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## Operating Instructions



TECHSPAN

**Elmasteam • ES 3000 • ES 5000**

**CAUTION! Read and observe the operating instructions before you operate the unit.**

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# 1

## General

The present Operating Instructions are part of the delivered equipment. They must be ready for use at any time and remain with the unit in case of resale.

We reserve the right to carry out technical modifications on the unit due to advanced development.

The copyright remains with the editor.

These Operating Instructions are not automatically revised. For the latest revised issue please contact the manufacturer and editor of these Operating Instructions.

The manufacturer's contact address is indicated on the last page of the Operating Instructions.

# 2



## Important safety warnings

### Read carefully before initial operation!

Use the Elmasteam steam jet cleaner according to the Operating Instructions. In case of improper use the manufacturer cannot be held responsible for the safety of the operating personnel and the correct functioning of the unit.

#### Intended use

The present steam jet cleaner has been designed for the cleaning of items only. Do not steam clean living beings! Operation by industrial and commercial businesses only!

#### Check for transport damages

After unpacking check the unit for possible transport damages. In case of visible damages do not put the unit into operation. Contact your supplier and forwarding agent.

#### Mains connection

For safety reasons, the present unit must be connected to a correctly grounded socket only. The technical details indicated on the nameplate must correspond with the available mains connection details, in particular those of the mains voltage and current connected value.

#### Placement

Place the unit at a dry and sufficiently ventilated workplace. Keep the unit dry!

#### Operating personnel

For safety reasons, the steam jet unit must be operated by authorized and sufficiently instructed personnel only. The unit must not be operated by unauthorized persons or by children.

#### Caution! Hot surfaces

During operation, the unit cover, the steam outlet nozzle and the drain plug heat up considerably.

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<b>Caution! Hot steam</b>	<p>Wrong operation may cause a risk of scalding by hot steam!</p> <p>Unauthorized third persons must not stay within reach of the steam jet. Be careful when operating the unit in order to prevent injuries caused by hot steam.</p> <p>Switch the unit into „stand-by“ operating mode during operating breaks. This prevents unintended activation of the steam outlet.</p> <p>Do not open the screw cap of the filling duct of the pressure tank with a pressure exceeding 0 bar.</p> <p>If the switch is turned to „steam outlet“ steam is immediately produced at the nozzle or at the hand piece without pressing any additional key. For the operation mode „steam outlet“ the hand piece must be fastened safely, e.g. in the hand piece holder. Ensure that the released steam does not endanger staff or equipment.</p>
<b>Prevention of electrical accidents</b>	<p>In order to prevent electrical accidents and damage, do not steam clean the unit and do not let any liquid enter the unit. In case of any damage on the unit or if the unit has become wet pull the mains plug.</p> <p>The unit must be opened by authorized specialized personnel only. Pull the mains plug before opening the unit.</p> <p>Do not operate the unit if a mains cable or important components of the unit, e.g. safety devices, steam nozzle, are damaged.</p> <p>If you use an extension cord ensure that plug and coupling are waterproof.</p> <p>Caution: an unsuitable extension cord may be dangerous.</p>
<b>Filling</b>	<p>Do not operate the Elmasteam with empty water tank as this might cause damage to the unit!</p>
<b>No chemical additions</b>	<p>Operate the unit with water only.</p>
<b>Noise emission</b>	<p>Steam jet cleaners can produce an uncomfortable noise during operation. Use your personal ear protection device when in close proximity to an operating unit.</p>
<b>Maintenance and repair</b>	<p>Carry out the maintenance works at regular intervals as described in the present Operating Instructions in order to guarantee the correct functioning of the unit and to keep the safety standard (<i>see section 7</i>).</p> <p>Repair must be carried out by authorized specialized personnel only. Pull the mains plug before opening the unit.</p> <p>Always pull the mains plug before you open the unit or carry out any maintenance work.</p> <p>High-pressure hoses, facilities and coupling pieces are important safety components. Use high-pressure hoses, facilities and coupling pieces recommended by the manufacturer only.</p> <p><b>In case of damage or faulty operation please contact your supplier or the manufacturer of the unit.</b></p>

## 2.1

### Description of safety warnings on the unit



Caution: When operated improperly, high-pressure jets may be dangerous. Do not aim the jet toward persons, live electric equipment or the unit itself. Do not aim the jet toward yourself or other persons for cleaning of clothing or shoes.



Caution: Do not open the ball valve with heated unit and with an overpressure in the pressure tank exceeding 0 bar (observe manometer).

Exception: maintenance works (*see section 7*).



Caution: Hot surfaces!



Note (only for units with optional compressed air feed duct):  
The connected compressed air supply must not exceed a pressure of 6 bar. Risk of damage to parts inside the unit.



Note (only for units with optional water pump):  
The maximum water pressure must not exceed 4 bar. Risk of damage to parts inside the unit.

### **3 Product description**

#### **3.1 Delivered equipment and accessories**

##### **3.1.1 Elmasteam 3000**

- basic unit with a tank volume of 3 litres
- fixed nozzle or flexible hand piece (both optional)
- compressed air connection (inlet) (optional)
- filling funnel
- pincette
- maintenance tube “M” for monthly maintenance

##### **3.1.2 Elmasteam 5000**

As Elmasteam 3000, but with a tank volume of 5 litres and with 2 optional outlets for fixed nozzle and / or flexible hand piece.

- compressed air connection (inlet) (optional)
- wet steam (optional)

#### **3.2 CE conformity**

The present Elmasteam steam jet cleaner is in compliance with the CE marking criteria and the following EC directives:

2006/95/EG Low voltage directive

2004/108/EG EMC directive

The declaration of conformity is available from the manufacturer.

#### **3.3 Functioning**

**Pressure generation** In a safety pressure tank, filled by hand or automatically, the water is heated by means of a powerful heating element up to a temperature of 173 °C. In the process, a steam pressure of approx. 8 bar is created.

**Steam outlet** The steam can be let out through the nozzle(s).

**Wet steam** Optional on ES 5000. Steam and hot water from the pressure tank are mixed. The ratio of mixture is variable via control valve.

**Water for steam generation** Tap water of standard water hardness or distilled water. If the unit is used with pump, the value of conductance must be at least 15 µS.

### 3.4 Safety devices

The Elmasteam steam jet cleaners are equipped with all required safety devices, such as:

- Safety pressure relief valve
- Safety pressure tank closing cap, prevents opening of screw cap of filling duct by mistake
- Safety temperature control
- Electric contacts are protected against splash water
- Low voltage (24 V) in flexible hand piece

### 3.5 Technical details

	Elmasteam 3000	Elmasteam 5000
Mains voltage (Vac)	120 or 230	230 - 240
Mains frequency (Hz)	50 / 60	50 / 60
Mains connections	shockproof plug 1 phase USA: grounded NEMA 5-20 plug	Shockproof plug 1 phase USA: grounded NEMA 6-15 plug
Mains impedance max. (Ohm)	0.155	0.155
Power max. (W)	1790	2950
Current consumption max. (A) 115 V / 230V	15.5 / 7.8	12.8
Required mains fuses (A) 115 V / 230 V	20 / 10	16
Protection grade basic unit	IPX3	IPX3
Protection grade hand piece	IPX4	IPX4
Sound pressure level at 8 bar (dBA)	93	93
Steam pressure in pressure tank (bar)	8	8
Pressure tank volume (lit.)	3	5
Max. filling volume (litre)	2.6	4.7
Steam temperature at outlet	approx. 160 C°	approx. 160 C°
Housing dimensions with feet W x D x H (mm)	338 x 260 x 296	338 x 260 x 391
Units overall dimensions w. hand piece support + fixed nozzle W x D x H (mm)	385 x 445 x 330	385 x 445 x 420
Housing material	stainless steel	stainless steel
Weight incl. foot-activated switch (kg)	approx. 16	approx. 20



### 3.6

#### Description elements top view

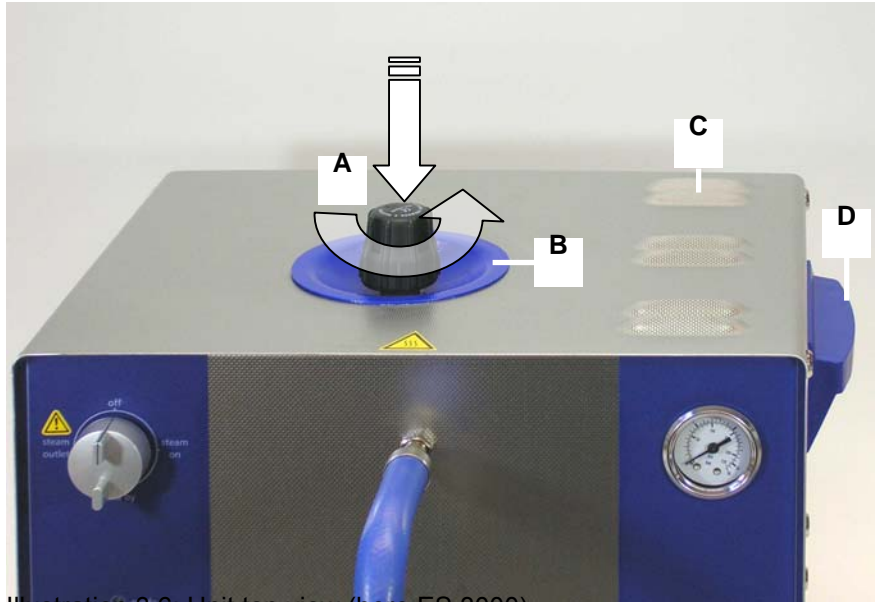


Illustration 3.6: Unit top view (here ES 3000)

- A** Screw cap of pressure tank: filling duct for manual filling
- B** Collecting rim for water spilled during filling
- C** Ventilation openings
- D** Handles

### 3.7

### Description elements front view

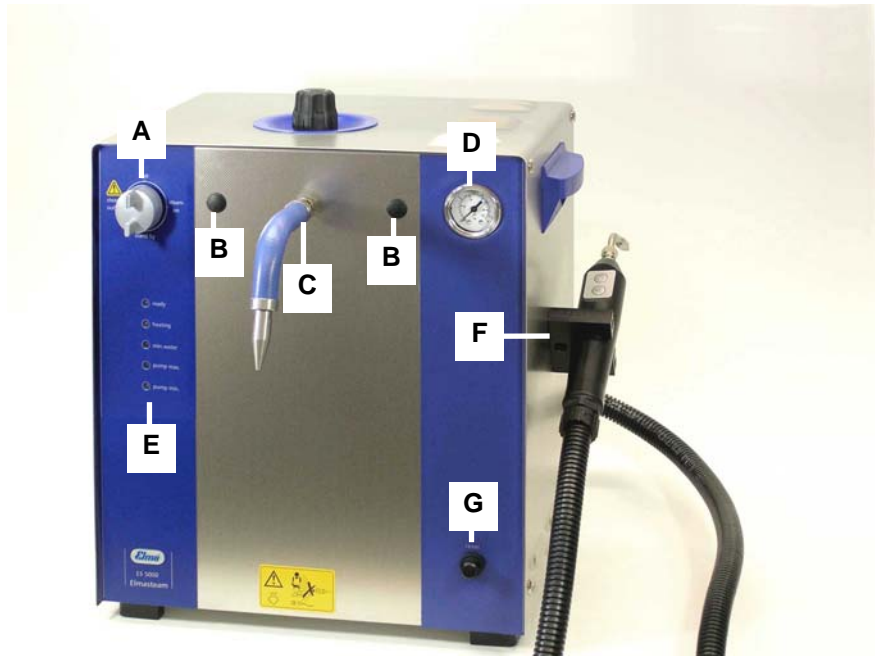


Illustration 3.7 View unit front (here ES 5000)

- A Function switch**  
Description see *section 3.8.*
- B Connection socket** (only on ES 5000) for the optional connection of a fixed nozzle on model with 2 fixed nozzles.
- C Connection socket** for the connection of the fixed nozzle on ES 3000.  
ES 5000 on model with 1 fixed nozzle.
- D Pressure manometer**  
Display of steam pressure in the pressure tank (bar). As soon as a pressure of 8 bar is reached the unit is ready of operation.
- E LED Operating mode display**  
Description see *section 3.11.*
- F Support** for flexible hand piece (optional).
- G Safety temperature limit:** description see *section 3.9.*

## 3.8

## Description function switch

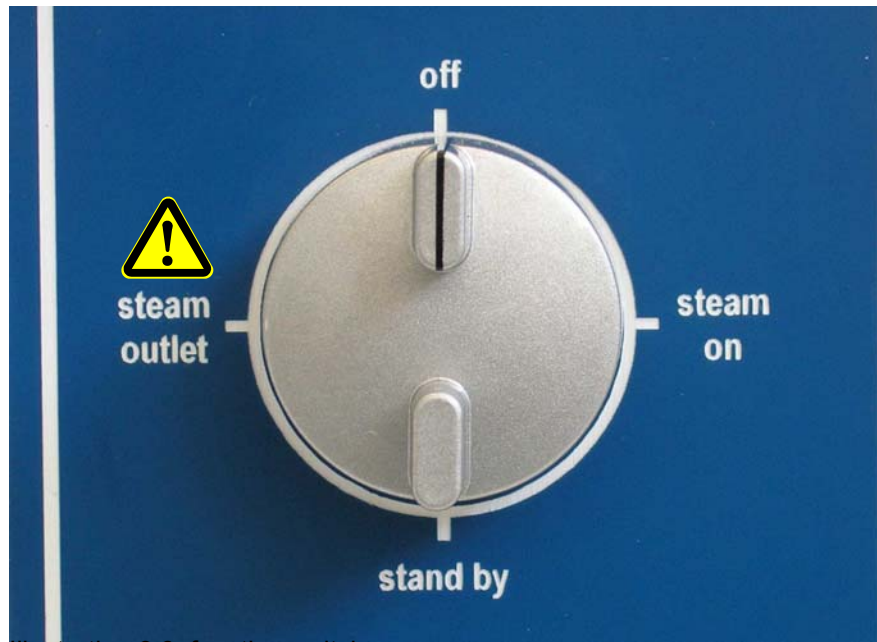


Illustration 3.8. function switch

- off** If the switch is turned to „off“ the unit is switched off completely.
- steam outlet** This switch position is for the release of the residual steam pressure (before opening the tank closing screw cap).



**Caution! Steam is immediately released from the nozzle without pressing any additional key.**

**On the ES 5000 the steam escapes as follows:**

- with combination of fixed nozzle / flexible hand piece > fixed nozzle
- with combination of fixed nozzle / fixed nozzle > left fixed nozzle
- with combination of flexible hand piece / flexible hand piece > left hand piece

**For the operation mode „steam outlet“ the hand piece must be fastened safely, e.g. in the hand piece holder. Ensure that the released steam does not endanger staff or equipment.**

- Standby** Recommended operating mode during idle phases. This mode prevents unintended activation of the steam release. The tank pressure remains the same. The unit is ready for operation immediately upon turning the switch to position „on“.

- steam on** If the switch is turned to „on“ the steam release at the outlet can be activated (with pressing additional key).

### 3.9

#### Description safety temperature switch

The safety temperature switch is released when the minimum filling level (min. water) in the pressure tank is reached; it automatically cuts off the heating of the Elmasteam. There is an additional visual signal (LED min. water) and an acoustic alert signal. When the unit has been refilled the safety temperature limit must be reset by hand in order to allow further operation of the unit.

To reset the malfunction indication by hand, unscrew the cover (anti-clockwise) (see *illustration 3.9.1.*) and press the green button of the safety temperature switch (see *illustration 3.9.2.*).

**Caution!** A reset of the safety temperature limit without refilling of the pressure tank may destroy the heating.

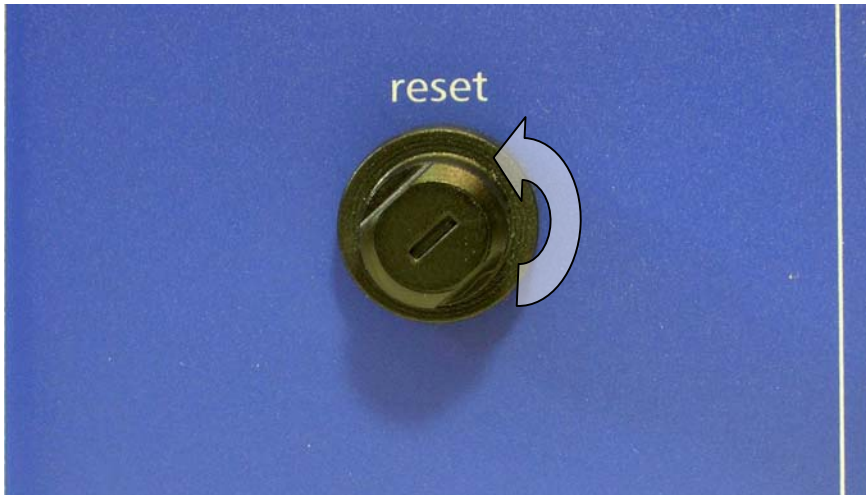


Bild 3.9.1. safety temperature switch with cover



Bild 3.9.2. green button to reset the alarm

## 3.10

## Description LED operating display

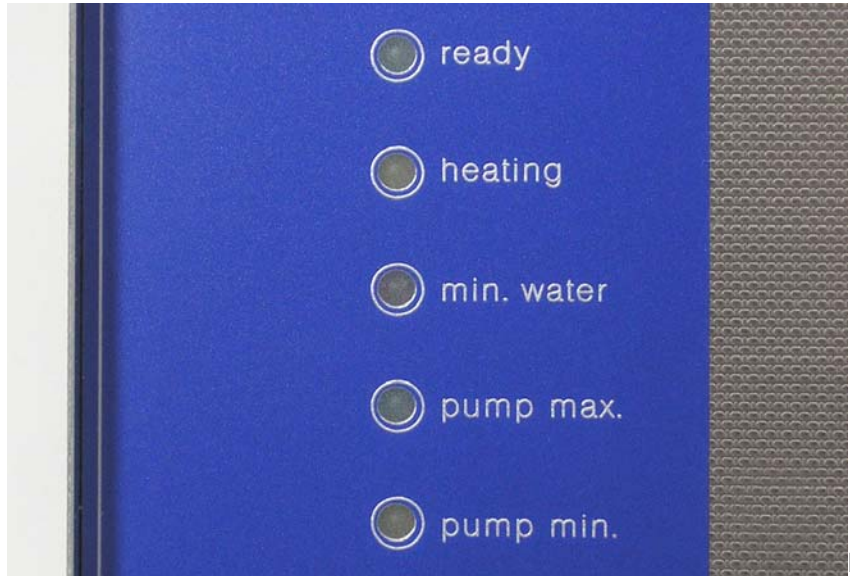



Illustration 3.10 LED Operating display (here model with pump)

- ready** turns on as soon as the pressure tank operating pressure is reached and the unit is ready for operation.
- heating** is on during heating up of the unit.
- min. water** turns on as soon as the minimum filling level in the pressure tank is reached and the tank must be refilled. There is also an acoustic alert signal.
-  Restart after *min. water* alarm is only possible after resetting the safety temperature limit (see *illustration 3.9.1/2.*) at the right bottom of the front side of the unit.
- pump max.** (optional on model with pump) turns on as soon as the maximum filling level in the tank is reached via the pump.
- pump min.** (optional on model with pump) turns on as soon as the filling level in the tank has reached the minimum level and the pump has been activated.

### 3.11

#### Description elements back view

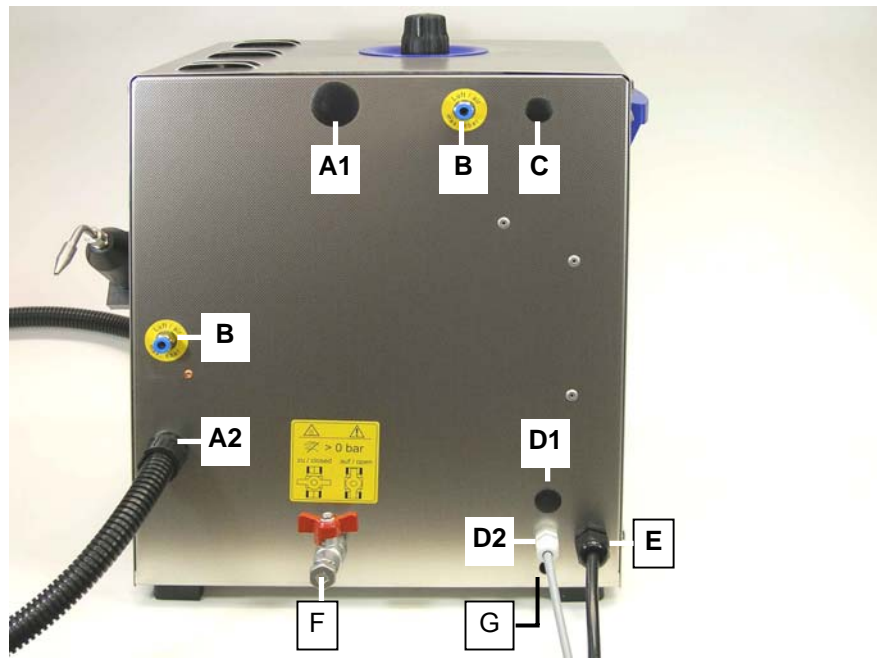


Illustration 3.11. back view (here ES 5000)

- A1** Connection for flexible hand piece (optional)
- A2** Flexible hand piece mounted (optional)
- B** Connection for feed of external compressed air supply (optional)
- C** Connection for water supply for pump (optional)
- D1** Connection for foot activator of fixed nozzle (optional)
- D2** Connection for foot activator of fixed nozzle (optional) mounted.
- E** Mains cable
- F** Ball valve ¼" for draining the pressure tank and for maintenance purposes.
- G** Deairing device (optional only on model with pump) for the deairing of the suction system for pumping from a tank. Deairing is not necessary when the pump is connected to the tap.



### 3.12

#### Operation of the fixed nozzle

The foot-activated switch controls the steam outlet at the fixed nozzle. There are 2 switch positions (*illustration 3.12*).

- 50% pressed down** activates compressed air (optionally)  
**100% pressed down** activates steam

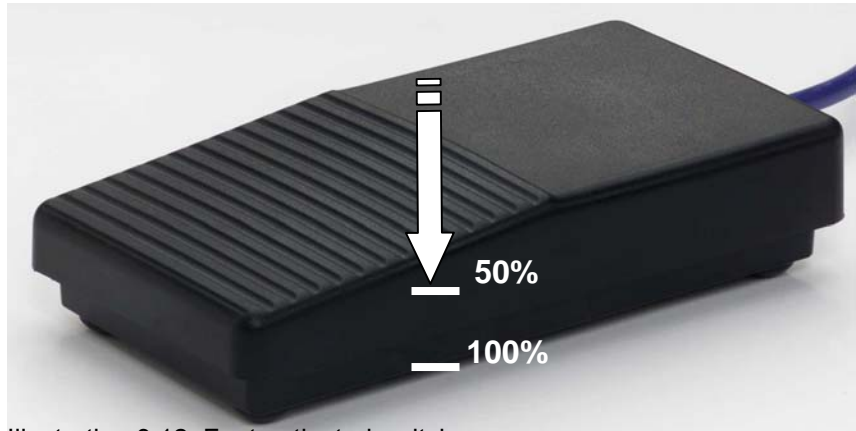


Illustration 3.12: Foot-activated switch

### 3.13

#### Operation of the flexible hand piece

The nozzle is controlled by means of the two keys on the hand piece:



- steam** key (A)  activates steam  
**compressed air** key (B)  activates compressed air (optionally)



Illustration 3.13: Flexible hand piece

## 4 Initial operation

### 4.1 Placement and ambient conditions

**Packing** If possible keep the original packing or dispose to the packing in compliance with the relevant regulations on waste disposal. You can also return the packing to the manufacturer (freight cost paid by the sender).

**Check for transport damages** Check the Elmasteam for possible transport damages before initial operation.

In case of visible damages **do not** connect the unit to the mains. Contact your supplier and forwarding agent immediately.

**Placement** Place the unit in a dry and sufficiently ventilated place. Keep a clear space of approx. 15 cm at the back of the unit:



The outlet of the safety pressure valve is behind the ventilation openings on the top of the unit. **Attention!** When the safety valve is activated, steam will be discharged through the ventilation openings for a short period.



**CAUTION**

Risk of electrocution! In order to prevent electrical accidents please observe the following instructions:

- Place the unit onto a dry , even and stable surface. Ensure that the unit is sufficiently ventilated.
- Keep the workplace and the unit housing dry.
- Do not direct the steam jet or hot water jet onto the unit.

**Ambient conditions** Temperature: + 5°C to + 40°C. No condensation allowed.

**Connect the unit to the mains** Connect the Elmasteam to a suitable shockproof socket. The technical details indicated on the nameplate must correspond with the available mains connection details, in particular those of the mains voltage and the current connection value.

Connection of 230/240 V units (ES 5000) in 120 V mains.

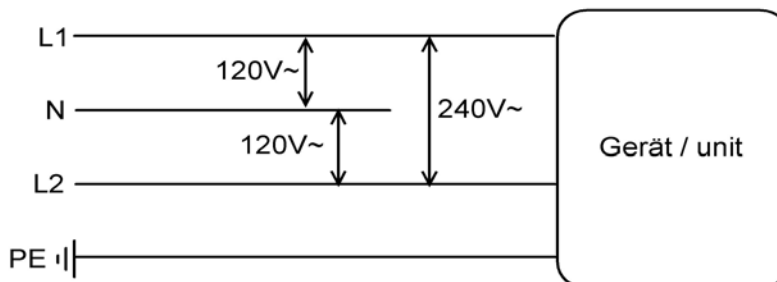


Diagram 4.1.: Required mains conditions for ES 5000 in 120 V mains



## 4.2

### Mounting of fixed nozzle (optional)

Ensure that the Elmasteam is switched off. Then proceed as follows:

#### Mounting of fixed nozzle

- 1 Open and remove the blind screw (anti-clockwise) on the front of the unit (*illustration 4.2.1*) by means of a fork wrench (wrench size 12 mm). Please retain the counter nut with a flat spanner of a fork wrench size 14 mm.
- 2 Position the fixed nozzle precisely rectangular onto the connecting duct (*illustration 4.2.2*). The outlet of the nozzle must point vertically downward.
- 3 Retighten the nut with the fork wrench (clockwise). (*Illustration 4.2.2: Correctly mounted fixed nozzle*).
- 4 Check if the nut is correctly tightened and if the nozzle is fixed with its outlet pointing vertically downward.

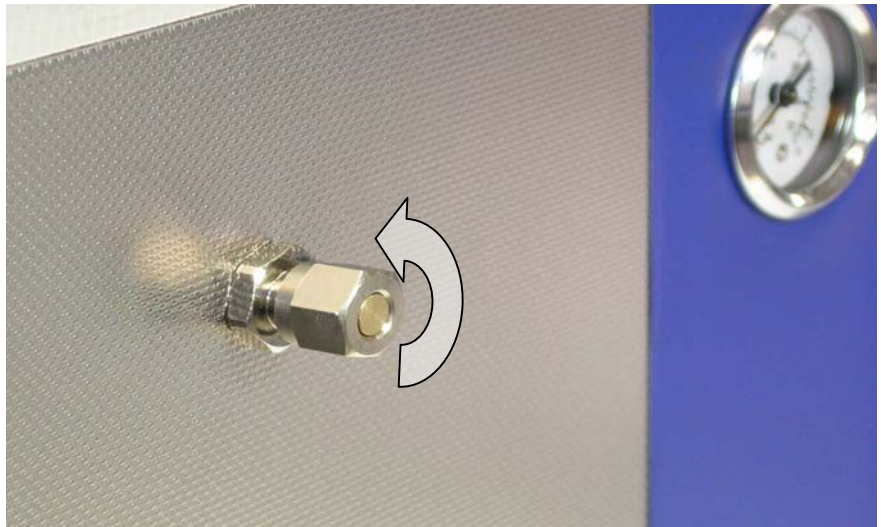


Illustration 4.2.1: Connection with blind screw

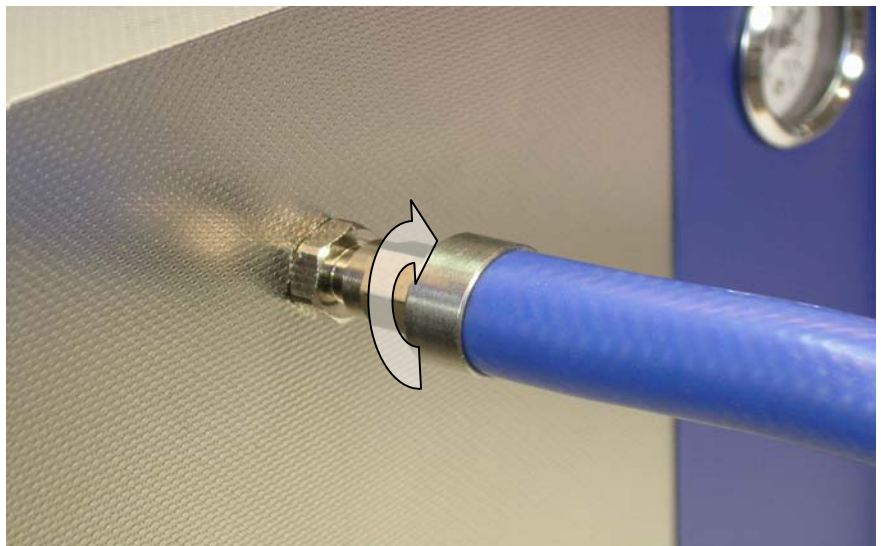


Illustration 4.2.2: Mounted fixed nozzle

## 5 Filling of the unit

### 5.1 Filling by hand

For initial filling and for refilling after consumption of the pressure tank water, use the filling funnel to fill tap water or distilled water.

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**Let heated unit cool down**



Risk of scalding by hot steam!

1. Let the unit cool down before opening! Do not open above 0 bar pressure!
  2. Turn the function switch to „steam outlet“. Release the remaining steam through the steam nozzle. For the operation mode „steam outlet“ the hand piece must be fastened safely, e.g. in the hand piece holder. Ensure that the released steam does not endanger staff or equipment.
  3. Slowly open the screw cap (the integrated pressure relief system will release any remaining steam from the pressure tank when the screw cap is opened).
- 

**How to proceed**

Switch off the unit (switch position “off”).

**Open the screw cap**

Press down and turn the screw cap from the pressure tank (*illustration 3.6.A.*) anti-clockwise.

**Insert funnel**

Insert the funnel (included in delivery in the filling duct).

---



Risk of electrocution due to short circuit in the unit caused by water entering the housing!

Fill the water carefully, avoid overfilling.

Keep the water from entering the ventilation slits in the unit covers.

---

**Filling of pressure tank**

Fill in the water slowly! Ensure that only the required quantity is filled (*see section 3.5 Technical details, pressure tank capacity*). Any water surplus must be wiped off.

**Close the screw cap**

Close the screw cap by hand.

If any water has entered the unit, let it dry over a period of several hours.



**Safety temperature limit**

The allowed filling quantity of the tank cannot be exceeded due to the integrated overflow.

If the unit has released a minimum filling level alarm (*LED min. water*), the safety temperature switch (*illustration 3.9.1./2.*) must be reset.

## 5.2

### Automatic filling with pump (optional)

#### **Pump guarantees optimum filling level**

The pump automatically fills the tank with the optimum quantity of water. There are no idle phases due to required cooling-down phases as when filled by hand.

As soon as the water level in the tank goes below a certain level, the pump automatically refills the tank up to the optimum level. During the filling process the LED "*pump min*" is active (*illustration 3.10.*). As soon as the maximum filling level in the tank is reached, the LED "*pump max.*" (*illustration 3.10.*) turns on.



#### **NOTE**

Risk of damage caused by water in case of loosened water tube!

Shut down the water supply after operation or when the unit is unattended.

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#### **NOTE**

Risk of damage to the pump due to running dry. The water supply valve must remain open during operation.

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#### **NOTE**

Risk of damage to the pump!

Connect the pump to the city water supply or water from a softening water device only.

The conductance of softened water must have a minimum value of 15  $\mu$ Siemens.

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## 5.2.1

### Connection the pump at the tap water supply

#### Mounting

Ensure that the Elmasteam is switched off. The maximum water pressure must not exceed 4 bar.

1. Connect the preassembled pump supply hose (*illustration 5.2.1.A.*) to the water tap: you need an additional  $\frac{1}{2}$ " hose of the required length. Fasten this hose between the adapter piece (*illustration 5.2.1.B.*) and the water tap by means of hose clamps.

**Please ensure secure and safe fastening of the hose.**

2. Fill the tank with approx. 1 litre of water (manual filling) (see *section 5.1.*).

This prevents a dry running of the heating during **initial operation**.



For initial filling of the Elmasteam via the pump it is recommendable to open the screw cap of the filling duct to release the air from the system. As soon as the LED „pump max.“ on the unit turns on the screw cap must be closed.

3. Open the tap of the water supply.
4. Switch the unit on (switch position “on”).  
The unit automatically starts filling and heating the pressure tank. The filling process is now automatically controlled.
5. When the LED „pump max.“ at the unit is lighted, close the screw cap at the pressure tank

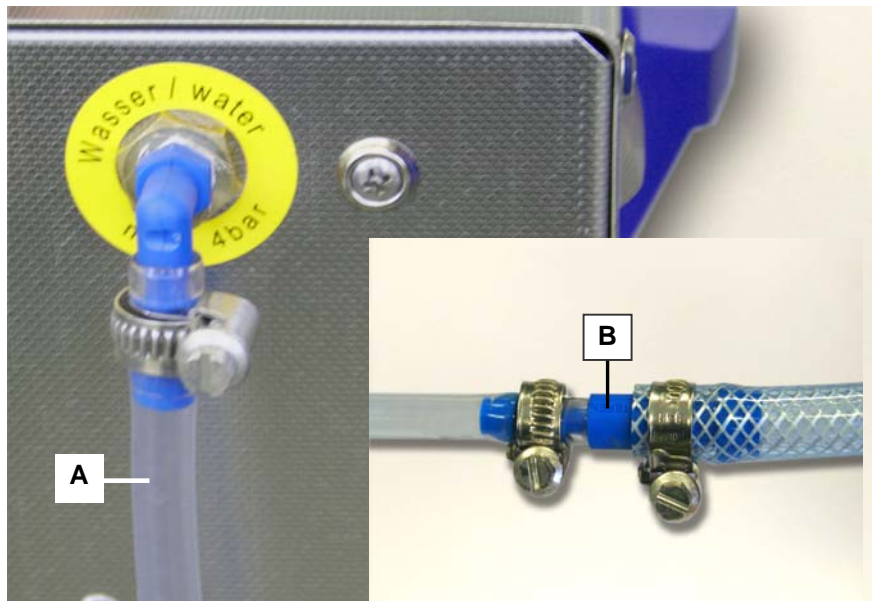


Illustration 5.2.1. Connected connection tube for water supply

## 5.2.2

### Connection the pump at a water tank

The conductance of softened water must have a minimum value of 15  $\mu$ Siemens.

If the unit cannot be connected to the tap, the pump can also be connected to an external water tank. The suction power of the pump is designed to a max. water column of 1 m, i.e. an external water tank for the water supply can be arranged at a distance of max. 1 meters from the unit.

**How to proceed** Connect the pump supply hose (*illustration 5.2.2.1.*) to a suitable and sufficiently filled water supply tank.

1. Immerse the tube end into the water supply tank and secure the tube against sliding.
2. Fill the pressure tank with approx. 1/2 litre of water (by hand) (*see section 5.1.*). This prevents dry running of the heating during **initial operation**.



For initial filling of the Elmasteam via the pump it is recommendable to open the screw cap of the filling duct to release the air from the system.

3. Open the ball valve for the ventilation of the system (*see illustration 5.2.2.2.B.*).



The piping system must be de-aired for each new suction cycle. Otherwise there is a risk of damage to the pump.

4. Switch the unit on (switch position “on”). The unit automatically starts filling and heating up of the pressure tank. Air escapes from the ball valve. When water starts flowing out of the ball valve the piping system is completely de-aired.
5. Shut the ball valve as soon as water starts flowing out (*see illustration 5.2.2.2.A.*).
6. When the LED „pump max.“ at the unit is lighted, close the screw cap at the pressure tank.



**NOTE**

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Risk of damage to the pump due to dry running! Ensure that the water tank is always sufficiently filled.

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## Filling of the unit

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Illustration 5.3.2.1 ElmaSteam connected to water bucket (example)

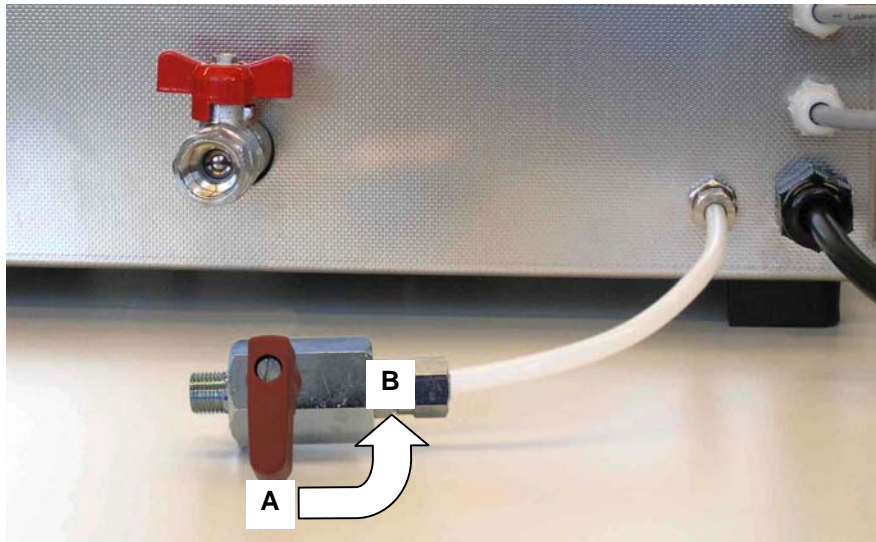


Illustration 5.2.2.2 Ball valve for the ventilation of the system



## 6

## Handling during operation



CAUTION

Risk of scalding by hot steam!

Unauthorized third persons must not keep within reach of the steam jet during operation of the unit.

Ensure your own safety! Be careful when the steam outlet is activated.

Avoid hazardous situations caused by unintended activation of the steam outlet. Switch the unit into „stand-by“ mode during operating breaks.



CAUTION

Risk of scalding due to hot surfaces!

The unit surface, the steam outlet nozzle and the drain valve heat up considerably during operation.

**Preconditions**

Put the unit into operation as described in section 4.

**Tank must be filled**

Make sure before start-up that the tank is filled. Otherwise fill the tank as described in section 5.

**Switch the unit in position "standby"**

Switch on the Elmasteam by turning the function switch (*illustration 3.10*) to the "standby" position. The unit starts to generate pressure (see manometer, *illustration 3.7.D.*).

**Green indicator lamp "ready"**

As soon as the operating pressure (8 bar) is reached, the green LED lamp "ready" indicates that the unit is ready for operation.

**Switch the unit "on"**

Turn the function switch to "on" position. The steam nozzle can now be activated.



In order to prevent an unintended release of steam switch the unit to „stand-by“ operating mode during idle phases.

**Switch the unit in position "standby"**

Turning the function switch to the "on" position: The steam outlet can be activated now.

Switch the unit into "stand-by" operating mode during operating breaks. This prevents unintended activation of the steam outlet.

**Holding the work piece**

Use the recommended accessories for the safe holding of small items: sieve small, sieve large or tweezers with plastic coating.

**Suitability of cleaning items**

Check before cleaning if the cleaning item, the jewellery piece or the dental surgery equipment is suitable for this kind of cleaning, particularly with regard to their thermal and mechanical resistance.

**Distance to steam outlet**

Keep the cleaning item at least 1 cm from the nozzle when holding it into the steam zone. Check the cleaning result at short intervals (visual inspection). Check sensitive surfaces of cleaned items for possible damage.

## 6.1 Working with the hand piece

### Observe the safety warnings section 2!

#### Key steam

Start the steam mode by pressing the key at the hand piece. As soon as the key is released the steam outlet at the nozzle is stopped. (The hand piece heats up lightly during the process).

The steam outlet remains activated as long as the key is pressed. (The hand piece heats up slightly during the process.)

Release the key to interrupt the steam outlet.

#### Cleaning of items

Keep the cleaning item at least 1 cm from the nozzle when holding it into the steam zone. Check the cleaning result at short intervals. Check sensitive surfaces of cleaned items for possible damage.

#### Follow-up drying

If the unit is connected to an external compressed air supply, the nozzle can be used for compressed air, too. The cleaning item can be dried with compressed air.

#### Key compressed air



Start the compressed air mode by pressing the key at the hand piece. As soon as the key is released the compressed air outlet at the nozzle is stopped. (This function is available only with correct compressed air connection on the back of the unit (See *section. 7.1.1.*).

## 6.2 Working with the fixed nozzle

### Observe the safety warnings section 2!

#### Control via foot-activated switch

The steam/compressed air outlet at the fixed nozzle is controlled by the foot-activated switch.

#### Switch positions

There are two switch positions:

#### 50% pressed down

Activates the compressed air at the nozzle. (Optional). Only if the unit is correctly connected to a compressor on the back of the housing.)

#### 100% pressed down

Activates steam at the nozzle.

#### Cleaning of the items

Keep the cleaning item at least 1 cm from the nozzle when holding it into the steam zone. Check the cleaning result at short intervals (visual inspection). Check sensitive surfaces of cleaned items for possible damage.

#### Follow-up drying

If the unit is connected to an external compressed air supply, the nozzle can be used for compressed air, too. The cleaning item can be dried with compressed air.



### 6.3

### Operation with compressed air (optional)

After the cleaning of the item, there is a residual humidity on the material which can easily be dried by means of compressed air.

**Connection** The units are fitted with to norm connection sockets for compressed air at the back (optional) (*connection see illustration 3.11.1 B and D*). If a compressor is available the unit can be connected to the compressed air system. The Elmasteam can now be switched over between steam and compressed air at the hand piece or by foot activator.

For this a suitable Teflon tube (diameter 6 mm) is required).



**NOTE**

The unit must be connected to a compressed air supply system at **max. 6 bar!**

Keep the compressed air free of dirt particles!

**Connect the compressed air duct**

Push a suitable compressed air duct into the connection socket as far as it will go (*see illustration 6.1.1.*).

The connection coupling inside the compressed air connection socket automatically fixes the duct.



Illustration 6.1.1. Connect the compressed air duct at the correct connection socket

**Remove the compressed air duct**

Press the blue flexible coupling of the compressed air connection (*see illustration 6.1.2.A.*) and pull the compressed air duct (B) out of the connection socket at the same time.

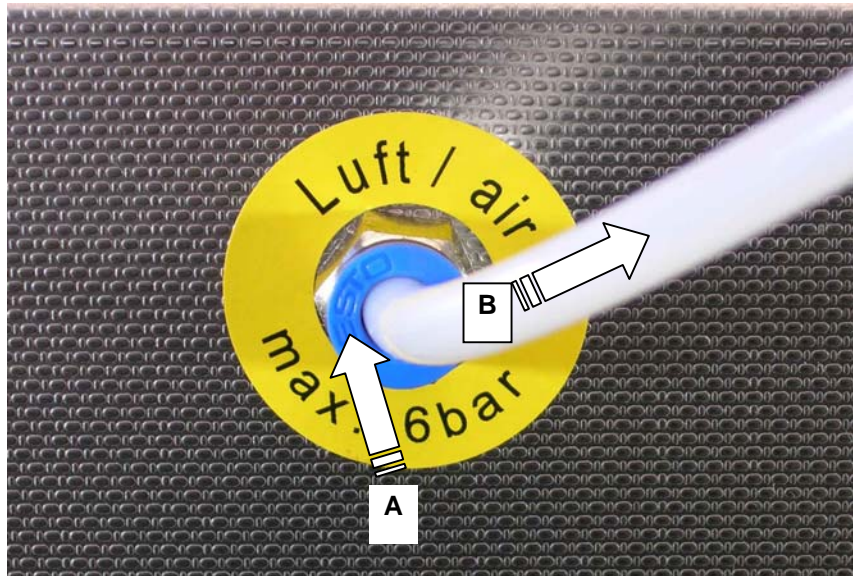


Illustration 6.1.2. Remove the compressed air duct.

## 6.4

### Operation with wet steam (optionally ES 5000)

The humidity of the wet steam can be controlled by the two turning knobs at the unit front (see *illustration 6.4.*).

Wet steam is available in one steam outlet.

- with combination of fixed nozzle / flexible hand piece > fixed nozzle
- with combination of fixed nozzle / fixed nozzle > left fixed nozzle
- with combination of flexible hand piece / flexible hand piece > left hand piece

- A Control of dry steam portion** (optional on ES 5000) for the ratio of mixture for wet steam operation.
- B Control of wet steam portion** (optional on ES 5000) for the ratio of mixture for wet steam operation.

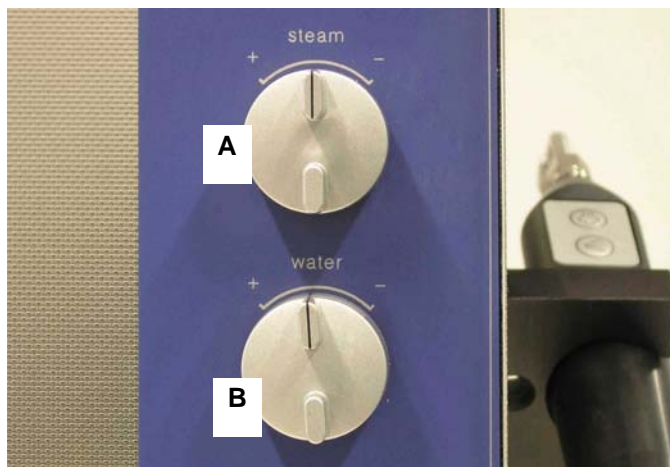


Illustration: 6.4. Control of wet steam operation

## 7 Maintenance / care / repair

**Do not open the unit** Maintenance works requiring the opening of the unit are not necessary.

Read and observe the following instructions before carrying out any maintenance works.

### 7.1 Monthly maintenance works

**Visual inspection** Check the mains cable and all electric connections for damage regularly. For reasons of safety, replace all damaged cables and connections before any further operation.

**Decalcify the unit** If the unit is operated with calciferous city water (tap water) there is a risk of calcification of various unit components. To prevent damages from the unit caused by calcification rinse the pressure tank at least once per month.



If the unit is continuously operated with tap water, a certain amount of lime will collect in the pressure tank depending on the water hardness. The lime will sit on the walls of the pressure tank and on the heating element. Lime particles that come loose may choke unit components such as valves and nozzles.

**The manufacturer cannot be held liable for any damages on the unit caused by maintenance carried out improperly or not at all!**



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Risk of causticization!

Do not fill decalcifier or other chemicals into the unit.

For decalcification use water only.

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**Preliminary** The unit must be cooled down before decalcification can be carried out (depressurize the unit). The pressure tank should be filled up to maximum level.

**How to proceed**

1. Unscrew the blind screw at the ball valve with a fork wrench by turning it anti-clockwise.
2. Screw the maintenance tube (included in delivery) to the ball valve (*illustration 3.11.F*).
3. Switch the unit on and let it heat up.
4. Observe the pressure increase on the manometer. As soon as a pressure of 3 bar is reached, turn the function switch to "off".
5. Direct the free end of the maintenance tube into a bucket filled half with water.



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Hot tube. Risk of scalding!

Hot water. Risk of scalding!

Wear gloves when handling the tube.

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6. Direct the tube into the bucket and slowly open the ball valve; the remaining water from the tank is swept through the tube together with the lime.

7. Rinse the pressure tank again with 5 – 10 litres of water.

8. As soon as the tank is completely empty, close the ball valve and remove the maintenance tube.

9. Retighten the screw at the ball valve with the fork wrench by turning it clockwise.

## 7.2

### Repair

Should any repair works be necessary please contact your supplier or the manufacturer of the unit.

Repair works must be carried out by specialized personnel only.

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Risk of electrocution by live parts in the unit!

Separate the unit from the mains for all repair works.

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Risk of scalding due to released steam!

Do not open the screw cap at the filling duct with a pressure above 0 bar!

Do not dismount pressure-carrying parts from the unit with a pressure above 0 bar!

Let the unit cool down before opening!

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Risk of scalding due to hot surfaces!

Let the unit cool down before opening!

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Use original spare parts only.

The CE marking can lose its validity in case of unauthorized opening of the unit.

The manufacturer cannot be held responsible for any damage caused by unauthorized opening of the unit.

If you need to return the unit to a service point or to the manufacturer please ensure that it is completely empty and is shipped in a suitable and safe packing.

## 7.3 Trouble shooting

Malfunction	Possible cause	Remedy
Unit shows malfunction warning: signal tone is activated and min. water LED is lighted	<ul style="list-style-type: none"> <li>filling level in pressure tank too low</li> </ul>	<ul style="list-style-type: none"> <li>refill water in pressure tank</li> <li>carry out Reset at safety temperature limit after filling (see section 3.9.)</li> </ul>
Pressure does not exceed 8 bar, heating LED is lighted	<ul style="list-style-type: none"> <li>screw cap of pressure tank was not sufficiently tightened</li> </ul>	<ul style="list-style-type: none"> <li>tighten the screw cap correctly</li> <li>replace the sealing ring if necessary</li> </ul>
	<ul style="list-style-type: none"> <li>malfunction of the heating</li> </ul>	<ul style="list-style-type: none"> <li>send the unit to a service point</li> </ul>
<p>Sudden release of steam from the housing (see illustration 3.6.C.).</p> <p>Possibly, there is a bang to be heard inside the unit.</p> <p>Pressure indication shows a value &gt; 9 bar</p>	<ul style="list-style-type: none"> <li>safety valve has been released</li> </ul>	<ul style="list-style-type: none"> <li>send the unit to a service point</li> </ul>
<p>On units with pump:</p> <p>Pump does not switch off.</p> <p>Pump max. LED is not lighted after automatic filling process (max. 30 sec.).</p>	<ul style="list-style-type: none"> <li>water supply duct is not opened</li> </ul>	<ul style="list-style-type: none"> <li>check the water supply system</li> <li>it may be necessary to release air from the piping system (see section 5.2.2. point 6).</li> </ul>

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## 8

## Putting out of action and waste disposal

The unit can be taken to metal and electronics recycling stations or returned to the Distributor.

## 9

## Contact address

### TECHSPANGROUP

Techspan Australia: PO Box 1012, Mascot, NSW 1460

Techspan New Zealand: PO Box 15262, New Lynn, Auckland 1007

Australia: Ph: 1-800 148 791 Fax: 1-800 148 799 New Zealand: +64 9 827 6567 Fax: +64 9 827 6596

e-mail: [sales@techspanonline.com](mailto:sales@techspanonline.com)

Please visit our website for helpful information and descriptions on our large product range:

**[www.techspanonline.com](http://www.techspanonline.com)**

Do you have any queries or suggestions concerning the present unit, its operation or the Operating Instructions?

Please contact us, we will be glad to assist: