

## Inductive Heating Devices

What are Schaeffler HEATERS and what kinds of solutions do they offer?



Induction heating is a fast and controlled heating method. In contrast to traditional heating methods, such as furnaces, oil baths, and gas burners, it is the most advanced and simultaneously the most environmentally friendly form of induction heating. Moreover, this method is much better able to overcome the challenges of heating processes when it comes to precision, energy efficiency, safety, and cost.

Bearing manufacturers consider induction heating to be the best method for mounting bearings. It prevents unnecessary damage and maintains the original bearing lubrication. Along with these benefits, induction heating also extends the life span of bearings and other workpieces.

# INDUCTION HEATING – AN OVERVIEW



## How induction heating works

An inductive heating device generates a strong electromagnetic field and, in doing so, heats a ferromagnetic workpiece. The heating process causes the workpiece to expand, which makes it easier to mount.

# Inductive heating devices

Install workpieces quickly and safely and save money at the same time

Schaeffler has been supplying inductive heating devices for professional industrial use for many years. The company's inductive HEATERS provide fast and controlled heating. They ensure operation without contamination and are suitable for all sectors and industries.

Schaeffler's portfolio of inductive heating devices includes the BASIC and SMART HEATER series, which come in tabletop and standalone versions with weights ranging from 20 kg to 1,600 kg, including mobile models with ergonomic swivel arms and high-performance heaters with optional lifting cranes and dimensions. The company also offers a large heater selection and the right solution for a wide range of applications that meet the highly individual requirements of heating bearings and other workpieces.

## Typical HEATER applications are include:

- Complete bearings or other ring-shaped ferromagnetic steel parts, including toothed wheels, couplings, bushings
- Inner rings of cylindrical roller bearings or needle bearings

## Operating principle of inductive heating devices

The primary coil generates an electromagnetic alternating field. This electromagnetic alternating field is transferred to the secondary coil via the iron core. A high induction current with low voltage is induced in the secondary coil. The induction current rapidly heats the workpiece. Non-ferromagnetic parts and the heating device itself remain cold.

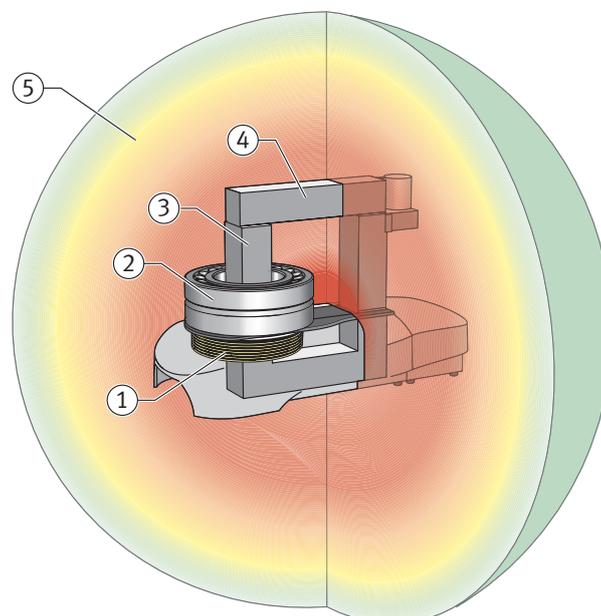
An electromagnetic field is formed during heating. The field remains in place after the heating process stops, while the workpiece is demagnetized (max. 5 seconds).

## The benefits of Schaeffler HEATERS

The inductive heating devices from Schaeffler are known for their quality, safety, and efficiency. The two BASIC and SMART series for workpieces weighing up to 1,600 kg give customers from all sectors and industries an extensive portfolio, depending on demand and requirements.

All HEATERS ensure uniform, controlled heating and consistently high-quality installation. The fast and safe heating process is also gentle on the workpieces. For this purpose, they are always automatically demagnetized after being heated. Users can also lower their operating costs, thanks to the energy-efficient heating and short mounting times.

1. Primary coil
2. Secondary coil, a roller bearing in this case
3. U-shaped iron core
4. Ledge
5. Electromagnetic field



# SMART and BASIC HEATERS

Available for different workpiece weights



kg

20

50

100

150

200

400

600

800

1,600

## BASIC HEATER

BASIC is the series of inductive heating devices to use when the most important induction heating functions are sufficient. It is easy to operate, cost-effective, robust, and has smart electronics for the best possible heating results and efficient energy consumption.

The BASIC HEATER offers two heating methods:

### 1. Temperature mode

For controlled heating to the desired temperature.

### 2. Time mode

For serial heating without temperature sensors, when the necessary heating time is known.

HEATER BASIC: keypad, Individual temperature	HEATER20- BASIC	HEATER50- BASIC	HEATER100- BASIC	HEATER150- BASIC	HEATER200- BASIC
Frequency	50 – 60 Hz				
Temperature measurement	easy				
Modes	time or temperature regulation				
Weight in kg	21	21	31	52	56
Max. temperature	150°C / 302°F	240°C / 464°F	240°C / 464°F	240°C / 464°F	240°C / 464°F
Max. bearing weight in kg	20	50	100	150	200
Max. AD Ø in mm	240	400	500	600	600
Pole spacing in mm	120	120	180	210	210
Pole height in mm	135	130	185	205	205
Pole surface area in mm	40x40	40x50	50x50	70x80	70x80
Dimensions in mm (LxWxH)	460x240x280	600x226x272	702x256x392	788x315x456	788x315x456



50      100      150      200      400      600      800      1,600 **kg**

## SMART HEATER

SMART is the right series of inductive heating devices to use when the heating process requires more control. The SMART HEATER provides additional features, such as a log function for documenting the process and Delta T control for dual measurements.

Außerdem ermöglicht diese Serie auch gleich vier Anwärmmethoden:

### 1. Temperature mode

For controlled heating to the desired temperature.

### 2. Time mode

For serial heating without temperature sensors, when the necessary heating time is known.

### 3. Time or temperature mode

For controlled heating to the desired temperature or duration.

### 4. Temperature and speed mode

For controlled heating with the maximum temperature gradient per unit of time.

<b>HEATER SMART: 4.3" Touch-screen, Doppelte Temp.</b>	<b>HEATER50- SMART</b>	<b>HEATER100- SMART</b>	<b>HEATER150- SMART</b>	<b>HEATER200- SMART</b>
Frequency	50 – 60 Hz			
Temperature measurement	dual, $\Delta T$ measurement, log function			
Modes	time, temperature, temperature or time, temperature & speed			
Weight in kg	21	31	52	56
Max. temperature	240°C / 464°F	240°C / 464°F	240°C / 464°F	240°C / 464°F
Max. bearing weight in kg	50	100	150	200
Max. AD $\varnothing$ in mm	400	500	600	600
Pole spacing in mm	120	180	210	210
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