A reliable coil making is critical for ensuring the repeatability of the heating pattern and minimum time of calibration and verification. This is why the mass production industry demands inductors with longer lifetime and extreme repeatability.

Nevertheless, the technique the most used in inductors manufacturing – manual assembly and brazing of components – entails both fair repeatability and lifetime uncertainty, which users have had to live with until now. New inductor making techniques patented by GH Induction offer extraordinary possibilities for the process and operation and production.

Common Characteristics
Coil is produced in one piece, without brazes.

The design is modelled through the 3D CAD software optimizing both outer and inner design:
- reducing the points with higher current density (hot spots)
- improving cooling by a whole geometric design of inductors

Manufacturing is carried out in a vacuum atmosphere avoiding porosity and rusting.

High dimensional accuracy allowing exact duplicates of the coil.

These inductors can be repaired just like traditional ones.

Common benefits with advanced manufacturing methods, 3DPCoil and Microfusion:

Increase in inductor durability: Production stoppages for tooling changes are reduced due to the coil’s longer lifespan. The cost per unit is significantly reduced in medium and high production volumes.

Repeatability of inductors: ensures that heating pattern remains unchanged through tooling changes with subsequent reduction of time for verifications – sample preparation and lab time – after such changes.

Optimal adaptation to the work piece: Both techniques create shapes allowing an optimization of efficiency and quality of processes unachievable for traditional methods.

Cost saving: shorter changeover and longer life of inductors reduce cost per piece.

Microfusion inductors
Especially adapted to shapes requiring narrow wall thickness, Microfusion allows intricate and/or small inductors.

This technique is based on wax modeling by 3D printing then microfusion using silver or silver alloy.

Maximum coil dimension as single piece: 150mm (L) x 150mm (W) x 150mm (H).

Combined technologies
Inductors exceeding the maximum dimensions available for advanced manufacturing techniques can be made by combination with traditional brazing.

The picture shows an example of inductor with an improved design using Microfusion ends and copper body minimizing brazes.

Rotating inductor system (Patent pending by GH)
When keeping the work piece stationary simplifies and improves the process, this system enables the inductor to rotate by means of a matching transformer without contact between primary and secondary windings.

There are cases where keeping the work piece stationary improves and simplifies the hardening process.

3DPCoil Solution
Standard technology in GH inductors

Coils are manufactured with nowadays’ fastest, most efficient method: additive manufacturing by Electron Beam Melting (EBM).

The coil is directly made in copper by a controlled electron beam that melts copper powder following a 3D CAD model, layer by layer (see cover image).

Maximum coil dimension as single piece: 200mm (L) x 200mm (W) x 100mm (H).

3D direct printing
99.99% copper purity
100% density
Repeatability
Customer services

Advisory services
GH experience, references and testing laboratory are available to support the customer in developing applications and selecting inductors.

Technical assistance
GH technical engineers support the customer in its daily operation.

Inductor shop
All types of complete inductors for the industry (automobile, industrial parts, brazing, etc.) can be supplied ready to be installed in a customer system.

GH Induction is the unique worldwide sales point for 3D printing and Microfusion Technology inductors.

Inductor training
A set of training programs to understand GH induction solutions and the induction heating technology are available.

On-line shop
365 days x 24 hour service for technical, budgetary information and on-line payment

Simulation & laboratory
For induction application test and development

Repair & spare inductors
A repair service and spares are offered for GH inductors. For advanced manufacturing inductors, the industrialized process allows high dimensional accuracy in the copies and shorter delivery times for 3DPCoils.

About GH Group
GH Group is one of the leading induction heating technology group of companies serving different industries using medium and high frequency induction worldwide.

Since 1961, more than five thousand customers around the world run GH solutions in industries like automotive, off-road, wind power, tube, aerospace and medical.