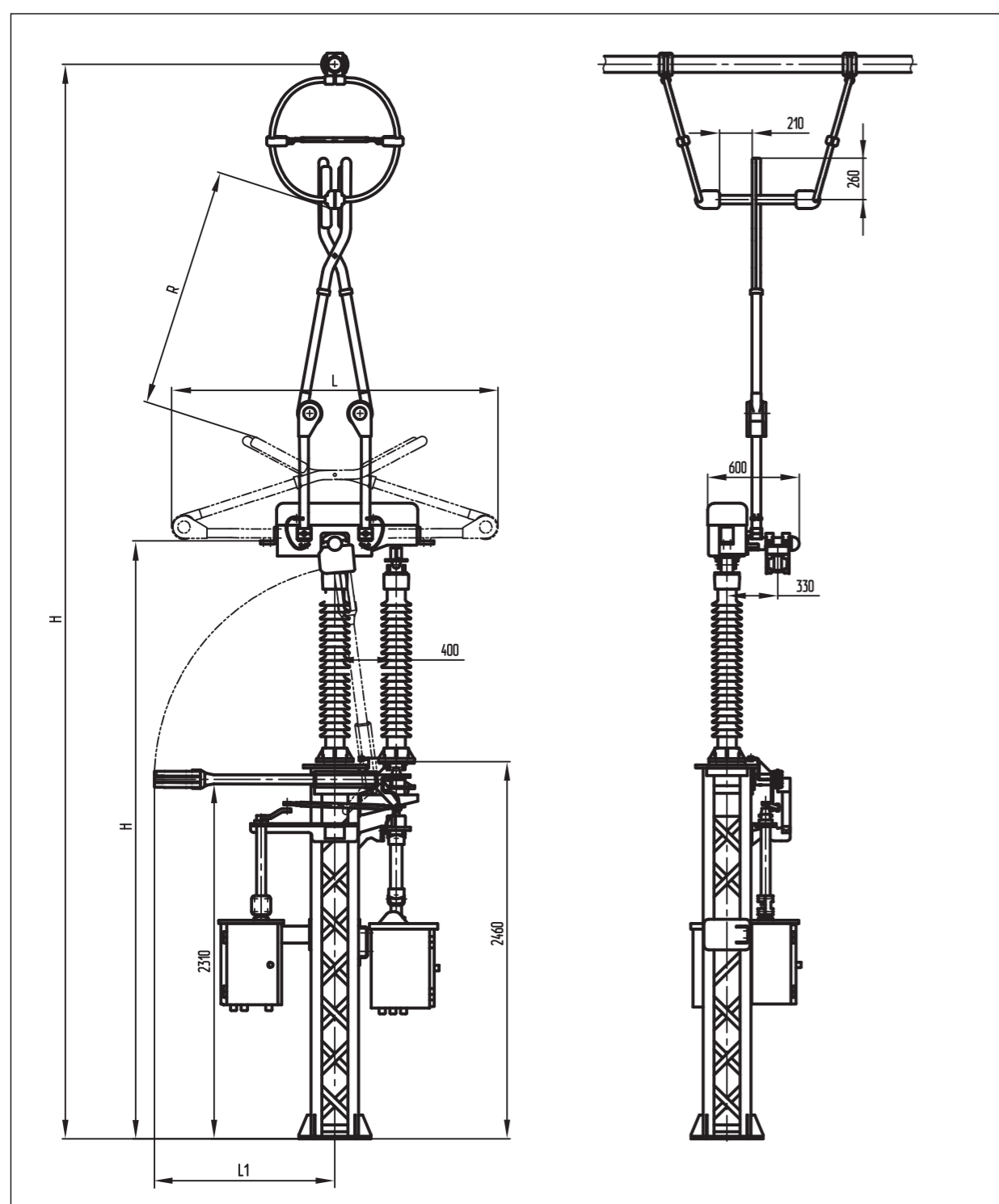


Overall and installation dimensions



Pantograph-type disconnectors for 110-220 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 110 and 220 kV and rated current 2000 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

- ⚡ Switching 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.

Standard version	L	L ₁	H	H ₁	R	Weight, kg
RPV.1-110/2000 UHL1	2130	1170	7000	3900	1570	700
RPV.1-110.II/2000 UHL1						725
RPV.1-220/2000 UHL1	3210	2260	9400	4980	2520	875
RPV.1-220.II/2000 UHL1						900

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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 having a sulfur coating at the points of contact.
- ⚡ The current transition from the contact blades to the mechanism case is carried out by flexible couplings, and to the levers by roller contacts.
- ⚡ The mechanism is protected from precipitation by a cover.
- ⚡ The fixed contact of the main blade is formed by a copper pipe having a silver coating at the points of contact. The contact is hung on a rigid busbar (aluminum tube) with the help of pads and wires.
- ⚡ 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 ZR-110, ZR-220 can be used, the contact terminals of which are connected to the upper busbar by flexible wires, or stationary grounding devices that are part of a rigid busbar system.

Benefits

- ⊕ The use of such disconnectors with rigid busbar kits for 110 and 220 kV open switchgear increases the possibility of creating new switchgears;
- ⊕ Reduction of the area occupied by the switchgears;
- ⊕ Reduced operating costs;
- ⊕ Improving the reliability of open switchgear.

Conditional designation

RPV.1-X₁.X₂ /2000 UHL1

- R - Disconnector;
- P - Pantograph type;
- V - Vertical break;
- 1 - Number of earthings on the pole;
- X₁ - Rated voltage (110; 220), kV;
- X₂ - Degree of contamination of insulation II according to GOST 9920;
- 2000 - 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.1-110-2000		RPV.1-220/2000	
	Degree of contamination of insulation			
	I	II	I	II
Rated voltage, kV	110		220	
Maximum working voltage, kV	126		252	
Rated current, A	2000			
Rated short-term withstand current (thermal stability current), kA	40		50	
Maximum peak rated short-time withstand current (current of electrodynamic resistance), kA	100		125	
Flow time of the rated short-term withstand current, sec:				
- for the main current-carrying circuit			3	
- for grounding			1	
Rated frequency, Hz	50			
Test short-term (one-minute) alternating voltage in the dry state and in the rain, kV:				
- relative to land	230		460	
- between open contacts	265		530	
Test voltage of a lightning impulse, kV:				
- relative to land	550		1050	
- between open contacts	630		1200	
Permissible mechanical load on terminals for rigid busbars, N	1000		1250	
Permissible mechanical load on terminals for flexible busbars, N:				
- longitudinal load	1000		1600	
- transverse load	300		500	
Creepage distance of external insulation, cm	200	280	405	570
Maximum torque on drive shaft PD11, Nm	1250±50			
Maximum torque on drive shaft PD14, Nm 600 ± 50	600±50			
Power supply, V:				
- electric motor, alternating three-phase			230/400	
- control circuits, alternating single phase			230	
- blocking chains, permanent			220	
Resistance to direct current of the main current-carrying circuit, Ohm, not more	200x10 ⁻⁶		220x10 ⁻⁶	
Angle of rotation of the output shaft of the drive PD11, deg.	180 ⁺¹⁰			
Angle of rotation of the output shaft of the drive PD14, deg.	190 ⁺¹⁰			
Number of free contacts of auxiliary circuits 24 (12NO * + 12NC **)	24(12HO*+12H3**)			
The execution time of one operation (switching on or off) with the main blades and grounding, sec, not more than	12			
Motor power of PD11, rated current, rotational speed, not more kW / A / rpm.	0,37/1,3/1000			
Power of the electric motor of PD14, rated current, rotational speed, not more than kW / A / rpm min	0,25/0,63/3000			
NO* - normally open contact; NC** - normally closed contact				