



# Metal melting

A guide to the benefits of induction heating



# Induction—for clean, safe, energy-efficient melting and alloying

EFD Induction's furnaces are proven solutions for labs and small to mid-size foundries. Each furnace in the range is available with a wide range of optional extras, making it easy to adapt a furnace to your specific technical and business needs. For example, we can provide a multiple-output power source. This lets a single converter power up to three melting stations at the same time. We also develop and build customized furnaces for specialist applications such as vacuum melting, graphite coating, glass melting and spring wire rolling.

All EFD Induction furnaces are powered by our well-known Sinac converters, which come in serial and parallel compensated versions. The serial models feature high-uptime IGBT transistors for maximum productivity. Also, all Sinac serial compensated mod-

els use diode rectifiers with a constant power factor of 0.95 at all power levels, and an efficiency factor of 85-87% from input at the rectifier to output at the coil. The parallel compensated models feature three-phase thyristor rectifiers in addition to virtually short-circuit proof IGBT transistors.

Power sources and furnaces are only part of the complete customized melting solutions available from EFD Induction. We can for instance help with computerized simulations of various technical solutions, as well as detailed cost-benefit analyses of different investment strategies. And of course, as one of the world's leading induction companies, you can rely on our training and maintenance services to help maximize your furnace's productivity.



*An EFD Induction furnace at work. This graphite crucible contains molten brass.*



*FIB is our range of single-axis tilting furnaces. The FIB coreless (shown here) features an innovative coil design that maximizes efficiency.*

# The EFD Induction range of melting furnaces

## Single-axis tilting (FIB)

Designed for melting ferrous and non-ferrous metals, the FIB is available with different capacities ranging up to 6,000 kg. Energy consumption is minimized by use of a clever coil design that optimizes the inductor area in front of the load. FIB is fitted with easy-to-change prefabricated crucibles or rammed linings.

## Dual-axes tilting (DAB)

DAB's precise and smooth pouring makes it ideal for investment casting and for moulds on automated lines. Low-loss lamination packs and lids with protective inert gas are available as options. The DAB can be fitted with rammed and fritted linings or prefabricated crucibles. Maximum capacity is 300 kg for ferrous metals / copper alloys, and 100 kg for aluminum and silicon.

## Moving coil furnace (FIM)

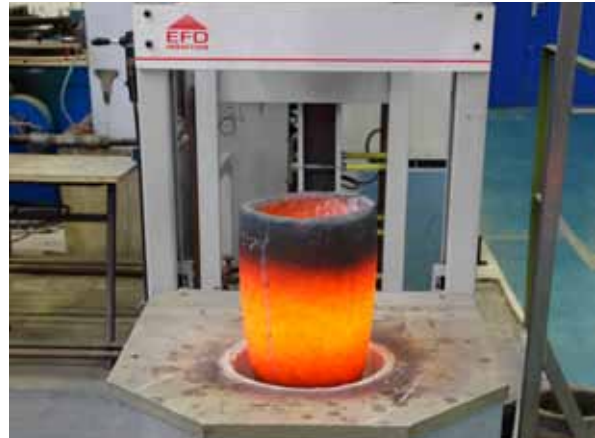
FIM furnaces are ideal for melting gold, silver, copper, bronze and aluminum alloys. The prefabricated (clay graphite) crucible remains static during the full melting cycle. Instead, the induction coil moves around the crucible without touching it. Dedicated crucibles—which also act as pouring ladles—eliminate inter-alloy contamination.

## Laboratory melting furnace (LAB)

Our LAB furnaces are specially designed for educational, research and laboratory use. LAB is available in two versions: a manually tilted model with a maximum capacity of 7 kg; a hydraulically tilted model for loads of 7-40 kg. Available with prefabricated crucibles or rammed linings, the LAB is ideal for art moulding, melting precious metals, sample casting for spectro analysis, dental/medical alloys, investment casting, melting nuclear materials.

## Roll-over furnace (FAR)

The FAR furnace offers roll-over tilting up to 180° and quick mould filling—making it ideal for investment casting. High-power converters minimize melt times, and eliminate oxidation. A pneumatic foot-operated mould clamp, together with a hydraulic roll-over system, help maximize operator comfort and productivity.



*EFD Induction furnaces maximize productivity and product quality. For example, the dedicated crucibles in FIM furnaces eliminate inter-alloy contamination (top photo); while FAR furnaces (bottom photo) ensure operator comfort.*

# Get more from your equipment

When you choose a solution from EFD Induction you choose security and peace-of-mind. As one of the world's largest induction heating companies we

offer a full range of maintenance, logistics, training and spares services. Make the most of your heating system—with a little help from the people who built it.



*A new 1,200 kg-capacity FIB furnace being installed at a bearing manufacturer's facility.*

EFD Induction has to date installed thousands of heating solutions for a vast range of industrial applications—bringing the benefits of induction technology to many of the world's leading manufacturers and service companies. EFD Induction has manufacturing plants, workshops and service centers in the Americas, Europe and Asia.

**Learn more about EFD Induction and our solutions that are boosting productivity for companies around the world. Visit: [www.efd-induction.com](http://www.efd-induction.com)**