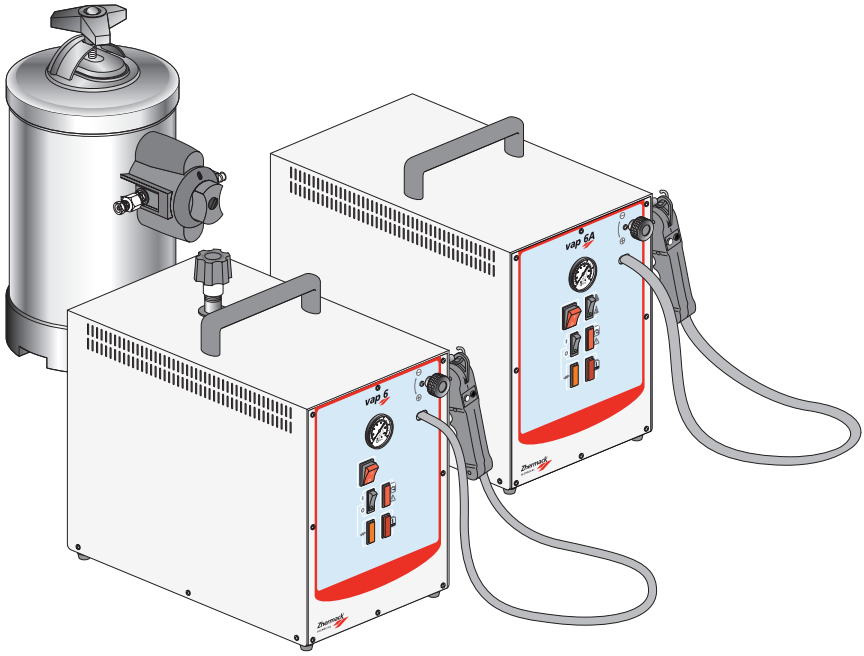
vap 6 vap 6A



User Manual

Steam cleaners & water softener (AD 8)

IT FR DE EN ES

Zhermack®
TECHNICAL

GENERAL INDEX

USING THE EQUIPMENT — CH. 7

MAINTENANCE — CH. 8

TROUBLESHOOTING — CH. 9

APPENDICES

The data given in this manual may be modified without prior notice.

CHAPTER 1: INTRODUCTION

HOW TO READ AND USE THIS MANUAL 1.1

This Use and Maintenance Manual provides information on the utilisation, installation and maintenance of ***electronic steam generators VAP 6, VAP 6A and water softener AD 8***, made by ***Zhermack S.p.A.***

• The equipment must be used in accordance with the instructions in this manual: it is therefore recommended that you read it carefully prior to installation and start-up. Make sure that you read the entire manual and pay particular attention to messages written in bold type or items highlighted by boxes and/or symbols: the symbols are designed to highlight situations involving danger or requiring caution (see paragraph 1.2).

• Observance of standards and regulations shown in this manual will ensure that the equipment is used properly and that maintenance work is carried out safely.

• This Use and Maintenance Manual is an integral part of the equipment: it should therefore be kept together with the equipment so that it can be consulted as and when necessary (keep the booklet in a secure a dry place away from sunlight, atmospheric agents, etc.). It must be available for consultation throughout the working life of the equipment even when the equipment is sold or finally dismantled.

• It is recommended that you keep this manual constantly updated by integrating any amendments, additions or modifications made by the Manufacturer. Any notes or comments should be made on the blank pages at the rear of the booklet (see Appendices: Note).

• Use the manual properly so that it is not damaged in any way.

• Do not remove, tear or write on any part of the pages.

• If the manual is lost or damaged and its contents become illegible you can request a replacement copy from the Manufacturer.

The purpose of this Use and Maintenance Manual is to provide users with information on how to operate the equipment properly. The manual contains all the information needed to use the device as intended: in particular the manual includes instructions and information on the following:

• Correct equipment installation;
• Detailed description of how the equipment works and its components;
• Initial start-up;
• Scheduled maintenance;
• Basic Safety and Accident Prevention info.

This manual contains nine chapters each of which covers a specific argument.
The appendices at the rear of the manual are a useful complement to these chapters.

1.2 TERMINOLOGY AND SYMBOLS

It is important that you understand the following symbols and their significance as they highlight important information such as critical situations, practical advice, or straightforward information.
If you have any doubts as to the significance of a symbol always consult this page.

• Tasks for which failure to observe instructions or tampering with equipment parts may put personnel in serious danger are highlighted by the symbol:

DANGER!
This symbol refers to safety standards which must be observed at all times in order to protect both workers and equipment.

• Critical situations concerning dangerous areas or tasks in which failure to observe the instructions may render the warranty null and void, or cause damage to equipment, connected components or the surrounding area, are highlighted by the symbol:

WARNING!
This symbol refers to safety standards which must be observed carefully in order to guarantee your safety, other people's safety and prevent damage to the equipment.

• Any work that fails to comply with instructions in this manual, or any tampering which might automatically render the warranty null and void, is highlighted by the following symbol:

FORBIDDEN!
This symbol refers to actions which must never be carried out (i.e. forbidden actions).

• Any general information and/or advice which may be useful at any time is highlighted by the following symbol:

NOTE!

This symbol highlights information and/or useful advice.

CHAPTER 2: GENERAL INFORMATIONS

RESPONSABILITY 2.1

Failure to observe the instructions in this Use and Maintenance Manual exonerates the Manufacturer from any liability whatsoever.
For any matters not covered by this manual or about which you have any doubts please contact the Manufacturer directly:

Zhermack S.p.A.
Via Bovazecchino, 100
45021 Badia Polesine · RO · Italy
Tel. +39 0425 597 611 · Fax +39 0425 53 596
http://www.zhermack.com e-mail: info@zhermack.com

If equipment maintenance work fails to comply with instructions or is done in such a way as to compromise equipment integrity or modify its characteristics ***Zhermack S.p.A.*** shall be exonerated from any liability as regards worker safety and/or equipment performance.

WARRANTY: GENERAL INSTRUCTION 2.2

Included in the Appendices to this Use and Maintenance Manual you will find the Warranty certificate and the ID Form which must be filled out in full.
In general the Warranty is rendered null and void by the following:
• Improper equipment use.
• Incorrect installation.
• Serious negligence of maintenance schedules.
• Modifications to or work on the equipment which has not been authorised by the Manufacturer (especially on safety devices).
• Use of non-original spare parts.

Zhermack S.p.A. **cannot, as of this moment, be held liable if the equipment is modified or tampered with without prior written consent from the Manufacturer. Consequently, any repairs made by unauthorised personnel, use of non-original spare parts or failure to comply with the installation standards specified in this manual shall immediately render the Warranty null and void.**

AUTHORIZED PERSONNEL 2.3

Personnel may be divided into the following categories:
• ***Operator-user:***
Person trained to use the equipment. He/she may carry out all the tasks needed to operate the equipment: these tasks include starting/stopping the equipment, carrying out routine inspections and any other tasks linked to everyday equipment use.

The operator-user must only use the equipment when it is fully assembled and the safety devices are working properly as described in this manual.

Before using this equipment or carrying out any work on it, the operator must read the entire contents of this manual. This manual has been drawn up to provide the user with essential information on rational, safe utilisation of the equipment. The user must comply with the information given at all times. Furthermore, the user must use the work sheets enclosed with this manual so as to keep a record of maintenance/component replacement work as well as make notes on any equipment malfunctions.

• ***Zhermack S.p.A. authorised maintenance technician:***
Person authorised to carry out work on the equipment under all operating conditions and all safety levels. He/she is also authorised to carry out any mechanical or electrical repairs/adjustments, scheduled maintenance and any component replacement work.

2.4 GENERAL SAFETY REGULATIONS

The operator must read the advice and warnings given below and comply with such regulations at all times: doing so will ensure safe, long-lasting equipment performance.
• Do not allow untrained personnel to use this equipment.
• Ensure that the work area is properly prepared: it must be free from obstacles, clean and properly illuminated.
• Take measures to ensure that you are not distracted when using the equipment.
• In the event of a malfunction follow the advice given in this manual: if you have any doubts shut down the equipment and contact your Authorised Service Centre immediately.
• Never use a malfunctioning equipment and always inform the Maintenance Manager of any faults.
• Do not open compartments containing electrical parts.
• Do not replace the power lead or tamper with the supplied plug.
• It is forbidden to use the equipment on items other than those for which it has been specifically designed.
• Before doing any cleaning, routine and/or unscheduled maintenance work make sure that the equipment has been unplugged from the mains socket.
• Make sure that there are no foreign objects inside the work area as these could damage the equipment and/or injure personnel.
• Do not use petrol or flammable solvents as detergents; use only non-flammable, non-corrosive, and non-toxic substances (see paragraph 8.1).
• High temperature steam can cause burns where the unit is used improperly.
• Do not direct the jet of steam from the gun at sources of electricity and/or at people.
• (***VAP 6***) never unscrew the water filler plug if there is steam in the boiler.
• If you do not intend to use the equipment for some time always disconnect it from the power supply.
• Have the machine serviced by the Manufacturer at least once a year.
• (***VAP 6A***) if the overpressure warning light comes on repeatedly, switch off the machine via the main switch and contact an Authorised Service Centre.
• (***VAP 6A***) if the safety valve opens, switch off the machine via the main switch and contact an Authorised Service Centre.

• The ***AD 8*** water softener has been designed to operate at a working pressure of between 1 and 8 bar and must only be supplied with cold drinking water.
• To regenerate the water softener use only NaCl; acid or base substances, such as solvents and various chemical products must not be used.
• The resins contained in the water softener are necessary for proper operation and therefore must not be removed.
• The water softener must be installed in indoor areas with an ambient temperature higher than 0°C so as to prevent freezing of the water.
• Install the water softener in a place where it is protected from accidental knocks: this prevents damage to the cover, valves and taps.
• To prevent damage to the water infeed pump make sure that water pressure does not exceed 3-4 bar. It is advisable to use a pressure reducer calibrated between 1 and 2 bar.
• If the ***VAP 6A*** steam generator is to be used without connecting it directly to the mains water supply (i.e. where the water softener is no longer necessary) a water intake recipient filled exclusively with distilled water must be used.
• Wear protective gloves and eye goggles when using the steam generator.

Personnel using the steam generator must wear protective eye goggles.
No other persons must be allowed near the work area as they could be hit by flying dirt, dust or steam.

This equipment has electrical parts: therefore, in the event of a fire, no matter how small, use only powder-type extinguishers. Never attempt to put out an electrical fire with water.

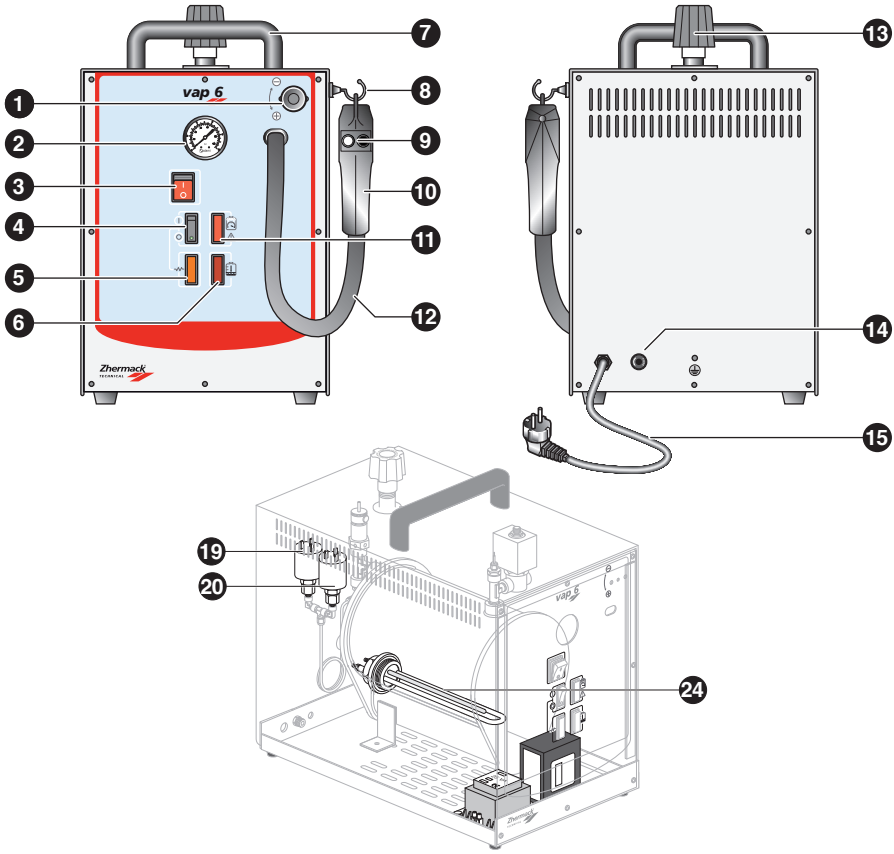
Zhermack S.p.A. **cannot be held liable for any damage to persons or objects caused by incorrect maintenance carried out by unqualified personnel or maintenance work that does not comply with the instructions in this manual.**
Zhermack S.p.A. **is, as of this moment, exonerated from any liability concerning injury to persons or damage to objects that may result from using this equipment in a way other than that described in this manual.**

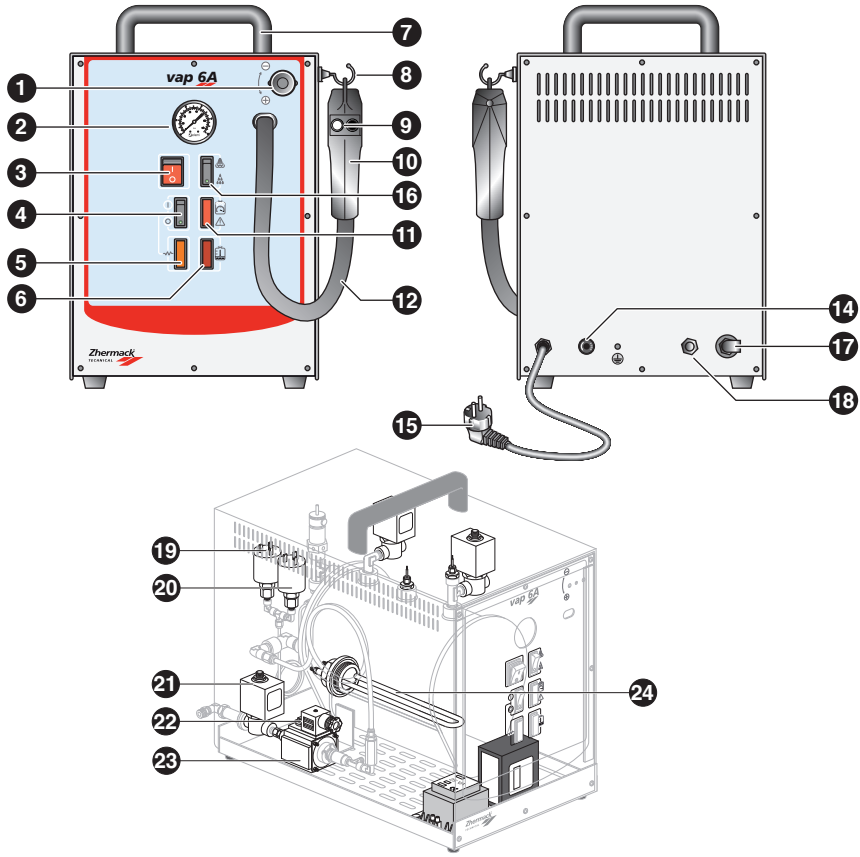
CHAPTER 3: DESCRIPTION OF THE EQUIPMENT

3.1 GENERAL DESCRIPTION OF THE EQUIPMENT

This manual describes the following equipment items:
• ***VAP 6*** electronic steam generator with manual water fill, designed for the steam cleaning of semi-finished odontotechny products.
• ***VAP 6A*** electronic steam generator with direct connection to mains water supply (or to an external tank), designed for steam cleaning or hot water cleaning of semi-finished odontotechny products.
• ***AD 8*** water softener, indispensable where the ***VAP 6A*** steam generator is connected directly to the mains water supply.

3.2 TABLE OF THE COMPONENTS *VAP 6 - VAP 6A*

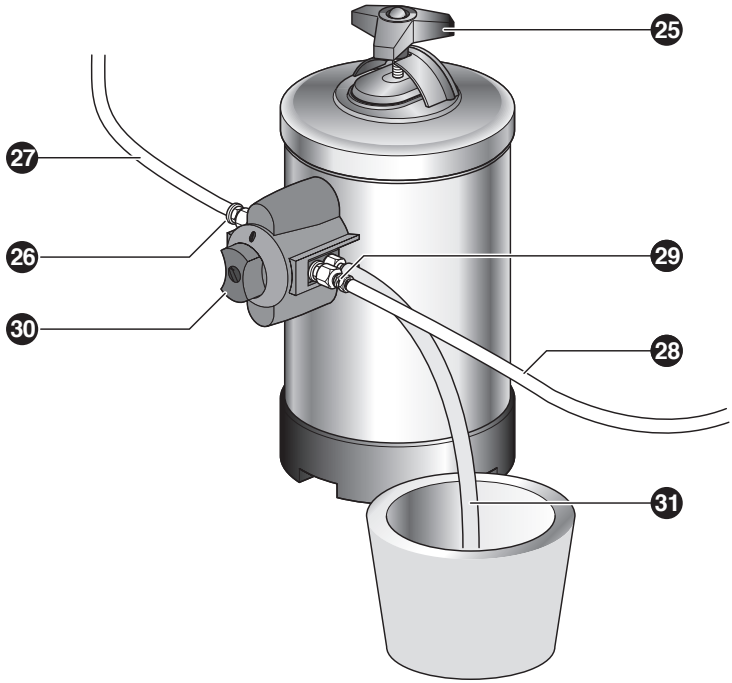




Description of the components *VAP 6 - VAP 6A* 3.2.1

1. Steam flow adjuster knob
2. Pressure gauge
3. Main switch
4. Element switch
5. Element ON indicator light
6. Water LOW warning light
7. Handle
8. Gun support hook
9. Gun trigger
10. Gun
11. Overpressure warning light
12. Gun connection lead
13. Water filler plug (***VAP 6***)
14. Fuse
15. Power lead
16. Water/steam mode selector (***VAP 6A***)
17. Water filler connection (***VAP 6A***)
18. Anti-cavitation valve (***VAP 6A***)
19. Working pressure switch
20. Safety pressure switch
21. Water filler solenoid valve (***VAP 6A***)
22. Pump reset switch (***VAP 6A***)
23. Water filler pump (***VAP 6A***)
24. Element

3.3 TABLE OF THE COMPONENTS *AD 8*



3.3.1 Description of the components *AD 8*

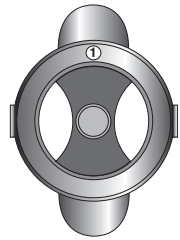
25. Open/close lid knob
26. Water outlet connector
27. Water outlet hose
28. Water inlet hose
29. Water inlet connector
30. Valve knob
31. Water outlet and steam release hose

DESCRIPTION OF THE *AD 8* VALVE DIAL POSITIONS 3.4

A valve knob (**30**) is installed on the ***AD 8*** water softener: this can be adjusted to four different positions:

POSITION 1

Fig. 1: Used during routine operation.



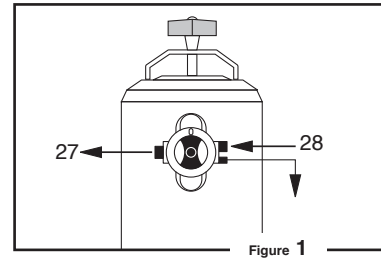
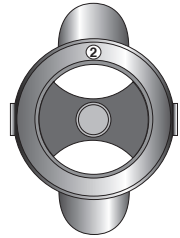


Figure 1

POSITION 2

Fig. 2: Used during steam release and salt (1 kg) loading for softener regeneration.



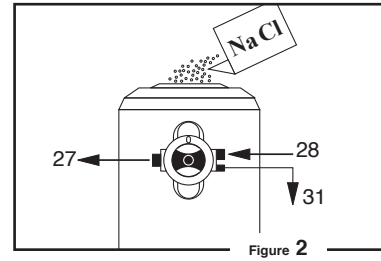
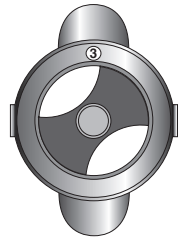


Figure 2

POSITION 3

Fig. 3: Used during regeneration.



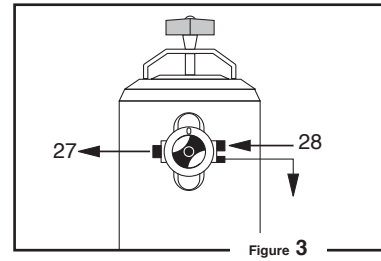
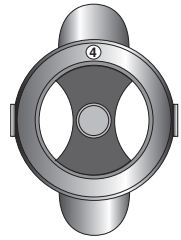


Figure 3

POSITION 4

Fig. 4: Used during backflow.



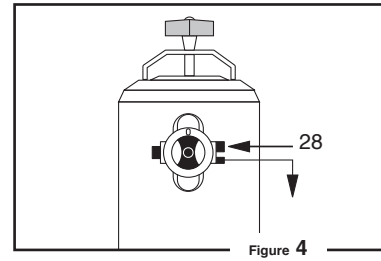
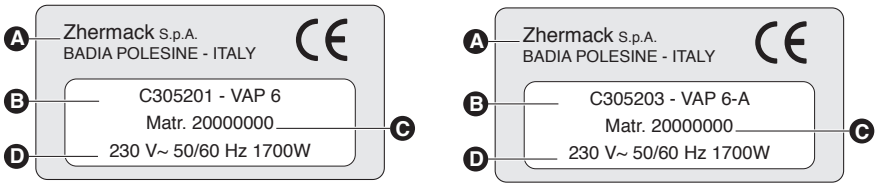


Figure 4

3.5 IDENTIFICATION DATA

The equipment described in this manual has an ID platelet giving information about both the machine and the manufacturer:



A. Name and address of manufacturer
B. Equipment code and model
C. Serial number
D. Power supply information

The equipment has been built in compliance with the EC directives listed in the enclosed "EC declaration of conformity". When requesting spare parts, information or assistance from your Authorised Servicing Centre always quote the data on the ID plate.
Should the ID plate deteriorate and become illegible, even partially, order a replacement plate from the manufacturer: remember to quote the relevant data.

Do not remove and/or damage the plate as you must be able to read the data at all times.

3.5.1 On-equipment labels and symbols

The following symbols are applied on the machine:

ATTENZIONE! DANGER OF AN ELECTRICAL CURRENT. DO NOT OPEN DOORS OR REMOVE PROTECTION BEFORE YOU HAVE DISCONNECTED THE PLUG FROM THE ELECTRICAL SOURCE.

On the ***VAP 6*** there is a label on the water filler plug which says:

EXTREME CAUTION! HOT STEAM! (EXTREME CAUTION! VERY HOT PRESSURISED STEAM!).

This label informs the user that there is a danger of high temperature steam escaping when the water filler plug is unscrewed: always proceed with maximum caution when unscrewing the plug and observe the instructions given in this handbook.

CHAPTER 4: TECHNICAL CHARACTERISTICS

4.1 TECHNICAL CHARACTERISTICS AND OPERATING PRINCIPLE

Zhermack S.p.A. designs and manufactures work instruments that provide cutting-edge technology and first-rate quality. They are specially designed to provide made-to-measure solutions that offer long-lasting performance every single day of their working life.
In making these products ***Zhermack S.p.A.*** makes use of the latest design tools, thus ensuring that all finished equipment is as functional as possible. Use of only top-quality materials and thorough testing aimed at providing maximum user safety are an ***Zhermack S.p.A.*** constant, making our products safe and internationally competitive.
The ***VAP 6 and VAP 6A*** are compact electronic steam generators; they produce steam or hot water at pressures of up to 6 bar. They have the following technical characteristics:
• electronic operation with on-gauge pressure display
• boiler is filled with water manually (***VAP 6***)
• electronic control of minimum water level with element shutdown device and warning light
• working pressure switch
• dual safety device:
  - overpressure switch with element shutdown device
  - warning light
• safety valve
• stainless steel 4-litre boiler with water refill of about 2.5 litres
• safety fuse
• 2 work modes are available on the ***VAP 6A***:
  - high temperature steam from gun
  - hot water from gun
• on the ***VAP 6A*** the quantity of water or steam exiting the gun can be adjusted.
• the ***VAP 6A*** can be connected to the mains water supply or an electronically controlled external tank.
The ***AD 8***, instead, is a water softener. Utilisation of the ***AD 8*** is advisable where the ***VAP 6A*** is connected to a mains water supply. The ***AD 8*** softener has been designed to operate at working pressures of 1 - 8 bar. It has a stainless steel body. It should only be supplied with cold drinking water. Regeneration must be carried out with NaCl only (common cooking salt).

TECHNICAL DATA 4.2

Technical data on the electronic steam generators ***VAP 6 - VAP 6A***:

Power supply	230 V ~ ± 10% 50/60 Hz
Max absorbed power	1700 Watt
Protection rating IP	IPX0
Noise level	<70 dB
Gun voltage	24 V
Boiler capacity	4 l
Boiler refill	2.5 l
Boiler dimensions (cm)	15.5 (*l*) x 31 (*p*) x 26 (*h*)

Technical data on the ***AD 8*** water softener:

Working pressure	between 1 and 8 bar
Water supply	cold drinking water
Regeneration	NaCl 1 kg

The frequency with which regeneration needs to be carried out depends on how often the *AD 8* softener is used and the degree of purity of the water. The installer will be able to provide information regarding the hardness of the water at the installation site.

Standard accessories 4.2.1

In addition to this Use and Maintenance Manual the equipment comes complete with:

COMPONENTS	QUANTITY	ORD. CODE*
Water filler funnel (***VAP 6***)	1	XI0020255
Gun kit	1	XR0020065
Fuse	2	XE0802100
Water inlet/outlet tap connection hoses (***VAP 6A***)	2	XF0486320

* Please quote the order code when ordering a spare part. You may order parts from your local Authorised Servicing Centre.

Weight and overall dimensions 4.2.2

DIMENSIONS *VAP 6, VAP 6A*	WITHOUT PACKING	WITH PACKING
Height (*h*)	42 cm	53 cm
Width (*l*)	29 cm	39 cm
Depth (*p*)	46 cm	55 cm
Weight	15 kg	19.5 kg
DIMENSIONS *AD 8*	**WITHOUT PACKING**	**WITH PACKING**
Height (*h*)	40 cm	70 cm
Width (*l*)	30 cm	31.5 cm
Depth (*p*)	20 cm	22 cm
Weight	8.5 kg	10 kg

CHAPTER 5: TRANSPORT AND MOUNTING

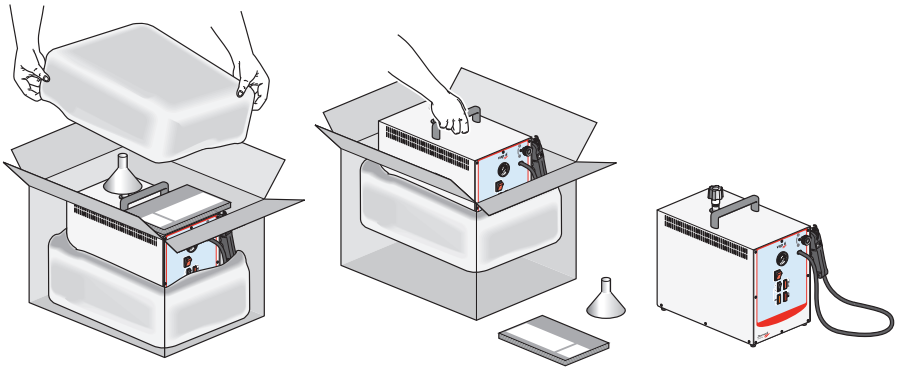
5.1 WARNING

To prevent any injury to persons or damage to things always proceed with the utmost care and attention when mounting the equipment. Observe all the precautions and instructions contained in the following paragraphs.

5.2 PACKING AND UNPACKING

All the material is thoroughly checked by the Manufacturer prior to shipment. When you receive the goods make sure they have not been damaged during transit and that no-one has tampered with the packaging and removed any of the parts contained therein.
Should you note any damage or missing parts please inform your Dealer and the shipping carrier immediately: take photographs and send them on to both dealer and carrier.

The packaging, consisting of a cardboard box with internal expanded plastic padding, contains:
• the ***VAP 6 or VAP 6A*** electronic steam generator and/or the ***AD 8*** water softener;
• the accessories (see section 4.2.1);
• this Use and Maintenance Manual.



It is recommended that you keep the original packaging so that, if necessary, it can be re-utilised; doing so ensures that you do not use unsuitable packaging materials during transport and handling which might lead to accidental damage (see section 5.3).

The equipment is not supplied with gloves or protective glasses; however, the operator must be in possession of these items in order to utilise the equipment.

TRANSPORT AND MOUNTING 5.3

Should it be necessary to move the equipment proceed as follows:
1. disconnect the equipment from the mains power supply;
2. if necessary, empty the boiler (see section 8.3.1);
3. disconnect (for ***VAP 6A***) the water softener hose (if any) from the water inlet connector (**29**);
4. disconnect the other softener hose from the water supply tap;
5. grip the unit by the base, making sure you hold it vertically. Proceed cautiously, bearing in mind the size and weight of the unit (see section 4.2.2), so as to prevent any accidents that might be caused by failure to evaluate such factors.
6. Pack the equipment in its original box or, if this is not possible, take all the necessary precautions to protect the equipment against knocks or drops, in that the goods are transported at the owner's risk.

Failure to observe the above exonerates the Manufacturer from any liability concerning equipment malfunction and consequently renders the Warranty null and void.

When shipping/delivering the equipment to your Authorised Servicing Centre always enclose a copy of the purchase document and a copy of the properly compiled ID form.

If the equipment is to be transported by courier, the postal service or rail it is recommended such shipments be insured.

DISPOSAL / DISMANTLING 5.4

When disposing of the ***packaging materials*** the user must comply with the standards in force in his/her country regarding the following materials:
• Wood/paper: non-polluting materials, but must be recycled properly.
• Polystyrene/plastic: pollutants which must not be burnt (toxic fumes) nor dispersed into the environment, but disposed of in compliance with the standards in force in the country of use.

If the equipment is to be ***dismantled*** the user must, in compliance with EC directives and the laws in force in the country of use, effect elimination and recycling of the following materials:
• Plastic and glass parts, insulated electrical wiring, rubber parts.
• There are no toxic or corrosive parts.

This product must not be disposed of as household waste but rather, when no longer used, must be collected separately according to EC Directive 2002/96.

CHAPTER 6: INSTALLATION AND FIRST-TIME USE

6.1 WARNINGS AND PRECAUTIONS

Before proceeding with installation make sure that all relevant safety conditions prevail and follow the instructions below carefully.

So as to provide greater clarity the numbers given in the diagrams in this chapter correspond exactly to the numbering in the Components Table (Ch. 3).

6.2 PERMITTED AMBIENT CONDITIONS

Unless stated otherwise at the time of order the equipment will be configured to operate properly under the following ambient conditions:

Place of Use	Indoors
Altitude	Up to 2000 m
Working temperature	From 5°C to 40°C
Humidity	Max 80%

Ambient conditions other than those listed above may cause malfunctions or sudden breakdowns. Lighting in the installation area must be sufficient to provide good visibility at every single point on the equipment.
More specifically, luminosity must not be less than 200 lux, lighting must be as uniform as possible and there must be no reflected light as this could dazzle the operator.

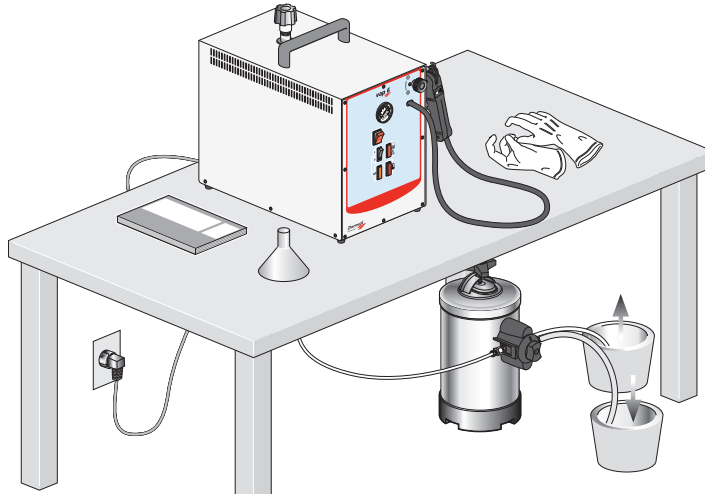
The equipment must not be used in workplaces having an atmosphere which is explosive and/or at risk of fire as it has not been designed for use in such areas. Nevertheless, should a fire accidentally break out follow the procedure described in paragraph 2.4.

Work area lighting is an important factor in both personnel safety and the ultimate quality of the work being done. In Italy lighting must comply with a Ministerial Decree Law that clearly defines minimum lighting requirements. In other countries lighting requirements form part of the accident prevention and workplace hygiene standards.

6.3 REQUIRED WORK SPACE

Choosing a good workplace with an appropriate amount of space available for equipment installation is an essential factor in personnel safety, the quality of the work and proper maintenance.
This zone must not only be spacious enough to allow for optimum equipment operation but must also be well illuminated, aired, not dusty and not exposed to direct sunlight.
Note also that the unit must be positioned so the connection plug can be handled/manipulated with ease.

Worktops 6.3.1



The ***VAP 6 - VAP 6A*** steam generators has been designed for operation on a rigid worktop parallel to the floor. Suitable worktops include service furniture (where the operator is standing) or modelling tables (where work is done sitting down). All worktops must be checked for stability.
Install the ***AD 8*** water softener (where applicable) in a place where ambient temperature is higher than 0°C so as to stop the water in it freezing; the installation site should also protect the softener against accidental knocks and be perfectly horizontal.

CONNECTING UP TO THE POWER SUPPLY 6.4

The user must provide a power connection with relative socket near the equipment installation point. The user must also install an adequate electrical circuit breaker upstream from the socket as well as efficacious overload/indirect contact safety devices.
Connection is effected via the safety plug (16A, in compliance with European standards) at the end of the power lead: this must be inserted in the mains socket.
When connecting check:
• that mains voltage and frequency are as indicated on the identification plate (incorrect power supply voltage may damage the equipment);
• that the mains supply has a proper, efficient earth connection.

It is forbidden to tamper with the power lead and its plug. When replacing them owing to damage and/or wear please contact an Authorised Service Centre.

A proper earth connection is compulsory. Should it temporarily be necessary to use an extension lead the latter must comply with the standards in force in the country of use.

6.5 FIRST-TIME USE - *VAP 6*

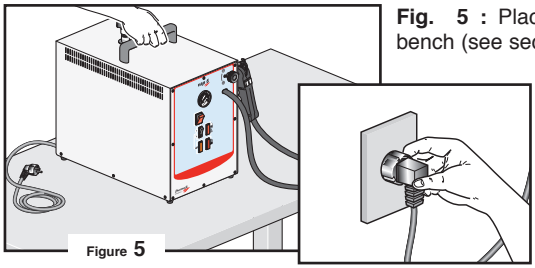


Figure 5

Fig. 5 : Place the steam generator on the work bench (see section 6.3.1).

Connect the lead to the power mains: ensure that connection is effected as per the instructions given in section 6.4.

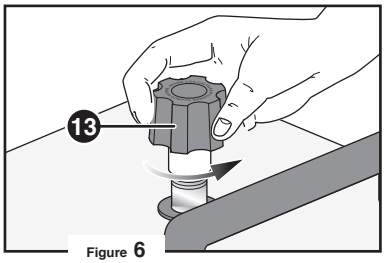


Figure 6

Fig. 6 : Unscrew the water filler plug (**13**) and fill the boiler with water. If it overflows clean the steam generator thoroughly, then screw the plug back on.

To prevent limescale build-up which might damage the steam generator we recommend that you use distilled water.

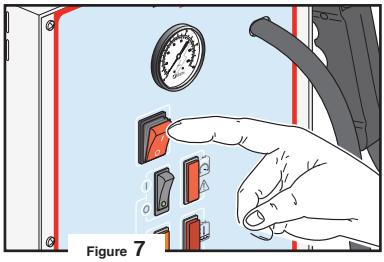


Figure 7

Fig. 7 : Press the main switch (**3**): the LED on the switch come on.

Failure to observe any of the above installation instructions may lead to malfunctions and render the warranty null and void.

Fig. 8 : Place the steam generator on the work bench and the softener on the floor, making sure both are level (see section 6.3.1).

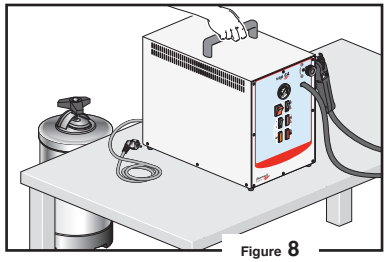


Figure 8

Fig. 9 : Connect up the water softener to the mains water supply by attaching the hoses to the inlet tap (**29**) and water outlet tap (**26**) on the softener itself. Then tighten the hose clips.

Connection to the water softener must only be effected by qualified, authorised personnel.

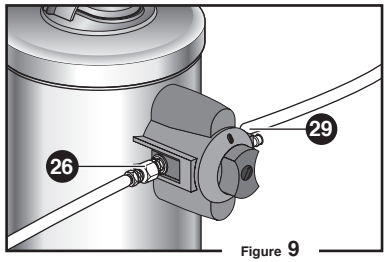


Figure 9

Fig. 10 : Connect the water outlet hose (**31**) on the softener directly to an open siphon (this must be below the softener).

Before connecting up the hoses, remove any rubber plugs inserted in the inlet/outlet connectors on the *AD 8* water softener.

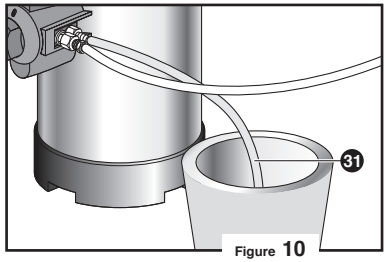


Figure 10

Fig. 11 : To ensure that the resin in the exchanger gives the required performance rinse the softener by turning the knob (**30**) to position number "**4**" (backflow position: see fig. 4, section 3.4) for at least 10 minutes until the water outflow is perfectly clear.
When doing this direct the water into the open siphon (see previous figure).

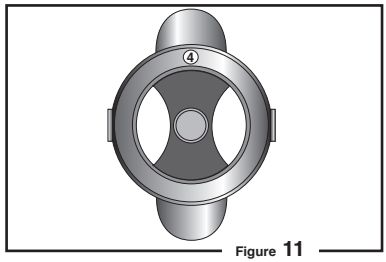


Figure 11

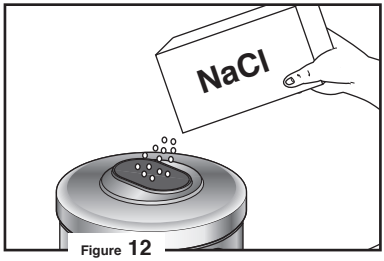


Figure 12

Fig. 12 : Regenerate the water softener as explained in section 6.6.2.

Improper regeneration of the water softener can damage the steam generator. If you have any doubts, please contact properly qualified personnel.

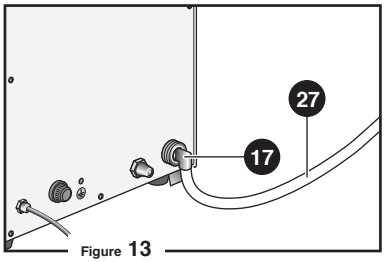


Figure 13

Fig. 13 : Connect the other end of the softener hose (**27**) to the water inlet connector (**17**) on the steam generator.

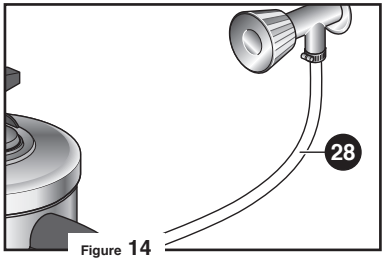


Figure 14

Fig. 14 : Connect the other end of the softener hose (**28**) to the mains water supply.

Make sure water pressure does not exceed 3/4 bar; it is advisable to fit a pressure reducer calibrated to 1 - 2 bar.

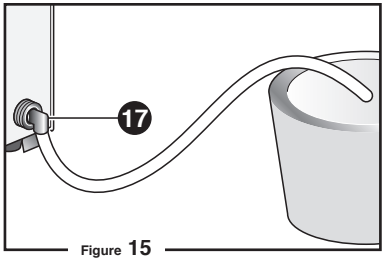


Figure 15

Fig. 15 : If you do not connect up directly to the water mains via the water softener, connect one end of the supplied hose to the water inlet connector (**17**) on the steam generator and insert the other end in a recipient of distilled water.

Fig. 16 : Fill the boiler by opening the water inlet tap (see figure 14) and open the anti-cavitation valve (**18**) until all the air has exited and water starts to flow out: then re-close it.

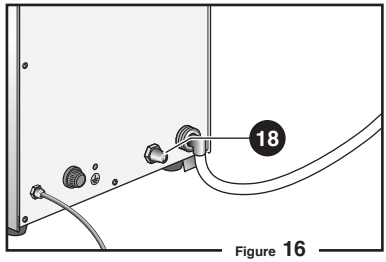


Figure 16

Fig. 17 : Connect the lead to the power mains: ensure that connection is effected as per the instructions given in section 6.4.

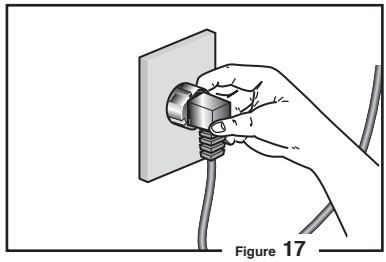


Figure 17

Fig. 18 : Press the main switch (**3**): the LED on the switch come on.

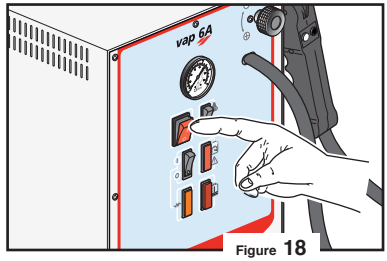


Figure 18

It is advisable to install a tap between the mains water supply and the water inlet hose of the softener so that the water flow can be closed off if necessary.

Position the container at the same height as the steam generator.
Always add a glass of natural water to the container and check that the latter does not run dry so as to prevent the pump aspirating air.

Failure to observe any of the above installation instructions may lead to malfunctions and render the warranty null and void.

6.6.1 Filling the boiler with water - *VAP 6*

The first time the ***VAP 6*** steam generator is switched on or when the water in the boiler is running out, the “water low” warning light (**6**) comes on; simultaneously the element is switched off, thus causing the “element on” indicator light (**5**) to go out.
The element will remain off until the boiler is refilled.
To fill the boiler with water proceed as follows:
- switch off the element via the main switch (**4**);
- release the steam in the boiler by pressing the gun trigger (**9**);
- unscrew, slowly and cautiously, the plug (**13**) so as to release any residual steam in the boiler;
- fill the boiler with water;
- replace the plug and tighten it securely (**13**);
- turn the element switch (**4**) to ON.

To prevent temperature imbalance, do not use cold water when filling a boiler that is still hot.

6.6.2 Regenerating the *AD 8* water softener

To regenerate the ***AD 8*** water softener proceed as follows:
- turn the water softener knob (**30**) to **position 2** as illustrated in fig. 2, section 3.4. Loosen the lid knob (**25**) and wait for the pressure to be released.
- Remove the lid by unscrewing the knob (**25**), then introduce the salt.
- Clean off any salt or resin that may have deposited on the lid seal, replace the lid and screw it back in place properly.
- Turn the knob (**30**) to **position 3** as illustrated in fig. 3, section 3.4, and let the salt water drain from the hose (**31**) until it becomes fresh (this takes about 40 minutes).
- Turn the knob (**30**) to **position 4** as indicated in fig. 4, section 3.4, wait about 30 seconds, then bring the knob (**30**) to **position 1** as illustrated in fig. 1, section 3.4. In the intervening 30 seconds the unit will not be supplied with softened water.

When regeneration is being carried out the steam generator connected to the softener is still supplied with water, but the latter is not softened. Regeneration frequency depends on how often the *AD 8* softener is used and the degree of purity of the water. The installer will be able to provide information regarding the hardness of the water at the installation site.

To maintain *AD 8* water softener performance use the chart enclosed with this manual to record regeneration data.

Use only NaCl (common cooking salt) to regenerate the softener. Do not use acid or basic substances, solvents or chemical products.

PURPOSE OF THE EQUIPMENT / IMPROPER AND FORBIDDEN USE 6.7

The ***VAP 6 and VAP 6A*** steam generators have been designed to:
• generate steam or hot water to clean semi-finished odontotechny products.
The ***AD 8*** water softener is connected up to the mains water supply and connected to the ***VAP 6A*** steam generator where the latter is connected directly to the mains water supply.
The ***AD 8*** water softener has been designed to:
• soften the mains drinking water to ensure long-lasting performance of the ***VAP 6A*** steam generator.

Using the equipment for any purpose other than that described in this manual shall be considered improper and thus forbidden.

Improper use renders the Warranty null and void and *Zhermack S.p.A.* shall not be liable for any damages to objects, workers or third parties.

The main reasons for which the Warranty may be rendered null and void are given in section 2.2 and in the "Warranty Certificate" enclosed with this Manual.

CHAPTER 7: USING THE EQUIPMENT

7.1 WARNINGS

The equipment must not be used with any of its parts disassembled: before using the equipment make sure that all its components are properly in place.

To ensure that work is done in absolute safety always make sure that you follow the described procedures with caution.

To provide greater clarity the numbers given in the diagrams in the following paragraphs correspond exactly to the numbering in Chapter 3 in the "Equipment Description" section.

7.2 SAFETY SYSTEMS

To ensure optimum working reliability, ***Zhermack S.p.A.*** employs only top quality materials and components for the manufacture of the equipment. The equipment is also thoroughly tested before delivery.
All materials are of only the highest quality and are checked on arrival at our plant, during storage and when they are used so as to guarantee a product that is free from damage, deterioration and/or malfunctions.
In particular, the steam generators, in addition to the safety fuse and safety valve, have:
1. ***On the VAP 6A.***
Automatic pump shutdown if the pump overheats because of high pressure or lack of water.
To reset the pump proceed as follows:
- turn the element switch to OFF (**4**).
- switch off the machine via the main switch (**3**) and remove the plug from the power socket.
- let the pump cool for about 15 minutes.
- remove the rear cover by unscrewing the fixing screws.
- press the pump reset switch (**22**).
- replace the rear cover.

2. ***On the VAP 6 and VAP 6A.***
Internal safety pressure switch, which shuts down the machine if working pressure exceeds 6 bar; in this event the overpressure warning light comes on. To reset the machine proceed as follows:
- release pressure via the gun until it drops to 3 bar.
- turn the element switch to OFF (**4**).
- switch off the machine via the main switch.
- switch the machine back on.

If the overpressure warning light comes on repeatedly, switch off the steam generator via the main switch and contact an Authorised Service Centre.

If the safety valve should open proceed as follows:
- **turn the element switch to OFF (4).**
- **release the pressure via the gun until it drops to 4 bar.**
- **switch off the steam generator via the main switch and contact an Authorised Service Centre.**

START-UP AND OPERATION 7.3

After setting up the machine (see sections 6.5 and 6.6), proceed as follows:

- ***On the VAP 6:***

1. Switch the element on via the relevant switch (**4**): the on-switch LED comes on. The “water low” warning light (**6**) and element ON indicator light (**5**) come on simultaneously. After five seconds the “water low” warning light goes out automatically while the element ON indicator light (**5**) stays on until pressure reaches 6 bar.
   If, after 5 seconds the “water low” warning light (**6**) remains on, the boiler must be filled with water (see section 6.6.1).
2. Press the trigger button (**9**) on the gun and the steam exits the gun nozzle.
3. Adjust steam outflow as desired by acting on the knob (**1**); rotate anticlockwise to increase flow and clockwise to decrease.
   When the steam starts flowing out of the gun the pressure in the boiler drops and the element ON indicator light (**5**) comes back on.

- ***For the VAP 6A:***

4. Switch on pump and element by acting on switch (**4**); the LED on the switch comes on, the “water low” warning light (**6**) comes on and the pump starts working.
5. When the water level in the boiler reaches the minimum level the indicator light (**6**) goes out and, at the same time, the element ON indicator light (**5**) comes on and stays on until pressure reaches 6 bar.
6. Select the work mode by acting on switch (**16**).
7. Press the trigger button (**9**) on the gun and the water (or steam) will exit the gun nozzle.
   Adjust steam outflow as desired by acting on the knob (**1**); rotate anticlockwise to increase flow and clockwise to decrease.
   Once steam starts flowing out of the gun the pressure in the boiler drops and the element ON indicator light (**5**) comes back on.

The steam generator can, however, be used before the "element ON" indicator light goes out; in this case, though, the pressure displayed on the gauge will be below 6 bar.

If you are in possession of a *VAP 6A* note that it is inadvisable to use the water function for prolonged periods of time.

Always empty the boiler if you do not expect to use the steam generator for some time (see section 8.3.1).

Failure to observe any of the above installation instructions may lead to malfunctions and render the warranty null and void.

7.4 RESIDUAL RISK

Residual risk is:
• a danger that cannot be completely eliminated through design and application of safety devices.
• a potential danger which cannot be highlighted.
The steam generator produces steam or hot water and therefore works at temperatures of over 100°C; the residual risks are thus associated with the following situations:

• Steam jets exiting an accidentally triggered gun that has not been properly connected to its support could cause burns.
• Allowing work to be carried out on the interior of the machine by unauthorised personnel or carrying out such work with the plug inserted in the mains socket.

To prevent accidents always observe the instructions in this Manual. Should you have any doubts at all please contact the Manufacturer or your Authorised Servicing Centre.

The *VAP 1* steam generator, where the user fails to observe the instructions contained in this manual, is a potential source of explosion or fire.
Should you have any doubts whatsoever, always contact the Manufacturer or an Authorised Service Centre.

The above-mentioned dangers are indicated by special labels attached to the equipment, as described in sub-section 3.5.1.

CHAPTER 8: MAINTENANCE

CLEANING 8.1

The equipment exterior can normally be kept clean just by wiping it with a dry cloth. If necessary, wet the cloth just a little water or use a non-degreasing detergent (see section 2.4).
The operator must ensure that the equipment is kept clean and free from any foreign bodies such as dirt, water, non-conducting liquids etc.
Cleaning should be carried out at the end of every work session and must be done with the equipment switched OFF and stable.
If you need to clean the interior of the unit contact an Authorised Service Centre.

Before cleaning the equipment exterior always turn the main switch to OFF. It is strictly forbidden to clean the equipment while it is connected to the mains power supply.

Never use inflammable, corrosive, alkaline or toxic liquids when cleaning the equipment.

Eye goggles and a face mask must be worn when using compressed air for cleaning purposes. Do not allow any persons near the equipment as they could be hit by flying dust.

ROUTINE MAINTENANCE 8.2

Once the equipment has been cleaned (see section 8.1) the operator must check for worn, damaged or loose parts. If any such anomalies are discovered contact your Authorised Servicing Centre.

Should any of the above anomalies be discovered it is strictly forbidden to restart the equipment before such faults have been set right.

More precisely, should the operator note any defects or problems of any kind whatsoever he/she must place a warning sign on the equipment indicating that maintenance work is in progress and that using the equipment is forbidden (EC-compliant signs can be purchased from the relevant suppliers).
Routine maintenance, cleaning and proper equipment use are essential factors in guaranteeing long-lasting equipment performance and safety.

Equipment safety devices/guards must never be removed except for repair and maintenance purposes.
Such items must be replaced as soon as the situation which led to their removal no longer exists and in any case before the equipment is used again.

8.3 UNSCHEDULED MAINTENANCE

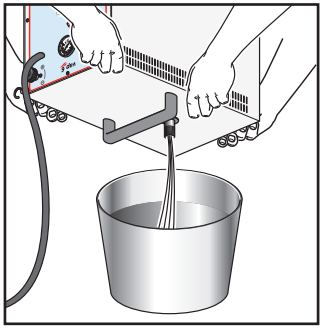
Unscheduled maintenance includes repair of any accidental breakage and replacement of worn or malfunctioning parts.

All electrical and mechanical work must only be carried out by an authorised *Zhermack S.p.A.* maintenance technician.

Modifications which alter the equipment characteristics from a safety and risk prevention viewpoint may only be made by the Manufacturer who shall then issue a certificate stating that the equipment conforms to safety standards. Therefore any modification or maintenance tasks not actually described in this manual are to be considered forbidden. If the equipment is modified, tampered with or repaired by unauthorised personnel or non-original spare parts are used the manufacturer is relieved of all responsibility. If a maintenance task is required but is not described in this manual you must contact an Authorised Servicing Centre.

8.3.1 Emptying the water from the boiler

To empty the ***VAP 6A*** boiler quickly proceed as follows:
• Turn the main switch (**4**) to off.
• Select the water function via the mode switch (**16**).
• Drain the water by pressing the gun trigger button (**9**).
If, instead, you are emptying the ***VAP 6*** proceed as follows:
• Switch off the machine via the main switch (**3**) and disconnect the plug from the mains power socket.
• Wait for the equipment to cool down completely (this takes about 40 minutes).
• Unscrew the water filler plug (**13**).
• Grip the unit by its base, turn it upside down and pour the water into a suitable recipient (see illustration below).



It is strictly forbidden to empty the machine as described above when it is switched on or under pressure. The Manufacturer cannot be held liable for any damages caused by any failure to observe the above information and instructions.

The machine is heavy: at least 2 (two) workers are required to turn it upside down.

Replacing the nozzle 8.3.2

To replace the nozzle proceed as follows:
• remove the old nozzle by pulling it outwards.
• make sure that the rubber seal is inserted correctly in its seat in the gun.
• insert the new nozzle: secure it by pushing the mobile lock ring all the way down.

RESTARTING AFTER A LONG PERIOD OF INACTIVITY 8.4

Should the equipment need to be restarted after a particularly long period of inactivity proceed as described in Chapter 6 (First-time Use).
If there are any faults or malfunctions proceed as described in Chapter 9 (Troubleshooting). If the problem persists or is not covered by the information in this chapter contact your Authorised Servicing Centre immediately.

REQUESTING TECHNICAL ASSISTANCE 8.5

To obtain technical assistance choose one of the following options:
1. contact your Authorised Servicing Centre.
2. telephone the ***Zhermack S.p.A.*** Customer Assistance Service on the number **+39 0425.597.611** and proceed as follows: give personal data (e.g. address and telephone n.), state the information on the equipment ID plate (see paragraph 3.3) and explain the problem clearly.
3. fax all the above information and a properly filled out ID Form (see Appendix 2) to **+39 0425.53.596**.

CHAPTER 9: TROUBLESHOOTING

9.1 WARNING

Should any of the anomalies described below occur try setting the situation right, as far as is permissible, by following the instructions contained in this Manual. Should the problem persist contact your Authorised Servicing Centre.

9.2 ROBLEMS, CAUSES AND REMEDIES

PROBLEM	CAUSE	REMEDY
After switching on the ***VAP 6 - VAP 6A*** via the main switch the LED on the key fails to come on.	**1.** The plug is not inserted in the socket. The power lead is damaged. **2.** Fuse blown.	**1.** Insert the plug in the mains power socket. If the power lead needs replacing always contact an Authorised Service Centre. **2.** Replace the fuse with one of identical specifications (T 10 A). Always contact an Authorised Service Centre.
During start-up of the ***VAP 6*** the indicator light (6) stays on for longer than 5 seconds.	**1.** No water/not enough water in the boiler.	**1.** Add distilled water to the boiler (see section 6.6.1).
The electric pump on the ***VAP 6A*** fails to fill the boiler with water.	**1.** Automatic pump shutdown on account of the overheating caused by high pressure or no water in the boiler.	**1.** Proceed as per point 1 of section 7.2.
Steam generator overpressure warning light comes on.	**1.** Safety pressure switch has tripped because pressure is higher than 6 bar, thus shutting down the machine.	**1.** Proceed as per point 2 of section 7.2. If overpressure warning light comes on repeatedly contact an Authorised Service Centre.
Steam generator safety valve has opened.	**1.** Steam generator malfunction.	**1.** Switch off the machine via the main switch (see note in section 7.2) and contact an Authorised Service Centre.
The pressure in the boiler drops considerably when the gun trigger button is pressed or noise is heard inside the boiler when the element is on.	**1.** Low pressure inside the boiler due to steam condensation.	**1.** Press the gun trigger for a few seconds with the machine on.

APPENDICES

A.1 DECLARATION OF CONFORMITY CE

The Manufacturer:

Zhermack S.p.A.
Via Bovazecchino, 100
45021 Badia Polesine • RO • Italy
Tel. +39 0425 597 611 • Fax +39 0425 53 596

Declares that the equipment described below:

Vap 6 , ***Vap 6A***

Conforms to the legislative dispositions established in the following laws:

· EC Directive 2004/108 EC (EMC Directive) and subsequent amendments.

· EC Directive 2006/95 (Low Voltage Directive) and subsequent amendments.

· EC Directive 1997/23 (Pressurised equipment).

Please note that manufacturer's liability for damages caused by a defective product expires 10 years from the date in which the manufacturer put such product on the market and that such liability is transferred to the user as stated in EC Directive 85/374.

Badia Polesine, 16/01/2007

Tiziano Busin
Managing Director

CE DECLARATION OF CONFORMITY A.2

The Manufacturer:

Zhermack S.p.A.
Via Bovazecchino, 100
45021 Badia Polesine • RO • Italy
Tel. +39 0425 597 611 • Fax +39 0425 53 596

Declares that the equipment described below:

AD 8

for general odontotechny use has been designed and built in compliance with international accident prevention laws (EEC 89/392).

Badia Polesine,

Tiziano Busin
Managing Director

A.3 WARRANTY CERTIFICATE AND IDENTIFICATION FORM

1. This document certifies that the Manufacturer has built the product correctly using only top quality materials, carried out all the necessary tests and that the product complies with EC directives. This product Warranty is valid for 12-months as from date of delivery to the customer. Proof of such date shall be provided by a purchase document or the completed identification form. These documents must be handed over together with the equipment to the Servicing Centre. Persons wishing to make use of warranty coverage must make the fault known within eight days of its discovery as per Italian civil code art. 1495. Warranty cover is limited to replacement or repair of individual components or pieces with manufacturing defects and does not cover costs related to transfer of technical personnel, transport, packing etc. Breakdowns, faults or damages which derive from poor maintenance, incorrect power supply, negligence, inexperience and other causes not imputable to the Manufacturer and parts subject to normal wear are not covered by the Warranty. The Warranty does not cover breakdowns caused by failure to carry out routine maintenance or customer negligence.
This Warranty does not provide for any awards for direct or indirect damages of any kind caused to persons or things by any equipment inefficiency.
2. The Warranty is instantly rendered null and void if the equipment is repaired, modified or tampered with by the purchaser or any unauthorised third parties.
Responsibility for damages caused by defective products expires 10 years after the Manufacturer puts them on the market: after such time damages are the user's responsibility, as stated in EC Directive 85/374.
3. To have work carried out under Warranty the purchaser must only contact the retailer, the Manufacturer-authorised servicing centres, or the Manufacturer.
The Warranty entitles the purchaser to free replacement of defective parts. It does not entitle the purchaser to replacement of the entire equipment.
4. In the event of disputes over application of the Warranty, the quality or condition of the equipment, the purchaser shall not suspend payment or delay payment of the price or price instalment.
5. The purchaser shall not be entitled to damages for any loss of production.
6. The Warranty is rendered null and void if:
- **a.** the equipment is damaged by a fall, exposed to fire, spilt liquids, lightning, natural disaster or any other cause not imputable to the Manufacturer.
- **b.** installation has not been carried out properly.
- **c.** power supply is incorrect (e.g. rated mains voltage incorrect). Erroneous mains connection (rated mains voltage incorrect), or failure to install proper protection devices.
- **d.** the serial number has been removed, cancelled out or altered.

7. Any components to be replaced under the terms of the Warranty shall be sent back to ***Zhermack S.p.A.*** which shall then send the appropriate spare parts. Should the changed part not be replaced it shall be charged to the person who ordered it.
8. The Manufacturer and the Dental Deposit are not required to provide replacement equipments while repairs are carried out.
9. Spare parts shall, for tax purposes, only be provided under warranty where the relevant limitations set out in the terms and conditions of the warranty are observed.
10. For any other eventuality not provided for by this Warranty Certificate and the regulations consult the Italian Civil Code.
11. Labour, travel and call-out invoices must be paid for on their receipt.
12. The manufacturer and the dealer shall comply with all data processing laws, including proper observance of data security standards in compliance with the specifications given in the data processing information sheet.

IDENTIFICATION FORM

EQUIPMENT MODEL:	**EQUIPMENT SERIAL NUMBER:**
.....	.....
PURCHASER:	**ADDRESS:**
.....	.....
TOWN / POSTCODE:	**TEL:**
.....	.....
TAX CODE / VAT NUMBER RETAILER:	**RETAILER:**
.....	.....
	PURCHASER'S SIGNATURE:
	.....

MAINTENANCE AND REPAIR WORKSHEET A.4

DATE	DESCRIPTION OF WORK	SIGNATURE

A.5 WATER SOFTENER REGENERATION CHART

DATE	DESCRIPTION OF WORK	SIGNATURE

AUTHORIZED SERVICE PARTNERS A.6

Please visit the page:

http://www.zhermack.com/Technical/Equipment/Authorized_service_partners.kl

to check all the updated telephone numbers and addresses of the Authorized service partners.

NOTES A.7

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