Translation of the original operating instructions

Fornax® T

en English

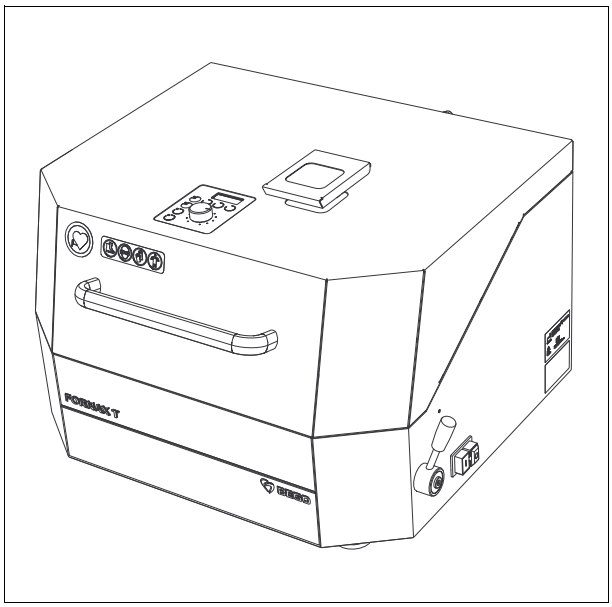


Table of contents

This device documentation is part of the device and must be enclosed when selling or transferring the device.

- The device has been designed solely for use in dental laboratories and comparable institutions for research, commercial and training purposes. The device must only be operated by dental professionals, or they must provide supervision if trainees or other persons operate the device.
- The operating instructions must be read and understood before the device is used. This applies, in particular, to **Safety Instructions**. Damages caused by non-compliance with these operating instructions will invalidate any and all warranty claims. We will also not accept liability for any resulting consequential damages.
- Symbols used


This symbol indicates very important information. Failure to comply with it may result in personal injury.


This symbol warns of hot parts.


Prohibited for persons with pacemakers.


This symbol indicates that safety gloves have to be worn.


Use eye protection (protective glasses against mechanical hazards).


This symbol indicates that protective clothing must be worn.


Use protective footwear.


Read the operating instructions carefully.


This symbol marks important information. Failure to comply with it may result in damage to the unit or the work result may be unsuccessful.

86107 BA-en/01

General Information

Importance of the operating Instructions

These operating instructions includes all information required in accordance with the relevant rules for the safe operation of the device described herein.

The operating instructions are a part of the device. The operating instructions should therefore

- always be kept at hand near the device until the device is disposed of,
- and must be passed on with the device when it is sold, transferred or rented/leased out.

Contact the manufacturer if you are unsure about anything in the operating instructions.

We welcome any suggestions or contributions; please feel free to contact us. Your effort will help us make the operating instructions more user-friendly and respond more effectively to your wishes and needs.

Target group

This document is directed toward everyone who works with this device or performs service tasks that are described in this document.

Contact information

BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG
Wilhelm-Herbst-Str. 1
28359 Bremen • Germany
Telephone: +49 421 2028-0
Service-Hotline Phone: +49 421 2028-270
www.bego.com

86107 BA-en/01

Conventions

These operating instructions contain references to residual hazards, important user tips and handling instructions that are identified with the following symbols and words.

⚠ DANGER

This reference identifies hazards that can cause serious bodily injury or death if the relevant hazard instructions are not followed or not followed properly.

⚠ WARNING

This reference identifies hazards that can cause bodily injury or property damage if the relevant hazard instructions are not followed or not followed properly.

⚠ CAUTION

This reference identifies only those hazards that are potential damaging to property and the environment.

NOTICE

This symbol identifies user tips and particularly useful information. It helps you optimally exploit all the functions of your machine.

1. Sequential actions are described in sequentially numbered paragraphs.

→ Cross-references are identified with this symbol.

86107 BA-en/01

Warranty and Liability

Our "General terms and conditions of sale and delivery" apply. These terms and conditions are available to the operator since the conclusion of the contract at the latest.

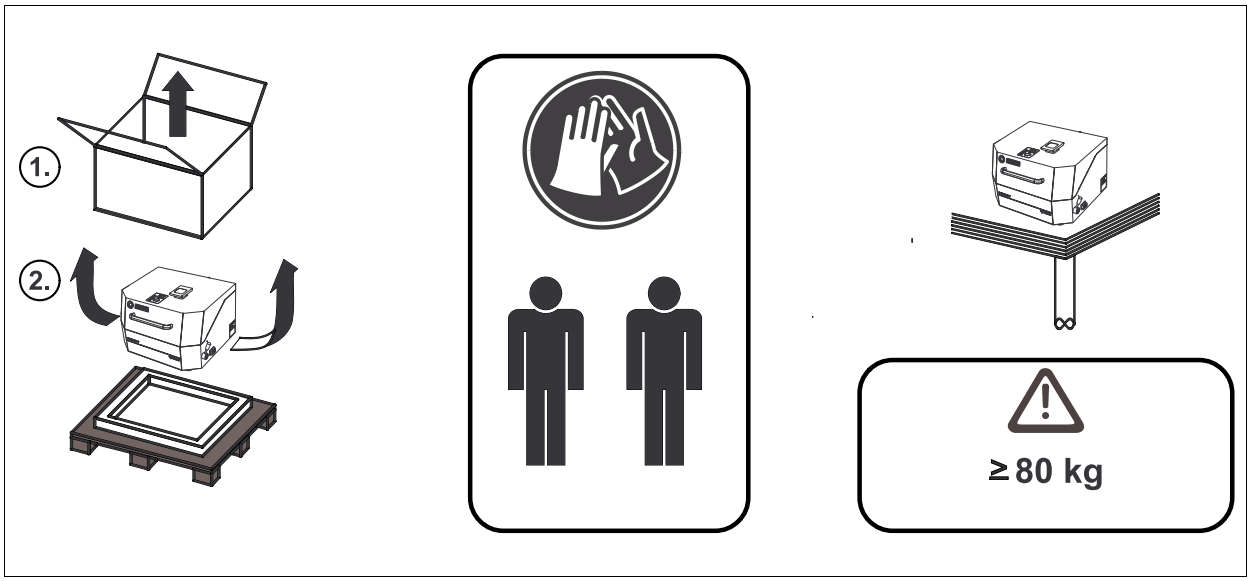
Warranty and liability claims for personal injury and property damage are excluded if these are attributable to one or more of the following causes:

- Improper use of the device
- Improper installation, commissioning, operating and maintenance of the device;
- Operating the device with safety and protective facilities that are defective, improperly installed or inoperative
- Failure to observe the notes contained in these operating instructions regarding the transport, storage, installation, commissioning, operation, service and maintenance of this device;
- Unauthorized structural modifications to this device;
- Inadequate monitoring/inspection of device parts that are subject to wear;
- Improperly performed repairs;
- Disastrous situations/emergencies caused by foreign objects or force majeure.

Exclusion of liability in case of modifications:

If a modification by the user affects any aspect of the performance data or intended functioning, as described in the relevant standards, of the centrifugal casting machine, the person or organization that undertook the modification is responsible for obtaining a new classification and new labelling for the centrifugal casting machine. This person or organization then assumes the status of "manufacturer".

Unpacking / Packing



Safety instructions

The HF Fornax® T centrifugal casting machine is designed exclusively for casting dental alloys, with the exception of titanium. Any other use is deemed to be improper. No liability will be accepted for any damages resulting from improper use.

⚠ WARNING

Danger from toxic gases!

Titanium reacts violently with the crucibles. This may lead to bodily injury and damage to the device!

- Wear suitable protective equipment when working with the machine.
- When casting dental alloys, do not use titanium!

Alloys containing beryllium produce strong oxides during melting, cause substantial wear to the crucibles and remain there in significant amounts.

⚠ WARNING

Danger from toxic materials!

Carcinogenic particles are released when beryllium is processed!

- Wear mouth protection and ensure good suction extraction when casting and finishing!

The safety instructions must be followed in order to prevent personal injury and damage to the machine. We shall not be liable for damage due to failure to comply with the safety instructions.

General safety instructions

Place where effective

The device has been designed solely for use in dental laboratories and comparable establishments for research, commercial and training purposes.

The device may only be installed on a sufficiently stable surface.

The unit must only be used in dry rooms.

Operator and operating personnel

The device must only be operated by dental professionals; trainees and other persons operating the device must be supervised.

Wear the protective clothing prescribed for use in dental laboratories and observe the rules of conduct.

The device may only be operated by staff members who are familiar with and follow the instructions of this operating manual.

The operating manual must be easily accessible when the machine is operated. Observe the national accident prevention regulations in addition to this operating manual.

Handling the machine

Check if the specifications on the type plate correspond to the power supply network before connecting the device. Consult a specialist in case of uncertainty.

The device is categorised under protection class I and may only be connected to properly earthed power sources (earth contact sockets).

Modifications of the machine are not permitted.

Always keep signs and stickers such that they are easy to read. They must not be removed.

Check the machine and leads for damage regularly. The machine must not be operated if it has any defects that may result in risks for the employees or third persons.

Protect the leads against heat, oil and sharp edges.

The leads must not be used to carry the machine or to pull out the mains plug.

Repair work

Repairs may be carried out solely by BEGO customer service personnel or by persons authorized by the BEGO customer service department.

Metallic housings must be grounded properly so as to prevent them from carrying current. Otherwise they are extremely dangerous because the housings may be live due to damage to the machine! Since a check to ensure a de-energized state is mandatory after every intervention in the machine (Germany: check in accordance with DIN VDE 0701-1), only qualified electricians may open the machine!

Only BEGO replacement and wearing parts may be used.

Installation

The device is categorised under protection class I and may only be connected to properly earthed power sources (earth contact sockets).

When laying cables and hoses, make sure that they are protected from hot components (e.g., moulds).

The cooling water temperature must never drop below 10°C (50°F). If not observed, condensation forming on the coil may have an adverse effect on the heat output. If condensed water get onto the hot mould, it may vaporized explosively.

Danger of burns when draining the cooling water! The water can reach temperatures up to 70° C if the unit was used for casting beforehand.

Care and maintenance

Switch off the machine and pull out the mains plug before performing any care, cleaning or maintenance work.

Only use dry or slightly moist cloths for cleaning. Do not spray the machine with water or immerse it in water.

Maintenance of safety-relevant components

The unit has been designed for a service life of 10 years from the date of manufacture. No liability is accepted for damages arising from operation of the unit after this period.

Safety-relevant components must be checked regularly and replaced as required. This work must be carried out solely by BEGO customer service personnel or by repair centres authorised by the BEGO customer service department. For that purpose, regular maintenance, including annual inspections and an inspection after five years, carried out by personnel authorized by BEGO is recommended.

Special safety instructions regarding this device

⚠ DANGER

Danger due to electric shock

- The device is categorised under protection class I and may only be connected to properly earthed power sources (earth contact sockets).

⚠ WARNING

Danger of deflagration

- The cooling water temperature must never drop below 10°C (50°F). Otherwise condensation water may land on the hot moulds and vaporize explosively.

Danger from waste gases

- Ensure there is adequate ventilation in view of the waste gases arising during the casting of dental alloys.

⚠ WARNING

Burn hazard from hot parts!

- Wear protective clothing (protective apron), safety shoes, safety goggles and protective gloves.
- Always use mould tongs to move moulds and hot crucibles.
- Touch hot crucible inserts and hot cast metal with forceps only..
- Place hot parts only on a fireproof surface.
- Danger of burns when draining the cooling water!
- Carry out maintenance and cleaning work before casting or only after the machine has cooled down.

NOTICE

Important!

- When laying cables and hoses, ensure that they are protected from hot components (e.g., moulds)!
- Do not cover the ventilation slots located on the left and the back of the machine!
- Never operate the device without supervision!

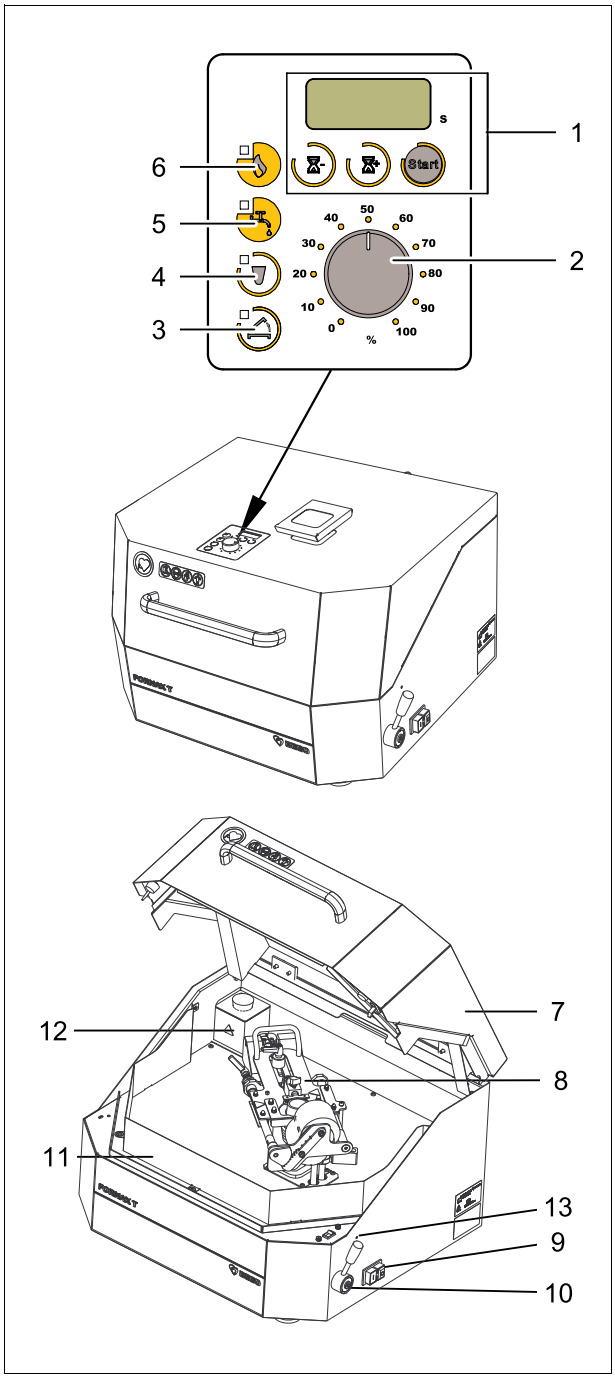
⚠ WARNING

Electromagnetic radiation!

- Persons with electronic implants (for instance, pacemakers) may not remain in the same room in which the ready-to-operate machine is located.
- The warning signs provided (symbol: "pacemaker") are to be placed at the entrances to the room in which the ready-to-operate machine is located!

Device description

Fornax® T



Fornax® T is a compact benchtop casting centrifuge with powerful induction heating for all normal precious metal and non-precious metal alloys (except titanium). Appropriate adjusting mechanisms for different mould sizes (weights) provide for a fast, economic operation.

Functions:

1 Setting /starting the timer
2 Setting the IR sensor (temperature limits)
3 Opening the cover
4 Adjusting the crucible inserts for precious metals
5 Cooling water indicator
6 Heater indicator
7 Cover
8 Casting arm (slider and counter-weight)
9 Main switch
10 Raising/lowering the crucible coil (releasing the cast)
11 Splash guard
12 Cooling water tank
13 Emergency release

86107 BA-en/01

Scope of delivery, wearing parts and extras

Scope of delivery

	REF	Quantity	Designation
	86107	1	Translation of the original operating instructions
	52483*	1	Ceramic crucible
	52454*	1	Graphite insert
	52455*	1	Ceramic insert
		1	Mould former, size 3*
		1	Mould former, size 6*
		1	Mould former, size 9*
	16092	1	Symbol "Pacemaker"
	16647	1	Crucible stand
	-	1	Power supply cable (country specific)

* Wearing part. Expendable and wearing parts are neither subject to the warranty nor the guarantee.

Accessories

	REF	Quantity	Designation
	39754 11599	1 1	Mould tongs 55 cm Mould tongs 64 cm
	17800	1	Transformer
	52627	1	Mould former, size 3
	52628	1	Mould former, size 6
	52629	1	Mould former, size 9
	52525	65 g	Auromelt
	52526	80 g	Wiromelt
	54883	1	Glassy carbon inserts

** not included in the scope of delivery

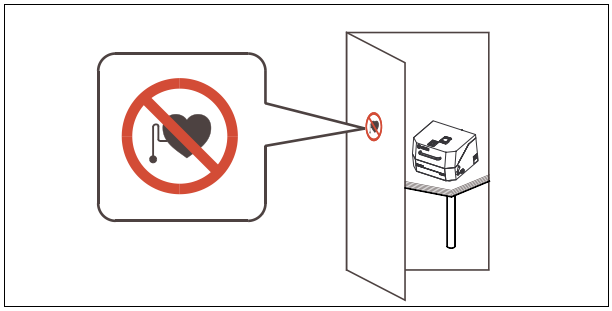
Technical data

Height opened	910 mm	Nominal voltage	230 V AC, 50/60 Hz
Height closed	455 mm	Nominal output	3680 VA
Width	710 mm	Heating output	3.6 kVA, 65 kHz
Depth	615 mm	Noise emission	< 80 dB (A)
Weight	79.4 kg	Ambient temperature	10… 30 °C (50…86 °F)

230 V AC, 50 / 60 Hz, 3680 VA	REF 26480
For special voltage 200/210/240 V AC	REF 26481 (consisting of REF 26480 and REF 17800)

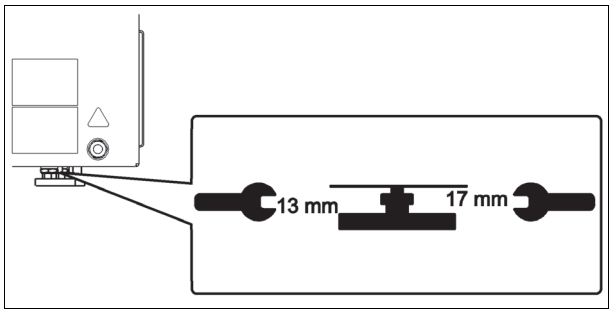
Installation

Installation

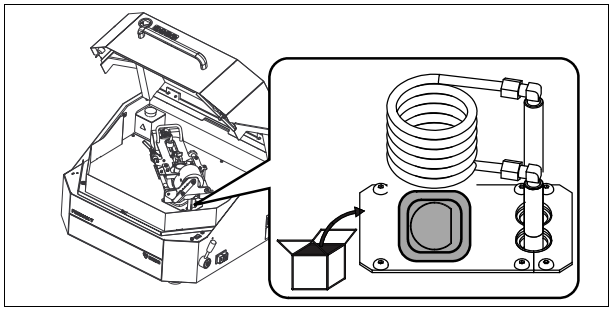


⚠ WARNING

The warning signs provided (symbol: "pacemaker") are to be placed at the entrances to the room in which the ready-to-operate machine is located!

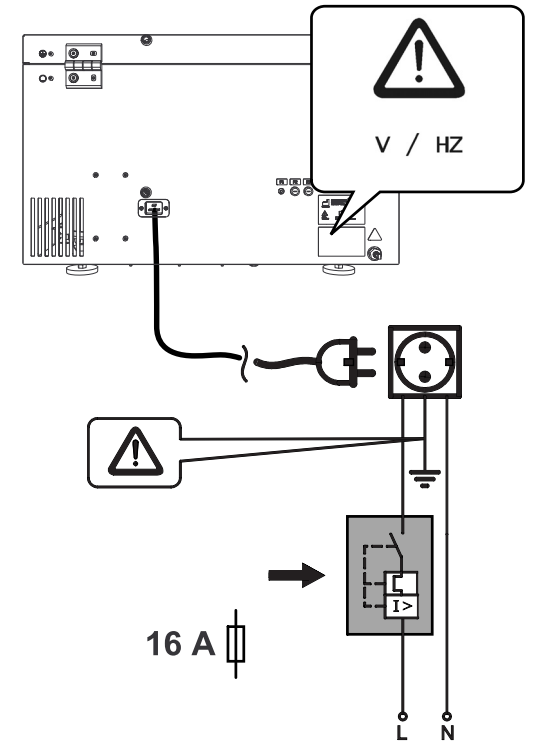


1. The device may only be installed on a sufficiently stable surface.
2. Use two open-ended wrenches (13 and 17 mm) to turn the feet of the unit clockwise and/or counterclockwise until the unit is properly aligned and level. Check the alignment with the aid of a spirit level.



3. Place the crucible stand in its intended space below the crucible coil as protection against hot casting beads. Please observe the following pages for opening the cover.

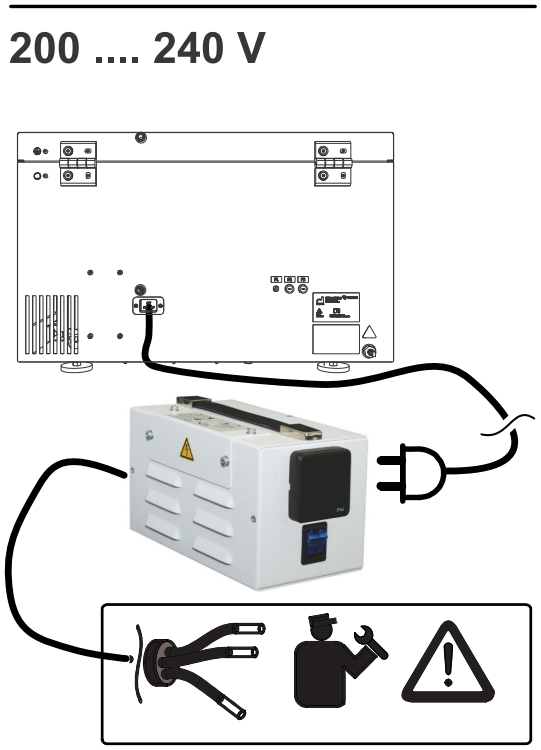
Electricity



Check if the specifications on the type plate correspond to the power supply network before connecting the device. Consult an electrician in case of uncertainty.

The device is subject to protection class I and must only be connected to properly grounded and protected power sources.

Recommendation: Always operate the device in a single power circuit (min. 16A fuse).



Installation in countries without 230 V network

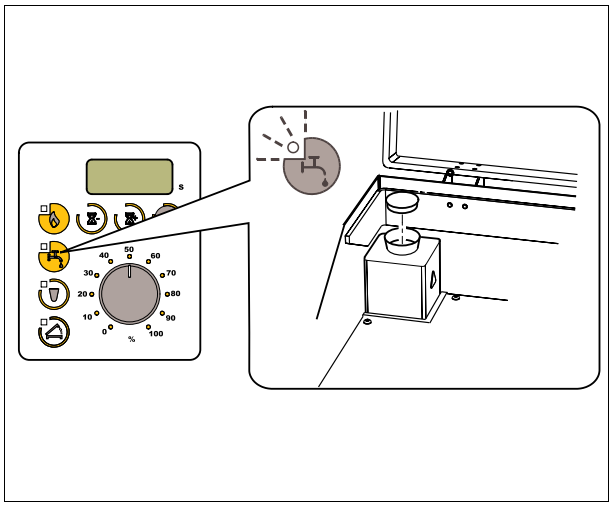
The electrical installation must only be carried out by a qualified electrician!

Use the transformer (accessory REF 17800) for connection.

1. Adapt the power connection of the transformer to local circumstances.
2. Insert the Fornax®-power plug into the transformer.

The device is subject to protection class I and must only be connected to properly grounded and protected power sources.

Cooling

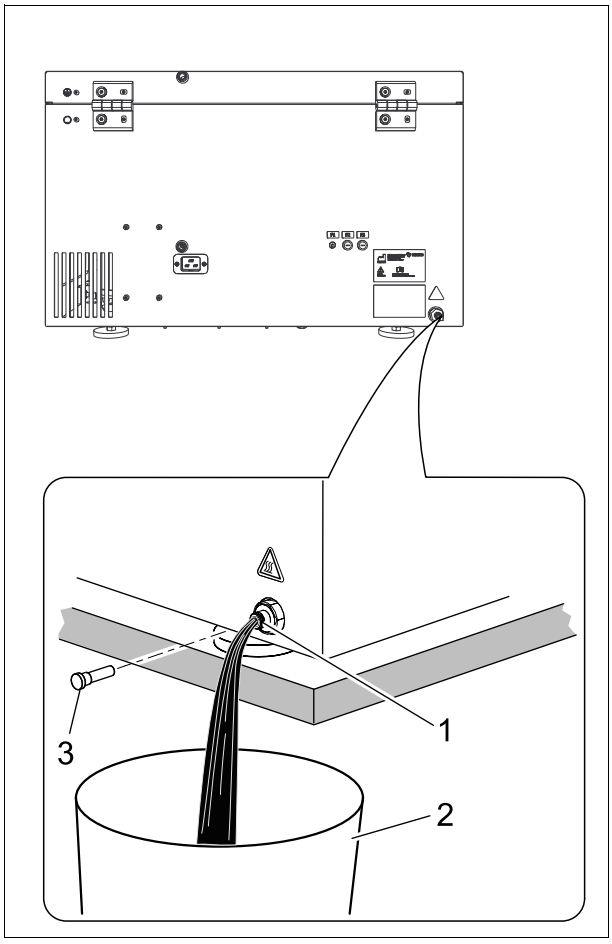


Switch the device on and open it (see page 16) The indicator light stays on permanently if the coolant water level of the device is sufficient (if not, error message E13 will appear).

1. Allow the unit to cool down without turning it off in case error message E 23 is displayed..
2. Open cover.
3. Remove the stopper from the cooling water tank.
4. Add potable water to approx. 2 cm below the rim, using a suitable container (e.g. bottle, jug).
5. Finally, replace both stoppers.

NOTICE

It is important to watch the fill level of the cooling water tank when adding water as the unit does not have a level indicator.



6. Keep a suitable container (2) handy to drain excessive water.
7. Press the upper ring of the quick connector (1) located on the bottom right of the rear unit cover down.
8. Pull the stopper (3) out and collect the water draining from the tank.

⚠ WARNING

Risk of burns!

The water can reach temperatures up to 70° C if the unit was used for casting beforehand!

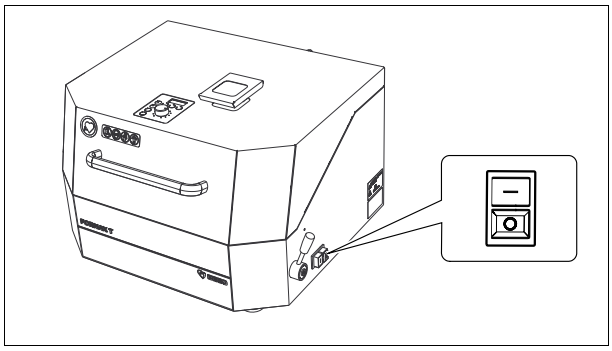
9. Replace the stopper.

NOTICE

After initial commissioning, run the device for at least 2 minutes to allow for the cooling water to circulate and check the water level again.

Basic principles

Switching the device on and off



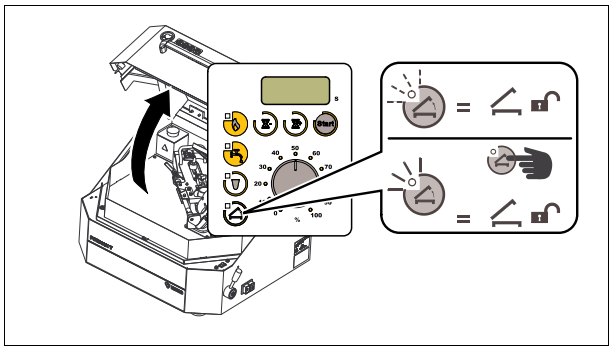
NOTICE

Important!

Before starting up please read and observe the operating instructions, especially the safety instructions (page 7), in order to prevent damage to property and injury to persons.

1. Use the main switch on the right side of the unit to switch the unit on and off.

Opening the device



The device can be opened if the indicator light next to the "open cover" button is on.

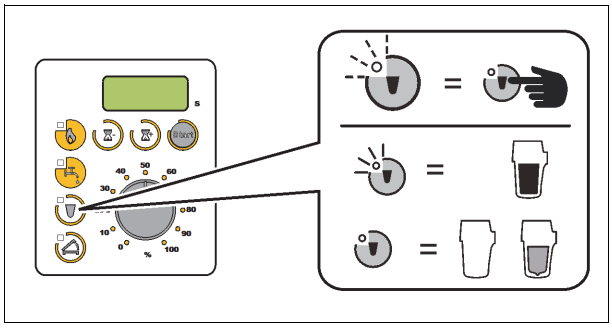
1. Press button "Open cover"
2. Lift the cover.

.

NOTICE

If the unit is not properly locked, the indicator light next to the "open cover" button will flash. Slightly raise the cover and close/lock it again.

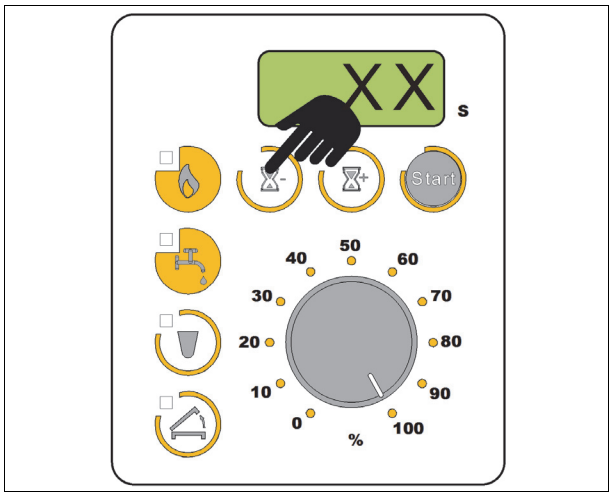
Adjust crucible insert



The rotation acceleration of the spinning process needs to be reduced when a graphite or glassy carbon insert is used to melt precious metals.

1. Adjust the crucible insert by pressing the "crucible insert" button.
2. The adjusted crucible is displayed by the status of the control lamps (see illustration).

Setting the timer

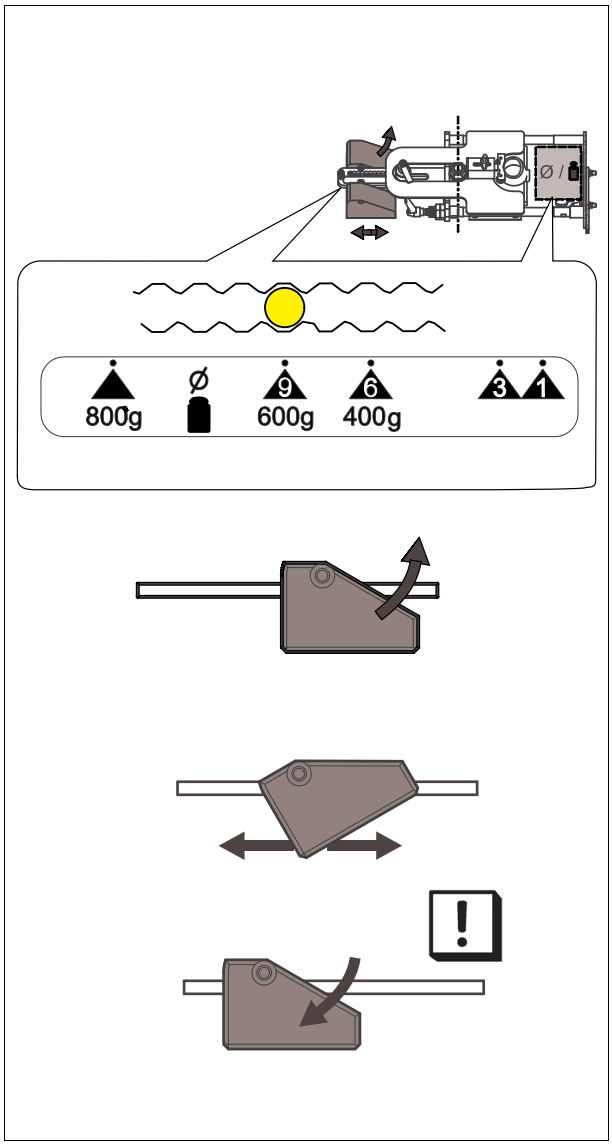


1. Use the "-" and "+" buttons (hour glass symbol) to set the timer (see casting table, page 26 continue heating / holding time); press the start button when done.

NOTICE

The timer can be reset by pressing the "-" and "+" buttons simultaneously.

Adjusting the mould weight



Every time a different mould size is used, the position of the sliding counterweights on the casting arm need to be adjusted to properly balance the weight of the installed mould.

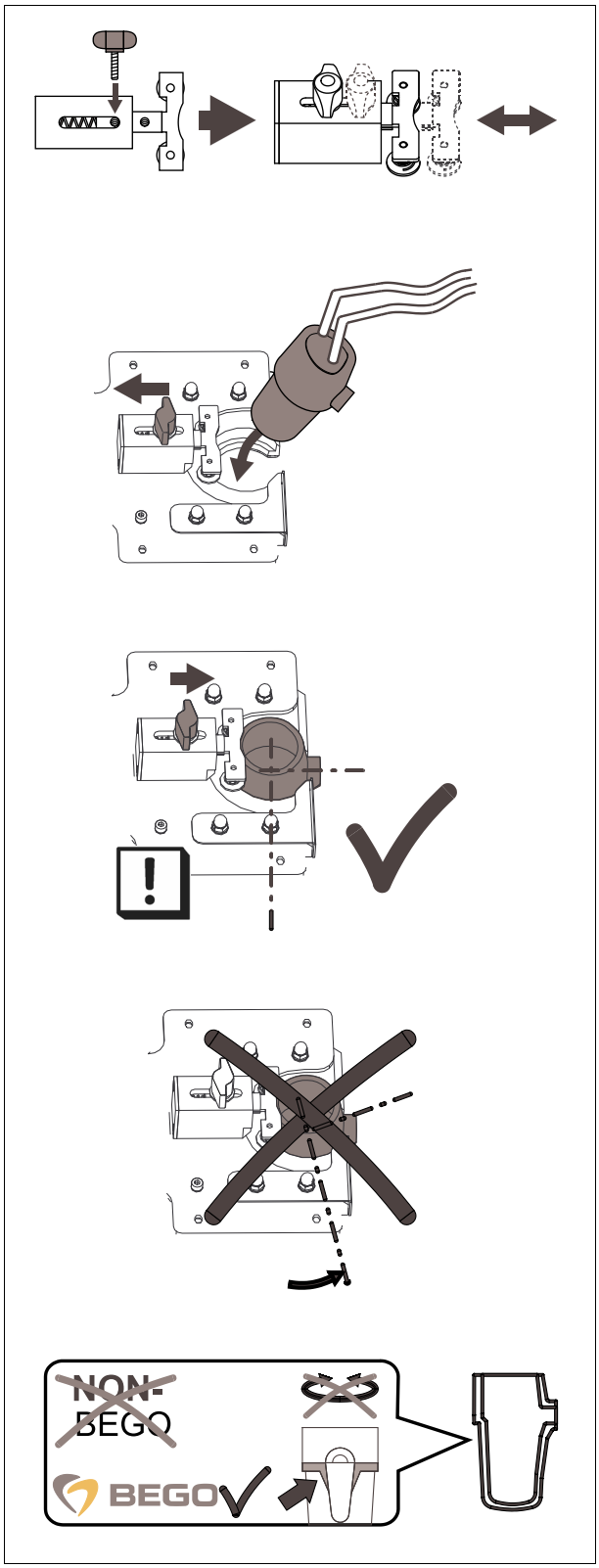
1. Unlock the sliding counterweight by pulling it upward.

2. Set the tare weight of the mould by sliding the counterweight accordingly.
   The yellow pin the the center of the adjustment weight or the adjustment bar indicates the set mould weight on the scale.

3. Lock the sliding counterweight in its position by pushing it down when finished.

Basic principles: Crucible

Adjusting the crucible locking device



⚠ WARNING

Burn hazard from hot parts!

- Always use mould tongs to move hot crucibles.
- Always use mould tongs to move hot crucible inserts!

The crucible in use can be locked in its position by means of the crucible locking device, thus ensuring that the melt is safely drained by the centrifugal force.

1. Loosen the wing screw on the crucible lock. The crucible locking device can now be adjusted.
2. Pull die crucible locking device backwards using the wing screw.
3. Insert and align the crucible so that the outlet of the crucible fits into the opening provided for that purpose.
4. Push the wing screw back towards the crucible so that the crucible locking device is locked in its position.
5. Tighten the wing screw.

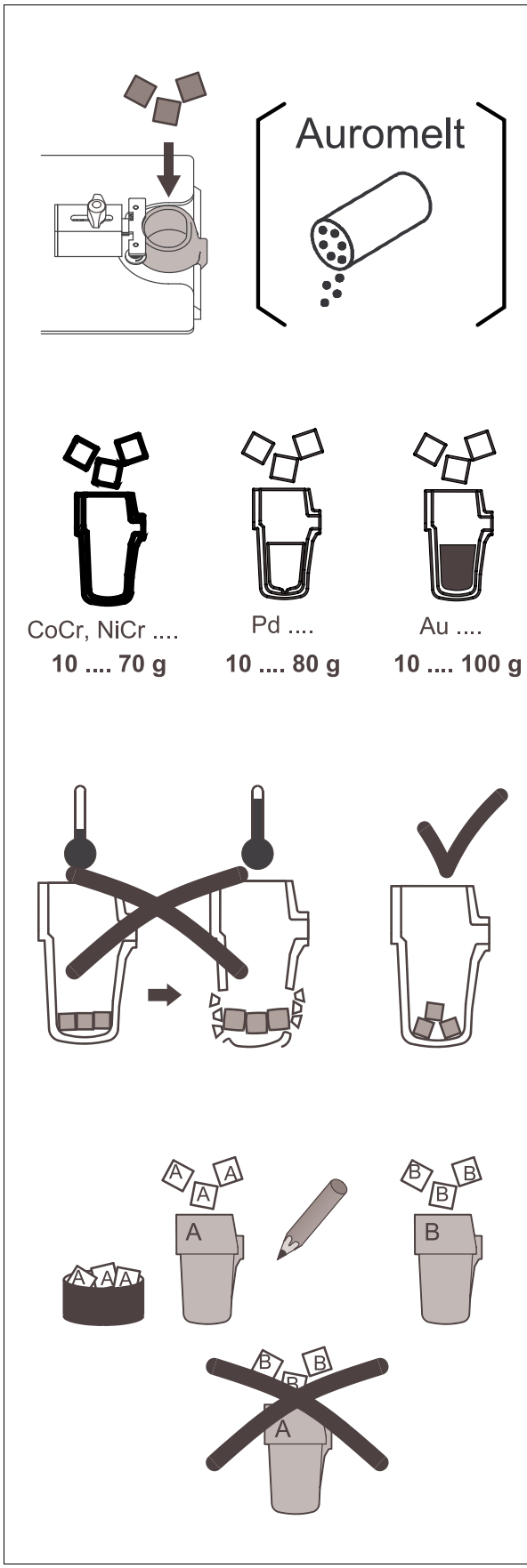
NOTICE

Fornax ceramic crucibles (RE 52483) do not need to be preheated before casting.

Recommendation: Only use BEGO crucibles (REF 52483 - identifiable by the BEGO logo).

86107 BA-en/01

Filling the crucible



1. Fill the desired alloy into the clamped crucible.
2. In the case of special alloys, sprinkle a pinch of BEGO Auromelt HF melting powder on the alloy (see table on page 26).
   Melting powder made by other manufacturers may impair the casting result!!
   Auromelt HF should be used very sparingly (only a pinch)!

NOTICE

ATTENTION!

- Observe minimum and maximum quantities!

3. Depending on the selected alloy, place an additional graphite insert (REF 52454), glassy carbon insert (REF 54883) or ceramic insert (REF 52455) into the ceramic crucible during the melting process (see casting table page 26)!

NOTICE

Alloys with a high palladium content are generally casted in a ceramic insert. A glassy carbon insert can be used if the alloy chips rise during the heating process and thus do not have the proper temperature (failed "incorporation" in the induction field):

- with palladium contents up to 30% of the graphite insert,
- with palladium contents over 30% of the glassy carbon insert, which reliably prevents carbon from being absorbed by the alloy.

Pile alloy plates loosely into the ceramic crucible as it may otherwise crack during heating!

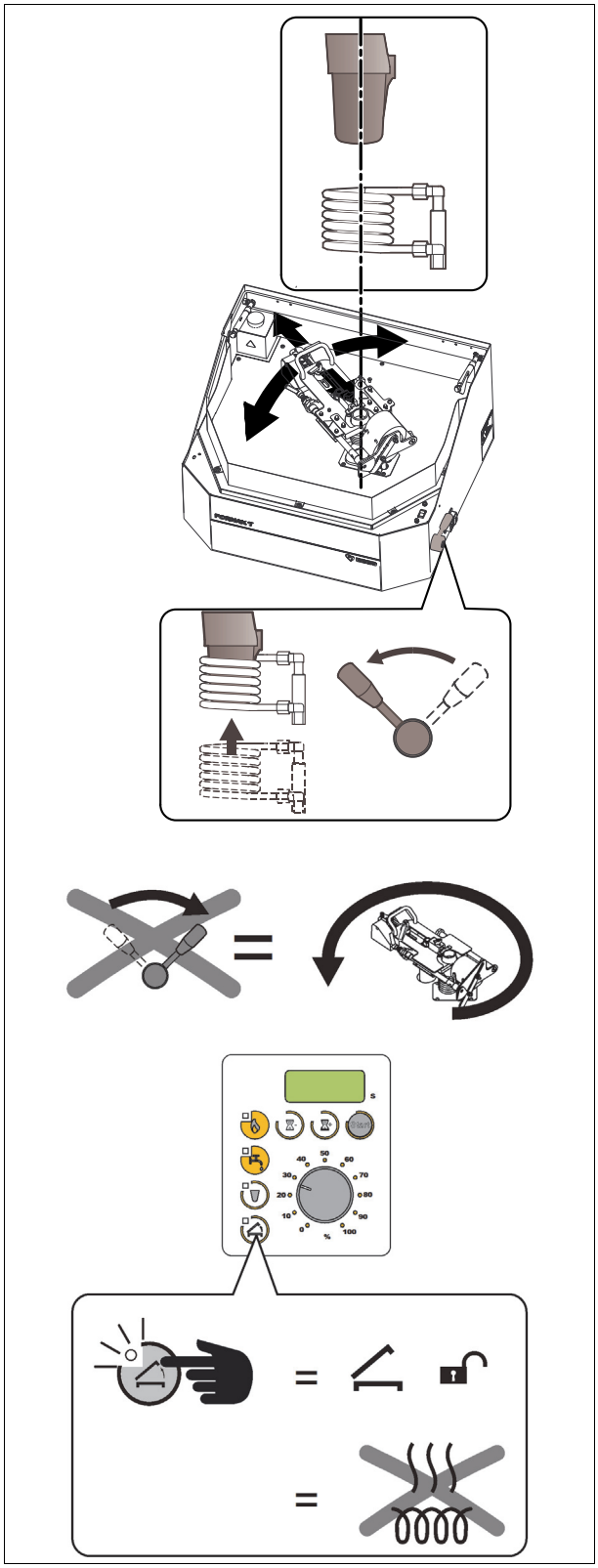
Recommendation: Fill in old metal first, top off with new metal.

Always use crucible and inserts for the same alloy.

Crucibles can be written on with a pencil.

Operation

Preheating



Premelting is necessary to keep the "cast delay time" (time to melt the alloy after insertion of the mould) as short as possible.

1. Align the crucible with the center of the crucible coil by turning the casting arm and moving the the slider back and forth.
2. Lift the crucible coil. Pull the handle located on the right exterior side of the device forward for this purpose.
3. To avoid fusing, the knob must be set to up to 50% according to the alloy-specific value. The setting controls the switching of the heater on and off according to the measured IR radiation of the alloy.
4. The preheating process is started by closing the cover.
   The "heating" button will light up to indicate that the heating process is in progress

⚠ WARNING

Never look into the melt without protective glass and protective eyewear!

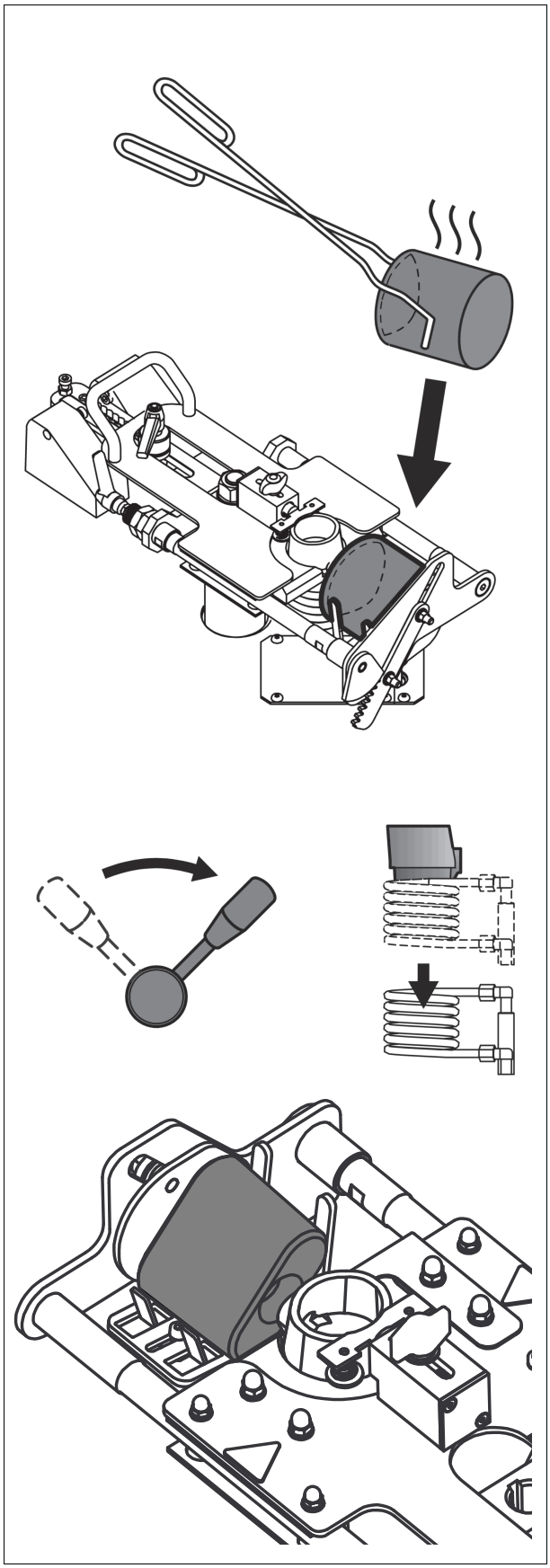
NOTICE

ATTENTION!

- Do not premelt the alloy for too long as this may result in uncharacteristic behaviour of the alloy later on.
  During the premelting process, the castings should only deform slightly and not melt completely!
- As these are only reference values, the castings must be observed. If the castings deform more than just slightly, the premelting process must be stopped (and the value setting must be reduce with the knob).
- Do not move the handle to raise/lower the crucible coil during the premelting process as this will initiate the spinning process prematurely!

5. Open the cover to stop the premelting process. The heating process will be interrupted.

Insert mould



⚠ WARNING

Burn hazard from hot parts!

- Always use mould tongs to move moulds.
- Wear suitable protective equipment when operating the device!

1. Insert the preheated mould into the mould holder. The mouth of the ingot mould must face the crucible.

⚠ CAUTION

Mould temperatures above 1050°C may cause the device to overheat.

Never use damaged or cracked moulds.

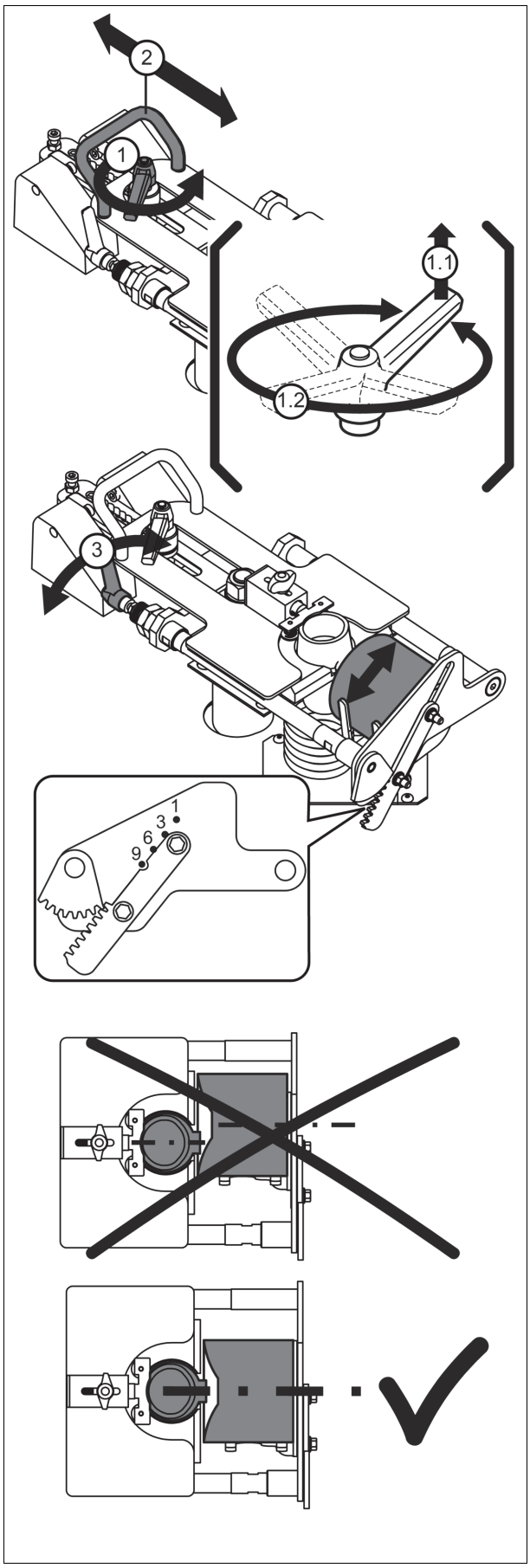
2. Lower the crucible coil to adjust the mould distance. Push the handle located on the right exterior side of the device backward for this purpose.

NOTICE

Ideally, the setup should be carried out with a cold mould before it is placed into the preheating oven. A "dummy" may be used alternatively.

A setup with a hot mould is required if the presetting did not take place or if the model casting moulds have different shapes, for instance if they are imbedded with crepe sleeves. (here, moulds may have different heights and diameters)

3. Oval moulds (see image) may be inserted as well. For this purpose, the angle of the crucible holder can be adjusted individually by loosening and/or tightening the mounting screws.



4. Unlock the slider. Turn the clamping lever (1) counterclockwise for this purpose. The lever position can be changed individually, see note.

NOTICE

If necessary, raise the clamping lever first (1.1) and then rotate it (1.2).

5. The slider can only be moved with the handle (2).

6. Use the adjustment lever (3) to properly align the mould; the mouth of the ingot mould must be aligned with the center of the crucible outlet. The specified mould size can be seen on the toothed bar.

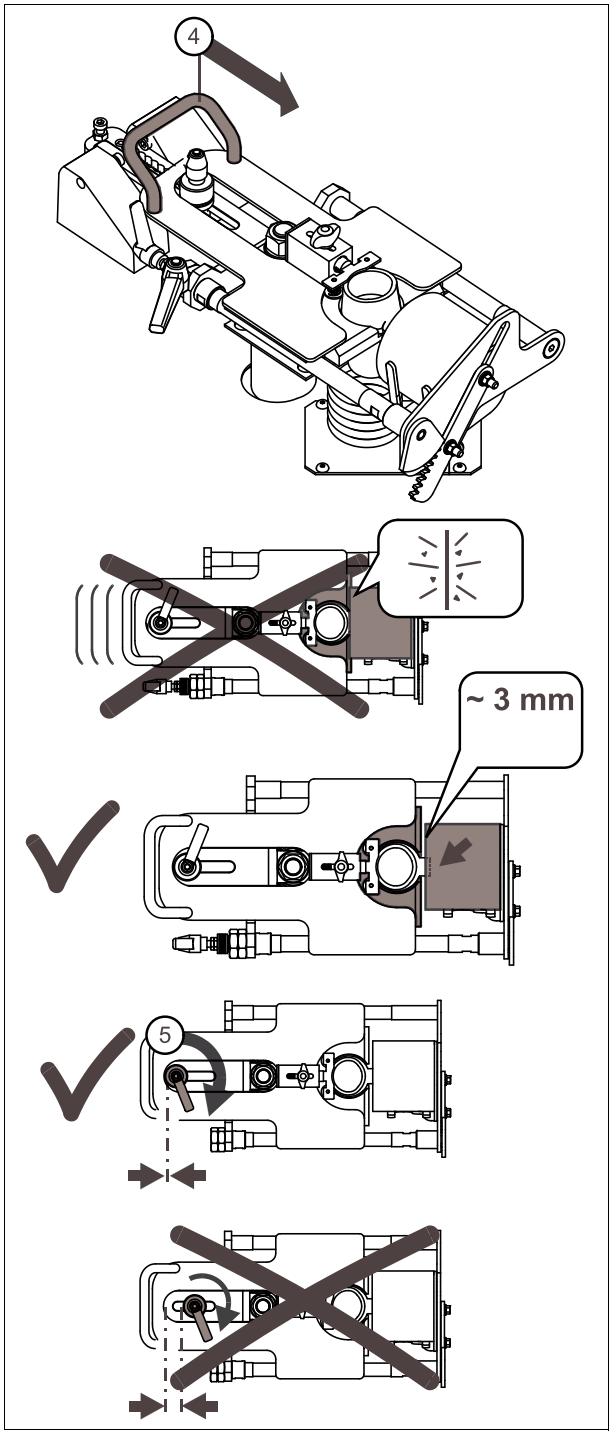
NOTICE

Caution!

If the mould is not properly installed, the alloy may splash into the unit instead of flowing into the mould after melting and releasing the cast!

Note: The rotation direction is counterclockwise

Center align the pouring spout of the crucible inside the casting funnel!



7. Move the slider towards the mould by its handle (4).

.

NOTICE

ATTENTION!

- The ceramic crucible may get damaged if the slide is not moved back smoothly!
- The slider is properly positioned when the crucible pouring spout reaches into casting funnel of the mould.
- A gap (approx. 1-3 mm) remains between the edge of the mould and the slider to avoid any damage on the mould as well as defective castings.

8. Lock the slider. Turn the clamping lever (5) clockwise for this purpose. The slider can now only be moved to this point.

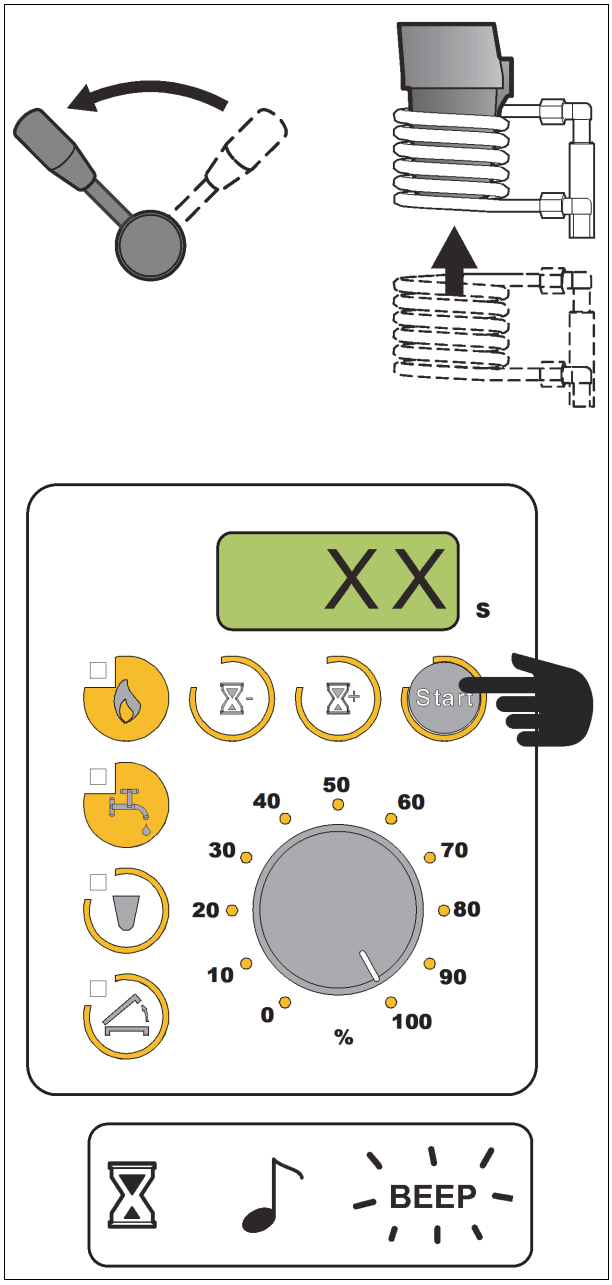
NOTICE

The clamping lever must point towards the crucible when it is locked!

Melting

Ideally, the melting process should always be carried out at the max. setting (knob to 100%)!

In isolated cases, the premelting and melting process may be carried out with a reduced setting. The corresponding values must be individually determined by the user and can be entered into the table on page 26. The corresponding procedure also applies for non-Bego alloys.



Melting procedure

When the last solid part has sunk completely into the melt, continue to heat as long as is indicated in the table on page 26!

After the end of the further heating time casting can be carried out, provided that the melt is ready for casting after a visual check. The time needs to be used for an exact setting of the continuous heating time during the melting process.

NOTICE

Important!

The motion of the melt is caused by the magnetic field, not by the heat. The moving melt is therefore not a "boiling" melt!

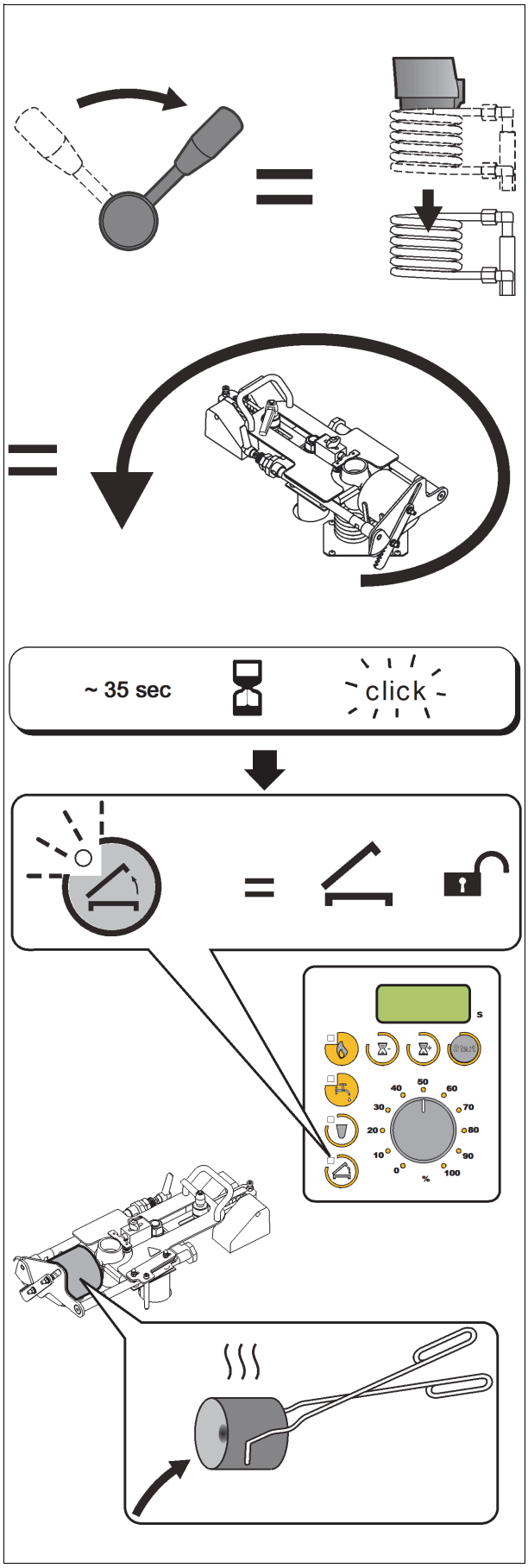
1. Align the crucible with the center of the crucible coil by turning the casting arm and moving the the slider back and forth.
2. Lift the crucible coil. Pull the handle located on the right exterior side of the device forward for this purpose.
3. Insert the preheated mould into the mould holder. The pouring spout of the mould must face towards the crucible (page 21/22).
4. The melting process is started by closing the cover.
   The "heating" button will light up to indicate that the heating process is in progress
5. For the melting process, turn the knob to the max. heating setting (100%) or to the individually determined heat output, respectively.

⚠ WARNING

Never look into the melt without protective glass and protective eyewear!

6. Look through the protective lens to observe the melt.
7. Start the timer (with the continuous heating/ holding time entered in the casting table page 26) when the last solid part has completely sunk into the melting bath.
8. An acoustic signal (beep) will sound when the time set on the timer has expired.

86107 BA-en/01



9. Visually check the melt; lower the crucible coil if the melt appears to be ready for casting. Push the handle located on the right exterior side of the device backward for this purpose.

10. The spinning process will start.

The cover will be unlocked automatically when the spinning process is completed (after approx. 35 seconds). (audible click)

The indicator lamp "Open cover" blinks.

11. Lift cover.

⚠ WARNING

Burn hazard from hot parts!

Always use mould tongs to move moulds.

12. Remove the mould.
13. Repeat the steps described above, starting with the selection of the proper crucible insert, for additional casting processes (see 16).
14. When all casting processes are completed, turn the unit off with the main switch located on the right side of the unit's housing.

Casting table

Alloys			Continuous heating / holding time*	Preheating temperatures	Crucible and insert	Melting powder
Au ⇑	LFC	BioPlatinLloyd®	14...17 sec	700 °C (1290 °F)		-- Auromelt
	✓	BioPontoStar®	15...18 sec	850 °C (1530 °F)		
	✓	BioPontoStar® XL	17...22 sec	850 °C (1530 °F)		
	LFC	PlatinLloyd® KF	10...13 sec	700 - 750 °C (1290 - 1380 °F)		
	-	PlatinLloyd® M/100	10...13 sec	700 °C (1290 °F)		
	✓	PontoLloyd® G	22...25 sec	850 °C (1530 °F)		
	✓	PontoLloyd® P	18...22 sec	850 °C (1530 °F)		
	LFC	Pontonorm	12...15 sec	700 °C (1290 °F)		
	✓	PontoStar® G/H	17...20 sec	850 °C (1530 °F)		
Au ⇓	LFC	AuroLloyd® KF	17...20 sec	700 °C (1290 °F)		
	-	AuroLloyd® M	17...20 sec	700 °C (1290 °F)		
	✓	BegoCer® G	12...18 sec	850 - 950 °C (1530 - 1740 °F)		-- Auromelt
	✓	BegoStar®	22...25 sec	850 °C (1530 °F)		
Pd	✓	BegoPal®/S	13...16 sec	850 °C (1530 °F)	**	-- Auromelt
	✓	BegoPal® 300	13...16 sec	850 - 950 °C (1530 - 1740 °F)		-- Auromelt
Ag	LFC	BegoStar® LFC	17...20 sec	700 °C (1290 °F)		-- Auromelt
	LFC	ECO d'OR	17...20 sec	700 °C (1290 °F)		
Eco	✓	BegoStar® ECO	07...11 sec	850 °C (1530 °F)	**	-- Auromelt
NiCr	✓	Wirocer plus	06...12 sec	900 - 950 °C (1650 - 1740 °F)		
	✓	Wiron® 99	07...10 sec	900 - 950 °C (1650 - 1740 °F)		
	✓	Wiron® light	03...07 sec	800 °C (1472 °F)		
CoCr	✓	Wirobond® C	07...10 sec	900 - 1000 °C (1650 - 1830 °F)		
	LFC	Wirobond® LFC	04...08 sec	900 - 1000 °C (1650 - 1830 °F)		
	✓	Wirobond® SG/280	02...04 sec	900 - 1000 °C (1650 - 1830 °F)		
	-	Wironit®	07...10 sec	950 - 1050 °C (1740 - 1920 °F)		
	-	Wironit® LA	06...08 sec	950 - 1050 °C (1740 - 1920 °F)		
		Wironit® extra-hard	02...10 sec	950 - 1050 °C (1740 - 1920 °F)		
	-	WIRONIUM®	02...04 sec	950 - 1050 °C (1740 - 1920 °F)		
	-	WIRONIUM® extra-hard	06...08 sec	950 - 1050 °C (1740 - 1920 °F)		
	-	WIRONIUM® plus	06...08 sec	950 - 1050 °C (1740 - 1920 °F)		

* The determined continuous heating times correspond with our technical process experience with castings using exclusively new materials and are provided as recommendations. The specified values may deviate depending on the specific alloys, in particular when using non-BEGO alloys.

Note: The table on the following page is provided to record individually determined continuous heating times.

** A glassy-carbon insert may be used as an alternative to the ceramic insert.

86107 BA-en/01

Alloys			Continuous heating / holding time*	Preheating temperatures	Crucible and insert	Melting powder
Au ⇑						
Au ⇓						
Pd						
Ag						
NiCr						
CoCr						

Service and Maintenance

⚠ DANGER

Warning of electric shock! Danger to life!

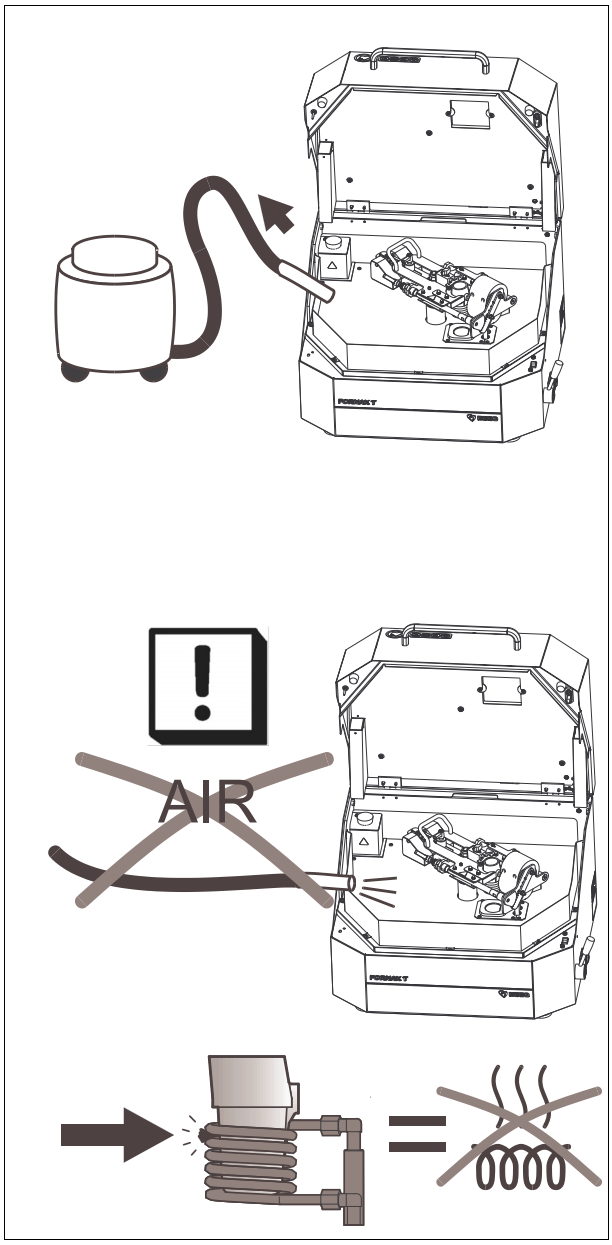
Switch off the machine and pull out the mains plug before performing any care or maintenance work.

For power connection without mains plug: remove fuses, secure the devices against restart and make sure that it is not live.

⚠ WARNING

Burn hazard from hot parts!

Carry out maintenance and cleaning work before working or only after the machine has cooled down.



If necessary, clean the machine on the outside with a dry or slightly moist cloth.

Check the casting chamber daily for impurities (casting pearls) and if necessary clean with cloth or vacuum cleaner.

NOTICE

ATTENTION!

Do not use compressed air for cleaning as residues (casting beads) may get caught in the coil windings and subsequently inhibit heating!

NOTICE

Remove any contamination from both side of the sight glass at regular intervals.

Troubleshooting

⚠ DANGER

Warning of electric shock! Danger to life!

Switch off the machine and pull out the mains plug before eliminating any malfunctions!

For power connection without mains plug: remove fuses, secure the devices against restart and make sure that it is not live.

⚠ WARNING

Risk of injury!

- Eliminate malfunctions only when wearing appropriate protective equipment!

General remarks on eliminating malfunctions:

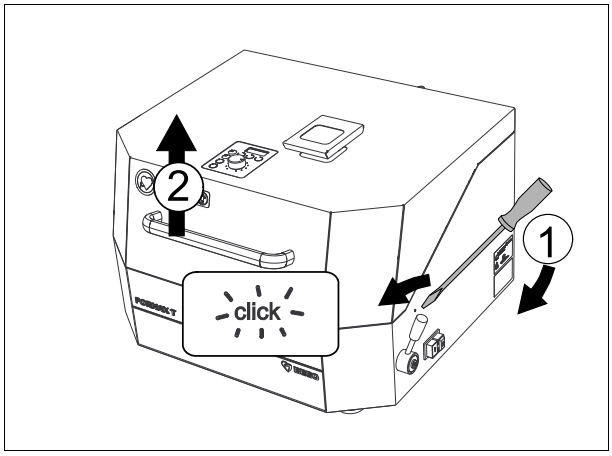
- Switch off unit,
- Eliminate malfunction,
- Switch on the device.
- Notify Service if messages appear repeatedly.
- Have servicing work carried out only by authorized BEGO workshops!

  Service-Hotline: +49 (421) 2028 - (270 ... 274)

Error messages

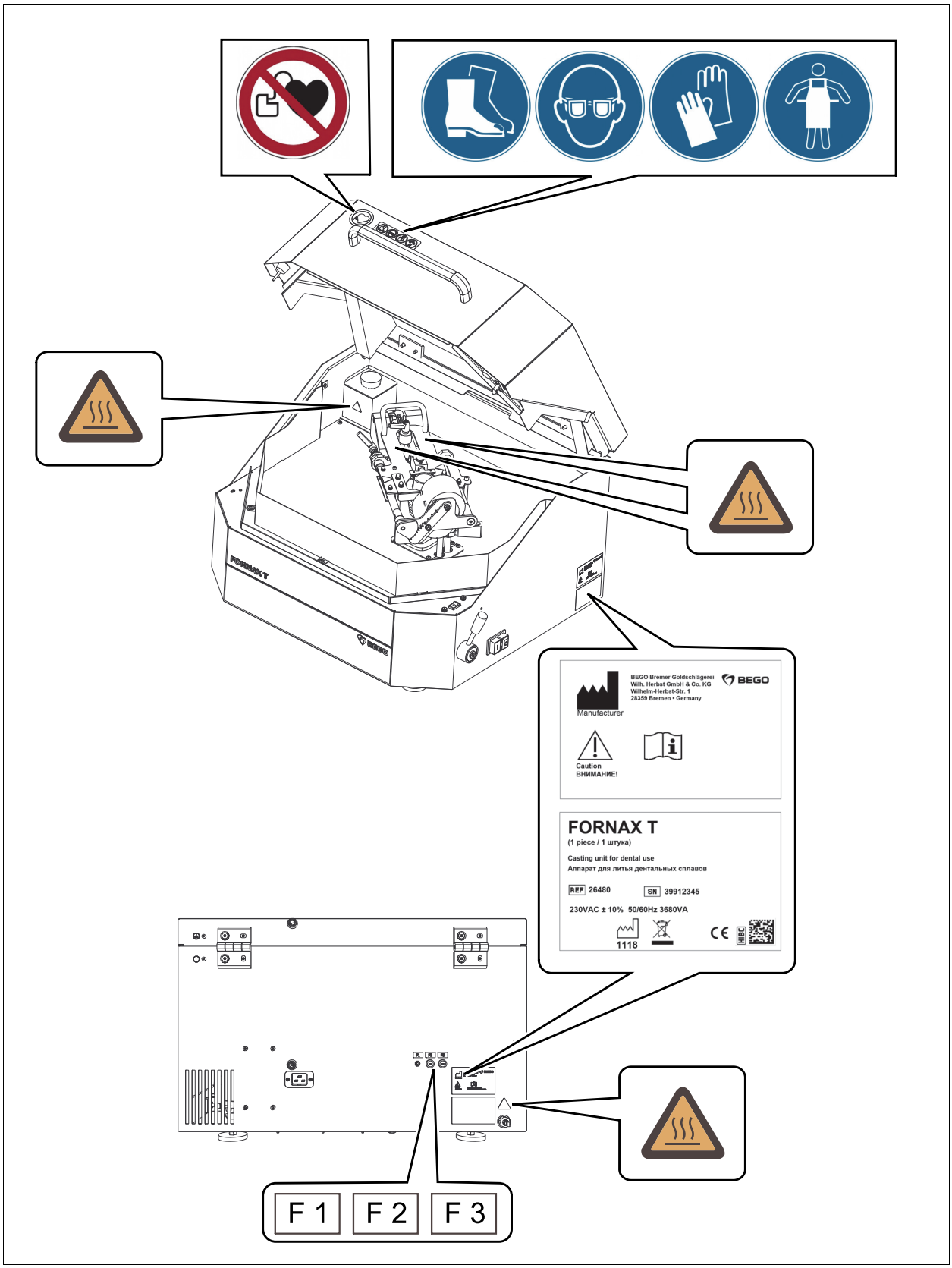
Error message	Remedy
E 01 E 02 E 04 E 22	Switch off unit! Notify Customer Service.
E 13	Refill cooling water.
E 23	Allow machine and cooling water to cool down while the unit is powered on. Check water level and refill cooling water if necessary.
E 24 E 25 E 27 E 50	Switch off unit! Notify Customer Service.

Emergency release



1. Unplug the power cord.
2. Insert a pointed object (e.g. screwdriver) approx. 1.5 cm into the bore on the right side of the housing and carefully release the interlock (1).
   Do not use force!
   The interlock will make an audible sound when it is unlocked.
3. Lift the cover using the handle (2).

Signs, labels and stickers



Disposal

Instructions for the disposal of the device

(Applicable only within the European Union)

The adjacent symbol on the ID plate of the BEGO device indicates that the device, in accordance with the European directive on waste electrical and electronic equipment, may not be disposed of as normal domestic waste.

As a customer, you contribute to the protection of the environment when you dispose of the device correctly.

Disposal in Germany

BEGO offers you a disposal solution for all BEGO devices sold and put into operation in Germany subsequent to August 13, 2005. Please contact us when it is time to dispose of the device.

Disposal in other countries of the European Union

Please contact the company from which you purchased the BEGO device when it is time to dispose of it. They will provide you with information concerning correct disposal in your region.

DECLARATION OF CONFORMITY

- **Manufacturer**: BEGO Bremer Goldschlägerei
  Wilh. Herbst GmbH & Co. KG
  Wilhelm-Herbst-Str. 1
  28359 Bremen
  Germany
  T. +49 421 2028-0
  F. +49 421 2028-100
  www.bego.com

- **Name of products**: Fornax T
- **REF**: 26480
- **Serial numbers**: 399xxxxx
- **Description**: Casting unit for dental use

The products named above conform to the following Directives upon delivery.

- **Directives**: **2006/42/EC of 17 May 2006**
  2014/30/EU of 26 February 2014

- **Authorized to compile the technical file**: Alexander Joneit
  BEGO Bremer Goldschlägerei
  Wilh. Herbst GmbH & Co. KG
  Wilhelm-Herbst-Str. 1
  28359 Bremen
  Germany

Bremen, 3.3.19

Place, Date

Signature
Managing Director

Signature
Managing Director

- **Česky**
  Společnost BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, tímto prohlašuje, že tato Fornax T splňuje z ákladní požadavky a další příslušná ustanovení směrnice 2006/42/ES, 2014/30/EU.

- **Dansk**
  BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, erklærer herved, at følgende udstyr Fornax T overholder de væsentlige krav og øvrige relevante krav i direktiv, 2006/42/EF, 2014/30/EU.

- **Deutsch**
  Hiermit erklärt BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, dass sich dieses Gerät Fornax T in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 2006/42/EG, 2014/30/EU befindet.

- **Eesti keeles**
  Käesolevaga kinnitab BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, et see Fornax T vastab Euroopa Nõukogu direktiivi 2006/42/EÜ, 2014/30/EL põhinõuetele ja muudele olulistele tingimustele.

- **Ελληνικά**
  ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ , BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, *ΔΗΛΩΝΕΙ ΟΤΙ ΑΥΤΟ* Fornax T *ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ* 2006/42/ΕΚ, 2014/30/ΕΕ.

- **Español**
  Por medio de la presente, BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, declara que Fornax T cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva, 2006/42/CE, 2014/30/UE.

- **Français**
  Par la présente, BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, déclare que les appareils du type Fornax T sont conformes aux exigences essentielles et aux autres dispositions pertinentes de la directive 2006/42/CE, 2014/30/UE.

- **Italiano**
  Con la presente , BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, dichiara che questo Fornax T è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2006/42/CE, 2014/30/UE.

- **Latviski**
  Ar šo BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, apliecina, ka šī Fornax T atbilst Direktīvas 2006/42/EK, 2014/30/ES pamatprasībām un citiem atbilstošiem noteikumiem.

- **Lietuviškai**
  Šiuo BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, skelbia, kad Fornax T tenkina visus svarbiausius 2006/42/EB, 2014/30/ES direktyvos reikalavimus ir kitas svarbias nuostatas.

- **Magyar**
  A gyártó BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, kijelenti, hogy ez a Fornax T megfelel az 2006/42/EK, 2014/30/EU irányelv alapkövetelményeinek és a kapcsolódó rendelkezéseknek.

- **Malti**
  Hawnhekk, BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, jiddikjara li dan Fornax T jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2006/42/KE, 2014/30/UE.

- **Nederlands**
  Hierbij verklaart, BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, dat Fornax T in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2006/42/EG, 2014/30/EU.

- **Polski**
  Niniejszym firma BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, oświadcza, że Fornax T spełnia wszystkie istotne wymogi i klauzule zawarte w dokumencie „Directive 2006/42/WE, 2014/30/UE".

- **Português**
  BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, declara que este Fornax T está conforme com os requisitos essenciais e outras disposições da Directiva 2006/42/CE, 2014/30/UE.

- **Slovensky**
  Výrobca BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, týmto deklaruje, že táto Fornax T je v súlade so základnými požiadavkami a ďalšími relevantnými predpismi smernice 2006/42/ES, 2014/30/EÚ.

- **Slovensko**
  BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, s tem potrjuje, da je ta Fornax T skladen/a z osnovnimi zahtevami in ustreznimi določili Direktive 2006/42/ES, 2014/30/EU.

- **Suomi**
  BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, vakuuttaa täten että Fornax T tyyppinen laite on direktiivin 2006/42/EY, 2014/30/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

- **Svenska**
  Härmed intygar, BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG, Bremen - Germany, att denna Fornax T står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2006/42/EG, 2014/30/EU.