

FAG



FAG heating devices PowerTherm for the mounting of rolling bearings

Technical Product Information

SCHAEFFLER GROUP
INDUSTRIAL

Contents

Mounting of rolling bearings in heated condition	2
FAG heating devices PowerTherm	2
Recommended FAG accessories	2
FAG electric heating plate HEATER-PLATE	3
FAG induction heating devices	4
HEATER10	8
HEATER20	10
HEATER35	12
HEATER150	14
HEATER300	16
HEATER600	18
HEATER1200	20
HEATER3000	22
FAG accessories for thermal mounting	24
Temperature measuring device TEMP-CHECK-CONTACT	24
Gloves	26
GLOVE1	26
GLOVE2	26
Transport and mounting tool BEARING-MATE...	27
Other publications	28

Mounting of rolling bearings in heated condition

FAG heating devices PowerTherm · Accessories

Mounting of rolling bearings in heated condition

Where tight fits are to be achieved on cylindrical bearing seats, it is advisable to heat bearings for mounting. Sufficient expansion can be achieved at +80 °C to +100 °C. There is a wide range of FAG heating devices to cater for different bearing sizes.

When heating the bearings, the temperature must be precisely monitored. It must not under any circumstances rise above +120 °C, in order to prevent changes to the structure and hardness. Protective gloves should be worn when fitting the heated parts.

Suitable FAG accessories such as temperature measuring devices, gloves and transport and mounting tools can assist significantly with the reliable thermal mounting of rolling bearings.

FAG heating devices PowerTherm

Under the name **PowerTherm**, FAG offers a range of equipment which can heat rolling bearings and other rotationally symmetrical steel parts safely and cost-effectively.

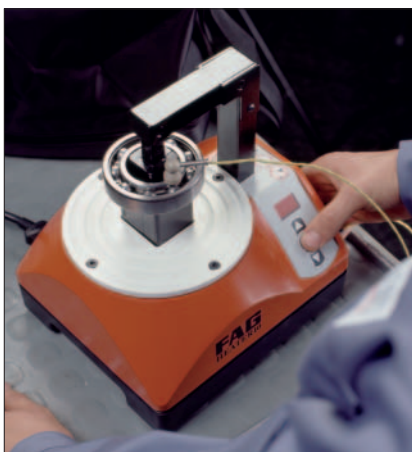
The FAG electric heating plate **HEATER-PLATE** is particularly suitable for smaller bearings and machine components.

The eight FAG induction heating devices **HEATER** for bearings up to a mass of 3000 kg have been improved further in terms of their performance and safety compared with their predecessors. In addition to the table-top devices **HEATER10** to **HEATER300** (accessories can also be added to the latter to convert it to a mobile design), FAG also offers standalone devices **HEATER600** to **HEATER3000** for larger bearings and workpieces.

Recommended FAG accessories

- Temperature measuring device **TEMP-CHECK-CONTACT** (former designation: TEMP.MG)
- Gloves **GLOVE1** or **GLOVE2** (former designations: HANDSCHUH1 or HANDSCHUH2)
- Transport and mounting tool **BEARING-MATE...** (former designation: BEARING.MATE...)

FAG accessories for thermal mounting of rolling bearings are described in detail from page 24 onwards.



Induction heating device HEATER10



Gloves GLOVE1



Transport and mounting tool BEARING-MATE...

FAG electric heating plate

HEATER-PLATE

FAG electric heating plate HEATER-PLATE

The temperature-controlled FAG heating plate HEATER-PLATE can be used to heat rolling bearings (up to a maximum of +120 °C) or small machine components weighing up to 5 kg. The removable housing cover protects the workpieces from contaminants and ensures uniform and rapid heating. This inexpensive device is maintenance-free and easy to handle.

Dimensions (WxDxH):

390×270×156 mm

Plate size: 380×180 mm

Power: max. 1 500 W

at 230 V/50 Hz

Temperature control:

continuously variable from +50 °C

to +200 °C

Mass: 5,6 kg

Ordering designation:

HEATER-PLATE

(former designation: HEATER.PLATE)

Ordering designation for version
with 115 V/60 Hz:

HEATER-PLATE-115V

(former designation:

HEATER.PLATE.V115)



FAG heating plate HEATER-PLATE

FAG induction heating devices

Application · Designation system · Workpiece positioning · Advantages

FAG induction heating devices

Application

Many rolling bearings and other rotationally symmetrical parts made from steel have tight fits on the shaft. In particular, larger parts can be mounted more easily if they are heated first (rolling bearings must not be heated to more than +120 °C).

Induction heating is superior to the conventional methods (heating furnace, heating plate, oil bath).

Induction heating processes are quick and clean. They are therefore particularly suitable for batch mounting. The devices can be used for heating complete bearings, rings for cylindrical roller or needle roller bearings and other rotationally symmetrical steel parts such as labyrinth rings, roll couplings, tyres etc.

We recommend that you coat the contact surfaces of the ledges with a thin layer of standard rolling bearing grease, e.g. Arcanol from FAG. This improves the transfer of heat and reduces the noise level.

New designation system

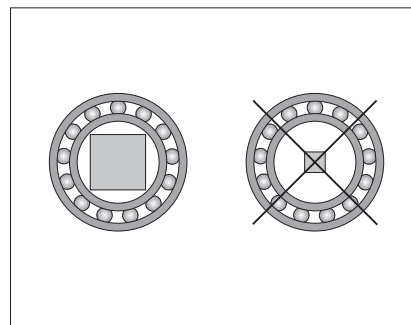
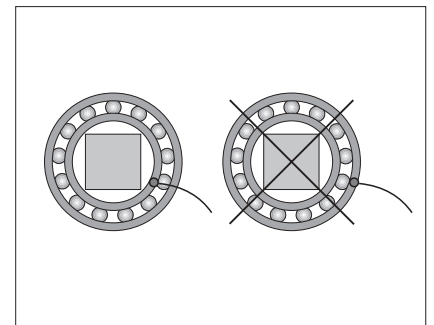
In each case, the maximum mass of the workpiece can be identified from the new designation for the device, e.g. 35 kg in the case of HEATER35.

The ledges for the devices are characterised by the minimum bore diameter of the parts to be heated, e.g. ledge for a workpiece with a minimum bore of 20 mm: HEATER35.LEDGE-20 (formerly HEATER35.L20), see selected examples.

Workpiece positioning

The inside diameter of the workpiece should be optimally filled. The larger the cross section of the ledge used, the shorter the

heating time. In the case of rolling bearings, position the magnetic temperature sensor as centrally as possible on the end face of the inner ring. Remove any grease and oil residues beforehand.



Advantages

- Rapid, energy-efficient operation
- Suitable for rolling bearings and other ring-shaped steel parts
- Extremely safe operation
- Environmentally friendly, oil-free (no disposal required)
- Uniform, controlled heating
- Easy to use
- Automatic demagnetisation
- High cost-effectiveness through selection of the most suitable size of device for the particular application

Selected examples (the mass of the bearings to be heated should not exceed 30 kg)

Rolling bearings Code FAG	Bearing mass kg	Bearing bore mm	Heating device Ordering designation FAG	Ledge Ordering designation FAG
22326-E1	28	130	HEATER35	HEATER35.LEDGE-70 ¹⁾
22310-E1	1,9	50		HEATER35.LEDGE-45
6404	0,4	20		HEATER35.LEDGE-20

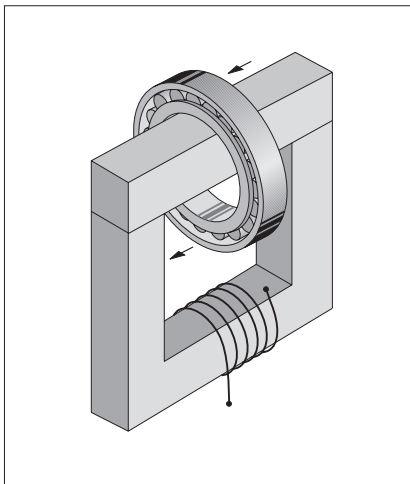
¹⁾ included in delivery

FAG induction heating devices

Function · Operating modes · Safety

Function

The heating device basically consists of a current-carrying coil with an iron core (primary coil), which generates a high induction current at a low voltage in a short-circuited secondary (rolling bearings or other steel parts). The part to be mounted is heated quickly. Non-metallic components and the device itself remain cold.



Operating modes

In the **temperature control** mode the heating temperature is adjusted between +50 °C and +240 °C (max. of +120 °C for rolling bearings). The heating process starts when the Start key is activated. When the target temperature is reached, an acoustic signal is produced and the display flashes. The device holds the workpiece at the preselected temperature. When the Stop key is pressed, the heating process terminates and the part is automatically demagnetised.

In the **time control** mode the heating time is set to any value up to 99 minutes 59 seconds. After the selected period the bearing is automatically demagnetised. An acoustic signal marks the end of the process. The time control mode is recommended for batches of the same bearings or for workpieces which have to be heated to a very high temperature (max. +400 °C).

It is possible to **reduce the output** of all FAG induction heating devices. This allows gentle heating of small and sensitive parts.

Safety

FAG heating devices bear the CE mark.

Operating errors or malfunctions are indicated by an acoustic or optical signal. This may happen if the temperature sensor is not correctly attached, if the sensor or the sensor wire is damaged, or if the part to be heated is too heavy for the device.

Every induction heating device generates a strong magnetic field. This magnetic field can have a negative effect on pacemakers and watches, disks, credit cards and other data carriers as well as electronic circuits in instruments. The safety distance is two metres.

The devices should not be used in a damp environment or in areas at risk from explosions.

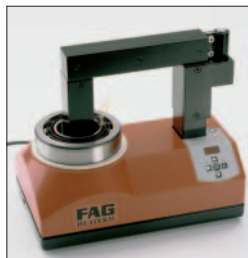
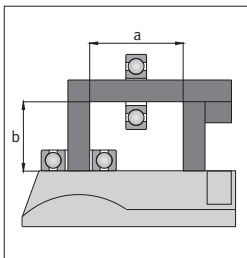
Every device comes with detailed operating instructions and safety gloves.

Induction heating devices

Programme

Overview of induction heating devices

Heating device (comparable predecessor type)	HEATER10	HEATER20 (AWG.MINI)	HEATER35 (AWG3,5)	HEATER150 (AWG8)
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Power consumption max.	2,3 kVA	3,6 kVA	3,6 kVA	12,8 kVA
Voltage/frequency ¹⁾	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	400 V/50 Hz
Current	10 A	16 A	16 A	32 A
Mass	7 kg	17 kg	31 kg	51 kg
Length	230 mm	345 mm	420 mm	505 mm
Width	200 mm	200 mm	260 mm	260 mm
Height	240 mm	240 mm	365 mm	440 mm
Dimension a	65 mm	120 mm	180 mm	210 mm
Dimension b	95 mm	100 mm	160 mm	210 mm
Ledges (incl.) for workpieces with min. bore	20/45/65 mm (graduated supports)	20 mm 35 mm 60 mm	70 mm	100 mm
Ledges (accessories) for workpieces with min. bore	10 mm 15 mm	10 mm 15 mm	15 mm 20 mm 35 mm 45 mm 60 mm	20 mm 30 mm 45 mm 60 mm 70 mm 85 mm

Description of the induction heating devices

Page 8

Page 10

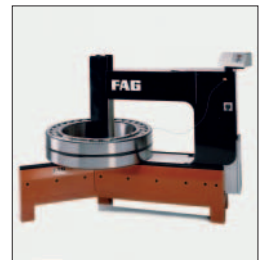
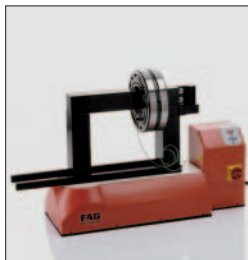
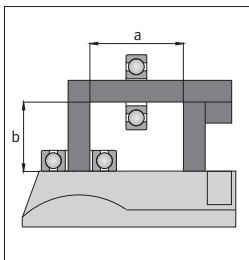
Page 12

Page 14

¹⁾ FAG will also supply heating devices with other rated voltages and frequencies and higher power ratings on request.

Overview of induction heating devices

Heating device (comparable predecessor type)	HEATER300 ²⁾ (AWG13)	HEATER600 (AWG25)	HEATER1200 (AWG40)	HEATER3000
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Power consumption

max.	12,8 kVA	25 kVA	40 kVA	100 kVA
Voltage/frequency	400 V/50 Hz	400 V/50 Hz	400 V/50 Hz	400 V/50 Hz
Current	32 A	63 A	100 A	250 A

Mass	75 kg (+25 kg) ²⁾	350 kg	850 kg	1800 kg
Length	870 mm	1100 mm	1500 mm	2500 mm
Width	300 mm	850 mm	1100 mm	1500 mm
Height	580 mm (900 mm) ²⁾	1250 mm	1400 mm	1800 mm

Dimension a	330 mm	430 mm	700 mm	700 mm
Dimension b	260 mm	400 mm	450 mm	800 mm

Ledges (incl.) for workpieces with min. bore	115 mm	145 mm	215 mm	285 mm
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Ledges (accessories) for workpieces with min. bore	30 mm	45 mm	85 mm	145 mm
	45 mm	60 mm	115 mm	215 mm
	60 mm	70 mm	145 mm	
	70 mm	85 mm		
	85 mm	100 mm		
	100 mm	115 mm		
		130 mm		

Description of the induction heating devices

Page 16

Page 18

Page 20

Page 22

²⁾ when adding HEATER300.TROLLEY to create a mobile version

Induction heating devices

HEATER10

FAG heating device HEATER10

The FAG induction heating device HEATER10 for rolling bearings caters for bearings with bore diameters of 20 mm (with accessories 10 mm) and over and weighing up to 10 kg. This device can also be used to heat sealed and greased bearings and other rotationally symmetrical steel parts.

The heating device, complete with rocker ledge and magnetic temperature sensor, can be easily transported in a stable carry bag. It is particularly suitable for mobile mounting assignments.

With the rocker ledge raised, the bearing is placed around the relevant section of the graduated support. The rocker ledge is then lowered.

The contact surfaces of the rocker ledge and the supports are ground so that loss of power remains low.

The heating device can be connected to any standard two-pin safety socket which is protected by a 10 A fuse.

The clearly structured control panel can also be operated wearing work gloves.

The touch keyboard is oil-resistant, dustproof and waterproof. All functions can be controlled by means of three keys (two to set the temperature and one to start and stop the device).

The device offers a temperature control mode (see page 5).

Accessories

Support ledges are also available as accessories for parts with smaller bore diameters (see Technical Data).



Ordering designation:
HEATER10

Induction heating devices

HEATER10 · Technical Data

Application options

Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 20 mm (with accessories min. 10 mm)
Bearing mass G	max. 10 kg

Electrical data

Operating voltage	230 V
Frequency	50 Hz
Power consumption	2,3 kVA
Rated current	10 A
Residual magnetism	< 2 A/cm
Duty cycle	100 %

Included in delivery: Device, ready for use, with graduated support, rocker ledge and magnetic temperature sensor in a carry bag.

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER10	230×200×240	20	7

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Rocker ledge	HEATER10.LEDGE-20	14×14×105	20	0,15
Magnetic temperature sensor	HEATER10.SENSOR			0,05
Electronic spare parts kit	HEATER10.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Support ledge	HEATER10.LEDGE-10	7×7×105	10	0,04
Support ledge	HEATER10.LEDGE-15	10×10×105	15	0,08

Special designs

The device is also available for rated voltages of 110 V to 240 V, frequency 50/60 Hz.

Ordering example for 115 V/60 Hz: **HEATER10-115V-60HZ**

Induction heating devices

HEATER20

FAG heating device HEATER20

The FAG induction heating device HEATER20 for rolling bearings (comparable predecessor type: AWG.MINI) caters for bearings with bore diameters of 20 mm (with accessories 10 mm) and over and weighing up to 20 kg. This device can also be used to heat sealed and greased bearings and other rotationally symmetrical steel parts.

The heating device, complete with support ledges and magnetic temperature sensor, can be easily transported in a practical protective carry case. It is particularly suitable for mobile mounting assignments.

The two lateral supports carry the support ledge. The part to be heated can either be placed on the round surface over the induction coil or around one of the three support ledges.

The contact surfaces of the support ledges and the supports are ground so that loss of power remains low.

The heating device can be connected to any standard two-pin safety socket which is protected by a 16 A fuse.

The clearly structured control panel can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

All functions can be controlled by means of three keys (two to set the temperature and one to start and stop the device).

The device offers a temperature control mode (see page 5).

Accessories

Appropriate support ledges are also available as accessories for parts with a different bore diameter (see Technical Data).



Ordering designation:
HEATER20

Induction heating devices

HEATER20 · Technical Data

Application options

Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 20 mm (with accessories min. 10 mm)
Bearing mass G	max. 20 kg

Electrical data

Operating voltage	230 V
Frequency	50 Hz
Power consumption	3,6 kVA
Rated current	16 A
Residual magnetism	< 2 A/cm
Duty cycle	100 %

Included in delivery: Device, ready for use, with 3 support ledges and a magnetic temperature sensor in a protective carry case

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER20	345×200×240	20	17

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Support ledge	HEATER20.LEDGE-20	14×14×200	20	0,3
Support ledge	HEATER20.LEDGE-35	25×25×200	35	0,9
Support ledge	HEATER20.LEDGE-60	40×40×200	60	2,5
Magnetic temperature sensor	HEATER.SENSOR			0,05
Electronic spare parts kit	HEATER20.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Support ledge	HEATER20.LEDGE-10	7×7×200	10	0,08
Support ledge	HEATER20.LEDGE-15	10×10×200	15	0,15

Special designs

The device is also available for rated voltages of 110 V to 240 V, frequency 50/60 Hz.

Ordering example for 115 V/60 Hz: **HEATER10-115V-60HZ**

Induction heating devices

HEATER35

FAG heating device HEATER35

The FAG induction heating device HEATER35 for rolling bearings caters for bearings with bore diameters of 70 mm (with accessories 15 mm) and over and weighing up to 35 kg. This device can also be used to heat sealed and greased bearings and other rotationally symmetrical steel parts.

The heating device has a sturdy, scratch-resistant polyurethane housing. It can be easily handled thanks to its lateral handholds.

The two lateral supports carry the slewing ledge. The part to be heated can either be placed on the round surface over the induction

coil or around the horizontal slewing ledge.

The contact surfaces of the slewing ledge and the supports are ground so that loss of power remains low.

The heating device can be connected to any standard two-pin safety socket which is protected by a 16 A fuse.

The clearly structured control panel with clear-cut symbols for the different operating modes can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof. All operating modes and functions can be operated by means of five keys.

The device offers temperature control and time control modes (see page 5).

Additional functions

- Actual temperatures and times are displayed
- Temperature displayed in °C or °F

Accessories

For parts with a smaller bore diameter, FAG supplies support ledges and slewing sledges as special accessories (see Technical Data).



Ordering designation:
HEATER35

Induction heating devices

HEATER35 · Technical Data

Application options

Time control	adjustable up to 99 min 59 s (+50 °C to +400 °C)
Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 70 mm (with accessories min. 15 mm)
Bearing mass G	max. 35 kg

Electrical data

Operating voltage	230 V	Rated current	16 A
Frequency	50 Hz	Residual magnetism	< 2 A/cm
Power consumption	3,6 kVA	Duty cycle	100 %

Included in delivery: Device, ready for use, with 1 slewing ledge and magnetic temperature sensor

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER35	420×260×365	70	31

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Slewing ledge	HEATER35.LEDGE-70	50×50×280	70	5,3
Magnetic temperature sensor	HEATER.SENSOR			
Electronic spare parts kit	HEATER35.ETRONIC			

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Support ledge	HEATER35.LEDGE-15	10×10×280	15	0,2
Support ledge	HEATER35.LEDGE-20	14×14×280	20	0,4
Slewing ledge	HEATER35.LEDGE-35	25×25×280	35	1,3
Slewing ledge	HEATER35.LEDGE-45	30×30×280	45	1,8
Slewing ledge	HEATER35.LEDGE-60	40×40×280	60	3,4

Special designs

The device is also available for rated voltages of 110 V to 240 V, frequency 50/60 Hz.

Ordering example for 115 V/60 Hz: **HEATER35-115V-60HZ**

Induction heating devices

HEATER150

FAG heating device HEATER150

The FAG induction heating device HEATER150 (comparable predecessor type: AWG8) is suitable for heating ring-shaped metal workpieces with bore diameters of 100 mm (with accessories 20 mm) and over to a maximum temperature of +400 °C. Due to the high efficiency of the device ($\cos \varphi > 0,6$) the workpiece may weigh up to 150 kg and is heated particularly quickly.

The heating device has a sturdy, scratch-resistant polyurethane housing.

The two lateral supports carry the slewing ledge. The part to be heated can either be placed on the round surface over the induction coil or around the horizontal slewing ledge.

The clearly structured control panel with clear-cut symbols for the different operating modes can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

The basic version of the device comes with a magnetic temperature sensor which can be used up to +240 °C.

The rated voltage is 400 V, the frequency is 50 Hz.

The device offers temperature control and time control modes (see page 5).

Additional functions

- Demagnetisation without heating
- Program interruption
- Actual temperatures can be called up

Accessories

For parts with a smaller bore diameter, FAG supplies support ledges and slewing sledges as special accessories (see Technical Data).



Ordering designation:
HEATER150

Induction heating devices

HEATER150 · Technical Data

Application options

Time control	adjustable from 0 to 99 min 59 s (+50 °C to +400 °C)
Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 100 mm (with accessories min. 20 mm)
Bearing mass G	max. 150 kg

Electrical data

Rated voltage	400 V	Rated current	32 A
Frequency	50/60 Hz	Residual magnetism	< 2 A/cm
Power consumption	12,8 kVA		

Included in delivery: Device, ready for use, with slewing ledge and magnetic temperature sensor

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER150	505×260×440	100	51

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Slewing ledge	HEATER150.LEDGE-100	70×70×350	100	12,8
Magnetic temperature sensor	HEATER.SENSOR			0,05
Electronic spare parts kit	HEATER150.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Support ledge	HEATER150.LEDGE-20	14×14×350	20	0,5
Slewing ledge	HEATER150.LEDGE-30	20×20×350	30	1,1
Slewing ledge	HEATER150.LEDGE-45	30×30×350	45	2,4
Slewing ledge	HEATER150.LEDGE-60	40×40×350	60	4,2
Slewing ledge	HEATER150.LEDGE-70	50×50×350	70	6,6
Slewing ledge	HEATER150.LEDGE-85	60×60×350	85	9,4

Special designs

The device is also available for rated voltages of 200 V to 600 V, frequency 50/60 Hz.

Ordering designation code e.g. for 460 V, 60 Hz: **HEATER150-460V-60HZ**

Induction heating devices

HEATER300

FAG heating device HEATER300

The FAG induction heating device HEATER300 (comparable predecessor type: AWG13) is suitable for heating ring-shaped metal workpieces with bore diameters of 115 mm (with accessories 30 mm) and over to a maximum temperature of +400 °C. Due to the high efficiency of the device ($\cos \varphi > 0,6$) the workpiece may weigh up to 300 kg and is heated particularly quickly.

The device is an all-steel design.

The two lateral supports carry the slewing ledge. The part to be heated can either be placed on the round surface over the induction coil or around the horizontal slewing ledge.

The clearly structured control panel with clear-cut symbols for the different operating modes can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

The basic version of the device comes with a magnetic temperature sensor which can be used up to +240 °C. The rated voltage is 400 V, the frequency is 50 Hz.

The device offers temperature control and time control modes (see page 5).

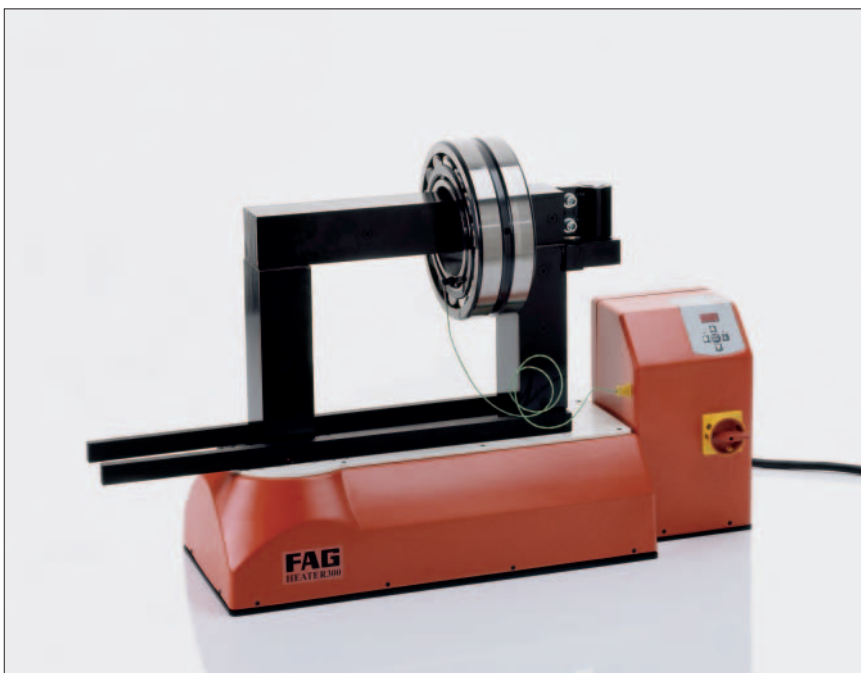
Additional functions

- Demagnetisation without heating
- Program interruption
- Target and actual temperatures and times are displayed

Accessories

Slewing ledges are also available as special accessories for parts with smaller bore diameters (see Technical Data).

A mobile version is available on request. The heating device can be transported quickly and safely from one application to the other using the trolley HEATER300.TROLLEY, which is available as an accessory.



Ordering designation:
HEATER300

Induction heating devices

HEATER300 · Technical Data

Application options

Time control	adjustable from 0 to 99 min 59 s (+50 °C to +400 °C)
Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 115 mm (with accessories min. 30 mm)
Bearing mass G	max. 300 kg

Electrical data

Rated voltage	400 V	Rated current	32 A
Frequency	50/60 Hz	Residual magnetism	< 2 A/cm
Power consumption	12,8 kVA		

Included in delivery: Device, ready for use, with slewing ledge and magnetic temperature sensor

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER300	870×300×580	115	75

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Slewing ledge	HEATER300.LEDGE-115	80×80×490	115	23,5
Magnetic temperature sensor	HEATER.SENSOR			0,05
Electronic spare parts kit	HEATER300.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Slewing ledge	HEATER300.LEDGE-30	20×20×490	30	1,5
Slewing ledge	HEATER300.LEDGE-45	30×30×490	45	3,3
Slewing ledge	HEATER300.LEDGE-60	40×40×490	60	5,9
Slewing ledge	HEATER300.LEDGE-70	50×50×490	70	9,2
Slewing ledge	HEATER300.LEDGE-85	60×60×490	85	13,2
Slewing ledge	HEATER300.LEDGE-100	70×70×490	100	18
Trolley	HEATER300.TROLLEY	900×500×490	–	25

Special designs

The device is also available for rated voltages of 200 V to 600 V, frequency 50/60 Hz.

Ordering designation code e.g. for 460 V, 60 Hz: **HEATER300-460V-60HZ**

Induction heating devices

HEATER600

FAG heating device HEATER600

The FAG induction heating device HEATER600 (comparable predecessor type: AWG25) is suitable for heating ring-shaped metal workpieces with bore diameters of 145 mm (with accessories 45 mm) and over to a maximum temperature of +400 °C. Due to the high efficiency of the device ($\cos \varphi > 0,6$) the workpiece may weigh up to 600 kg and is heated particularly quickly. The all-steel construction is coated with synthetic resin which is resistant to impacts and corrosion.

The vertical ledge is lifted manually or using hoisting equipment. The bearing is placed on the support rails and centred before the vertical ledge is lowered and locked into place.

The workpiece can also be pushed onto the horizontal ledge.

The clearly structured control panel with clear-cut symbols for the different operating modes can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

The basic version of the device comes with a magnetic temperature sensor which can be used up to +240 °C. The rated voltage is 400 V, the frequency is 50 Hz.

The device offers temperature control and time control modes (see page 5).

Additional functions

- Demagnetisation without heating
- Program interruption

Accessories

Smaller ledges are also available as accessories for parts with smaller bore diameters (see Technical Data).



Ordering designation:
HEATER600

Induction heating devices

HEATER600 · Technical Data

Application options

Time control	adjustable from 0 to 99 min 59 s (+50 °C to +400 °C)
Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 145 mm (with accessories min. 45 mm)
Bearing mass G	max. 600 kg

Electrical data

Rated voltage	400 V	Rated current	63 A
Frequency	50/60 Hz	Residual magnetism	< 2 A/cm
Power consumption	25 kVA		

Included in delivery: Device, ready for use, with ledge and magnetic temperature sensor

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER600	1100×850×1250	145	350

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Ledge	HEATER600.LEDGE-145	100×100×700	145	55
Magnetic temperature sensor	HEATER.SENSOR			0,05
Electronic spare parts kit	HEATER600.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Ledge	HEATER600.LEDGE-45	30×30×700	45	4,7
Ledge	HEATER600.LEDGE-60	40×40×700	60	8,4
Ledge	HEATER600.LEDGE-70	50×50×700	70	13,8
Ledge	HEATER600.LEDGE-85	60×60×700	85	19,5
Ledge	HEATER600.LEDGE-100	70×70×700	100	26,9
Ledge	HEATER600.LEDGE-115	80×80×700	115	35
Ledge	HEATER600.LEDGE-130	90×90×700	130	44,5

Special designs

The device is also available for rated voltages of 200 V to 600 V, frequency 50/60 Hz.

Ordering designation code e.g. for 460 V: **HEATER600-460V**

Induction heating devices

HEATER1200

FAG heating device HEATER1200

The FAG induction heating device HEATER1200 (comparable predecessor type: AWG40) is suitable for heating ring-shaped metal workpieces with bore diameters of 215 mm (with accessories 85 mm) and over to a maximum temperature of +400 °C. Due to the high efficiency of the device ($\cos \varphi > 0,6$) the workpiece may weigh up to 1200 kg and is heated particularly quickly.

The all-steel construction is coated with synthetic resin which is resistant to impacts and corrosion.

The vertical ledge is lifted manually or using hoisting equipment. The bearing is placed on the support rails and centred before the vertical ledge is lowered and locked into place.

The workpiece can also be pushed onto the horizontal ledge. The clearly structured control panel with clear-cut symbols for the different operating modes can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

The basic version of the device comes with a magnetic temperature sensor which can be used up to +240 °C.

The rated voltage is 400 V, the frequency is 50 Hz. The device offers temperature control and time control modes (see page 5).

Additional functions

- Demagnetisation without heating
- Program interruption

Accessories

Smaller ledges are also available as accessories for parts with smaller bore diameters (see Technical Data).

The device HEATER1200 is delivered without plug and cable.



Ordering designation:
HEATER1200

Induction heating devices

HEATER1200 · Technical Data

Application options

Time control	adjustable from 0 to 99 min 59 s (+50 °C to +400 °C)
Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 215 mm (with accessories min. 85 mm)
Bearing mass G	max. 1 200 kg

Electrical data

Rated voltage	400 V	Rated current	100 A
Frequency	50/60 Hz	Residual magnetism	< 2 A/cm
Power consumption	40 kVA		

Included in delivery: Device, ready for use, with ledge and magnetic temperature sensor

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER1200	1500×1100×1400	215	850

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Ledge	HEATER1200.LEDGE-215	150×150×850	215	150
Magnetic temperature sensor	HEATER.SENSOR			0,05
Electronic spare parts kit	HEATER1200.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Ledge	HEATER1200.LEDGE-85	60×60×850	85	24
Ledge	HEATER1200.LEDGE-115	80×80×850	115	42,7
Ledge	HEATER1200.LEDGE-145	100×100×850	145	66,8

Special designs

The device is also available for rated voltages of 200 V to 600 V, frequency 50/60 Hz.

Ordering designation code e.g. for 230 V, 60 Hz: **HEATER1200-230V-60HZ**

Induction heating devices

HEATER3000

FAG heating device HEATER3000

The FAG induction heating device HEATER3000 is suitable for heating ring-shaped metal workpieces with bore diameters of 285 mm (with accessories 145 mm) and over to a maximum temperature of +400 °C. Due to the high efficiency of the device ($\cos \varphi > 0,6$) the workpiece may weigh up to 3 000 kg and is heated particularly quickly.

The all-steel construction is coated with synthetic resin which is resistant to impacts and corrosion.

The vertical ledge is lifted manually or using hoisting equipment. The bearing is placed on the support rails and centred before the vertical

ledge is lowered and locked into place.

The workpiece can also be pushed onto the horizontal ledge.

The clearly structured control panel with clear-cut symbols for the different operating modes can also be operated wearing work gloves. The touch keyboard is oil-resistant, dustproof and waterproof.

The basic version of the device comes with a magnetic temperature sensor which can be used up to +240 °C.

The rated voltage is 400 V, the frequency is 50 Hz.

The device offers temperature control and time control modes (see page 5).

Additional functions

- Demagnetisation without heating
- Program interruption

Accessories

A smaller ledge is also available as an accessory for parts with smaller bore diameters (see Technical Data).

The device HEATER3000 is delivered without plug and cable.



Ordering designation:
HEATER3000

Induction heating devices

HEATER3000 · Technical Data

Application options

Time control	adjustable from 0 to 99 min 59 s (+50 °C to +400 °C)
Temperature control	adjustable between +50 °C and +240 °C, with safety mechanism for rolling bearings
Bearing bore d	min. 285 mm (with accessories min. 145 mm)
Bearing mass G	max. 3 000 kg

Electrical data

Rated voltage	400 V	Rated current	250 A
Frequency	50/60 Hz	Residual magnetism	< 2 A/cm
Power consumption	100 kVA		

Included in delivery: Device, ready for use, with ledge and magnetic temperature sensor

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Complete heating device	HEATER3000	2 500×1 500×1 800	285	1 800

Replacement parts

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Ledge	HEATER3000.LEDGE-285	200×200×1 250	285	392
Magnetic temperature sensor	HEATER.SENSOR			0,05
Electronic spare parts kit	HEATER3000.ETRONIC			0,45

Accessories

Description	Ordering designation	Dimensions mm	for bore diameters from mm	Mass kg
Ledge	HEATER3000.LEDGE-145	100×100×1 250	145	98,2
Ledge	HEATER3000.LEDGE-215	150×150×1 250	215	221

Special designs

The device is also available for rated voltages of 200 V to 600 V, frequency 50/60 Hz.

Ordering designation code e.g. for 480 V, 60 Hz: **HEATER3000-480V-60HZ**

FAG also supplies special induction heating devices for workpieces weighing > 3 000 kg, which are matched to the power requirements and the dimensions.

Accessories for thermal mounting

Temperature measuring device TEMP-CHECK-CONTACT

FAG temperature measuring device TEMP-CHECK-CONTACT

The contact-based FAG temperature measuring device TEMP-CHECK-CONTACT (former designation TEMP-MG) has a display range of -60 °C to $+1000\text{ °C}$.

The temperature sensor TEMP-CHECK-CONTACT.SENSOR included in the delivery has a measurement range of -60 °C to $+300\text{ °C}$.

The device is suitable for measuring the temperature of

- rolling bearings, housings and lubrication systems for operational monitoring
- heated rolling bearings and joints during mounting

The microprocessor-controlled measuring device has a single line display - digit height 14 mm. The touch keyboard has the following switching functions:

- On/off
- Hold (hold the measurement value in the display)

Additional functions

- Battery voltage is displayed (low battery display)
- Automatic shut-off (Auto-OFF) after 14 min
- Switching from $^{\circ}\text{C}$ to $^{\circ}\text{F}$.



Accessories for thermal mounting

Temperature measuring device TEMP-CHECK-CONTACT

Technical data

Measurement range	-60 °C... +1000 °C
Resolution	0,1 °C/1 °C automatic conversion of resolution from 0,1 °C to 1 °C from +200 °C
Accuracy (± 1 digit)	±1 °C; ±0,5 % of the measured value (-40 °C... +900 °C) ±2 °C; ±1 % of the measured value (remaining range)
Display	LCD, single line, digit height 14 mm
Operating temperature	0 °C...+40 °C
Permissible storage and transport temperature	-20 °C...+70 °C
Housing	Plastic (ABS) 190×57×42 mm (L×W×H)
Mass	approx. 300 g
Power supply	Battery 9 V IEC 6F 22 or 9 V accumulator
Battery life	> 100 h (alkaline- manganese)

Ordering designation and scope of
delivery:

TEMP-CHECK-CONTACT.UNIT

(TEMP-CHECK-CONTACT measuring
device with sensor
TEMP-CHECK-CONTACT.SENSOR and
service case)

FAG temperature sensor as replacement part (can be ordered individually):

Rapid reaction surface sensor
TEMP-CHECK-CONTACT.SENSOR
(NiCr-Ni thermocouple
plug-and-socket connection, type K)
Measurement range -60 °C...+300 °C
briefly up to +500 °C

Ordering designation:
TEMP-CHECK-CONTACT.SENSOR

FAG temperature sensor as accessory

(can be ordered individually, for
measuring the temperature of
fluids, lubricants etc.):
Immersion/insertion sensor
TEMP-CHECK-CONTACT.SENSOR-
IMMERSION
(NiCr-Ni thermocouple
plug-and-socket connection, type K)
Measurement range -60 °C...+400 °C

Ordering designation:
**TEMP-CHECK-CONTACT.SENSOR-
IMMERSION**



Accessories for thermal mounting

Gloves GLOVE1 · GLOVE2

Heat-resistant FAG gloves GLOVE1

Heat-resistant FAG gloves are particularly suitable for the handling of heated rolling bearings or other parts in mounting or dismounting.

The outside comprises rugged polyester and can withstand temperatures up to +150 °C. The inside is made from comfortable cotton.

The principal characteristics are:

- Resistant up to +150 °C
- Lint-free
- Asbestos-free
- Comfortable
- Cut-resistant

Ordering designation

GLOVE1

(formerly: HANDSCHUH1)



Heat-resistant and oil-resistant FAG gloves GLOVE2

Heat-resistant and oil-resistant FAG gloves are particularly suitable for the handling of heated and lubricated rolling bearings in mounting or dismounting.

Their principal characteristics derive from the multiple layer construction comprising different fibres.

The principal characteristics are:

- Resistant up to +250 °C
- Non-flammable
- Heat-resistant even when damp
- Authorised for protection against mechanical (DIN EN 388) and thermal (DIN EN 407) influences
- Cotton-free
- Cut-resistant

Ordering designation

GLOVE2

(formerly: HANDSCHUH2)



Accessories for thermal mounting

Transport and mounting tool BEARING-MATE

FAG transport and mounting tool BEARING-MATE

BEARING-MATE (former designation: BEARING.MATE) is an accessory for the secure, rapid and easy handling of medium-sized and large rolling bearings. It can also be used where bearings are heated prior to mounting.

The tool comprises two handles and two steel strips. Turning the handles clamps the steel strips firmly on the outer ring of the rolling bearing. The compact packaging also includes two brackets. These are used on self-aligning ball bearings and spherical roller bearings in order to prevent tilting of the inner rings.

The tool and bearing are carried either by two people or a crane. If two carrying slings are used, the rolling bearing can be rotated to any position when transported by crane. During heating on an induction heating device, the tool remains mounted on the bearing. The steel strips expand uniformly with the bearing. Optimum tension is thus maintained.

Three tool sizes are matched to different bearing outside diameters.



Accessories

Long brackets to prevent tilting of self-aligning bearing inner rings (2 pieces)

Ordering designation:
BEARING-MATE.LOCKBAR270

Carrying sling, 1 m long (2 pieces)
BEARING-MATE.SLING-1M

Replacement parts

Short brackets to prevent tilting of self-aligning bearing inner rings (2 pieces)

Ordering designation:
BEARING-MATE.LOCKBAR170

Pack of spare parts
BEARING-MATE.SERVICE-KIT

FAG transport and mounting tool

Ordering designation Transport and mounting tool	Bearing outside diameter		Bearing mass max. kg	Operating temperature max. °C	Workpiece mass kg
	min. mm	max.			
BEARING-MATE250-450	250	450	500	+160	6,3
BEARING-MATE450-650	450	650	500	+160	6,4
BEARING-MATE650-850	650	850	500	+160	6,5

Other publications

CD – MM 1.0	FAG Mounting Manager
CD Medias 4.x	Electronic INA/FAG rolling bearing catalogue
Publ. WL 80 100	Mounting of rolling bearings
Publ. WL 80 102	How to mount and dismount rolling bearings hydraulically
Publ. WL 80 250	FAG equipment and services for the mounting and maintenance of rolling bearings
Publ. WL 82 102	Rolling bearing damage
TI WL 00-11	FAG videos on bearing arrangement technology
TI WL 80-14	Mounting and dismounting of spherical roller bearings with tapered bore
TI WL 80-38	Mounting of self-aligning ball bearings using adapter sleeves
TPI WL 80-50	FAG pressure generators
TI WL 80-53	Rolling bearing mounting cabinet and mounting sets – Basic course for vocational training
TPI WL 80-55	FAG alignment tools
TPI WL 80-56	FAG tools for mechanical mounting and dismounting of rolling bearings
TPI WL 80-57	FAG hydraulic nuts
TPI WL 80-58	FAG tools for thermal dismounting

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