



CATALOGUE

INDOOR EARTHING SWITCH
WITH MAKE PROOF ABILITY CLASS E1

TYP **QZR**

Unsere Handelsvertretung in Deutschland



ISO 9001:2009
ISO 14001:2005

ivep[®]

CHARAKTERISTICS OF THE DEVICE

- Simple design
- High technical parameters type test certified
- Small size
- Easy installation and operation
- Minimal maintenance

GENERAL INFORMATION

Earthing switches (short-circuiter) type QZR with short-circuit making capacity are operationally easy switching devices used indoors in high voltage substations. The earthing switch is with instantaneous movement of the main contacts to the on position, which provides guaranteed making capacity. They can be used as a safety device in the input fields HV switchgear. They are available in single, two-pole and three-pole version with manual or electric motor drive.

Electric motor drive which can be mounted on the left or right side of the device allows for manual override using insulated operating rod type IMT. Position indication of the device is reliably controlled by:

- Visible isolating distance is visible
- Position of each movable power contact is reliably indicated by an auxiliary switch, which allows remote signaling and even with manual drive.

Device can be equipped with a locking mechanism against faulty handling.

Blocking direct - using mechanical or electromagnetic remote locking elements.

STANDARD AND REGULATIONS

Devices type QZR comply with standards EN 60694, DIN EN 62271-102 and related standards and regulations.

OPERATING CONDITIONS

Type QZR are designed to operate in indoor environment and normal operating conditions according to DIN EN 60694 Clause 2.1
Maximum ambient temperature + 40°C
Lowest temperature - 15°C (- 45°C)
Altitude up to 1000 m
Average relative humidity over 24 hours does not exceed 95%.

If there are any requirements for the use of switching devices in other than normal operating conditions listed in Article 2.1 of DIN EN 60694,

user requirements should include data about altitude, pollution, temperature and humidity and vibrations.

DESCRIPTION

From a structural point of view, type QZR (short-circuiter) with short-circuit making capacity divided into the following sections:

1. Current-carrying parts are made of silver-plated electrolytic copper. Contact pressure is ensured by independent stainless compression springs.

2. Insulating part - stationary current path is fixed on the support of different types according to the voltage insulation levels.

The material used for the manufacture of insulators is ceramic (porcelain), epoxy resin or silicone.

3. Supporting frame mechanism - the supporting structural elements are made of rolled profiles and steel sheets with surface protection against corrosion by galvanizing. Shaft of the device is positioned in stainless bearings. The minimum spacing for each pole voltage ranges are shown in the table of parameters. These distances were verified during short-circuit tests. The manufacturer can discuss delivery device with atypical spacing.

The kinematic chain mechanism of the device is loaded with a member of the instantaneous system pressure springs that allow instantaneous movement when turning the device on. Set of compression springs (number) depends on the voltage level of the value being turned on short-circuit current I_p .

Kinematic energy of moving parts of the device is securely muted in the frame of the device.

4. Drive and accessories - type QZR earthing switches can be fitted with:

a) modified control electric motor drives P-CBP, which allow remote control device. Commercially available power units have a supply voltage range of engines from 3PEN 50Hz 400V, 110V DC, 220V DC, 230V DC. Power unit with another power supply can be supplied according to the agreement.

Drive units P-CBP can be rotated around the axis of the shaft at 45 ° to 360 °. This improves emergency manual operation of the device.

Drives and auxiliary switches are assembled and adjusted at the factory.

Devices with electromotor or hand drives can be fitted with signaling switch located in the control block and signaling.

Electric power cables of motors to block and control auxiliary switch are connected to the terminal board located in the control block. Under the metal cover of the control block there are located:

- Terminal to which the terminals of the SQ reversing switches are wired for motor control, limit switches, which indicate the ON and OFF positions. Standard number of contacts is 4C-4O.
- Cable clips that allow mounting 2-3 cables to the maximum diameter of 25 mm.

Remote control, signaling and interlocking processes for the entire substation is normally done by designer.

A more detailed description focused on the installation, operation, maintenance, transportation and storage, including the wiring diagram and detailed dimensional drawings for each type of earthing switch type QZR with short-circuit making capacity is given in the technical documentation that is included in the scope of supply, or which may be obtained on request.

EMERGENCY MANUAL HANDLING

Electromotive drive unit for earthing switches type P-CBP/2S are equipped with a mechanism allowing the emergency manual operation using insulating rod type IMT. Insulated operating rod is equipped with key joint and security switch. They are available in standard lengths of 1.5, 2, 2.5, 3, 3.5, 4 m. Shortest handling rod comes in a length of 1.2 meters.

PACKING, TRANSPORT, STORAGE

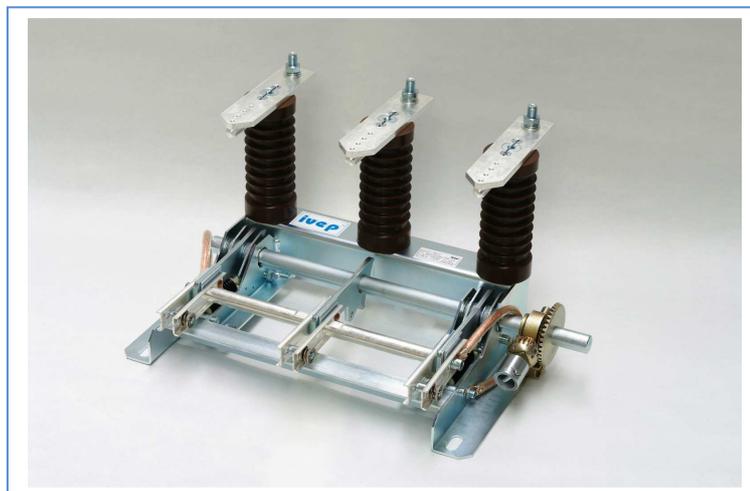
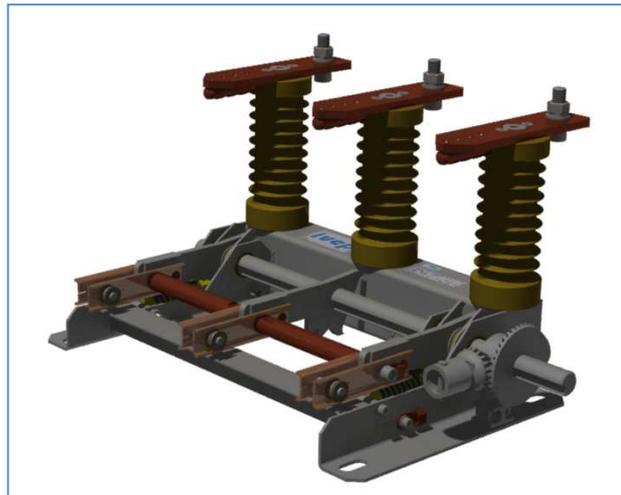
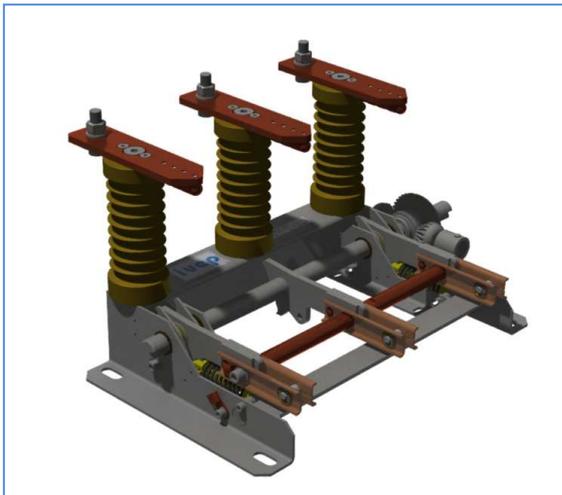
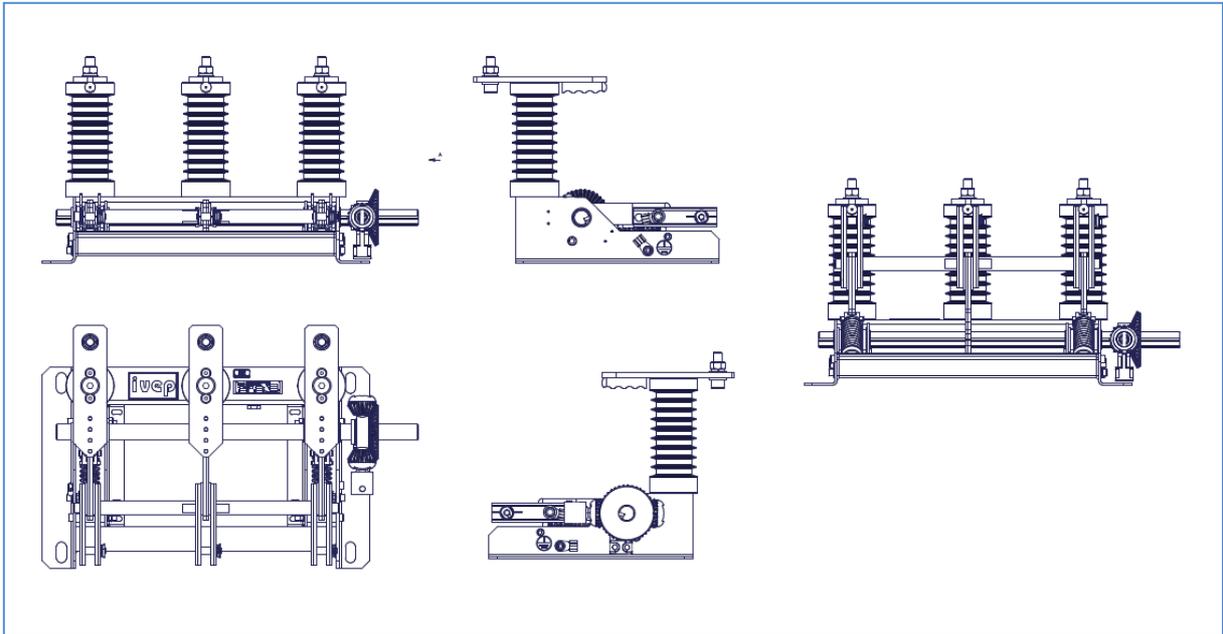
The indoor earthing switches are delivered separately and fixed on wooden pallets. When lifting the switch the operator may use the frame as the lifting point, only. In no case it is allowed to lift the device by gripping them at the insulators, or the parts of current-carrying path, motor or the switching shaft.

During the transport and during the storage period the device has to be protected against the atmospheric impact, humidity and shocks. During longer periods of storage of the completely assembled earthing switch (used e.g. as a spare part), it is recommended to store it in horizontal position (not necessarily), and protected with a protective cover. In such a way the dirt is prevented to clog on to the greased surfaces and the scratching of epoxy supports is avoided. Also earthing switches in package may be stored only in dry, good ventilated and dust-free rooms, with only small temperature variations in such rooms. All used packing materials are fully recyclable

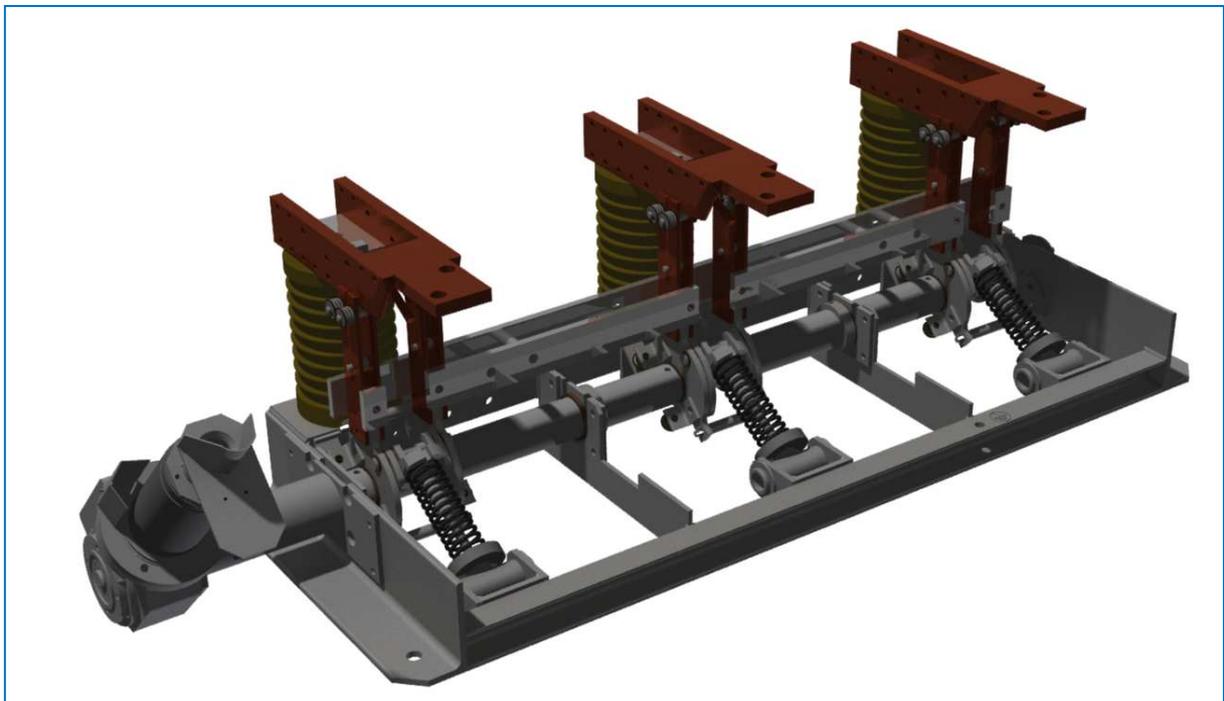
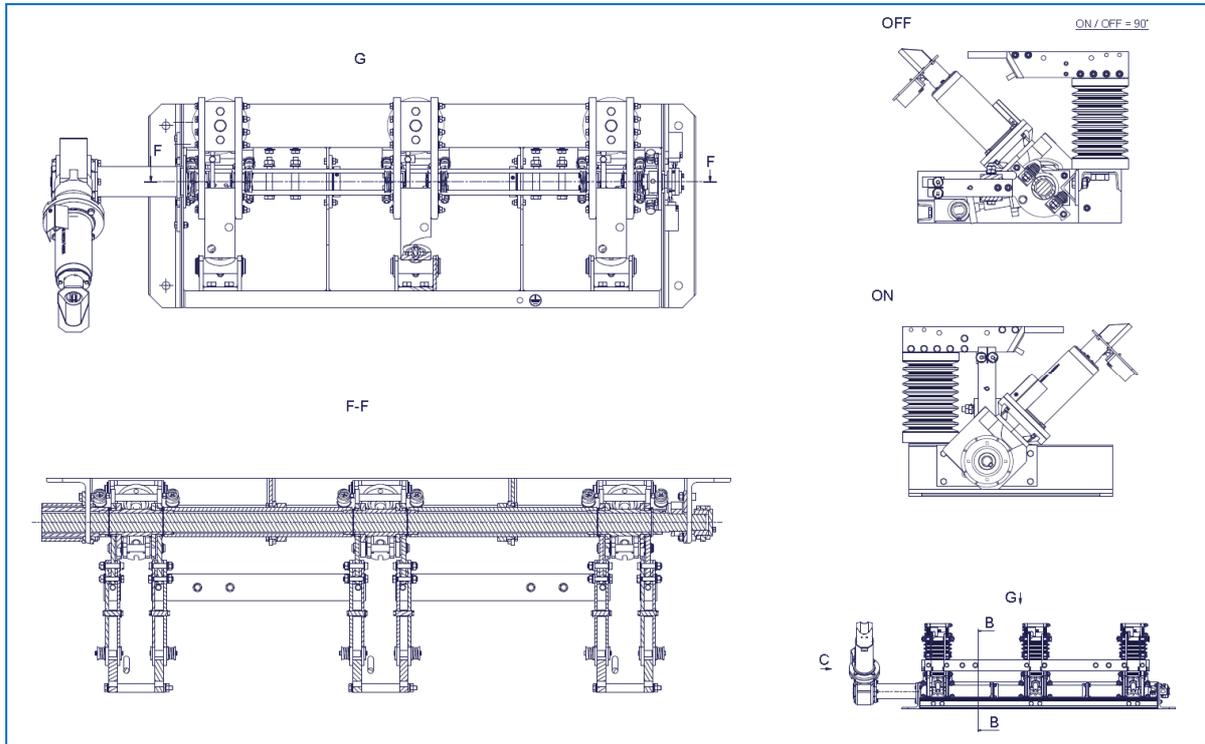
ORDNERING CODES OF THE QZR EARTHING SWITCH WITH MAKE PROOF ABILITY CLASS E1

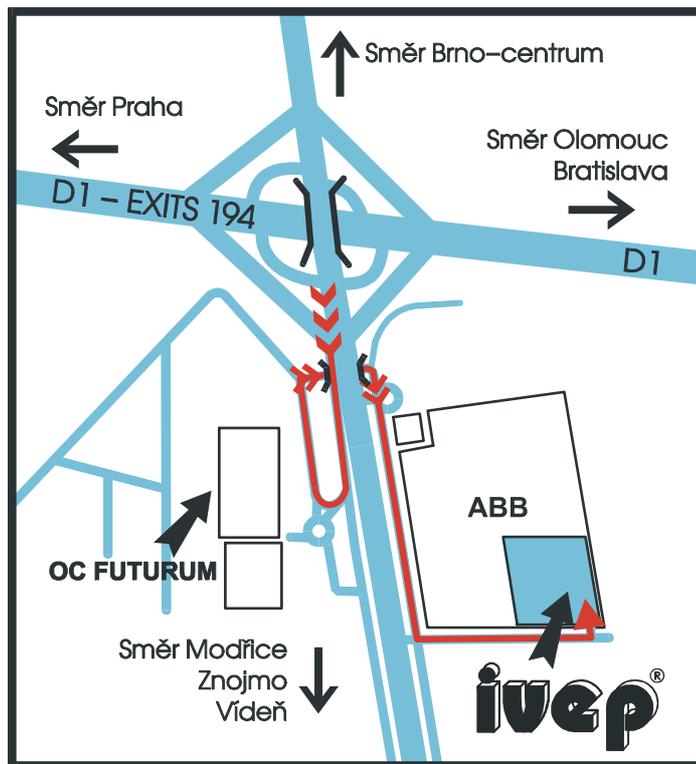
Basic design													
Rated voltage	6 - 36 kV	6 - 36											
Rated short-time current/rated duration of short circuit	16 kA	16/1											
	20 kA	20/1											
	25 kA	25/1											
	31,5 kA	31/1											
	40 kA	40/1											
	50 kA	50/1											
	63 kA	63/1											
	80 kA	80/1											
	100 kA	100/1											
Inlet	from above	H											
	from below	D											
The earthing switch shaft extension	- to the left :	L											
	- to the right:	P											
- drive of disconnector	- without drive	-											
	- hand drive	R											
	- motor drive:												
	- 3 PEN 50 Hz 400 V	1											
	- 110 V DC	2											
	- 220 V DC	3											
	- 230 V AC (220 V DC+ (rectifier)	4											
	- 24 V DC	5											
	- 48 V DC	6											
	- 60 V DC	7											
- 125 V DC	8												
Indication switch contacts of earthing switch:	11C-11O-2P	11											
	7C-7O-2P	7											
without indication switch	0	-											
Extended design of QZ earthing switch:	F-drive mechanism and indication elements mounted separately on the both sides of the frame												
	FP-drive mechanism and indication elements mounted on the same side												
	FE- setting up the angular displacement of the drive as necessary												
is not used	-												

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