

TECNOVAP

L'ARTE DEL VAPORE

User instruction

- **HYDROBOX**



This manual is available in digital format, by submitting a specific request to the following address: info@tecnovap.com

visit our website

WWW.TECNOVAP.IT



Understanding the symbols on the appliance

BEFORE USING THIS APPLIANCE, READ AND COMPLY WITH THESE USER INSTRUCTIONS.

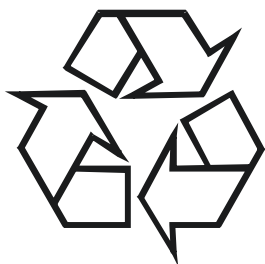
KEEP THESE INSTRUCTIONS FOR FURTHER CONSULTATION AS NEEDED AND PROVIDE THEM TOGETHER WITH THE APPLIANCE TO THE SUBSEQUENT OWNER.

BEFORE USING THE APPLIANCE FOR THE FIRST TIME, YOU ABSOLUTELY HAVE TO READ THE SAFETY REGULATIONS GIVEN IN THIS MANUAL.

ANY DAMAGE CAUSED DURING TRANSPORTATION HAS TO BE PROMPTLY NOTIFIED TO YOUR RETAILER.

	<p>WARNING!</p>
	<p>READ THE OPERATOR'S MANUAL</p>
	<p>WARNING!! DO NOT DIRECT THE STEAM JET TOWARDS PEOPLE, ANIMALS, ELECTRICAL OUTLETS AND APPLIANCES.</p>
	<p>DANGER OF SCALDING! OBLIGATION TO WEAR PROTECTIVE GLOVES.</p>

Environmental protection



ALL PACKAGINGS ARE RECYCLABLE.

THE PACKAGING MUST NOT BE DISPOSED OF IN THE HOUSEHOLD WASTE AND HAS TO BE DELIVERED TO AN AUTHORISED COLLECTION CENTRE.



DISMISSED APPLIANCES CONTAIN PRECIOUS RECYCLABLE MATERIALS AND SHOULD THEREFORE BE DELIVERED TO A COLLECTION CENTRE. ELECTRICAL AND ELECTRONIC APPLIANCES, BATTERIES, OIL AND SIMILAR SUBSTANCES MUST NOT BE RELEASED TO THE ENVIRONMENT. PLEASE DISPOSE OF THESE USING APPROPRIATE SEPARATED WASTE COLLECTION SYSTEMS.

SUBSTANCES SUCH AS ENGINE OIL, DIESEL, PETROL OR OTHER FUELS MUST NOT BE RELEASED TO THE ENVIRONMENT. PROTECT THE SOIL BY DISPOSING USED OIL IN COMPLIANCE WITH ENVIRONMENTAL LAWS.

THE USER MAY RETURN THE APPLIANCE FOR DISPOSAL TO THE RETAILER WHEN PURCHASING A NEW EQUIVALENT APPLIANCE; ON A ONE-TO-ONE BASIS.

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1. RISK PREVENTION

1.1 SAFETY COMPONENTS

SAFETY VALVE This appliance is equipped with two safety valves, able to ensure the safety of the appliance itself in case other primary control devices are inefficient (due to a failure). Due to the extreme importance of these components and as not to compromise the safety of the appliance, it is recommended to provide to check them and to substitute them through an authorized service center every 2 years starting from the purchasing date.

THERMAL FUSES The unit is equipped with thermal fuses able to control the overtemperature. In case the main control system becomes inefficient, they would intervene permanently by deactivating the boiler heating. If this occurs, disconnect the power plug and contact a service center.

1.2 MEASURES TO BE FOLLOWED

- It is recommended not to open or remove any appliance part for any reason; in case the unit should present an abnormal functioning or a failure, disconnect the power plug and contact an authorized service center or the dealer where the product has been purchased.
- The electric supply connection shall be made by a qualified electrician and comply with IEC 60364-1.
- If the power cable is damaged, it has to be replaced by the manufacturer or by an authorized technical service or by a qualified person in order to prevent any risk.
- It is recommended that the electric supply to this appliance should include either a residual current device that will interrupt the supply if the leakage current to earth exceeds 30ma for 30ms or a device which will prove the earth circuit.
- Risk of explosion. Do not spray flammable liquids.

- Do not use the appliance within the range of persons.
- The high-pressure jets can be dangerous if not used properly. The jet does not have to be directed against persons, electrical devices under tension or the unit itself.
- The employer shall perform a risk assessment in order to specify the necessary protective measures regarding aerosols, depending on the surface to be cleaned and its environment. Respiratory masks of class FFP2, an equivalent or higher are suitable for the protection against hydrous aerosols.
- Do not direct the jet against yourself or others in order to clean clothes or footwear.
- Disconnect the power supply by unplugging the plug from the electric socket before proceeding with the maintenance effected by the user.
- This appliance is not intended to be used by persons (including children) with a reduced physical, mental or sensorial ability or with insufficient experience and /or competence, unless they are not supervised by a person responsible for their safety and they are not instructed by that person on how to use the appliance.
- Monitor the children so they cannot play with the appliance.
- To ensure the appliance's safety, use only original spare parts from the manufacturer or spare parts approved by the manufacturer.
- Pressure hoses, fitting and couplings are important for the safety of the appliance. Use only hoses, fitting and couplings recommended by the manufacturer.
- Do not use the appliance if the power cord or other important parts of the appliance are damaged, i.e. safety devices, pressure hoses and trigger gun.
- If an extension cord is used, the plug and socket must be of a watertight construction.
- Inadequate extension cords can be dangerous.
- The hand-arm vibration data, referred to this appliance, are not mentioned as they are below 2.5 m/s².
- Use a set of new connectors, pipes and seals every time the appliance is connected to the water mains.
- Wear gloves when using the appliance.
- In case, when the unit is connected to the water mains, the used water has a hardness of over 10 French degrees, it is recommended to use a special water softener; these devices can reduce the calcium carbonate content in the water to below 4 French degrees significantly improving the reliability of the generator (for further details, please do contact your supplier).

2. PREFACE

Dear Customer,

Congratulations for choosing this appliance.

With the aim of continuously improving and updating its range and offering increasingly innovative models, TECNOVAP has developed, designed and constructed **HYDROBOX**, a model for cleaning with high pressure cold or superheated water.

This product is equipped with a reliable stainless-steel boiler combined with a high-pressure module able to produce a constant, powerful supply of water under pressure.

HYDROBOX is the ideal solution when it comes to cleaning: according to his needs, the user can choose between cold or hot water (it is possible to set the temperature up to 90°C) and adjust the pressure (a special regulation valve makes it possible to set the pressure up to 150 bar).

3. TECHNICAL FEATURES

FACTORY: TECNOVAP SRL VIA DEI SASSI 1A 37026 PESCONTINA VERONA ITALY

Model		2 l / min	4 l / min
Code		H400200V1	H400400V1
Rated voltage	V	400 3~	
Current type	Hz	50/60	
Rated power boiler	kW	9,0	14,4
Power pump module	kW	1.5	
Max rated power	kW	10,5	15,9
Rated water pressure	kPa	15'000	
	bar	150	
Max. water rated flow	l/m	2	4
Max temperature	°C	90°	
Max. inlet water pressure	KPa	800	
	bar	8	
Kickback forces	N	< 20	
Vibration hand-arm	m/s ²	< 2,5	
Sound pressure level L _{Pa}	dB	< 70	
Mass	kg	55	

4. NOMENCLATURE

- 01) Manoeuvring handle
- 02) Fixing screw
- 03) High-pressure outlet for hose connection
- 04) Water mains connection
- 05) Power cord
- 06) Main switch
- 07) Control panel
- 08) Pump pressure regulating valve
- 09) Boiler drainage cap
- 10) Boiler drainage key (incl. in machine's delivery kit)

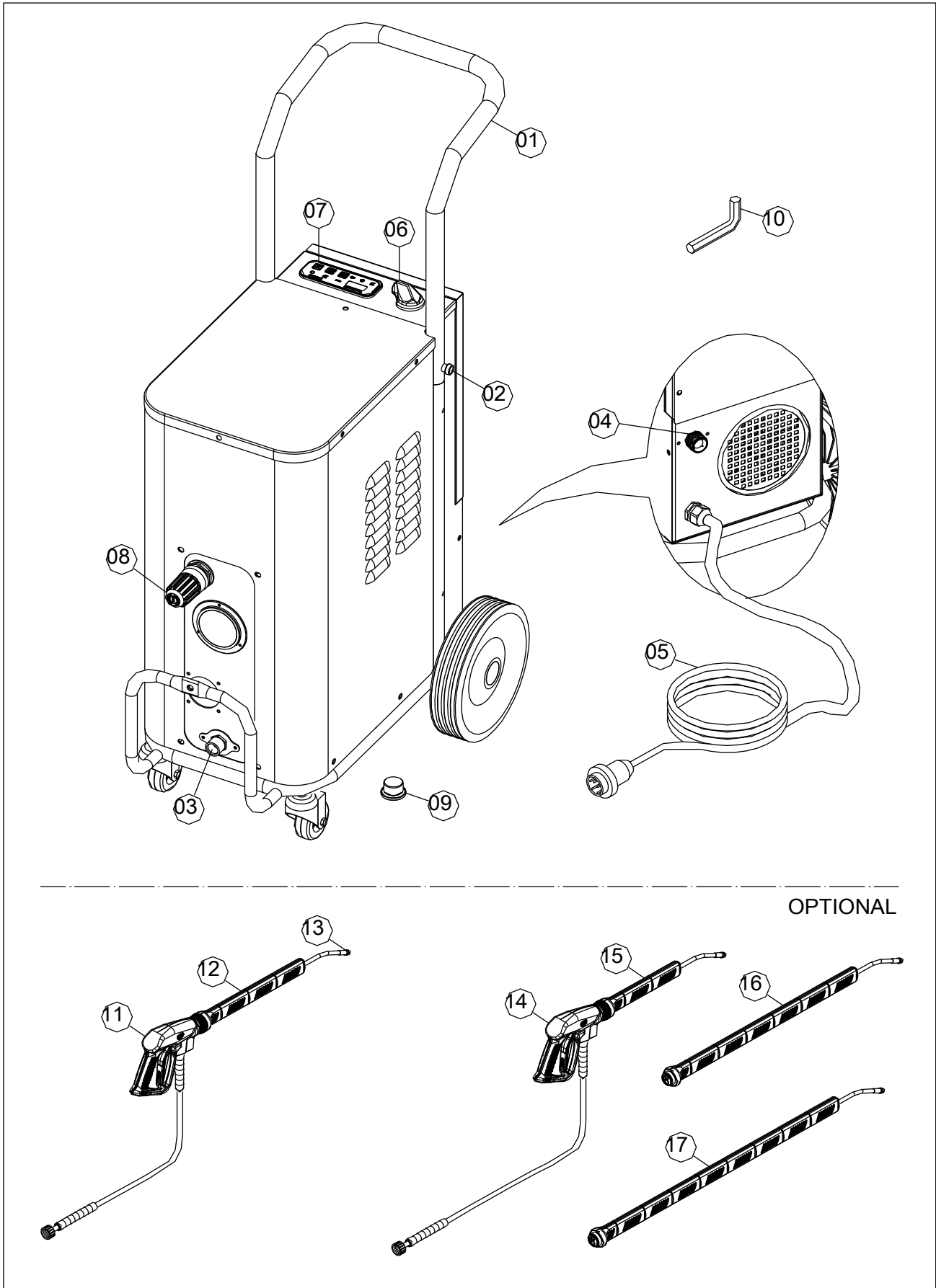
Standard kit

- 11) 10m high-pressure water hose
- 12) 900mm lance with nozzle holder
- 13) 2-4 l / min water nozzle

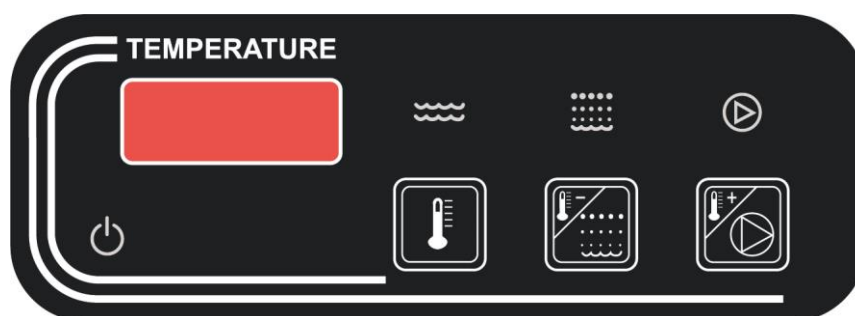
Optional

- 14) 15m high-pressure water hose
- 15) 500mm lance with nozzle holder
- 16) 700mm lance with nozzle holder
- 17) 1200mm lance with nozzle holder

5. TECHNICAL DRAWINGS



CONTROL PANEL FUNCTIONS



Pump stand-by mode indicator



Indicates the high-pressure pump condition.

A steady light indicates the pump working; a blinking light indicates the pump in stand-by mode (the pump automatically enters the stand-by mode after approx. 40 seconds of inactivity).



Temperature switch

Activates/deactivates the possibility of adjusting the temperature of water in the boiler.

When the appliance is in stand-by mode (OFF on display), this switch allows the interaction with contactors.



“Low water” indicator

Indicates the lack of water in the boiler.

The blinking light indication is accompanied by an intermittent buzzer.



Boiler switch / Temperature decrease switch

Starts/stops the heating elements in the boiler (such switch can be activated only if the high-pressure pump is ON).

If the temperature switch is activated, this switch allows to decrease the temperature of water in the boiler.



“Boiler ON” Indicator

Indicates that the heating elements in the boiler are ON.

The blinking light indicates that the power supply of heating element has been temporary interrupted because of low water in the boiler.



High-pressure pump switch / Temperature increase switch

Activates/deactivates the high-pressure pump.

If the temperature switch is activated, this switch allows to increase the temperature of water in the boiler.



“High-pressure pump ON” indicator

Indicates that the high-pressure pump is ON.

6. USING INSTRUCTIONS

After opening the packaging, insert the manoeuvring handle (01) in the relative seat and secure it in place with the fixing screw (02).

Connect the appliance to the water mains (04) as indicated below.

Insert the power cord (05) in a power socket, making sure that the voltage and the amperage correspond to the values provided on the machine data plate.

Screw the fixing ring by hand with due force so to make sure that the lance to be used is properly connected to the high-pressure water hose.

At this point connect the hose to the high-pressure outlet on the appliance (03) and activate the main switch (06) in order to switch the unit ON.

Warning!!

Operating the lever on the hand grip will cause the release of superheated high-pressure water which can reach 90°C, be very careful that this lever is not activated inadvertently and that the water jet, either hot or cold, is never directed towards persons or animals.


Connection to the water mains: the connection of the appliance to the water mains has to be carried out by qualified staff. Use a set of new pipes and couplings suitable for food use, do not reuse this set (couplings, pipes, seals, adapters, etc.) for a new connection.

As the appliance is mobile, it is not supplied with a water connection pipe due to the variable position and distance of the appliance from the most suitable water connection point.

Maintenance notice C A L C: the appliance is equipped with a maintenance notice system, which will signal “C A L C” on the display alternatively to the temperature. It communicates to the user the need to proceed with the boiler drainage. For information about how to proceed with the boiler drainage see the chapter 7 (MAINTENANCE).

Power-save mode

The power-save mode permits to reduce the unit's consumption, therefore the appliance automatically turns OFF after 1 hour of inactivity.

For activating or deactivating such mode it is enough to switch the unit ON with the main switch (6), press and hold for 5 seconds the “pump switch” ; the display will show alternately T-ON in case of activation or T-OFF in case of deactivation (this procedure can also be carried out during the normal functioning of the unit).

7. MAINTENANCE

7.1. DISCHARGE OF SLUDGE AND SCALE DEPOSITS FROM THE BOILER

The appliance is equipped with a maintenance warning system which will signal “C A L C” on the display alternatively to the temperature. It communicates to the user the need to proceed with the boiler drainage. Once “C A L C” appears on the display it is still possible to finish the cleaning procedure (the system is programmed to signal it every 100 hours of effective work).

ATTENTION: THE BOILER CLEANING MUST BE CARRIED OUT WHEN THE APPLIANCE HAS COOLED DOWN, WAITING AT LEAST 5 HOURS FROM THE USAGE OF THE UNIT IN CASE HOT WATER HAS BEEN USED. THE APPLIANCE MUST BE DISCONNECTED FROM THE ELECTRICAL POWER SUPPLY BEFORE CARRYING OUT THE MAINTENANCE AND FOR ALL THE DURATION OF THE MAINTENANCE PHASE.



It is recommended to follow the procedure indicated above as to make sure that no hot water is left inside the appliance.

Place an adequate recipient under the appliance to collect the water drained from the boiler, use the supplied special key in order to remove the boiler drain cap (09) and then wait until the boiler is completely emptied.

Clean eventual incrustations from the cap (09), check that the seal on the bottom of the cap is in good condition and replace it if necessary (contact your supplier for spare parts).

Properly close the boiler’s drain cap and carefully check that it is correctly screwed.

Connect again the plug (05) into the electric socket and switch the unit ON with the main switch (06) to normally use the unit again.



To reset the “C A L C” signal on the display, turn the unit ON with the main switch (06), then press the “boiler switch”  and the “pump switch”  .

Once activated, press and hold the “boiler switch”  , pressing at the same time the “pump switch”




The display will indicate “CLR”. The maintenance of the boiler is finished.

7.2. HOUR COUNTERS

The appliance is equipped with two hour-counters: total (not resettable) and partial (resettable by the user). To visualize the hour counters, switch the appliance ON with the main switch (06), "OFF" indication will appear on the display. Act on the "temperature switch"  to visualize the total hour counter, "C1" indication will appear on the display followed by the total hour counter. Press again the "temperature switch"  in order to visualize the partial hour counter; "C2" indication will appear on the display followed by the partial hour counter.

7.3. RESET OF "C2" PARTIAL HOUR COUNTER

To reset the partial hour counter, switch the appliance ON with the main switch (06); "OFF" indication will appear on the display. Press and hold the "temperature switch"  until the display will show "CLR". The hour counter is reset.

7.4. MAINTENANCE OF WATER FILTER

Gently remove the water filter located inside the coupling for the water mains connection (04), taking care not to damage it. Once extracted, clean it and put the filter back into place, making sure to place it in its seat in the correct direction. Repeat this operation periodically as to keep the unit efficient.

7.5. HIGH PRESSURE GROUP MAINTENANCE

Maintenance always has to be undertaken by specialized and authorized staff.

The oil change of the pump, the valve group and the pumping seals has to be carried out according to the scheduled maintenance described in the table below.

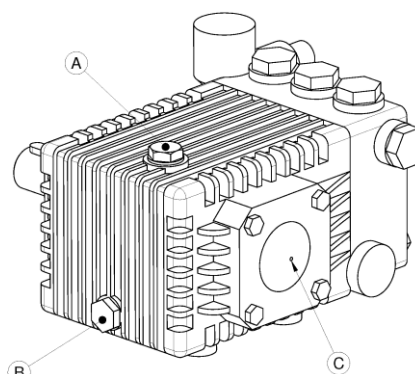
After the first 50 hours	Every 500 hours	Every 1000 hours (average interval, to be reduced with heavy-duty uses)
Oil change	Oil change	Check/Replace: valve group, pumping seals

After achieving the first 50 working hours, when switching the pump ON, the wording “P U M P” will appear on the display to indicate the need of the first oil change. Subsequently this warning will appear every 500 working hours, as indicated in the table.

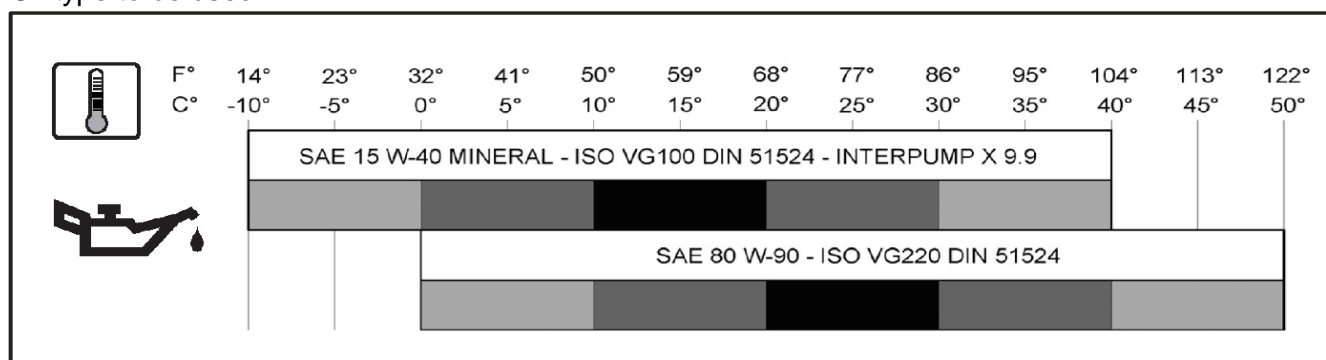
Observe the replacement of the valve groups etc. as described, according to the working hours of the pump visualised on the display.

Oil change



- Place a basin underneath the cap (B);
- Remove the oil drainage cap (B);
- Unscrew the cap with graduated shaft (A);
- Let the oil drain into the basin;
- Screw back the cap (B);
- Insert new oil through the cap (A) according to the table below;
- Observe the graduated shaft and the reference (C) on the window for the correct oil level.



Oil type to be used



Cancellation of the maintenance warning “P U M P”

After having done the oil change with the unit OFF press and hold the pump switch , then switch the appliance ON with the main switch (06). Keep pressing the pump switch  until the indication “CLR” appears on the display.

8. BEFORE CONTACTING THE SERVICE CENTER

PROBLEM	POSSIBLE CAUSE	REMEDY
Lacking of high pressure.	The high-pressure pump is not powered.	Check if the "pump switch" is activated.
The pump is making no noise when activated.	The pump is not primed and is dry-running. There is no water supply. The flow line is blocked and does not allow the air outlet from inside the pump.	Check the connection to the mains. Check the water mains connection (04) and the water tap. Turn the regulator (08) anticlockwise on the high-pressure lance.
The pump does not reach the due flow capacity (see machine data plate) and is excessively noisy.	Cavitation due to: supply lines and/or filter, insufficient flow, high temperature of the water, blocked filter.	The incoming water should not have a temperature exceeding 25 °C.
The pressure delivered by the pump is insufficient.	The water use is oversized compared to the due one or the nozzle is worn out.	Replace the nozzle on the lance, with an adequate one. (see flow/pressure on the technical label).
The pump is overheating.	The oil level inside the carter pump is insufficient or the oil type is not suiting to the recommended oil types.	Add or replace oil.
Water is leaking at the junction point of the various accessories.	Check the deterioration of the O-rings.	Clean and lubricate the O-rings. If necessary, replace the O-rings with the supplied spares.
Visualisation of "A L L 2".	Exceedance of temperature threshold, missing boiler drainage, pressurized boiler after discharge of the sludge.	Insert the drainage cap, bleed out the air from the boiler by activating the water release lever on the supplied hand grip.
Noise inside the generator.	After cooling down (6-7 hours) an internal depression is created inside the boiler, which causes vibrations when switching on again.	Wait for the pressure to be stabilized inside the boiler (about 2-3 minutes), the noise disappears.
The accessories do not fit perfectly.	Dirt has deposited on the O-rings and the couplings.	Clean and lubricate the joints of the accessories.

9. DECLARATION OF CONFORMITY



DICHIARAZIONE DI CONFORMITA' (EC DECLARATION OF CONFORMITY)



TECNOVAP S.R.L. Via dei Sassi, 1A 37026 Pescantina Verona Italy

con la presente dichiara che:

la macchina per pulizia a vapore modello:

(Certifies that the steam cleaning machine model:)

Hydrobox

Consultare l'etichetta tecnica posta sull'apparecchio relativamente al codice prodotto e numero di serie.

Refer to the technical label on the device/unit/steam generator for the product code and serial number.

Risulta conforme alle specifiche delle direttive

(conforms to the specifications of directives)

2014/35/UE 2014/30/UE 2011/65/UE 2006/42/UE 2014/68/UE

Per il controllo della conformità alle sopraindicate direttive, sono stati seguiti i seguenti standard:

(For the checking of conformity to the above directives, the following standards have been used):

Riferimento alle norme armonizzate:

(Reference to harmonized standards):

EN 60335-1

EN 60335-2-79

EN 55014-1

EN 55014-2

EN 61000-3-2

EN 61000-3-3

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PESCANTINA – VERONA (ITALY) 24-01-2023


Franchini Giuseppe
(Managing Director)

Routine Maintenance

Working hours of the generator	Frequency of intervention	Notes

Non-Routine Maintenance

Working hours of the generator	Date of intervention	Description of intervention, replaced components etc.

NOTES



THE MANUFACTURER RESERVES THE RIGHT OF TECHNICAL AND STRUCTURAL MODIFICATIONS
AS WELL AS IMPROVEMENTS WITHOUT PRIOR NOTICE.

Tecnovap S.r.l. – Via dei Sassi 1/a 37026 Pescantina, Verona – Italy +390456767252 – info@tecnovap.com – www.tecnovap.it