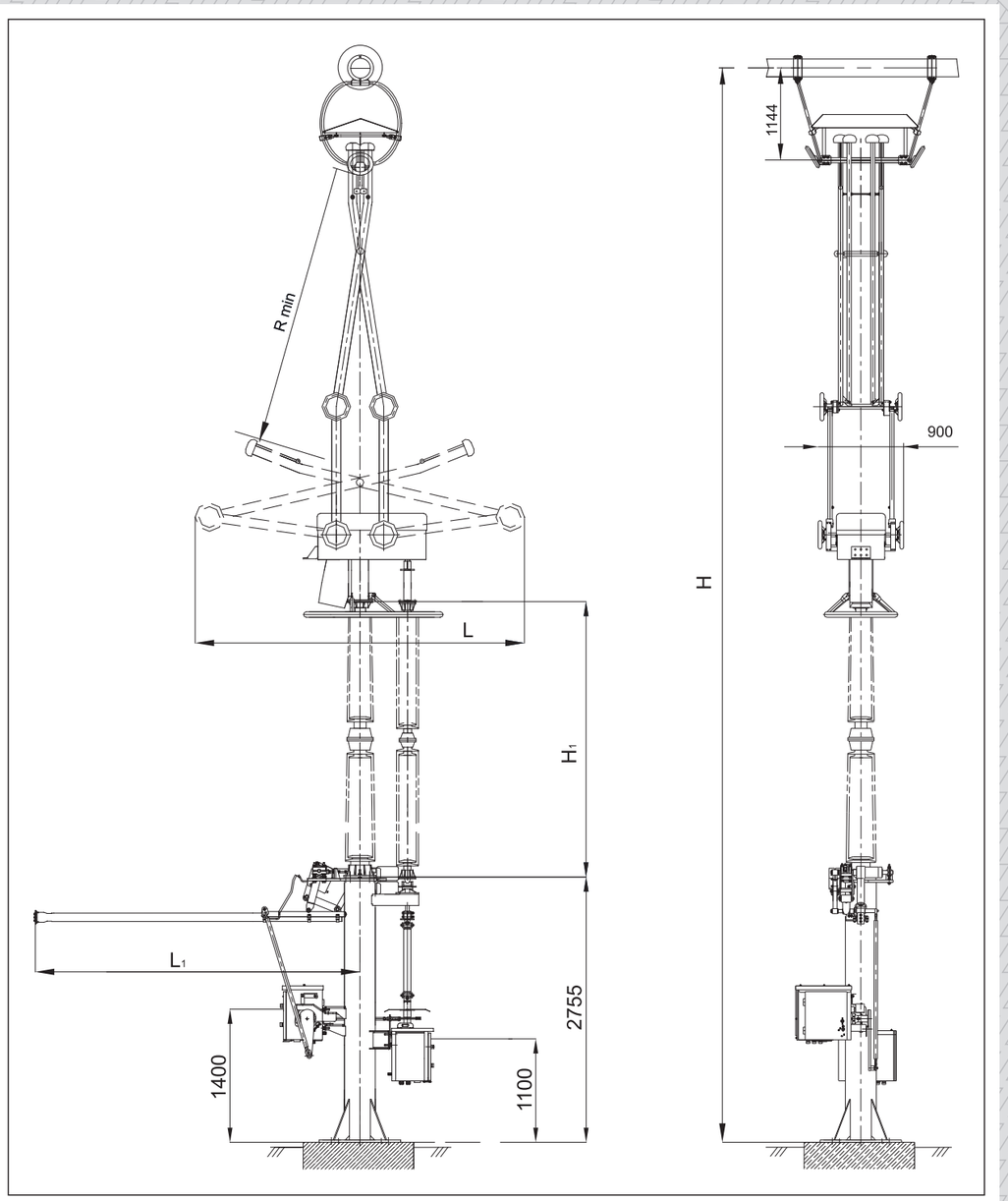
Overall and installation dimensions



Standard version	L	L₁	H	H₁	R	Weight, kg
RPV.1-330/3150 UHL1	3470	3370	11500	2900	2950	1440
RPV.1-330.II/3100 UHL1						1626
RPV.1-500/3150 UHL1	4365	4505	13800	4000	4200	1800
RPV.1-500.II/3100 UHL1						2000

Pantograph-type disconnectors for 330-500 kV

The first in Russia

ZAO "ZETO" specialists were the first in Russia to develop pantograph disconnectors of the RPV series with vertical discontinuity for nominal voltages 330 and 500 kV and rated current 31150 A.

The use of such disconnectors with sets of rigid busbars for the switchgear 110-750 kV increases the possibility of creating new switchgear, and also significantly reduces the area occupied by the switchgear, reduces operating costs, and increases the reliability of open switchgears.

Purpose

- Switchinf on and off the de-energized parts of the electrical circuit under voltage.
- Grounding disconnected areas with the help of grounding unit.
- Disconnection of no-load currents of transformers and charging currents of air and cable lines.

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Constructive features

- Disconnectors are made in the form of separate poles, which are devices with pantograph-type contact blades.
- The pole of the disconnectors consists of a current-carrying system formed by a movable contact blade and a fixed contact, a contact blade mechanism, a supporting and a rotary insulator, a supporting post, and a grounding conductor.
- The main blade of the current carrying system consists of a scissor-type contact blade, as well as levers that transmit the movement to the contact blade from the drive.
- In the grooves of the contact blades there are mounted copper contacts with lamellar silver plates.
- The upper ends of the contact blades are closed with covers.
- The current transition from the contact blades to the mechanism case is carried out by flexible couplings, and to the levers by roller contacts. Contact pressing on rollers in these contacts is performed by springs and is adjusted by nuts.
- The mechanism is protected from precipitation by a cover.
- The fixed contact of the main blade is formed by a pair of copper contacts having silver lamellar plates at the points of contact. The contact is hung on a rigid busbar (aluminum tube) with the help of pads and wires. The contact is protected from ice by a casing.
- All the main friction units of the mechanisms are made on the basis of closed ball bearings that do not require lubrication during the entire service life of the disconnector.
- The main blade and grounding are controlled by electric motor PD-11 UHL1 drives with remote control.
- One grounding device is included in the delivery package of the disconnector, intended for the earthing of the busbar attached to the contact outlet of the disconnector (lower busbar). For grounding the upper busbars, grounding devices of the type ZPPA-330; 500 can be used, the contact terminals of which are connected to the upper busbar by flexible wires.

Benefits

- ⊕ The use of such disconnectors with rigid busbar kits for 330 and 500 kV open switchgear increases the possibility to create new switchgears;
- ⊕ Reduction of the area occupied by the switchgears;
- ⊕ Reduced operating costs;
- ⊕ Increased reliability of open switchgears.

Conditional designation

RPV.X_1-.X_2 II/3150 UHL1

R	-	Disconnector;
P	-	Pantograph type;
V	-	Vertical break;
X_1	-	Number of earthings on the pole;
X_2	-	Rated voltage (110; 220), kV;
II	-	Degree of contamination of insulation II according to GOST 9920;
3150	-	Rated current, A;
UHL	-	Climatic version according to GOST 15150;
1	-	Category of installation in accordance with GOST 15150.

Main specifications

Parameter name	Norm for standard version			
	RPV.1-330/3150		RPV.1-500/3150	
	Degree of contamination of insulation			
	I	II	I	II
Rated voltage, kV	330		500	
Maximum working voltage, kV	363		525	
Rated current, A	3150			
Rated short-term withstand current (thermal stability current), kA	63			
Maximum peak rated short-time withstand current (current of electrodynamic resistance), kA	160			
Flow time of the rated short-term withstand current, sec: - for the main current-carrying circuit - for grounding	 2 1			
Rated frequency, Hz	50			
Test short-term (one-minute) alternating voltage in the dry state and in the rain, kV: - relative to land - between open contacts	 560 750		 760 1030	
Test voltage of a lightning impulse, 1.2/50 μs, kV: - relative to land - between open contacts	 1175 1245		 1550 2050	
Permissible mechanical load on terminals for rigid busbars, N	1500			
Permissible mechanical load on terminals for flexible busbars, N: - longitudinal load - transverse load	 1500 500		 1600 530	
Creepage distance of external insulation, cm	580	800	840	1180
Rated torque on drive shaft, Nm	1500±50			
Power supply, V: - electric motor, alternating three-phase - control circuits, alternating single phase - blocking chains, permanent	 230/400 230 220			
Resistance to direct current of the main current-carrying circuit, Ohm, not more	$210x10^{-6}$		$250x10^{-6}$	
Angle of rotation of the output shaft of the drive, deg.	180^{+10}			
Execution time of one operation (switching on or off) by the main blades and grounding, sec, not more	12			
Motor power, rated current, rotational speed, kW / A.	0,35/1,3			
Number of free auxiliary circuit contacts	24(12HO*+12H3**)			
NO* - normally open contact; NC** - normally closed contact				

Operation conditions

- Disconnectorss can be operated in open air at ambient temperatures from -60 to + 40 ° C.
- Installation height above sea level - no more than 1000 m;
- The thickness of the ice crust with ice 20 mm.
- Wind speed no more than 40 m / s in the absence of ice and no more than 15 m / s