# COOLIUS C40

## Fully automatic maintenance unit for large-volume R744 air conditioning systems

Doc.Nr.: 2273 / Rev.01.00


GB Operating instructions

GB

**Please read and comply with these operating instructions prior to initial operation of your device.**
**Keep these operating instructions for later use or for a subsequent owner.**

**It is recommended that the initial commissioning be carried out by an authorised service technician.**

**Attention: Risk of accident!**
**There is an increased accident risk due to the high pressures in R744 air-conditioning units.**
**Please observe the safety precautions.**

**Attention: Risk of accident!**
**If a new/different bottle is placed on the scale and the heating tape is firmly connected to the refrigerant bottle by means of the retaining straps, it is absolutely necessary to connect the connecting lines to the air-conditioning service unit and to open the valves from the refrigerant bottle throughout the entire operating time. This allows the electronic pressure sensor to record the measured values, control the heating of the heating tape via the software and prevent critical excess pressure in the air-conditioning service unit.**

**Heating the refrigerant bottle causes the pressure of the refrigerant in the refrigerant bottle to increase!**

**Failure to observe the procedures and safety precautions described above may result in uncontrolled blow-off of the refrigerant under very high pressure and therefore an increased accident risk!**

# COOLIUS C40 - Fully automatic maintenance unit for large-volume R744 air conditioning systems

GB **Operating instructions**

## CONTENTS

## Safety instructions for working on the COOLIUS C40 COOLIUS C40

**DANGER Risk of accident!**

**There is an increased accident risk due to the high pressures in R744 air-conditioning units.**

**Please observe the safety precautions**

- **Before commissioning the device, check that the connections to the A/C System are correct.**
- **Before using this recovery unit, make sure that the connections to the A/C air-conditioning system (Ref. 67) have been made correctly.**
- R744 refrigerant is classified as an asphyxiant; pay the utmost attention during making operations.
- This equipment is designed for trained personnel only, who must know the refrigeration fundamentals, cooling systems, refrigerants and possible damage that pressurised equipment may cause.
- Use only with refrigerant #Type# The unit must only be operated with the refrigerant for which it was designed.
- Read this manual carefully; strict adherence to the procedures described is essential for the safety of the operator, the integrity of the equipment and the consistency of the declared performance.
- **The unit must always work under the operator's direct supervision**
- The unit must not be operated with any refrigerant other than that for which it was designed.
- Before starting work, make sure that the hoses used for connections have been previously evacuated and that they do not contain non-condensable gases.
- Avoid skin contact; the low boiling temperature of the refrigerant (about -78.5 °C) can cause freezing.
- Avoid breathing refrigerant vapours.
- It is advisable to wear suitable protective equipment such as safety glasses and gloves; contact with the refrigerant can cause blindness and other physical damage to the operator.
- Do not smoke near the appliance and do not use the appliance near open flames or hot surfaces; at high temperatures, the refrigerant gas decomposes, releasing toxic and aggressive substances that are harmful to the user and the environment.
- Always ensure that the appliance is connected to a properly protected and earthed power supply.
- Before carrying out any maintenance or if the appliance is not to be used for a long period, switch off the appliance by turning the main switch to position 0 and disconnect the power supply cable; the sequence of operations must be strictly observed.
- Only operate the appliance in well-ventilated rooms with good air circulation.
- Before disconnecting the appliance, make sure that the cycle is complete and all valves are closed to prevent refrigerant from escaping into the atmosphere.
- Protect the unit from dripping.
- Do not modify the calibration of safety valves and control systems.
- Only leave the appliance connected to the power supply when it is in use.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- Check that there are no obstructions in the A/C system that prevent drainage.
- **If the power cord is damaged, it must be replaced with an original replacement cord from the manufacturer.**

## General safety instructions

- **Danger of electric shock:** Connect or disconnect the bottle heater only when the COOLIUS C40 is switched off.
- **Possible electrical discharge:** When changing the gas bottle, touching the uninstalled gas bottle with the connected heating strip and the air conditioner with unprotected hands can cause an unpleasant but harmless electric discharge. Replace the gas cylinder only when wearing assembly gloves.
- Risk of crushing due to weight: Persons or parts of the body can be crushed by the weight. Keep the wheels locked during operation. Keep a minimum distance of 1.5 m from walls.

**The product described has been designed, manufactured, tested and documented in accordance with the relevant safety standards. The COOLIUS C40 will normally not cause any damage to persons or property if the safety instructions and the prescribed commissioning, intended use and recommended maintenance and care are observed.**

## Safety precautions for carbon dioxide CO2 (R744)

**Always consult the manufacturer's safety data sheet.**

**WARNING!**
**Hazards to man and the environment**

- Carbon dioxide is suffocating in high concentrations. The victim is not aware of suffocation.

- Low concentrations cause rapid breathing and headache.
- CO2 gas is heavier than air. It can accumulate indoors, especially on the floor and in low places. There is a risk of suffocation, especially if the gas accumulates in silos, pits and cellars.

- Cold burns caused by leaking expanded gas.

**Protective and behavioural measures**

- Employees must be instructed in the handling of carbon dioxide.
- Do not inhale gas.

- Secure gas cylinders against falling. Ensure good ventilation when working.
- Wear safety shoes and leather gloves when handling cylinders.
- Use a cylinder trolley.

- Store in a well-ventilated place at temperatures below 50 °C.
- Prevent water from entering the container.
- Use only suitable equipment (pressure/temperature/product).

- When transporting cylinders, always close the valves, even if the cylinders are empty, and secure them with a lock nut and protective cap.

**What to do in the event of danger**

- Fire may cause cylinders to burst/explode. All extinguishing agents may be used.
- Escaping gas: Close the valve if possible.
- Prevent access to cellars and deeper areas where gas accumulation could be dangerous (risk of suffocation).
- Remove containers from the danger zone or, if this is not possible, cool with water from a protected position.
- Provide good ventilation.
- In case of the release of large quantities of gas or cellars/pits/silos: Evacuate rooms/areas.
- Enter only with self-contained breathing apparatus. Filters do not provide protection!
- Do not re-enter until the clearance measurement is complete.

**First aid**

- **After inhalation:** Provide fresh air or move the victim to fresh air, alert first aiders and seek medical attention immediately.
- **Skin or eye contact:**Flush with water for 15 minutes. Cover cold burns with sterile dressing. Consult a physician.
- Take immediate action at the scene – call the emergency services.
- Please also refer to your refrigerant supplier's instructions for use and safety.

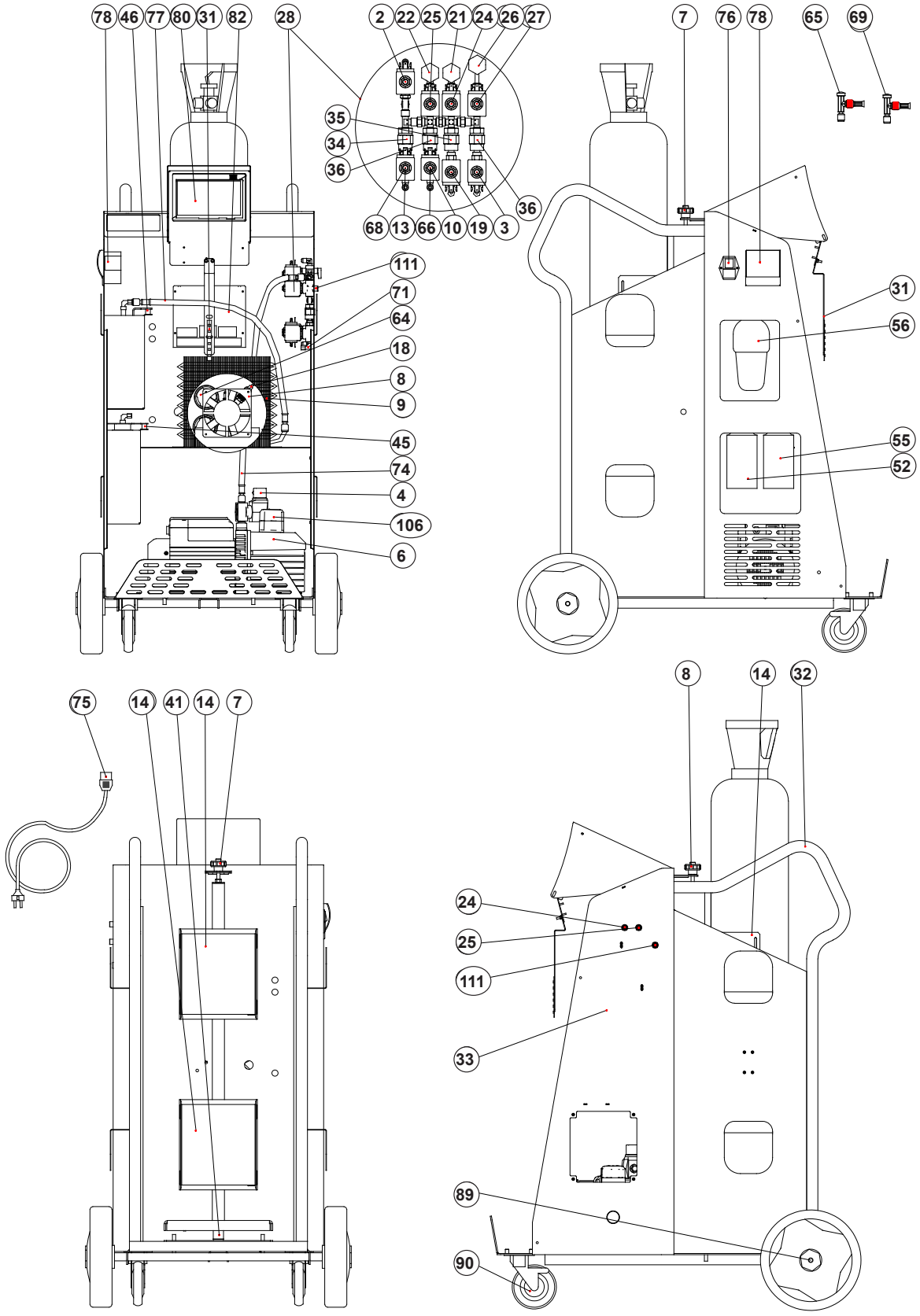
**Proper disposal**

- Have cylinders checked regularly by the gas supplier in accordance with regulations.
- Do not use force on compressed gas cylinders, e.g. when opening them.
- Allow residual gas to escape in a well-ventilated area, preferably outdoors.
- Return the cylinders to the supplier. Make a clear note of any damage, etc.

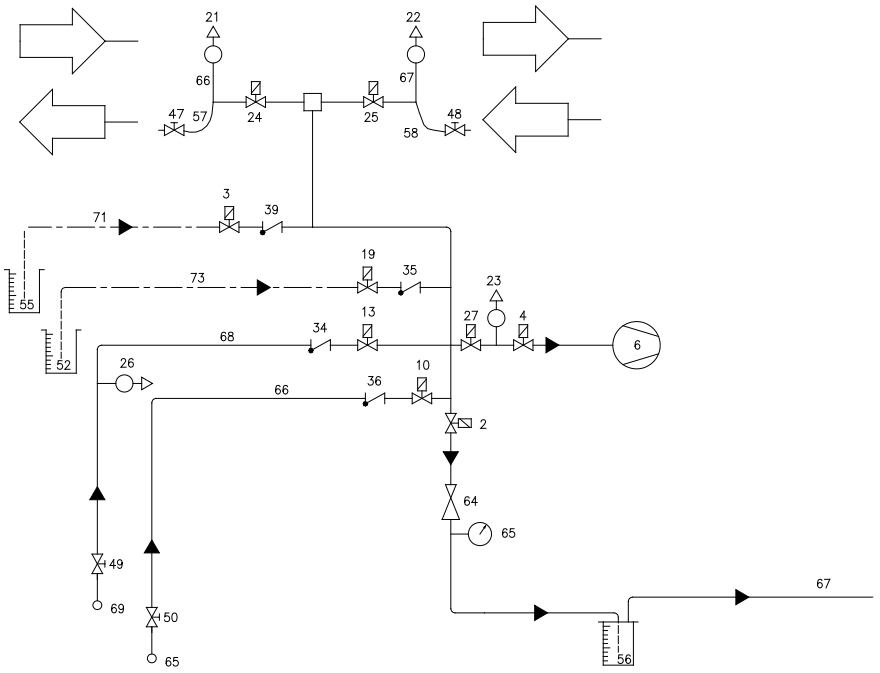
**Keep this manual in a safe place.**

# 1. Diagrams and drawings

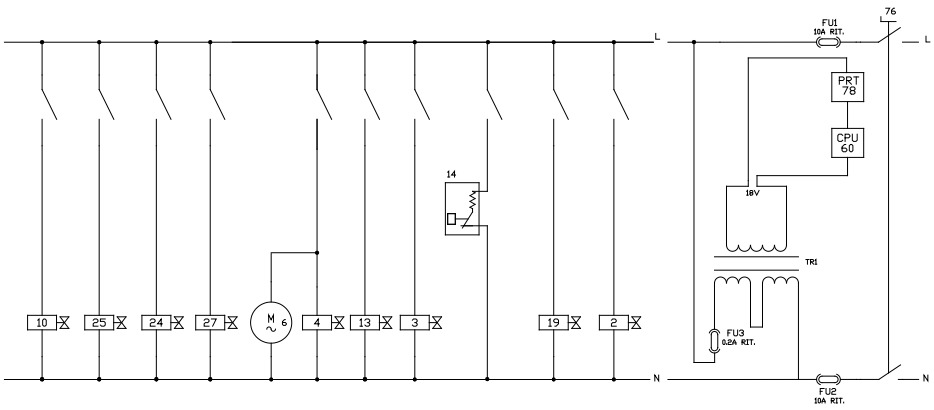
## Layout drawing



## Hydraulic diagram




## Electric diagram



| | | | |
|---|---|---|---|
| **2** | Solenoid valve - Refrigerant drain line | **46** | Oil drain-Scale - 5 kg |
| **3** | Solenoid valve - UV Charge | **47** | LOW Low-pressure quick coupler |
| **4** | Solenoid valve - vacuum line | **48** | HIGH High-pressure quick coupler |
| **6** | Vacuum pump | **52** | Oil container |
| **7** | Pin to limit shocks to the refrigerant bottle | **55** | UV container |
| **8** | Cooling fan | **56** | Oil drain container |
| **9** | Condenser | **57** | Low-pressure service hose |
| **10** | Solenoid valve for refrigerant charge (liquid) | **58** | High-pressure service hose |
| **13** | Safety valve -refrigerant charging line (Vapour) | **64** | Discharge pressure regulator |
| **14** | Cylinder heating band | **65** | Shut-off valve for cylinder connection (Liquid) |
| **18** | Safety valve | **66** | Refrigerant filling tube (Liquid) |
| **19** | Solenoid valve - oil charging line | **67** | Drain hose |
| **21** | Low-pressure sensor LOW | **68** | Refrigerant filling tube (Vapour) |
| **22** | High-pressure sensor HIGH | **69** | Shut-off valve for cylinder connection |
| **23** | Solenoid valve - Vacuum 2 | **71** | UV Injection capillary tube |
| **24** | Solenoid valve - LOW | **73** | Oil-Injection capillary tube |
| **25** | Solenoid valve - HIGH | **74** | Hose Vacuum pump |
| **26** | Bottle pressure sensor | **75** | Power cable |
| **27** | Vacuum-Solenoid valve– 2 | **76** | Main power switch |
| **28** | Complete valve assembly | **77** | Hose Oil drain |
| **31** | LED bracket | **78** | Printer |
| **32** | Handle knob | **80** | Command module ( with 7“ touch screen) |
| **33** | Frame/ Valve over | **82** | Auxillary power board |
| **34** | Refrigerant injection check valve– (Vapour) | **89** | Rear wheel |
| **35** | Oil injection check valve | **90** | Front wheel with brake |
| **36** | Refrigerant injection check valve (Liquid) | **106** | Vacuum pump oil filler plug |
| **39** | UV injection check valve Charge | **107** | Vacuum pump sight glass |
| **41** | Refrigerant-Scale- 200 kg | **108** | Oil drain plug Vacuum pump |
| **42** | Oil Injection Scale- 5 kg | **111** | Auxiliary connection for nitrogen test |
| **45** | UV Injection Scale- 5 kg | | |

# 2. Introducing the COOLIUS C40

The COOLIUS C40 allows you to quickly and efficiently drain refrigerant from an A/C system, evacuate the system, check for leaks, inject additives and lubricants, top up with refrigerant and determine working pressures.

Thanks to the wide 7” screen, the unit is very versatile and is able to help the operator with information useful to perform the various operations.

## 2.1 SCOPE OF DELIVERY & ACCESSORIES

- COOLIUS C40 air conditioning service unit
  Reduction fitting cylinder connection 2x
- Power supply cable
- Service hoses (length 5 m) with safety couplers
- Quick start guide
- Vehicle charging database
- Equipment manual (optional)

## 2.2 TECHNICAL SPECIFICATIONS

| **Model:** | **COOLIUS C40** |
|---|---|
| Dimensions | 920 x 590 x 1190 mm |
| Net weight | 85 kg |
| Refrigerant | R744 |
| Compatibility bottle size | max. 40 l with double tap |
| Maximum discharging rate | ~300 g/min |
| Power supply | 230 V / 50 Hz |
| Power input | 1050 W |
| Storage temperature | -10 ÷ +49°C |
| Operating temperature | ÷ 40 °C |
| Type of protection | IP20 |
| Noise generation | < 70dB (A) |
| Minimum residual density in the bottle | 250 g/l |
| Maximum working pressure | 200 bar |
| Oil/UV filling accuracy | ± 1 g |
| Refrigerant filling accuracy | ± 15 g |

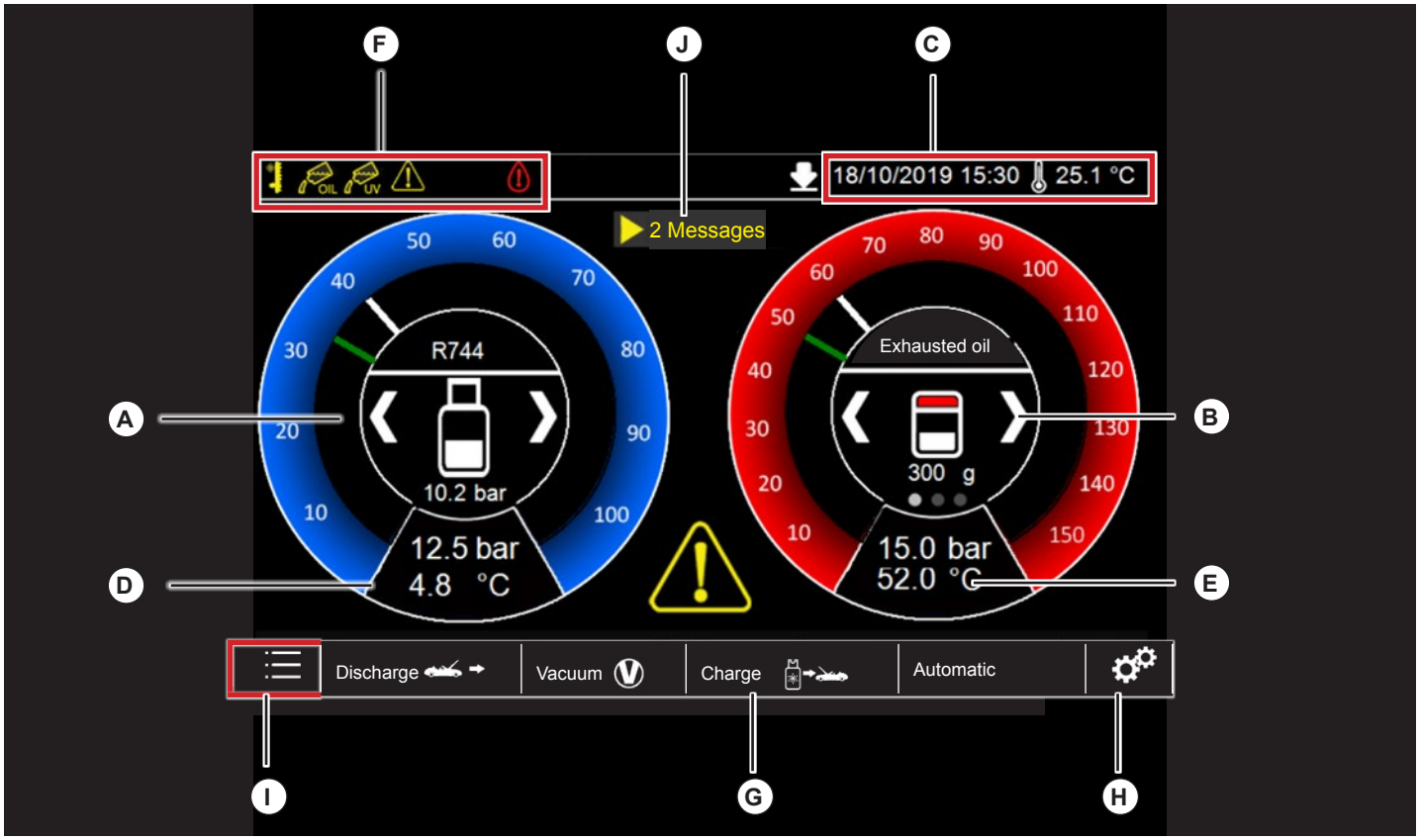
## 2.3 UNIT'S COMPONENTS

| **component** | **features** |
|---|---|
| Vacuum pump | Two stage 230 l/min, 0,05 mb (Absolute vacuum) |
| flexible hoses | L= 5,0 m with quick couplers and safety valve |
| drain hose | 15 m |
| R744 refrigerant bottle | Gas and liquid connection or only gaseous |
| Waste oil container | Capacity 200 g (discharge: Oil & Exhausted oil = Automatic) |
| Fresh oil container | Capacity 500 ml |
| UV additive container | Capacity 500 ml |
| Control module | with 7“ touch screen |
| printer | Thermal |
| LOW and HIGH valves | Automatic |
| Refrigerant heater belt | 2 Stk.; Automatic control via software |
| Refrigerant scale | permanent: max. 200 kg |
| Electronic pressure sensor | integrated |
| Pressure gauge | Digital |
| Pressure gauge, pressure, refrigerant bottle | Digital |
| Enclosure | Metal with durable plastic cover |

## 2.4 CONTROL MODULE / DISPLAY

**The unit has a wide 7” colour touch screen. The display shows the following information:**

- Quantity of refrigerant in the cylinder (A)
- Pressure of the refrigerant in the cylinder (A)
- New oil quantity (g/oz) inside the bottle (it could be set for thermic (combustion engine), hybrid or electric car) (B)
- UV quantity (g/oz) inside the bottle (B)
- Exhaust oil quantity (g/oz) inside the bottle (B)
- Ambient temperature (°C/°F) (C)
- hour and date (C)
- LOW pressure (bar/psi) and the corresponding saturation temperature (°C/°F) (D)
- HIGH pressure (bar/psi) and the corresponding saturation temperature (°C/°F) (E)
- Alarm warnings and machines signals (F)
- Start functions (discharge, Vacuum, Charge, Automatic) (G)
- Service (H)
- Menu (I)
- Access to messages and reports (J)



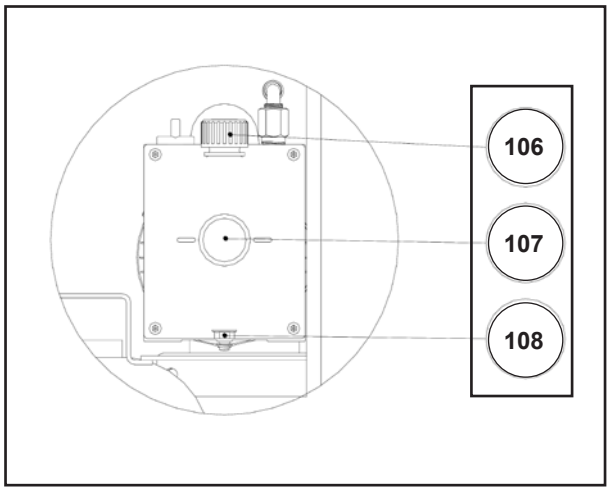
# 3. Preparing unit COOLIUS C40 for use

**WARNING!**
The synoptic sticker does not exempt the operator from carefully reading this user's manual and from scrupulously respecting the procedures explained.

## 3.1 CHECKING THE VACUUM PUMP OIL LEVEL

Before checking the oil level, the unit must be placed on a level surface and its power supply must be turned off.

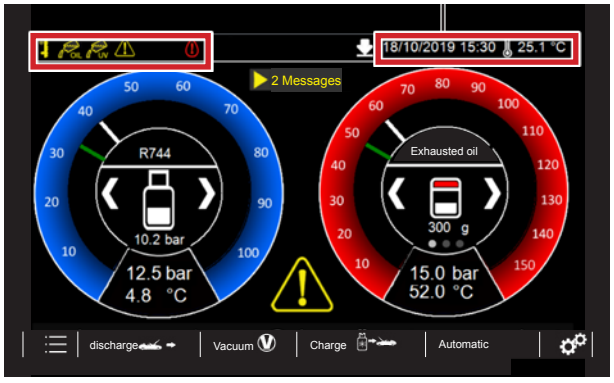
The user must check that the vacuum pump oil level covers half of the sight glass. (see drawing below).




## 3.2 TURNING ON THE COOLIUS C40 FOR THE FIRST TIME

**WARNING!**
Carry out the first start-up without installing the R744 cylinder on the scales, otherwise the zero adjustment cannot be carried out correctly.

1. Connect the unit to the power supply
2. Place the 76 switch on position 1.
3. The unit will automatically ask to select the interface language.
4. Now, the unit will for the refrigerant you want to use.
5. Then, the zeroing of all the scales will start. The process is completely automatic and will take about 30 seconds.
6. At the end of the process, the unit will show the standby screen.

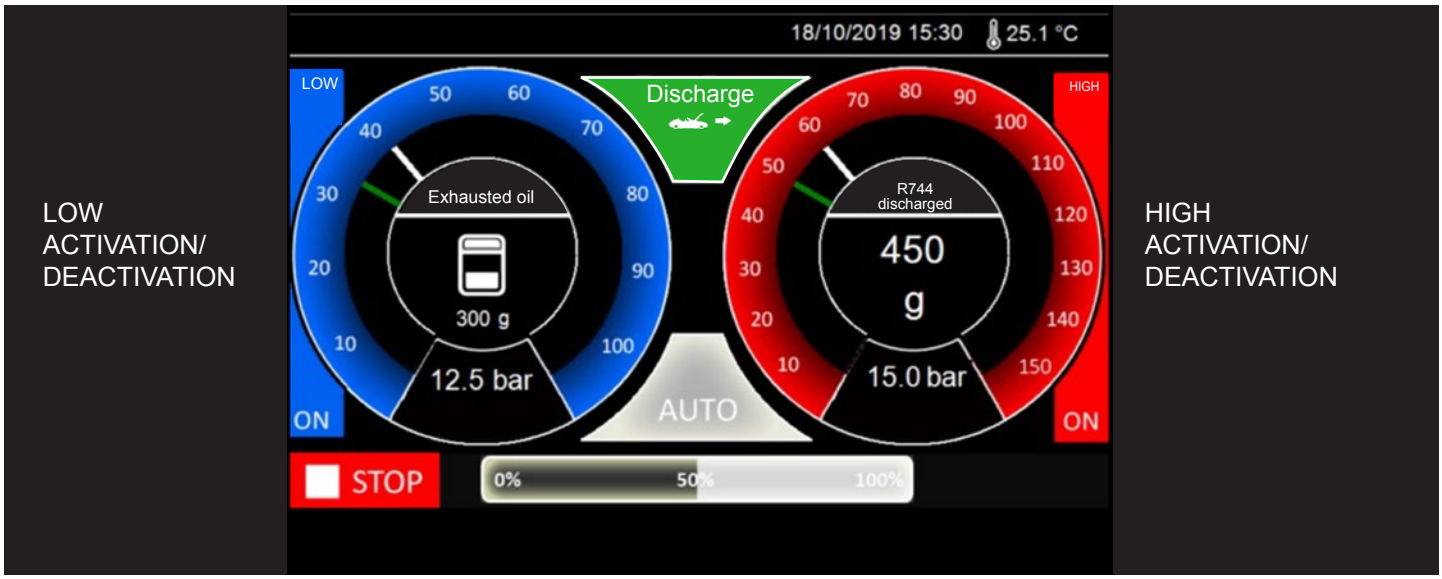


## 3.3 USE OF LOW AND HIGH AUTOMATIC VALVES

The unit is equipped with fully automatic LOW and HIGH connection valves.

After the operator has made the connection of the equipment to the A / C system, it automatically establishes the type of connection.

This information will be shown on the display, as shown in the example figure.




On the side of each pressure gauge there is information about the activation of the LOW and HIGH solenoid valve. This selection is established automatically by the equipment according to the pressure value that is detected at the time of connection to the A / C system.

The operator can still change the opening of the LOW and HIGH valves, by pressing directly on the display on each working side on the pressure gauge, thus changing the status from **ON** to **OFF** or vice versa. You can press anywhere in the highlighted area.

It is possible to change the selection of the connection valves to the A / C system during any phase of the equipment work.

## 3.4 SETTING THE CYLINDER/CYLINDER DATA

The unit is delivered without a refrigerant bottle. When installing the R744 cylinder, it is therefore necessary to follow the procedure below and then set the data for the type of cylinder used.

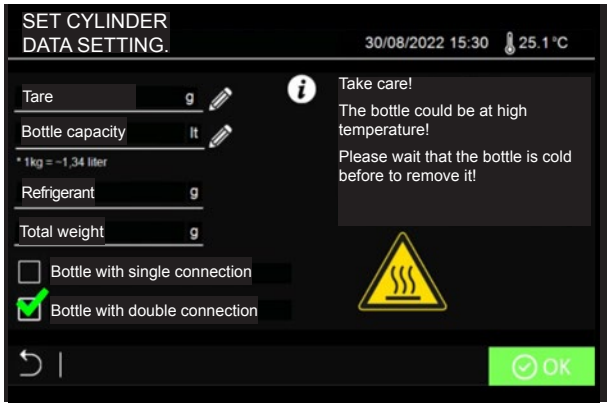
**WARNING!**
When removing and installing the cylinder, the surface of the cylinder or heating element may be very hot. Wear personal protective equipment for your hands and take extreme care not to come into contact with the hot surfaces.

**DANGER Risk of accident!**
If a new/different bottle is placed on the scale and the heating tape is firmly connected to the refrigerant bottle by means of the retaining straps, it is absolutely necessary to connect the connecting lines to the air-conditioning service unit and to open the valves from the refrigerant bottle throughout the entire operating time. This allows the electronic pressure sensor to record the measured values, control the heating of the heating tape via the software and prevent critical excess pressure in the air-conditioning service unit.

Heating the refrigerant bottle causes the pressure of the refrigerant in the refrigerant bottle to increase.

Failure to observe the procedures and safety precautions described above may result in uncontrolled blow-off of the refrigerant under very high pressure and therefore an increased accident risk.

1. After carrying out the scale zeroing procedure, press the Menu key from the standby screen.
2. Select the item Set cylinder data setting.
3. Obtain a bottle of R744 with a double tap and liquid and vapour connections, with the capacity specified in the specification (max. 40 (max. 40 litres).).
4. Place the bottle on the scale.
5. Fasten the 4 fixing straps of the cylinder and the heating bands tightly.
6. Connect the two supplied reduction fittings (ref. 70) to the two cylinder connections of the cylinder.
7. Tighten with a suitable wrench and check for leaks.
8. Connect the vapour refrigerant charging line (ref. 68) to the vapour connection of the cylinder by installing the lock valve fitting (ref. 69 – blue).
9. Connect the liquid refrigerant charging line (ref. 66) to the liquid connection of the cylinder by installing the lock valve fitting (ref. 65 – red).
10. Tighten the lock valve fittings and open both valve hand-wheels after checking for leaks.
11. Once the hydraulic connection has been made, slowly open both cylinder valves.




12. Proceed now to set the bottle data:
    A. **Tare** (Take the value from the cylinder data.).
    B. **Bottle capacity** (Take the value from the cylinder data.) If the liter indication is not on the bottle, please use the conversion factor 1 kg = 1.34 L

13. It is possible to choose between 2 different types of refrigerant bottles:
    A. Bottle with a single connection (gaseous)
    B. Bottle with 2 connections (liquid and gaseous)
    If available, it is recommended to use an R744 bottle with double connections; with this type of bottle, the device can perform the filling process faster.
14. After setting both cylinder data, press the **OK** key to confirm.
15. Back in the standby screen, inside the blue pressure gauge, you can see the refrigerant value inside the cylinder and the relative pressure measured by the internal sensor.

**IMPORTANT!**
When the equipment is on, make sure that the valve on the cylinder and the lock valve handwheel are both in the open position.

**IMPORTANT!**
When the unit is stopped and switched off, make sure that both valves on the cylinder and the hand-wheels of the shut-off valves are in the closed position.

# 4. Using the COOLIUS C40 (Primary functions)

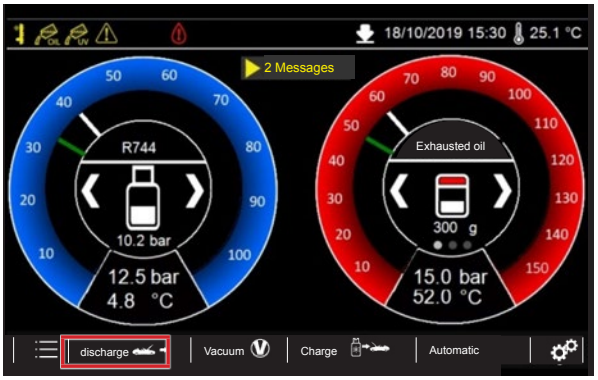
The standby screen informs the operator of low refrigerant, oil or UV additive levels.

**WARNING!**
Before draining, ensure that the drain hose (ref. 67) is placed outdoors and outside the work area.

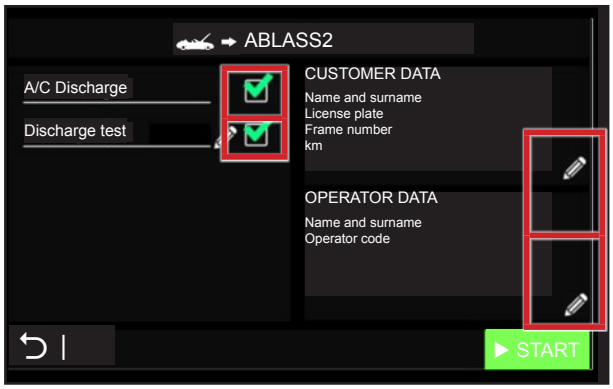
## 4.1 REFRIGERANT DISCHARGE

Discharge

1. Turn the 76 switch to position 1.
2. Place the drain hose away from the work area. Ideally, place it outside.

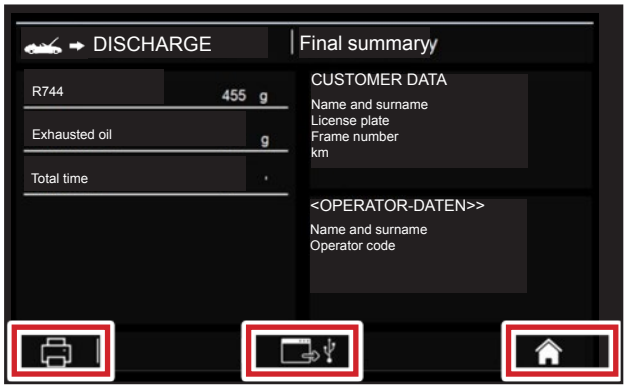



3. Press the **DISCHARGE** button.
4. Select A/C System Drain and then set the Drain Test if required.
   It is recommended that the drain test is kept active to optimise the drain process and ensure the maximum amount of refrigerant is drained from the system.
5. If it is necessary to enter additional information about the customer, click on the relative edit icon **CUSTOMER DATA**.
6. You can also enter information about the operator performing the service by clicking on the appropriate edit icon **OPERATOR DATA**.
7. Connect the quick couplers to the service ports of the air conditioner to be serviced. Open the hand-wheels on the quick couplers.
8. Press **START** button to start the function.




9. During the refrigerant discharge process, the display will show the discharged refrigerant and oil quantity.
10. In case of emergency, it is possible to leave the function by pressing the **STOP** button.
    The display will show the resume screen, with all the information of the cycle until the stop.
11. During the cycle, the unit performs the automatic oil discharge.

12. At the end of discharge process, automatically the discharge test will start, if the user has selected it. During the test, the unit will check if the system has a rise of pressure, in order to restart the discharge process to optimize the quantity.
13. At the end of the process, the unit will inform the operator by an acoustic signal, and the display will show all the information about the performed cycle.

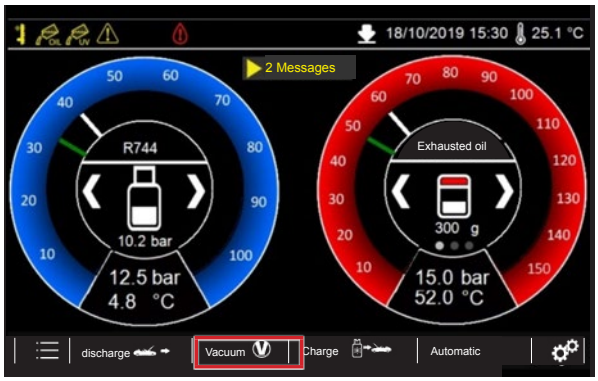



14. You can now print a report of the completed service using the printer or copy the service data to a USB stick.
15. Press the **HOME** button to return to the main menu.

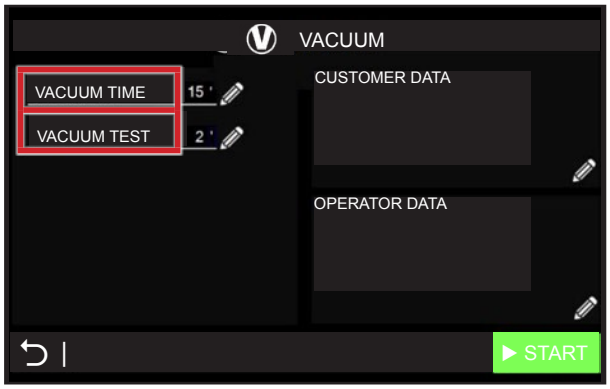
**WARNING!**
Do not pollute environment with oil; it is a special waste and must be disposed of according to the regulations in force.

## 4.2 VACUUM + VACUUM TEST Vacuum

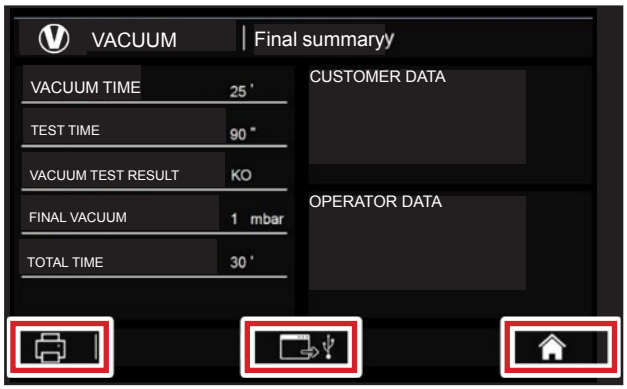
1. Press the Vacuum button.




2. Set the vacuum time by clicking on the relative edit icon. Set the vacuum time by clicking on the relative edit icon. For an efficient maintenance of the A/C system, a vacuum time of at least 30 minutes is recommended. Follow the manufacturer's recommendations.
3. At the end of the vacuum time, the unit automatically performs a leak test. By default, the unit suggests a test time of two minutes. In case the user need to modify this value, please click on the relative edit icon.




4. Connect the service couplers to the A/C system to be serviced. Open the hand-wheels on the quick couplers.
5. Press **START** button to start the function.
6. At the end of the vacuum phase, the test phase begins to check the A/C system for leaks.
7. In case of an emergency, you can stop the function at any time by pressing the STOP button. The unit switches to the overview screen, which shows what it has been doing up to the moment of stopping.
8. If the SKIP key is pressed during the vacuum running phase, the vacuum pump stops and the instrument starts the vacuum test.
9. At the end of the test phase, or in the event of leaks, the unit alerts the operator with an audible signal. The display shows the results of the vacuum phase and the test.




10. You can now print a report of the completed service using the printer or copy the service data to a USB stick.
11. Press the **HOME** button to return to the main menu.

## 4.3 OIL – UV – REFRIGERANT CHARGE

Charge

The COOLIUS C40 is designed for thermal (combustion engine), hybrid and electric vehicles. To ensure absolute safety, the unit automatically rinses the internal circuit each time you switch from one type of vehicle to another to prevent contamination/cross-contamination of the oils.

### 4.3.1 FILLING PROCEDURE

**WARNUNG!**
The filling procedure must be carried out with the system evacuated. If this procedure is not carried out correctly, the unit will give an alarm.

1. Press the Charge button **CHARGE**


2. Select the **UV INJECTION** checkbox to charge additives inside the A/C system. Please click on the relative edit icon to modify the quantity to charge.
3. Select the **OIL INJECTION** checkbox to charge oil inside the A/C system. Please click on the relative edit icon to modify the quantity to charge.
   It is possible to charge the quantity of oil, which the unit has discharged during the recovery process **[REC]**, and to add an additional quantity.
   **In any case, the operator must follow the instructions of the A/C system manufacturer.**
4. Select the **REFRIGERANT TEST CHECKBOX** to use the first part of charged refrigerant (about 70 grams) to perform another test (after vacuum test successfully) before to start with the real charging process.
5. Select the **REFRIGERANT** checkbox to charge refrigerant inside the A/C system. Please click on the relative edit icon to modify the quantity to charge.
6. Finally select the type of vehicle: Thermal (Combustion engine), Hybrid, and Electric. This information is very important because each type of car needs of its specific type of lubricant oil. It is necessary take care to have not cross contamination between the different oils passing from a vehicle to another. If necessary, the equipment's display will inform the operator that it is necessary to change oil type to introduce in the bottle; for this purpose, the unit will automatic start the flushing of the internal circuit.

   **IMPORTANT!** If the unit informs the operator about the automatic flushing of the internal circuit, this must be done before connecting the Coolius C40 to the vehicle.

7. The operator can also select all the information, directly form the Car's database. Reading this information about the selected car, the unit will directly set the correct quantity of refrigerant to charge in the A/C system.
8. Connect the quick couplers to the A/C system to be serviced. Open the hand-wheels on the quick couplers.
9. Press **START** button to start the function.
10. The unit starts the first phase of injection of additives and oils (according to the settings applied).
11. In case of emergency, it is possible to leave the function by pressing the **STOP** button. The display will show the resume screen, with all the information of the cycle until the stop

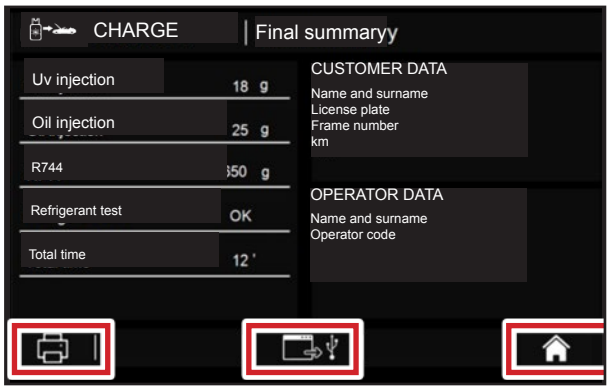
12. It then automatically performs an additional pressure test of the A/C system with refrigerant (if selected). A known amount of refrigerant is injected into the system and the unit checks that there is no pressure drop.

**IMPORTANT!**
The pressure test with the refrigerant is an extra test the unit performs after the operator has already checked for possible leaks by means of the previous tests with nitrogen and/or forming gas and after that with the tightness check in vacuum.

13. If the pressure test with refrigerant has ended successfully, you can proceed with the refrigerant charge. The charge is ended in a modulated way in order to optimise the quantity of refrigerant charged into the system.

**WARNING!**
Subsequent cracking noises in the appliance are normal during this phase.

14. When the function is completed, a beep will let the operator know that the cycle is over.
15. At the end of the charging process, the device prompts the operator to close the quick couplings on the air conditioning system to release the remaining refrigerant from the hoses and depressurize them.
The display will show all the information of the process.



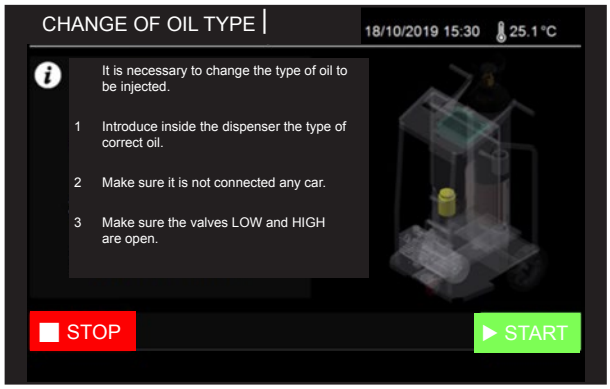

16. In the final screen it is possible to print a report on printer or a report on USB stick.
17. Press the **HOME** button to return to the main menu.

### 4.3.2 FLUSHING THE INTERNAL CIRCUIT WHEN CHANGING THE OIL TYPE

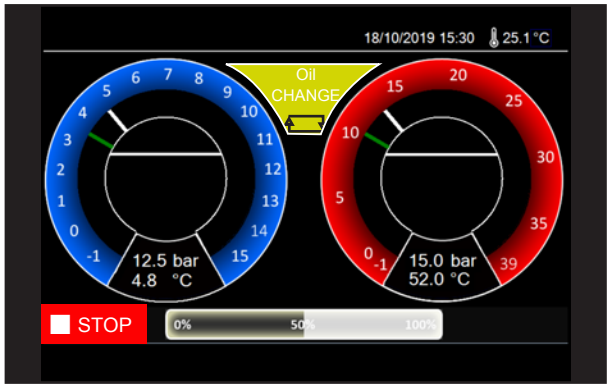
The COOLIUS C40 is suitable for three different types of vehicles. In most cases, the appropriate oil type will be selected.:

- Thermal (Combustion engine)
- Hybrid
- Electrical

If necessary and an oil change needs to be made, the device informs the operator, please follow the instructions.




Please go on follwing the information on the display.




**WARNING!**
If the oil bin is not replaced, the procedure is completely inefficient. So provide to replace the oil dosimeter when the unit asks it during the procedure.

**WARNING!**
**If the quantity of oil is not enough for the flushing procedure (about 60 grams) the unit will inform the operator by means of an alarm.** Ensure that there is at least 60 grams of oil in the connected oil container.

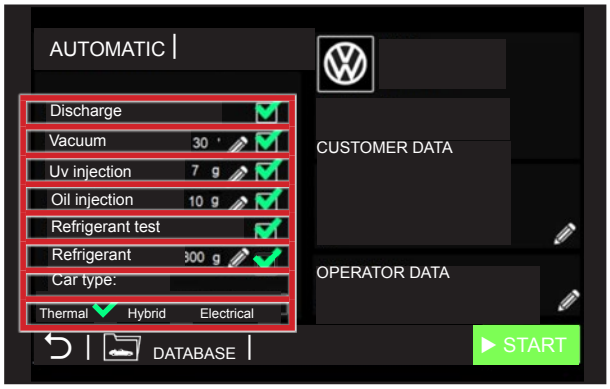
The unit will perform the procedure automatically; after that, it will be possible to proceed with charging the system.

.

## 4.4 AUTOMATIC CYCLE

Automatic

**WARNING!**
Before starting the emptying procedure, make sure that the drain pipe (item 67) is installed outdoors and outside the working area.




1. Press the **AUTOMATIC BUTTON**.
2. The unit will perform the automatic discharge process, if refrigerant is present in the A/C system. It is not possible to deselect this function. If no refrigerant is present inside the A/C system, the unit will start directly the Vacuum process.
3. Select the **VACUUM** checkbox to perform the vacuum and vacuum test of the system. Please click on the relative edit icon to modify the vacuum time. In the automatic cycle, the time of vacuum test is already set to the value of 3 minutes.
4. Select the **UV INJECTION** checkbox to charge additives inside the A/C system. Please click on the relative edit icon to modify the quantity to charge.
5. Select the **OIL INJECTION** checkbox to add oil to the system. To change the amount to be injected, click on the relative edit icon. It is possible to replenish the amount of oil that the unit has extracted during the drain process and to add an additional amount.
   Depending on the type of component replaced in the air conditioning system, the manufacturer-specific amount of lubricant must be replenished, even if no oil was drained from the system during discharge.
   **In any case, it is recommended to follow the A/C manufacturer's instructions regarding the amount of oil to be filled.**
6. Select the **REFRIGERANT TEST CHECKBOX** to use the first part of charged refrigerant (about 70 grams) to perform another test (after vacuum test successfully) before to start with the real charging process.
7. Select the **REFRIGERANT** checkbox to charge refrigerant inside the A/C system. Please click on the relative edit icon to modify the quantity to charge.
8. Finally select the type of vehicle: Thermal (Combustion engine), Hybrid, and Electric. This information is very important because each type of car needs of its specific type of lubricant oil. It is necessary take care to have not cross contamination between the different oils passing from a vehicle to another. If necessary, the equipment's display will inform the operator that it is necessary to change oil type to introduce in the bottle; for this purpose, the unit will automatic start the flushing of the internal circuit.

**IMPORTANT!**
If the unit informs the operator about the automatic flushing of the internal circuit, this must be done before connecting the Coolius C40 to the vehicle.

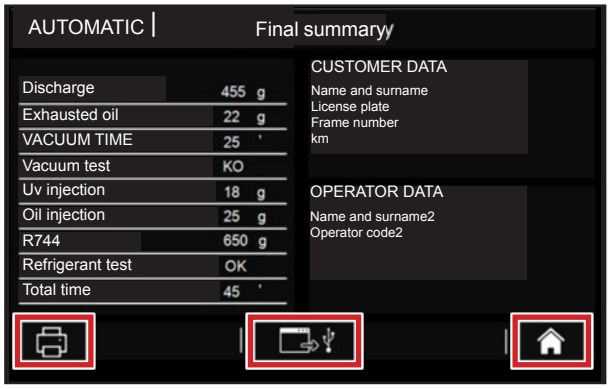
9. The operator can also select all the information, directly form the Car's database. Reading this information about the selected car, the unit will directly set the correct quantity of refrigerant to charge in the A/C system.
10. Connect the hoses to the A/C system on which you have to make the maintenance. Open the hand-wheels on the quick couplers.
11. Press the **START** button to start the function.
12. The system will continue the first stage of refrigerant recovery, then the vacuum process and the vacuum test, and then the additive and oil injections in sequence (according to the settings made.)
13. In case of emergency, it is possible to leave the function by pressing the **STOP** button. The display will show the

resume screen, with all the information of the cycle until the stop

14. It then automatically performs an additional pressure test of the A/C system with refrigerant (if selected). A known amount of refrigerant is injected into the system and the unit checks that there is no pressure drop.

**IMPORTANT!**
The refrigerant pressure test is an additional test that the unit performs after the operator has already eliminated the presence of leaks by using the previous functions of nitrogen and/or forming gas testing and then the vacuum leak test.

15. If the pressure test with refrigerant has ended successfully, you can proceed with the refrigerant charge. The charge is ended in a modulated way in order to optimise the quantity of refrigerant charged into the system.




**WARNING!**
Subsequent cracking noises in the appliance are normal during this phase.

16. When the function is completed, a beep will let the operator know that the cycle is over.
17. At the end of the process, the unit prompts the operator to switch off the A/C system to flush any remaining refrigerant from the hoses.
18. The display shows information about the cycle being performed.
19. In the final screen it is possible to print a report on printer or a report on USB stick.
20. Press on **HOME** button to come back in main menu.

# 5. USING THE COOLIUS C40 (Auxillary functions)

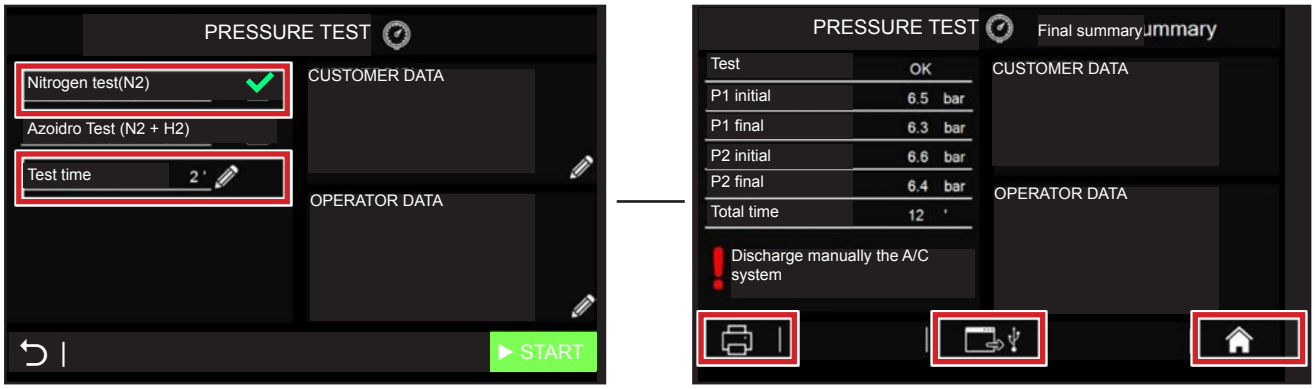
## 5.1 PRESSURE TEST WITH NITROGEN OR FORMING GAS

The unit gives the opportunity to the user to perform a pressure test of the A/C system by means of nitrogen or by means of the forming gas mixture (95% N2 – 5% H2). The test is very important to be sure that the system is perfectly tight, before charging refrigerant.

### 5.1.1 PRESSURE TEST WITH NITROGEN

1. Press the **MENU BUTTON**.
2. Select **MANUAL TEST N2/N2-H2**
3. Select **NITROGEN TEST (N2)** and set the test time clicking on the relative edit icon.

Press **START** button to start the function.




5. The display show to the user the pressurization phase.
6. By means of a suitable nitrogen kit, connect to the service connection ref. 111 on the unit. Pressurize the A/C system to the pressure set.

**WARNING!**
Pay close attention to the phase of pressurising the system with external equipment. Use only original manufacturer products.

**WARNING!**
Check carefully the value of the maximum pressure! The maximum admissible pressure is 200 bar (20.0 MPa).

**DANGER!**
Increased risk of injury!

7. When the pressurization phase is over, disconnect the external pressurization system and wait for the pressure value to become stable, before performing the test.

**IMPORTANT!**
The nitrogen escaping from the bottle experiences a thermal shock, leading to a pressure drop within seconds after being introduced into the system. Wait 1-2 minutes before starting the test until the nitrogen has stabilized at room temperature.

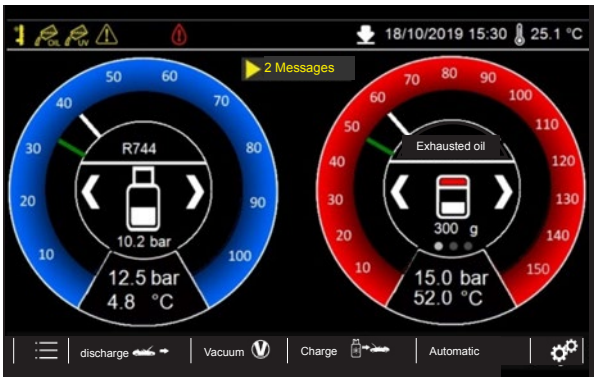
8. Press the **TEST START** button, to start the test of the system.
   a. A time countdown and the value of the pressure read by the unit's low and high sensors will appear on the display.
   b. Once the test is over, the unit inform the operator with visual and acoustic signal. Before continuing, it is necessary to discharge manually the residual nitrogen from the system. To make this operation, we suggest to unscrew one of the two connections with which the quick couplers are connected to the system (ex. 47 or 48)
   c. In the final screen it is possible to print a report on printer or a report on USB stick.
   d. Press the **HOME** button to return to the main menu.

## 5.2 CHECKING THE A/C SYSTEM OPERATING PRESSURES

Before servicing the vehicle or after, to check the quality of the service performed, it is possible to check the A/C system operating pressures.

To do this, the unit must be positioned in the standby screen.

1. Connect the 57 hose to the A/C system low pressure side.
2. Connect the 58 hose to the A/C system low pressure side.
3. Start the compressor of A/C system
4. Read on the blue gauge of low pressure on display the pressure and the relative evaporation temperature.
5. Read on the red gauge of high pressure on display the pressure and the relative condensation temperature.
6. Compare the read values with the information of the producer of the A/C system.



## 6. Menu auxiliary functions

Press the Menu button on standby screen, to select the auxiliary functions of the unit

| | |
|---|---|
| **Set cylinder data setting.** | Setting of cylinder type and cylinder data. |
| **Manual test N2 / N2-H2** | Execution of manual functions of pressurization with nitrogen and forming gas mixture. Please see paragraph 4.1. |
| **Hoses length setting** | It is possible to modify the length of flexible hoses |
| **Display brightness** | Regulation of brightness of display. |
| **Serial number** | Serial number of the unit and date of first installation. |
| **Export data** | Export of the last 20 services of the unit. |
| **Choice of oil container type** | Possibility to set the equipment to be used with standard containers for oil (standard supply) or hermetic containers (available as accessories). |

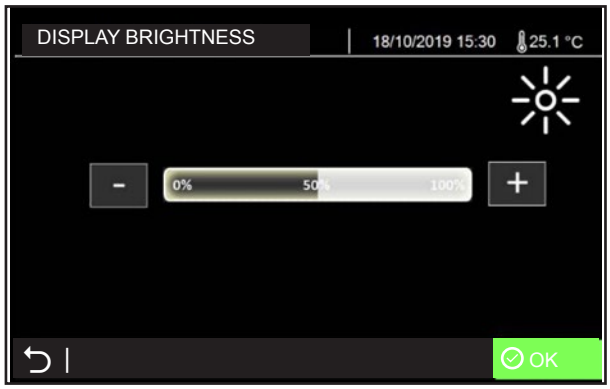
## 6.1 ADJUSTING THE HOSE LENGTH AND PRE-FILLING

The default setting of Coolius C40 unit is to work with pre-charge of flexible hoses; during the charging process, the unit does not add any refrigerant to compensate the length of the hoses.

If the operator requests it, he can set the correct length of the hoses

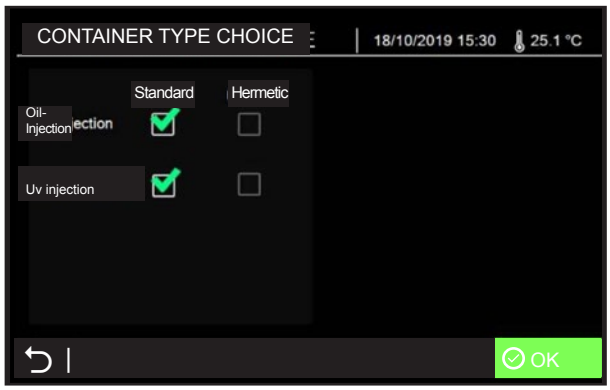

## 6.2 DISPLAY BRIGHTNESS

The brightness of the display can be adjusted using the **+** and **-** keys.




## 6.3 CHOICE OF OIL CONTAINER TYPE

Possibility to set the equipment to be used with standard containers for oil (standard supply) or hermetic containers (available as accessories).



# 7. SERVICE PROCEDURE

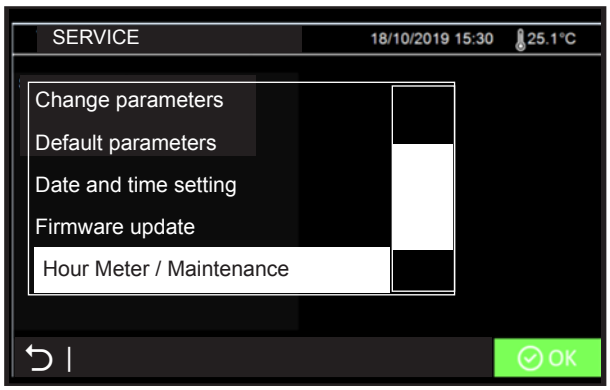
| | |
|---|---|
| **Choice of language** | Possibility to select the language of the display and of the printer report |
| **Scale reset** | Function which reset all the electronic scales of the unit to zero (protected by password) |
| **Change parameters** | Modification of working parameters (only for qualified personnel, protected by password) |
| **Default parameters** | Reset parameters to factory settings (for qualified personnel only, password protected). |
| **Date and time setting** | Modification of hour and date (protected by password 5688) |
| **Firmware update** | (only for qualified personnel, protected by password) |
| **Hour Meter / Maintenance** | Visualization of information of hours of use of the unit (protected by password) 5011 |
| **Choice of measurement units** | Modify of unit of measurement (Metric o English) |
| **Change refrigerant** | Modification of refrigerant type (only for qualified personnel, protected by password) |
| **Temperature sensor calibration** | Calibration of temperature sensor (Calibration of 2 (LOW and HIGH) pressure sensors) |
| **Calibration of pressure sensors** | Calibration of 2 (LOW and HIGH) pressure sensors (only for qualified personnel, protected by password) |
| **Scale calibration** | Calibration of the 4 electronic scales (only for qualified personnel, protected by password) |
| **Component test** | (only for qualified personnel, protected by password) |
| **Wifi** | It allows you to set the information of the Wifi connection. Available only if installed as an option. (protected by password) |
| **MQTT** | Allows you to set the MQTT server information (only for qualified personnel, protected by password). |

## 7.1 HOUR METER / MAINTENANCE

In this screen, it is possible to check all the hour meter of the unit, but also to start manually the operation of maintenance as vacuum pump oil substitution.

The requested password to access to the hour meter screen is 5011.

During the operation of maintenance, the unit reset the partial hour meter. The total hour meters are not resettable from the user.



# 8. ROUTINE MAINTENANCE

## 8.1 MATERIAL FOR ROUTINE MAINTENANCE

Specific vacuum pump oil

## 8.2 PERIODIC OPERATION

1. **Check all swivel connections for tightening every 10 operations.**
2. Check the vacuum pump oil level; the oil must be changed at least every 70 hours of operation (the unit inform when it is necessary to do this operation). The pump must be off when checking the oil level. Anyway, the unit will inform the operator when the oil must be changed

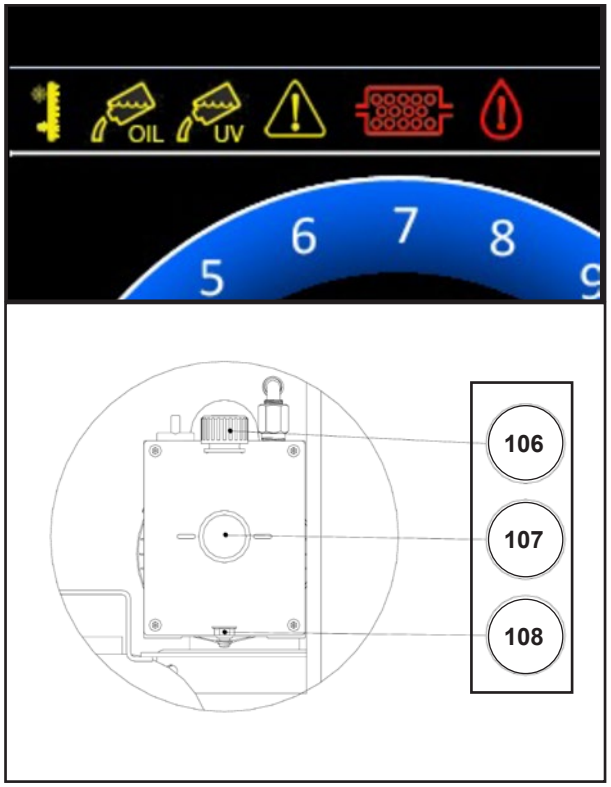
## 8.3 CHANGING VACUUM PUMP OIL

The unit alerts the operator when the oil needs to be changed.

An oil change is also essential if the oil becomes cloudy due to contamination. Contaminated oil not only prevents the pump from achieving acceptable vacuum levels, but also permanently damages its mechanical parts.

All draining and subsequent refilling operations should be carried out with the pump stopped.

To avoid reduction of the pump efficiency and to maintain its performances, use only recommended oil for maintenance.




1. Before draining the oil, run the pump for at least 10 minutes with the hoses and quick couplers in place.
2. Switch off the machine by setting switch 76 to 0 and disconnect the cable from the power supply, strictly following the sequence of operations.
3. Remove the vacuum pump cover located on the side of the machine.
4. Unscrew the drain plug 108 located at the bottom of the pump and accessible from the bottom of the machine.
5. Allow the oil to drain completely.
6. Screw the drain plug ref. 108.
7. Open the vacuum pump by means of the filler plug 106 (top).
8. Slowly pour in fresh oil until the level reaches the centre of the sight glass 107.
9. Screw the cover 106 back on and replace the previously removed cover.
10. When the oil change is complete, switch on the machine by setting switch 76 to 1.
11. Follow the on-screen instructions to reset the hour meter.

**WARNING!**
The lubricant must not be released into the environment, it is a hazardous waste and must be disposed of in accordance with current regulations.

## 8.4 HOUR METER/MAINTENANCE

You can check the status of all operating hours counters and also manually initiate maintenance operations such as changing the vacuum pump oil. When the vacuum pump oil is changed, the partial counter is reset to zero. Total counters cannot be reset by the user.

1. From the Service menu, select Counter / Maintenance. -->Password 5011
2. Click on Change oil.
3. Follow the on-screen instructions.
4. After the oil change: Reset the hour meter by clicking on 1st reset hour meter to zero.

## 9. TROUBLESHOOTING

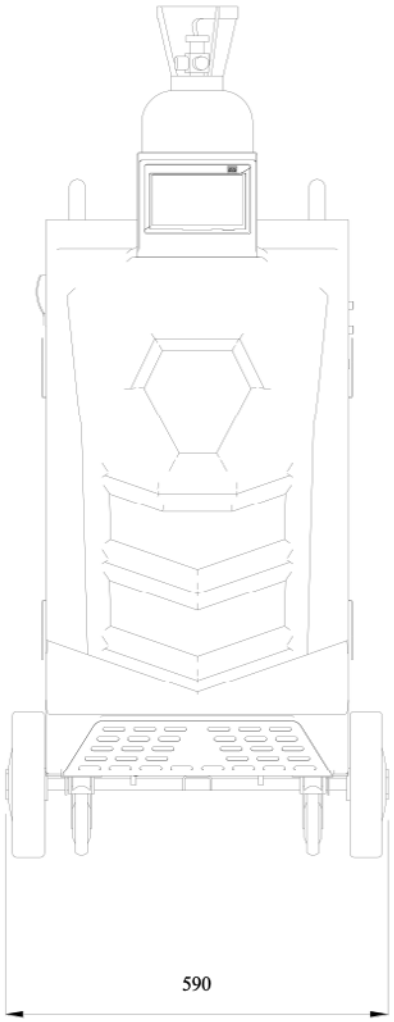
If there is a problem in the unit, this will be displayed with an alarm message. If there is a problem in the unit, this will be displayed with an alarm message.

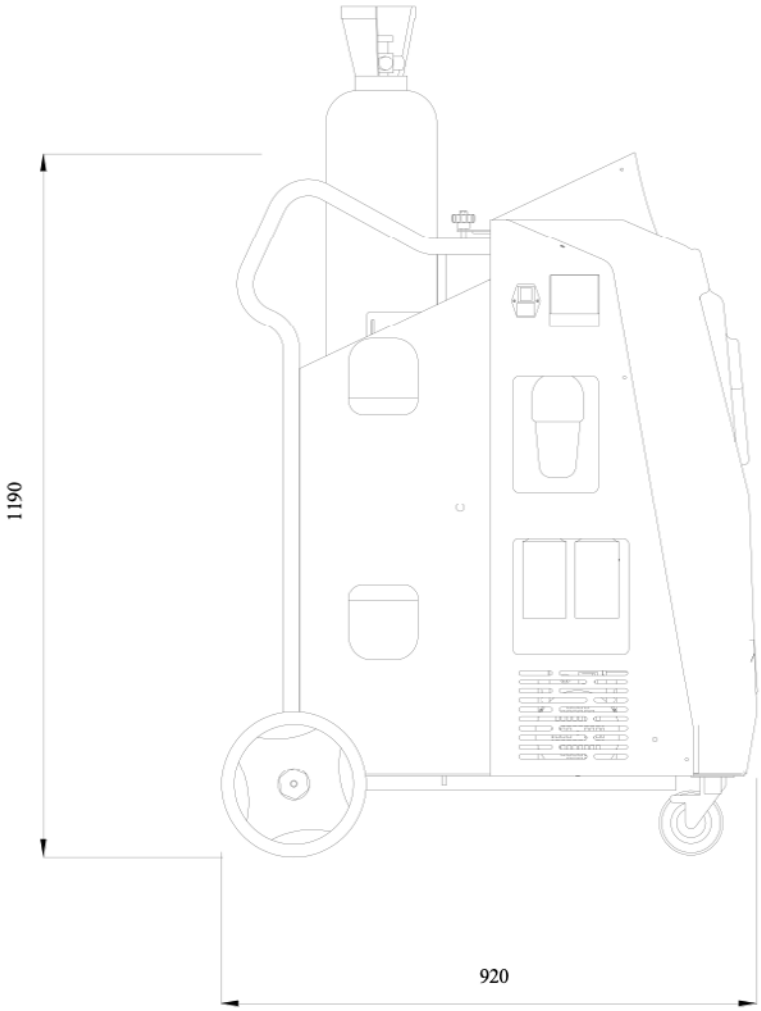
| Error code | Type of error | solution |
|---|---|---|
| **5** | No refrigerant in the A/C system. | Check that the system has no leakage |
| **8** | The waste oil container has reached its maximum capacity. | Empty it and continue with the draining process. |
| **9** | The maximum number of draining attempts has been reached. | Check that there are no obstructions in the A/C system that prevent drainage. |
| **11** | Reach maximum time to finish the operation | If this message appears during vacuum or discharge phases, check the calibration of the pressure sensors. |
| **12** | Vacuum leak detected | Repeat the cycle and if necessary increase the vacuum time |
| **13** | A/C system not in vacuum. | Vacuum phase |
| **15** | Pressure test with refrigerant failed | Verify if any leakage is present |
| **18** | A/C system not in vacuum. | It is recommended to continue with the vacuum phase. |
| **30** | System leak detected with N2. | Check for leaks, then perform a new pressure test |

## 10. Accessories and spare parts

| Code | Description |
|---|---|
| W052100180 | Adapter for hermetically sealed oil containers |

## 11. Dimensions and weights




| | |
|---|---|
| Net weight without refrigerant bottle | 85 kg |

## 12. Declaration of Conformity

| | | |
|---|---|---|
| **EN** | **EC Declaration of Conformity**<br>Refrigerant gas recovery, recycling and charge | We declare under our sole responsibility that the stated products comply with all applicable provisions of the directives and regulations listed below and are in conformity with the following standards.<br>technical file at: * |

| | | |
|---|---|---|
| COOLIUS C40 | Art. W050 140 030 | IEC 34-11 (EN 60034)<br><br>2006/42/CEE<br>2014/30/UE<br>2014/35/UE |


Loc.Spedale 10/b
52018 Castel San Niccolò
(AR) Italy
Tel. 0575 / 5011
Fax. 0575 / 501200


Bevollmächtigt die technischen Unterlagen zusammenzustellen
Authorized to compile the technical file
Autorizzato alla preparazione della documentazione tecnica
Autorisé à compiler la documentation technique
Autorizado para la redacción de los documentos técnicos
Autorizado a reunir a documentação técnica
Gemachtigd voor samenstelling van de technische documenten
Autoriseret til at udarbejde de tekniske dokumenter
Autorisert til å utarbeide den tekniske dokumentasjonen
Valtuutettu kokoamaan tekniset dokumentit
Befullmäktigad att sammanställa teknisk dokumentation
Εξουσιοδοτημένος να συντάξει τον τεχνικό φάκελο
Teknik evrakları hazırlamakla görevlendirilmiştir
Upełnomocniony do zestawienia danych technicznych
Műszaki dokumentáció összeállításra felhatalmazva
Zplnomocněn k sestavování technických podkladů
Splnomocnený zostaviť technické podklady
Împuternicit să elaboreze documentaţia tehnică
Pooblaščen za izdelavo spisov tehnične dokumentacije
Упълномощен за съставяне на техническата документация
On volitatud koostama tehnilist dokumentatsiooni
Įgaliotas parengti techninius dokumentus
Pilnvarotais tehniskās dokumentācijas sastādīšanā
Ovlašćen za izradu tehničke dokumentacije
Уполномочен на составление технической документации

CE

Gastone Vangelisti
(President)

Castel San Niccolò, 16/05/2023

## 13. Contact and support

If you have any further questions about the product or need help with the installation, our service team members in your country will be happy to help you.

You can find the contact addresses of dealers and service partners in your country on our website: www.wow-portal.com/contact

## 14. Service Portal

The activation of Coolius air conditioning service devices can be done independently on the website www.coolius-ac.com. Additionally, you will find more help and instructions for your COOLIUS air conditioning service unit on the website.

Loc.Spedale 10/b 52018
Castel San Niccolò
(AR) ITALY
Tel. ++39-0575-5011
Fax. ++39-0575-501200
info@wigam.com
www.wigam.com