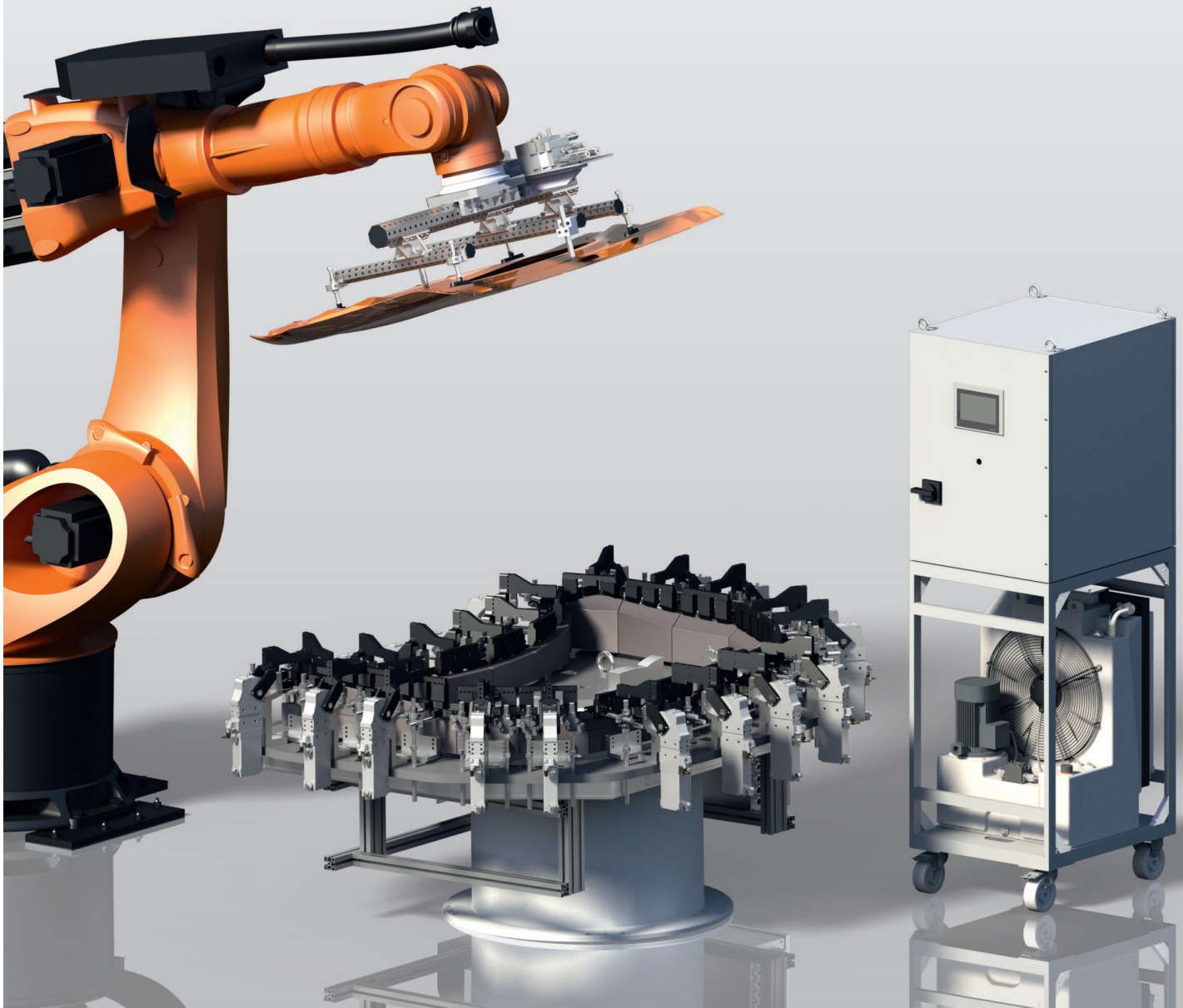


FEE & BST

INDUCTIVE GELLING JIGS



A COOPERATIVE PROJECT BETWEEN:

F.EE GmbH Automation | In der Seugn 20 | 92431 Neunburg vorm Wald | Germany | www.fee.de

BST Induktion GmbH | Auf der Rut 8 | 64668 Rimbach-Mitlechtern | Germany | www.bst-induktion.de

INDUCTIVE GELLING JIGS – TRIED AND TESTED, EFFICIENT AND HIGHLY POWERFUL

The automation specialist F.EE and BST Induktion GmbH are bundling their **extensive know-how** in the area of **inductive gelling devices** and are now launching a product on the market that delivers convincing **quality, value for money** and **reliability**.

While **F.EE** is responsible for handling the **entire project**, from sales to the design and manufacture of the heating rack through to worldwide

assembly, the **high-quality induction components** are manufactured by **BST Induktion GmbH**.

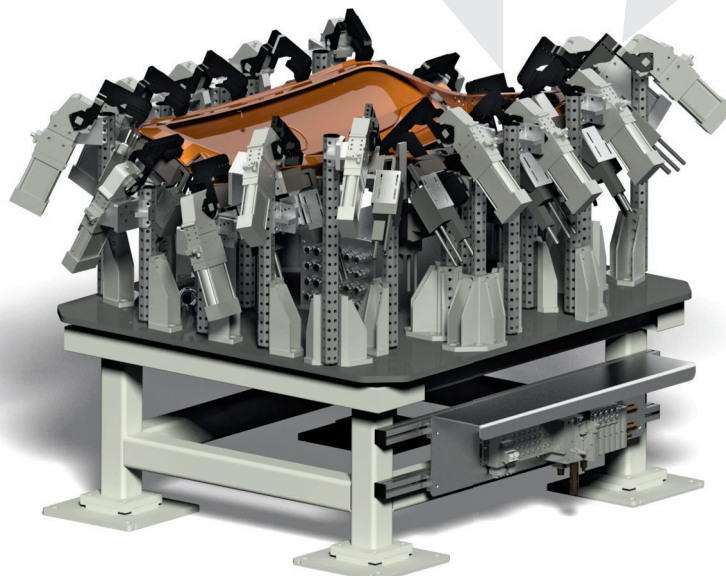
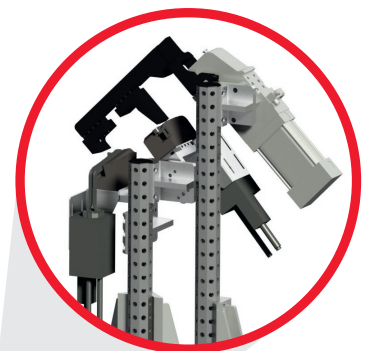
Both the jig and the induction generators are produced exclusively **in Germany**.

Our customers benefit first and foremost from this cooperation. You can rely on **direct contact persons** and **high-quality inductive gelling jigs**.



TRIED AND TESTED HEATING RACK FROM THE F.EE COMPANY

- **Structure** is made possible by using **F.EE standard components** as well as those **custom-made to individual customer specifications** taking into consideration **all automotive standards**.
- The jig is available as a **manual** or **automatic** system.
- Contour supports in contact with the component, pressure pieces, etc. with 3D free-form surfaces are manufactured from **high temperature-resistant thermoplastics or thermoset plastics** – on request also with **fibreglass reinforcement**.
- Long-term tested, durable and high-quality components **"Made in Germany"** are used.
- The frame also serves as a **geo-station**, in which the component geometry is adjusted and located by the tensioning device.



BST INDUCTION HEATING – TIME-SAVING AND EFFICIENT

With the induction heating possibility for car body construction developed by BST Induktion GmbH, the tedious curing of adhesives in continuous furnaces is a thing of the past.

Besides **enormous time savings**, induction heating offers many further **advantages**:

- Exact definition of the heating zones possible.
- Low energy consumption, as only parts of the area are heated.
- Joint bonding of different materials (e. g. steel, aluminium, magnesium) possible.
- Reduced distortion with many component types.
- Effective process control possible.

Furthermore, both **one** and **two component adhesives** can be processed, which ensures additional flexibility.

Another plus: **Lubricant residues** from previous production steps can be dissolved by heating and thus absorbed by suitable adhesive types.

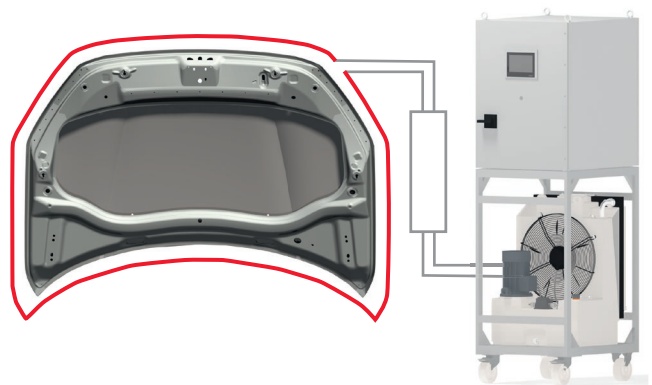
Special inductors and field concentrators also make it possible to bond **carbon fibre composites** (carbon fibre to carbon fibre, carbon fibre to metal, etc.).



TYPES OF INDUCTION HEATING

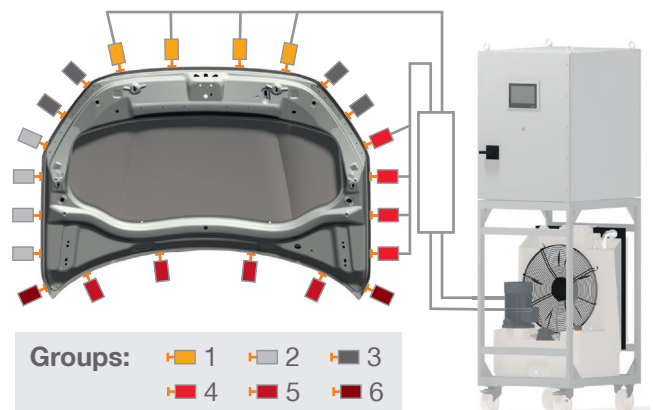
COMPREHENSIVE HEATING

- The lap area is heated over its **entire volume**.
- Use of a **solid copper pipe** or a **flexible hose inductor** is possible.
- The **temperature** in the component is set mechanically based on the distance of the inductor.
- Used to **prevent adhesive leaching in the cathodic electro-coating bath** and to **emboss the component geometry** on steel and aluminium components.
- **Special applications** can be implemented on customer request.



MULTI-SPOT SYSTEM

- Up to **six separately controllable groups** with up to **four heating points** in each case can be integrated.
- The **temperature** is set very simply by grouping the heating points.
- It is possible to **heat critical areas** – such as side impact protection or lamp holders – in a separate group **with adapted parameters**.
- Used both for **embossing the component geometry** and for **securing special components**, such as hinges, with adhesive.
- A **wide variety of materials** can be **bonded together**.



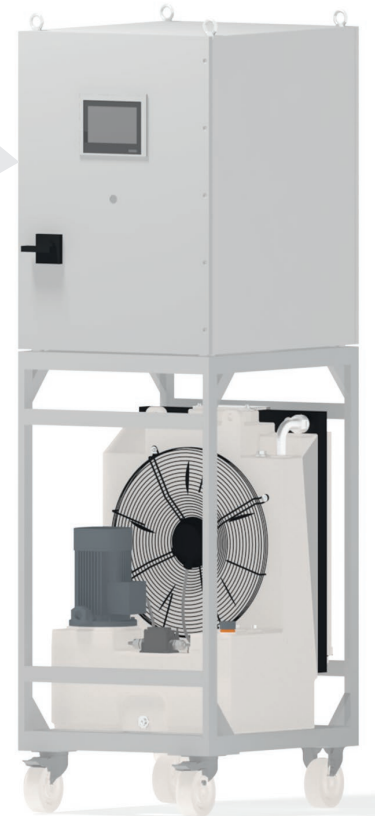
On request, **HYBRID SYSTEMS** – a combination of comprehensive and multi-spot heating – are also available. Of course, **customer-specific designs can also be implemented**.

INDUCTION GENERATOR – HIGHLY POWERFUL AND RELIABLE

- In the upper housing, the **control is accessible from the front**, while the **power electronics** – covered by the assembly plate – are located **in the rear part of the housing**. All components are easily accessible via front or rear re-adjusting spring back wall doors.
- The **cooling system for inductor cooling** is located in the lower area. For the majority of applications, a water/air cooling system can be used, so that the customer doesn't need a factory cooling water connection.
- **Water and power electronics are strictly separated**, which means that regular checks of the electrical conductivity of the coolant are not necessary.

The following **DEVICE TYPES** are available:

- **MSG 30 6.5** (6 outputs of 5 kW) – Multi-spot heating (6 groups and 4 heating points each).
- **MSG 60 6.5+1.30** (7 outputs, of which 6 x 5 kW and 1 x 30 kW) – simultaneous operation of comprehensive heating in conjunction with the multi-spot system.
- **MSG 80** (up to 6 outputs of 13 kW) – Multi-spot heating (6 groups and 4 heating points each).
- **MSG 80 4.10+1.40** (6 outputs, of which 4 x 10 kW and 1 x 40 kW) – simultaneous operation of comprehensive heating in conjunction with the multi-spot system.
- **MSG 80 single** (1 output with up to 80 kW) – comprehensive heating, especially for large aluminium components such as SUV engine bonnets or battery floors.
- **MSG 80 alternating** (80 kW – switchable to 3 outputs) – operation of 3 heating points one after the other.
- **MSG 80 2.40** (2 outputs with up to 40 kW simultaneously) – simultaneously operation of 2 comprehensive heatings.
- **MSG 90** (6 outputs with 15 kW or 3 x 30 kW) – special applications, such as simultaneous operation of 3 comprehensive heatings or battery floors with multi-zone heating.



INDUCTIVE GELLING JIGS – OUR RANGE OF SERVICES

- **Consulting, conception, project management** and **interface harmonisation** with upstream and downstream process steps.
- **Construction** of the jig using common CAD software such as CATIA V5 and Siemens NX.
- **Design including the creation of flow plans** (fluidics and electrics) – on request with interference edge analysis and integration into existing plan environments.
- Procurement of purchasing parts and **complete production** of the heating rack.
- Mechanical **assembly** and complete **installation**.
- **Calibration** or **measurement** including **documentation**.
- Worldwide **delivery, integration** and **commissioning** including master component.

We are happy to provide you with extensive **reference material**. **Contact us!**



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