

Translation of the original instructions Eltropol 300 85955/11

en English





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This unit documentation is part of the unit and must be enclosed when selling or passing on the unit.

- The unit has been designed solely for use in dental laboratories and comparable establishments for research, commercial and training purposes. The unit must only be operated by dental professionals, or they must provide supervision if trainees or other persons operate unit.
- The operating instructions must be read and understood before the device is used. This particularly applies to the **Safety information**. The warranty is void in cases of damage which is caused by non-observance of the operating instructions. 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 about hot parts.



Use eye protection!



This symbol indicates that safety gloves have to be worn.



Do not add water!



This symbol warns about caustic materials.



Symbol for substances hazardous to the human health

General Instructions

Importance of the operating Instructions

These operating instructions cover all the information that is necessary according to the relevant regulations for the safe operation of the device described herein.

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

- always be kept at hand near the device until the device is disposed of,
- and should be passed on with the device when it is purchased, sold, or lent.

Contact the manufacturer if you do not understand something in the operating instructions.

We welcome any suggestions or criticism. Please feel free to notify 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

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Conventions

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

A 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.

A ATTENTION

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

NOTE

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.

Warranty and liability

Our general terms and conditions of sale and delivery apply. These are made available to the customer on completion of the contract, at the latest. Warranty and liability claims in the event of physical injury or damage to property are invalid if they are caused by one or more of the following:

- · Improper use of the device;
- Improper installation, putting into operation, operating and maintenance of the device;
- Operating the device with safety and protective facilities that are defective, improperly installed or inoperative
- Failure to heed the information in this manual concerning the transport, storage, installation, putting into operation, operation and service and maintenance of this device:
- Unauthorized structural modifications to this device;
- Inadequate monitoring/checking of parts of the device that are subject to wear;
- Improperly performed repairs;
- Catastrophes caused by alien elements or force majeure.

Safety instructions

Eltropol 300 is exclusively designed for the electrolytic polishing of Co-Cr partial denture bases using Wirolyt polishing solution. Any other use is considered to be improper. We shall not be liable for any damage resulting from improper use.

One example of improper use is the heating of water, other liquids, or foodstuffs!

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

The unit may only be installed on an adequately stable surface.

The unit must only be used in dry rooms.

Operator and operating personnel. The unit must only be operated by dental professionals, or they must provide supervision if trainees or other persons operate unit.

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

The unit 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. Prior to the electrical connection check whether the specifications on the rating plate correspond to the power supply network. In the case of uncertainty, consult an electrician.

The unit is categorised under protection class 1 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.

Care and maintenance. 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. 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.

Repairs. Repairs may be carried out solely by BEGO customer service or by persons authorised by BEGO customer service.

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.

Special safety instructions regarding this machine

WARNING



The unit is designed to be used with Wirolyt polishing solution.

ATTENTION! Wirolyt contains glycol and sulphuric acid!

- Only transport or store the unit when empty of Wirolyt!
- Only operate the unit when it is closed! The fumes are a health haz-
- Wirolyt is classed under the international hazard symbol C "Corrosive"
- Avoid contact with skin and eyes! Risk of blinding (3)! Wear safety glasses and safety gloves (4)!

Never add water!

When mixed, acid and water produce an extreme chemical reaction. Spitting acid is the consequence (5)!

Dispose of as hazardous waste! Used Wirolyt contains heavy metal ions - do not allow it to enter the sewer system (6)!

Hazard warnings (R phrases)

R 22 Harmful if swallowed. R 35 Causes severe burns.

Safety instructions (S phrases)

S 7/9	Keep container tightly closed and in a
	well-ventilated place.

S 26	In case of contact with eyes, rinse
	immediately with plenty of water and
	seek medical advice.

- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 46 If swallowed, seek medical advice immediately and show this container or
- S 28.2 After contact with skin, wash immediately with plenty of water and soap.

See also: EC safety data sheet online at http:// www.bego.com.















Niemals Wasser hinzugießen! Kann gegenüber Metallen korrosiv sein. • Verursacht schwere Verätzungen der Haut und schwere Augenschäden. • Kann die Organe schädigen bei längerer oder wiederholter Exposition bei Verschlucken. • BEI KONTAKT MIT DER HAUT (oder dem Haar): Alle beschmutzten, getränkten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen/duschen. • BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen. • Sofort GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

Never add water! May be corrosive to metals. • Causes severe skin burns and eye damage. • May cause damage to organs through prolonged or repeated exposure if swallowed. • IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. • Immediately call a POISON CENTER or doctor/physician.

Jamis ajouter de l'eau! Peut être corrosif pour les métaux. • Provoque des brûlures de la peau et des lésions oculaires graves • Risque présumé d'effets graves pour les organes à la suite d'expositions répétées ou d'une exposition prolongéeen cas d'ingestion. • EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): enlever immédiatement les vêtements contaminés. Rincer la peau à l'eau/se doucher. • EN CAS DE CONTACT AVEC LES YEUX: rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.

¡Nunca agregar agua! Puede ser corrosivo para los metales. • Provoca quemaduras graves en la piel y lesiones oculares graves. • Puede provocar daños en los órganos tras exposiciones prolongadas o repetidas en caso de ingestión. • EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitarse inmediatamente las prendas contaminadas. Aclararse la piel con agua o ducharse. • EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las

lentes de contacto, si lleva y resulta fácil. Seguir aclarando. • Llamar inmediata-mente a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico.







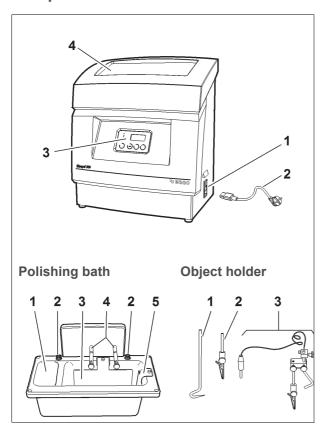




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Unit description

Eltropol 300



Eltropol 300 is designed for the electrolytic polishing of Co-Cr partial denture bases. One or two objects may be polished simultaneously.

- 1 Main switch / fuse / mains connection
- 2 Power cable (EU / USA / ZA)
- 3 Control panel
- 4 Lid/cover

Polishing bath

- 1 Container for utensils (not for water!)
- 2 Contact for supplementary cathode
- 3 Cathode
- 4 Clips for object holder
- 5 Heating element

Object holder

- 1 Object hook
- 2 Crocodile clip with holder
- 3 Supplementary cathode

Intelligent technology

By gauging the electric current, the Eltropol 300 automatically proposes the optimum polishing time required according to object size and the temperature of the bath. If necessary, the proposed polishing time and current may be adjusted manually.

Innovative heating concept

The polishing bath is brought to operating temperature and subsequently monitored using a unique procedure. This means that there are no unreliable heating elements and the bath heats up more quickly.

Wear reduction measures

Due to the use of stainless steel instead of copper, the object holders are subject to considerably less decomposition in the glossing fluid than the usual copper hooks. Other measures designed to minimise wear are a reduction in the number of moving parts by means of a magnetic stirrer and an outer casing made of stainless steel with an additional coating of electrolyte-resistant paint.

Simplified bath emptying

The control panel indicates when it is time to change the polishing solution. A drainage tube on the back of the unit makes it convenient and safe to drain the solution directly into a waste canister.

Safety

The operating temperature of approx. 40 °C is monitored electronically. At temperatures exceeding 60 °C the unit displays an error message and cuts out. An additional independent control circuit causes the unit to shut down automatically at temperatures over 70 °C. The unit may only be switched on again once it has cooled down.

Scope of delivery, accessories and consumables

NOTE

The spare parts list is appended.

When ordering spare parts please quote the REF, quantity and equipment serial no. (SN).

Scope of delivery

Eltropol 300 100 ... 240 V, 50 / 60 Hz REF 26310

with:

- Polishing bath
- 2 magnetic stirrers
- · 2 object hooks
- 10 crocodile clips
- 1 supplementary cathode
- 1 spare clamp with holder
- 2 power cables (EU, USA, or ZA plug)
- · Operating Instructions

Accessories

	REF
Straight cathode for the supplementary	
cathode	17003
Supplementary cathode	17000

Consumables

Wirolyt polishing liquid (1.0 litre)...... 52460

REF

Technical data

Height452 mm	Nominal voltage 100 240 V, 50 / 60 Hz
Width400 mm	Maximum power consumption200 VA
Depth275 mm	Maximum polishing current10 A
Weight (empty)10 kg	Noise emission< 70 dB (A)
Capacity of polishing bath 2 litres	

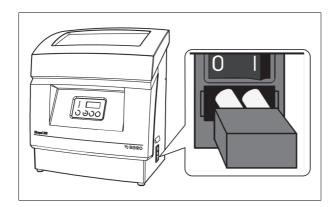
Installation

The unit may only be installed on an adequately stable surface.

The unit may only be used in an enclosed space.

The machine is subject to the provisions of class of protection I and may only be connected to properly grounded power sources.

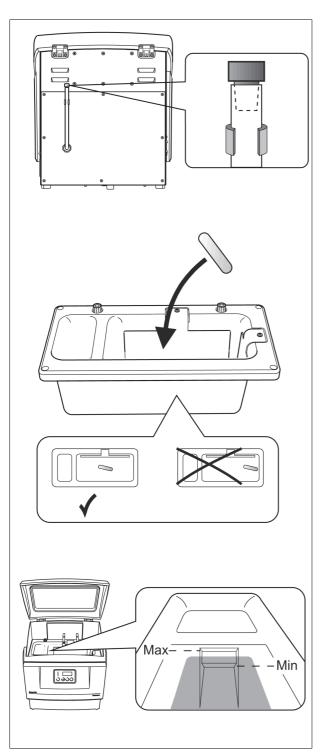
Use the appropriate power cable (EU or USA plug) included with the unit.



NOTE

The two 3.15 AT fuses secure the entire voltage range from 90 V to 260 V.

Filling



NOTE

The drainage tube must be closed and securely clamped!

- Open the unit cover and position the magnetic stirrer in the centre of the polishing bath - only then can the stirrer function properly. (Magnetic stirring only takes place during heating or polishing.)
- Fill the polishing bath (the large bowl) with approx. 2 litres of Wirolyt. The fill level must be between the marks for maximum and minimum.

NOTE

If the solution level is too low the unit electronics malfunction!

WARNING



ATTENTION!

Wirolyt contains glycol and sulphuric acid!



- Avoid contact with skin and eyes!
 Risk of blinding!
- Wear safety glasses and safety gloves!



Never add water!

When mixed, acid and water produce an extreme chemical reaction. Spitting acid is the consequence!

WARNING



Only transport or store the unit when **empty of Wirolyt**!

Securing objects

WARNING



- Avoid contact with skin and eyes!
 Risk of blinding!
- Wear safety glasses and safety gloves!

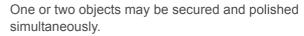
Never add water!



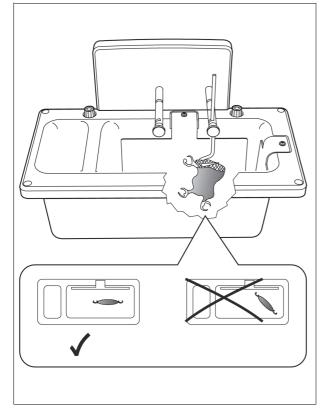


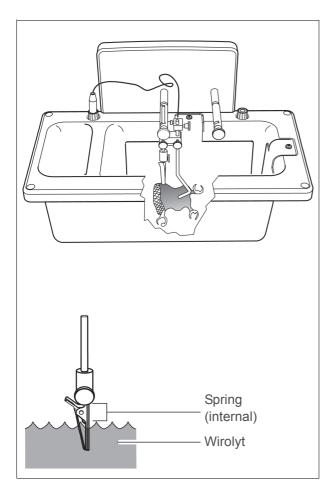
NOTE

- Polishing only works on clean, oxide-free metal objects. If necessary, blast objects prior to polishing.
- Only use the electrolyte-resistant object holder included with the unit! Copper object holders wear down during polishing and produce sediment, which impedes the magnetic stirring process.
- To protect against severe wear during glossing, the tips of the clamps should be covered with masking lacquer.



- Securing the polishing object to the object holder: use the retentions to hang it on the hook, or secure the base with the crocodile clip.
- 2. Insert the object holder into the unit and tighten the screws. Please ensure that:
 - the object is fully immersed in Wirolyt. (The springs of the crocodile clip are not permanently electrolyte-resistant and should therefore not be immersed.)
 - sufficient space remains at the bottom of the polishing bath for the magnetic stirrer.
 - the base surfaces of the polishing objects must be aligned parallel to the longitudinal sides of the bath. Exposed clasp tips must never point directly towards the cathode, as this would cause too much material to be removed from them!
 - object and cathode must not touch each other (error message E 10).





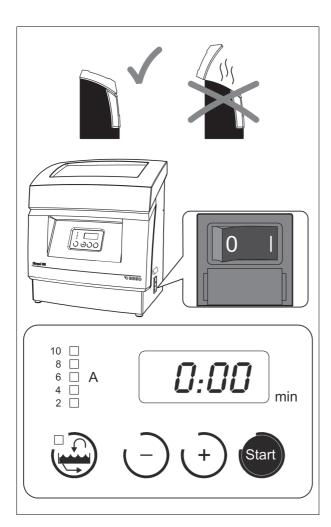
3. The electrolytic polishing current cannot reach deep palates due to screening effects. These spots generally remain matt. The **supplementary cathode** (REF 17000) provides the solution. It is mounted as shown, so that the point of the bent rod points as far as possible into the deep palate, without actually making contact.

NOTE

- The springs of the crocodile clip are not permanently electrolyte-resistant and should therefore not be immersed.
- If necessary, rinse the crocodile clip with water after use. Dry thoroughly afterwards!

Never add water to acid!

Polishing



WARNING



Only operate the unit when it is closed.

The fumes are a health hazard.

- Switch on the unit using the main switch:
 - 1 alarm tone;
 - display briefly shows the software version, then 0:00;
 - heating the bath: the 5 LEDs light up in succession - "chaser" effect. After a maximum of 25 minutes the operating temperature of approx. 40 °C is reached: the LEDs go out.
- 2. Secure object to be polished.
- Press the Start button:
 - the display indicates the polishing time calculated by the unit (according to object size and bath temperature). The polishing time can also be altered using the plus or minus keys.
- Start polishing: press the Start button again.
 - the remaining polishing time is indicated on the display (countdown meter);
 - the strength of current during polishing is indicated by the 5 LEDs. The current strength can also be altered using the plus or minus keys as required.
- 5. After polishing:
 - · triple alarm tone;
 - display shows 0:00.
- Remove the object holder with the polishing object and rinse off under running water.

WARNING



- Avoid contact with skin and eyes! Risk of blinding!
- Wear safety glasses and safety gloves!





A WARNING



If the object is to be polished a second time, allow to dry thoroughly!

Never add water to acid!



- As a general rule, polishing must be effected in two stages. The polishing object must be positioned anew in the bath each time (rotate 180°).
- 8. If the unit is not needed for longer periods, switch it off.

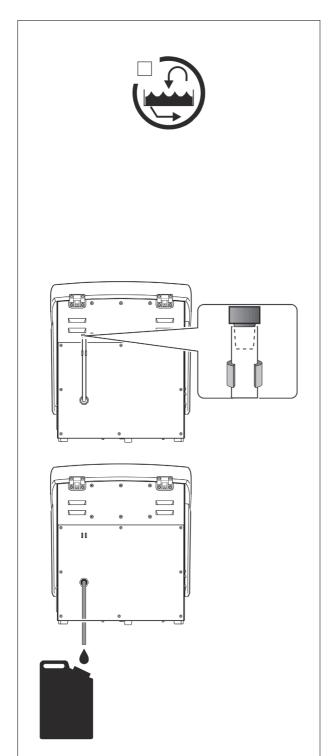
Notes

- Polishing can start before the operating temperature is reached. After 15 minutes, the Wirolyt has already reached approx 30 °C. The bath continues to heat up during polishing.
- The necessary polishing time and current strength are both calculated by the unit. These are influenced by the size of the object and the bath temperature. If required, the settings may be adjusted manually:
 - a) The polishing time may be set anywhere between 60 seconds (00:60) and 12 minutes (12:00).
 - b) During polishing the current strength is indicated by the LEDs (ammeter function). In the default setting (level 3 = 100%) the current may attain a maximum of 10 A, however this is only the case when polishing two large objects in a hot bath. The current may be manually limited to 70 % (level 2) or 50 % (level 1) of the calculated current. The number of LEDs illuminated changes according to level. After each polishing the unit automatically returns to level 3!

- The polishing process can be interrupted by pressing the Start button. Press again to call up the polishing time calculated at the outset (not the remaining polishing time). This may now be altered manually. Press the Start button again to start polishing with this setting.
- Uninterrupted polishing may cause the permitted bath temperature to be exceeded. The unit then displays the error message "E 30". Having switched off the unit, wait approx. 1 hour before switching it on again to resume polishing.
- An integrated fan switches on automatically, as necessary, to cool down the unit electronics.

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Changing the polishing solution



The more it is used, the less effective the polishing solution becomes. The unit calculates and displays the optimum point at which to renew the solution.

- LED blinks: change solution soon.
- LED lights up: change solution now.

WARNING



ATTENTION!

Wirolyt contains glycol and sulphuric acid!



- Avoid contact with skin and eyes! Risk of blinding!
- Wear safety glasses and safety gloves!



Never add water!

Dispose of as hazardous waste!
 Used Wirolyt contains heavy metal
 ions – do not allow it to enter the
 sewer system!





- 1. Switch off the unit at the main switch and pull the plug out.
- Carefully turn the unit around without tipping it in order to reach the drainage tube on the back of the unit.
- Pull the drainage tube out of the clamp, hold it upright and remove the stopper. Lower the tube into a suitable canister with a capacity of at least two litres and allow the polishing solution to drain off. Use a funnel if necessary.

WARNING



Risk of scalding!

The operating temperature of Wirolyt can reach 40-60 °C!



WARNING



Do not tilt the device to empty it!

• Injuries are possible. The device will be damaged.

WARNING



Do not unscrew the polishing bath!

The device will be damaged.

4. Having drained the tube, replace the stopper and fasten securely with the clamp.

WARNING



- Never use water to clean the empty polishing bath!
- Rinse out with Wirolyt if necessary.



- 5. Fill the polishing bath with approx. 2 litres of Wirolyt (see page 30).
- 6. Switch on the unit using the main switch:

 The bath begins to heat up. (If the walls of the polishing bath are still warm it can take a few minutes for the heating process to begin.)
- After filling, the monitoring of the polishing solution needs to be reactivated. Press the button and keep it depressed until you hear a long alarm tone.

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Care and maintenance

A 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.

In the case of power connection without mains plug: remove fuses, secure machine so it cannot be switched on again and check that it is de-energized.

WARNING



Risk of injury!

- Avoid contact with skin and eyes!
 Risk of blinding!
- Wear safety glasses and safety gloves!



Never add water!



- 1. Wipe the outside of the unit down with a damp cloth as necessary.
- 2. If the bath is empty, the inside of the unit may also be cleaned using a dry cloth. Caution! Polishing solution dregs contain acid and destroy the cloths used!

Elimination of malfunctions

A DANGER



Warning of electric shock! Danger to life!

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

In the case of power connection without mains plug: remove fuses, secure machine so it cannot be switched on again and check that it is de-energized.

WARNING



Risk of injury!

Eliminate malfunctions only when wearing appropriate protective equipment!

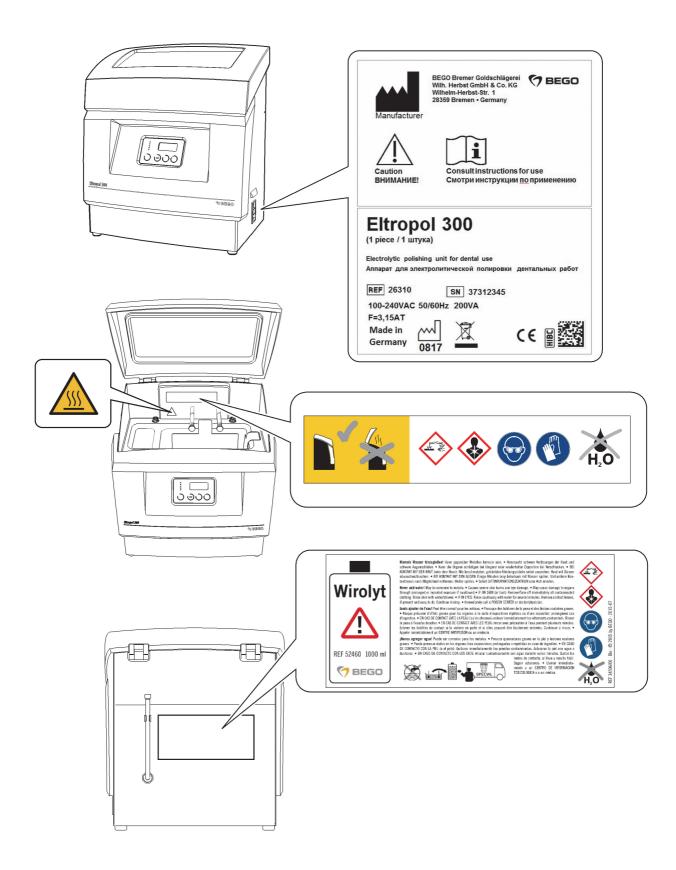
General remarks on eliminating malfunctions:

- Switch off the machine (exceptions: see *),
- · Eliminate malfunction.
- Switch on machine.
- Notify Service if messages appear repeatedly.
- Have servicing work carried out only by authorized BEGO workshops!

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

Malfunction	Cause	Elimination
Unit switched on but no display	No current	* Connect power lead (p. 29).
		* Switch on main switch (p. 33).
		* Electricity supply intact?
		Set voltage selector switch (p. 29).
		Check unit fuse (p. 29).
	"Emergency shut-down"	The unit switches off automatically at temperatures over 70 °C, and may only be switched on again after approx. 1 hour.
No display, "SOS" alarm tone (3x long, 3x short, 3x long)	Display defective	Contact Customer service.
E 10 display	Short circuit	Re-position the object to be polished so that it does not touch the cathode (p. 31).
E 20 display	Temperature sensor is defective	Contact Customer service.
E 30 display	Bath too hot	Switch on unit after approx. 1 hour (p. 34).
E 40 display	Stirrer is stuck	Hang the object higher to ensure the stirrer is able to rotate (p. 31).
Polishing is ineffective	Only one polishing stage	* As a general rule, polishing must be performed twice (p. 33).
	Bath is cold	* Only begin polishing when the bath has heated up sufficiently (p. 34).
	Wirolyt is old	Change polishing solution (p. 35).
	Too little Wirolyt	Top up Wirolyt (p. 30).
	Polishing current is weak	* Increase polishing current (p. 33, 34).
	Stirrer missing or not in the right position	Check whether the stirrer is lying in the polishing solution (p. 30).
	Object with deep palate	* Use the supplementary cathode (p. 32).
Polishing is too effective	Object too close to cathode	* Align object in parallel (p. 31).
		* Protect the clamp tips with masking lacquer (p. 31).
	Polishing current is too strong	* Reduce polishing current (p. 33, 34).

Signs, labels and stickers



Disposal

Instructions for disposing 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.