MVP

UK & IRELAND

MANUAL USE AND MAINTENANCE

SOLVENT RECLAIMING UNITS

SMART SERIES K16/K30/K60

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Solvent Recovery Technologies

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SOLVENT RECLAIMING UNITS

SMART SERIES K16 - K30 - K60

Summary

1.0 Symbology

	Prohibition of smoking and the use of open flames in the vicinity of the solvent reclaiming unit.		Wear eye protection
	Prohibition of using water to extinguish fires.		Wearing the mask
	Hot surface hazard		Wear hearing protection
	Electricity hazard		Wear protective gloves
	Danger of crushing caused by moving parts.		Wear antistatic footwear

2.0 Introduction

The solvent reclaiming unit must always be used and maintained only in accordance with the instructions in this booklet and the protective and precautionary measures provided for the use of solvents and related pollutants. If solvents and their pollutants are accompanied by technical notes and/or safety features for their use indicated by the supplier, they must be strictly adhered to.

3.0 Intended use

The solvent reclaiming unit is used to recover polluted solvents that can be reused through the distillation process. The distillation operation can be repeated several times.
The solvent reclaiming unit is built in compliance with the ATEX Directive 2014/34/EU.
Group II (surface industries), category 2G (zone 1 with the presence of gases).
Any use of the solvent reclaiming unit other than that described in this booklet is to be considered improper and unreasonable.
It is the user's responsibility to verify that the solvents to be recovered, as well as the related pollutants, are compatible with the materials making up the solvent reclaiming unit, for which reference is made to paragraph 4.0 below "Description of the composition of the main components".
The manufacturer cannot be held responsible for improper, erroneous and unreasonable use.

	**Distillation should only be carried out if the composition of the solvent and its pollutant to be treated is perfectly known. Otherwise, do not carry out distillation and contact CIEMME S.r.l. or the nearest authorized dealer.**

4.0 Company name and manufacturer's details

CIEMME S.r.l.
Via Salvador Allende 102 - 41122 Modena (MO), Italy
Tel.: +39 059 315101
E-mail: ciemme@ciemme.it
P.I. and C.F. 01640130363

5.0 Distiller Declaration of Conformity (facsimile)

CIEMME Solvent Recovery Technologies

EC DECLARATION OF CONFORMITY

MANUFACTURER
Name: CIEMME S.r.l.
Address: Via S. Allende 102 - 41122 Modena (MO) - Italy

This declaration of conformity is issued under the sole responsibility of the manufacturer

PRODUCT: Solvent solvent reclaiming unit model ...
SERIAL NUMBER: ...

SUBJECT OF THE DECLARATION:
The subject matter of the declaration is in accordance with Union harmonisation legislation:

- **2006/42/EC (Machinery Directive)**
- **2014/30/EU (EMC - Electromagnetic Compatibility)**
- **2014/34/EU (Atex)**

CE Ex II 2 G Ex h IIB T3 Gb	Dep. F.T. TÜV IT 18 ATEX 054 AR

The following harmonized standards have been applied to ensure compliance:

- **UNI EN 1127-1: 2019** Explosive atmospheres. Explosion prevention and explosion protection. Fundamental concepts and methodology.
- **EN 80079-36:2016 Non-electrical** equipment for potentially explosive atmospheres. Basic methods and requirements.
- **EN 80079-37:2016 Non-electrical** equipment for potentially explosive atmospheres. Constructive safety protection "c"
  Non-electrical equipment intended for use in potentially explosive atmospheres - Part 6: Protection by ignition source control 'b'

The person authorized to prepare the technical file is Mr. Emanuele Galaverni, at Ciemme S.r.l. Via S. Allende 102 - 41122 Modena (MO) - Italy

Signed in the name and on behalf of:

CIEMME Solvent Recovery Technologies

Modena, there ...

Emanuele Galaverni
CEO

5.1 Declaration of conformity for explosion-proof enclosure (facsimile)

CIEMME Solvent Recovery Technologies

EC DECLARATION OF CONFORMITY

MANUFACTURER
Name: CIEMME S.r.l.
Address: Via S. Allende 102 - 41122 Modena (MO) - Italy

This declaration of conformity is issued under the sole responsibility of the manufacturer

PRODUCT: Explosion-proof enclosure
SERIAL NUMBER: C...

SUBJECT OF THE DECLARATION:
The subject matter of the declaration is in accordance with Union harmonisation legislation:

- **2014/34/EU (Atex)**

CE 0948 Ex II 2 G Ex db IIB T4 Gb	MTIC 0068-ATEX-0029
QAN EN ISO/IEC 80079-34:2020	TÜV IT 19 ATEX 029 Q

The following harmonized standards have been applied to ensure compliance:

- **EN IEC 60079-0:2018** Equipment – General requirements.
- **EN 60079-1:2014** Equipment protection by explosion-proof enclosure "d".

The person authorized to create the technical file is Mr. Emanuele Galaverni, at Ciemme S.r.l. Via S. Allende 102 - 41122 Modena (MO) - Italy

Signed in the name and on behalf of:

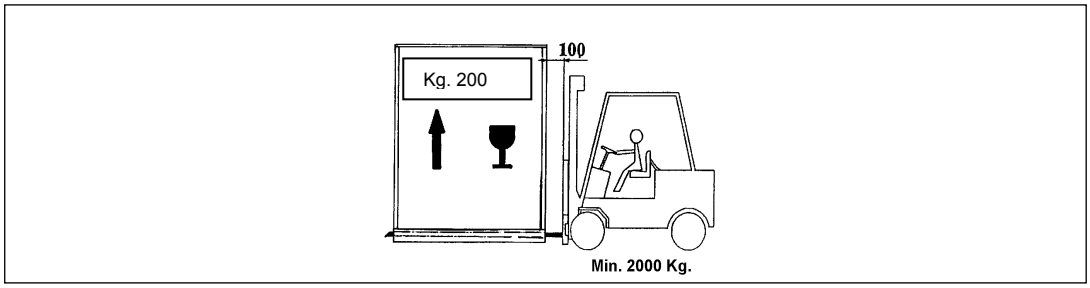
CIEMME Solvent Recovery Technologies

Modena, there ...

Emanuele Galaverni
CEO

6.0 Transport and handling

The machine is packed after fixing it on wooden pallets. The handling of the crate must take place using a pallet truck or fork-lift, forking into the appropriate spaces.



7.0 Unpacking

To unpack the solvent reclaiming unit, disassemble the crate as follows:

- detach the base of the case from the side walls of the pallet,
- slide the side walls of the crate upwards,
- Unscrew the screws that secure the solvent reclaiming unit to the pallet.

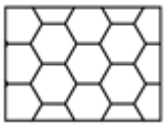
The machine is therefore presented in its final configuration and does not require further preparatory treatment.

8.0 Installation

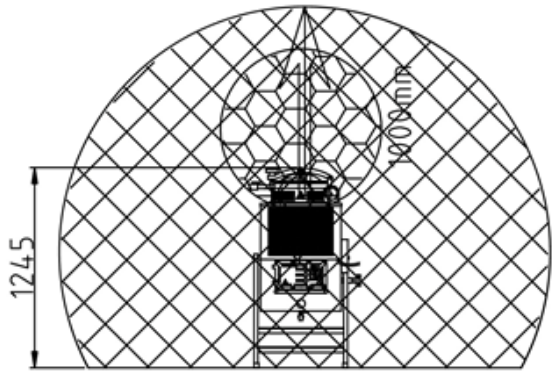
The solvent reclaiming unit must be installed in an open place or in any case in a well-ventilated and well-lit room. The ventilation of the environment can be natural or forced; The presence of an extraction system is not necessary, although it is recommended.
Each side of the machine must be at least 50 cm apart. from the wall to allow proper ventilation and effective cooling.
Place the machine on a flat, uneven floor, of sufficient strength for the declared weight of the machine and its maximum load, possibly tiled or cemented.
The machine can be anchored to the ground through the application of specially prepared fixing plugs. For this function, use the holes at the foot of the machine.
The dowels must be of the metal expansion type with a metric screw with a diameter of 6 mm.
It is forbidden to place the solvent reclaiming unit on wooden pallets or on non-conductive floors (rubber, etc.).
Floors must be conductive up to at least one and a half meters away from the distiller.
The electrical installation of the installation room must be installed in accordance with the applicable local solvent treatment laws.
Check that the distiller's electrical circuits have not been damaged during transport, that the mains frequency and voltage correspond to those indicated on the system nameplate. Check the tightness of the terminals of the grounding connections.

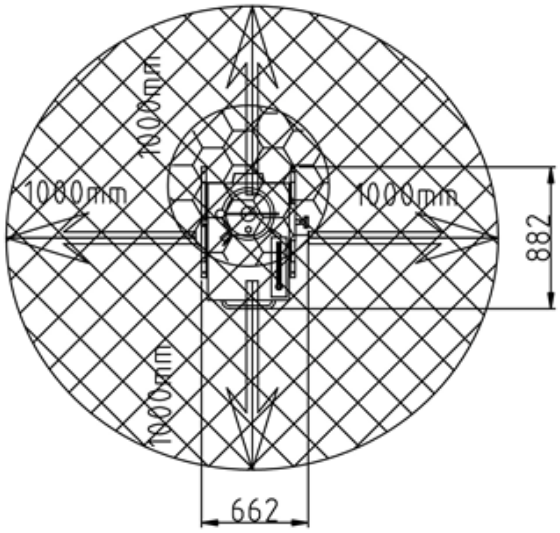
9.0 Classification of Atex zones

Depending on the product treated, the distiller can create areas classified according to the Atex directive.
They are represented graphically below.


Zone 1


Zone 2





CLASSIFICAZIONE DELLE ZONE DI INSTALLAZIONE PER IMPIANTI DI RECUPERO SOLVENTE (DIRETTIVA IEC 60079-10) ZONA 1 E ZONA 2

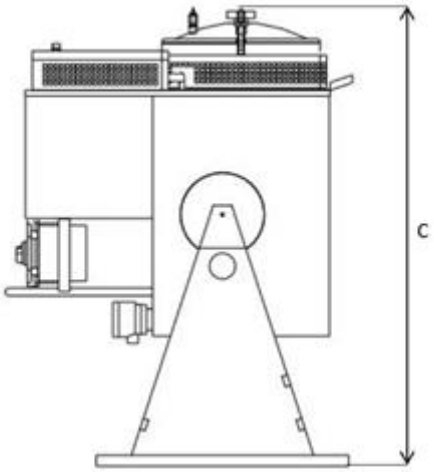
HAZARDOUS CLASSIFICATION AREAS FOR SOLVENT DISTILLER MACHINE INSTALLATION (DIRETTIVA IEC 60079-10) ZONE 1 AND ZONE 2

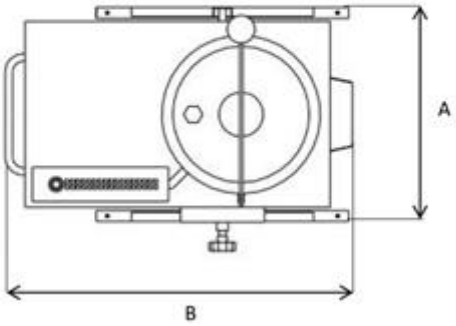
IN PROSSIMITA' DELL'IMPIANTO DI RECUPERO SOLVENTE NON INTRODURRE ATTREZZATURE O MATERIALI NON IDONEI E NON PROVOCARE SCINTILLE

INSIDE THE AZARDOUS AREAS NOT PLACE NOT SUITABLE MATERIALS / DEVICES AND AVOID ANY ACTIVITIES THAT CAN CREATE DANGEROUS SITUATIONS

10.0 Technical data

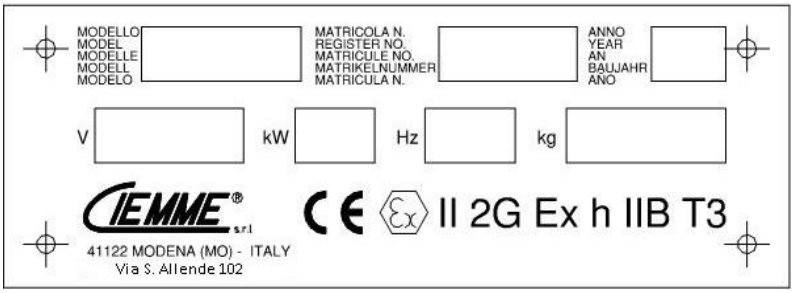
MODEL	K16TUV	K30EX	K60EX
Supply voltage		230 Volt / 1 / 50 Hz	
Auxiliary Voltage (Vdc)		24	
Heating power (Kw)	1,6	2,5	3,2
Condensing fan motor (watts)		15	
Maximum installed power (Kw)	1,615	2,515	3,215
Maximum Absorption (A)	8	12	15
Tank volume	24 liters	49 Liters	87 liters
Load capacity	18 liters	37 Liters	67 liters
Diathermic fluid capacity (litres)	13,5	15,5	23,5
Operating temperature (°C)		50÷190	
Daily productivity (lt/24h)			
Average – peak productivity (lt/h)			
Connection cable		3G2.5	
Compressed air connection		5/6 bar – 10mm tube	
Compressed Air Consumption Vacu (Nlt/min)		120	
Width (mm)	650	670	670
Depth (mm)	830	840	940
Height (mm)	1210	1260	1270
Weight (kg)	95	111	133
Noise (db)	65.	65	65
Ideal ambient temperature (°C)		5÷30 am	





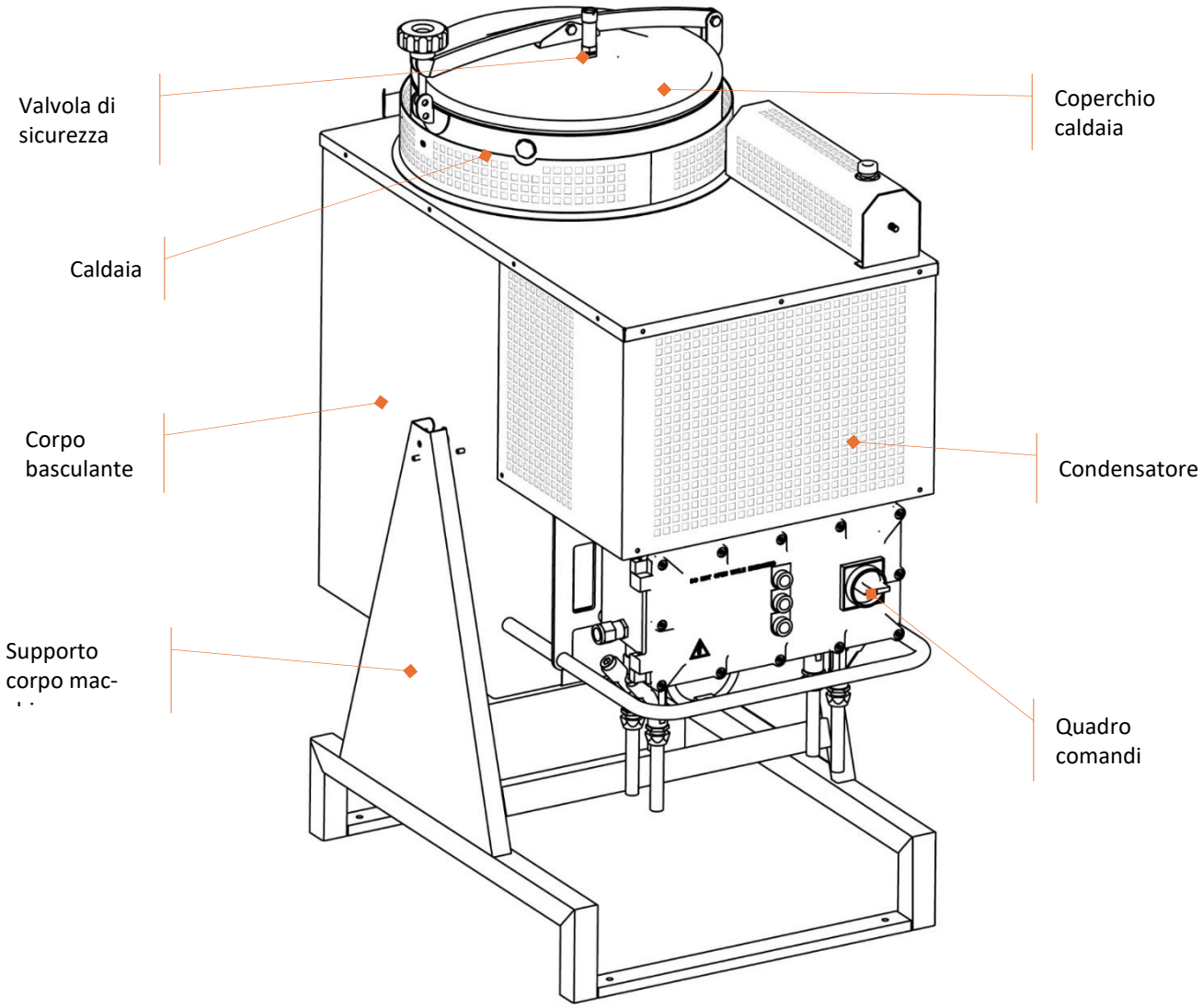
CIEMME S.r.l. reserves the right to make any improvements it deems appropriate to its machines, without altering the safety standard achieved.

10.1 License plate data



EC	CE marking
	Hazardous area equipment
II	Group II (Surface Industry)
2	Equipment suitable for installation in zones 1 and 2;
G	Explosive atmosphere due to the presence of gases, vapours, mists;
Ex h	Explosion protection mode EN 60079-1 Level 1;
IIB	Gas Group
T3	Temperature class
GB	Category 2 gas

11.0 Description of the distiller



11.1 Boiler

The boiler of the *Smart Series* consists of a double stainless-steel cavity with a manhole cover equipped with an EPDM gasket and a safety vent valve, calibrated at 0.3 bar. For those applications where chemically aggressive solvents are present, it is possible to install the gasket in Teflon. The tank design ensures constant and uniform heating, with maximum efficiency in heat exchange. The synthetic diathermic oil avoids the formation of carbon residues on the heating resistances which are designed to have an optimal W/cm2 ratio which allows to extend the life of the oil.

The outer body of the boiling chamber is insulated to prevent the loss of valuable energy. It is possible to tilt the machine body up to 100° to discharge those solid or semi-solid residues and at the same time allow easy access for maintenance and/or cleaning of the inside of the boiling chamber. The tilting system of the machine body is equipped with a shock absorber with safety lock.

11.2 Spent solvent load

The loading of the spent solvent is carried out manually, from above, directly inside the boiling chamber. Alternatively, you can equip the system with a load kit. The kit allows the solvent to be treated to be transferred from an external container inside the boiling chamber, by means of an Atex certified pneumatic pump managed manually by the operator.

11.3 Vapor hose

A stainless-steel tube conveys solvent vapours from the boiling chamber to the condenser. The vapour tube has an optimised diameter to ensure the greatest possible vapour flow, optimising the productivity of the machine.

The vapor tube has a specific design to avoid the entrainment of any foams or volatile particles that may be generated during distillation.

11.4 Capacitor

The Smart Series *condenser* is one of the most important components of the distillation process, and features an increased exchange surface area thanks to our unique proprietary design. A fan motor allows you to ensure the condensation of vapours up to high ambient temperatures. The blades of the ventilation system are built with a specific material to avoid the accumulation of static electricity and are non-sparking to comply with ATEX regulations.
In the standard configuration, the capacitor is supplied in copper.

For applications where chemically aggressive solvents are present, the stainless-steel version can be installed.
Alternatively, for particulate ambient temperatures or low-boiling products, it is possible to install a water-based post-condenser, in addition to the air-cooled one, which needs to be powered by a centralized system or by an external refrigeration unit.

11.5 Residue discharge

In the standard configuration of the *Smart Series*, once the distillation cycle is finished, the residue is discharged through the boiler tilt and usually collected in a metal drum of appropriate size.

It is recommended to apply a distillation bag to the boiling chamber.

The distillation bag, which is placed manually before loading the dirty solvent, allows:

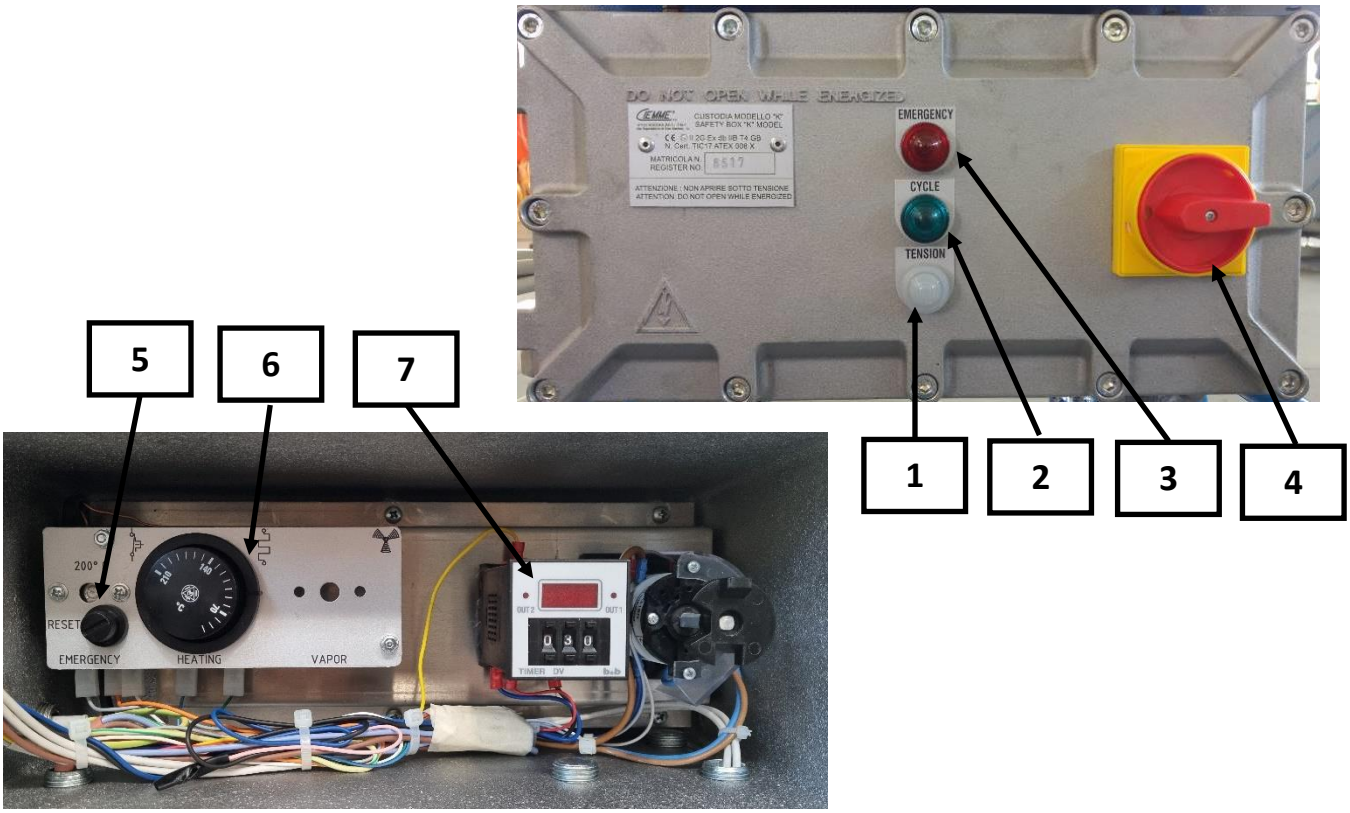
- easy removal of residues at the end of distillation
- to keep the boiling chamber clean and ensure the best heat exchange
- increase cycle efficiency by distilling more solvent to have a solid and semi-solid residue

The distiller is equipped with a specific stainless steel spring, which allows the bag to be fixed and kept in position on the walls of the distillation chamber, throughout the cycle.

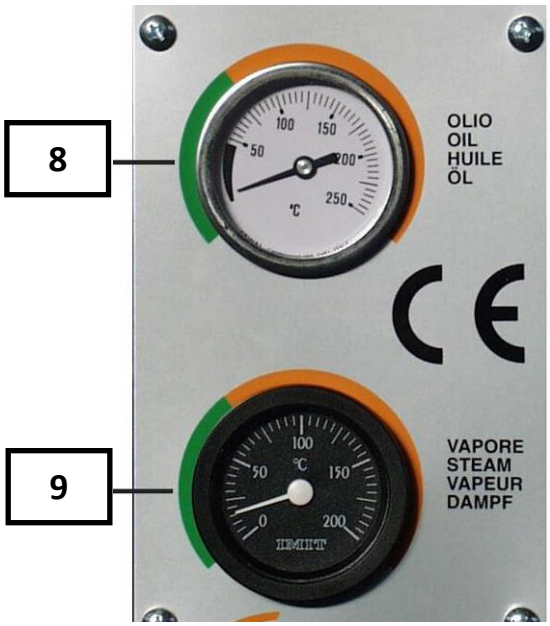
11.6 Control panel and cycle management

The distillation parameters, safety devices and alarms are managed by an integrated logic that allows easy configuration and setting. The temperature is managed by a thermocouple to have maximum precision in setting the process temperature.
The distillation cycle is managed: by time. This makes it possible to optimize the cycle parameters so that any type of solvent mixture can be distilled.
Basically, the distillation cycle is configured to perform a distillation in single batches.
With this configuration, the loading of the spent solvent and the discharge of the residue are managed manually; the stop of the distillation cycle is automatically managed and the collection of the distilled solvent is managed by gravity.

11.6.1 Commands



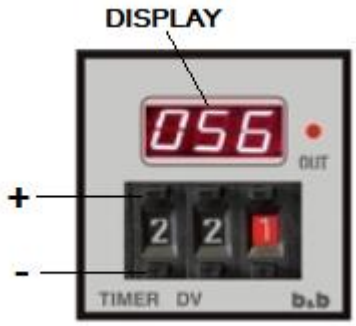
1 Voltage indicator light
2 Distillation operation indicator light
3 Emergency warning light
4 Main switch with start function
5 Emergency thermostat with manual reset
6 Heating thermostat
7 Timer
8 Oil thermometer
9 Steam thermometer



11.6.2 Adjusting the Timer

The timer (7) has the adjustment in minutes.

Pressing the upper or lower keys increases or decreases the time



The time on the display is shown when the machine starts

11.7 Securities

The distiller has been equipped with a series of safety devices:

- Safety thermostat
- Boiler overpressure valve set at 0.3 bar
- Oil vent.
- Cushioned system with tilting body safety lock

11.8 Structure and containment tank

In accordance with the law, it is necessary to install a containment tank in the event of spills of hazardous substances.

Ciemme proposes and manufactures the specific containment tanks for its range of solvent distillers.

11.9 Vacuum generator

One of the most requested and efficient accessories of the *Smart Series* is the pneumatic vacuum generator (optional).

The vacuum distillation process makes it possible to:

- Decrease the boiling temperature of the solvent to be distilled, thus favoring the evaporation and extraction of solvents
- Avoid reaching critical autoignition and decomposition temperatures that can cause hazards or solvent acidification and/or degradation of contaminants
- Reduce risks when distilling nitrocellulose-contaminated solvents.
- Also distill solvents with a high boiling point or low vapour pressure.

The vacuum system consists of a stainless steel tank, which has the function of generating the vacuum and collecting the distilled solvent.

For special applications, it is possible to install a timer to start the vacuum generator after a predetermined time from the start of the distillation cycle (optional).

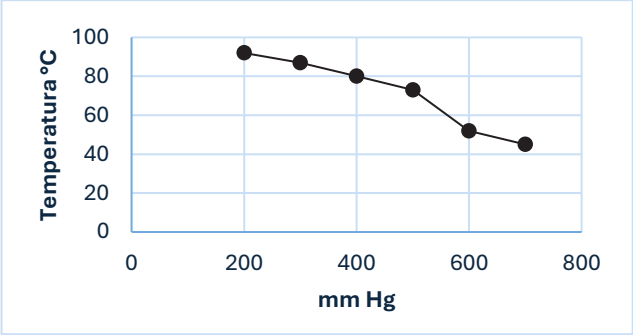
In addition, the vacuum generator is equipped with an activated carbon filter to prevent solvent vapour emissions into the environment.

At the end of the distillation cycle and before starting a new cycle, it will be necessary to empty the vacuum generator tank of the distilled solvent

The vacuum generator is of the "Venturi" ejector type with adjustable vacuum switch.

Example of boiling temperature of water at different vacuum levels:

Vacuum Degree (mm Hg)	Boiling Temp. (°C)
200	92
300	87
400	80
500	73
600	52
00	45



12.0 General warnings

* Do not insert products from different processing cycles into the machine tank.
* Do not use the tank as a solvent deposit.
* Only fill the tank shortly before the distillation cycle is carried out.
* Do not open the manhole cover during the work phases.
* Tighten the manhole cover knob with sufficient force to prevent steam from escaping during processing.
* Do not turn the tank upside down before the end of the cycle, and in any case, not before checking the positive effect of the work carried out.
* Do not touch the hot parts during processing.
* The solvent reclaiming unit is a machine that does not require supervision during operation, it is however recommended not to leave the machine until the work cycle is completed and the machine is switched off.

12.1 Opening the manhole cover and emptying the residue

	**Always open the manhole cover with the utmost caution following the instructions provided by the manufacturer and only when the system is cold. (Opening the manhole cover when the system is hot may deform the seal)**

To avoid dangerous steam effluvia, it is necessary to open the manhole cover when the steam thermometer (23) shows a temperature lower than the known boiling temperature of the treated product.
The temperature of the residue is always very similar to the temperature of the thermal fluid.
The temperature of the thermal fluid can be read on the thermometer (22).
Always check the temperature of the thermal fluid before opening the manhole cover and emptying it. Open the manhole cover and empty the residue with the utmost caution in relation to the temperature of the residue.

13.0 Dangers

During use, maintenance of the solvent reclaiming unit, and during the loading of exhausted solvents and discharge of distillation residues, it is necessary to wear:

* work gloves,
* goggles,
* protective mask,
* fireproof clothing.

13.1 Risk of fire and explosion

Fire and explosion are the greatest risks associated with the use of distillers.
The solvents to be distilled and their vapours are in fact generally flammable products.
The risk of fire and explosion exists not only when the machinery is in operation, but also during related operations and, in general, in all operations in which flammable vapours are emitted in significant quantities.
Vapour leaks can occur, for example, due to poor sealing in seals or fittings, or due to a cooling defect in the condenser. These problems can be encountered as a result of incorrect or insufficient management or maintenance of the solvent reclaiming unit.
During operation, the fire may be due to overheating, the presence of static electricity or the presence of hot spots in the vicinity of the vapours.
The accidental introduction of solvent into the diathermic fluid, at high temperatures, poses a risk of explosion.
The extent of the risk of fire and explosion depends on the nature of the components of the mixture to be treated. In fact, each of them has its own physical characteristics with regard to the risk of fire.

During all operations, including maintenance, it is forbidden to smoke and to approach with open flames.

13.2 Chemical risk: chemical reaction

Chemical reactions can occur in the following cases:

* Degradation of solvents during storage; in particular formation of peroxides with certain oxygenated compounds and certain ketones.
* Degradation of solvents during treatment:
  * degradation of nitrate compounds under the action of temperature (nitromethane);
  * formation of corrosive compounds due to lack of stabilizer (hydrochloric acid).
* Decomposition of certain residues (nitrocellulose).
* Incompatible mixtures of products (presence of a strong oxidant, such as nitric acid, in a mixture of combustible products).

13.3 Chemical risk: irritation and intoxication

Contact with liquids or exposure to vapors can cause skin or eye irritation, while inhalation of solvent vapors poses a risk of intoxication.

14.0 Securities

Our machine provides a series of safety devices that serve to protect the operator or any other people who may come into contact with the solvent reclaiming unit.
The main safety devices on the machine are as follows:

14.1 Protection against power interruption

In the event of an interruption in the supply of electricity, even lasting a few seconds, the solvent reclaiming unit automatically reaches the end of the cycle.
When the power returns, the white light (30) is on.
Despite the presence of voltage, the solvent reclaiming unit does not resume its operation. The machine must be put back into operation using the cycle start procedures, i.e. by turning the switch (34) to **Start**.

14.2 Emergency thermostat with reset

The emergency thermostat (42) has a fixed threshold (calibrated at 200°C) with reset.
If the temperature of the diathermic fluid exceeds 200°C, the solvent reclaiming unit activates the following functions:

- the red emergency lamp (28) lights up;
- the distillation cycle stops;
- green cycle lamp (29) goes out;
- The electric fan stops.

To reactivate the solvent reclaiming unit, proceed as follows:

- Check the cause of the temperature emergency
- Open the control panel by first turning the main switch lever (34) to the **zero position** and then unscrewing the screws (64) that tighten it
- wait for the temperature of the thermal fluid to drop to about 150°C (see thermometer 22)
- Unscrew the cover covering the reset button
- push the reset button
- Screw the cover back on
- Close the control panel, turn the switch lever (34) to position 1, and check that the red emergency lamp (28) is switched off
- At this point it is possible to re-start to restart the distiller.

14.3 Overpressure safety valve

This valve (7) is positioned on the manhole cover (9) of the machine.
This device intercepts the pressure of 0.3 bar, after which it opens allowing excess steam to be vented.

14.4 Safe tilting system

This system allows the machine to rotate and stabilize it in the two prearranged working positions.
In these two positions, an automatic locking stop (58) provides a stable hold of the machine.
The mechanical balancing effects do not allow the machine to remain in positions other than the prearranged working positions.

	**It is absolutely forbidden to remove or modify any part of the solvent reclaiming unit, and in particular the protective casings.**

	**Distillation should only be carried out if the composition of the solvent and its pollutant to be treated is perfectly known. Otherwise, do not carry out distillation and contact CIEMME S.r.l. or the nearest authorized dealer.**

15.0 Commissioning

	**Before starting up the machine, read the instruction manual carefully and learn the terminology and function of the machine controls correctly and comprehensively.**

15.1 Electrical connection

	**Any intervention on the electrical system, even minor, requires the work of professionally qualified personnel.**

The machine does not require any intervention to be put into operation other than the electrical connection.
The connection must be made directly to the terminals of the electricity supply source present in the work environment.
A manually operated power disconnecting device is required. This device must allow the electrical equipment of the machine to be separated from the power supply, when required.
Such a power disconnecting device shall be of one of the following types:

- switch-disconnector compliant with the European Standard EN 60947-3; in the AC-23B or DC-23B application category;
- disconnector with an auxiliary contact which, by means of interrupting devices, in all cases causes the interruption of the load circuit before the opening of the main contacts of the disconnector;
- circuit breaker compliant with the European Standard EN 60947-2 suitable for insulation in accordance with the European Standard EN 60947-3.

There must also be a safety device (circuit breaker) against leakage calibrated at 30 mA.

15.2 Hose connection for the cleaned solvent

Inside the boiler there is a rilsan tube.

This hose must be connected to the appropriate spout (45) and tightly fixed to it by means of the hose clamp.

16.0 Use

16.1 Preparation

It is necessary to have a container, with a capacity of not less than:

- 18 litres for the K16TUV Atex 2G model
- 37 litres for the K30EX Atex 2G model
- 67 litres for the K60EX Atex 2G model

to be used for the collection of distilled solvent. This container must be made of material compatible with the nature of the solvent to be distilled and its pollutants and have sufficient conductivity.
It must be equipped with two openings, one for the inlet of the distilled solvent, and the other as a vent of solvent vapors. The vent pipe must be taken outside.
Grounding must be carried out before use.

	**The distilled solvent container shall be provided with two openings, one for the inlet of the distilled solvent, and the other for venting the solvent vapours. The vent pipe must be taken outside.** **The container must be grounded.**

These operations must be carried out before each distillation cycle and are necessary to ensure that solvent vapours do not diffuse into closed environments and that no accumulation of electrostatic charges is created.

16.2 Checking the steam ducts and manhole seal

This check must be carried out before each distillation cycle and is used to ensure that there are no blockages or leaks in the steam ducts. It is also used to check the good condition of the manhole cover. To carry out this check, it is necessary to have a pressure gauge.

	**The manhole cover gasket is made of special material to be able to withstand high temperatures and contact with solvents.** **Never replace this gasket with another that does not come directly from CIEMME S.r.l. or an authorized dealer.**

* Disconnect the machine's electrical supply through the main disconnect switch.
* Unscrew the knob (1).
* Open the manhole cover (9).
* Introduce compressed air at a pressure of 0.2 bar into the distillate solvent outlet pipe.
* Make sure that the air introduced from the steam inlet inside the tank escapes freely.
* Close the manhole cover (9).
* Tighten the knob (1).
* Leave the compressed air open until it reaches a pressure of 0.2 bar on the pressure gauge.
* Exclude the entry of compressed air
* Wait 1 minute.

* Check that the pressure gauge is still under pressure of 0.2 bar.
* If the pressure on the pressure gauge is less than 0.2 bar, do not carry out distillation, and contact CIEMME S.r.l. or the nearest authorized dealer.

16.3 Filling

In view of the generally dangerous nature of solvents, it is necessary to pay the utmost attention during the handling of the containers and filling the tank of the solvent reclaiming unit. It is useful to transfer from the container with caution in order to avoid splashes that could be harmful to contact and/or smell.
Before filling the tank, make sure that:

* The previous cycle is finished.
* The machine is cold (room temperature).
* The boiler (26) is empty and clean.

16.4 Filling procedure

* Disconnect the machine's power supply.
* Unscrew the knob (1).
* Open the manhole cover (9).
* Fill the boiler (26) with the solvent to be cleaned no higher than the level marked on the inside.
* Close the manhole cover (9).
* Tighten the knob (1) tightly, making sure that the manhole cover gasket adheres to the edge of the boiler.
* Place an empty, clean container for the collection of the distilled solvent, following the instructions described in the "Preparation" paragraph.

16.5 Adjusting the Thermostat and Timer

The thermostat and timer must be adjusted by suitably trained and authorised personnel.

The thermostat and timer must be adjusted according to the solvents to be cleaned. It is therefore necessary to know the technical characteristics of the specific solvent to be distilled and in particular to know its boiling point.
Thermostat and Timer are located inside the explosion-proof case.

Before opening the electrical box door, turn the switch lever to the zero position. Access to the control is in the absence of voltage.

* Open the cover of the explosion-proof enclosure by unscrewing the screws (64).
* Set the heating thermostat (41) to a temperature 45÷50°C higher than the boiling temperature of the solvent to be cleaned.
* Set the Cycle timer (64) to 2 1/2 - 3 1/2 depending on the type of solvent being treated.

Examples: indicative at room temperature 22° with non-polluted products

Solvent	Boiling temperature	Oil thermostat
Trichloroethylene	87 °C	135 °C
Acetone	56 °C	105 °C

	**After adjusting the thermostats, close the cover of the control case by tightening all the screws (64).**

Never modify or replace, for any reason, the explosion-proof case, and/or its cover or the components constituting the electrical system of the solvent reclaiming unit. The electrical system of the solvent reclaiming unit is built following the principles and standards that govern the construction of electrical systems in potentially explosive environments, and any modification or tampering could lead to a decrease in the degree of safety of the solvent reclaiming unit.

17.0 Operation

After making sure that the manhole cover of the machine is effectively closed and after checking that the electrical enclosure is hermetically sealed, proceed to the operating phase.

17.1 Cycle Starting Procedure

* Turn the switch (34) to position **1**.
* The white light (30) comes on, indicating the presence of mains voltage on the control panel.
* Turn the switch (34) to the **Start position**.
* The switch (34), being of the unstable type, returns to position **1**.
* The green light (29) comes on, indicating that the cycle is running.
* The electric fan comes into operation.

The solvent reclaiming unit starts working automatically. After a preheating time of the diathermic fluid, which varies according to the temperature set on the heating thermostat (41), the distilled product will begin to come out.
At the end of the cycle, the solvent reclaiming unit switches off automatically: the green light (29) goes out, the electric fan stops and the white voltage light (30) remains on.

	**Never touch the top of the tank (26) during the distillation cycle.** **Never open the manhole cover (9) for any reason before the end of the distillation cycle.** **Never rotate the machine for any reason before the end of the distillation cycle.**

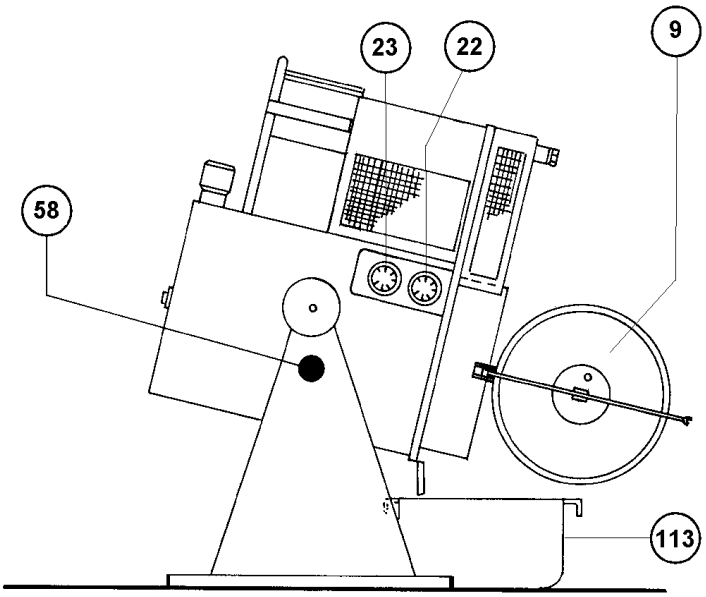
17.2 Discharge of residues and cleaning of the solvent reclaiming unit

The boiler (26) must be cleaned of residues at the end of each distillation cycle.

	**At the end of the cycle, before opening the manhole cover (9) and draining the residues, check the temperature of the diathermic fluid on the thermometer (22).**

	Open the manhole cover to empty the residues with the utmost caution in relation to the temperature of the residue.

* Turn the main switch to the zero position.
* Disconnect the machine's electrical supply through the main disconnect switch.
* Check the temperature of the diathermic fluid, which is similar to the temperature of the residue, on the thermometer (22).
* Place a metal container (113) of adequate capacity under the solvent reclaiming unit.
* Unscrew the knob (1).
* Open the manhole cover (9) to empty the residues with the utmost caution in relation to the temperature of the residue.



* Close the bag containing the residual product
* If necessary, tilt the solvent reclaiming unit by the front handle located at the base of the control case, making sure that the automatic locking stop is fully engaged at the end of rotation.
* Remove the residual product containment bag
* Clean the inside of the boiler of any distillation residues, using a non-metallic and non-pointed tool if necessary.
* Thoroughly clean the top edge of the tank and the manhole cover gasket of distillation residues, to ensure longer gasket life and tightness during the next cycle.
* If the distiller has been tilted, release the side lock (58), return the appliance to the working position using the front handle and make sure that the automatic locking lock is fully engaged.

The nature of the distillation residues must be ascertained. Residues, depending on their chemical composition, can be classified as reusable materials, special waste, toxic hazardous waste, or other. Depending on the type of residue obtained, it must be reused, stored or disposed of in accordance with the laws in force in the user's country.

18.0 Routine maintenance

All maintenance operations must be carried out with the machine cold (room temperature).

Before carrying out any verification or maintenance operation, it is mandatory to follow the following behaviors.

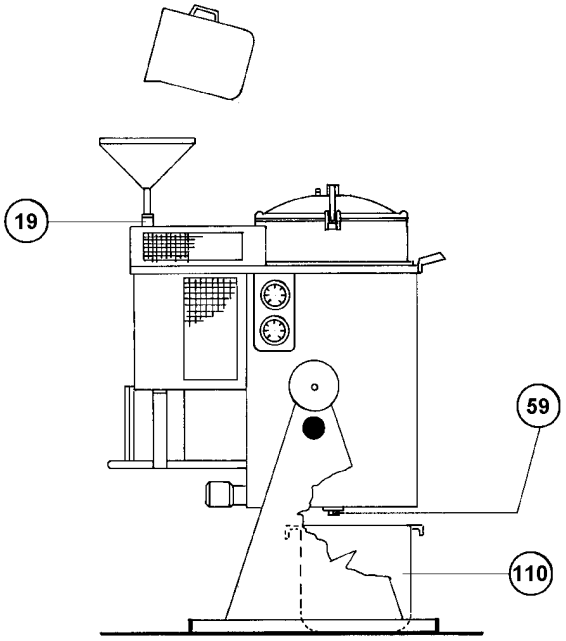
* Wear work gloves, protective goggles, a protective mask and fireproof clothing.
* Make sure the tank is empty.
* Disconnect the machine's power supply.

⚠	**Any intervention on the electrical system, even minor, requires the intervention of qualified personnel.**

18.1 Cleanliness

Clean the casing and condenser fins at least once a month, keeping them free of dust and/or encrustations, in order not to diminish the effectiveness of the vapour cooling system.
Simply use compressed air for cleaning.

18.2 Replacement of the diathermic fluid



The diathermic fluid must be replaced every fifteen hundred hours of operation, and in any case every year.
The diathermic fluid used is **Diatherm Oil 46 EV** or in any case a fluid with equivalent characteristics.
It is necessary to make sure that the fluid does not have a moisture content of more than 2%.
The presence of water in the diathermic fluid, at temperatures higher than that of boiling water, leads to the formation of water vapour inside the diathermic fluid tank and this affects operation and can seriously damage the machine.

18.2.1 Procedure for replacing the diathermic fluid

* Place a container (110) of at least 110 under the solvent reclaiming unit:
  - 14 litres capacity for the K16 model
  - 16 litres capacity for the K30 model
  - 25 litres capacity for the K60 model
* Unscrew the drain plug (59).
* Remove the vent cap (19) by unscrewing it.
* Drain all the exhausted diathermic fluid into the container.
* Screw the drain plug (59) back on.
* Using a funnel, pour from the vent plug (19):
  - 13.3 lt. (11.7Kg) of new diathermic fluid for the K16 model
  - 15,4 lt. (13.5 Kg) of new diathermic fluid for the K30 model
  - 23,4 lt. (20.6 Kg) of new diathermic fluid for the K60 model
* Screw the vent plug (19) back on.

Any excess may leak out of the breather plug (19) during the first distillations following the change, especially if the heating thermostat (41) is set to temperatures above 160°C.
In this case, clean the vent plug (19) of any leaked thermal fluid.

	**For the procedures for DISPOSAL of used diathermic fluid, see chapter 23.0 "Scrapping"**

19.0 Guarantee

The solvent solvent reclaiming unit is covered by a warranty for twelve months from the date of delivery.
CIEMME S.r.l. undertakes to carry out repairs or replacements of parts that are actually defective due to manufacture, free of charge, in its workshops in Modena.

19.1 Conditions

The user company, in the event of the need for repair under warranty, will send CIEMME S.r.l., subject to telephone agreements, the solvent reclaiming unit to be repaired or the part to be replaced, CARRIAGE PAID.
CIEMME S.r.l., after the verification of the actual conditions for a repair under warranty, will eliminate any defect and return the solvent reclaiming unit or part to the user company in CARRIAGE COLLECT.
If the user company expressly requests the repair of the solvent reclaiming unit or the replacement of the part at its headquarters, CIEMME S.r.l. will provide, subject to telephone agreements, the dispatch of its own technician and the subsequent charge on the invoice for travel and travel expenses and the time taken for the repair or replacement of the part.

19.2 Exclusions

All parts subject to normal wear and tear, such as switches, contactors, indicator lights, gaskets, any Teflon PTFE coating, etc., are excluded from the warranty coverage.

19.3 Forfeiture of warranty rights

The warranty is void in the event of:
* incorrect use of the solvent reclaiming unit,
* Carelessness
* failure to comply with the operating and maintenance instructions,
* non-payment.

20 Faults, causes and remedies

Interventions on the electrical system, even minor ones, require the work of professionally qualified personnel.

Cases	Possible solutions
a) The white indicator light (1) does not come on and the solvent reclaiming unit does not come into operation.	1) Check that there is actual electricity in the grid. 2) Check that the main disconnect switch of the electrical system is switched on. 3) Check the condition of the fuses. 4) Check the condition of the low voltage fuse located inside the control case, bottom right of the transformer inside a black fuse holder with a pressure cover.
b) The solvent reclaiming unit turns on, it goes into operation, but does not heat.	1) Check that the thermostat and timer adjustment are correct. 2) Check the functionality of the heating element by checking the absorption of the solvent reclaiming unit using a clamp meter.
c) The solvent reclaiming unit does not distill all the polluted solvent content.	1) Check that the thermostat and timer settings are correct
d) The solvent comes out hot.	1) Check that the electric fan is working properly. 2) Check that the condenser casing and fins are not clogged with dust, scale or anything else. 3) Check that the thermostat is correctly adjusted
e) The solvent reclaiming unit works but the purified solvent does not escape.	1) Check that the condenser has not been clogged due to overfilling of the tank. To do this, you need to: a) open the manhole cover (9); b) Introduce air at a pressure of 0.2 bar into the outlet pipe of the purified solvent, checking that there is an adequate passage of air.

	If not, contact CIEMME S.r.l. or the nearest authorized dealer to disassemble the steam duct and remove what obstructs it. 2) Check the manhole cover gasket for leaks. To do this, you need to: a) close the manhole cover (9); b) Introduce air at a pressure of 0.2 bar into the purified solvent outlet pipe, checking that there are no leaks on the manhole cover gasket. If not, contact CIEMME S.r.l. or the nearest authorized dealer to replace the gasket.
f) The purified solvent comes out dirty.	1) The boiler (26) has been filled beyond the level. 2) The dirty solvent is mixed with particularly foamy products, which makes it necessary to fill the tank more restrictedly. 3) The capacitor is partially clogged. It can be cleaned by distilling it with about 5 liters of clean solvent.
g) The solvent reclaiming unit goes into emergency.	1) See paragraph "Adjusting the thermostat and timer".
h) Steam escaping from the manhole cover.	1) Check the manhole cover closure. 2) Check the condition of the gasket. 3) Check that the steam passages are clear. 4) Check that the distillate solvent outlet pipe is not immersed in the distilled solvent or that it is not kinked/crushed

21 Long-term provision

If the machine is not used for a period of more than 60 days, carry out the following operations:

* disconnect the machine from the electrical connection and protect the cable properly,
* empty and thoroughly clean the boiler of the solvent reclaiming unit,
* disconnect the solvent drain hose after loosening the hose clamp,
* Do not leave the machine exposed to heat or sun, as these conditions may deteriorate the seals.

22.0 Scrapping

	**Before proceeding with scrapping, it is important to empty the machine of the diathermic fluid (for emptying see the chapter "Procedure for changing the diathermic fluid"), which must be disposed of separately as Special Waste with "recovery" destination. For more detailed information, please contact the Waste Disposal Service Centre of your City/Province/Region**

If you want to decommission the machine and want to dispose of it, it will be necessary to consider it as special waste.
This product complies with EU Directive 2002/96/EC. At the end of its useful life, the distiller must be taken to an **authorized** separate collection centre for electrical and electronic equipment, which will separate and classify the components, or returned to the seller at the time of purchase of equivalent equipment. The user is responsible for taking the appliance at the end of its life to the appropriate collection facilities. Adequate separate collection for the subsequent recycling, treatment and environmentally compatible disposal of the appliance helps to avoid possible negative effects on the environment and health and promotes the recycling of the materials of which the product is made. For more detailed information regarding the collection systems available, please contact the Waste Disposal Service Centre of your City/Province/Region.

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