

# Minera E

Earthing transformer up to 72.5 kV - 15,000 A (earth fault limit)

PM1102203



Minera-E complies with the specified international standards required including IEC-60070 Part 6, and relevant IEE and EN/VDE standards. Any special customer standards or requirements, such as limiting dimensions, fittings and paint systems, are available on request.

### Customer benefits

- Robust design withstands fault current forces
- Design based on advanced technical experience
- Cost-saving compact design
- Diverse applications
- User-friendly

Designed to create the HV network neutral point and to limit the fault current in the phase-earth connection, an earthing transformer is a key component for all HV transformer substations worldwide.

Utilities around the world recognize Schneider Electric's Minera-E for its reinforced, rugged mechanical design that supports short circuit conditions while protecting the network.

### Minera-E protects your system

If an earth fault occurs on one line of an insulated system - usually one fed by a delta-connected main transformer winding with no return path available for the earth fault current and no current flow - the system will continue to operate, but the other two lines will rise in voltage and both the transformer and the system will suffer from over-stressed insulation.

Minera-E earthing transformers and coils have been designed to protect your system against phase-earth fault currents for the given fault time duration. They have a wide range of earthing capacities. Minera-E is rated for fault currents up to 15,000 Amps and 60 kV voltage levels.

Minera-E is the perfect transformer for integration into a three phase distribution system at a star (neutral) point.

Various connection groups can be applied depending on the customer's specific needs and system requirements. Interconnected star (zig-zag) windings are the most frequently applied connection style.

PM1102204



**Minera-E, main purpose earth fault prevention**

To prevent the system from an earth fault, a return path must be provided for earth current, and this is usually done by connecting an earthing transformer or reactor to the system.

The zero sequence impedance on the MV side limits the earth fault current to a specific value (from 30 Amps, up to 15,000 Amps).

**Minera-E, supplying power to the substation's auxiliaries as well**

When the earthing transformer is on stand-by in anticipation of a probable fault current occurrence, it is not in the off-load position, it is just standing still. If required, it can be designed to serve as an auxiliary transformer supplying back-up power to the substation.

For both earthing and auxiliary transformer usage, it is possible to design it according to specific zero sequence and short circuit impedance values. Minera-E earthing transformers are able to match both of these values synchronously.

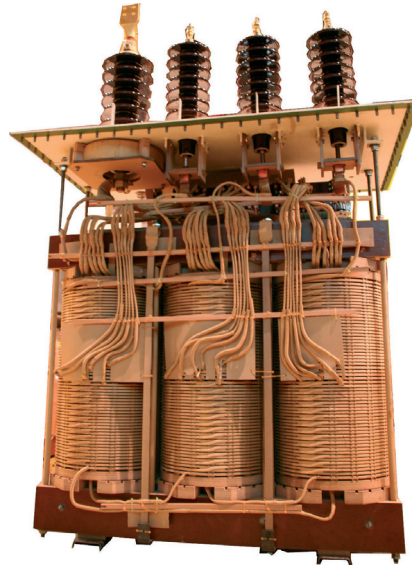
**Design options**

Tertiary windings are available for all of connection group designs as needed.

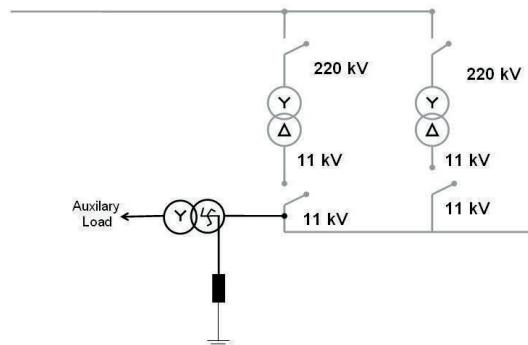
**Technical characteristics**

Interconnected star / star	ZNyn
Star / Interconnected star	YNzn
Star / delta	YNd
Interconnected star	ZN
Voltage limit	72 kV
Earth fault limit	Up to 15,000 A

PW1102205



SM1100000



Single line diagram figuring the roles of Minera-E