Elhand Technologies

Water Cooling

More power. Less limits. No compromises.

When is it worth considering the use of water cooling?

Water cooling technologies enable faster heat dissipation.

- Elevated ambient temperature.
- Enclosure with a higher IP rating.
- Limited installation space.
- Working in conditions where heat dissipation is restricted.

Thanks to additional cooling, the dimensions of transformers and reactors are smaller than those of the devices with the same power rating without cooling. Depending on application requirements, various water-cooling options can be used. However, the reduction in size comes at the expense of lower efficiency.

Aluminium panels with press-fitted cooling tubes

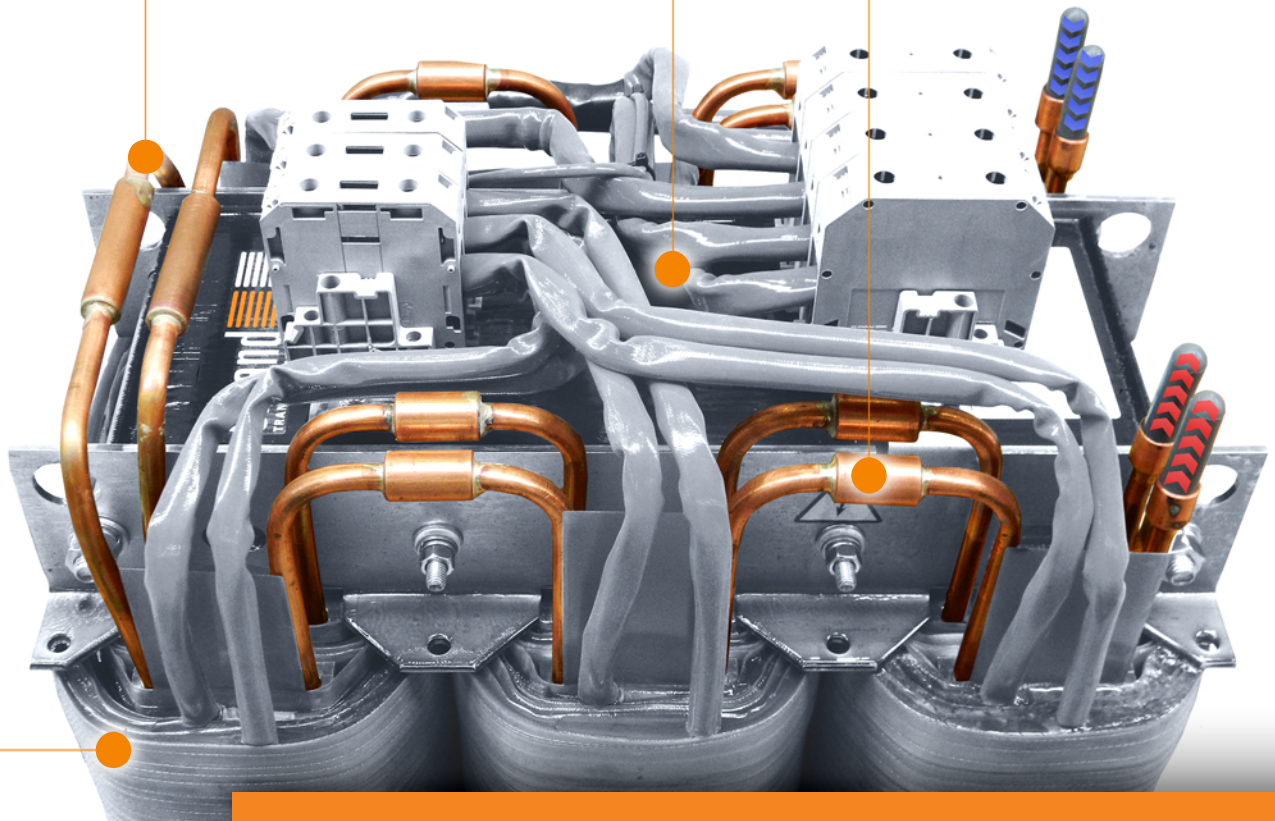
Efficient cooling and maximum size reduction

Aluminium panels with press-fitted cooling tubes placed inside the coils, **isolated from the electrical parts.**

30% reduction in device volume.
Up to **95%** of heat losses transferred to water.

Possibility of using **copper or aluminium tubes**, depending on the system requirements.

Connection between panels by **soldering** (pressure tested at 40 bar) or using **certified hoses and press-fitted connectors** (pressure tested at 10 bar).



Water Cooling Technologies

ELHAND Transformatory

ELHAND TRANSFORMATORY Sp. z o.o.
ul. Klonowa 60; 42-700 Lubliniec;
Poland

+48 (34) 34 73 100
fax +48 (34) 34 70 207

info@elhand.com
www.elhand.com

AFWF Cooling using a water-air cooler

When you don't have time for compromises

A solution for environments where conventional AN or AF cooling systems fail – maritime industry, mining, and facilities with a high IP rating.

- Two independent circuits (air + water) ensuring efficient heat dissipation from inside of the transformer or reactor.
- Transformer weight reduction up to 20%.
- Fans equipped with high-efficiency motors of class IE3 or higher.
- Independence from ambient conditions – up to 90% of heat dissipated through water.

How does AFWF cooling work?

Internal air circulation (AF)

A fan forces air circulation inside the transformer enclosure. The air heated by the windings flows to the cooler, where it is cooled down and then redirected onto the transformer – this time from below.

Closed water circuit (WF)

The heat from the air is transferred to a cooler using a tube-in-tube technology, which ensures protection against leakage, provides information about the first-layer leak, and guarantees continuous operation. Water flows through the cooler, absorbing up to 90% of the thermal energy, regardless of external conditions.

AFWF - Air-water forced cooling ELHAND Transformatory

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Customize the equipment package to fit your project!

Basic

Protection and fan control system on the customer side.

- cooler,
- fan,
- leak detector,
- PT100 sensors,
- anti-condensation heater,
- junction box with terminals for auxiliary devices,
- vibro-mounts.

Advanced

Built-in fan control system. Fan power supply provided by the customer side.

Contents of the standard package, plus:

- temperature monitoring relay with display,
- single-phase control transformer,
- contactor for fan switching,
- relay for fan status indication.

Premium

Built-in control and power supply system for fans.

Contents of the advanced package, plus:

- auxiliary 3-phase transformer for fan supply,
- fan protection.

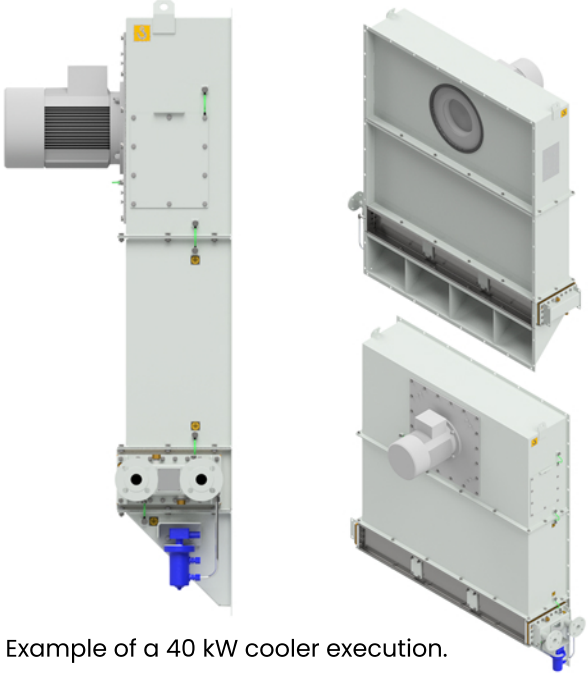
Option for warranty extension up to 48 months.

Proven technology, selected with precision

In Elhand transformers, we use **coolers from Vestas aircoil** – a global leader in water cooling solutions. This component meets our strict quality and technical requirements.

- High thermal efficiency with compact dimensions.
- Reliable cooling performance independent of ambient conditions.
- Double tubes design with leakage monitoring system.
- High level of customisation.
- Modular and compact housing.
- Reduced required service clearance.

Vestas aircoil group



Example of a 40 kW cooler execution.

Let's talk about the optimal solution for your project!

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