

# The Power of Transformation







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Owner  
Commercial Director



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## OUR HISTORY

Wagner + Grimm AG is a company that can look back on more than sixty years of successful corporate history. Through continuous improvement and optimisation, in recent years Wagner + Grimm AG has grown to become one of Switzerland's leading producers of transformers. The approximately 60-strong workforce comprises long-serving, highly qualified employees who share in creating the Wagner + Grimm AG success story.

Wagner + Grimm AG is mainly concerned with the manufacture and further development of single-phase and three-phase transformers, inductors and high-frequency couplers. True to the Wagner + Grimm mission statement, «We make great products for great customers», Wagner + Grimm AG proves to its customers every day what maximum quality in transformer construction means. Wagner + Grimm AG has around 3,000 regular customers in the fields of solar- and wind-energy, transport and medical engineering, mechanical engineering and plant construction, as well as many other business segments.

## OUR LOCATIONS

For every product the right production location: On its 4,000-square-meters site at Malters, in the canton of Lucerne, Switzerland, Wagner + Grimm AG produces coiled products in all variations up to 800 kVA.

At its sister company, Silveratech s.r.o., in Litomerice, Czech Republic, Wagner+ Grimm AG also produces to Swiss quality standards. Production is aligned to the high-volume manufacture of transformers with an outstanding price-performance ratio.

Our partner company, Estel Ltd., in Bangkok, Thailand, covers the Asian market for us with high-quality products to high technical specifications.

Wagner + Grimm AG, Malters, Schweiz



Silveratech s.r.o., Litomerice, Tschechien



Estel Ltd., Bangkok, Thailand





# Power Conversion

## Our powerful types

With transformers and chokes for power electronics, Wagner + Grimm AG pushes the limits of the technically feasible to generate maximum performance and power density. The interplay between technology, materials and know-how enables Wagner + Grimm AG to offer its customers solutions that are tailored to their needs.

## TOROIDAL CHOKES

These chokes are made without a magnetic core and therefore have no core losses.

The circular arrangement of the coil greatly reduces the leakage flux compared to a cylindrical coil. Mechanical fixing of the coil gives the structure good mechanical damping properties.



## FIVE-ARM CHOKES

Five-arm chokes are compact three-phase chokes with additional arms that allow asymmetries. The external arms absorb the residual fluxes and produce higher common-mode inductivity.



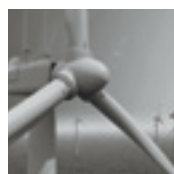
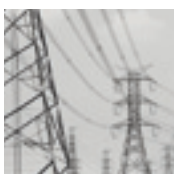
## HIGH-FREQUENCY POWER TRANSFORMERS


These products are suitable for voltage transformations over a wide range of frequencies. Besides ferrite, other materials such as amorphous-metal laminations, powder, or special silicon laminations are used for the cores.



## APPLICATIONS

High-voltage DC transmission/Smart grid, Photovoltaics, Wind turbines, Transportation systems, Aircraft construction, Leisure facilities





# Forced Cooling

## Our cool types

Get more out of your technology! In many applications, increasingly high performance is demanded from the same or less space. With forced cooling, smaller transformers and inductors can transmit an increased amount of power.

The structural dimensions of cooled transformers can be reduced by as much as 70%, thereby saving an enormous amount of space.

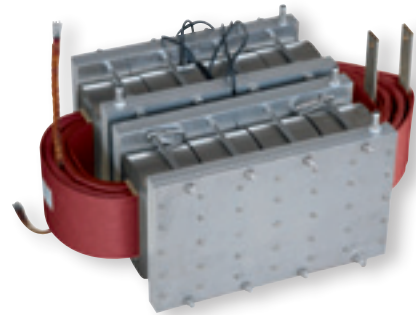
## DIRECT LIQUID COOLING

The liquid coolant flows directly through the entire coil in a hollow conductor. This is a highly efficient method of cooling.



## INDIRECT LIQUID COOLING

Heat is removed by cooling elements through which liquid coolant flows. Cooling fins can be mounted on the coil or on the core. This is a flexible method of cooling.



## AIR COOLING

The heat is removed by fans. The amount of cooling can be varied by the number and size of air ducts and the size of the fan. This is a cost-optimised method of cooling.



## APPLICATIONS

Photovoltaics, Wind turbines, Plant construction, Hydro-electric power plants



A man with a beard and curly hair, wearing a blue hard hat and blue work gloves, is shown from the chest up. A thick, light-colored rope is draped over his right shoulder. He is looking directly at the camera with a serious expression. The background is a plain, light gray wall.

# Railway Applications

## Our rugged types

In railway applications, transformers and inductors are exposed to high mechanical stresses, harsh environmental conditions and continuous operation. The experience gained on our testing facilities provides us with the basis on which we can develop and manufacture products for these maximum requirements.

# TRANSFORMERS AND INDUCTORS FOR ROLLING-STOCK APPLICATIONS

Coiled products for railway applications must withstand a wide range of environmental influences. In addition to the usual electrical characteristics, vibrations, shocks, temperature and humidity cycles, as well as flue-gases and toxic emissions are also tested.

The design of these products calls for careful selection of the components. As well as the insulating materials needed to comply with the specified fire-protection regulations, the high mechanical demands must also be taken into account when calculating the strength and compact dimensions of the products.



## Standards

- EN60310: Railway applications. Traction transformers and inductors on board rolling stock.
- EN50124: Railway applications. Insulation coordination.
- EN61373: Railway applications. Rolling stock equipment. Shock and vibration tests.
- EN60076: Power transformers. General.
- EN45545: Railway applications. Fire protection on railway vehicles.

## APPLICATIONS

Trains, Trams, Buses



A close-up photograph of a man with a beard and mustache, wearing a dark suit jacket, playing a violin. He is looking intently at the instrument. The violin is a rich brown color, and the bow is light wood with blue hair. The background is a plain, light-colored wall.

# Transformers

## Our versatile types

Transformers and inductors are also used in a wide range of industrial applications.

The Wagner + Grimm AG product spectrum ranges from small transformers weighing a few grams to large transformers and inductors containing more than a tonne of copper and iron. In the design of the products we use aluminium and/or copper conductors. By selecting the optimal conductor material for the specific application, we can attain a maximum price-performance ratio.

## LARGE TRANSFORMERS AND INDUCTORS

Wagner + Grimm AG can produce transformers and inductors with power ratings up to 800 kVA. In their design and production we can take account of specific application requirements. These transformers and inductors are mainly produced to Temperature Classification F (155 °C). Since no standard cores are used, changes to all dimensions are possible.



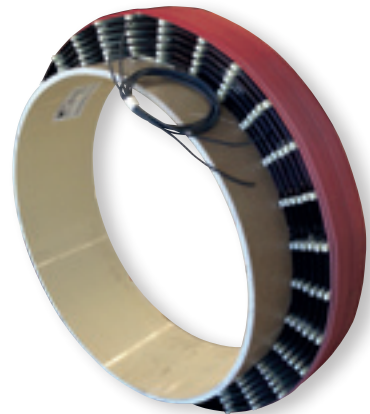
## SINGLE-PHASE AND THREE-PHASE SMALL TRANSFORMERS, SMALL INDUCTORS

We offer a wide range of transformers and inductors with standard laminations and can process all standard laminations and core bodies. The connection dimensions comply with the relevant DIN standards. Our small transformers conform to EN 61558 and, on request, UL 506. Most of our product range is covered by approvals from the Swiss Federal Inspectorate for Heavy Current Installations and Underwriters Laboratories.



## COILES PRODUCTS

We produce high-temperature coils up to 350 °C, Helmholtz coils, coils on variable carrier materials such as plastic or metal, magnetisation and induction coils, as well as many other variants.



## APPLICATIONS

Mechanical engineering, Plant construction, Medical engineering, Cable-car systems





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