Fast, efficient bearing mounting improves production gains

The challenge
A paper mill was looking for ways to increase productivity. Maintenance staff were using either oil baths or an old induction heater to mount bearings. The oil bath method took 4 hours to mount each bearing. Additional concerns involved uneven heating, bearing contamination, oil spills and worker injuries. While the old induction heater was used in some cases, its age made using it a slow process.

The solution
With the SKF TIH 030m portable induction heater, the organization reduced downtime and provided a fast, efficient way to correctly and safely mount bearings.

This small induction heater combines high heating capacity with portability. The compact lightweight design makes the TIH 030m portable. Placing the induction coil outside the heater’s housing allows the heating of bearings weighing up to 88 lb (40 kg). The heater is equipped with thermal over-heating protection to reduce the risk of damage to the induction coil and the electronics.

The result
Mounting time per bearing fell to 1.5 hours, and machine uptime increased.
The new SKF small induction heater TIH 030m combines high heating capacity with portability. The compact lightweight design makes the TIH 030m portable. Placing the induction coil outside the heater’s housing allows the heating of bearings weighing up to 40 kg (88 lb). The heater is equipped with thermal overheating protection to reduce the risk of damage to the induction coil and the electronics.

- Compact lightweight design; just 21 kg (46 lb), facilitating portability
- Capable of heating a 28 kg (62 lb) bearing in just 20 minutes
- Supplied standard with three yokes, allowing bearings with a bore diameter from 20 mm (0.8 in.) up to a maximum weight of 40 kg (90 lb) to be heated

**Features and benefits**

- Induction coil located outside the heater’s housing enables a shorter heating time and lower energy consumption
- Foldable bearing support arms allow larger diameter bearings to be heated, and reduce the risk of the bearing toppling during heating
- Magnetic temperature probe, combined with a temperature mode pre-set at 110 °C (230 °F), helps prevent bearing overheating
- Unique SKF remote control, with operating display and control panel, makes the heater easy and safe to use
- Internal yoke storage, for smaller yoke(s), reduces the risk of yoke damage or loss
- Integrated carrying handles allow for easy movement of the heater in the workshop
Table: Technical data for TIH 030m

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<th>Designation</th>
<th>Max. bearing weight</th>
<th>Bore diameter range</th>
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<tr>
<td>TIH 030m</td>
<td>40 kg (88 lb)</td>
<td>20–300 mm (0.8–11.8 in.)</td>
<td>100 x 135 mm (3.9 x 5.3 in.)</td>
<td>95 mm (3.7 in.)</td>
<td>65 mm (2.6 in.), 40 mm (1.6 in.), 20 mm (0.8 in.)</td>
<td>23136 CC/W33, 28 kg, 110 °C, 20m</td>
<td>2.0 kVA</td>
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</table>

- **Max. bearing weight**: 40 kg (88 lb)
- **Bore diameter range**: 20–300 mm (0.8–11.8 in.)
- **Operating area (w x h)**: 100 x 135 mm (3.9 x 5.3 in.)
- **Coil diameter**: 95 mm (3.7 in.)
- **Standard yokes (included)** to suit bearing/workpiece minimum bore diameter: 65 mm (2.6 in.), 40 mm (1.6 in.), 20 mm (0.8 in.)
- **Application example** (bearing, weight, temperature, time): 23136 CC/W33, 28 kg, 110 °C, 20m
- **Max. power consumption**: 2.0 kVA

**Voltage**

- 100–240 V/50–60 Hz
- 100–120 V/50–60 Hz
- 200–240 V/50–60 Hz
- 400–460 V/50–60 Hz

**Temperature control**

- 20 to 250 °C (68 to 482 °F)

**Demagnetisation according to SKF norms**

- <2 A/cm

**Dimensions (w x d x h)**

- 460 x 200 x 260 mm (18.1 x 7.9 x 10.2 in.)

**Total weight (incl. yokes)**

- 20.9 kg (46 lb)

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The comprehensive range of SKF induction heaters is suitable for most bearing heating applications. The chart gives general information on choosing an induction heater for bearing heating applications. The SKF m20 concept represents the weight (kg) of the heaviest SKF spherical roller bearing of series 231 which can be heated from 20 to 110 °C (68 to 230 °F) in 20 minutes. This defines the heater’s power output instead of its power consumption. Unlike other bearing heaters, there is a clear indication of how long it takes to heat a bearing, rather than just the maximum bearing weight possible.

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1) Some special voltage versions (e.g. 575V, 60 Hz CSA ready) are available for specific countries.
2) Maximum heating temperature capacity depends on the weight and geometry of the bearing or workpiece. The heaters can achieve higher temperatures.
3) For heating components other than bearings, SKF recommends consideration of TIH L MB series heater.