

FlexIn Heat®

Flexible inductive heating





Brief description

FlexIn Heat® is an **innovative heating method** that allows heat to be applied flexibly, fast, effectively and precisely to a surface. The technology developed includes an **air-cooled induction coil** that generates a uniform electromagnetic field, allowing an electrically conductive counterpart to be heated. The special production method makes it possible to create reproducible coils that can be scaled to any size.

The **patented technology** can be used wherever **fast, effective and uniform heating** is required. The first applications have already been identified in the repair of fibre-composite materials. In this case, reliable heating ensures that, following damage, a structure is able to transfer the required loads again. The FlexIn Heat® technology is also proving to be promising for the manufacture of composite components, and, in addition to reliably hardening the structure, helps to save energy in the production process. The simple implementation makes it possible to retrofit existing tools and thus apply this beneficial technology directly.



Facts and figures

- Flexible induction coil
- Local, precise heating; the shape of the heated area can be customised
- High temperatures can be reached (up to 400°C)
- Fast heating, with high heating rates (over 60°C/min)
- Spin-off founded in 2018 as msquare GmbH (www.msquare-tec.com)
- Awards: JEC Innovations Award 2015, Horst-Rauck Gründerpreis 2018



Applications and outlook

- Repair of fibre composite materials (aeronautics, wind energy, motorsports, etc.)
- Inductive joining of composite structures or hybrid material composites
- Production of fibre-composite components; integration of the technology into tools
- Non-contact energy transfer into curved structures
- Even heating of baked goods



Parties involved

DLR Institute of Structures and Design, Stuttgart,
msquare GmbH

