

Application

The SKF Large induction heater TIH 220m is suitable for heating bearings with a maximum weight of 300 kg (661,4 lb) and solid components of a maximum weight of 150 kg (330,7 lb).

Description

The new TIH 220m is capable of heating a 220 kg (480 lb) bearing in just 20 minutes (m20). The induction coil is positioned outside the heater housing, the same concept as the TIH 030m and TIH 100m, which allows the bearing to be placed around the coil. This, combined with an enhanced power electronics design, results in a considerable reduction of heating time and energy consumption as well as heating costs when compared to similar heaters. The heater is equipped with temperature control, which is set at 110 °C, and temperature probe. It is also equipped with time control for heating components other than bearings. The LED operating display and control panel are integrated in a remote control.

The TIH 220m includes two yokes, which are supplied standard with the heater. The larger yoke is designed with a "sliding arm", which eases the installation of a bearing to be heated. Lifting and removal of the yoke during the load of a work piece is no longer necessary. Two arms fold out of the base of the heater to support the bearing during heating, allowing larger diameter bearings to be heated.

The small yoke can be stored inside these bearing support arms, reducing the risk of yoke damage or loss. This small yoke is for heating smaller bearings at a lower power level, which is selectable with a 2-step power setting (50-100%). The 2-step power setting is ideal for sensitive bearings such as bearings with a C1 or C2 internal clearance.

The TIH 220m has a core cross-section of 70 x 70 mm (2,8 x 2,8 in) and is available in two voltage execution versions: 230V/50-60Hz (TIH 220M/LV) and 400-460V/50-60Hz (TIH 220M/MV).

m₂₀ concept

"m₂₀" represents the weight (kg) of the heaviest SRB 231 bearing 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 input.

Safety

- Since the heater generates a magnetic field, people wearing a pacemaker should not work with or be within 5 m (16ft) of the heater during operation
- The bearing heaters should not be used in areas where there is a risk of explosion



Functions

Remote control panel

To improve the ease of use and to diminish the risk of contact with the hot bearing during operation, the TIH 220m heater is supplied with a remote control panel, which can be detached from the heater.

Sliding yoke

The larger yoke is integrated in a "sliding arm", which eases the installation of a bearing to be heated. Lifting and removal of the yoke during the load of a work piece is no longer necessary.

Start/stop

The START/STOP key is pressed to start and stop the heating cycle. When the heating cycle is stopped the work piece is automatically demagnetised.

Power level selection function

In both the TEMP mode and the TIME mode the power level can be adjusted to 50% for slower heating of sensitive or small work pieces.

The time function

By using the TIME mode, the heating cycle will be monitored by time. The remaining heating time will be displayed during operation.

Thermometer mode

The heater has a special thermometer function allowing temperature measurement while heating using time mode or when the heater is not heating.

Safety features

The induction heater is equipped with the following safety features:

- Remote control panel
- Circuit breaker with over current protection
- Automatic current control
- Automatic overheating protection
- A probe control function, checking that an increase of 1° C (33.8 °F) is encountered every 15 seconds
- Temperature mode pre-set at 110 °C (230 °F), preventing bearing overheating

Error guiding codes

In case of disturbances in the operation of the heater, an error code will appear on the display to inform what is wrong and how to solve the problem. All coding can be found in the instructions for use.

Circuit breaker

The heater is fitted with a circuit breaker, which for safety reasons should be switched off when the heater is not used. Additionally, the circuit breaker provides the over-current protection.

Demagnetisation

The work piece is always automatically demagnetised at the end of each heating cycle. This essential function is only eliminated if the heater is switched off by the circuit breaker or by pulling the plug. When using the heater only for demagnetising, just run the heater for a short heating time such as 10 or 20 seconds.

Maintenance

For ultimate performance and lifetime:

The temperature function

The SKF TIH 220m is equipped with temperature heating cycle mode, which is pre-set at 110 °C (230 °F) to prevent bearing over-heating.

- protect yoke supports and the yokes against corrosion, damage and deformation. A perfect contact between the yoke and the yoke support is vital for optimal performance
- protect the heater from water and high humidity

Technical data	
Designation	TIH 220M/LV TIH 220M/MV
Description	SKF large induction heater
Colour	Light grey
Maximum power consumption	10,0-11,5 kVA for 400-460V
Voltage, V/Hz	TIH 220M/LV: 200-230V/50-60Hz TIH 220M/MV: 400-460V/50-60Hz
Work piece:	
- Maximum weight	300 kg (661,4 lb)
- Maximum bore diameter	60 - 600 mm (2,3 - 23,6 in)
Temperature control:	
- Range	0 - 250 °C (32 - 482 °F)
- Magnetic probe	Yes, K-type
- Accuracy (electronics)	± 2 °C (± 3,6 °F)
Time control:	
- Range	0 - 60 minutes
- Accuracy	± 0,01 sec.
Maximum temperature (approx.)	400 °C (750 °F)
Remote control panel	Yes
Thermometer mode	Yes
Power setting	2-step; 50% or 100%
Demagnetisation according to SKF norms (automatic)	Yes (<2 A/cm)
Can heat sealed bearings	Yes
Can heat pre-greased bearings	Yes
Error guiding codes	Yes
Thermal overload protection	Yes
Control panel	Control panel and LED display integrated in remote control
Operating area (w x h)	250 x 255 mm (9,8 x 10,0 in)
Coil diameter	140 mm (5,5 in)
Dimensions (w x d x h)	750 x 290 x 440 mm (29,5 x 11,4 x 17,3 in)
Total weight, including yokes	86 kg (189 lb)
Standard yokes	70 x 70 x 430 mm (2,8 x 2,8 x 16,9 in), for heating bearings with bore diameter of 100 mm (3,9 in) and larger. 40 x 40 x 430 mm (1,5 x 1,5 x 16,9 in), for heating bearings with bore diameter of 60 mm (2,3 in) and larger.
Core cross section	70 x 70 mm (2,8 x 2,8 in)
Bearing support arms	Yes, foldable
Yoke storage	Yes, internal
Housing material	Steel and glass fibre filled polyamide
Sliding yoke	Yes, 70 x 70 mm (2,8 x 2,8 in) yoke only
Cooling fan	No
Warranty period	3 years

Replacement parts	
Designation	Description
TIH 220-PMV	Power print 400-460V, 50-60Hz
TIH 220-PLV	Power print 230V, 50-60 Hz
TIH 220-Y10	Standard yoke (spare part) 70 x 70 x 430 mm (2,8 x 2,8 x 16,9 in)
TIH 220-Y6	Optional yoke 40 x 40 x 430 mm (1,5 x 1,5 x 16,9 in),
TIH 220-YS	Support yoke set - 70 x 70 x 150 mm (2x) (2,8 x 2,8 x 5,9 in)
TIH CP	Control print
TIH RC	Remote control
TIH CB25A	Circuit breaker 25A for TIH 220m/MV
TIH CB45A	Circuit breaker 45A for TIH 220m/LV
TIH P20	Temperature probe, K-type

