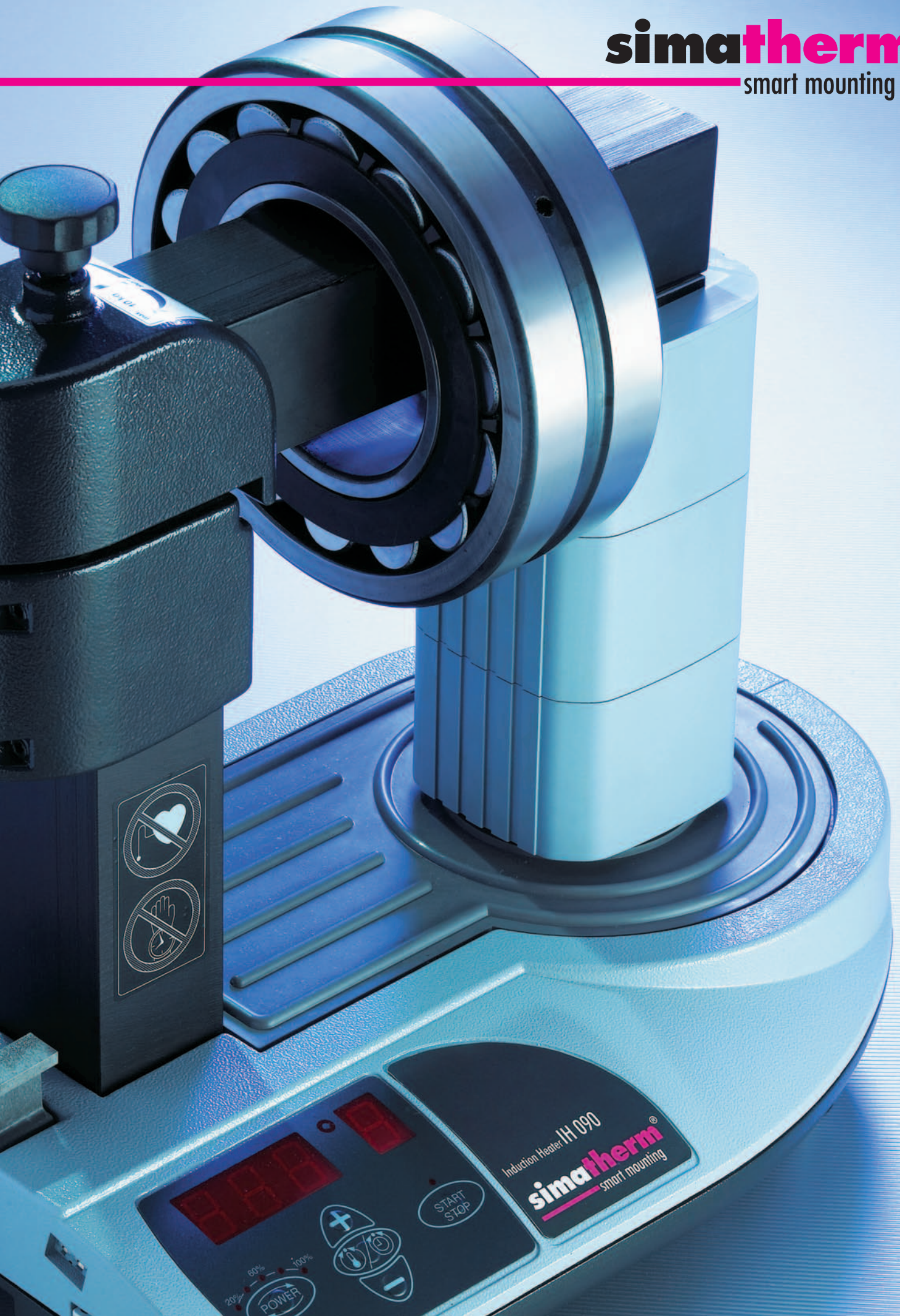


**simatherm**<sup>®</sup>  
smart mounting





## Mounting bearings using heat

The force needed to mount a bearing increases considerably with the size of the bearing. If the heat expansion of metals is made use of, bearings or other ring-shaped parts can easily be mounted onto a shaft or into a housing. For the fast warm-up of bearings, you can use an induction heater where a hot oil bath was often used in the past.

### Induction Heater

Its function equals that of an electric transformer. With an induction coil, a very high amperage with a low voltage is induced into a ring-shaped workpiece. Thereby, it is heated consistently within minutes. Heat is only induced to the workpiece whereas the heater itself remains at ambient temperature and can be touched without risk at any time. The inductive heating is very efficient, as the workpiece is being heated directly with the inductive flow. Non-metallic parts such as sealings, lubricant and cages are not heated. The advantage is that the cold bearings can be lubricated before mounting. Since inductively heated bearings become magnetised, the simatherm induction heaters are always equipped with a demagnetisation unit. It prevents the bearings from attracting metal particles which could cause long-term damage to the bearing.

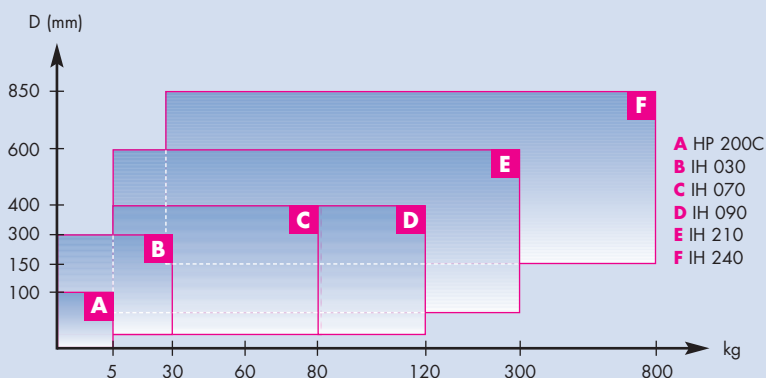
### Mounting of the heated workpiece

In order to mount a bearing to its seat, a heating temperature of 110 °C (230 °F) is recommended. Higher temperatures are not necessary and must be prohibited. Temperatures higher than 125°C (257°F) can cause structural changes of the bearing material. The bearing temperature must therefore be observed with a temperature probe. Shrink collars or other ring-shaped parts, however, can be heated up to a temperature of about 400 °C (752 °F) with an induction heater.

During mounting hot bearings, clean protective gloves must be worn. The mounted bearing must be pushed along the shaft up to the abutment and held in this position until a tight fit is obtained. For heating of bearings and other ring-shaped workpieces, simatec supplies a wide range of simatherm induction heaters for almost all mounting requirements.

### The suitable heater for your application

The choice of a simatherm induction heater depends largely on the geometrical dimensions and the weight of the workpiece you want to heat. The graphic serves as a selection guide.



- 1 principle of an induction heater
- 2 bearing before mounting
- 3 bearing after mounting
- 4 never heat a bearing using an open flame



## The latest generation of simatherm induction heaters

### IH 070 / IH 090 / IH 210

Heating bearings can cost a lot of time and energy, however, with the latest simatherm induction heaters from simatec you can save both. A workpiece of 210 kg (460 lb) can be heated up to a temperature of 110 °C (230°F) in less than 20 minutes. The new generation of induction heaters includes three different sizes. To obtain maximum heating efficiency, the induction coil was transferred to the outside of the heaters housing allowing the bearing to be placed around it. This improvement results in a reduction of the heating time and the power consumption by up to 80%, ultimately saving up to 70% on heating cost. All heaters are provided with the following technical characteristics:

#### Characteristics:

- Four-step power reduction in the range of 20 - 80%. In combination with smaller yokes, smaller bearings can be heated securely at lower power consumption.
- Thermal overheating protection of the induction coil and electronics
- Automatic time and temperature control for the heating of bearings and other ring-shaped metal parts
- Automatic demagnetisation
- Compact construction, modern design
- Light weight
- A range of standard yoke sizes is included with every induction heater

### Induction Heater **IH 070**



#### simatherm IH 070

**For heating small and medium size bearings with a weight up to 80 kg (176 lb), the IH 070 is the perfect choice.**

- Available in two power versions: 230V/50Hz and 110V/60Hz
- Three yokes are included
- Very compact design, 35 kg (77 lb) overall weight including three yokes
- Swivel arm is available as an option
- Other power versions are available on request

### Induction Heater **IH 090**



#### simatherm IH 090

**For heating small and medium sized bearings with a weight up to 120 kg (260 lb) and for permanent operation, the IH 090 is the best solution.**

- Available in the power versions 400V/50Hz and 460V/60 Hz
- Three yokes are included
- Very compact design, 35 kg (77 lb) overall weight including three yokes
- Swivel arm is included
- Fan radiator for permanent operation is included
- Other power versions are available on request

## Induction Heater IH 210



### simatherm IH 210

**The IH 210 is a large and exceptionally powerful high end induction heater**

Suitable for workpieces up to 300 kg (660 lb) of weight.

- Available in the power versions 400V/50Hz or 460V/60Hz
- A sliding arm permits easy placement and removal of the bearing
- Two yokes are included
- Compact design, 75 kg (165 lb) overall weight including two yokes
- A fan version IH 210F for permanent operation is available
- Other power versions are available on request

## Induction Heater IH 240



### simatherm IH 240

**Fast and safe heating of large workpieces**

The simatherm induction heater IH 240 is designed for the heating of large size bearings up to 800 kg (1777 lb) or other large metal components with a weight up to 300 kg (660 lb) (depending on bearing and workpiece geometry and material). The control system is equipped with all operational functions of the smaller heaters.

- Fast heating of extremely large size components, e. g. a bearing of 445 kg (980 lb) weight can be heated up to 110 °C (230°F) in only 10 minutes (temperature at the inner ring).
- Designed for easy transport using a fork lift truck
- Automatic demagnetisation of the workpiece

### Special heaters for large components

simatec can also offer custom-made special heaters for large size components. In order to provide a quotation we would need the following information from you:

- Dimensions of the component to be heated (d x D x H)
- Sketch or drawing of the workpiece to be heated
- Weight and material of the workpiece
- Desired heating time
- Available mains voltage
- Stationary or mobile use

## Induction Heater IH 030



### Induction Heater IH 030

#### Compact and electronically controlled

Most powerful induction heater in the category for small workpieces up to 30kg (66 lb). Thousands of this reliable heater are in use around the globe today.

- Available in the power versions 230V/50Hz and 110V/60Hz
- Fast reacting temperature probe for temperature control between 0 - 250°C (32 - 482 °F)
- Electronic timer (0 - 60 minutes)
- Digital display
- Three yokes are included

## Hot Plate HP 200C



### Hot Plate HP 200C

#### Electric hot plate with thermostat-controlled bearing heating

The electric hot plate HP 200C is especially suitable for heating small bearings or small machine parts. The temperature is infinitely variable from 50°C to 200°C. (122°F to 392°F)

- Available in the power versions 230V/50Hz and 110V/60Hz
- Temperature adjustable from 50°C to 200°C (122°F to 392°F)
- Protective cover prevents from contamination of the workpieces during the heating process. Additionally, the parts are heated faster if the cover is closed
- With temperature display
- Contact surface: 380 x 180 mm

## Technical Data of the Induction Heaters



Designation	IH 030	IH 070	IH 090	IH 210
<b>Designation</b>	Heater for small and medium sized workpieces	Heater for small and medium sized workpieces	Heater with fan cooling for permanent operation and small and medium sized workpieces	Heater for big workpieces
<b>Voltage V/Hz *</b>	230V/50Hz or 110 V/60 Hz	230 V/50 Hz or 110 V/60 Hz	400 V/50Hz – 460 V/60Hz 500 V/50Hz – 575 V/60Hz	400 V/50Hz – 460 V/60Hz 500 V/50Hz – 575 V/60Hz
<b>Workpiece</b> - maximum weight - bore diameter	30 kg 20 – 400 mm	80 kg 20 – 400 mm	120 kg 20 – 400 mm	300 kg 60 – 600 mm
<b>Temperature control</b> - range - magnetic probe - accuracy (electronics)	0 – 250 °C yes, type J ±3 °C	0 – 250 °C yes, type K ±3 °C	0 – 250 °C yes, type K ±3 °C	0 – 250 °C yes, type K ±3 °C
<b>Time control</b> - range - accuracy	0 - 60 minutes ± 0.01 seconds	0 – 60 minutes ± 0,01 seconds	0 – 60 minutes ± 0,01 seconds	0 – 60 minutes ± 0,01 seconds
<b>Maximum temperature (approx.)</b>	400 °C	400 °C	400 °C	400 °C
<b>Thermometer mode</b>	yes	yes	yes	yes
<b>Bearing temperature mode</b>	yes	yes	yes	yes
<b>Power reduction</b>	No	4-step / 20-40-60-80 %	4-step / 20-40-60-80 %	4-step / 20-40-60-80 %
<b>Automatic demagnetisation residual magnetism</b>	yes <2A/cm	yes <2A/cm	yes <2A/cm	yes <2A/cm
<b>Can heat sealed bearings</b>	yes	yes	yes	yes
<b>Can heat pre-greased bearings</b>	yes	yes	yes	yes
<b>Error guiding codes</b>	yes	yes	yes	yes
<b>Thermal overload protection</b>	yes	yes	yes	yes
<b>Maximum magnetic flux</b>	1,5 T	1,5 T	1,5 T	1,5 T
<b>Control panel</b>	Keyboard with LED-display	Keyboard with LED-display	Keyboard with LED-display	Keyboard with LED-display
<b>Size of the operating area (WxH)</b>	130 x 95 mm	145 x 205 mm	145 x 205 mm	250 x 250 mm
<b>Coil diameter</b>	–	115 mm	115 mm	135 mm
<b>Dimensions (WxDxH)</b>	290 x 255 x 255 mm	420 x 280 x 345 mm	420 x 280 x 420 mm	600 x 350 x 420 mm
<b>Overall weight including yokes</b>	27 kg	35 kg	38 kg	75 kg
<b>Maximum power consumption</b>	3,7 / 2,2 kVA	3,7 / 2,2 kVA	6,4 kVA / 7,4 kVA	10 kVA / 11.5 kVA
<b>Number of standard yokes</b>	3	3	3	2
<b>Standard yokes</b>	55 x 55 x 245 mm for bearings with bore diameters of 78mm 28 x 28 x 240 mm for bearings with bore diameters of 40mm 14 x 14 x 240 mm for bearings with bore diameters of 20mm	55 x 55 x 275 mm for bearings with bore diameters of 78mm 28 x 28 x 275 mm for bearings with bore diameters of 40mm 14 x 14 x 275 mm for bearings with bore diameters of 20mm	55 x 55 x 275 mm for bearings with bore diameters of 78mm 28 x 28 x 275 mm for bearings with bore diameters of 40mm 14 x 14 x 275 mm for bearings with bore diameters of 20mm	70 x 70 x 420 mm for bearings with bore diameters of 100mm 40 x 40 x 420 mm for bearings with bore diameters of 60mm
<b>Core cross section</b>	55 x 55 mm	55 x 55 mm	55 x 55 mm	70 x 70 mm
<b>Yoke storage</b>	yes	yes, internal	yes, internal	yes, internal
<b>Sliding arm</b>	–	–	–	yes
<b>Swivel arm</b>	–	optional	yes	–
<b>Cooling fan</b>	–	no	standard	optional
<b>Housing material</b>	Glass-fibre reinforced polyester	Aluminium	Aluminium	Aluminium

\*Other power versions are available on request



IH 240	
Heater for big and very big workpieces	
400 V/50Hz – 460 V/60Hz 500 V/50Hz – 575 V/60Hz	
up to 800 kg 142 – 850 mm	
0 – 250 °C yes, type J ±3 °C	
0 – 60 minutes ± 0,01 seconds	
400 °C	
yes	
yes	
yes / 50 %	
yes <2A/cm	
yes	
yes	
yes	
yes	
1,5 T	
Keyboard with LED-display	
330 x 355 mm	
186 mm	
750 x 400 x 935 mm	
300 kg	
24 kVA / 27.6 kVA	
1	
100 x 100 x 570 mm for bearings with bore diameters of 142mm	
100 x 100 mm	
–	
yes	
–	
optional	
Steel	

Subject to change without notice.

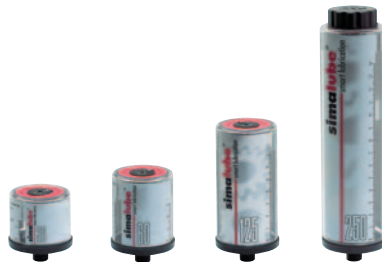


## simatec maintenance products

### World class lubrication, mounting and dismantling

With 3 products lines, simatec takes care of your critical machinery and plant operation to ensure maximum uptime.

**The automatic single point lubricator simalube** can be adjusted from 1 to 12 months using the unique gas-producing drycell that is patented world-wide. The drycell generates pressure that pushes the grease or oil into the lubrication point.



**The simatherm induction heaters** provide fast warm-up of circular metal parts, for example bearings, for hot-mounting parts with an interference fit. Inductive heating of metal workpieces is cost-effective, time-saving and protects the environment. simatec is a global leader in thermal mounting technologies.



**The simatool product range** is designed for a quick, precise and safe mounting and dismantling of bearings and seals. simatools are used around the globe in machinery repair and maintenance shops.



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