuous thermal current of secondary winding                               | (A)  | 6                | 6                | 6                       | 12               | 6          | 6                 |
| Continuous thermal current of tertiary winding                                | (A)  | 9                | 9                | 9                       | 9                | -          | -                 |

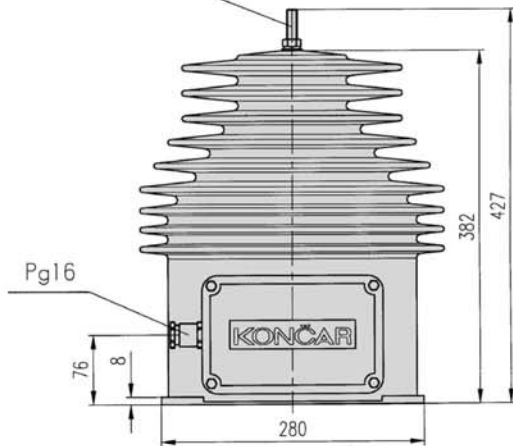
By set of three single pole insulated voltage transformers there is a possibility of ferro-resonance oscillations appearance. In order to prevent this manifestation, it is necessary to connect auxiliary winding in open delta, according to the schematic diagram. The resistor which can be delivered at request, for secondary voltage 100/3 V, should have resistance 11  $\Omega$  and rated power 900 W. For secondary voltage 110/3 V, the resistor should have resistance 13,5  $\Omega$  and rated power 900 W.

**SCHEMATIC DIAGRAM OF OPEN DELTA AND RESISTOR**



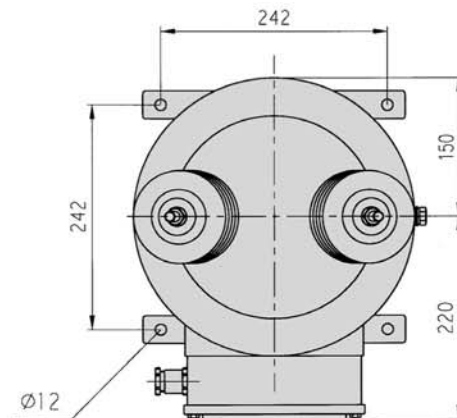
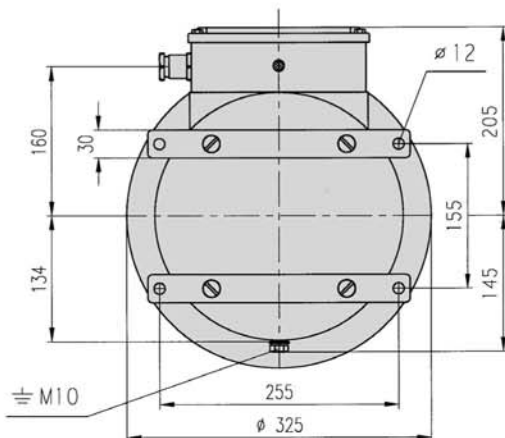
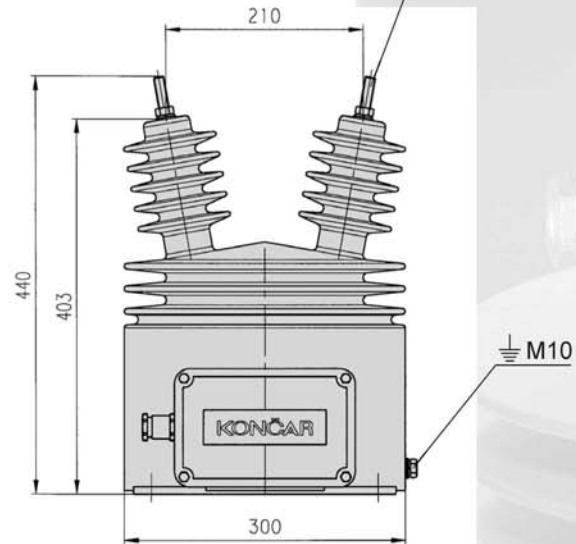
**VPV1-12  
VPV1-24  
VPV1-38**

Primary terminal M10



**VPV-12  
VPV-24**

Primary terminals M10



Note: Data given in this prospect are for informative purposes only. With the view of constant improvement of quality product we reserve the right to changes.