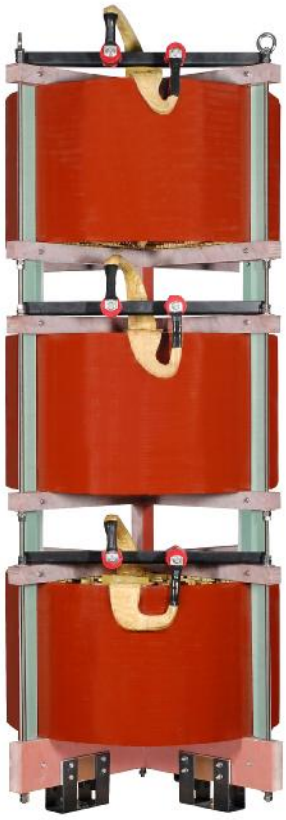
MEDIUM VOLTAGE

DRY-TYPE REACTORS



- **TYPE** - **EDH..**
- **CURRENT** - **from 20 up to 2500 A**
- **RATED VOLTAGE** - **3 x (3; 6; 10; 11; 15) kV**
- **PROTECTION DEGREE** - **IP00; IP23; IP44; IP54**
- **CLIMATIC DESIGN** - **C2/E2**

DESIGN AND PRODUCTION:

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EDH medium voltage dry-type reactors have coils wound in the DRY technology. The product is made of fire-resistant materials, which is confirmed by the appropriate tests and certificates. Therefore, it is intended for use in industrial applications where there is a high risk of fire as well as inside public utility buildings.
In order to ensure their ability to operate in difficult environmental and climatic conditions and their compliance with national and international standards, **EDH** medium voltage dry-type reactors have been designed and tested according to the following environmental classes:

- **C2** – resistance to thermal shock. **EDH** reactors are resistant to significant changes in load and overload.
- **E2** – resistance to corrosive environments. **EDH** reactors can operate at high humidity and in polluted environments.

Advantages:

- High resistance to the moisture of insulation,
- Flame-retardant airtight sealing insulation of windings,
- High dielectric resistance,
- High short-circuit resistance,
- High resistance to external factors according to class C2, E2,
- The level of partial discharge <10pc.

Construction:
In the fourth quarter of 2015, we have implemented an innovative technology developed in our company **for the production of medium voltage dry-type reactors**. Thanks to it, they are characterized by high resistance to dynamic impact of short-circuit currents, vibrations, moisture and corrosive substances. In the **core reactors**, the cores are made of magnetic sheets, according to the **"ElhandCutCore"™** multi-gap technology developed by our company.
Windings made in the dry technology, depending on the requirements of the customer, are wound using aluminum or copper tape or using several parallel profiled wires in varnish insulation class H. The interwinding insulation is made of NOMEX or ERGOPREG, being a special composite which joins adjacent coils with a tape. Such a solution results in high resistance to short-circuit forces and air-tights the coil, preventing the penetration of moisture and chemical vapors and has a positive effect on the high dielectric strength. Next, the winding is impregnated with epoxy resin with the use of vacuum pressure impregnation (VPI).
The selected parameters of the VPI process in our innovative technology guarantee excellent winding supersaturation with resin. Afterwards the winding is thermally stiffened in a controlled annealing process, after the completion of which, it obtains full resistance to harsh climatic and environmental conditions. The epoxy resin used has a temperature resistance of class H and provides excellent dielectric strength as well as ensures high thermal conductivity to facilitate the cooling of the coils. **Air-core reactors** can be used outdoors, in all climate zones. Upon customer's request, they can be additionally coated with a layer of **silicone coating** in order to gain additional protection against the ingress of moisture, thereby obtaining a long life.

Working conditions:	**core reactors** (indoor use)	**air-core reactors** (outdoor use):
the maximum cooling air temperature	+40°C	+55°C
the minimum ambient temperature	-25°C	-40°C
the average annual cooling air temperature	+25°C	+30°C
the maximum relative humidity	up to 95% at 20 °C	100%
operating altitude	up to 1000 m above sea level	up to 1000 m above sea level

Quality control:
To ensure the highest quality of our products, **EDH** medium voltage dry-type reactors undergo product, type and special tests:
Product tests (performed on each reactor):

- insulation strength with testing voltage,
- measurement of winding resistance,
- measurement of insulation resistance,
- measurement of inductance.

Type tests:

- temperature rise test,
- measurement of emitted noise level,
- lightning-impulse test.

Special tests:

- short-circuit resistance test,
- other tests to be agreed with the customer.

All tests performed on our testing station are carried out with the use of the most modern equipment of world-class manufacturers: HAEFELY-HIPOTRONICS and TETTEX.