

IND 160

User manual



GRUETZNER
MAINTENANCE EQUIPMENT

I. Revision history & imprint

I.I Revision history

The present user manual is the original user manual.

This user manual is only valid for

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I.II Imprint

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1. General information about this manual

This user manual contains all necessary information to use the heating device safely and as intended. In the event that supplementary sheets are attached to these instructions, the information and data contained there are valid and replace the corresponding information in this user manual. Any contradictory information contained in this user manual thus becomes invalid. If you have any questions regarding special applications, please contact Gruetzner GmbH (→chap. I.II *Imprint*).

The actual and factual operator must ensure and guarantee that these instructions, including any supplementary sheets, have been read and understood by all persons responsible for the installation, operation or maintenance of the heating device. Therefore, keep these instructions in a suitable place, ideally in an easily accessible place in the surrounding area of the heating device.

Inform your colleagues who work in the local area of the device about safety instructions so nobody gets hurt.

This manual was written in German, all other language versions are translations of this manual.

1.1. Signal words

The following signal words are used in this manual to draw your attention to possible dangers, prohibitions and other important information:

DANGER

This signal word points you to an immediate and threatening risk of serious injury or death.

WARNING

This signal word indicates a potentially imminent danger which can result in serious injury or even death.

CAUTION

This signal word indicates a potentially imminent danger that can result in minor to severe injuries.

NOTICE

This signal word indicates a potentially imminent danger which can result in damage to property.



INFO

This signal word refers to practical application tips or particularly important information when using the heating device.

1.2. Warning symbols


The following warning symbols are used in this user manual to alert you to hazards, prohibitions and important information:



	
General warning sign	Electricity hazard




1.3. Structure of the safety instructions

The safety instructions in this user manual are structured according to the following system:

	CAUTION This text explains the consequences of disregarding the reference. <ul style="list-style-type: none"> This text shows what to do as an instruction.
---	---

1.4. Symbols for information

The following information symbols are used in the text and instructions in this manual:

-  Requests you to take action
-  Shows the consequences of an action
-  Additional information about the action

2. Safety

All persons working with the heating device must follow these operating instructions, in particular the safety instructions and the rules and regulations applicable at the place of use. Generally applicable legal regulations and other rules as well as the relevant rules and regulations for accident prevention (e.g. personal protective equipment (PPE)) and environmental protection must be observed.

2.1. Hazards

In order to avoid danger to the user, the heating device may only be used for its intended purpose (→chap. 2.4) and in a technically safe condition.

Always inform yourself about the general safety instructions (→chap. 2.6) before starting to work.

2.2. Staff

Only qualified staff who has read and understood this manual may work with the heating device. Local and/or company regulations apply accordingly.

2.3. Reasonably predictable misuse

Any use of the heating device which exceeds the maximum permissible technical data is generally considered to be improper and therefore prohibited.

2.4. Usage for the intended purpose

The following points must be observed for the intended purpose of using the heating device:

- The heating device is exclusively approved for industrial use.
- The heating device may be used in accordance with the technical data (→chap. 3.3) exclusively.
- The heating device must not be put into operation without the workpiece in place.
- The heating device must not be put into operation without the yoke in place.
- All electronics are designed for use in IND 160, they cannot be used for other applications.
- Unauthorized structural alterations to the heating device are not permitted.
- The heating device may not be opened or disassembled.
- Relevant regulations and rules on work safety, accident prevention and environmental prediction must be observed.
- Work and activities with and on the heating device are only permitted with appropriate authorisation (→chap. 2.2 *Staff*).



All other uses than the aforementioned intended usage or the disregard of one of the above points shall be deemed improper usage. In this case no liability and/or warranty is assumed.







2.5. Warranty and Liability

If the following items are disregarded, all warranty and liability claims for personal injury and/or damage to property are excluded:

- non-observance of the instructions on transport and storage;
- misuse;
- improper or unperformed maintenance or repair work;
- improper assembly / disassembly or improper operation;
- operation of the heating device with defective safety devices;
- modifications or alterations which may be carried out without the written permission of the manufacturer have taken place;
- opening and/or partial or complete disassembly of the heating device.

2.6. General safety instructions

The following safety instructions are given for the heating device:

	<p style="text-align: center;">DANGER</p> <p>Damaged or flawed electrical connections or unlicensed hot components lead to heavy injuries or even death.</p> <ul style="list-style-type: none"> • All work on electrical connections shall be provided by qualified personnel only. • Immediately change damaged cables or plugs.
	<p style="text-align: center;">DANGER</p> <p>Never use the heating device in potentially explosive areas.</p>
	<p style="text-align: center;">WARNING</p> <p>The heating device generates a magnetic field that can cause interference with pacemakers and electronic devices such as wrist-watches.</p> <ul style="list-style-type: none"> • Electronic devices and persons with pacemakers must keep a safe distance of 5 metres during operation.
	<p style="text-align: center;">CAUTION</p> <p>Risk of injury from heated individual parts.</p> <ul style="list-style-type: none"> • Keep a safety distance of 50 cm from the workpiece and the heating tower during the heating process. • Use heat-resistant gloves when handling the workpiece.
	<p style="text-align: center;">NOTICE</p> <p>Moisture can damage the heating device.</p> <ul style="list-style-type: none"> • Never expose the heating device to high levels of humidity. • Do not immerse the unit in water or other liquids.
	<p style="text-align: center;">NOTICE</p> <p>Shocks can damage the heating device and the yokes.</p> <ul style="list-style-type: none"> • Do not subject the heating device and accessories to mechanical shocks.



NOTICE

The adhesive tape on the support and mounting yokes prevents oxidation and reduces the noise level.

- Do not remove the adhesive tape.



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3. Description of function

3.1. Design

IND 160 is suitable for mounting all ring-shaped metal parts (e.g. rolling bearings, gear wheels, flanges and pulleys) that are mounted on shafts with press tension.

The working principle of the IND 160 heater can be compared to that of a transformer. The voltage and electric current, which circulates in the turns of the induction coil, induces a low voltage and therefor a high intensity of electric current in the workpiece. The eddy currents thus generated heat the workpiece and expand it so that it can be mounted on the shaft without applying force. All components of the heater remain cold.

All workpieces to be heated must be made of magnetic metals. This property can be easily checked by means of the temperature probe supplied.



Fig. 1: Overview IND 160

No.	Description	No.	Description
1	Workpiece	4	Control panel
2	Temperature probe	5	Placement yokes
3	Support yokes		

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3.2. Scope of delivery

The heating device is delivered with power cable, temperature probe and protective gloves.

3.3. Nameplate and designation

Each heating device is marked by means of the CE symbol and a nameplate. The nameplate contains information on the manufacturer and the serial number.



Fig. 2: Markings

3.4. Technical data

Housing			
Dimensions	WxHxD	185 x 235 x 265	mm
Weight		~10.5	kg
Operation			
Audible alarm at the end of the operation		no	
Programmable time period		0 ... 10	min.
Digital temperature control (temperature probe)		20 ... 260	°C
Heating temperature for workpieces		20 ... 110	°C
Workpieces			
Internal diameter		17 ... 90	mm
External diameter max.		160	mm

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Width max.	35	mm	
Material	magnetic metal		
Electrics	IND 160	IND 160-115	
Power supply voltage	230	115	V
Frequency	50	60	Hz
Installed power	2.5	2	kVA
Current draw	11 ... 12	5.5 ... 6	A
Protection	20		A
Demagnetisation (automatic)	Residual magnetism after 3 seconds: <1.24 A / cm		

Please see →chap. 5.2 Electrical connection for more information about electrics.

3.5. Placement yokes

The IND 160 heating device is suitable for heating workpieces with an inside diameter of 17 to 90 mm, an outside diameter of up to 160 mm and a maximum width of 35 mm. Depending on the inner diameter of the workpiece, a different placement yoke is used.

Yoke		Inside diameter of the workpiece
small	12x12 mm	17 ... 30 mm
medium	20x20 mm	30 ... 58 mm
large	40x40 mm	58 ... 90 mm



4. Transport and storage


4.1. Packaging

The heating device is delivered with accessories in an outer packaging (cardboard box). To protect against moisture and dirt, all items are additionally packed in PE films.

Dispose the packaging materials at designated disposal points in compliance with the relevant national and company regulations.

After receiving the heating device check the delivery note for completeness and correctness. Any missing parts or damages must be reported immediately to the forwarding agent, the insurance company or Gruetzner GmbH in writing.

4.2. Transport

	NOTICE
	<p>Hard shocks due to e.g. falling or setting down too hard can damage the heating device.</p> <ul style="list-style-type: none">• Do not throw the heating device.• When using lifting equipment only use hoists and load handling attachments in perfect condition and with sufficient load capacity.• The permissible lifting weight of the lifting device must not be exceeded.

4.3. Storage

Store the heating device in its original packaging in a vertical position in a dry, frost-free environment at an ambient temperature of +5 °C to +40 °C.

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5. Commissioning & operation

5.1. Control panel

The control panel consists of a regulator and two buttons that control the heating device. Three control LEDs inform about the current status of the unit.

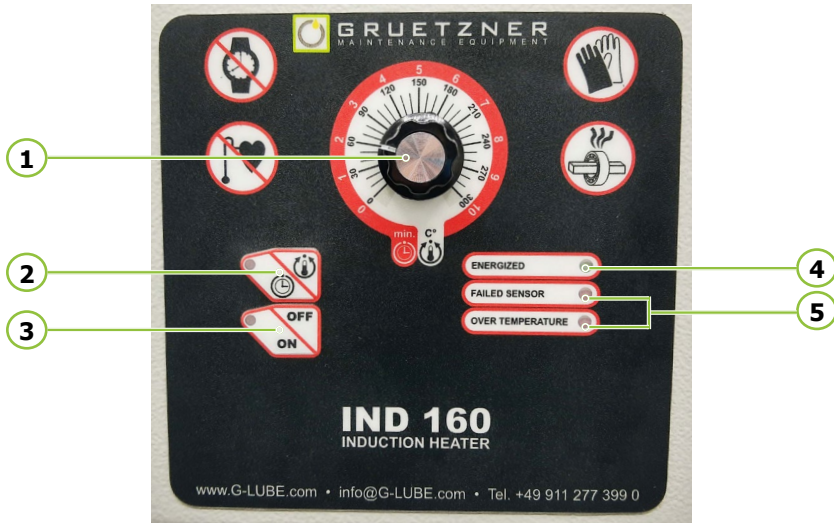


Fig. 3: Overview control panel

No.	Description	No.	Description
1	Time/temperature regulator	4	LED device is activated
2	Button mode	5	LED error display
3	Button ON/OFF		

5.2. Electrical connection

Before starting to work, inform yourself in detail about the heating device using this user manual; and follow the general safety instructions (→chap. 2.6) in particular. The heater's mains power supply must be properly grounded and the socket must be in accordance with the cable plug.

✋ Insert the mains plug into the socket and press the main switch to switch on the heating device.

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- ➡ All LEDs light up briefly.
- ➡ The control LED „ENERGIZED“ is lit continuously.
- ⓘ This procedure does not start the heating process.



Fig. 4: Mains plug



Fig. 5: Master switch

5.3. Place yoke with workpiece.

✎ Based on the table in →chap. 3.5 select the correct placement yoke for your workpiece and then put through the inner ring of the workpiece. Observe the specifications for material and dimensions.

✎ Place the yoke with the adhesive strip facing downwards and with the workpiece centred on the two support yokes.

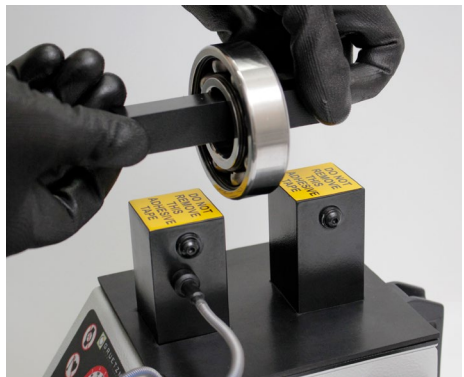
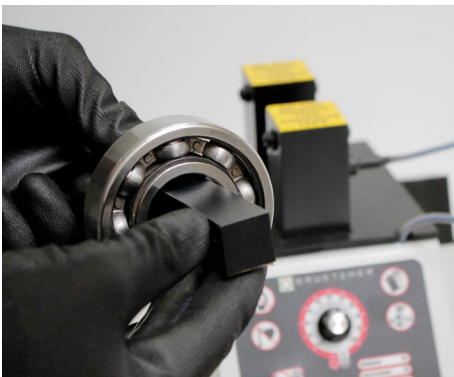


Fig. 6, 7: Place yoke with workpiece.

5.4. Position temperature probe

- ✎ Clean the temperature probe and remove fillings.
- ✎ Position the temperature probe on the **inner ring** of the workpiece.
- ① The use of heat conducting material is recommended but not mandatory.



	NOTICE
	<p>Incorrect positioning of the temperature probe can damage the workpiece during the heating process.</p> <ul style="list-style-type: none"> • Position the temperature probe only on the inner ring of the workpiece.



Fig. 8: Position temperature probe

	NOTICE
	<p>Contact with the heated workpiece or the support and placement yokes can damage the cable on the temperature probe.</p> <ul style="list-style-type: none"> • Make sure that the cable does not touch these parts of the device during the entire heating process.

5.5. Heating process in temperature mode

The heating process can be carried out in time or temperature mode.

In **temperature mode** you can programme the temperature to which the workpiece is to be heated. After switching on the unit, the mode from the last use is preselected.

Initial state 1): LED of the „Mode“ button is not lit

- ➡ Temperature mode already activated, no further action necessary.

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OR Initial state 2): LED of the „Mode“ button is lit

☞ Press the "Mode" button.

➡ The LED of the "Mode" button goes out, the temperature mode is activated.



Fig. 9: Select temperature mode

The heating temperature is set via the control panel.

☞ Select the required temperature (white scale) using the regulator.

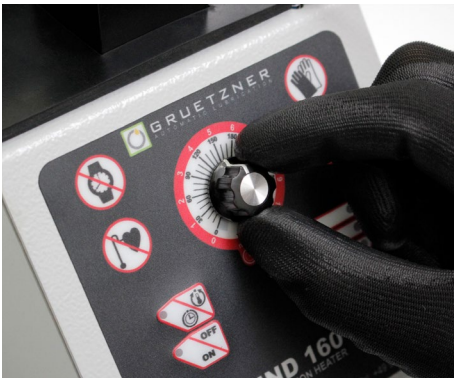


Fig. 10: Setting the temperature



NOTICE

Excessively high temperatures can damage the workpiece or the heating device.

- Observe the temperature specifications of the heating device (→chap. 3.4 *Technical data*).

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- ✎ Press the "ON/OFF" button to start the heating process.
- ➡ The LED on the „ON/OFF" button lights up.
- ➡ The workpiece is heated until the programmed temperature is reached.
- ➡ The heating process stops automatically as soon as the programmed temperature is reached.
- ➡ The LED of the „ON/OFF" button flashes for 2 seconds and then goes out.
- ✎ Remove the heated workpiece with protective gloves and mount it.

- ✎ Press the "ON/OFF" button to interrupt the heating process.



Fig. 11: Start / stop heating process

Demagnetisation takes place automatically at the end of each heating cycle.

5.6. Heating process in time mode

The heating process can be carried out in time or temperature mode.

In **time mode** you can programme the time period within which the workpiece is to be heated. This mode is used when the exact heating time is known from previous heating processes. After switching on the unit, the mode from the last use is preselected.

Initial state 1): LED of the „Mode" button is lit

- ➡ Time mode already activated, no further action necessary.

OR initial state 2): LED of the „Mode" button is not lit

- ✎ Press the "Mode" button.
- ➡ The LED of the "Mode" button goes out, time mode is activated.

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Fig. 12: Select time mode

The heating time is set via the control panel.

- ☞ Select the required time (red scale) using the regulator.

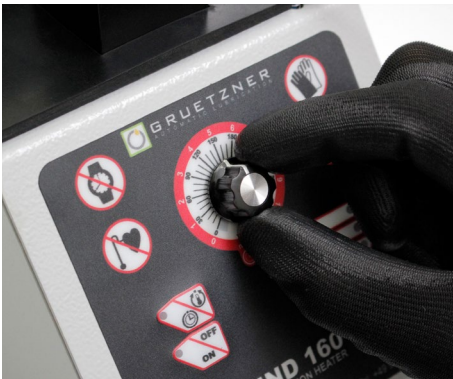



Fig. 13: Setting the time

- ① Do not choose a time period that exceeds the recommended temperatures.

	NOTICE
	<p>Excessively high temperatures can damage the workpiece or the heating device.</p> <ul style="list-style-type: none">• Observe the temperature specifications of the heating device (→chap. 3.4 <i>Technical data</i>).

- ☞ Press the "ON/OFF" button to start the heating process.
- ☞ The LED on the „ON/OFF" button lights up.
- ☞ The workpiece is heated until the programmed time is up.

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- ➡ The heating process stops automatically as soon as the programmed time has elapsed.
- ➡ The LED of the „ON/OFF“ button flashes for 2 seconds and then goes out.
- 👉 Remove the heated workpiece with protective gloves and mount it.
- 👉 Press the "ON/OFF" button to interrupt the heating process.



Fig. 14: Start / interrupt heating process

Demagnetisation takes place automatically at the end of each heating cycle.

6. Troubleshooting

	<div data-bbox="283 228 1022 276" style="background-color: red; color: white; text-align: center; padding: 5px;">DANGER</div> <p data-bbox="283 292 1022 347">Damaged or flawed electrical connections or unlicensed hot components lead to heavy injuries or even death.</p> <ul data-bbox="283 352 1022 410" style="list-style-type: none">• The procedures described below may only be performed by properly trained and qualified professionals using all mandatory PPE's.
---	--

6.1. The device does not switch on

Check for voltage in the electrical system. If it is verified that there is voltage and the heater still does not work, check that the glass fuse on the electronic board is blown. To do this, it is necessary to open the drawer below the heater's power connector.



Fig. 15: Access to the circuit board

6.2. Error messages on the display

LED is lit	Cause	Remedy
FAILED SENSOR	Temperature probe faulty	Check the condition of the temperature probe. The cable must not be ripped, broken or crushed over its entire length. If the cable or temperature probe are damaged, replace them. If there is no damage and the error is still displayed, contact the manufacturer.
OVER TEMPERATURE	Device overheats	If the coil reaches a temperature of more than 80 °C, the appliance is deactivated. It is not possible to switch on the unit until the core temperature has dropped. Once the temperature has dropped, the LED goes out and the unit is ready for use again.

7. Maintenance

Before starting any maintenance work, inform yourself about the general safety instructions (→chap. 2) and observe the relevant local and operational safety regulations.

Do not deactivate any protective device without authorization!

The following maintenance schedule must be observed:

- visual check
- cleaning

7.1. Visual check

- Check the power cable for damage.
- Check the support and placement yokes for damage.
- Check the environment: Protect the device from dirty, humid environments and contact with corrosive materials.

7.2. Cleaning

Clean the heating device from dirt using suitable cleaning agents (e.g. absorbent towels, cloths).



NOTICE

Compressed air can damage the heating device.

- Do not use compressed air to clean the heating device.

8. Released accessories

In addition to the mains cable and the temperature probe, the protective gloves are also available separately.

For more information please contact the manufacturer or visit its website www.G-LUBE.com.



9. Appendix

9.1. EC/EU Declaration of conformity

EC declaration of conformity

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The manufacturer or authorised representative (based within the EU)

Gruetzner GmbH, Dagobertstr. 15, 90431 Nuremberg, Germany

hereby declares that the following induction heaters

Product designation: IND 160

Type designation: IND 160

comply with the essential requires of the following EC directives:

- Directive 2014/35/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
- Directive 2014/30/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

The following harmonized standards have been applied:

- EN 60519-1
- EN 60519-3
- EN 61000-3-3
- EN 61000-6-2
- EN 55011

Nuremberg, 29.10.2021

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A U T O M A T I C L U B R I C A T I O N

Gruetzner GmbH is your specialist for automatic lubrication systems since 1993. Our user-friendly lubrication solutions are used in almost all areas of maintenance in every industry across the globe. Flexibility and outstanding service are our core competencies. An individual, custom-built lubrication concept which is adjusted to your machines and constructions will be gladly developed by our experts.



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