Electrical engineering system solutions

Hot impregnation systems for manufacturers and repair shops

We have been developing innovative hot impregnation technologies for the impregnation of stator coils for electric motors.

We can offer you the optimum concept with regard to the following:

- Available setup area
- Condition of the coils that are to be impregnated
- Output in accordance with requirements
- Required level of automation
- Choice of impregnation materials
- Required quality of impregnation

Impregnation systems for electric motors

For manufacturers and repair shops

Our hot impregnation systems are not standard systems, to which our customers must adapt themselves.

Our product portfolio includes Joule heat systems based on the principle of the:

- Resistance heating – The stator coils are contacted and heated via low frequency direct current, if required.
- Induction heating – The stator coils must not be contacted, the laminated core is rapidly heated up inductively and the slot and coil are tempered as a result of the thermal conduction.

The pre-heating of the stators and the curing of the resin can be combined using various active principles. Exposure to infrared or UV light as well as convection oven lines are combined to suit specific application.
Conventional continuous or clocked impregnation systems without Joule heat, with tempering exclusively using convection in the furnace, can also be found in our product range.
In the Meyer Group of Companies, furnace engineering is handled by our sister company **Airtec GmbH**. The furnaces can optionally be designed with various heating concepts: electric, gas or oil-fired.

System output/service:

Trials are generally carried out in our well equipped technical center prior to awarding contracts. This gives you the certainty with regard to the achievable minimum clock pulses and the maximum quality of the im-pregnation, which is the result of your stators, our system technology and the resins which are the focal point.
Our Engineering department will prepare 3D production planning layouts or animations for you for presentation purposes.
All the systems are completely assembled in our fabrication areas and are thoroughly tested and accepted in advance under production conditions with the respective impregnation medium and a wide range of stator types.
Following the installation and successful commissioning at the customer site, we are of the opinion that providing first class service and comprehensive advice is a matter of course.

A member of the Meier Group

System solutions from one source – request information on the following products by the Meier Group:

- Impregnation systems
- Transformer drying
- Oil processing
- Chamber dryers for the electrical industry
- Annealing/end-charge and discharge (continuous) furnaces for the plastics industry
- Vacuum paddle/rotary dryers
- Agitator filter dryer
- Drum dryer/cooler
- Custom apparatus
- Service and maintenance through our system service division

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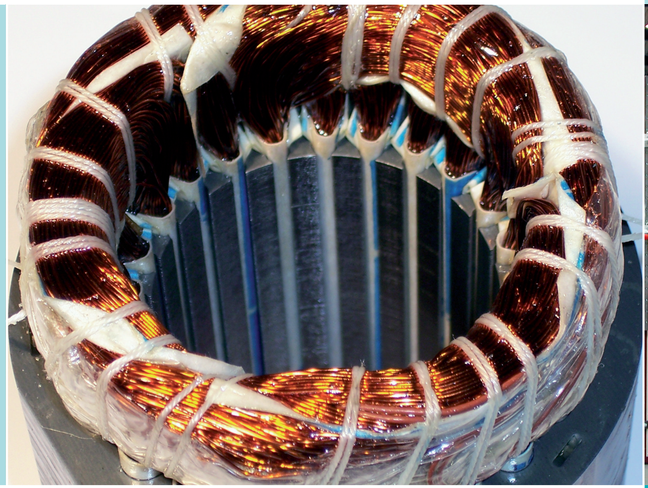
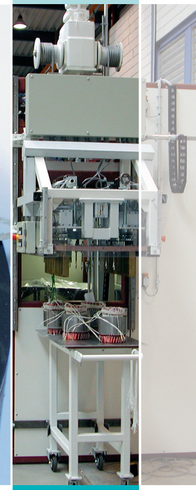
Hot impregnation technology for electrical engineering





INNOVATION BASED ON TRADITION | PARTNER OF THE ELECTRICAL INDUSTRY

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Innovation based on tradition

Over 30 years international experience and knowledge in plant engineering done in close partnership with the Electrical Engineering Industry results in the latest and most suitable technologies applied in the impregnation process of electric products. The wide range of conductors used together with the variety of insulation material and applied in low and high voltage technology result in specific solutions and equipment concepts. We develop those solutions and concepts. Our flexible organization allows the design, manufacturing and assembly of complete plants at our location in Bocholt, Germany, as well as engineering and assembly of large plants at site to serve our customer best. The design of our plants allows the use of different impregnation media re-gardless of the manufacturer brand. Processing is done atmospheric, under vacuum as well as vacuum-pressure application, on demand and depending on the technology used combined with the windings heated electrically, inductive and also via resistance heating to achieve the drying and curing parameters needed. Countless number of electric rotating machines and transformers have been and will be impregnated in more than 1.000 plants supplied by us and successfully working around the globe.

Hot dipping technology

Since 1999 we have been developing innovative hot dipping technologies, primarily for the impregnation of electric motors. But other applications are possible – please contact us for more details.
The basis for optimum designs for our customers is individuality in the adaptation to the required process in terms of quality, throughput, availability and flexibility at the lowest possible cost.
Workpieces can be conveyed through the plant in cycles, either combined in batches on pallets or as individual systems. Heating is available either in the form of innovative current heat or induction technology using infrared or ultraviolet light, or individually using conventional furnace technology, or in combinations of these. Draining is implemented either during a holding period, or using our patented blowing ring technology. You can, of course, also use the various heating technologies that are available also for gelling and hardening. Cooling is available in either an active or passive design. All plant parts are, of course, brought together to a monitored exhaust air system that includes an aerosol separator. We can also offer a highly efficient thermal afterburning system on request. Data communication with superordinate data management and production systems is, of course, also available on request.
No matter what your requirements are: we have the answer for your process in our portfolio.

VISITENKARTENTASCHE

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Joule Heat Impregnation Systems Resistance Heating

Our hot impregnation systems in the resistance heating sector are based on the principle of low frequency heating – a decisive advance over normal systems using direct current heating.

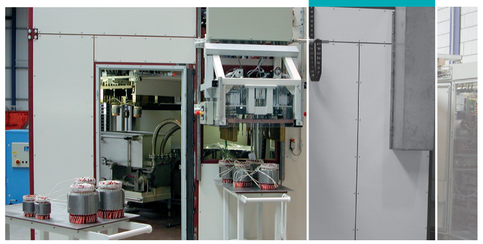
We can heat up the three phases of a stator very homogenously and quickly with low current density.

More than 2000 stators can be impregnated daily with our latest concept; this represents an increase in productivity of around 30 percent over normal systems!

The resin system made of stainless steel and with fittings made of PTFE makes it possible to use both modern resins without monomers and media containing solvents.

We use air tubes and machine lacquer with a high level of acrylate resistance.

A highly efficient exhaust concept with a mechanical and electrostatic aerosol separator is utilized. As a result, emissions are effectively extracted where they develop. The bonding is largely kept away from coatings this way, in order to be able to guarantee temperature control over a long period of time in the stators that are to be impregnated.
Operator and maintenance-friendly concepts are firmly implemented in every aspect. The features of the process monitoring during all the phases of stator processing contribute towards safeguarding and documenting their quality standard.



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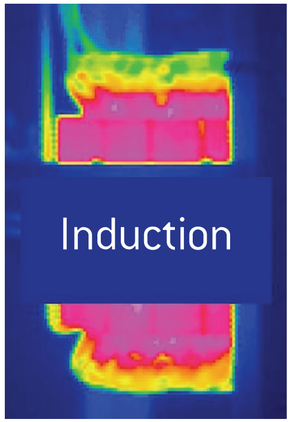
Joule Heat Impregnation Systems Induction Heating



In the induction heating sector, our hot impregnation systems offer the following advantages:

- No contacting is needed in the winding terminations.
- The machining profiles only relate to a few different stator geometries and not to thousands of different coil calculations.
- Optimum resin absorption in the slot and especially between the slot lining and the laminated core for the best heat dissipation.
- The required footprint is very small
- The resin absorption is comparable with the level for resistance heating and is also very easy to control or reproduce.

This process has the charm of a "One Peace Flow"-fabrication with minimum pulse and through put times and therefore it can be ideally integrated in the overall process flow for stator fabrication.
The maintenance work and the maintenance costs for a hot dipped impregnation system are very low. The operation is so simple that no expert staff is needed to operate it.

System output/service:

- Planning/Laying out our system to suit the customer's surroundings
- Product planning layouts
- Exhaust air decontamination
- After Sales Service

Meier Anlagenservice GmbH

- Service workshop
- Repairing of vacuum pumps

Our systems are 100% controlled when heating!

For your production, this means:

Savings in respect of time and energy

Protects materials

Huge decreases in costs