

From Design To Solutions



Dry Type Transformers
Reactors
Harmonic Filters
Sine-Wave Filters



The catalogue you are holding in your hands is a brief portfolio of our solutions, which we dedicate to a variety of industries.

More than 40 years in the market has taught us that honesty, openness and flexibility in customer relations is a recipe for long-term success.

We invite you to take advantage of our offer. We will be pleased if you decide to cooperate with us and join the group of customers who appreciate the uncompromising quality of the offered solutions and partnership in business.

Adam Matera
Adam Matera
President of ELHAND Transformatory

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Years of Experience

At ELHAND Transformatory, we focus on quality without
compromise. Thanks to our experience in various industries,
our products are reliable in all conditions. We combine
craftsmanship with innovation to create tailor-made solutions.



Creating Solutions Across Industries

Our expertise from a variety of sectors enables us to think outside the box, ensuring that the solutions we offer are precisely tailored to the needs of customers in different industries around the world.



Power Quality



Renewable
Energy Sources



Railway Industry



Maritime Industry



Oil&Gas Industry



Power Electronics
& Drive Systems



Heavy Industry



Mining Industry

From Design to Solution

As a Polish manufacturer with more than 40 years of experience, we specialise in supplying transformers, reactors, harmonic and sine-wave filters to a wide range of industries including railway, maritime, oil and gas, mining, AC drives and power electronics.

Our commitment to provide reliable and high-quality solutions is reflected both in our ability to create customised products, tailored to specific customer requirements, and in mass production. That combination allows us to build long-lasting and profitable partnerships around the world, offering customers not just products, but comprehensive and customised solutions.

40+

years of
experience

90+

countries where we
sell directly

45k+

electrical
projects

Quality confirmed with 99,9% failure-free products

01 Anechoic Chamber

A room with free field conditions made of materials characterised by high acoustic absorption. It reflects sound waves and eliminates the inflow of external sounds with a background level of less than 40 dB. Sound pressure level and sound power are measured in the chamber.

02 Faraday's Cage

The chamber is protected against the effects of electrostatic fields and resistant to partial discharges with a background level below 1 pC. In the room, registration of partial discharges of ELHAND medium-voltage devices is conducted.

04 MV Test Station

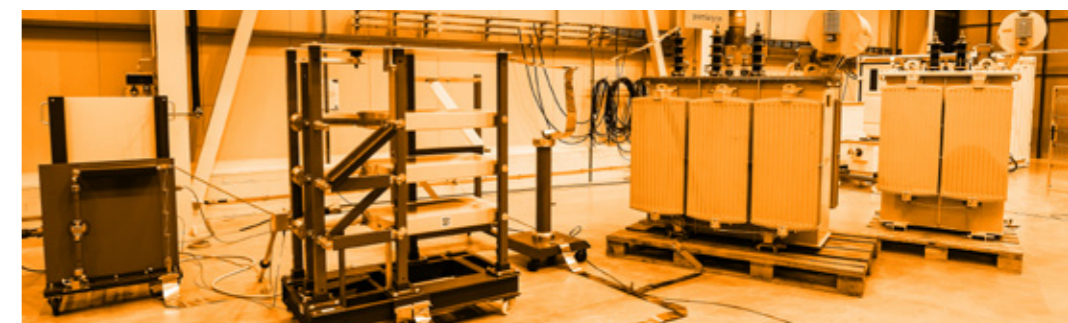
A comprehensive testing stand for examining, testing, and inspecting medium-voltage equipment up to 5 MVA, equipped with state-of-the-art Tettex and Yokogawa test and measurement instruments. This platform enables thorough testing of medium-voltage ELHAND devices.

03 Lighting Impulse Generator

The overvoltage testing system designed to generate full lightning impulse voltages 1.2/50 μ s (LI). This system is used to test the resistance of our equipment to overvoltages resulting from atmospheric discharges and network switching.

05 LV Test Station

Testing stands equipped with control and measurement equipment from renowned companies allow for conducting comprehensive testing procedures required by applicable regulations and standards for ELHAND low-voltage devices.



100% of products are tested

ELHAND commitment to maintaining the highest quality standards ensures that each product is meticulously crafted to meet consistent standards and specifications. This rigorous approach to quality control means that our customers can expect unwavering excellence with every purchase. This level of dedication not only enhances the reliability and performance of our products but also reinforces the trust bestowed upon us by our customers, ensuring they receive nothing but the best, without exception. Thanks to these efforts, our product complaint rate stands at an impressive 0.10% of the total number.

Quality confirmed by certificates



Medium Voltage Technology

Impregnation of Medium-voltage Windings with VPI Technology.

Impregnation of medium-voltage windings using VPI technology ensures thorough saturation, guaranteeing a very low level of partial discharges and thus prolonging the product's lifespan. The application of high-quality insulation materials and multiple impregnations ensure the winding's resistance to temperature shocks, condensation, and pollutants, meeting the C4/E2 class standards, as confirmed by certificates.

MV Transformers

Technical Data

- Power range: up to 3000 kVA
- Voltage range: up to 24 kV
- Protection degree: IP00 – IP66
- Climatic/environmental/flammability class: C4/E2/F1

Auxiliary Transformers

Thanks to the appropriate selection of the insulation system and geometry, we produce low-power medium-voltage transformers.

Application:

- wind turbines
- high frequency welding machines
- AC drive systems
- traction substations
- photovoltaic farms
- mining



ET3H

Power Transformers

The VPI impregnation technology we use allows us to manufacture HV coils with different geometries. This ensures that the product is optimised for specific customer requirements.

Application:

- offshore supply of ships
- drilling rigs and oil platforms
- traction substations
- electrical energy storage systems
- propulsion systems
- maritime industry

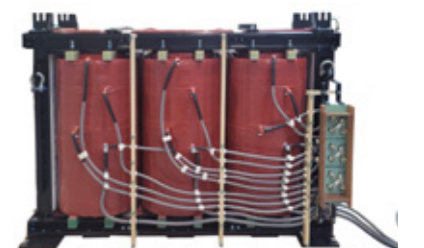


ET3H

Mining Transformers

Mining transformers are suitable for installation in underground, flameproof transformer stations without additional cooling. The temperature inside the enclosure often exceeds 100°C.

The electrical and mechanical design is strictly tailored to the demanding conditions set by the customer. At the design stage, it is necessary to work closely with the customer in order to achieve the desired objective.



ET3H

MV Core Reactors

Technical Data

- Power range: up to 3000 kVA
- Voltage range: up to 24 kV
- Protection degree: IP00 – IP66
- Climatic/environmental/flammability class: C4/E2/F1

MV Coreless Reactors

Technical Data

- Voltage range: up to 36 kV
- Protection degree: IP00 – IP66
- Climatic/environmental/flammability class: C4/E2/F1



Compensation Reactors

Compensation reactors are used to compensate for reactive capacitive power generated by extensive medium-voltage cable lines.

Application:

- photovoltaic farms
- wind farms

ED3KH

Current Limiting Reactors

Current limiting reactors are used to limit short-circuit power at the point of connection to the MV network. By using this type of reactor, it is possible to reduce the short-circuit current and thus select switchgear, cables and electrical apparatus with a lower short-circuit strength.

Application:

- industry
- mines



ED3PH



Three-phase Filtration Reactors

Three-phase filtration reactors are used to protect capacitor banks operating in medium-voltage reactive power compensation systems.

Application:

- industry
- ironworks
- mines

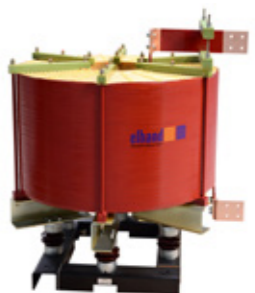
ED3FH

Smoothing Reactors

DC smoothing reactors are used in high-power rectifiers, mostly in electric traction power systems.

Application:

- railway industry



ED1PH



Single-phase Filtration Reactors

Single-phase filtration reactors are used in medium-voltage line transmission systems. By using a reactor, we can isolate the signal of a given frequency.

Application:

- medium-voltage distribution networks

ED1FH

Damping Reactors

Damping reactors are used to protect capacitors operating in medium-voltage capacitive banks. Upon the activation of an uncharged capacitive bank, a significant inrush current occurs, which may potentially harm the capacitor. The installation of a damping reactor diminishes the inrush current of the capacitor, thus prevents any potential damage.

Application:

- medium-voltage distribution networks



EDD



Core Manufacturing Technology

Thanks to the use of a state-of-the-art automated core sheet cutting line, we achieve **full control** over the punching process. We can eliminate all material defects right at the start of the production process, guaranteeing you the highest quality of the final product.

By employing a modern, automated technological line for cutting core sheets, we achieve full control over the cutting process.

We can eliminate all material defects right at the beginning of the production process. With our own core cutting machine, we can manufacture products starting from just one piece. This helps us maintain complete flexibility in approaching new projects and facilitates prototyping.

We use high-quality grain-oriented silicon steel sheets for our cores. **Thanks to the use of 45° cutting technology, stepped design and Step-Lap technology**, we achieve high efficiency of the magnetic circuit. ELHAND transformers and reactors have a **very low level of no-load losses**.



Modern Machinery Park

A modern machinery park that enables us to produce a variety of different devices.

There are various types of modern machines for winding tapes and wires in different configurations, allowing us to flexibly respond to customer needs. We have duplicates of each of these machines, ensuring continuity of production in case of any breakdowns. This enables us to guarantee timely completion even for the most demanding orders.

Connecting Al/Cu terminals, annealing wires, additional automatic wire braiding, or automatic cutting of insulation to size – all of this is possible with us thanks to implemented, proven technologies.

We have modern and efficient lines for cutting transformer cores and reactor cores using ElhandCutCore technology. This makes us self-sufficient, providing us with great flexibility in projects tailored to customer needs.

Low Voltage Technology

Low Voltage Transformers

The company's manufacturing activities started with the production of low-voltage transformers. To date, we have manufactured more than 370 000 low-voltage transformers. We produce transformers with frequencies from 16.7 Hz to 1,000 Hz with cores based on silicon steel sheets. The windings of our transformers are made of aluminum or copper. We use materials such as winding tapes, profiled and round wires, which are double enameled and glass fiber braided. Transformer terminals can be made in the form of copper or aluminum bars as well as screw terminals.

LV Transformers Technical Data

- Power range: 0,05 – 3000 kVA
- Voltage range: up to 1,1 kV
- Protection degree: IP00 – IP66
- Climatic/environmental/flammability class: C4/E2/F1

Unusual transformer configurations:

- Scott, Open delta (V), Le-Blanc transformers and other requested by customers.

Additional equipment:

- sensors and temperature controller, fans, vibration isolators, wheels, switches and other accessories and more.

Single-phase LV Transformers

The core of our solutions are special transformers for demanding applications. Our production range includes standard transformers for typical usage like control cabinets as well.

Application:

- railway traffic control systems
- thyristor power supply systems for high power vacuum furnaces
- reheating systems for arc furnaces
- rail vehicles
- ships



ET1

Three-phase LV Transformers

Our years of experience in the production of low-voltage transformers allows us to adapt as much as possible to individual customer needs.

Application:

- maritime industry
- mining
- heavy industry
- railway industry
- renewable energy source



ET3

Reactors Tailored to Your Needs

At ELHAND, we believe that through close collaboration with the customer already at the design stage, we create unique products. The design of our reactors is closely tailored to the customer requirements. Reactors produced at ELHAND have found customers worldwide in the railway, mining, heavy, and power electronics industries.

LV Reactors Technical Data

- Power range: 0,05 – 3000 kVA
- Voltage range: up to 1,1 kV
- Protection degree: IP00 – IP66
- Climatic/environmental/flammability class: C4/E2/F1

AC Reactors

Reactors for drive systems: - line reactors - motor reactors - du/dt

Reactors for reactive power compensation systems:

- shunt reactors
- protective reactors

Application:

- power electronics
- AC drive
- renewable energy sources
- power quality



ED3

DC Reactors

We manufacture various types of reactors for power electronics systems with current ratings up to 10,000 A.

Reactors for diode and thyristor rectifier systems:

- smoothing in systems with 6- and 12- pulse rectifiers
- coupling rectifier bridges

Reactor for systems with transistor converters.

Application:

- electric traction
- electrolytic tanks
- rail vehicles
- DC motors



**ED1W
ED2I**

Coreless Reactors

Coreless reactors are used in applications where maintaining a linear inductance characteristic over a very wide range of load currents is important. Coreless reactors are used in railway inverters. They are mounted under the floor or on the roof of the rail vehicle, where they are exposed to extreme environmental conditions. A special insulation system, non-combustible materials, and multiple VPI impregnation protect the reactor from moisture and contamination.

Application:

- railway industry



ED1P

ELHAND Filters for Industrial and Marine Applications

Today, converters are an essential component of drive systems. In addition to numerous advantages, converters also introduce disturbances that negatively affect the grid and can damage the motor.

ELHAND Transformatory offers input harmonic filters to protect the grid and sinusoidal filters to protect the motor. Our equipment ensures 100% efficiency of the drive application while simultaneously eliminating the negative impact of the converter.



Wall-Mounted Harmonic Filters

ElhandHF™ Harmonic Filter allows for maximum utilization of active power in the power system, increases the lifespan of installed equipment, and protects it from damage caused by low power quality. Its compact design and easy installation enable seamless integration with existing systems.

Technical Data:

- Power range: up to 110 kW
- Voltage range: 230 – 690 V
- Protection degree: IP00 – IP20
- Cooling: AN

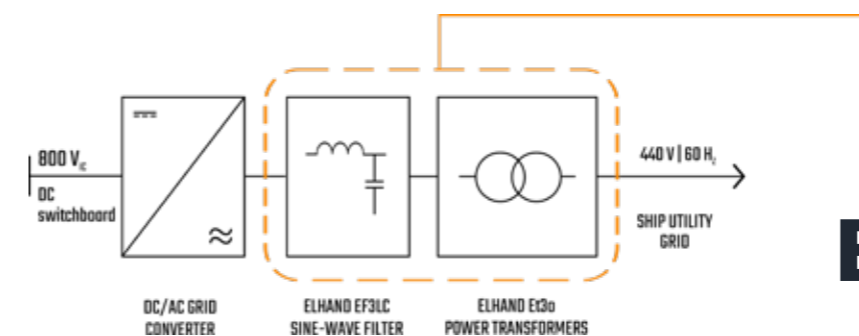
Application:

- AC drives
- power electronics
- 6-pulse rectifiers

EF3H

Grid Converter's Output Set

Grid Converter's Output Set is a ready-made solution, which enables connection of a grid converter to the ship utility grid. Frequency converter's output voltage is transformed from PWM to sinusoidal waveform thanks to the sine-wave LC filter. Then the transformer eliminates common-mode voltage and adjusts its value to the customer's requirements.



ET30+EF3LC

Reduce Total Cost of Ownership Thanks to Natural Cooling

Filters in sealed enclosures are the most popular solution for very demanding environment conditions as hot Middle East deserts, cold Siberia and tropical Africa. ELHAND filters are serviceless thanks to 100% natural heat dissipation without any additional cooling.



EF3H

Heavy-Duty Harmonic Filters

The high-power filters are characterised by compliance with the IEEE-519 Standard, high efficiency, low capacitive current and resistance to high ambient temperatures. A unique product in ELHAND range are filters in sealed IP54 enclosures without additional cooling. Our solution has been tested in desert conditions in the Middle East.

Technical Data:

- Power range: up to 2600 kW
- Voltage range: 230 - 690 kV
- Protection degree: IP00 - IP66
- Cooling: AN

Application:

- oil & gas
- AC drives
- power electronics
- heavy industry
- 6-pulse rectifiers

Sine-Wave Filters

The purpose of the sine-wave filter is to eliminate the adverse effects of the voltage generated by the VFD by converting the rectangular PWM voltage pulses into a sine-wave voltage. The sine-wave filter, which is connected at the output of the inverter, protects the motor insulation from high rise steepness and voltage peaks, causing its temperature rise and the formation of bearing currents.

Technical Data:

- Power range: 1,1 - 2600 kW
- Voltage range: 230 - 690 V
- Protection degree: IP00 - IP66
- Cooling: AN

Application:

- oil & gas
- 6-pulse rectifiers
- AC drives
- power electronics



EF3LC

Production Cycle

The production cycle is our strong suit. Well-planned workstations ensure full optimization of operations, proper process control, and quick response time. See step by step - how we can realize the project for you!



Projects in Practice

Discover how Elhand's engineering minds transform ideas into tangible, functional products that meet the challenges and needs of our customers.



Double Compensation Reactor 700 kvar

Total power of compensation 700 kvar is divided to 2 x 350 kvar parts.

Industry: Renewable Energy Sources



1200 kVA Rectifier Transformer

12-pulse rectifier for tram network supply from 15,75 kV grid.

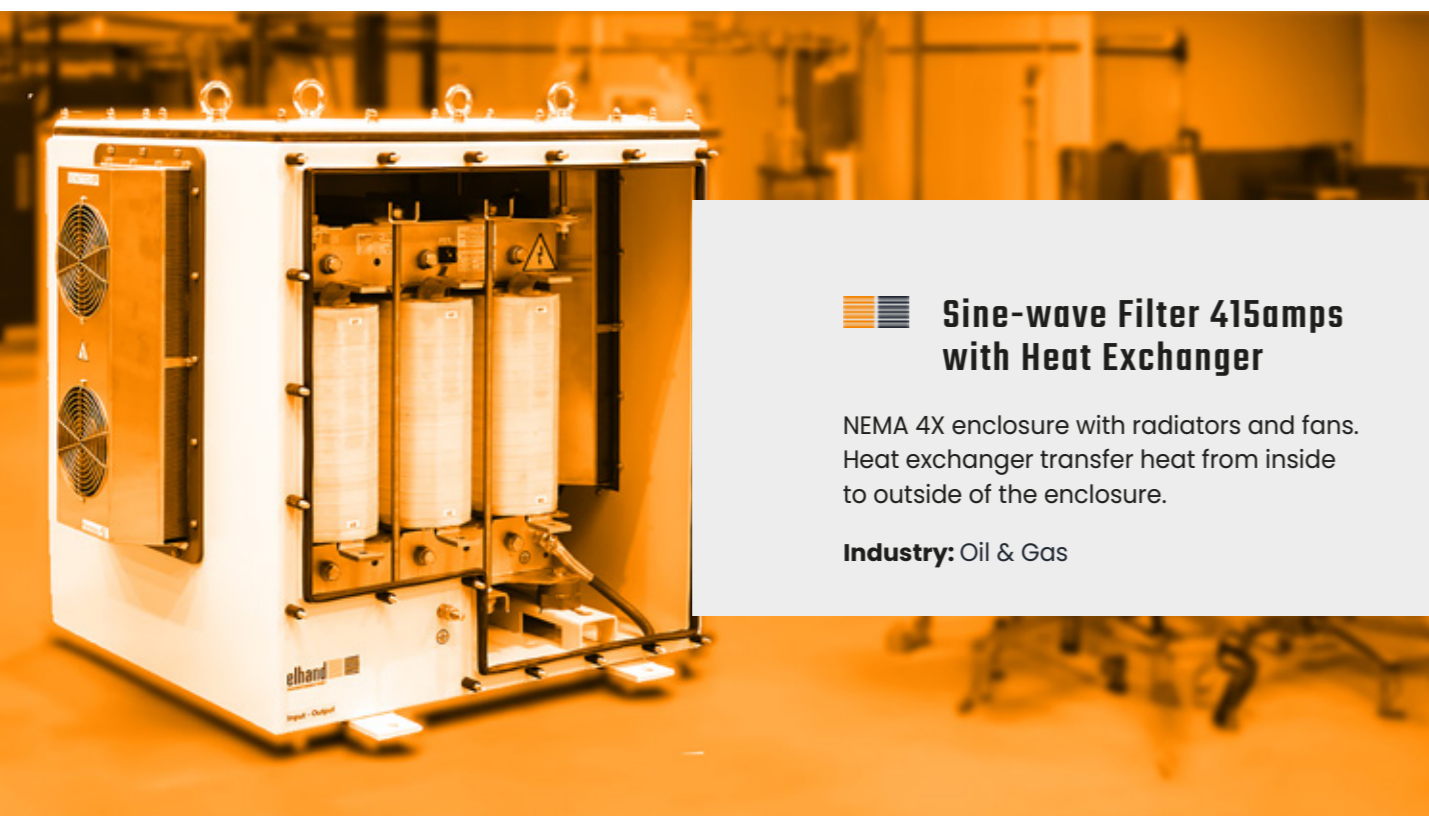
Industry: Railway



Multi-winding Water-cooled Transformer

The use of cooling panels reduces the size of the transformer.

Industry: Renewable Energy Sources



Sine-wave Filter 415amps with Heat Exchanger

NEMA 4X enclosure with radiators and fans. Heat exchanger transfer heat from inside to outside of the enclosure.

Industry: Oil & Gas



Transformer 160kVA in IP56 Enclosure with AF Cooling

Electrical supply of Heat Trace System in Africa. Fans are equipped with sand traps to achieve longer life of fans.

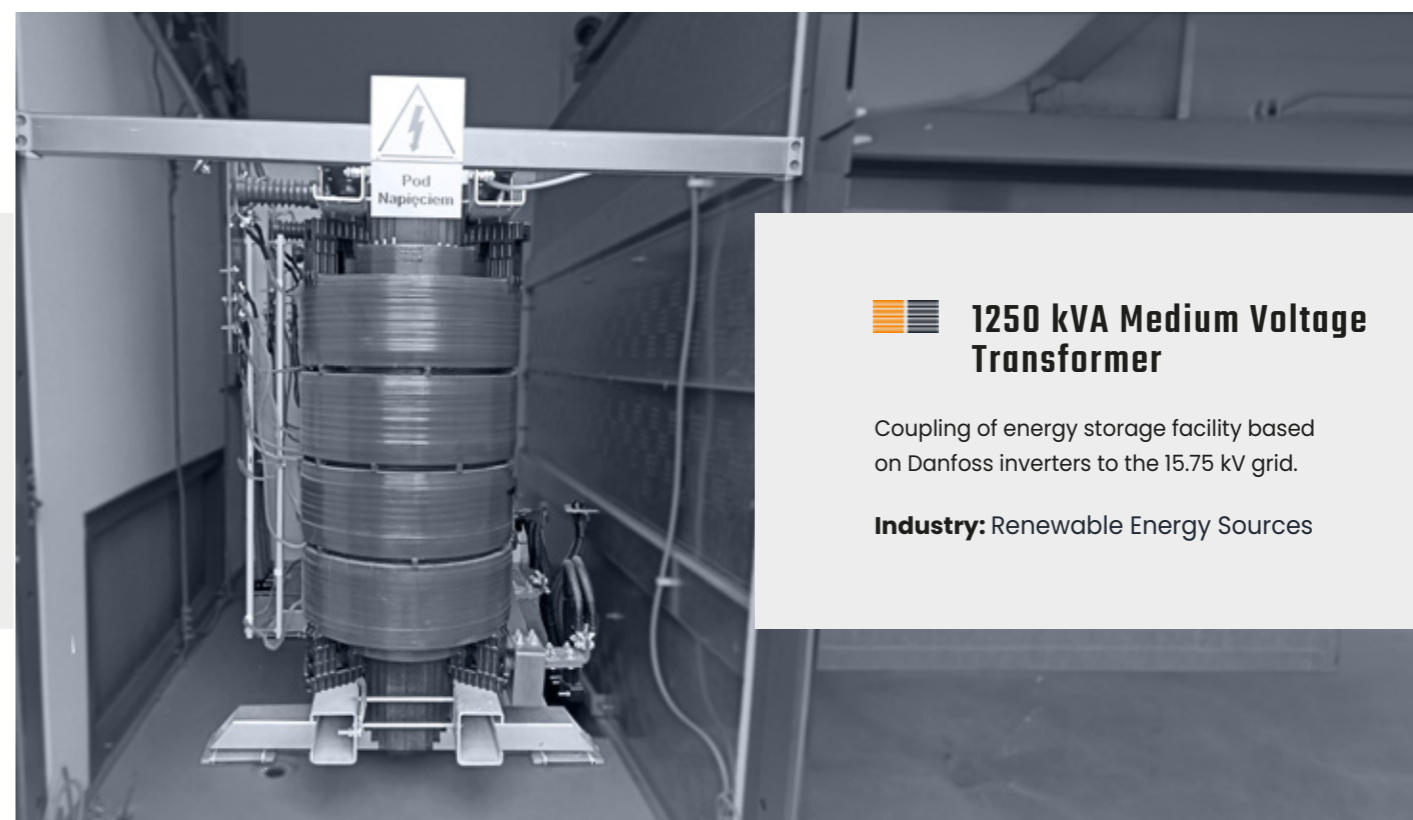
Industry: Oil & Gas



1000 kVA Transformer in 10ft Container

Transformer built into a container suitable for frequent transportation.

Industry: Events



1250 kVA Medium Voltage Transformer

Coupling of energy storage facility based on Danfoss inverters to the 15.75 kV grid.

Industry: Renewable Energy Sources

We're here

Our door is always open for a good cup of coffee.

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Every project starts with a plan. Let's talk!

Share your comments with us.

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