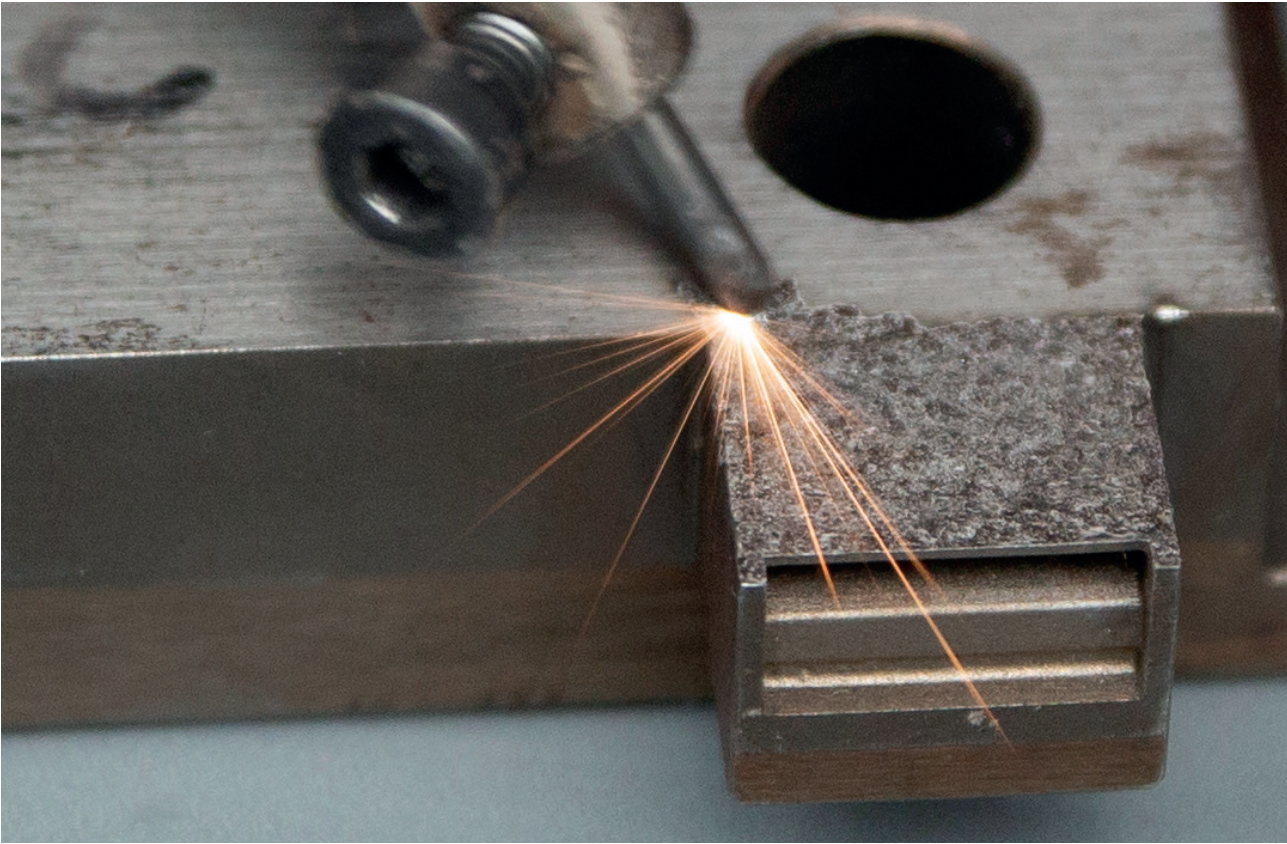




# *Operating instructions ENESKArecoat 85*







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**1**

**Notes about these instructions**

These operating instructions enable the operator to correctly use, take care of and maintain the ENESKArecoat 85 carbide coating system. These operating instructions are part of the system and must always be kept at hand at the place of use. If the system is passed on to a third party then this operating manual must be passed on too.



**To avoid injury and damage to property, read these instructions before performing any work with the system!**

Instructions which must be strictly observed to prevent hazards or damage are marked as follows:



**Caution!**

Warns of hazards that can lead to injuries.



**Attention!**

Warns of hazards that can lead to damage to objects.

For technical problems or other questions please contact our service department.

**2**

**Product overview**

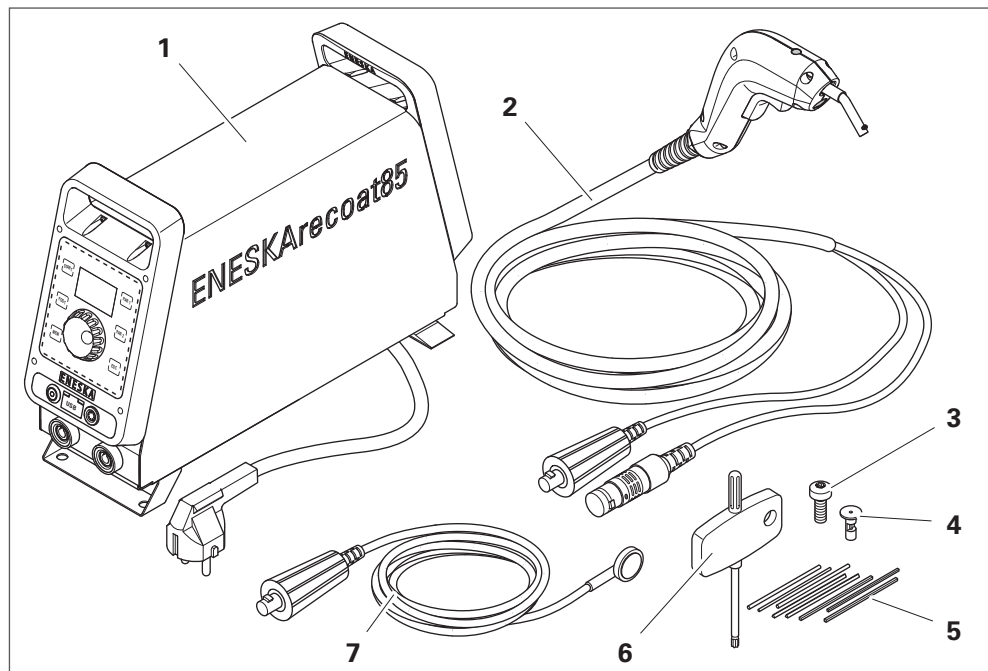


Fig. 1

1	Control unit with mains cable	5	Electrodes
2	Vib85 application handpiece with hand-piece cable incl. welding and control cable plug	6	Screwdriver
3	Spare screw	7	Ground cable with welding cable plug and contact magnet
4	Clamping element		

The ENESKArecoat 85 carbide coating system operates according to the principle of electro-discharge machining. A carbide electrode is attached to the positive pole of a DC circuit. It is made to vibrate in the Vib85 application handpiece. The workpiece is connected to the negative pole. During the brief contact pulse between the workpiece and the electrode, the electrode is briefly overheated by the flowing current to such an extent that, during the discharge, carbide particles from the electrode are entrained and fuse to the workpiece surface.

3

### Scope of delivery of ENESKArecoat 85 (order no. 0 700 300)

- 1 x control unit with mains cable set for Germany, Switzerland, United Kingdom and Europe (order no. 0 700 301)
- 1 x Vib85 handpiece with cable package (order no. 0 700 302)
- 1 x ground cable with plug and contact magnet (order no. 0 700 351)
- 1 x set of clamping elements for carbide electrodes, incl. spare screws and screwdriver (order no. 0 700 060)
- 1 x set of carbide electrodes (order no. 0 700 034)

Optional:

- 1 x foot pedal (order no. 0 700 360)
- As delivered, a sticker is attached to the rotary control. This indicates that the rotary control must be pressed twice to call up the main menu. This can be removed after initial start-up.



4

### Technical specifications for control unit

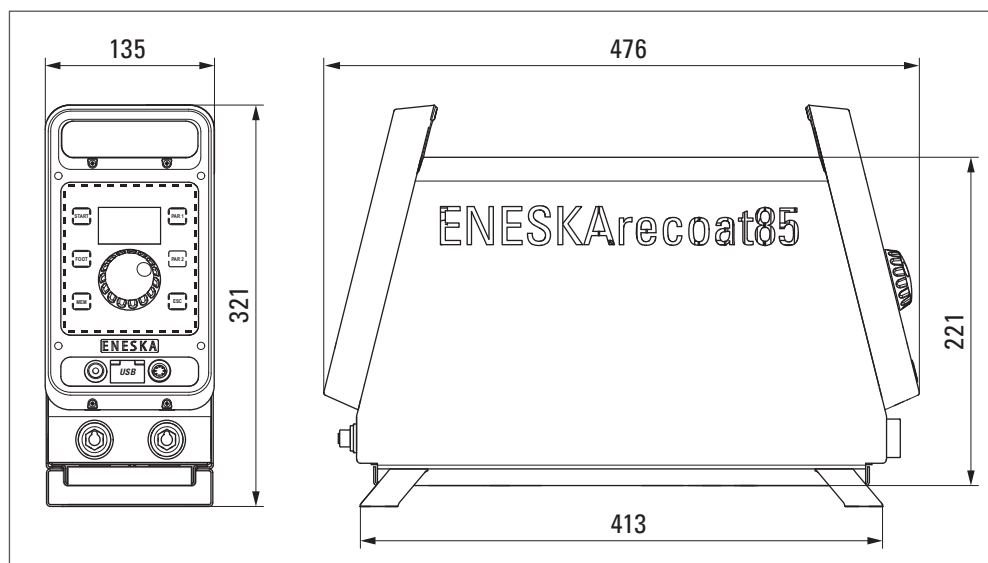


Fig. 2

Connections	1 connection for handpiece control cable 1 connection for electrode cable 1 connection for ground cable 1 connection for power supply unit 1 USB connection
Supply voltage	90–230 V~ (50/60 Hz)
Rated power	P <sub>max</sub> 150 VA
Rated current	1.3 A / 0.65 A
Maximum hardness of the layer	82 HR 30 N
Vibration frequency	120 Hz
Weight	10 kg

Approved handpieces	Vib85
Weight of handpiece incl. connection cable	0.84 kg
Working lamp in handpiece	4 LEDs, 5000 K
Ambient conditions	+10°C to +40°C 10% to 85% humidity
Noise pressure level	< 70 dB (A)
Approved carbide electrodes, length 50 mm	Round: Ø 1.0 mm, Ø 1.3 mm, Ø 1.8 mm, Ø 2.3 mm, Ø 3.0 mm, Ø 4.0 mm Square: 1.1 mm, 1.6 mm, 2.1 mm Triangular: 1.95 mm
Approved foot pedal	F85 foot pedal

Manufacturer's mark and address, type designation, CE marking and serial number are located on the nameplate on the rear of control units, or on the housing, depending on the handpiece. The nameplate for the control unit also states the rated voltage (U<sub>rated</sub>), the rated current (I<sub>rated</sub>), the rated power (P<sub>rated</sub>) and the frequency (F<sub>ultrasonic</sub>). It also indicates that the device is grounded and must not be disposed of in household waste.

Accessories and the spare parts list are available online at [www.joke-technology.de](http://www.joke-technology.de).

## 5

### Safety

#### Intended use

The system is intended exclusively for applying carbide coatings to metallic surfaces. The applied carbide layer increases the wear resistance of the coated workpiece without affecting the qualities of the base material.

The unit may only be used with approved components and accessories (see section 4, Technical specifications).

The values specified in the technical specifications for the individual components must not be exceeded when using the system.

Work on and with the unit may only be carried out by qualified, trained and authorised personnel.

The control unit may only be used as described in these operating instructions. Any different or additional use is considered improper. The manufacturer will not be liable for damage resulting from improper use.

#### General safety instructions

To avoid danger to persons and material damage, ALWAYS observe the following safety instructions:

- Due to its design and use, increased vibrations and noise occur in the vicinity of the handpiece. According to the EU Directive 2002/44/EC, a new workplace assessment may have to be performed.
- Only use the system in technically perfect condition.
- Always place the control unit on a safe, non-slip surface and protect it from contact with liquids.
- Lay the mains cable so that it is easily accessible and can be disconnected from the power supply easily.
- When working with the system, always wear safety glasses, gloves and hearing protection.
- Never disconnect the handpiece from the control unit while it is switched on!
- Always switch off the control unit when the system is not in use.
- Do not use the system if display and signal lamps are defective.
- Always make sure that the device's ventilation slots are free (see also chapter 9).
- Do not leave the system unattended when switched on.
- Switch off and secure the control unit immediately in the event of malfunctions. In the event

of faults, rectify them immediately as described in these instructions or arrange for them to be rectified.

- Do not make any changes, additions or modifications to the individual components of the system.
- Refrain from any operation that could compromise safety.
- Never immerse the individual components of the system in water or other liquids.
- Do not use the system outdoors.

## 6 Controls and indicators

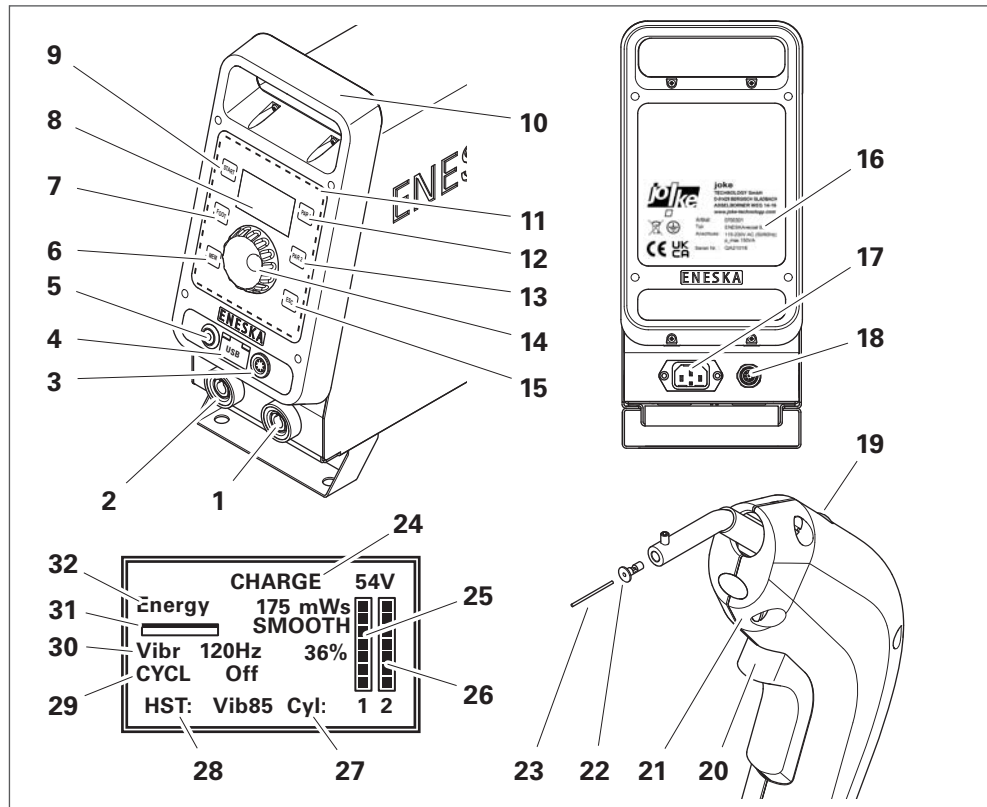
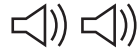


Fig. 3

1	Ground socket	17	Mains plug connection
2	Electrode socket	18	Foot pedal connection (IO socket, 8-pin, M12)
3	Connection socket for handpiece (8-pin)	19	Signal LED on handpiece
4	USB connection	20	Button of the handpiece
5	Power switch	21	Handpiece
6	MEM button	22	Clamping element
7	FOOT button	23	Electrode
8	Display	24	Display of coating energy (charging voltage)
9	START button	25	Status display charge accumulator 1
10	Carrying handle	26	Status display charge accumulator 2
11	LED strip	27	Display number of cylinders
12	PAR1 button	28	Information on the connected handpiece
13	PAR2 button	29	Information on interval coating
14	Rotary pushbutton	30	Display of vibration intensity
15	ESC button	31	Display of coating quality (smooth or rough)
16	Nameplate	32	Energy display



## 7 The function of the signal sounds



2 brief sounds

- After calibration: Device is ready to use
- Settings accepted e.g. after saving



1 long sound

- Device error or faulty operation  
Troubleshooting or device restart required

## 8 Function of the LED display strip

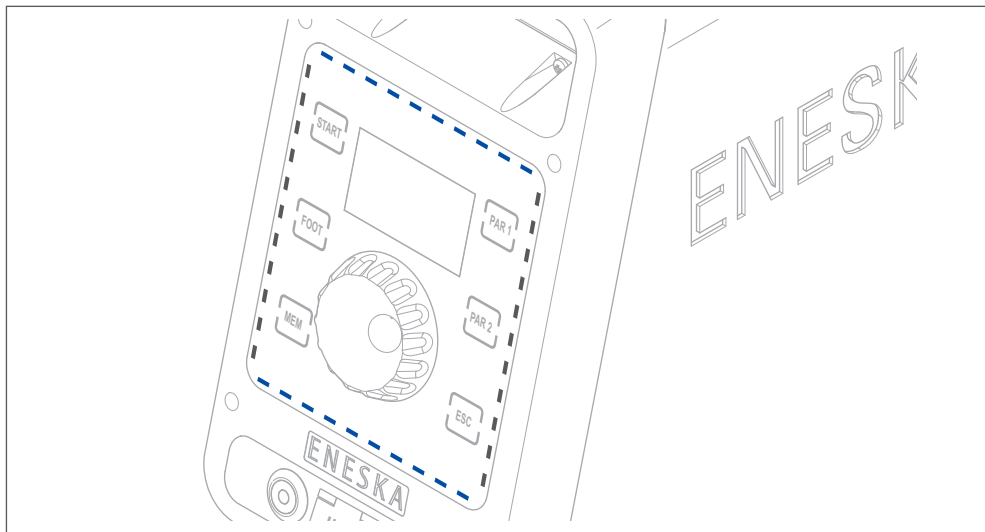


Fig. 4

LED strip	Colour	Type of display	Meaning
Top	Blue	Pulsing	Handpiece is connected
	Blue-white	Movement towards the centre	Handpiece is switched on and operating with proper ground contact.
	Orange	Movement towards the centre	Handpiece is switched on, but has no ground contact
	Red	Movement towards the centre	The pressure with which the workpiece is pressed during operation is too high.
Bottom	White	LED runs from left to right summing up during calibration.	The pressure with which the workpiece is pressed during operation is optimal.
	Green	LED runs from left to right summing up during calibration.	Mechanical zero point detected and adjusted.
Right	Green, yellow, red	Rising from green to red	Display of device temperature in control unit
Top, bottom	Red	Lights	Device error or faulty operation
	Red	Lights and buttons flash simultaneously	Serious device fault or dangerous operating error, restart required
All	White (right, left), Blue (top, bottom)	Lights	Device starting or important information in display
	Colourful	Flashing and motion	Animation running

**9**

### Functions of the signal LED on the handpiece

- LED does not light up:  
The handpiece is not connected or a menu has been called up on the control unit's display.
- LED flashes green:  
The handpiece is activated and waiting.
- LED lights up green continuously:  
The handpiece is in operation.
- LED lights up orange:  
The handpiece is in operation, but there is no contact to ground.
- LED lights up red:  
The handpiece is in operation, but is pressed onto the workpiece with too much pressure.

**10**

### Function of the ventilation



Fig. 5

The ventilation serves to prevent overheating. Air is drawn into the control unit through the slots on the underside of the control unit. The air is guided through the control unit and blown out again at the lettering on both sides.

Always keep the unit's ventilation slots clear to prevent damage from overheating.

**11**

## Calling up the menu and navigating

When the menu is opened, the handpiece automatically switches off.

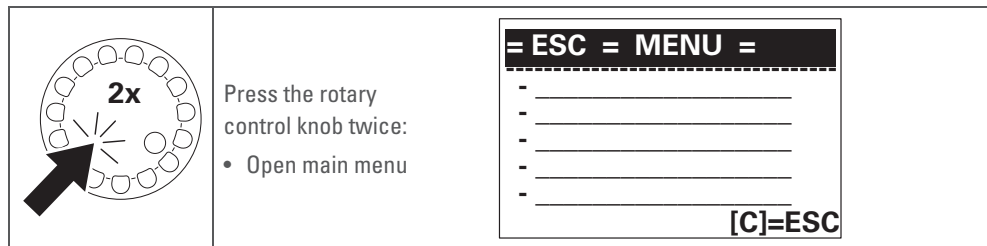


Fig. 6

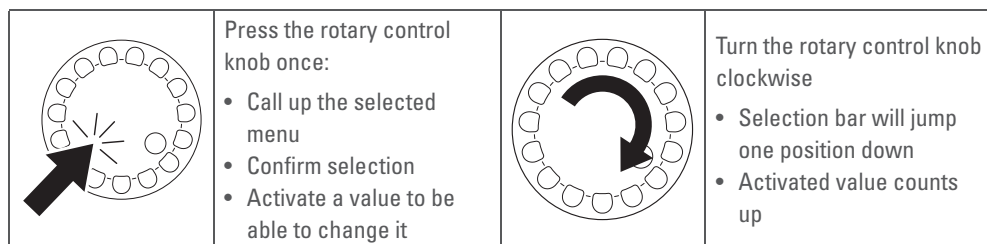


Fig. 7

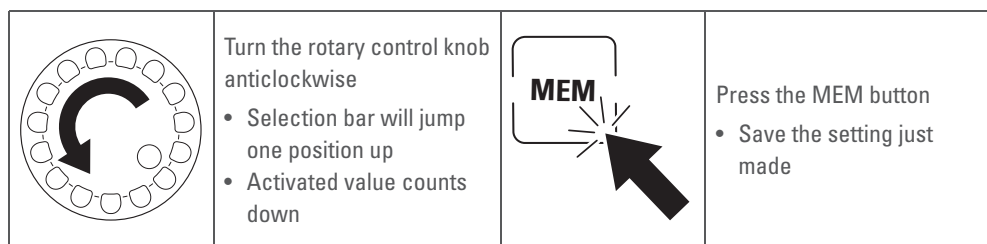


Fig. 8

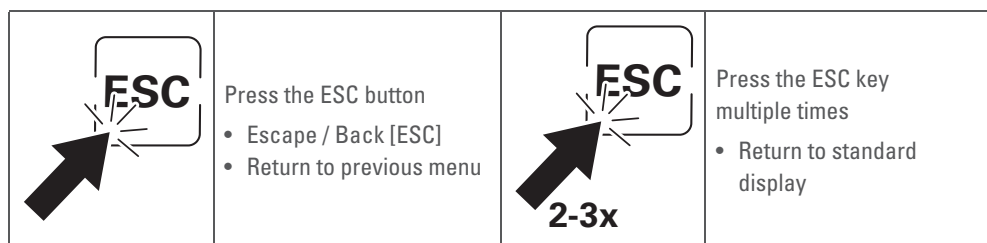


Fig. 9

**12**

## Commissioning

### Connecting a handpiece



**Attention!**

To avoid serious damage to the system, only connect the handpiece to the control unit or remove it from the control unit when the system is switched off!



**Attention!**

Always insert the control cable plug into the socket of the control unit so that the base on the plug fits into the guide of the socket and the red dots on the plug and socket are aligned. Do not damage the contacts while doing so!



**Attention!**

Always insert the welding cable plug into the socket of the control unit so that the socket on the plug fits into the guide of the socket. Then turn the plug to secure it in the socket.

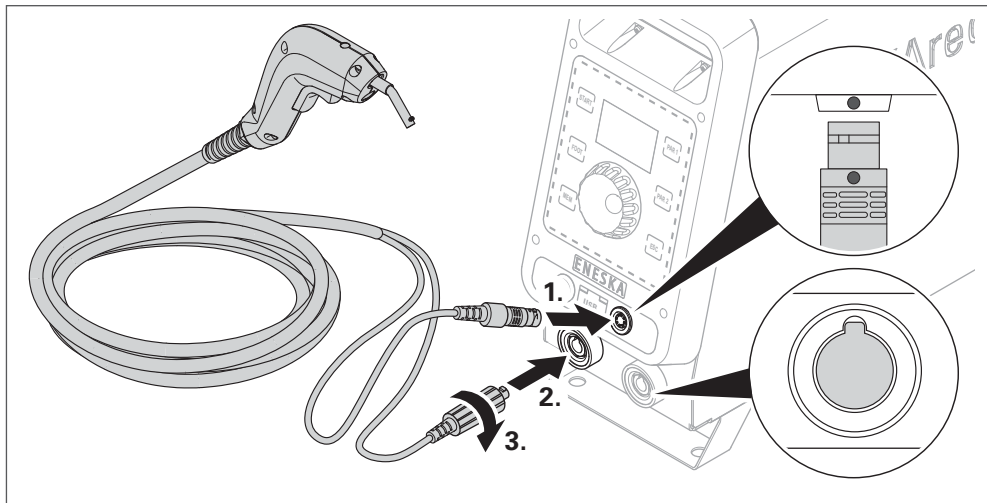


Fig. 10

### Connecting the ground cable



**Attention!**

During coating, very high currents flow between the electrode and the workpiece. To keep parasitic inductance as low as possible, lay all cables as parallel as possible and do not coil the cables.



**Attention!**

Always insert the welding cable plug into the socket of the control unit so that the socket on the plug fits into the guide of the socket. Then turn the plug to secure it in the socket.



**Attention!**

If the workpiece is too small to attach the contact magnet to it, clamp the workpiece in a suitable vice and attach the contact magnet to this.

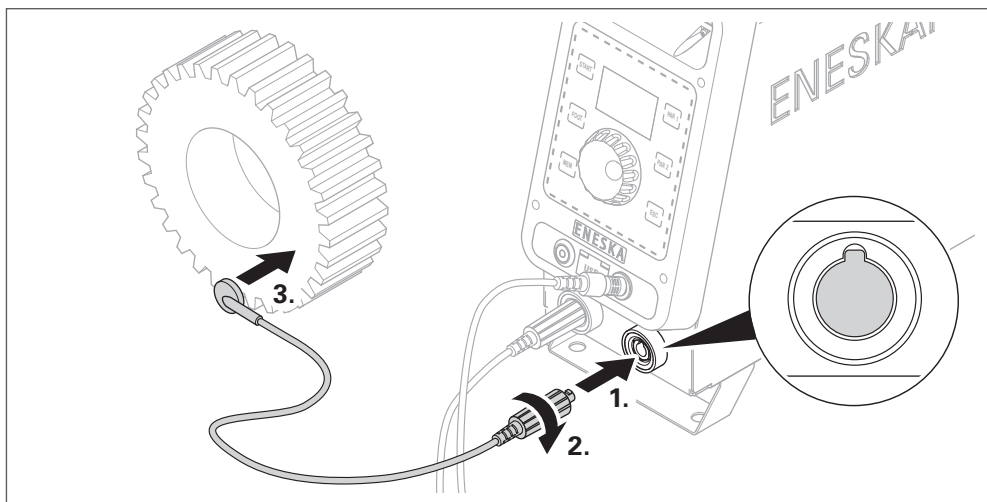


Fig. 11



### Fitting/changing the electrode

The choice of electrode depends on the size and shape of the surface to be coated. Workpieces with simple shapes can be coated with a 1.6 or 2.1 mm square electrode. Dies with complicated internal shapes or small holes are coated with the appropriate round, 3-sided or 4-sided electrode. For small holes of less than  $\varnothing$  1.2 mm, the round 1 mm electrode is ground at least 0.2 mm thinner than the hole to be coated on a diamond or silicon grinding wheel.



**Caution!**

To avoid injuries caused by the hot surface of the tool, only connect or change tools when the control unit is switched off.



**Caution!**

To avoid injury from tools coming loose, always tighten the tools carefully and regularly check the fit of the tool.



**Attention!**

To avoid damage to the components,

- thoroughly clean all parts before installing them and
- use only the screwdriver supplied.

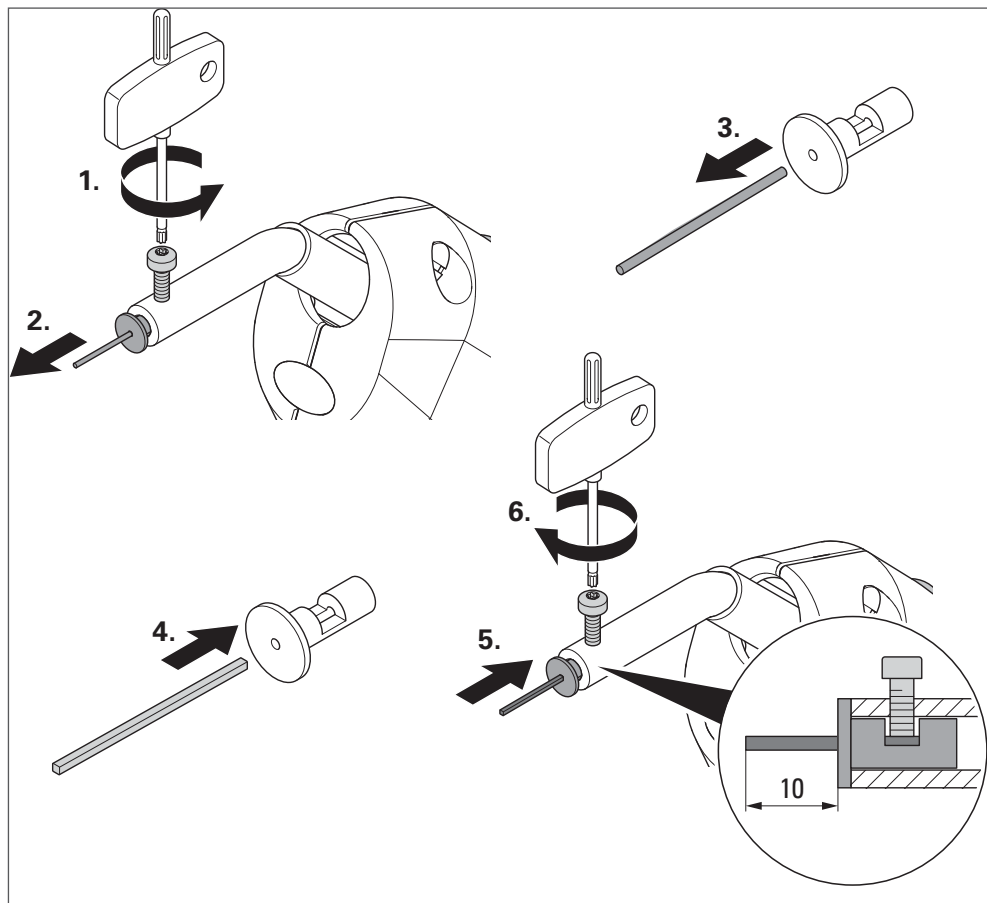


Fig. 12

### Connecting the mains cable

Lay the mains cable so that it is not under tension and does not obstruct anyone. Do not place anything on the cable.

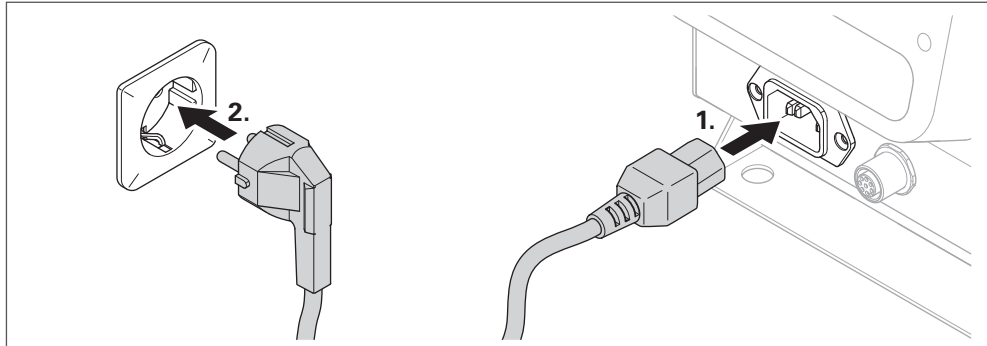


Fig. 13

### Switching the unit on

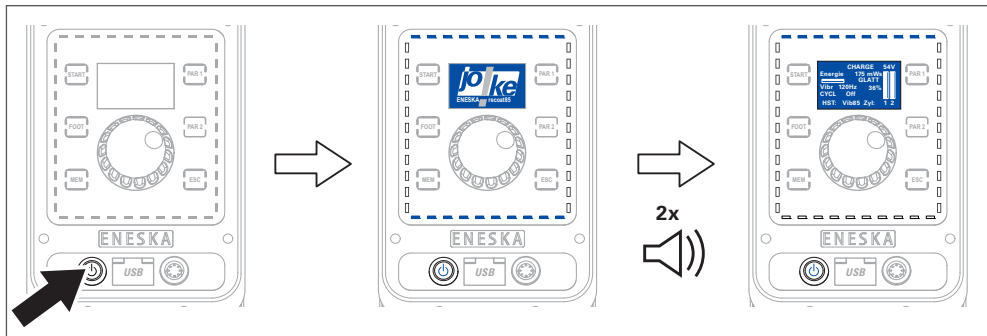


Fig. 14

### Setting the language (if necessary)

Step 1	Step 2	Step 3	Step 4
<b>Open main menu</b>	<b>Select "Sprache/Language"</b> = ESC = MENU = - Sprache/Language - G-Info - Summer+LED - Firmware Update [C]=ESC	<b>Choose the language and save your choice</b> = ESC = Language = > Deutsch English Francais [MEM]=SAVE [C]=ESC	<b>Back to the standard display</b>

13

## Connecting the foot pedal (optional)



### Attention!

To avoid serious damage to the system, only connect the foot pedal to the control unit or remove it from the control unit when the system is switched off!

With a foot pedal, you can switch the handpiece on and off using your foot during operation. The foot pedal performs the same function as the button on the handpiece. The button on the handpiece is automatically deactivated when the foot pedal is connected. Only the settings for the working light on the handpiece are retained.

Lay the foot switch mains cable so that it is not under tension and does not obstruct anyone. Do not place anything on the cable.

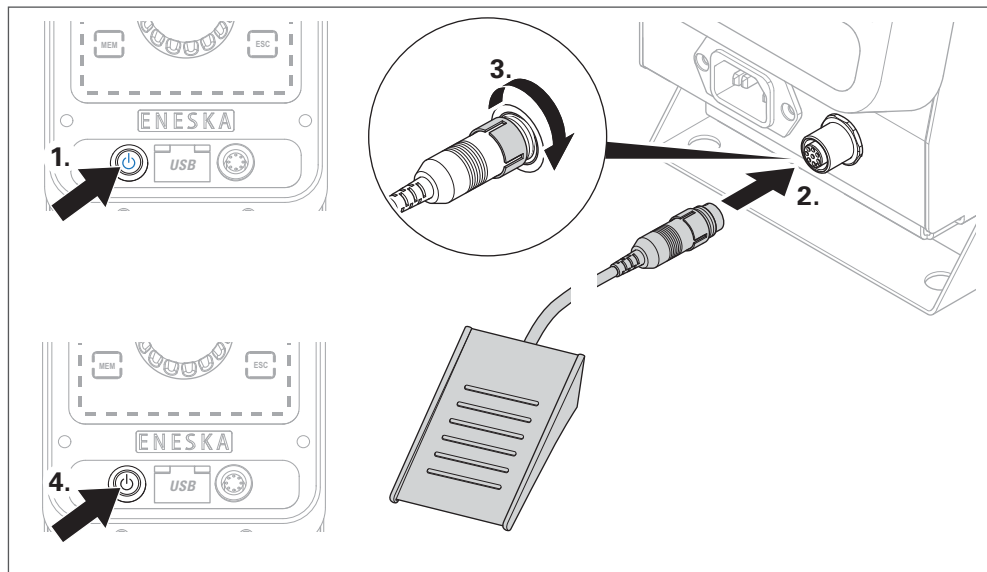


Fig. 15

14

## Operation



### Attention!

The workpiece must be metallically clean and bright. It must not have any scaling or other impurities, as the coating will then not be reliably absorbed and will not adhere securely. The magnet must also always be clean to ensure good electrical contact.



### Attention!

Before each use of the unit, check that all contact connections are clean and tight. Degrease perfectly bright steel surfaces well before coating.

### Pretreating surfaces

Coating can only be successful if the coating is applied to a metallically clean steel surface.

The following methods can be used to clean the workpiece:

- Fine blasting: achieves the deepest diffusion of the tungsten carbide molecules in the base material and the highest adhesion of the coating.
- Grinding: grind over the contour to be coated or at least clean it with abrasive cloth or diamond files and then degrease it.

Do not use acidic cleaning agents! These do not neutralize sufficiently, continue to act under the coating and can destroy the coating.

## Switching the unit on



### Attention!

To avoid damage to the device,

- before switching on, equip the handpiece with an electrode and do not work with the tool until the automatic calibration has been completed and the upper LED bar pulses blue.

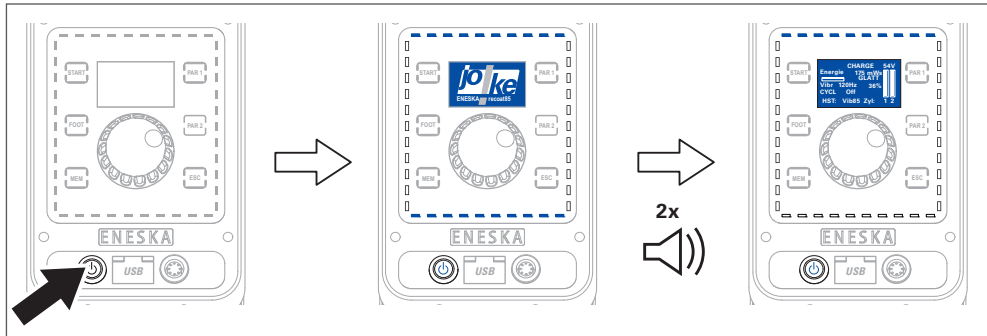


Fig. 16

## Setting parameters



### Attention!

To avoid damage to tools or the workpiece:

- always start with the standard setting (vibration intensity 60% and charging voltage 48 V) and then adjust both as required and
- for high power settings, only use tools designed for this purpose!

The following parameters can be set with the "PAR1" button:

- » Coating energy: 30–54 V
- » Vibration intensity: 0–100%

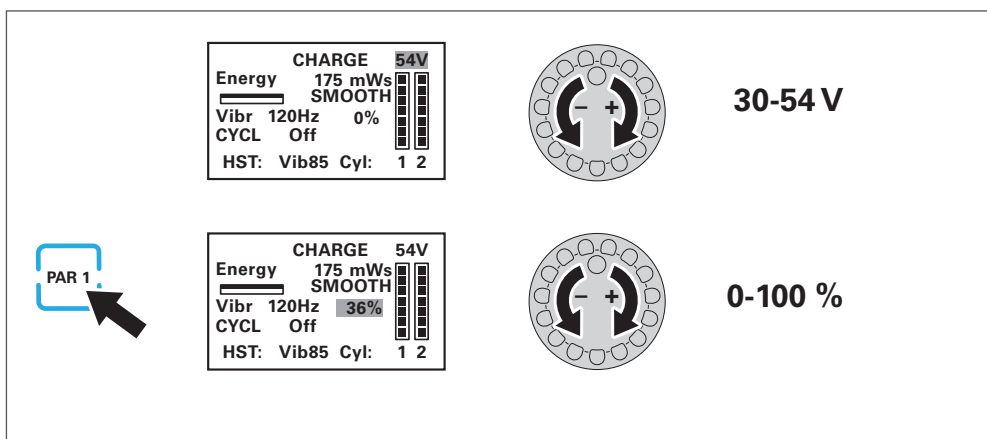


Fig. 17



The following parameters can be set with the “PAR2” button:

» **Operating mode**

Operation with 1 cylinder or with 2 cylinders; the setting depends on the electrode thickness and the desired coating strength.

» **Application type**

SMOOTH/ROUGH

With the “ROUGH” selection, the ignition point for the discharge current occurs before or while the electrode is touching the workpiece. As a result, the drops are mechanically separated and the surface is coated more roughly.

With the “SMOOTH” selection, the ignition for the discharge takes place shortly after the electrode leaves the workpiece again. The surface is coated more smoothly.

» **Phi\_0:**

This parameter cannot be changed.

If a value is displayed, it is the correction value between the electrical and mechanical ignition timing.

NOCAL indicates that no calibration is taking place or has taken place.

» **Interval**

0.5–30 seconds; intervals are used for short, repetitive coating operations. One second corresponds to 120 strokes.

» **Int-Pause**

0–20 s; pause between intervals.

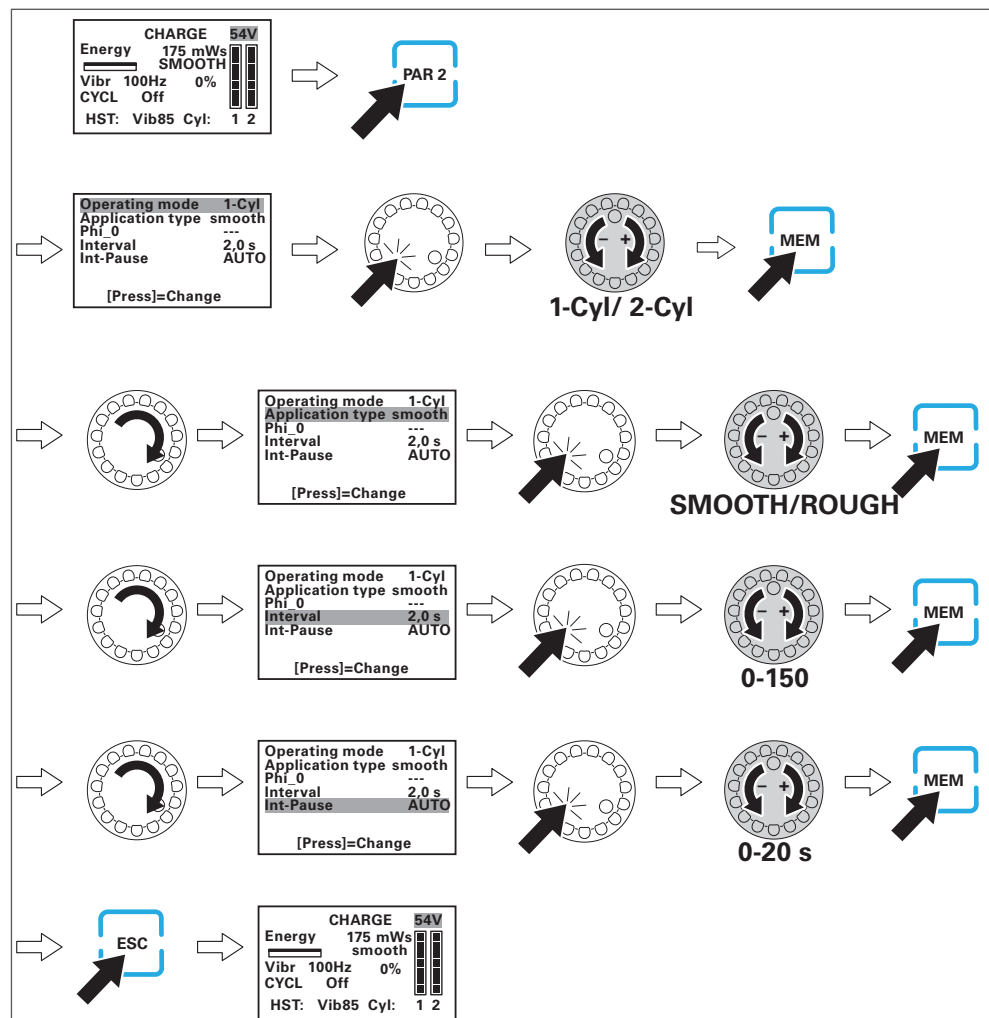


Fig. 18

### Calibration

The mechanical zero point depends on various factors and varies according to energy and vibration intensity, diameter and length of the electrode as well as pressure of the electrode and guide angle to the workpiece.

Always adjust the mechanical zero point at the start of work, after changing settings, and as needed.

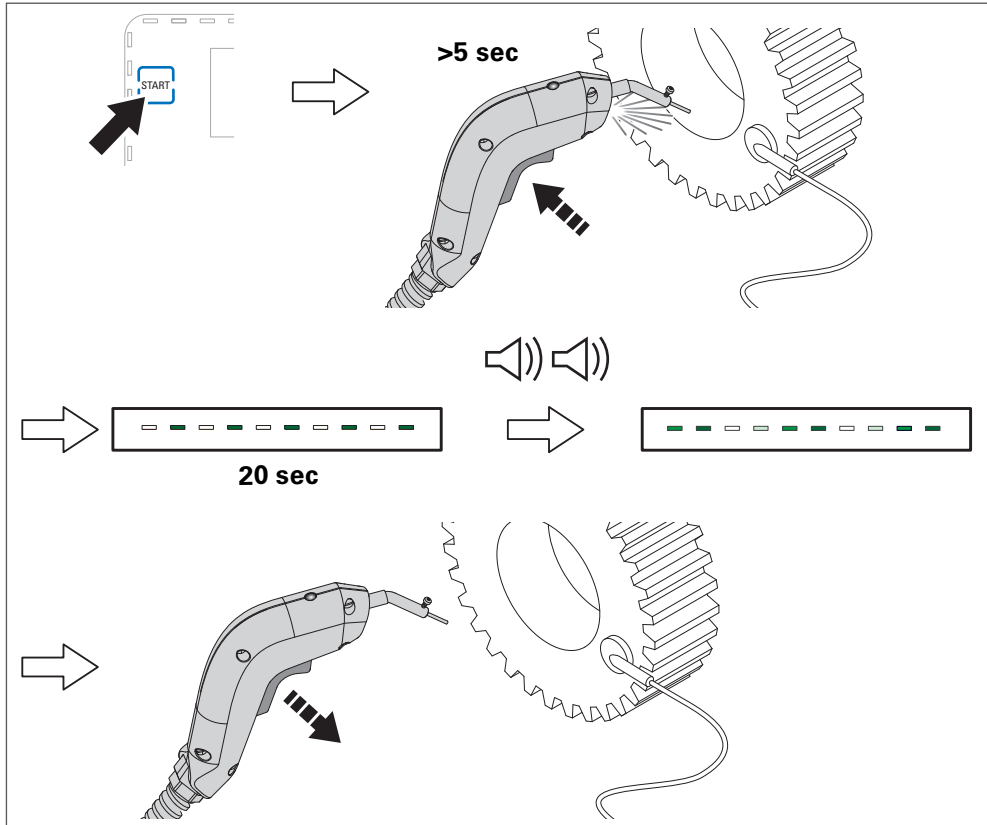


Fig. 19

### Processing the workpiece



#### Attention!

To avoid injuries, do not touch the metal part of the handpiece, the clamping element or the electrode while working!

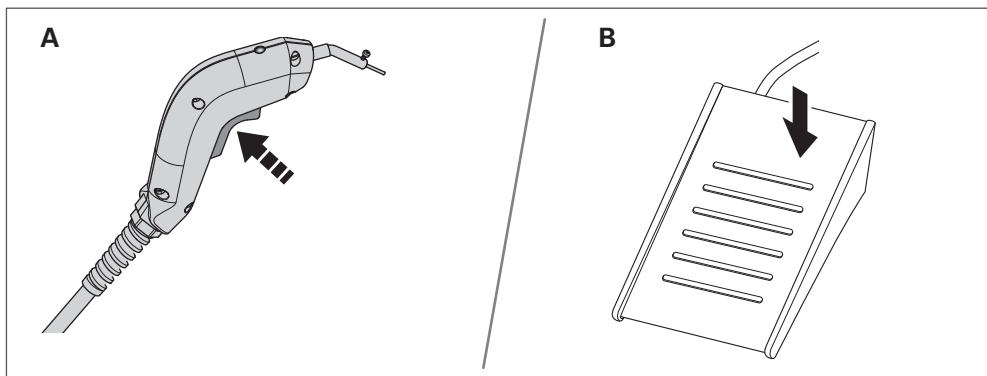


Fig. 20

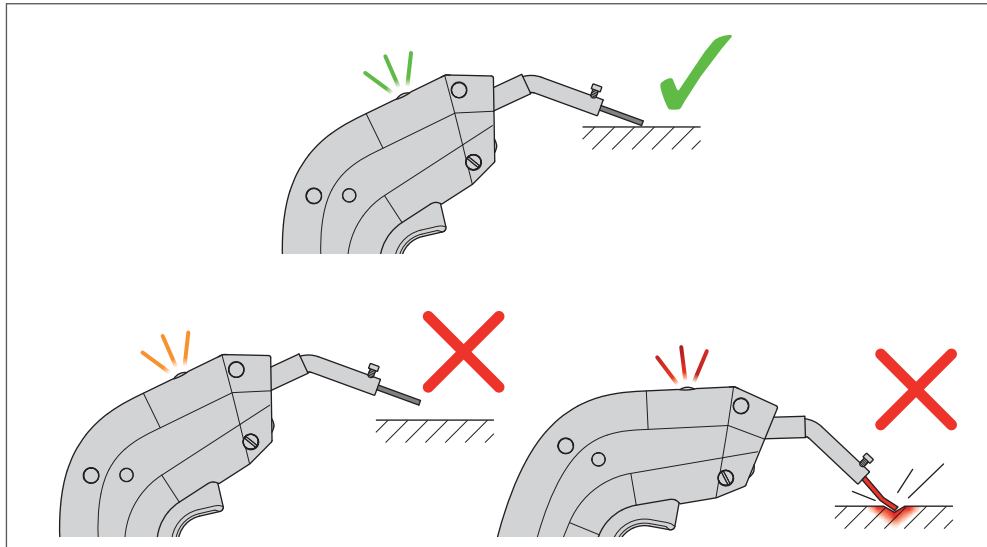


Fig. 21

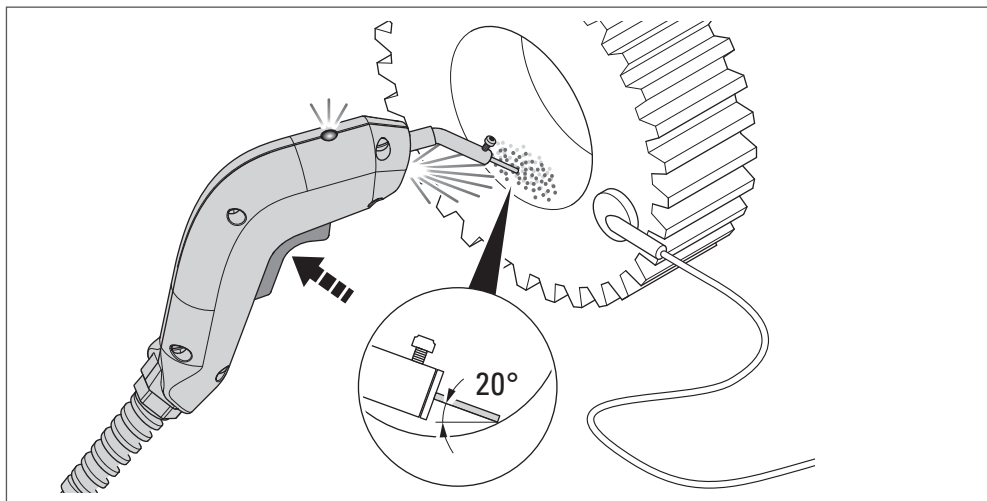


Fig. 22

Hold the handpiece with one hand and support your hand as much as possible. Press the electrode lightly against the workpiece at an angle of 15–20° to the surface to be coated. If the electrode touches the opposite edge in this inclined position in the case of small holes or profiles, you can also hold the electrode parallel to the hole.

Process the surface of the workpiece slowly and evenly until the coating is as fine and homogeneous as possible. An optimum coating is matt grey and fine-pored.

**Caution!**

Under continuous operation and with a strong energy output, the electrode becomes warmer than 42°C and its holder heats up. This then leads to a slow heating of the entire handpiece.

- If the handpiece becomes too warm, switch off the handpiece and allow it to cool down.
- For continuous operation, work alternately with two handpieces.



**Attention!**

If the electrode glows, the coating becomes defective. Sparking also leads to a poor result, as the melted carbide splatters and cannot be deposited on the workpiece.

- If the clamped electrode starts to glow or sparks fly, reduce the coating energy.

In the case of very fine moulded parts, coating in stages is advantageous because it can some-



what dampen the fusion penetration on exposed areas.

If a finely lapped surface is to be achieved, you should first apply a relatively thick coat, followed by a thinner second coat.

### Stopping the handpiece

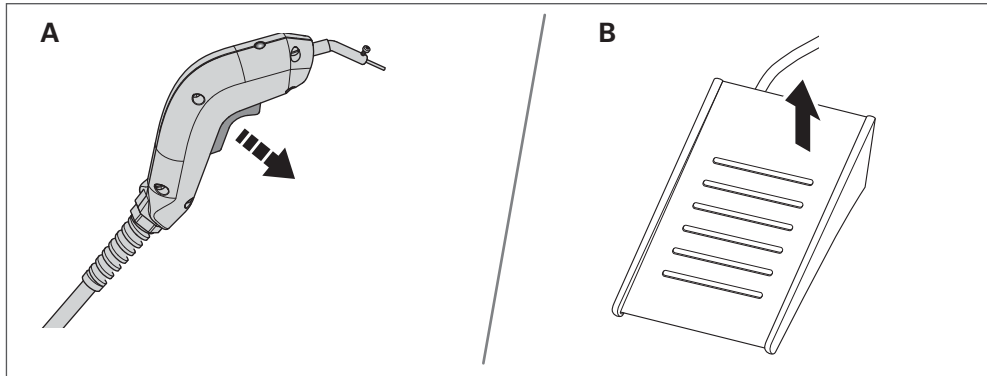


Fig. 23

### Switching the unit off

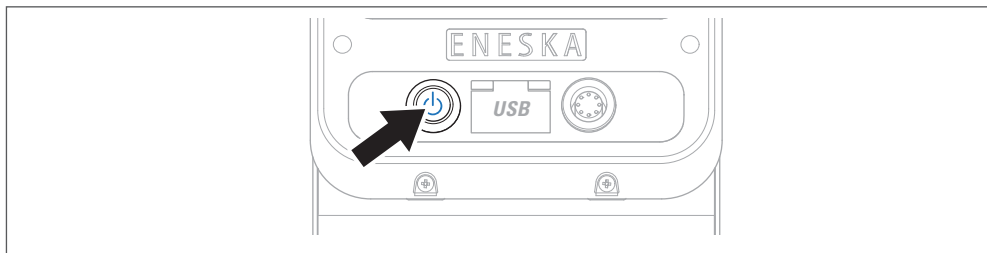


Fig. 24

### Polishing the coating (if necessary)

Wet the applied coating with abrasive file oil. Then smooth the applied coating with a diamond-tipped tool in rotating movements. Next, clean the coating with a cleaning agent (JOKE X 73016).

To obtain a very fine surface, polish the coating further with a wooden stick and a 20 µm diamond lapping paste. Clean the surface. Then polish the coating further with a wooden stick and a 10 µm diamond lapping paste. Machine round workpieces as described on a high-speed rotating lathe.



## 15 Using the memory function (MEM)

The memory function allows settings to be saved so that the settings are retained even after the control unit is switched off and on again. If the memory function is activated (MEM button illuminated), the settings on the control unit cannot be changed.

### Saving settings

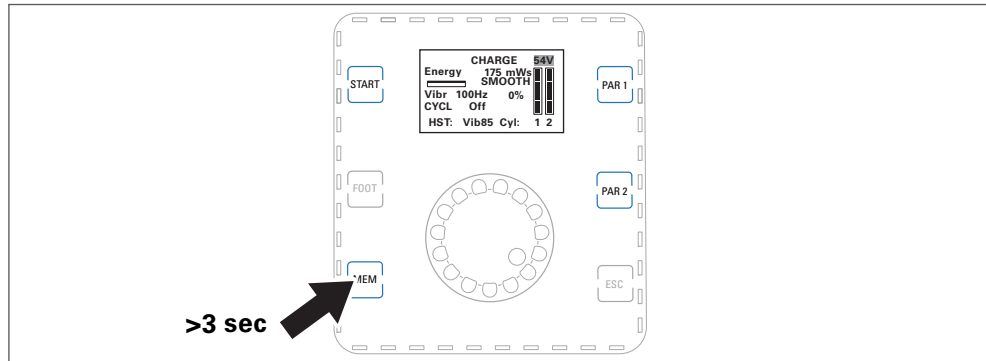


Fig. 25

### Activating/deactivating settings

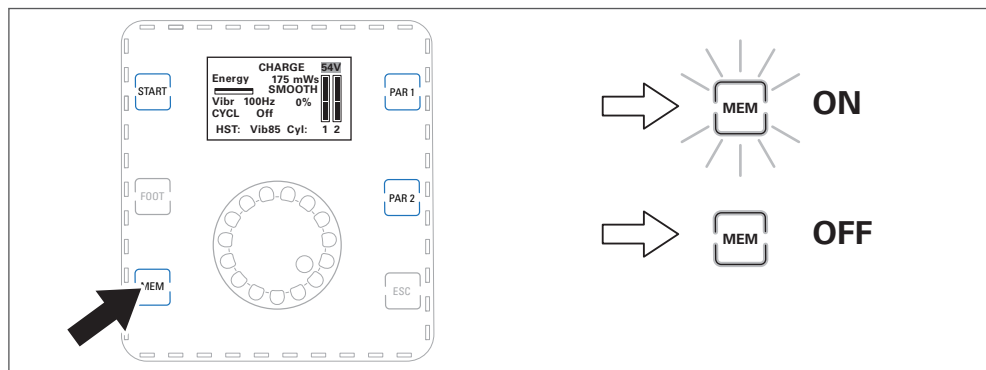
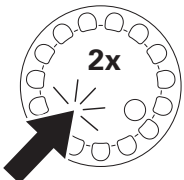
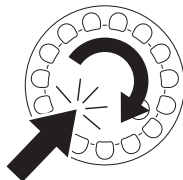
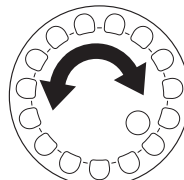
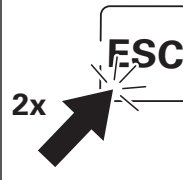
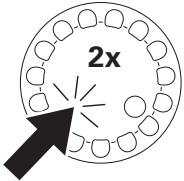
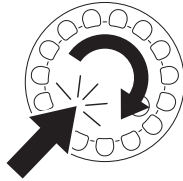
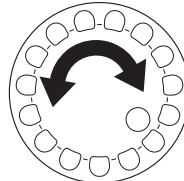
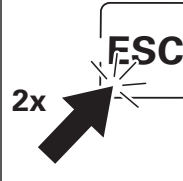


Fig. 26

**16**
**Calling up device information**

Step 1	Step 2	Step 3	Step 4
 <p>Open main menu</p>	 <p>Select "G-Info"</p> <pre> = ESC = MENU = - Sprache/Language - G-Info - Summer+LED [C]=ESC                     </pre>	 <p>Displaying version information and operating hours</p> <pre> = ESC = G-Info = SW-DISPLAY: V HW-DISPLAY: V SW-POWER: V SW-POWER: V [C]=ESC                     </pre>	 <p>Back to the standard display</p>

**17**
**Setting the signal tone and LEDs**

Step 1	Step 2	Step 3	Step 4
 <p>Open main menu</p>	 <p>Select "Buzzer + LED"</p> <pre> = ESC = MENU = - Sprache/Language - G-Info - Summer+LED [C]=ESC                     </pre>	 <p>Make your settings</p> <pre> = ESC = Summer+LED = - LCD-Contrast - Summer - LED brightness - Animation [C]=ESC                     </pre> <ul style="list-style-type: none"> <li>• Setting the contrast of the display</li> <li>• Switching the signal tone on/off</li> <li>• Setting the brightness of the LED signal strips</li> <li>• Demonstrate the LED strips</li> </ul>	 <p>Back to the standard display</p>

**18**
**Application notes**
**Punching technology**

- Punching slugs / punching burrs / cutting clearance:  
Coat the die clearance to the penetration depth of the punch.
- Cold welding of the punch:  
Coat the outside of the punch to at least the length of the die penetration depth and regrind or lap the punch face as needed. The pores of the coating store the lubricating film during punching, thus preventing cold welding.
- Blunt cut edges:  
Coat the faces of the punches and dies. Select the coating thickness according to the die size, the working pressure and the precision of the die.

- Treatment of cutting plates with very small holes:  
To avoid damaging the cutting edge when driving the electrode into the hole, use the foot pedal and proceed as follows:  
For holes smaller than  $\varnothing$  1.5 mm, grind back the  $\varnothing$  1.2 mm electrode by approx. 3/10 mm smaller than the hole to be coated. Select a low coating thickness and a weak vibration intensity. With the foot switch not actuated, insert the electrode into the die exactly parallel to the hole. Actuate the foot switch and carefully coat the entire inner circumference of the hole. Make sure that the electrode is always guided exactly parallel to the bore and that the discharge spark is visible along the entire length of the electrode. Be sure to release the foot switch before pulling the electrode out of the bore.
- Cold welding / erosion of the drawing radii or flow radii on punches and dies:  
First coat the radii thickly (30  $\mu\text{m}$ ), then recoat with reduced layer thickness (10  $\mu\text{m}$ ). If necessary, apply a third coat (2  $\mu\text{m}$ ). Lapping of the coating must be perfect.
- Grooving:  
Coat the area with weaker pressure.
- Wear on the cutting edges of punching knives:  
Sharply grind the cut edges and thinly coat. Lightly lap the coating with silicon stone. Blunt cutting angles of relatively large tools can be coated with medium coating thickness and then with reduced coating thickness. Overall, the coating should not be thicker than 8  $\mu\text{m}$ .

### **Bending and pressing**

- Erosion / cold welding / wear on bending jaws and bending punches:  
Coat the wear points. Select the coating thickness according to the die size and the precision of the die. Lapping of the coating must be perfect.
- Erosion / cold welding / wear on stamping machines:  
First coat thickly (30  $\mu\text{m}$ ), then recoat with reduced layer thickness (10  $\mu\text{m}$ ). If necessary, apply a third coat (2  $\mu\text{m}$ ). Lapping of the coating must be perfect.

### **Extrusion**

- Wear:  
Pretreat the wear areas with micro-sandblasting and then coat. Select the coating thickness according to the die size and the precision of the die. We recommend applying a thicker coating first, recoating with a reduced coating thickness and, if necessary, applying a third, even thinner coat. Lapping of the coating must be perfect.

### **Cold forming of screws, nuts, bolts, rivets, etc.**

- Wear:  
If possible, finely sandblast the wear areas and then coat with a medium-thick layer. Depending on the surface finish required, recoat with a reduced layer thickness and, if necessary, apply a third, even thinner layer. If necessary, lap the coating.

### **Synthetic resin and duroplastic injection moulds, rubber moulding**

- Wash-out of injection channels and injection pins / crimping burrs / wear and wash-out of sidershifters / wear of cores and casting mouthpieces of injection nozzles / adhesive injection-moulded parts:  
Coat wear areas and glue joints. We recommend applying a thicker coating first, recoating with a reduced coating thickness and, if necessary, applying a third, even thinner coat. Lapping of the coating must be perfect.
- If pinch burrs form on rubber parts, coat the end faces of the mould closing sections to such an extent that the mould closes properly.

### **Die casting technique**

- Adhesive injection-moulded parts / wash-out of injection channels and injection pins / wash-out and erosion of sidershifters / formation of pinch burrs due to inadequate mould closing:  
First coat wear and adhesive areas thickly, then recoat with reduced coating thickness.



### **Processing of wood and synthetic fibre boards**

- Wear of cutting edges on fillet and profile knives, routers, circular saws or milling chains of chain mortising machines:  
Coat the cutting angle and, if necessary, rake angle. Rework the coating with silicon stone (except for milling chains and circular saws).  
Circular saws can also be coated on the outside of the side surfaces of the teeth.



## Firmware update

### Doing a firmware update

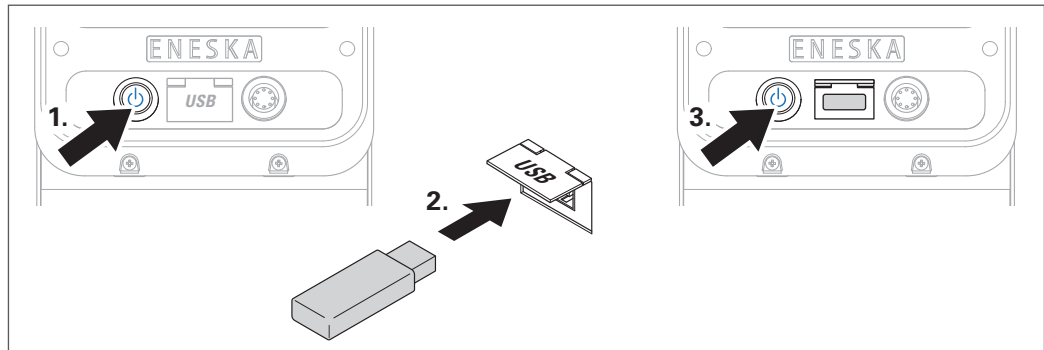


Fig. 27

Step 1	Step 2	Step 3	Step 4
<p><b>Open main menu</b></p>	<p><b>Select "Firmware Update"</b></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>= ESC = MENU =</p> <ul style="list-style-type: none"> <li>- Sprache/Language</li> <li>- G-Info</li> <li>- Summer+LED</li> <li style="background-color: black; color: white; padding: 2px;">- Firmware Update</li> </ul> <p>[C]=ESC</p> </div>	<p><b>Start update and wait</b></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <div style="text-align: center;"> </div> <div style="margin-top: 10px;"> <b>Firmware</b> Firmware Update successful                 </div> </div>	<p><b>Back to the standard display</b></p>

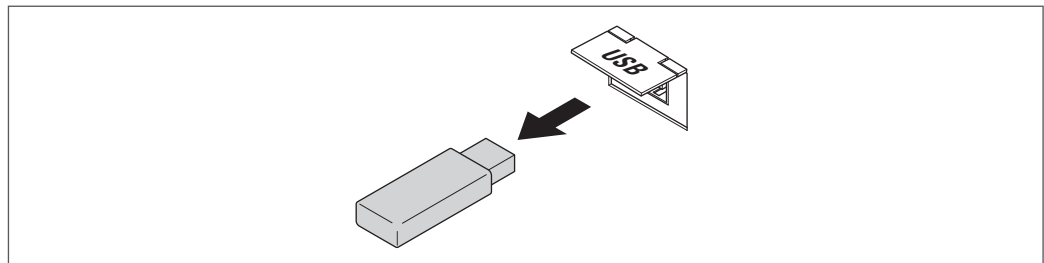


Fig. 28

If the USB interface is not in use, leave the dust cap closed.



#### Attention!

To prevent contamination of the USB interface, leave the dust protection cap of the interface closed when the interface is not in use.

## Possible errors during a firmware update

Error code in the display	Explanation	Remedy
1	General error (e.g. USB stick removed too soon)	<ul style="list-style-type: none"> <li>Restart control unit and try the update again.</li> <li>If the update still fails, contact JOKE service.</li> </ul>
3 / E	USB stick not recognized or data error	
9	Data on the USB stick is invalid or unreadable.	
B	Update not possible (e.g. due to wrong software version)	

## 20 Maintenance, care and disposal

The control unit should be serviced once a year by JOKE Service. In the process, the filter mat behind the ENESKArecoat lettering is also replaced.

The handpiece requires no service.

All components should only be cleaned with a dry, soft cloth.

Dispose of all components properly and do not put them into household waste under any circumstances.

### Replacing the filter mat (if necessary)

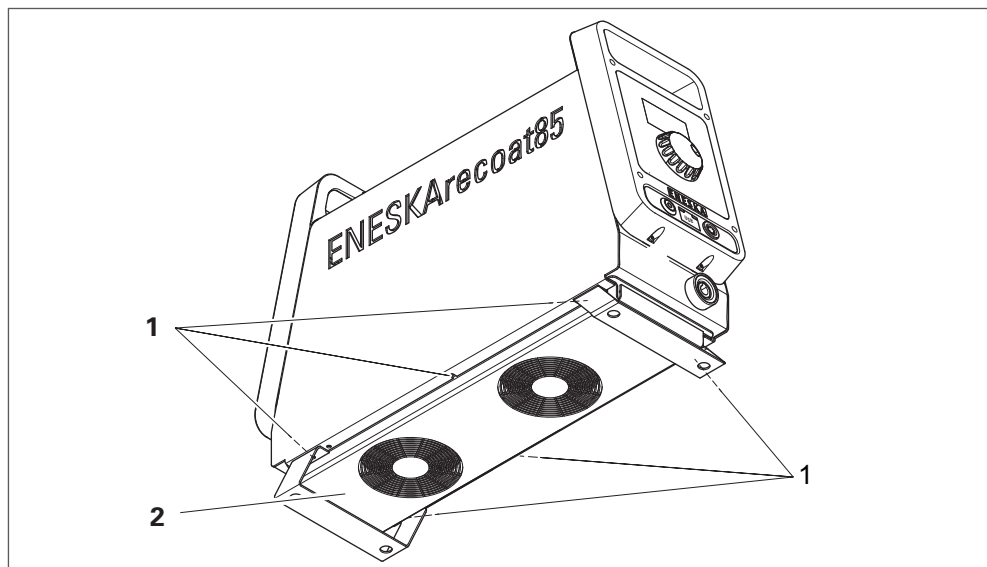


Fig. 29

- » Loosen the screws (1) and remove them together with the bottom cover (2).
- » Replace the filter mat with a new one.
- » Screw the cover (2) back onto the control unit using the screws (1).

### Notes on the E-Check according to DGUV V3

The unit has protection class I with protective conductor terminal.

During the operational E-Check according to DGUV V3, the following must be observed:

The front of the device with the socket cover is double-insulated. The socket cover, the power switch and the two 8-pin plug sockets do not have to be connected to the operating ground. A socket cover that is not grounded is therefore not a fail criterion during an E-Check test.

Instead of testing the ground connection, an insulation test must be performed here.

## 21 Troubleshooting and fixing faults

### Error

Error message	Cause	Remedy
<b>Error 100</b>	<ul style="list-style-type: none"> <li>The control unit has been overloaded.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm error with MEM button and continue working with reduced power.</li> </ul>
<b>Error 101</b>	<ul style="list-style-type: none"> <li>Handpiece cannot be calibrated.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm error with MEM button.</li> <li>Check whether the handpiece may be used.</li> <li>Correct the position of the electrode and the clamping element. There must be no impurities in the clamping element and on the handpiece.</li> <li>Check handpiece for damage.</li> <li>Calibrate handpiece.</li> <li>If the error cannot be corrected, contact JOKE service.</li> </ul>
<b>Error 102</b>	<ul style="list-style-type: none"> <li>The operating point could not be tracked.</li> </ul>	<ul style="list-style-type: none"> <li>Calibrate handpiece.</li> </ul>
<b>Error 103</b>	<ul style="list-style-type: none"> <li>The control unit has overheated.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm error with MEM button, let system cool down and continue working with reduced power.</li> <li>Keep the ventilation slots clear and unobstructed.</li> </ul>
<b>FEHLER 104</b>	<ul style="list-style-type: none"> <li>Serious system fault: The handpiece or foot pedal was removed from the control unit while it was switched on. This can destroy the device.</li> <li>Serious system fault: The handpiece or foot pedal was removed from the control unit while it was switched on. This can destroy the device.</li> </ul>	<ul style="list-style-type: none"> <li>Restart the system.</li> <li>If the error persists, contact JOKE service.</li> </ul>
<b>200 ... 208</b>	<ul style="list-style-type: none"> <li>Serious system fault:</li> </ul>	<ul style="list-style-type: none"> <li>Try to restart the system.</li> <li>If the error persists, contact JOKE service.</li> </ul>

## Faults

Fault	Cause	Remedy
The display is not lit.	• The control unit is not switched on.	• Switch the control unit on.
	• The power supply is not switched on.	• Switch the power supply on.
	• The mains cable is not connected.	• Connect the mains cable to the control unit and plug it in to the mains supply.
	• The fuse in the control unit is faulty.	• Replace the fuse.
	• Control unit, cables, connections, contacts, mains switch or sockets are faulty.	• Send unit and accessories to JOKE service for inspection or repair.
Handpiece doesn't start.	• Contacts are faulty.	• Check the handpiece connections. • Check the connections between the motor and the accessories.
	• Motor, circuit, cable, connections, contacts or sockets are faulty.	• Send unit and accessories to JOKE service for inspection or repair.
The handpiece stops.	• Automatic switch-off on idling	• Switch the handpiece back on
Coating does not adhere.	• Workpiece is dirty or the coating thickness is set too low.	• Clean workpiece. • Increase energy for coating thickness.
Electrode glowing.	• Coating thickness is set too high. The electrode cross-section is too small.	• Reduce coating thickness
No material application	• Contact error	• Check connecting cable and plug connections. • Check attachment of contact magnet.
Electrode sticks during coating.	• Vibration of the electrode is set too low.	• Increase vibration.
Strong sparking during coating	• Workpiece or electrode is dirty.	• Clean workpiece surface and electrode.

## 22 Declaration of Conformity

We, joke Technology GmbH  
Asselborner Weg 14–16  
51429 Bergisch Gladbach, Germany  
Germany

declare under our sole responsibility that the product

**Designation: Carbide coating system**

**Type designation: ENESKArecoat 85**

complies with the provisions of the following directives and standards:

- **Machinery Directive 2006/42/EC**
- **Electromagnetic Compatibility Directive 2014/30/EU**
- **Directive 2014/35/EU (Low Voltage Directive).**
- **DIN EN ISO 12100 (2011-03): Safety of machinery – General principles for design – Risk assessment and risk reduction**
- **DIN EN 61000-6-2 / DIN EN 61000-6-4: Electromagnetic compatibility (EMC) – Immunity standard / Emission standard for industrial environments**
- **DIN EN 61010-1 VDE 0411-1 (2011-07): Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements**

The authorised representative for the document is:

Kerstin Otto

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Bergisch Gladbach, 15 December 2021

Udo Fielenbach (Managing Director)





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Surface Technology

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**Order number for operating manual: BA2143GB**