

IND 220

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:

	<p>CAUTION</p> <p>This text explains the consequences of disregarding the reference.</p> <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. 3.4) exclusively.
- The heating device must not be put into operation as long as no workpiece is positioned on the heating tower.
- All electronics are designed for use in IND 220 and 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.

3. Description of function

3.1. Design

IND 220 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. As with an induction cooker, a magnetic field is generated in the medium frequency range, which induces a voltage in the inner ring of 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 220

No.	Description	No.	Description
1	Temperature probe	4	Control panel
2	Workpiece	5	Display
3	Heating tower	6	Master switch

3.2. Scope of delivery

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

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	430 x 300 x 215	mm
Weight		~3.5	kg
Operation			
Audible alarm at the end of the operation	yes		
Programmable time period	0 ... 99:59		min.
Digital temperature control (temperature probe)	20 ... 180		°C
Heating temperature for workpieces	20 ... 110		°C
Workpieces			
Internal diameter	20 ... 120		mm
External diameter max.	220		mm

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Weight max.	10	kg	
Material	magnetic metal		
Electrics	IND 220	IND 220-115	
Power supply voltage	230	115	V
Frequency	50	60	Hz
Installed power	1	0,5	kVA
Current draw	2,3 ... 4,5	1,15 ... 2,25	A

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



4. Transport and storage


4.1. Packaging

The heating device is delivered with accessories in an outer packaging (cardboard box). To protect the products from moisture and dirt they are also 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.

5. Commissioning & operation

5.1. Control panel

The control panel consists of a display and five buttons that control the heating device.



Fig. 3: Overview control panel

No.	Description	No.	Description
1	Display	4	Arrow buttons
2	Button temperature mode	5	Button ON/OFF
3	Button time mode		

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.

➡ The display lights up. The factory setting is 20 s in time mode.

- ① This procedure will not start the heating cycle.



Fig. 4: Mains plug



Fig. 5: Master switch

5.3. Place workpiece




☞ Place the workpiece on the heating tower. Observe the specifications for material and dimensions (→chap. 3.4 *Technical data*).


- ① Thermal interface material is recommended for use, but is not mandatory.



Fig. 6: Place workpiece

5.4. Position temperature probe

-  Clean the temperature probe and remove fillings.
-  Position the temperature probe on the **inner ring** of the workpiece.
-  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.


-  Insert the plug of the temperature probe into the socket on the back of the heater.



Fig. 7: Position temperature probe

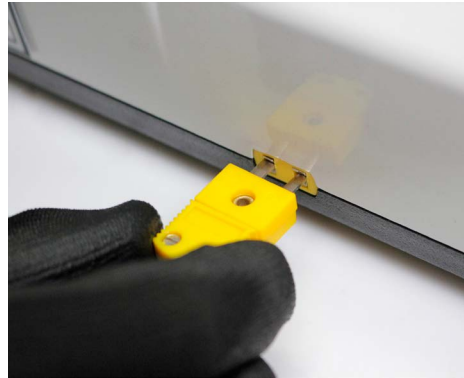



Fig. 8: Plug in temperature probe

	NOTICE
	<p>Contact with the heated workpiece can damage the temperature probe cable.</p> <ul style="list-style-type: none"> Make sure that the cable does not touch the workpiece 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. This mode provides a reheat function which automatically reheats the workpiece after a drop in temperature.

5.5.1. Heating process with reheat function

- ✎ Press the "temperature mode" button **once**.
- ➡ Temperature mode is now activated.
- ➡ The LED above the "temperature mode" button lights up. The reheat function is now activated.



Fig. 9: Reheat function activated

The heating temperature is set via the control panel. The factory setting is 110 °C.

- ✎ Select the required temperature using the arrow buttons. You can keep the arrow buttons pressed to reach the desired setting more quickly.

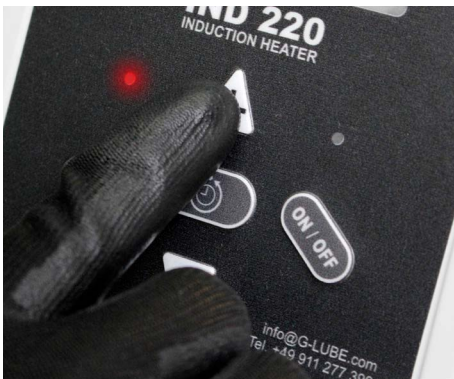



Fig. 10, 11: Setting the temperature

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	<table><tr><th data-bbox="260 165 1021 201">NOTICE</th></tr><tr><td data-bbox="260 201 1021 349"><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>).</td></tr></table>	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>).
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>).			

- ➞ If the setting is correct, the temperature is shown in three digits.



Fig. 12: Correct temperature display

- ✎ Press the "ON/OFF" button to start the heating process.
- ➞ The LED above the "ON/OFF" button lights up.
- ➞ The workpiece is heated until the programmed temperature is reached.
- ➞ The current temperature of the workpiece can be read on the display at any time.
- ➞ As soon as the programmed temperature is reached, an audible signal sounds for a few seconds. The display starts flashing. The heating process stops automatically.
- ➞ When the temperature has dropped by 4 °C the display stops flashing. The heating process restarts and heats the workpiece to the programmed temperature.
- ✎ Press the "ON/OFF" button to interrupt or stop the heating process.
- ➞ The display shows the programmed temperature.



Fig. 13: Start / interrupt / stop heating process

5.5.2. Heating process without reheat function

- ✎ Press the "temperature mode" button **twice**.
- ➡ Temperature mode is now activated.
- ➡ The LED above the "temperature mode" button does **not** light up. The reheat function is deactivated.



Fig. 14: Reheat function deactivated


The heating temperature is set via the control panel. The factory setting is 110 °C.

- ✎ Select the required temperature using the arrow buttons. You can keep the arrow buttons pressed to reach the desired setting more quickly.



Fig. 15, 16: Setting the temperature

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	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>).

- ➞ If the setting is correct, the temperature is shown in three digits.



Fig. 17: Correct temperature display

- ✎ Press the "ON/OFF" button to start the heating process.
- ➞ The LED above the "ON/OFF" button lights up.
- ➞ The workpiece is heated until the programmed temperature is reached.
- ➞ The current temperature of the workpiece can be read on the display at any time.
- ➞ As soon as the programmed temperature is reached, an audible signal sounds continuously.

The heating process stops automatically.

- ➞ The display shows the programmed temperature.
- ✎ Press the "ON/OFF" button to interrupt the heating process or to stop the signal.




Fig. 18: Start / interrupt heating process / stop signal

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.

 Press the "time mode" button.

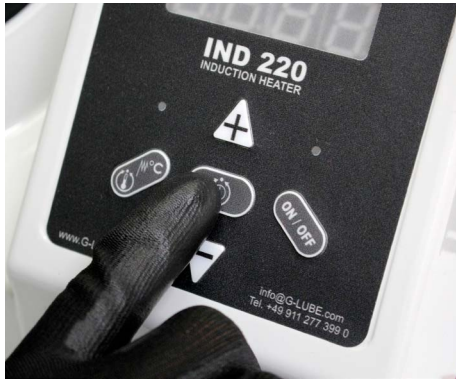


Fig. 19: Select time mode

The heating time is set via the control panel. The factory setting is 20 s.


 Select the required time using the arrow buttons. You can keep the arrow buttons pressed to reach the desired setting more quickly.



Fig. 20, 21: Setting the time

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

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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*).

- ✎ Press the "ON/OFF" button to start the heating process.
- ➡ The LED above the "ON/OFF" button lights up.
- ➡ The workpiece is heated until the programmed time is up.
- ➡ During the heating process the remaining time can be read on the display.
- ➡ As soon as the programmed time is up, an audible signal sounds continuously. The heating process stops automatically.
- ➡ The display shows 0:00.
- ✎ Press the "ON/OFF" button to interrupt the heating process or to stop the signal.



Fig. 22: Start / interrupt heating process / stop signal

6. Troubleshooting

	<div data-bbox="591 236 708 268">DANGER</div> <p>Damaged or flawed electrical connections or unlicensed hot components lead to heavy injuries or even death.</p> <ul style="list-style-type: none">• The procedures described below may only be performed by properly trained and qualified professionals using all mandatory PPE's.
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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. 23: Access to the circuit board

6.2. The device does not heat up

If it is found that there is voltage in the socket and the device still does not heat up, the temperature probe may be damaged. Replace the temperature probe.

6.3. Error messages on the display

Display and control panel	Cause	Remedy
<ul style="list-style-type: none"> E000 	Heating tower overheated	Wait until the device has lowered the temperature and start again when the tower has cooled down.
<ul style="list-style-type: none"> E001 	Temperature probe does not record an increase of 1 °C every 60 seconds	<p>Check the temperature, material and dimensions of the workpiece (→chap. 3.4 <i>Technical data</i>). If these are not within the parameters, the workpiece will not reach the programmed temperature and will stabilise at a temperature below.</p> <p>Check the position of the temperature probe. It must be placed on the inner ring of the workpiece (→chap. 5.4 <i>Position temperature probe</i>).</p>

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

7.3.1. Visual check

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

7.3.2. 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

IND 220



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 220

Type designation: IND 220

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 55011 : 2016
- EN 60519-3 : 2005
- EN 61000-6-2 : 2005

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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