meler

GLUING SOLUTIONS


INSTRUCTIONS
MANUAL

# ADHESIVE MELTER **MICRON+ TPD**

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The specifications and information contained in this manual may be modified without prior notice.

The official language of this manual is only the English language. The remaining versions of the manual in other languages are mere translations without any official value or efficacy. In case of discrepancies or contradictions between the English version of the manual and any other version of the manual written in another language, the English version will prevail.

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# 1. SAFETY GUIDELINES

## General

The information contained in this section applies not only to everyday equipment operation, but also to any procedure carried out on it, whether for preventive maintenance or in the case of repairs and the replacement of worn out parts.

It is very important to observe the safety warnings in this manual at all times. Failure to do so may result in personal injury and/or damage to the equipment or the rest of the installation.

Before beginning work on the equipment, read this manual carefully, and in case of any doubt, contact our Technical Service Center. We are available for any clarification that you might need.

Keep manuals in perfect condition and within reach of personnel that use the equipment and perform maintenance on it.

Also provide necessary safety material: appropriate clothing, footwear, gloves and safety glasses.

In all cases, observe local regulations regarding risk prevention and safety.

## Symbols

The symbols used on both the melter/applicator equipment and in this manual always represent the type of risk we are exposed to. Failure to abide by a warning signal may result in personal injury and/or damage to the equipment or the rest of the installation.

**Warning:** Risk of electrical shock. Carelessness may produce injury or death.

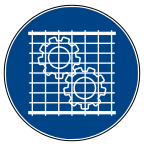
**Warning:** Hot zone with high temperatures. Risk of burns. Use thermal protective equipment.

**Warning:** System under pressure. Risk of burns or particle projection. Use thermal protective equipment and glasses.

**Warning:** Important information for the correct use of the system. May include one or several of the previous hazards, and therefore must be kept in mind to avoid damage and injury.

**Warning:** Dangerous area. Risk of entrapment. Carelessness may produce injury or death.

## Mechanical components



The hot-melt installation, which is installed to this device, requires moving parts that can cause damage. Use the equipment correctly, and do not remove the safety guards while the equipment is in operation; prevent the risk of possible entrapment due to moving mechanical parts.

Do not use the equipment if the safety devices are not in place or appear to be inadequately installed.

For maintenance or repair operations, stop the movement of moveable parts by turning off the main switch.

The device has no moving mechanical parts, so it does not pose risks to consider in this section.

## Electrical components

The system works with single-phase or three-phase current of a certain power. Never handle the equipment with the power connected, as this may result in powerful electrical shocks.

The installation must be correctly grounded.

The installation's power cable conductors must match the required electric current and voltage.

Periodically inspect the cables to check for crushing, wear and tear, as well as to prevent tripping and falls as a result of their placement.

Although the system meets EMC requirements, it is inadvisable to use devices that transmit high levels of radiation, i.e., mobile phones or soldering equipment in their vecinity.

## Hydraulic components

As this is a pressurized system, precautions related to this type of equipment must be observed.

Before each operation, always make sure that the adhesive circuit is completely free of pressure. There is a high risk of hot particle projection, along with the corresponding danger of burns.

Use caution with the residual pressure that may remain in the hoses when the adhesive cools. When reheated, there is a risk of hot particle projection if the outputs are left open.

## Pneumatic components

Some equipment uses compressed air to 6 bar pressure. Before any manipulation, please ensure that the circuit has lost fully air pressure. The risk of projection of particles at high speed can cause injury to a certain severity.

Extreme precautions with the residual pressure that could be contained in the circuit, before disconnecting any pneumatic feeding tube.

## Thermal components

The entire system works with temperatures that can exceed 200°C (392°F). The equipment must be operated using adequate protection (clothing, footwear, gloves and protective glasses) that completely cover exposed parts of the body.

Keep in mind that, due to the high temperatures reached, the heat does not dissipate immediately, even when the power (in this case, electric) source is disconnected. Therefore, use caution, even with the adhesive itself. It may remain very hot, even in a solid state.

In case of burns:

1. If the burn is the result of contact with melted adhesive, do not try to remove the adhesive material from the skin. Do not try to remove it once it has solidified either.
2. Cool the affected area down immediately with lots of cold and clean water.
3. Seek medical attention as soon as possible either from the company's medical service or the nearest hospital. Provide the medical staff with the Safety Information Sheet of the adhesive.

## Materials

Meler systems are designed for use with hot-melt adhesives. They should not be used with any other type of material, and especially not with solvents, which may cause personal injury or damage to internal system components.

Some units are specifically designed to use polyurethane reactive (PUR) hot-melt adhesives. Using PUR on a unit that is not prepared for that purpose may cause severe damage to the unit.

When using adhesive, follow the corresponding guidelines found in the Technical and Safety Sheets provided by the manufacturer. Pay special attention to the advised work temperatures in order to prevent adhesive burning and degradation.

Ventilate the work area adequately in order to remove the vapors produced. Avoid the prolonged inhalation of these vapors.

Always use original Meler components and replacement parts, which guarantee the correct system operation and service.

## Noise emission declaration

The A-weighted emission sound pressure level ($L_{pA}$) of the unit in operation does not exceed 70 dB(A) under any circumstances.

The maximum C-weighted sound pressure level ($L_{pCpeak}$) and the A-weighted sound power level ($L_{WA}$) do not exceed values worthy of mention and thus do not represent a specific risk that must be taken into account.

## Intended use

The equipment are designed to be used in the following conditions:

- Hot-melt adhesive fusion and pumping at temperatures up to 200 °C (392 ºF). Consult with Meler technical service to operate with higher working temperatures.
- Use of equipment with Meler accessories.
- Installation of equipment according to the security regulations currently in force and the instructions provided in this manual (anchoring, electrical connection, hydraulic connection, etc).
- Use of equipment in non-explosive, non-chemically aggressive environments.
- Use of equipment following the safety instructions indicated in this manual, as well as on the labels accompanying the equipment, using adequate means of protection during each mode of operation.

## Limited use

The equipment should never be used under the following conditions:

- Use with reactive polyurethane or any other material that might cause safety or health risks when heated.
- Use of equipment in environments where cleaning is necessary using water jets.
- Use of equipment to heat or melt food products.
- In potentially explosive atmospheres, aggressive chemical environments or outdoors.
- Use or operation without adequate safety protection.
- If the person in question does not have the necessary training to use the unit or to apply all of the necessary safety measures.

**Note:** Do not modify the equipment or use components that were not supplied by Meler. For any modification of a component of the equipment or part of the installation, you must firstly consult the After-Sales Service

# 2. INTRODUCTION

In this manual you will find information about the installation, use and maintenance of the hot-melt adhesive melter in meler's Micron+ TPD model.

Most of the photographs and illustrations that appear in this manual refer to the 5-liter 'Micron+' standard melter. This model has been used as a reference for writing this manual as its main characteristics.

## Description

The 'MICRON+' are designed for use with 'meler' hoses and applicators in hot-melt adhesive applications. Their different variations – line, coating or swirl-spray – cover a wide range of applications, being very versatile in all markets where they are used.

### Modes of operation

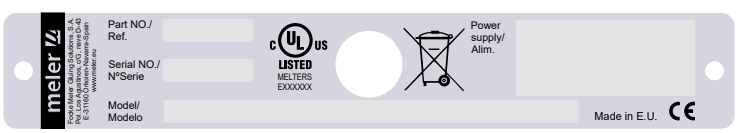
The unit has the following operating modes:

- **READY Mode (Prepared).** The melter keeps the components hot at the programmed working temperature. The pump is kept idle, awaiting an adhesive pump request.
- **RUNNING Mode (in Operation).** The unit pumps adhesive, and all programmed working conditions are correct.
- **STOPPED Mode (Pumping disabled).** The pump is kept disabled until the pump is either manually or automatically activated.
- **Heating Mode.** The unit heats the areas up to the programmed temperature. The pump is kept disabled.
- **STANDBY Mode (Low consumption).** The melter remains in standby while maintaining all active areas at a programmable temperature. The pump remains disabled.
- **WARNING Mode.** The melter detects an incorrect operation or warns the operator about the event. The unit can continue to operate.
- **ALARM Mode.** The melter detects an operation error or warns the operator about the event. Depending on the type of alarm, the unit may continue to operate for a programmed amount of time.
- **ERROR Mode.** The melter detects an operation error or warns the operator about the event. The unit cannot continue to operate, and pumping is stopped immediately. Depending on the type of error, the unit disconnects heating from all the areas.
- **OFF Mode.** The unit remains off with no areas heated and the pump disabled. The power and pneumatic supply from the network to the unit is maintained.

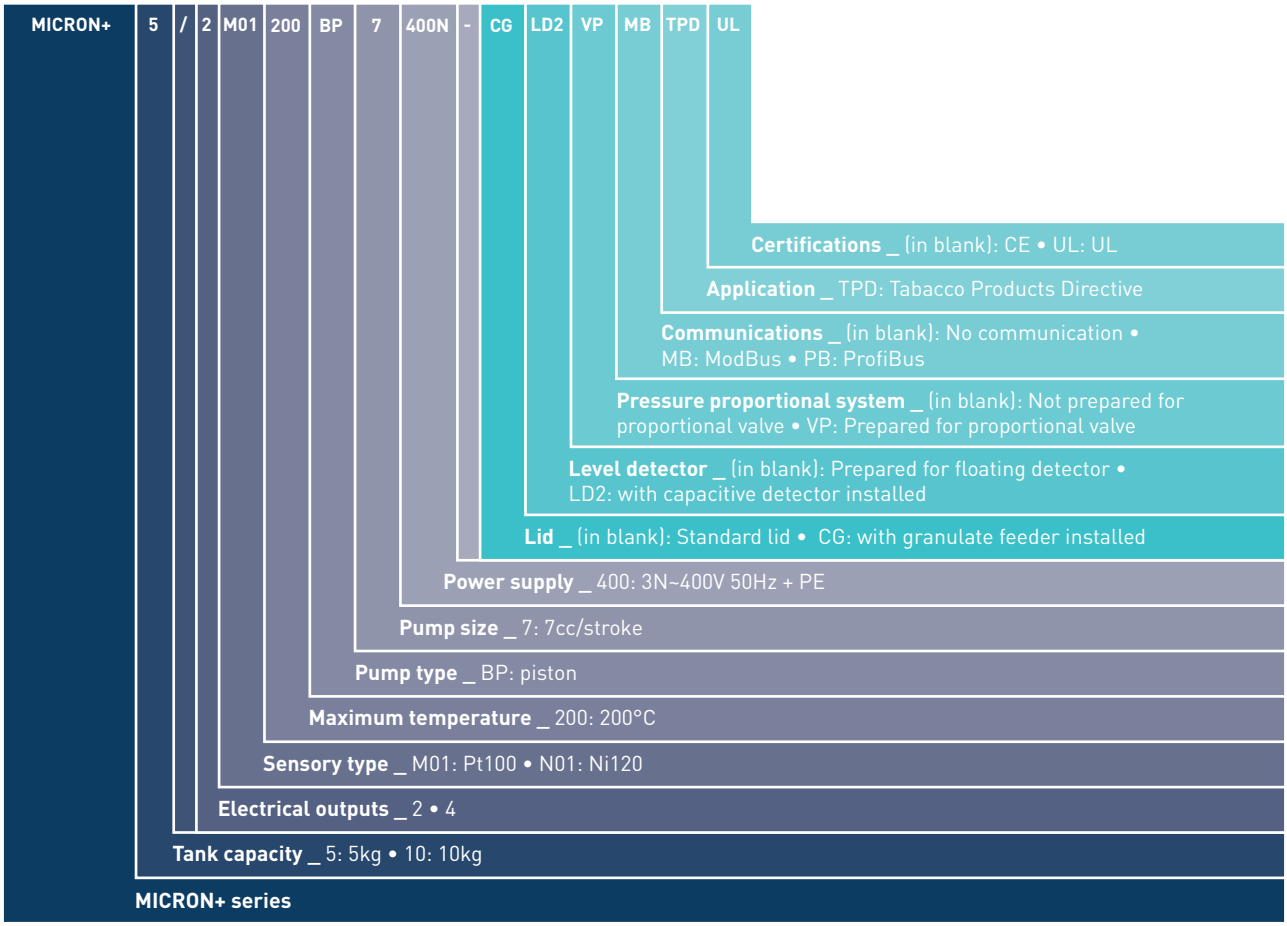
### Hot-melt melter identification

When placing orders for replacement parts or requesting help from our service center, you should know the model and reference number of your hot-melt melter.

This data as well as further technical information can be found on the type plate, which is attached to the side of the base of the melting unit.



## Micron+ TPD series range

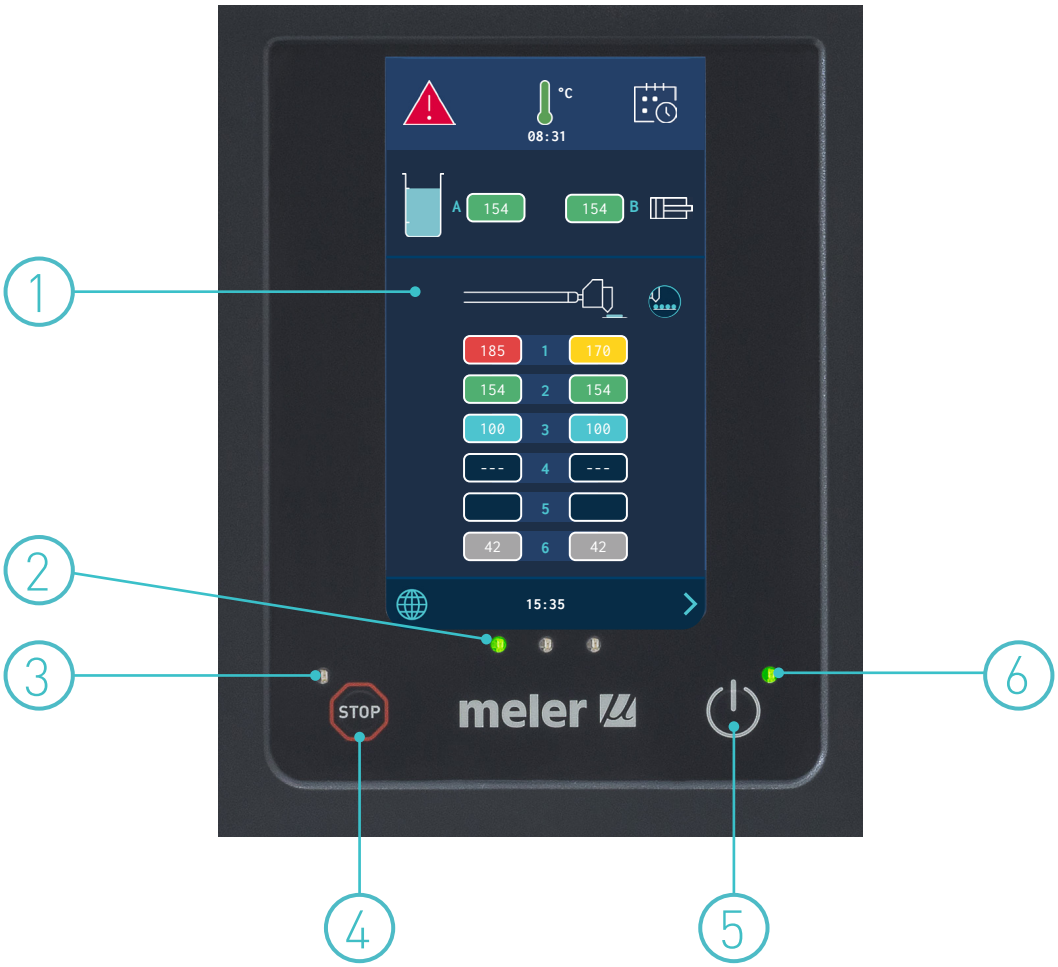


## Main components

1. Front control card.
2. Access door to the electric/pneumatic area.
3. Tank access lid.
4. Air pressure gauge.
5. Hydraulic pressure display.
6. Pump air pressure regulator.
7. Main switch.
8. Set of pump drain valve and filter.
9. Hose output distributor (6 hydraulic connections).
10. Compressed air hook-up (Max. 6 bar).
11. Hose electrical connections. (Up to 6 electrical connections).
12. Electrical power connector.
13. External I/O connector.
14. Characteristics plate.
15. Hose output protection.

## Control panel components

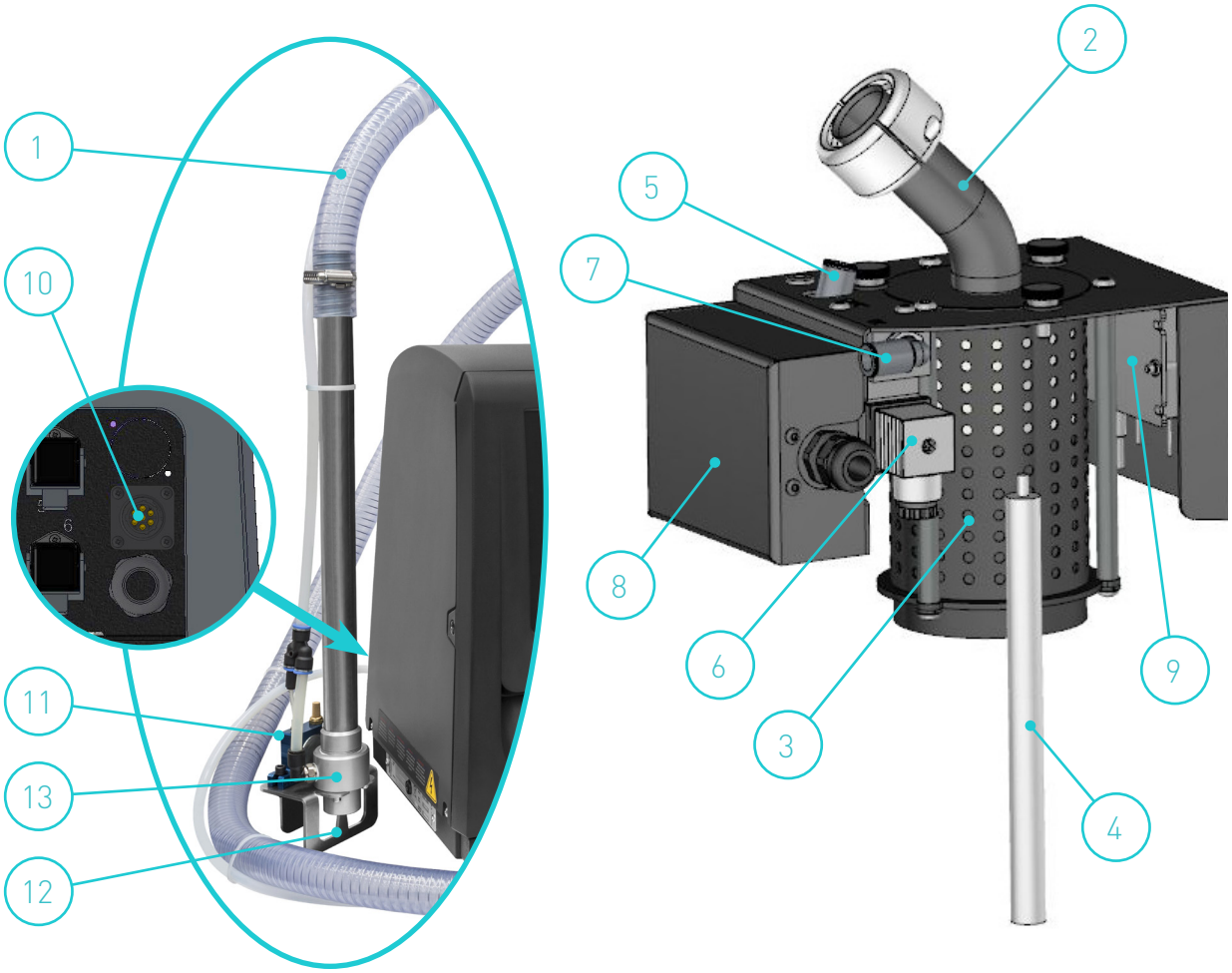
1. Touch screen.
2. Status central leds (GREEN, YELOW, RED).
3. RED led 'pumping OFF'.
4. STOP button 'manual pumping'.
5. GREEN led 'power ON'.
6. Touch screen ON/OFF button.



## Automatic feeder main components (optional)

### General

1. Flexible Load Tube
2. Rotary fitting
3. Unload Filter
4. Load Sensor
5. Output air supply to the suction area
6. Electric load valve
7. Input air supply (from the grid)
8. Junction box
9. Level sensor amplifier
10. Sensor and power supply connector
11. Pneumatic vibrator
12. Suction area
13. Air feeding tube



# 3. INSTALLATION

**Warning:** The melters are equipment with current technology and with certain foreseeable risks. Therefore, only allow qualified personnel with sufficient training and experience to use, install or repair this equipment.

## Introduction

The 'Micron+' series melters are delivered with all the materials necessary for their installation. However, some components must be provided by the user himself, according to the location and connections in each particular installation:

- Anchoring screws for the melter equipment.
- Power cord and plug for electrical power.
- Pneumatic pipe and connection to the compressed air system.
- Multicore cable for external electrical control.
- Optionally, a gas ventilation system.

## Installation requirements

Before installing 'Micron+' series melter equipment, we must make sure that the space assigned to it permits installing, connecting and using the entire system. Similarly, we must check to see that the electrical and pneumatic supplies meet the necessary requirements of the melter equipment being installed.

**Free space**

| Item | Description | Micron+ 5 TPD | Micron+ 10 TPD |
|---|---|---|---|
| A | EQUIPMENT LENGTH | 588 mm | 671 mm |
| B | EQUIPMENT WIDTH | 380 mm | 380 mm |
| C | EQUIPMENT HEIGHT | 600 mm | 600 mm |
| D | EQUIPMENT HEIGHT WITH LID OPEN | 747 mm | 880 mm |
| E | EQUIPMENT LENGTH WITH ELECTRICAL CABINET OPEN | 838 mm | 921 mm |

**Electrical Consumption**

In order to install a 'Micron+' series melter, we should take into consideration the total consumption of the installation, including the consumption of the installed hoses and applicators.

Before connecting, make sure that the voltage that is being connected to the melter is the correct one appearing on the equipment's characteristics plate.

Connect the machine and check to see if it is well grounded.

**Warning:** Risk of electrocution. Even when the equipment is turned off, voltage remains in the intake terminals, which may be dangerous during internal equipment manipulations.

Install a power switch for disconnecting the melter equipment from the electrical network. It must be protected against overload and short circuits by circuit breaker and install appropriate personal protection leads to mass by differential switch.

Consumption figures, according to melter and output configuration, are included in the table in the section 'Electrical power connection'.

**Compressed air**

To install 'Micron+' series melters, it is necessary to have a dry, non-lubricated compressed air system with a maximum pressure of 6 bar.

The applicator's internal pneumatic equipment is able to work with a minimum of 0.5 bar, however, pressure lower than this will cause intermittent operational anomalies.

The air consumption is according to the number of stroke made by the pump cylinder, which in turn depends on the adhesive consumption during the application. It is therefore necessary to estimate this consumption in all cases. Generally speaking, we can provide as a maximum consumption value 40-50 l/min for a pressure of 6 bar at maximum pump speed.

### Other factors

While installing 'Micron+' series melters, other practical considerations should be kept in mind:

- Keep the load opening accessible for comfortable melter filling.
- Position the melter equipment in such a way that you can easily see the front panel display where temperatures and possible alarm signals are shown.
- As much as possible, try to avoid unnecessarily long hoses that result in elevated electrical energy consumption levels and pressure drops.
- Do not install the melter equipment beside powerful heat or cooling sources that may have distortional effects upon its operation.
- Avoid melter vibrations.
- Make sure that the melter maintenance areas (filter, purging valve, tank interior, etc.) are easily accessible.

## Unpacking

Before proceeding with the installation of the melter, it should be removed from its location on a pallet and examined in order to detect any possible breakage or deterioration. Communicate any defect, even to the outer packing materials, to your 'meler' Representative or to the Main Office.

### Contents

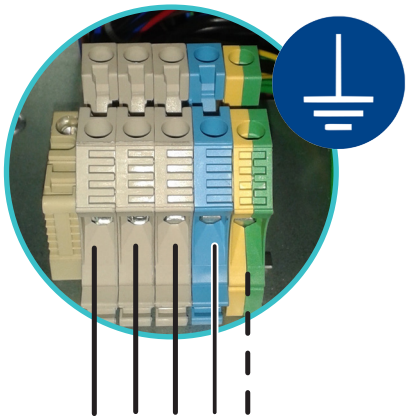
The 'Micron+' series packing materials may contain accessories that form part of the same order. If this is not the case, the following are the standard components that accompany the melter :

- Instruction manual.
- Guarantee card.

## Mounting the equipment

For mounting the 'Micron+' series set the base in the desired location using the indicated holes M8 screws.


**Warning:** Make sure that the bench where the base plate is fastened is level, free from vibrations and is able to support the weight of the equipment in addition to the full tank load.




**3N~400/230V 50Hz + PE**

## Electrical power connection

The equipment are designed to be connected to the electrical power supply from the 'harting' externar connector of 3-phases 400/230 VAC with neutral.

A good ground connection is required in all cases.

Consumption figures, according to melter and output configuration, are included in the table.

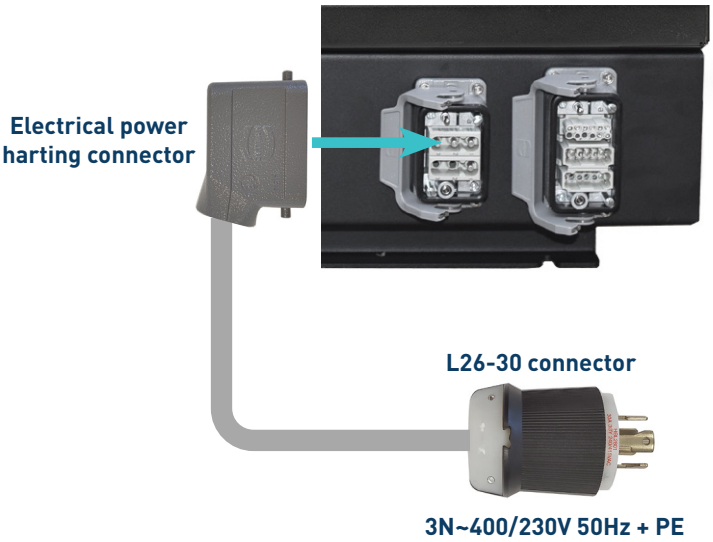
| Equipment | No. Outputs | 3 Phases |
|---|---|---|
| | | 400 VAC Y (*) |
| Micron+ 5 TPD | 2 | 10,00 A |
| | 4 | 15,65 A |
| Micron+ 10 TPD | 2 | 14,35 A |
| | 4 | 15,65 A |

Consumption values concerning each equipment can be found in the characteristics plate.

(*) Nominal voltage ±10% according to IEC 60038.

### Preinstalled electrical power harting connection

The equipment can be optionally supplied with pre-installed Harting connector for power supply (150100630).



## Pneumatic connection

Before connecting the pneumatic power to the melter , make sure the pressure regulator is completely closed. To do this, turn the regulator located on the front of the equipment next to the pressure gauge counterclockwise as far as it will go.

Connect the plant air supply (max. 6 bar) to the melter intake using flexible tubing with an outside diameter of 8 mm. The equipment is provided with a quick coupling for this purpose.

Activate the air supply to pass and turn the pressure regulator clockwise. Adjusting to 1 bar of pressure is enough for checking the pump operation.

The pump will not operate and the pressure gauge will show 0 bar until the melter and the hoses-applicators connected to it reach the correct temperature.


Once the pump operation has been checked, you may adjust the pressure to the operational value you wish.

In the pressure gauge can be found pneumatic and hydraulic pressure values, the relation between both are 1:13.

## Hose and applicator connection

The equipment use standard 'meler' components. The entire range of 'classic', 'compact' and 'manual' hoses and applicators may be connected to this equipment. Up to four hose-applicator outputs may be connected.

**Warning:** When connecting hose-applicator outputs, verify that the connected power is not above the maximum allowable power for each output.

'Micron+' TPD series melters are equipped with a six outputs hydraulic distributors. Connect the hoses to the distributor in order, following the numbering in the diagram.


Caution:

- In order to identify each hose-applicator, electrically connect them to the connector with the same number as the output they use.
- It is preferable to use couplings at a 90° angle to minimize the space the hoses occupy. Using straight couplings usually results in curves with very small radii that may damage the inside of the hose.
- Save the screw-on caps that are removed from the distributor in order to connect a hose. They may be necessary in the future if a hose is removed from its location.
- Perform the electrical hose and applicator connections with the equipment turned off. Failing to do so may result in electrical defects in the connection and the appearance of alarm messages on the melter display.

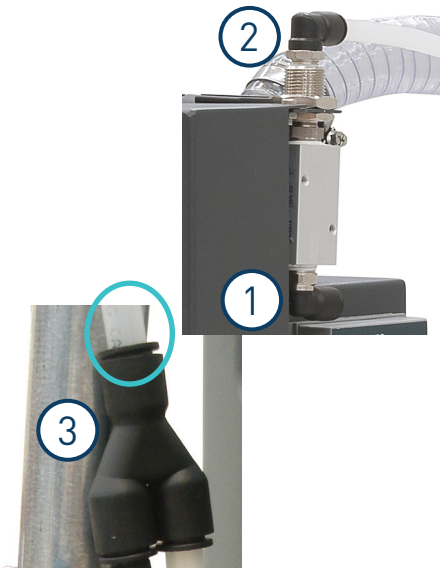
## Automatic feeder assembly

### Electrical connections

Connect the power and the signal cable to the corresponding socket on the back of the equipment.

### Pneumatic connection

Before connecting the pneumatic power to the vacuum feeder, make sure the pressure regulator on the system and the main air supply is completely closed.



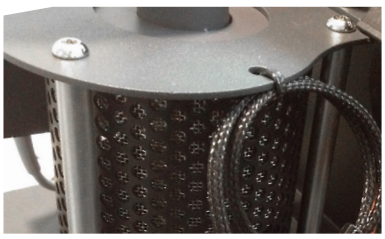

Connect the vacuum feeder through a flexible tube with outside diameter of 10 mm to the general air supply (6 bar max.) (1). The unit has a quick coupling for this connection.

The air outlet grid (2) is connected by a flexible hose outside diameter 10 mm to the Y quick connector (3) located in the area of the suction adhesive.

To be sure about the connection of the tubes in the inlet and the outlet, the valve is marked with the numbers 1 and 2 respectively. See the pictures.

Once connected, open the air supply verify that you have maximum 6 bar pressure. Pressures higher than that causes an unnecessary expense and the possibility to produce turbulences in the hot melt tank with consequent malfunction of the unit.

### Suction tube connection

The suction tube should be connected to the swievel elbow of the vacuum feeder, inserting it into the inside of the metallic mouth down to its bottom.

Place the swievel elbow to the most convenient position for installation, depending on the location of the hot melt container.

Therefore:

- Loose slightly the three fixing screws for the lid of the filter and set the swievel elbow.
- Place the swievel elbow to the desired position, twisting it in the required sense.
- Tight the three fixing sc rews to the position of the elbow and prevent their movement.

**Placing the suction tube**

To transfer the adhesive from the adhesive container to the hot melt equipment, the suction tube should be inserted to the bottom of the container.

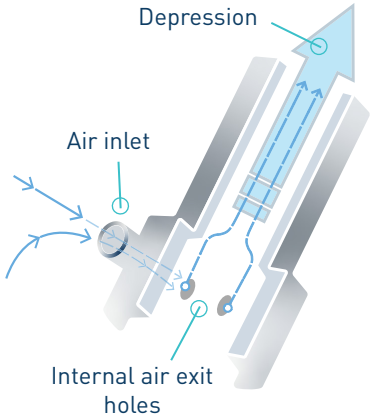
The four flaps that protects the entrance of the suction tube are designed to keep the suction mouth open and without obstructions. It maintains a free way for the suctioned adhesive.

The vibratory element (pneumatic) keeps the adhesive loose around the entrance to facilitate its suction.

The aspiration element uses compressed air. By the help of the venturi effect, a depression is created in it, that absorbs pearled and pallet adhesive and drives it to the shell of the hot-melt system.

The Venturi effect, applied to the vacuum feeder, consists in a decrease of the air pressure by an air flow inside the closed circuit while increasing the air speed when passing through the narrowing of the entry mouth.

As the entry of aspiration is connected to this point, the aspired adhesive stays in it and is transported to the hot-melt tank through the flexible communication hose.




## Parameter Programming

Once the melter/applicator and its components are installed, you will need to program the operational parameters appropriate for the specific application that will be performed.

Chapter “4. MELTER OPERATION” details the operating modes of the machine and its configuration..

## External I/O connections

The melter's input and output signals (I/O) allow it to communicate with the main machine simply and directly through the "harting" connector on the back of the device.

There are seven signals that may be used to communicate with the main machine:

**Inputs:**

- **External Standby_**control input from the standby mode, via a non-voltage contact. The standby function is connected with an open contact; a closed contact disconnects it.
- **Output disabled_**disabled input signal for each hose-applicator output via a non-voltage contact. With a closed contact, the output remains activated (output on); with an open contact, it is deactivated (output off).
- **Swich ON/OFF_**control input from the ON/OFF mode, via a non-voltage contact. Every time it closes, the melter change from ON to OFF or from OFF to ON alternatively.
- **Safety pressure contacts_**A double safety system to relieve the pressure switching off the air supply to the pneumatic driver via the input solenoid valve assembled on the pneumatic driver. These safety contacts switch off the signal to the solenoid valve so it cut off the air supply to the melter.
- **ModBus/Profibus communications (Optional)**_The unit comes with the option of an port for communications ModBus or Profibus.

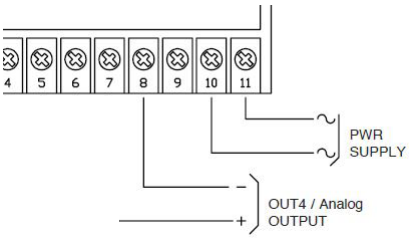
**Outputs:**

- **Temperatures ok_**an output from a non-voltage contact that communicated to the main machine (or to a warning light beacon) that all the system temperatures have reached 3° below their set point value (and the delay time have finished) during start-up.
- **Low level_**an output from a non-voltage contact that communicates to the main machine (or to a warning light beacon) that the adhesive fluid level in the tank has reached the minimum level established (optional)


- **Hydraulic circuit pressure_**A pressure sensor added into the manifold to get the real hydraulic working pressure in the system. The pressure value can be seen in a display located in the front panel below the control cabinet. Also the pressure value can be read from the main machine linking it to the display connections in the melter via 4-20mA signal.

### Pressure value reading connection

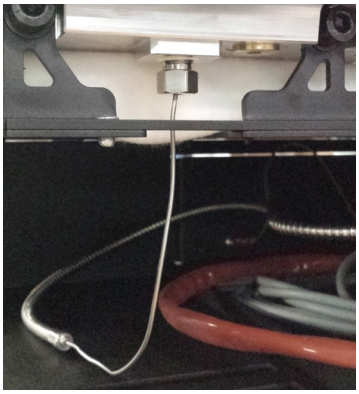
Hydraulic circuit pressure can be read on the display placed in the melter base. Reading pressure is set between 0 to 100 bar.

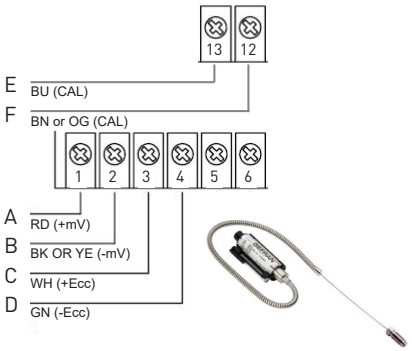

### Pressure sensor connection

Pressure sensor connection is done as shown in the picture. The signal is giving in voltage values (mV).

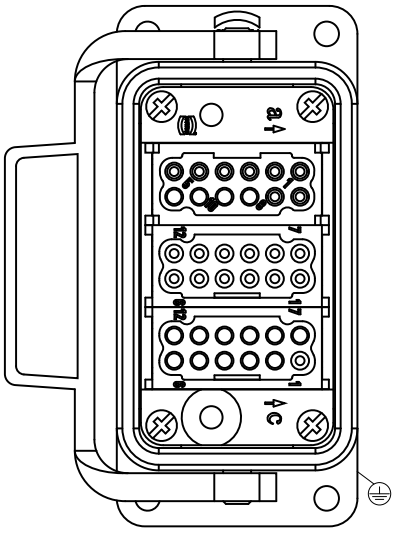
Pressure sensor is connected to the display terminal blocks 1, 2, 3 and 4.



pressure sensor placed into the output hydraulic circuit



## Description of I/O Connections



| Signal | Connection type | Pin in the connector |
|---|---|---|
| Ext. pump enable (safety) 1 (+ giving) | female | a1 |
| Ext. pump enable (safety) 4 (+ giving) | female | a2 |
| Temperature OK 2 | female | a3 |
| Filling Level low 2 | female | a4 |
| Glue pressure (4-20mA) (+ giving) | female | a5 |
| Standby (Eco mode) 1 (+ giving) | female | a6 |
| Temperature hose activation + | female | a7 |
| Ext. switch off 1 (+ giving) | female | a8 |
| Ext. pump enable (safety) 2 | male | b1 |
| Ext. pump enable (safety) 3 | male | b2 |
| Temperature OK 1 (+ coming) | male | b3 |
| Filling Level low 1 (+ coming) | male | b4 |
| Adhesive pressure (4-20mA) GND | male | b5 |
| Standby (Eco mode) 2 | male | b6 |
| Temperature hose activation 1 | male | b7 |
| Temperature hose activation 2 | male | b8 |
| Temperature hose activation 3 | male | b9 |
| Temperature hose activation 4 | male | b10 |
| Temperature hose activation 5 | male | b11 |
| Temperature hose activation 6 | male | b12 |
| Ext. switch off 2 | male | c1 |

| Function | Signal Pins |
|---|---|
| Safety Contact 1 | a1 + b1 |
| Safety Contact 2 | a2 + b2 |
| Temperature Ok | a3 + b3 |
| Low Level Signal | a4 + b4 |
| Adhesive Pressure | a5 + b5 |
| Standby Contact | a6 + b6 |
| Temperature Hose Activation 1 | a7 + b7 |
| Temperature Hose Activation 2 | a7 + b8 |
| Temperature Hose Activation 3 | a7 + b9 |
| Temperature Hose Activation 4 | a7 + b10 |
| Temperature Hose Activation 5 | a7 + b11 |
| Temperature Hose Activation 6 | a7 + b12 |
| Switch Off | a8 + c1 |

## Solenoid valve without manual override

The 'Micron+' 5 TPD remove the manual override of the input solenoid valve (standard in all Focke Meler pneumatic drivers).

The manual override allows to fix the position of the valve in open mode so the electrical signal to the valve has no effect (*). These safety contacts have not effect in the pressure relief valve which remains closed even in a safety situation without relieving the hydraulic circuit pressure.

(*) solenoid valve without manual override has a different coil voltage (24VDC instead of 230VAC) and a different coil connector.

solenoid valve with manual override

solenoid valve without manual override

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# 4. MELTER OPERATION

In this section we will introduce the method for using the melter. Although its operation is very simple, it should not be used by untrained personnel.

**Warning**: Improper use may cause damage to the machine or injury and even death to the person using it.

## General information

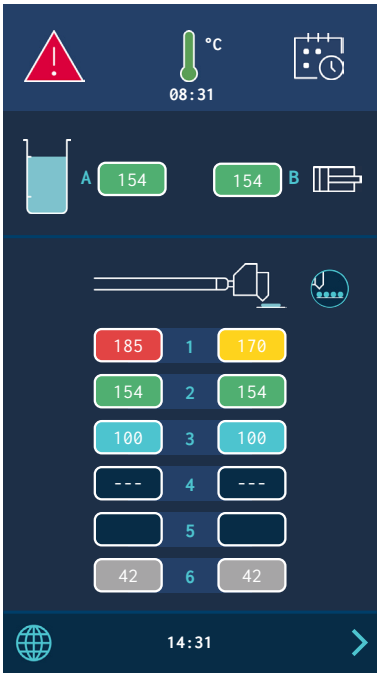
There are three large groups of components with thermal control in a hot-melt installation: the fusion unit, the transport hoses and the applicators. All of these are controlled from the front panel of the melter equipment.

The first large group is the tank-distributor group. Combined to form a single unit, they have separate controls.

The second group is the hose group. They are identified on the front panel, depending on the equipment model, by number, from number 1.1 to number 6.1 . Each one has its own set point value.

The third group is the applicators group. It is identified on the front panel, depending on the equipment model, by number from number 1.2 to number 6.2 . Each one has its own set point value.

The hose and applicator numbers are automatically assigned to the hose/ applicator channel they are connected to on the rear part of the melter.




## Filling the tank

**Warning**: Before refilling the tank, make sure that the adhesive is the same type as that already in the tank. Mixing different types of adhesives can cause damage to the melter equipment.

The tank can be equipped with a low level capacitive sensor that warns when the level of hot-melt adhesive drops below a third of the tank's capacity.

The unit will deactivate the external signal and, if it is connected, will activate its the corresponding warning device.

To fill the tank:

1. Open the tank lid
2. Use a shovel or a ladle to fill the tank with adhesive. Do not fill the tank above the loading opening level. The lid must be able to close normally.

| Model | Capacity* | |
|---|---|---|
| Micron+ 5 TPD | 5.15 l | 5.15 kg |
| Micron+ 10 TPD | 9.70 l | 9.70 kg |
| * for density of 1g/cm$^3$ | | |

**Warning**: Risk of burns. Always refill using protective gloves and goggles.

3. Close the lid when you have finished refilling the tank.

If the equipment has an automatic adhesive loader, see the section 'Using the automatic loader'.

## Manual starting up the melter equipment

**Warning:** Automatic start depends on the type of set-up and the installation conditions of the unit. For more information, please see the 'Turn off function after resetting' and 'Setting up the turning on and activation of pumping' sections.

Before starting up the melter equipment, it is necessary to check to see if the unit has been correctly installed and all its input/output and accessory connections are correctly established.

It is also necessary to make sure that the equipment has been filled with adhesive and that the operational parameters have been programmed.

To start:

1. Connect the melter's switch.

   When the switch is actuated, the GREEN POWER LED remains lit. The unit is powered but the screen stays off.

2. When you press the ON/OFF button, the screen lights up and the POWER LED stays lit. The main screen shows the unit's status.

   One it has reached 3° below the programmed temperature (set point) of the all active elements, a programmable delay timer starts until, guaranteeing fusion, the pump receives permission to operate and the signal will be sent to the main machine by the external output 'Temperature OK'.

While the system counts down the delay time, the temperature OK symbol flashes until the programmed time value is reached. The screen displays the actual temperature values for each zone at all times.

If the temperatures of all the active zones exceed the set point temperature -3° in under 5 minutes, the unit will pass to 'Temperature OK' status without taking the 'Pumping Permission Delay' into account.

3. Use the machine's pressure gauge to make sure that the generated pressure is adequate. Values below 0.5 bar may cause erratic pump action.

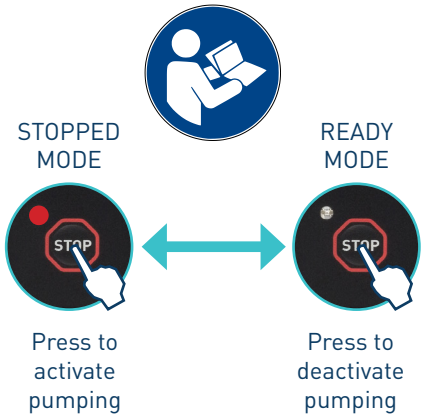
| Unit status | Symbol on the display | Central LED | Description |
|---|---|---|---|
| **Heating** |  |  | The unit is heating the programmed zones. |
| **Delay** |   |  | The zones are at Temperature OK but the 'Pumping Permission Delay' is activated |
| **Standby** |  |  | The tank or the distributor are in standby mode. |
| **Inhibition** |  |  | The tank or the distributor are inhibited. |
| **Warning** |  |  | The unit has an operating error but can continue operating. |
| **Alarm** |  |  | The unit has an operation error and continues to operate for a programmed amount of time. |
| **Error** |  |  | The unit has an operating error and cannot continue operating. |
| **Zones in Temperature OK** |  |  | The zones are at the set point temperature. |

## Manual pumping permmision

**Warning:** Automatic pumping permission depends on the type of set-up and the installation conditions of the unit. For more information, please see the 'Automatic pumping block function' and 'Setting up the turning on and activation of pumping' sections.

When the unit reaches the programmed operating temperature (Zones in Temperature OK), and there are no errors, the pump can be activated (READY) or disabled (STOPPED) by pressing the 'STOP' key.

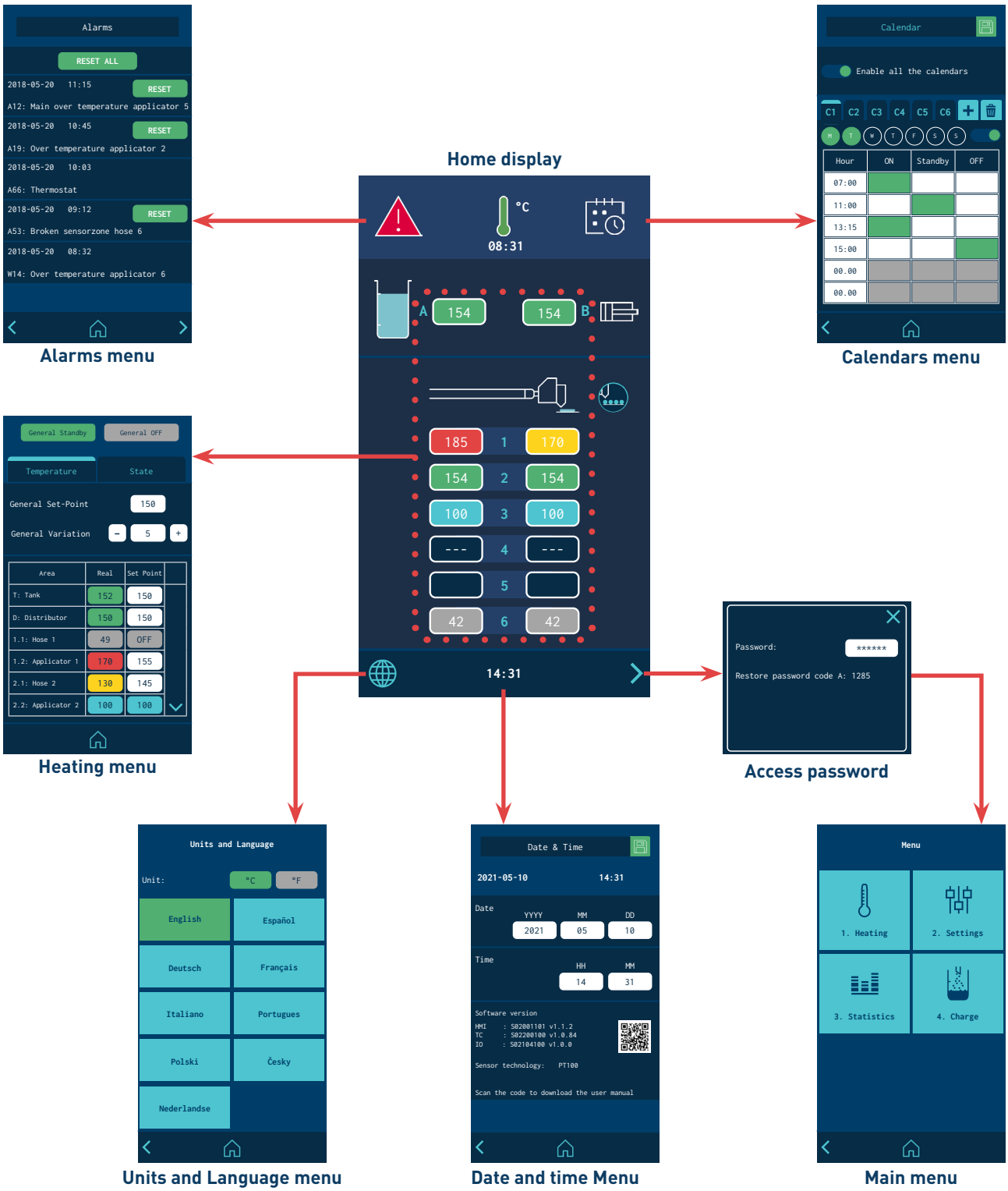
When the pump is deactivated(STOPPED), the red LED next to the key stays lit.



## Melter equipment display

The 7-inch touchscreen shows the main data and contains a user menu to customise how your unit is configured and operated.

The user menu has the following structure::



## General characteristics

In general, there are several icons and pieces of information that are repeated throughout the screen navigation, so they will be explained at the beginning and then not in the next screens.

## Navigation icons

Right arrow icon (FORWARD), located in the lower right part of the screen. Appears when there is a possibility of navigation to a next screen. From the HOME screen it provides access to the MENU.

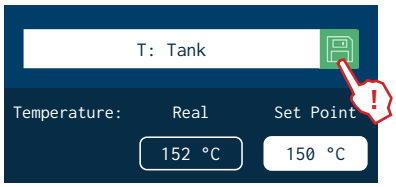
Left arrow icon (BACK), located in the lower left part of the screen. This icon appears on all the menu screens, allowing you to return to the previous screen.

From any screen you can return to the main screen by clicking on the icon (HOME) located in the bottom centre of the screen.


## Save changes

The 'SAVE CHANGES' icon, located in the upper right part of the screen, appears in the data entry and programming screens. If the data shown on the screen is stored, the icon appears with a blue background. If the data has not been stored, the icon is shown with a green background.

**Note:** In some options, the unit does not automatically store programming data. Whenever you modify or program any data that you wish to keep press "SAVE CHANGES".



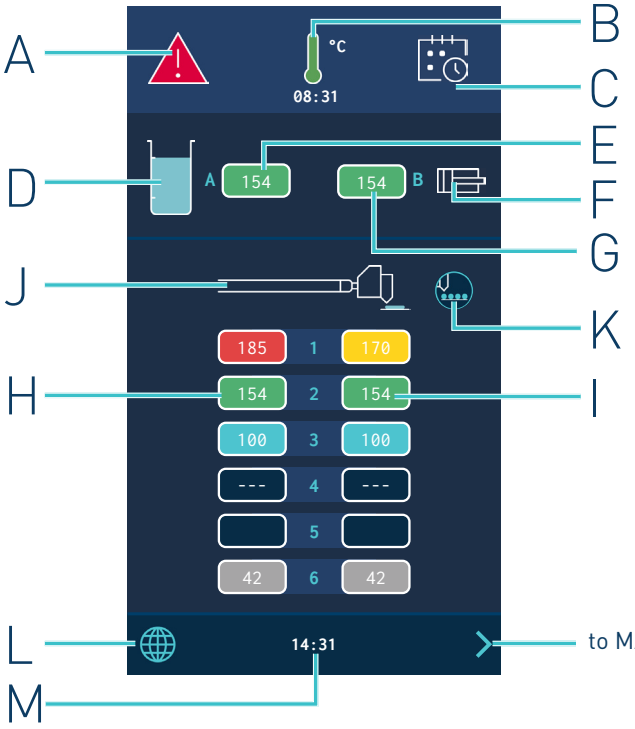

Press to save

Parameters saved

## Explanation of the screen contents

## Home display

It is the main screen where the most representative values of the equipment are shown.




A - Alarms status and alarms menu access.

B - Temperature status and Temperature and Heating Shortcut menu access.

C - Calendar activated/deactivated.

D - Adhesive level status.

E - Adhesive tank real temperature.

F - Pumping activated/deactivated.

G - Distributor real temperature.

H - Hoses real temperature zones.

I - Applicators real temperature zones.

J - Hose/applicator symbol.

K - Pattern controller connected to the equipment.

L - Access to the Language menu

M - The system's time and access to the system's Date/Time menu.

to MAIN MENU screen

**General temperature status**

| | |
|---|---|
|  | Temperature OK. |
|  | Unit heating up. |
|  | Unit heating up.<br>'Pumping Permission Delay' countdown timer, once all the active heated components have reached their set point temperature ± 3°. |
|  | Unit in Standby mode. |
|  | Unit in Inhibition mode. |
|  | Unit in overheating or low temperature alarm. |
| Moreover, this icon shows whether the temperature is indicated in °C or °F.<br>Access the Temperature and Heating Shortcut displays menu by pressing the icon. | |

### Alarms status

| | |
|---|---|
|  | There are no errors. |
|  | The unit has an operating error but can continue operating. |
|  | The unit has an operating error and cannot continue operating. |
| Access the ALARMS menu by pressing the icon. | |

### Calendar status

| | |
|---|---|
|  | Calendar not activated. |
|  | Calendar activated |
| Access the CALENDAR menu by pressing the icon. | |

### Adhesive level status

| | |
|---|---|
|  | • WITHOUT automatic loading<br>• WITHOUT level sensor |
|  | • WITHOUT automatic loading<br>• WITH level sensor.<br>Adhesive level nearly empty |
|  | • WITHOUT automatic loading<br>• WITH level sensor.<br>Adhesive level sufficient |
|  | • WITH automatic loading<br>• Adhesive level nearly empty |
|  | • WITH automatic loading<br>• Adhesive level nearly empty and LOADING |
|  | • WITH automatic loading<br>• Adhesive level sufficient and LOADING (extra time) |
|  | • WITH automatic loading<br>• Adhesive level sufficient |

**Pumping status**

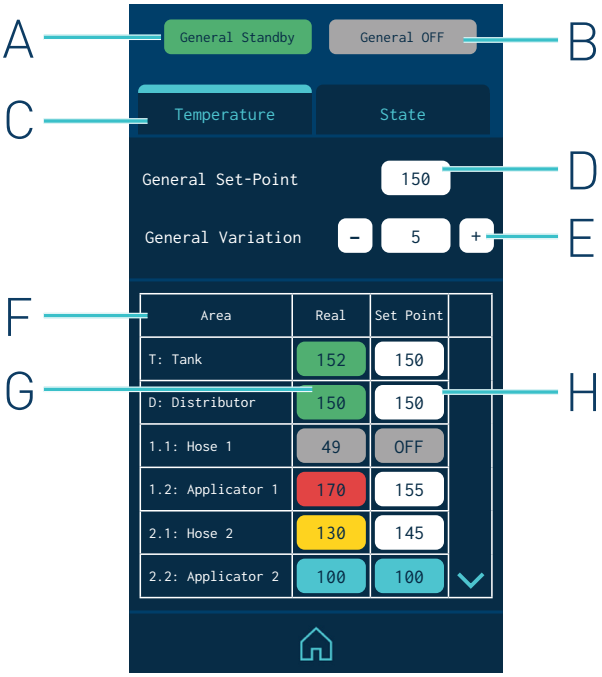
| | |
|---|---|
|  | Pumping not activated. |
|  | Pumping activated. |
| - | |

**Temperature status**

| | |
|---|---|
|  | Zone heating. |
|  | There is no physical connection of components in that zone. |
|  | Temperature sensor error in that zone. |
|  | Zone in Temperature OK. |
|  | Zone in Standby mode. |
|  | Zone in Inhibition mode (OFF). |
|  | Zone in overheating or low temperature warning.<br>**Note:** For a zone to be able to give a low temperature warning, it must have first reached its set point temperature. |
|  | Zone in overheating or low temperature alarm.<br>**Note:** For a zone to be able to give a low temperature alarm, it must have first reached its set point temperature. |
| Access the SHORTCUTS menu by pressing the temperatures area. | |

## Temperature and Heating Shortcut displays

These screens give you access to the unit's quick settings.




A - General standby of the unit (activate/deactivate).

B - General inhibition of the unit (activate/deactivate).

C - Programming of temperatures.

D - General set point temperature (all zones).

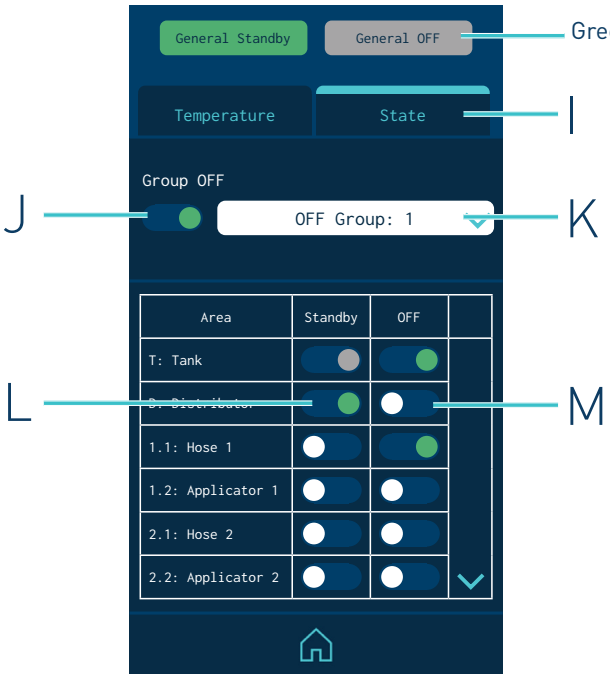
E - Temperature variation over the set point.

F - Temperature zones (14 zones).

G - Actual temperature.

H - Set point or control temperature.

- Unit ON: Setpoint temperature.
- Unit or Component on Standby: Standby Temperature.
- Component Disabled: OFF



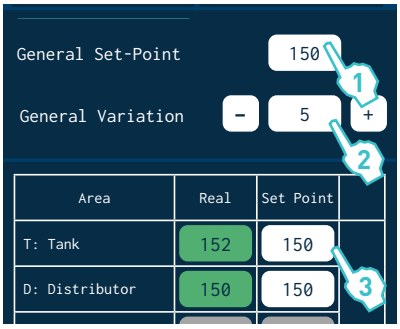

I - Programming of zone statuses.

J - Inhibition/activation by groups of zones.

K - Group selection.

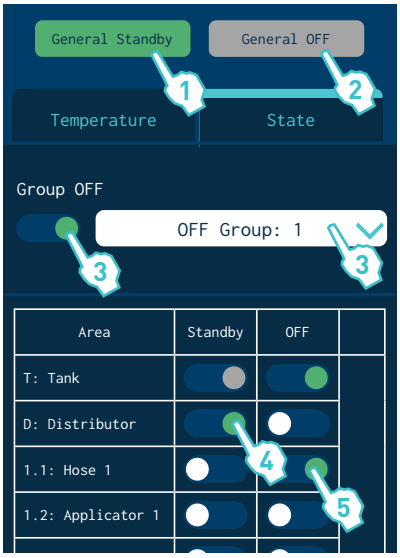
L - Activation of Standby in each zone.

M - Activation of Inhibition in each zone.




### Programming of temperatures

1. Enter a temperature in 'General set point' to simultaneously program all the zones with that temperature value.
2. To make quick adjustments, enter a variation value in 'General variation' and add (+) or subtract (-) it from the 'General set point' value. The value is simultaneously added or subtracted in all zones.
3. To program each zone individually, click on the 'Set point' value and enter the new desired temperature value.

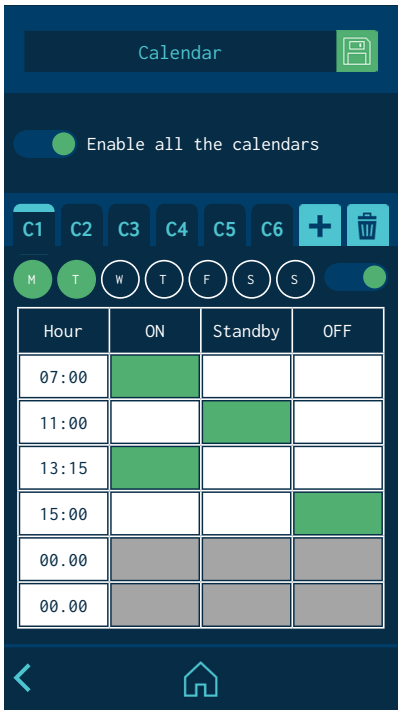



### Programming of statuses

1. Press 'General Standby' to activate (green) or deactivate (grey) the Standby mode in all zones.

   With the 'General Standby' mode activated (Equipment in Standby) it is not possible to activate each Zone individually.
2. Press 'General Off' to activate (green) or deactivate (grey) the Inhibition in all zones.

   With the 'General Off' mode activated (Equipment OFF) it is not possible to activate each Zone individually.
3. To inhibit a group of zones, select the group and activate the inhibition (green). To define the different groups, see the 'Inhibitions' point.
4. Press 'Standby' in each zone to individually activate (green) or deactivate (white) the Standby mode.
5. Press 'OFF' in each zone to individually activate (green) or deactivate (white) the inhibition.




## Calendar

This menu allows you to program a calendar with the unit's status changes. Once it is activated, the unit changes from one status to another automatically.

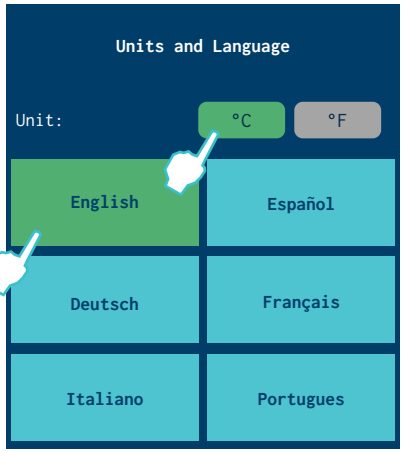
When the unit is switched on, it does so in the mode that has been programmed in the calendar, if the calendar is activated.

You can create up to six calendars (C1, C2, etc.) and up to six status changes per day, indicating whether the unit will be in ON, Standby or Inhibition (Off).

From the 'Select all calendars' option, you can simultaneously activate or deactivate all the calendars you have created.

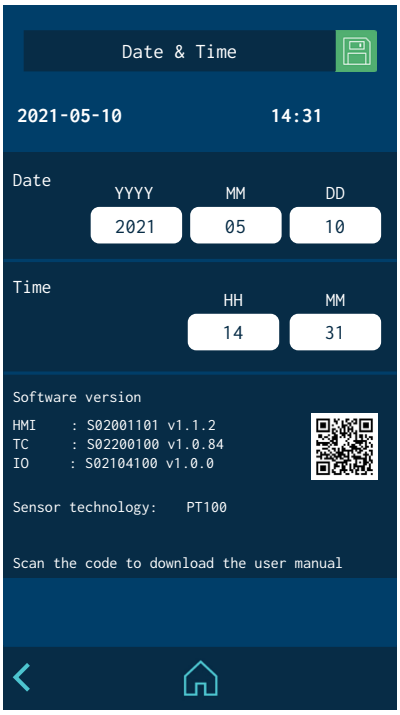
You can add different days of the week to each calendar. Keep in mind that a single day cannot be programmed in two active calendars. Therefore, if a day of the week is programmed in an active calendar, it can only appear in other calendars if they are disabled.

## Units and Language Menu




- **Units:** To select whether the temperatures are displayed in °C/°F.
- **Language configuration:** Press the desired language.

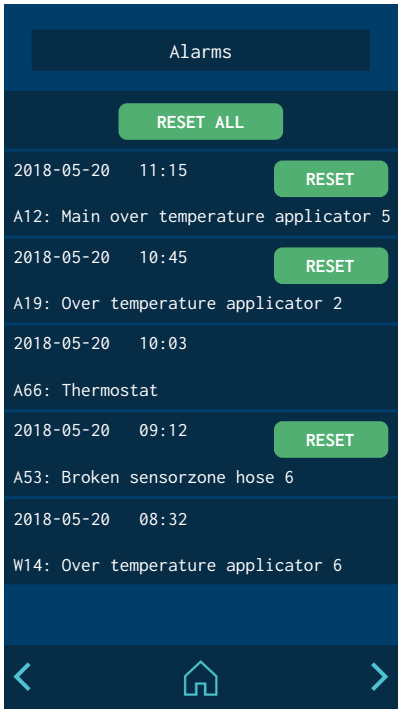
## Date and time configuration




This screen allows you to view and modify the date and time data of the system.

It also shows:

- The equipment software version.
- A QR code, to be able to download the user manual.
- The type of technology of the installed sensors.



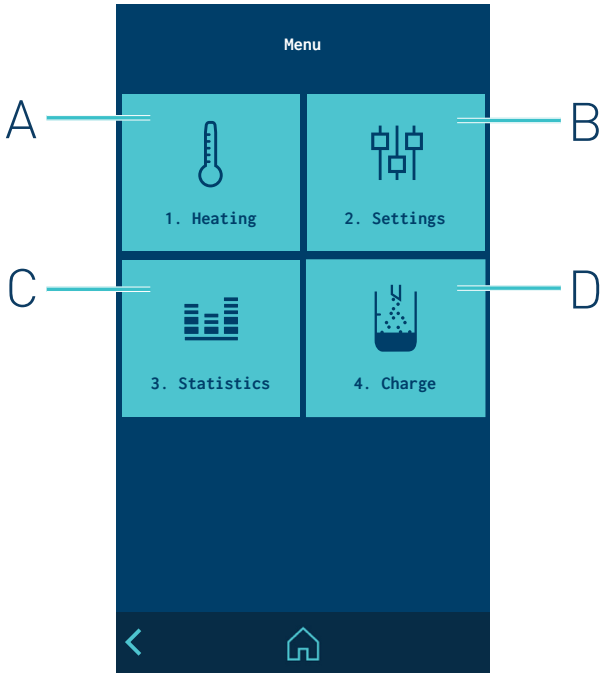

## Alarms and warnings

It displays the alarms and warnings in chronological order. It shows 5 alarms on each screen, with a total of 3 screens.

When an alarm/warning needs to be reset for the unit to return to operation, a button appears for you to press and confirm that the problem has been resolved. Through the external signal 'Alarm Reset' it is also possible to carry out this operation.

The 'Reset All' button appears on the screen to delete all the alarm/warning logs.

## Main Menu



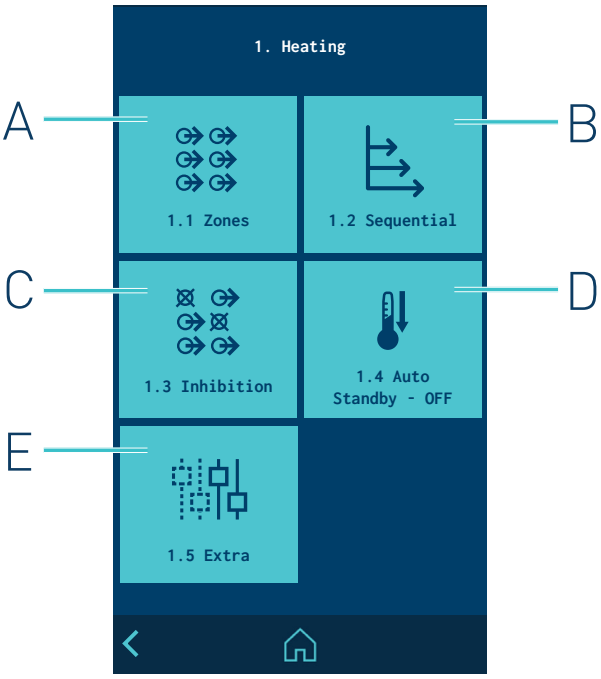

A - Heating options configuration.

B - General settings of the unit.

C - Access to statistics.

D - Automatic charge configuration.

## '1. Heating' Menu




A - Heating zones configuration.

B - Heating sequence by zones configuration.

C - Programming of Inhibitions.

D - Standby modes configuration.

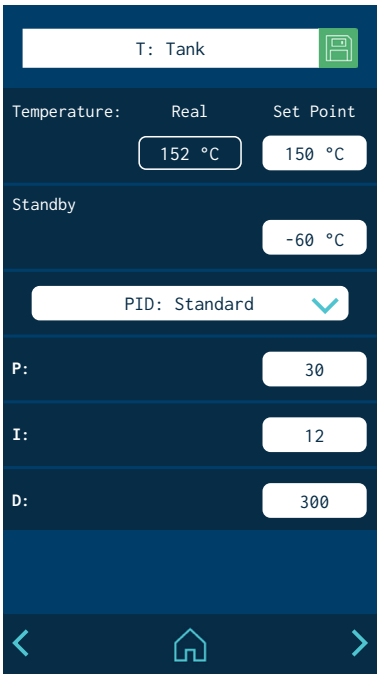
E - Access to extra options.

### 1.1 Heating zones

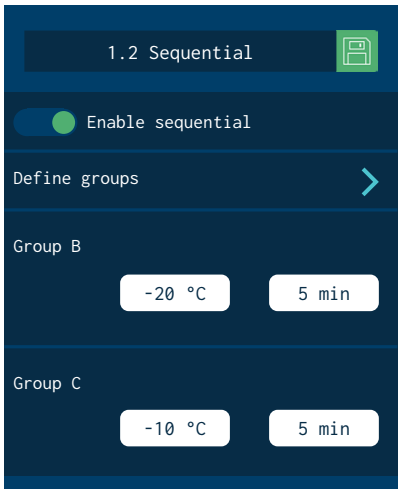
This menu lets you do the following for each zone:

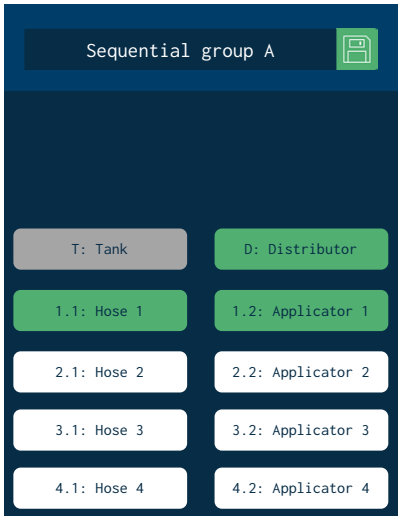
- Change the name to identify it more easily.
- Edit the set point temperature.
- Edit the standby value. The value indicates the temperature reduction with respect to its set point.
- Apply PID values. By default the unit comes configured with a Standard PID.

  You can select from four PID options: Standard, Moderate, Quick or Manual.




**Note.** The PID values are directly involved in the heating process. Do not modify these values if you do not have the required technical knowledge or without the advice of Meler's After Sales Service.




### 1.2 Sequential Heating

This lets you start heating the zones one after the other. This prevents a zone from being active for a long time until the slowest zone heats up.

This function allows you to create three heating groups: A, B and C. Press 'Define groups' to go to a screen where zones can be added to the groups:

- **Group A:** this always includes the Tank, which is the slowest and serves as a reference for the remainder of the zones. Other zones can be added so they begin to heat up with the Tank.
- **Group B:** other zones can be added and some degrees of temperature defined before the tank reaches its set point and a wait time.
- **Group C:** the zones that are not in group A or B can be added here.

If a component in group B or C is deselected, it goes back to group A. By default, all the zones belong to group A.

Example:

- Tank set point temperature: 150°C

- Programming of Group B: -20°C / 5 minutes.

Group B begins to heat up 5 minutes after the tank reaches 130°C.


### 1.3 Inhibitions

This menu allows you to create seven groups of zones and program the mode in which the Inhibition (Off) can be activated or disabled.

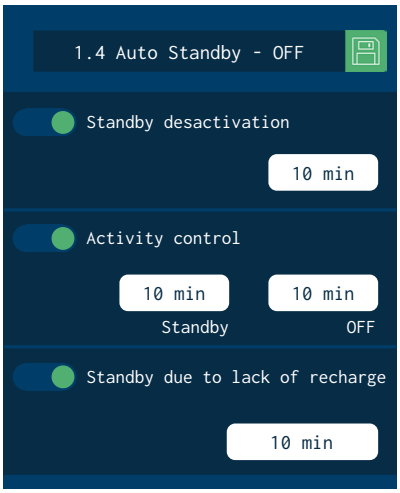
The following is indicated for each group:

- **Name of the group.** The name can be changed to identify it more easily.
- **Manual inhibition of the group (Manual Off).** Whether it is possible to manually activate or deactivate the inhibition in that group from the 'SHORTCUTS' menu.

  Manual inhibition takes priority over external inhibition.
- **Automatic inhibition with external signal (External Off).** Whether it is possible to externally activate or deactivate the inhibition in that group. You must indicate which of the seven possible external signals will perform this function.

  One signal can never be enabled in two different groups.
- **Selected zones.** A zone may be selected in more than one group or may not be in any grou.

### 1.4 Auto Standby - OFF



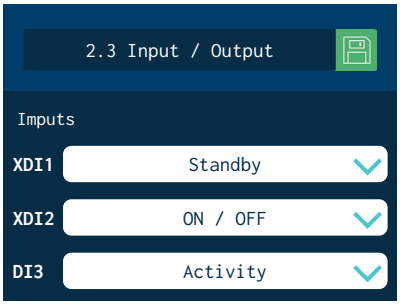

This function can program the following work parameters:

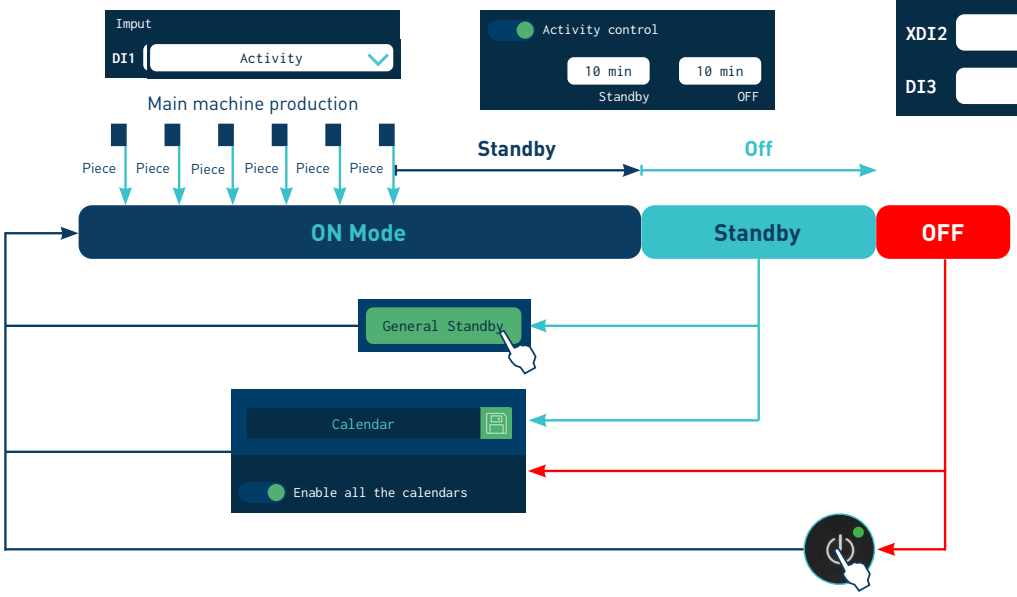
- **Standby Deactivation:** automatically deactivates the 'General Standby' mode activated manually. Once the minutes programmed in the unit have passed, the heating process will start again.

  If the 'Calendar' is active, the unit will follow the programmed calendar.

- **Activity control:** This lets you configure the times for changing to Standby mode and to Inhibition (OFF) when the activity signal ceases.

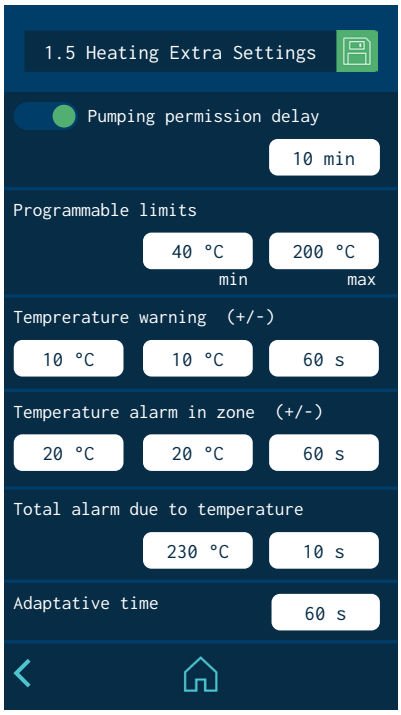
  The activity of the line is monitored from a digital input. When it detects that there is no activity, the unit changes to Standby mode after the programmed time has passed, and changes to Inhibition mode when the second time has passed.




- **Standby due to no reload:** the unit automatically goes into Standby when it detects a lack of adhesive and has not detected a reload after the programmed time has passed.

### 1.5 Extra temperature settings



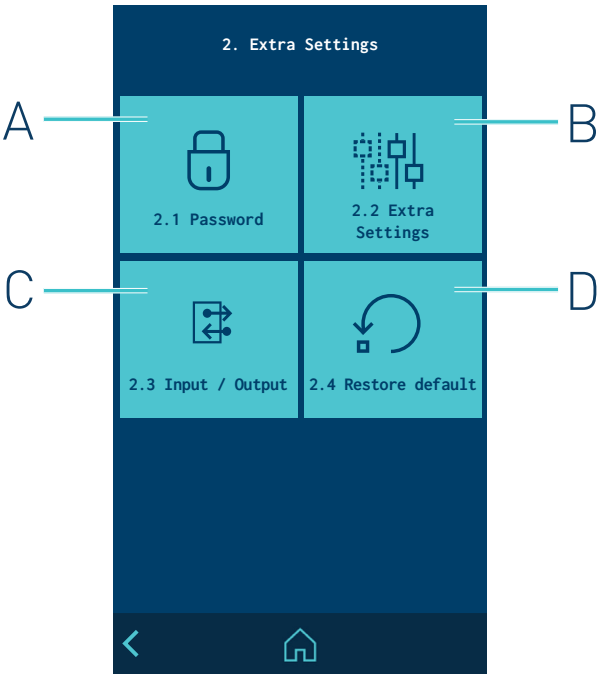

- **Pumping permission delay:** This is the time that the unit must wait to activate pumping after all the active zones have reached a temperature above [Set point temp. -3°].
- **Programmable limits:** Two limits can be set to prevent set point temperatures from being programmed above or below those values.
- **Temperature warning:** A temperate (±°C/°F) and a time are defined to indicate when the overheating or low temperature warning is activated in each zone.
- **Temperature alarm:** A temperature (±°C/°F) and a time are defined to indicate when the overheating or low temperature alarm is activated in each zone.

  If either of those values are reached (±) and maintained for the set time, the unit disconnects the heating in the zone causing the error. If the error persists 3 minutes later, the remainder of the zones are automatically disconnected. If the affected zones are the tank or the distributor, the unit also stops the pumping.
- **Total temperature alarm:** A temperature (±°C/°F) and a time are defined to indicate when the overheating alarm is activated. If any zone reaches this temperature and maintains it for the set time, the unit disconnects the heating of all zones and stops the pumping.
- **Adaptive time:** Automatic interval setting for warning and alarm temperatures, when the user reprogrammes the setpoint values.

(*) Example values

| Status | Actual temperature* | Set point emperature* | Heating | Pumping | OUTPUTS | | |
|---|---|---|---|---|---|---|---|
| | | | | | Temp.OK zones | Alarm Activated | Ready / Running |
| | 150 | 150 | ON | ON | ON | OFF | ON / OFF |
| | 140<br>160 | 150 | ON | ON | ON | ON | ON / OFF |
| | 130<br>170 | 150 | OFF<br>Unit<br>OFF<br>Zone in error | OFF when...<br>Error in Tank<br>Error in Distributor<br>ON when...<br>Error in the remainder of the Zones<br>OFF when...<br>3' in error | OFF | ON | ON/OFF |
| | 190 | 150 | OFF<br>All Zones | OFF | OFF | ON | OFF |

## '2. General settings' Menu




A - Password management.

B - Extra settings.

C - Configuration of input and output signals.

D - Restore default values

### 2.1 Password management

LOCKED MODE:

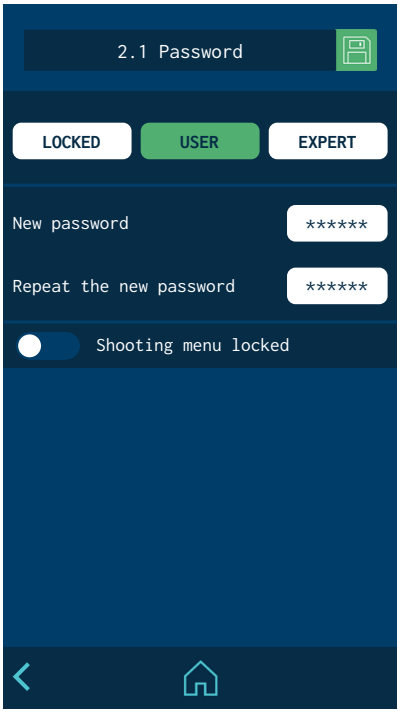
- Access is only provided to the HOME screen.

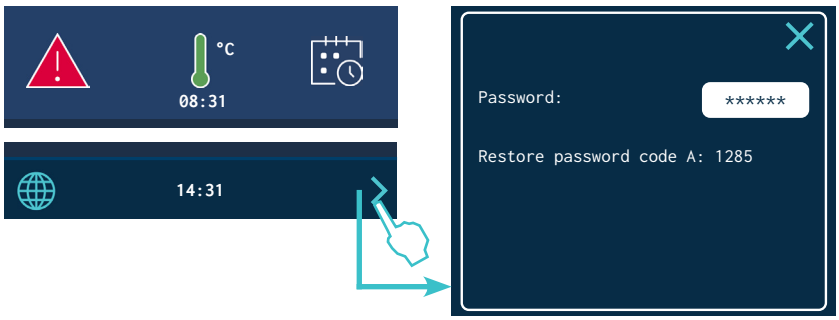
USER MODE:

- no parameter can be changed. There is direct access to the HOME screen and shortcuts
- by default, the user level has no password. You can create a user level password by entering a value between 0000 and 9999

EXPERT MODE:

- Any parameter can be changed after entering a 4-digit password. By default the password is 0000.
- Direct access is provided to the HOME screen,to shortcuts and the MAIN MENU for programming
- The expert level password can be changed by entering a value between 0000 and 9999.
- USER or EXPERT operating mode can be selected or LOCKED.

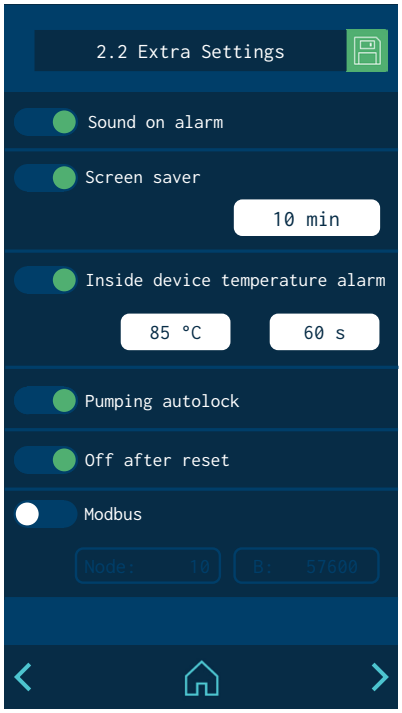


If you try to access a restricted menu, a pop-up appears, requesting the password.

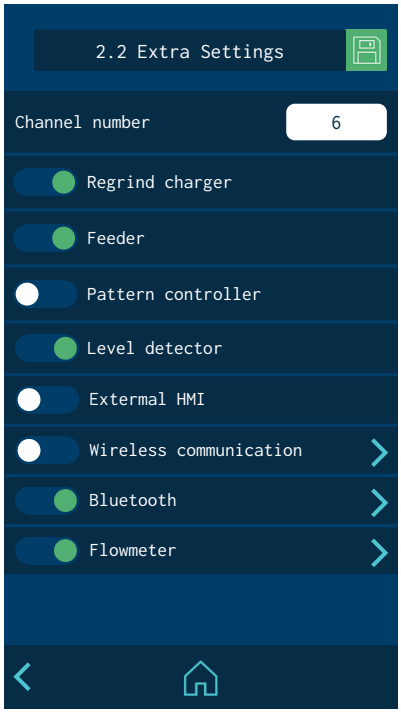
If the EXPERT password is entered, the unit remains unlocked for 15 minutes. Whenever there is activity on the screen, the system remains in this mode. If the end of this 15 minutes is reached, the unit returns to USER mode.

If you forget the EXPERT level password, contact the Focke Meler main offices to find out how to proceed to recover it.




### 2.2 Extra settings

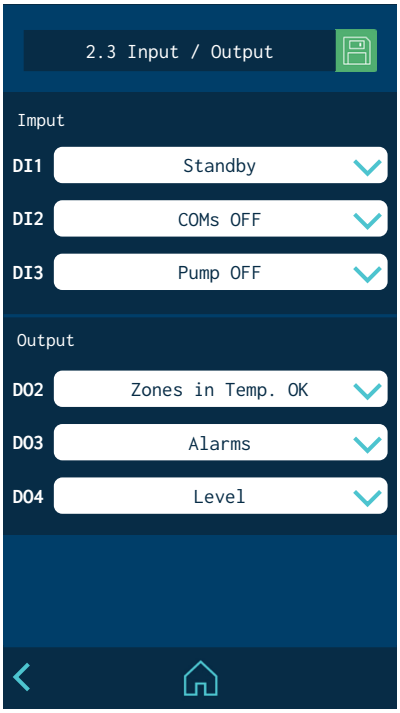
- **Activate or deactivate the alarm sound.** To stop the sound, press the ALARM icon on the HOME screen.
- **Activate or deactivate the screensaver.** The screen switches off after the set time has passed. If you press the screen when it is off, it turns on and the HOME menu appears
- **Cabinet temperature alarm:** A value (+°C/°F) and a time are defined to indicate when the alarm is activated due to overheating inside the unit's electrical cabinet. If it reaches this temperature and maintains it for the set time, the unit disconnects the heating of all zones and stops the pumping.
- **Automatic pumping block.** Please see the 'Automatic pumping block function' section.
- **Turning off after resetting.** Please see the 'Turning off after resetting function' section.
- **Modbus.** Activate and disable external communications via Modbus.




- **Number of channels.** Set up the number of electrical outputs enabled in the melter.
- **Regrind charger.** Activate or disable the operation of the automatic feeder.
- **Feeder.** Activate or disable the operation of the external adhesive feed (external liquid load or pellet level).
- **Pattern controller.** Activate or disable the pattern controller functions.
- **Level sensor.** Activate or disable the operation of the level sensor.
- **External HMI.** Activate or disable the operation of the external HMI control.
- **Wireless communications.** You can enable or disable the operation of the unit's wireless communication system (Wi-Fi).

  Click on the arrow to go to the configuration screen. See the point on 'Wireless communications' for further information.

### 2.3 Configuration of input and output signals




This allows you to configure the unit's digital input and output signals.

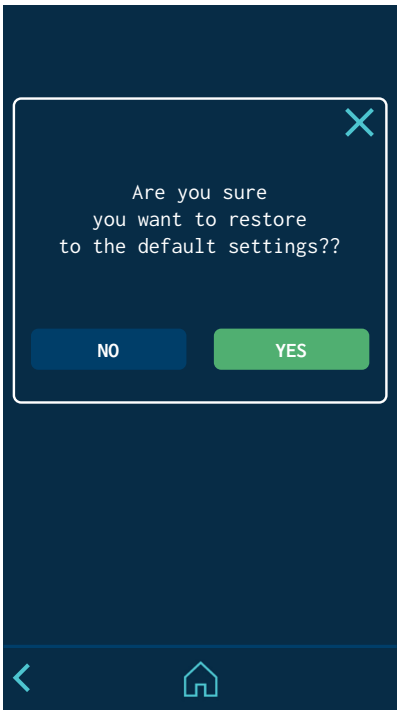
The inputs can be:

- **ON/OFF:** Switches the unit fully off or on.
- **Standby:** Activates or deactivates the Standby mode.
- **Activity:** Enables the activity control to measure the times for switching automatically to Standby and OFF.
- **Pump OFF:** Activates or deactivates the pumping.
- **COMs OFF.:** Activates or deactivates the communications.
- **Reset Alarms.** Resets the alarms on the equipment.

The outputs can be:

- **Standby:** Indicates that the unit is in Standby mode.
- **Zones in Temperature OK.** Indicates that all active zones are in temperature OK.
- **Machine Ready.** Indicates that the unit is ready to operate, with temperature OK and no operating errors.
- **Running.** The unit is pumping, with temperature OK and no operating errors.
- **Alarm:** Indicates that there is an active Alarm.
- **Level:** Indicates high level of adhesive in the tank.
- **No Level:** Indicates low level of adhesive in the tank.

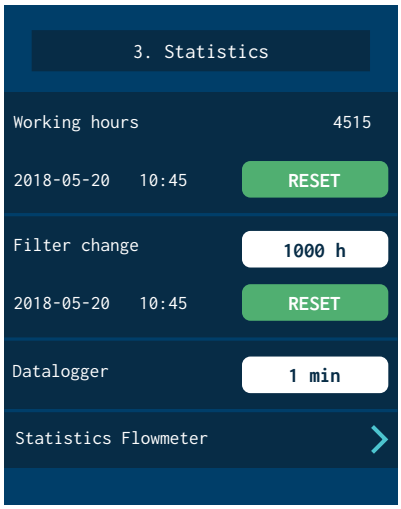
### 2.4 Restore default values




Allows you to delete all the changes made to the system and leave the unit with the factory-set default parameters. After pressing, the following confirmation message will appear.

When you press 'YES', the device restarts with the default configuration.

## '3. Statistics' Menu




This screen displays:

- **Hours of operation:** This counts all of the hours during which the unit is in Temperature OK.

  To reset the counter to zero, you must press reset.

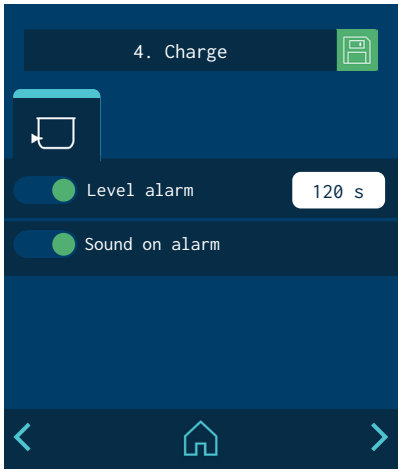
- **Filter change.** To program a countdown in hours. When it gets to '0', the unit gives a warning to change the adhesive particles filter.

  Once the filter has been changed, press reset to return the counter to the set value.

- **Data logger.** Time interval for logging the unit's programming and operating data.

  You can back up this data using the application for PCs.

## '4.Charge' Menu

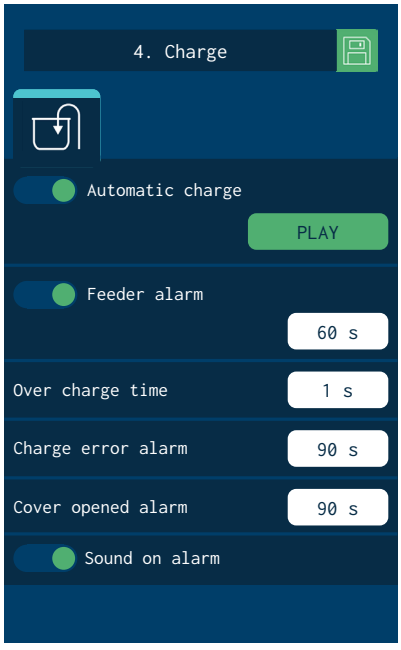



This screen allows you to control various tasks related to adhesive filling.

**Screen 1: Minimum adhesive level sensor**

- **Level alarm.** Time after which the unit stops and activates a low-level alarm.
- **Sound on alarm:** Allows you to configure the sensor alarm to emit a sound.

**Screen 2: Automatic adhesive feeder**




- **Automatic feeder.** Activates or deactivates automatic feeding.

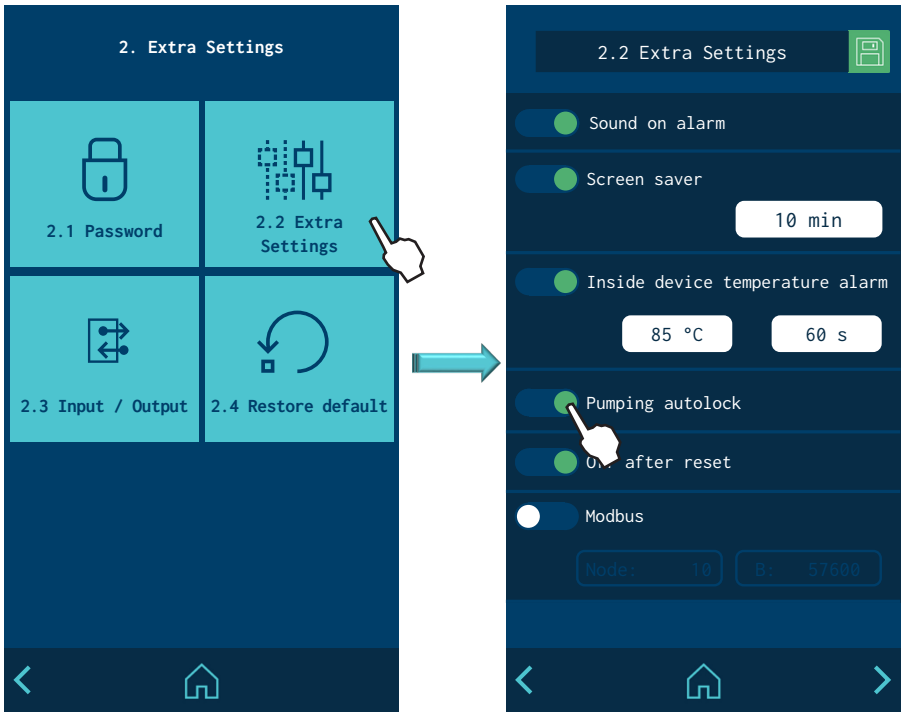
  When you press 'CHARGE', This lets you activate manual loading. When pressed, it loads, and when released, the loading stops.

- **Feeder alarm.** Defines the time that must pass to give an external feed alarm.
- **Overcharge time:** This lets you configure for how much time the adhesive will continue to be loaded once the lower level sensor has activated (tank sufficiently full, but not completely full).
- **Charge error alarm:** This defines the maximum amount of time for filling the tank. If this time is exceeded, the unit displays an alarm.
- **Cover opened alarm:** An alarm sounds when the tank lid is open and it stops loading immediately.
- **Sound on alarm:** This lets you set whether or not loading alarms emit a sound.

## Automatic pumping block function

The unit has a function for to automatically block pumping due to a voltage drop, a direct disconnection from the network, or an operating error.

This function can be activated or disabled via the "2. Settings / 2.2 Extra settings" screen.

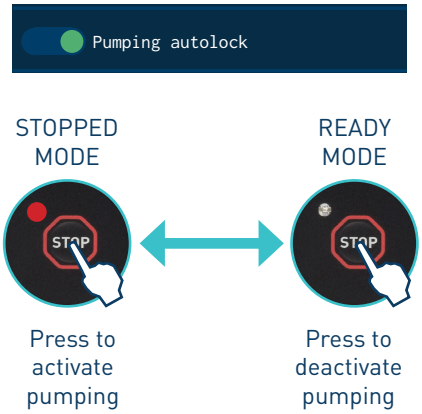



### 'Pumping autolock' enabled

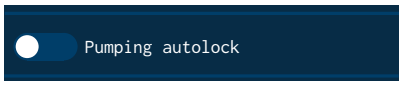
When this function is enabled, whenever an event forces the unit to change to ERROR mode, STANDBY mode or OFF mode, the pumping block is automatically enabled, and the STOP button's red LED lights up.

If conditions allow the unit to return to READY mode, the block can be disabled by pressing the STOP button. The red LED turns off, and the unit stays in READY mode.

> **Example:** The unit is in RUNNING mode. At this moment, the temperature is not OK, and after the programmed time has passed, the unit changes to ERROR mode. The pumping block is automatically enabled, and the red LED lights up. The pumping block cannot be disabled while the temperature is not OK, and the error continues to be displayed. When the temperature is OK again, the unit does not automatically change to READY mode. You must press STOP to disable the pumping block and prepare the unit for pumping.

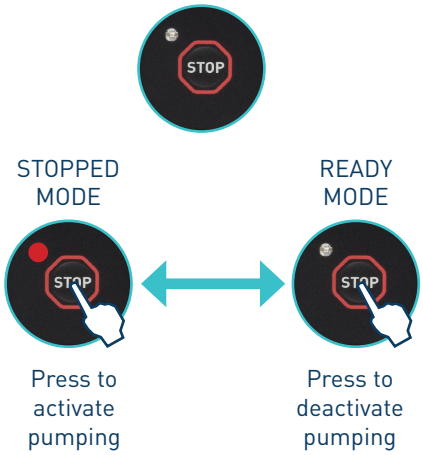


### 'Pumping autolock' disabled




When this function is disabled, whenever an event forces the unit to change to ERROR mode, STANDBY mode or OFF mode, it will automatically return to READY mode once the conditions are met again. You do not have to press STOP. The red LED will remain off.

> **Example:** The unit is in RUNNING mode. At this moment, the temperature is not OK, and after the programmed time has passed, the unit changes to ERROR mode. When the temperature is OK again, the unit automatically changes to READY mode.




**Warning:** It is always possible to put the unit in STOPPED mode by pressing STOP. The red LED will light up. In this case, even if permitted by the conditions, it will not be possible to return to READY mode until you press STOP again and the LED turns off.

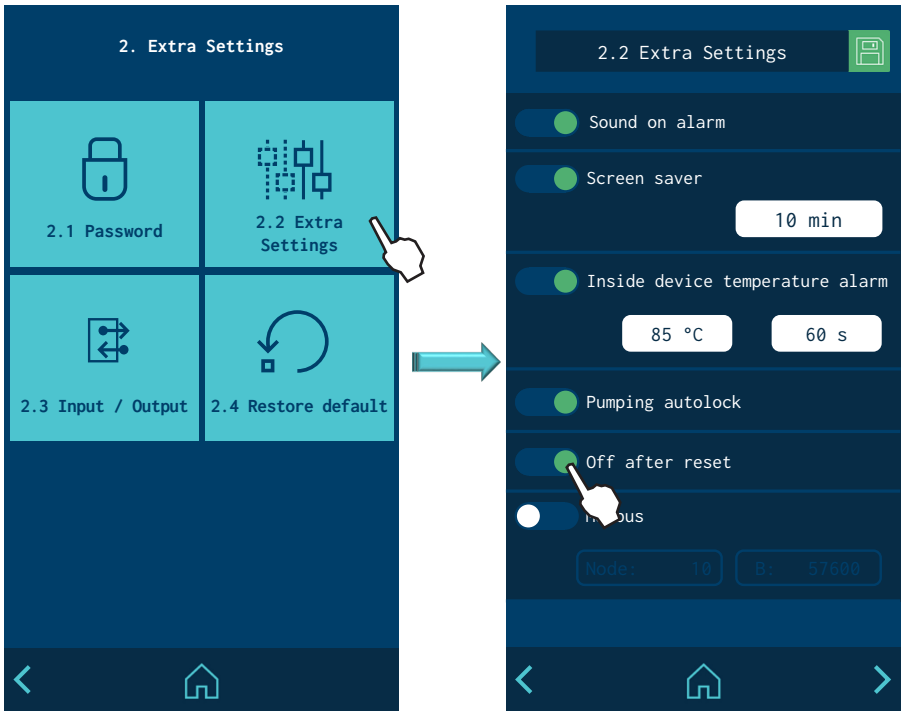
**Warning:** Whenever the 'Automatic pumping block' function is disabled, it is recommended for the 'ON/OFF' or 'OFF Pumping' signal of the unit to be connected to the main machine, so that this signal can be used to enable the unit again in a controlled manner.

## 'Off after resetting' function

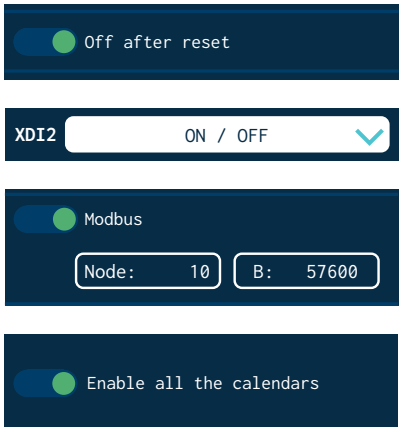
The unit has a function to recover its current status (ON/OFF) after a voltage drop or a direct disconnection from the network.

'Reset' means turning off and turning on the unit using any main ON/OFF switch or any loss and recovery of power.

This function can be activated or disabled via the "2. Settings / 2.2 Extra settings" screen.



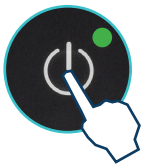

### 'Off after reset' enabled

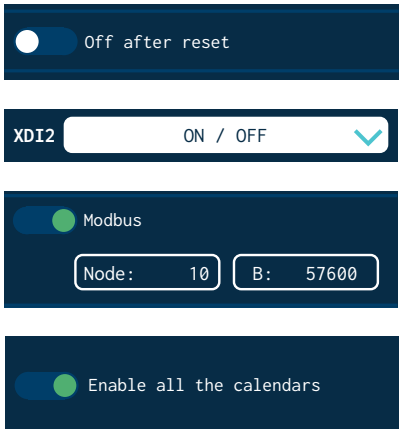



When this function is enabled, whenever a 'reset' occurs, the unit remains in OFF mode and the screen is turned off.

The unit can be turned on (ON) through:

- External "ON/OFF" contact (if installed and enabled),
- or external communications (if installed and enabled),
- or the Calendar function (if programmed and enabled),
- or by pressing the "ON/OFF" button on the front screen,






### 'Off after reset' disabled

When this function is disabled, whenever a 'reset' occurs, the unit recovers the ON/OFF status that it was in at that time.

The unit can change status through:

- External "ON/OFF" contact (if installed and enabled),
- or external communications (if installed and enabled),
- or the Calendar function (if programmed and enabled),
- or by pressing the "ON/OFF" button on the front screen,

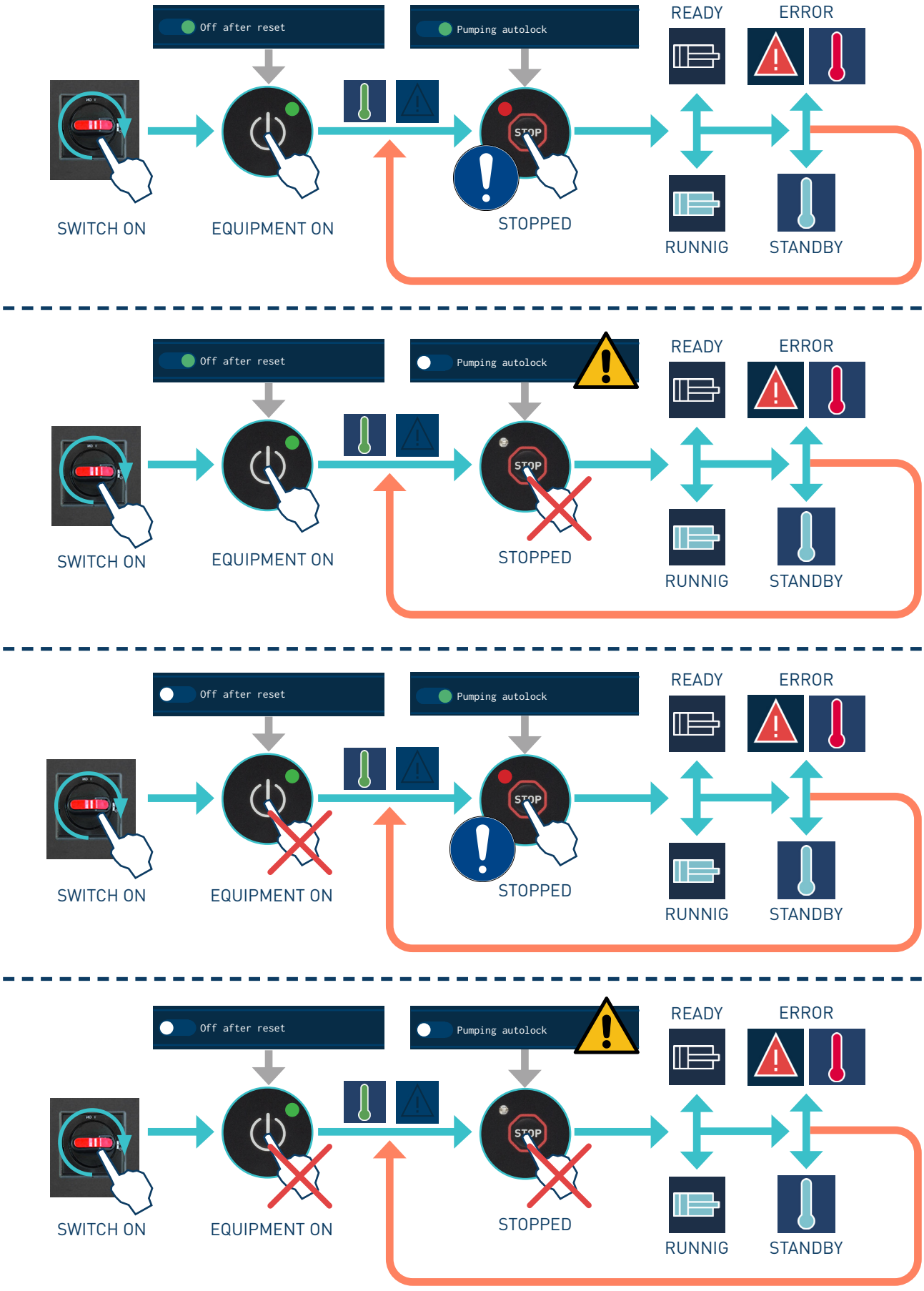
**Important:** if the unit is in ERROR mode when the 'reset' occurs, it will remain OFF, even if the function is disabled.

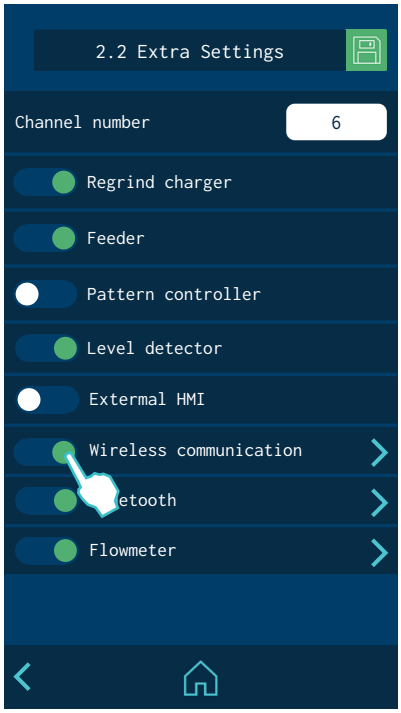
| Initial status | After a "reset" the equipment status will be:: | |
|---|---|---|
| | Function enabled<br>Off after reset | Function disabled<br>Off after reset |
| **Equipment OFF**<br>(Screen off) | Equipment OFF | Equipment OFF |
| **Equipment ON**<br>(Screen on) | Equipment OFF | Equipment ON |
| **Equipment in ERROR**<br>(Screen on) | Equipment OFF | Equipment OFF |

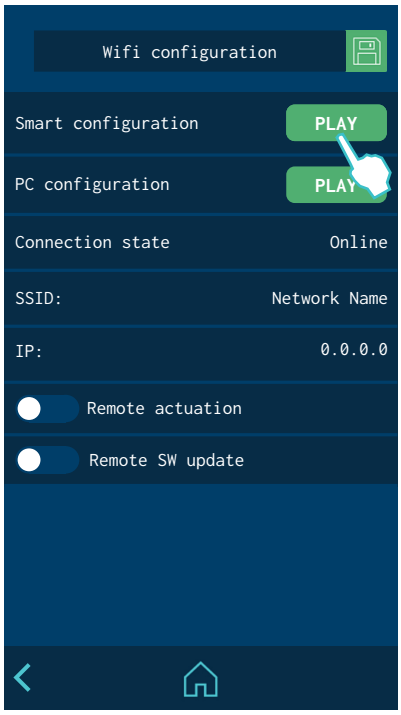
## Configuration of turning on and activating pumping

These are different possible pump turn on and activation modes depending on the installation and programming of the unit.

The following images provide a simplified example of the most typical sequences for turning on and activating the pumping. The unit status changes may change by pressing the 'ON/OFF' or 'STOP' buttons, or through external input signals, communications (ModBus, Profibus, etc.), programming states or operating errors:


Off after reset
Pumping autolock
READY
ERROR
STOP
SWITCH ON
EQUIPMENT ON
STOPPED
RUNNIG
STANDBY
Off after reset
Pumping autolock
READY
ERROR
STOP
SWITCH ON
EQUIPMENT ON
STOPPED
RUNNIG
STANDBY
Off after reset
Pumping autolock
READY
ERROR
STOP
SWITCH ON
EQUIPMENT ON
STOPPED
RUNNIG
STANDBY
Off after reset
Pumping autolock
READY
ERROR
STOP
SWITCH ON
EQUIPMENT ON
STOPPED
RUNNIG
STANDBY




## Wireless communication (Wi-Fi)

Optionally, the unit comes equipped with a wireless communication system to connect to a local network. This system connects the unit to a Meler Services Platform(*) with the following main functions:

- **Monitoring.** Regularly sends the platform's status and operating data. The data can be configured according to user needs.
- **Actions and Programming.** It is possible to send specific actions or change the programming of a specific unit.
- **Technical support.** The unit provides direct information on its status and can schedule unit maintenance or keep a log of all interventions done on it.

(*) Check with the After-Sales Service or your Meler Sales Agent for more information about this service performance.

### Connection configuration

1. Install the 'Espressif Esptouch' app on a smartphone device.
2. Connect the device to the local Wi-Fi network where you want to connect the melter, then run the app.
3. On the melter's screen, click START to start syncing. Follow the instructions on the app to configure the melter's Wi-Fi access.
4. The unit's screen will show the connection status, the name of the Wi-Fi network, and the IP address automatically assigned.

You can also configure the following options from this screen:

- **Remote control.** Enables the unit to be able to receive actions.
- **Remote software update.**Enables the unit to be able to receive software updates.
- **Static configuration.** Enables the configuration of a static IP address for the melter.

## Standby function

Using the standby function during periods of melter/applicator inactivity helps save energy and allows the heated elements to return quickly to their set point temperatures once you return to the operational mode.

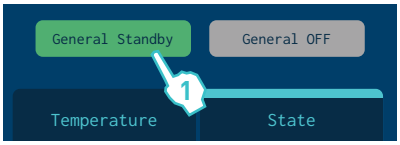
When the function is activated, the target temperature of the heated zones is reduced to the programmed value for each zone (see 'Heating menu / Heating zones').

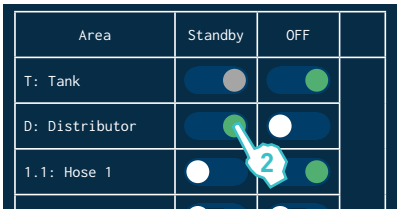
For example, if the target temperature of the tank is 160°C and the Standby parameter is set to -30°C, when the Standby function key is pressed, the tank's set point temperature will change to 130°C.

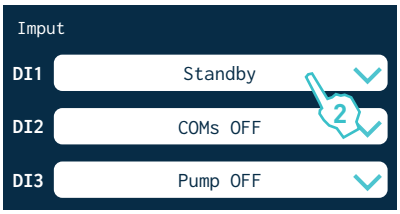
The priority protocol is as follows:

- 1st Standby external signal.
- 2nd 'Standby' function key.
- 3th calendar programming.

Therefore, while the Standby external signal remains active, none of the other three systems can deactivate the function.

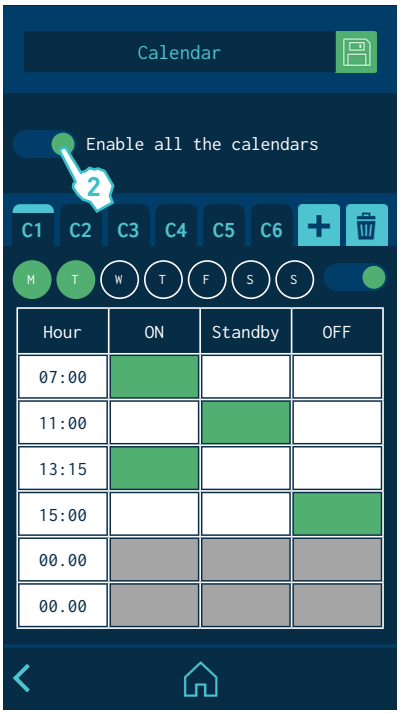


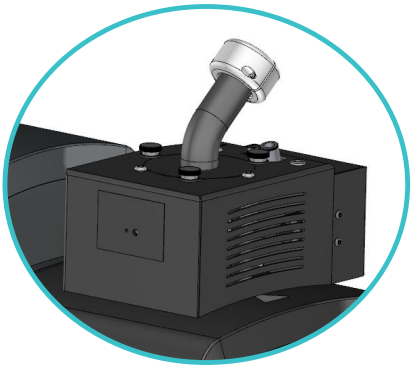




The following criteria are suggested for standby function use:

- If the period of inactivity is less than 30 minutes, allow the melter applicator equipment to heat as normal.
- If the period of inactivity is more than 30 minutes and less than 4 hours, use the standby function.
- If the period of inactivity is over 4 hours, use one of the following two options: turn off the equipment if you do not plan on using it for the rest of the day or keep the standby function on if you plan on using the equipment during that same day.





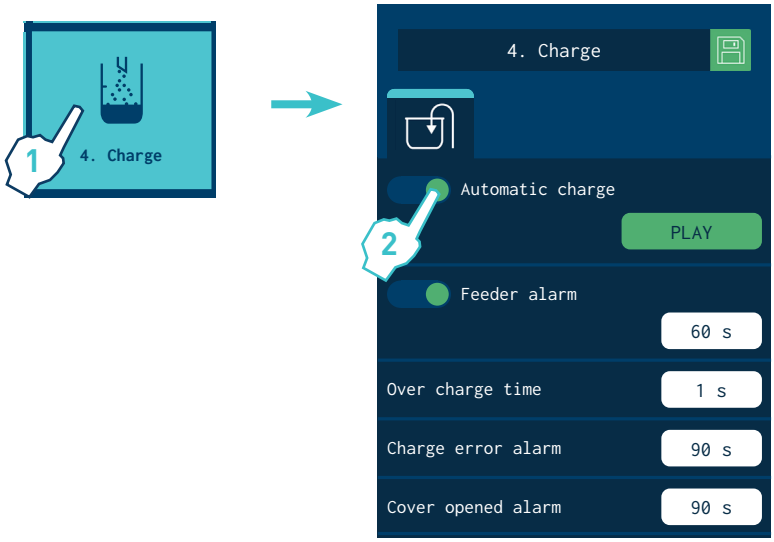
## Use of the automatic feeder

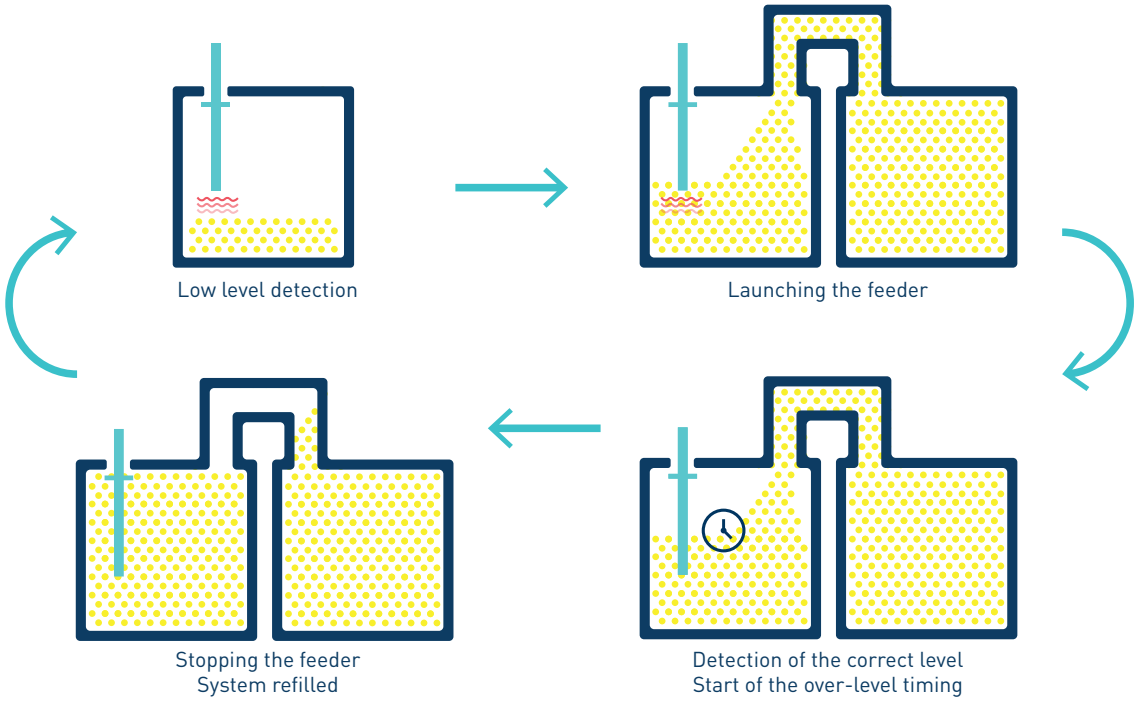
This section presents how to use the automatic feeder. Even if its operation is very simple, it should not be used by non-trained personnel.

### Start up and automatic process

The operation of the vacuum feeder is absolutely automatic and only needs to switch it on in the program menu, to begin the automatic feeding when the low level sensor requests it.

The automatic loading process is developed according to the following pattern:



### Sensitivity adjustment


The adjustable sensitivity of the sensor is factory pre-setted and therefore it is NOT necessary to change. In most cases the factory setting is perfectly valid to use the automatic feeder.

### Positioning of the level sensor

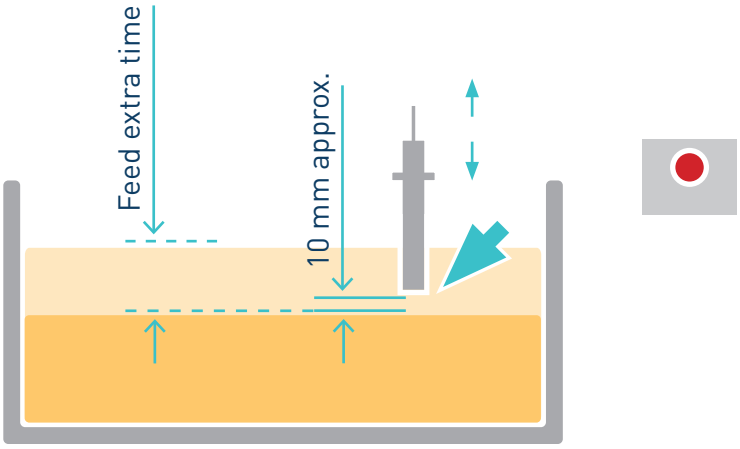
The sensor is supplied factory set so that, when the pellet level is around 10 mm below the sensor, it detects a full tank (green LED).

Depending on the type of pellet used, it may be necessary to make a final adjustment when starting up the system:

**Important:** Use the working adhesive at the operating temperature.

**Warning:** Hot zone with high temperatures. Risk of burns. Use thermal protective equipment.

1. With the unit at the operating temperature and the sensor clean, fill the tank with the pellets that you are going to work with, up to what is considered the 'tank full' level.
2. Move the capacitive sensor up/down in relation to the tank lid, right until the colour of the LED changes from green to red. The LED should remain red.




3. We recommend checking that it is properly set by running a few automatic reloading cycles.

**Note:** If the sensor sensitivity setting needs to be corrected, contact Meler's after sales service or the area representative.

## Turning off the melter equipment

If you need to disconnect the melter equipment:

1. Turn off the machine switch.

   The depressurization valve frees pressure from the hydraulic circuit, returning the adhesive to the tank.

2. Disconnect the pneumatic power to the applicators and the electrical power to the control unit programmer, if there is one.

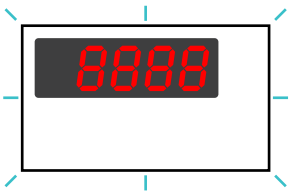
## Use of hydraulic pressure display


| ID | Symbol | Function |
|---|---|---|
| 1 | 40000 | Shows the process variable, the menu identification, the parameters identification and the error codes. |
| 2 | △ ▽ | Increases/Decreases the value of the parameter displayed until max/min value is reached.<br>Held down: progressively increases the speed of increasing/decreasing the value displayed. |
| 3 | F | Used to move between the various menus and parameters of the instrument. Confirms the value of the current parameter (or parameter edited using ▲▼) and selects the next parameter. |
| 4 | bar | Position where to apply the label with unit of measure. |

**Switching on and using the instrument**

Immediately after switching on the instrument carries out a self-diagnostic test.

During the test, all the display segments and the 4 indicator lights will flash, when finished, enters normal work mode and displays pressure value.




Displaying the value of the hydraulic circuit pressure.

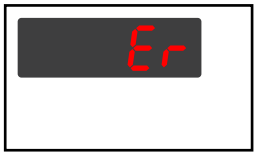

In the event of errors during normal working:

Lo..... Circuit pressure < min. scale limit


HI ..... Circuit pressure > max. scale limit

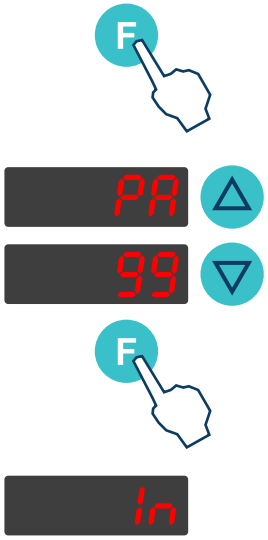

br ..... Broken probe or input values higher than maximum limits


Er ..... Input values lower than minimum limits




Eb ..... Probe power supply failure

## Pressure display programming




1. Once installed and wired according to the corresponding electrical diagram, switch it on without having hydraulic pressure at the pressure measurement point.
2. Press and hold the “F” key until the “PA” menu appears.

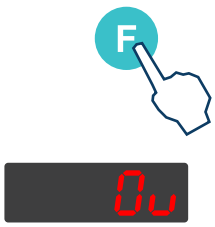
Set value = 99 and press the “F” key once so that “Pr” appears in the display.

Set its value equal to 0 (= the protection is disabled).

3. Press and hold the “F” key until the “In” menu appears.

At that time, do short presses of the “F” key through all the submenus:

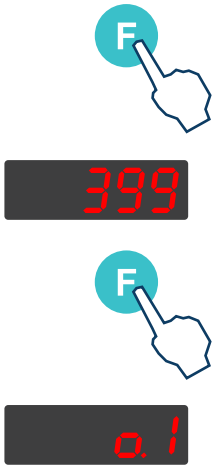
t.P .....2
C.1.....0
Ft .....1
Fd.....0.5
dP.....16
L.S.....0 (=Minimal transducer pressure)
H.S .....200 (=Maximum transducer pressure)
oF.....0
d.1 .....0
t.U. .....0
t.d.....0
L.L.....0
H.L .....200




4. Press and hold the “F” key until the “Ou” menu appears.

At that time, do short presses of the “F” key through all the submenus:

O.n .....3
1.t.....0
2.t.....0
3.t.....64 (=Is used for self-calibration)
rE .....0




5. Hold down the “F” key until a numerical value, “Lo” or “H1” appears.

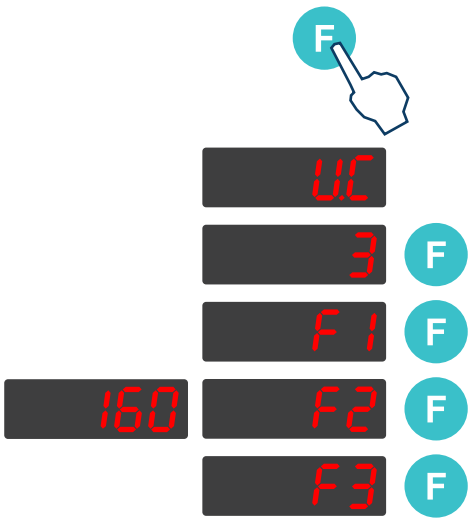
At that time, do short presses of the “F” key through all the submenus:

o.1 .....200
o.2 .....200
o.3 .....200

6. Press and hold the "F" key until the "PA" menu appears.

Set value = 99 and hold the "F" key so that "U.C" submenu appears in the display.

To calibrate the pressure transducer, select U.C = 3 and press the "F" key. The F1 will then appear. Press the "F" key again and F2 will be displayed. Press the "F" key again and the F3 will appear. Finally press the "F" key again to end the calibration.



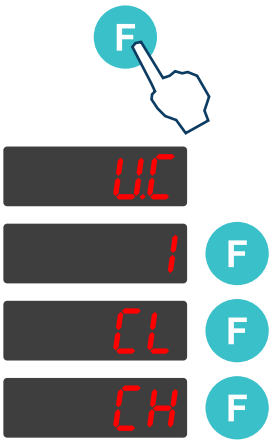

7. Press and hold the "F" key until the "PA" menu appears.

Set value = 99 and press the "F" key once so that "U.C" submenu appears in the display.

To adjust the 4-20mA output, previously connect a multimeter to measure the current between the pressure output terminals.

Then set the value U.C = 1 and press the "F" key to display "CL". At this point, use the up/down arrows until the current on the multimeter is equal to 4mA.

Once the minimum value has been set, press the "F" key again and "CH" will appear. Set the maximum intensity value for "CL". In this case, it has to be set at 20mA.

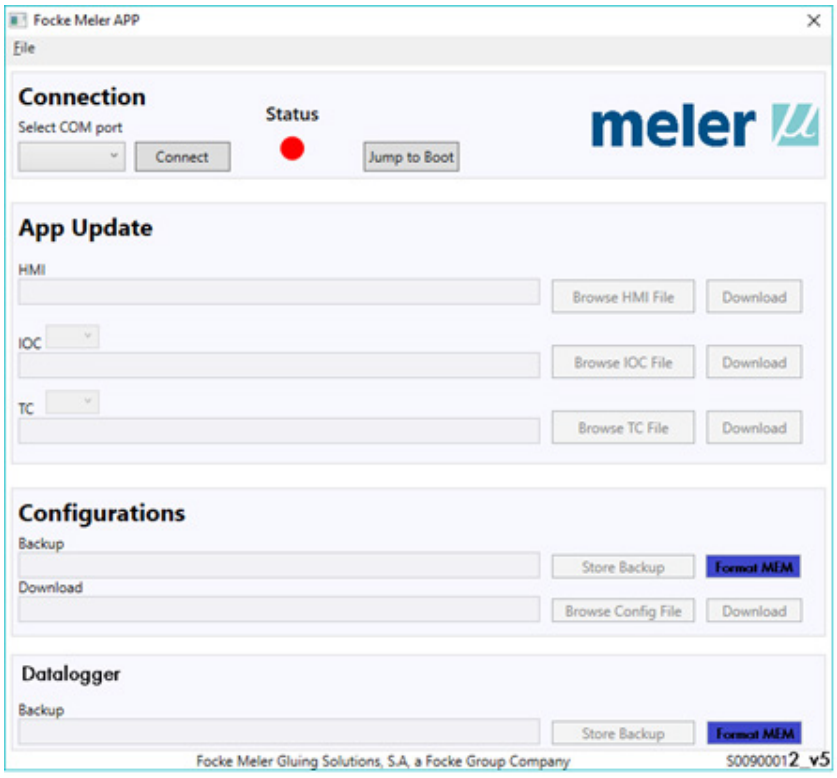



8. Hold down the "F" key until a "numerical value", "Lo" or "H1" appears.

## Application for PC

An optional application for PC(*) allows you to connect the unit with a USB port and perform the following functions:

- Update the HMI board software.
- Update the IOC board software.
- Update the TC board software.
- Make a complete backup of the system.
- Restore a complete backup of the system.
- Flash memory deletion.
- Make a backup of the data logger.




(*) https://www.meler.eu

**Warning:** For more information consult your Focke Meler Representative or the Focke Meler Main Office.

# 5. MAINTENANCE

**Warning:** The melter equipment is equipped with current technology, but has certain foreseeable risks. Therefore, only allow qualified personnel with enough training and experience to operate install or repair this equipment.

The following table briefly summarizes the indications for adequate melter equipment maintenance. Always read the corresponding section carefully.

| Operation | Frequency | Refer to |
|---|---|---|
| External cleaning | Daily | Equipment cleaning |
| System depressurization | Before performing maintenance tasks and repairing the hydraulic system | System depressurisation |
| Remove electrical cabinet | Before performing pneumatic unit or pump shaft maintenance | Access to pneumatic unit |
| Filter cleaning or changing | - As needed (once a year minimum)<br>- With each adhesive change | Filter maintenance |
| Emptying and cleaning the tank | - When burnt adhesive is present<br>- With each adhesive change | Cleaning the tank |
| Check thermostat operating | - Check in continuous work | Safety thermostat |
| Equipment change | - Equipment change or repair | Remove the equipment from its base |
| Sensitivity adjustment of the capacitive sensor | - As needed | Sensitivity adjustment of the capacitive sensor |

## Equipment cleaning

To continue to take advantage of the melter's benefits and to ensure the perfect mobility of its components, it is necessary to keep all its parts clean, especially the ventilation grate on the upper part of the machine.

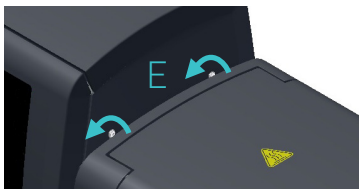
**Warning:** Risk of electric shock. Carelessness may result in injury or death.

Clean the exterior using a cloth moistened with water. Do not use flammable liquids or solvents.

To carry out external cleaning:

- Use cleaning products compatible with polyamide materials.
- Apply the cleaning product with a soft cloth.
- Do not use sharp tools or scrapers with sharp edges.



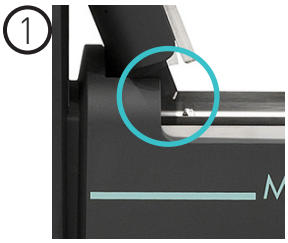


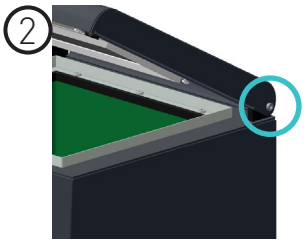


Removing and changing exterior panels:

1. Turn off the melter.
2. Disconnect the compressed air from the machine intake.
3. To remove the casing from the machine, first you have to separate the electrical cabinet from the tank. To do this, slacken the 1/4 turn screw as indicated (A) and slide it along the guides.
4. To remove the electrical cabinet door, open the door by turning the 1/4 turn screw as indicated (B), lift the door, turn it and remove the screws (C).
5. To remove the electrical cabinet casing, slacken the screws (D) that hold it to the base of the machine and the screws (E) that hold it to the structure of the electrical cabinet.
6. To remove the tank casing, remove screws F and G that hold this casing to the base of the equipment. The lid and the casing are removed from the tank at the same time.
7. The tank lid of Micron+ 5 and 10 is removed once the tank casing has been dismantled. It is simply a matter of sliding the shafts at the ends along the grooves in the casing. (See diagram 1).

   The tank lid of Micron+ 20 and 35 is removed loosening the side lid screws (See diagram 2).




8. To assemble the casing, follow the instructions in reverse order.

## System depressurisation

'Micron+' series melters are equipped with a safety valve that allows you to depressurize the system whenever the equipment is pneumatically or electrically disconnected.

Before disconnecting any hydraulic component or opening any distributor output, it is necessary to follow these steps:

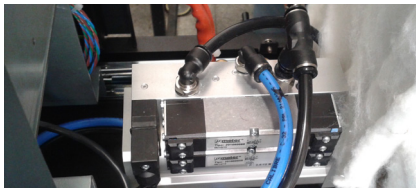
1. Turn off the machine switch

   The depressurization valve releases the pressure from the hydraulic circuit, returning the adhesive to the tank.

2. Purge all applicators that have been used either manually or with the corresponding program command.

## Access to pneumatic unit

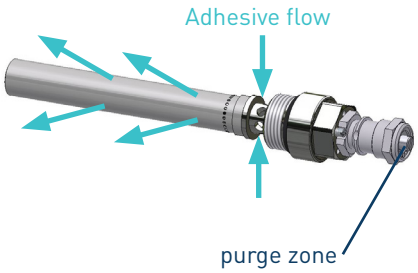
To access the unit for more exhaustive machine maintenance, it will be necessary to remove the electrical cabinet from its place so it can be handled more comfortably and accessibly. To do this, slacken the 1/4 turn screw that keeps the electrical cabinet in position (screw A) and slide it along the guides.



To carry out this operation it is not necessary to open the electrical cabinet door.

## Maintenance of the filters

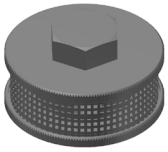
'Micron+' series melter equipment is equipped with a 50 mesh pump filter. The filter prevents impurities and burnt adhesive remains from being pushed out from the tank by the pump.




The adhesive flows from the inside to the outside of the filter, with impurities being trapped inside it.

The drain valve is included in the filter cap.

There is also a filter in the tank's inlet valve. This filter performs a first-step filtration, preventing impurities resulting from burning in the tank and other impurities that may enter from the outside from passing through.



The filters can be cleaned or replaced with new ones.

No rule exists for determining when to change the filters. Several factors influence this decision:

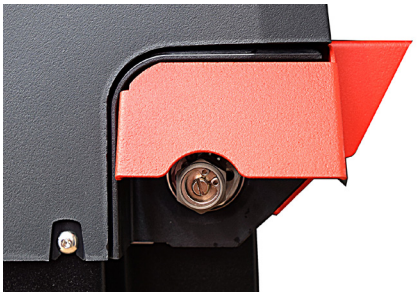
- the type and purity of the adhesives used.
- the adhesive work temperatures.
- adhesive consumption in relation to the time it spends in the tank.
- changes in the type of adhesive used.

In any case, we recommend that the filters are checked and cleaned at least every 1000 hours of operation (melter turned on).

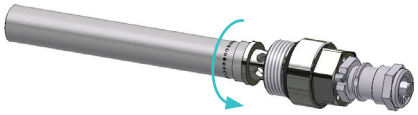
**Warning:** Always use protective gloves and goggles. Risk of burns.

### Changing the pump filter

To change the filter, it should be borne in mind that the filter and purge valve are the same assembly:



1. Depressurise the system.
2. To remove the whole filter, unscrew the assembly's hexagonal plug using a 27 mm wrench and remove it.
3. Depending on the amount of dirt inside the cartridge, clean it or throw it away, following the applicable waste regulations.



4. Replace the joints if they are damaged.
5. Screw the assembly up again, clockwise.
6. Put the assembly back inside the distributor and tighten the screws.
7. Continue to work as normal.

### Changing the inlet filter

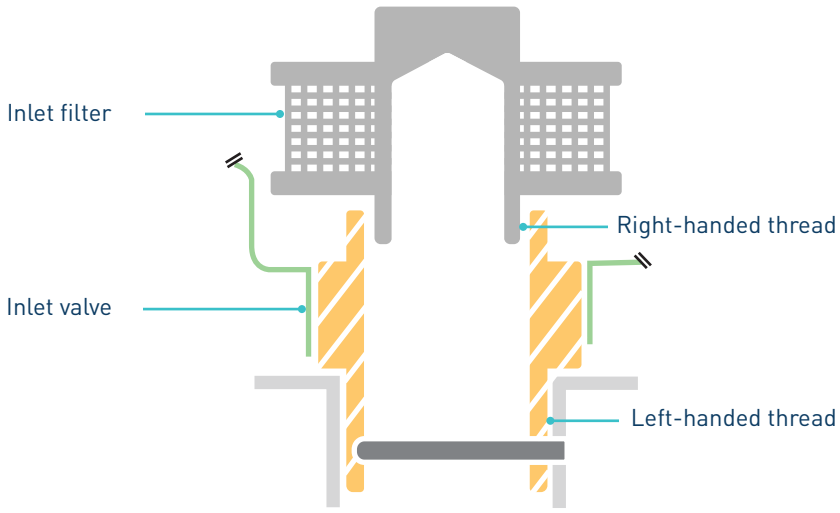
**Warning:** It is important to install and remove the filter as instructed below, to prevent the inlet valve from coming loose.

Bear in mind that the inlet filter is screwed onto the inlet valve via a right-handed thread and that this, in turn, is screwed onto the distributor's adapter via a left-handed thread.

1. Empty the tank.
2. Remove the grid from the bottom of the tank, taking care not to scratch it.
3. Put the unit on Standby.
4. Remove the filter unit with a size 17 socket driver, turning the unit's head anticlockwise.
5. Depending on how dirty the filter is, replace the mesh or the entire unit, disposing of it in accordance with the current waste regulations.
6. Reinstall the filter unit, screwing it clockwise onto the inlet valve.

**Important:** It should only be tightened by hand and should not be forced, to avoid loosening the inlet valve.

7. Fill the tank with adhesive and continue working as normal.



## Cleaning the tank

The hot-melt tank must be cleaned on occasion to maintain its fusion and anti-adherence properties. The tank is inclined enough to aid unloading the hot-melt and to avoid it from being retained inside when consequential burning occurs.

Furthermore, when adhesives are mixed, reactions may occur between them, causing a degeneration and thus problems in unloading in the direction of the pump.

Therefore, it is recommended to clean the deposit every time that:

- a change is made to a different type of hot-melt.
- too much burnt material is generated in its interior.

### Changing adhesive type.

1. Use up as much of the adhesive as possible.

   If it is necessary to unload the adhesive without having used it up as much as possible, follow the instructions in the section 'Emptying the tank'.

2. Clean the remains of hot-melt adhesive on the inside of the tank.

**Warning:** Use appropriate protective equipment for high temperatures.

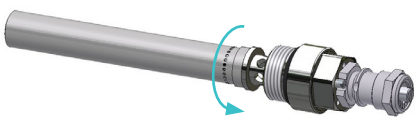
3. Add the appropriate type and quantity of the new adhesive, wait for it to melt and pump at least one full tank through the system (hoses and applicators).

### Cleaning burnt adhesive

1. Empty the tank directly (see the section 'Emptying the tank') to prevent the burnt material from passing through the pump circuit.
2. Clean the adhesive remains and burnt material inside the tank. Do not use sharp objects that might damage the inside coating.

**Warning:** Use appropriate protective equipment for high temperatures.

3. Add the appropriate type and quantity of adhesive and wait for it to melt.
4. Remove the filter cartridge and clean it, if necessary (see the section 'Filter maintenance').
5. Reassemble the filter without the cartridge.
6. Pump a minimum of one tank through the distributor output marked number 1.
7. Remove the filter and attach it to the corresponding cartridge. Reinstall it in the distributor.
8. Refill the tank with adhesive, wait for it to melt and continue working as usual.

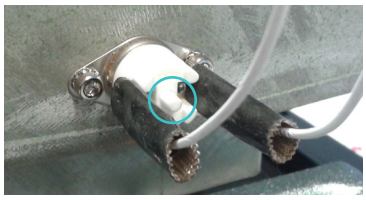



**Warning:** Whenever you handle the filter or any other element subject to pressure, you must always perform a system depressurization first (see the corresponding section)

**Emptying the tank**

During normal maintenance activities, it is recommended, and sometimes necessary to empty the tank directly, without passing the adhesive through the pump system.

In the case of the Micron+ 5, the tank does not have a pouring chute so, to empty out the adhesive you need to wait until it has cooled and separate it from the walls of the tank, making it easier to remove.



## Safety Thermostat

If there is an error in the resettable thermostat. Dismantle the tank casing with the cover and slide the electrical cabinet along. When you can see the thermostat, press the button indicated to reset it.

**Warning:** Use appropriate protective equipment for high temperatures.

## Automatic feeder maintenance

**Warning**: The vacuum feeder is a device with updated technologies but with certain risks. Therefore, you should allow only the right people, with sufficiently enough training and experience, handling, installation or repair of these devices.

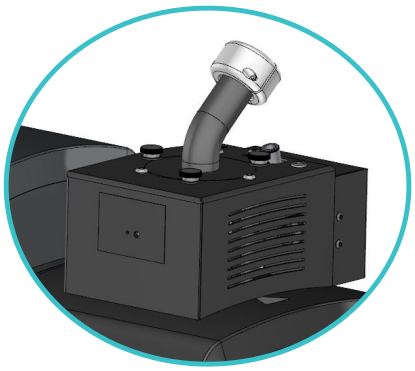
The following table summarizes briefly the indications for proper maintenance of the vacuum feeder. Read carefully, in each case, the corresponding section.

If the device does not work or works incorrectly contact the Technical Services 'meler' or Area Representative.

| Operation | Frecuency | Refer to |
|---|---|---|
| External cleaning | Daily | Cleaning of the unit |
| Pneumatic system | - Daily: pressure control<br>- Weekly: leakage inspection | Pneumatic circuit |
| Load sensor | - Daily: load control<br>- Weekly: cleaning | Control of load sensor |
| Suction tube | Weekly | Inspection aspiration tube |
| Air exhaust filter | Weekly | Filter maintenance |
| Pneumatic vibrator | Weekly | Control of pneumatic vibrator |
| Sensitivity adjustment of the capacitive sensor | - As needed | Sensitivity adjustment of the capacitive sensor |

### Cleaning of the unit

To maintain the performance of the vacuum feeder in perfect functioning, all of its components must be maintained clean and especially the exits in the air suction tube.



Eliminate waste that can clog the air outlets.

Keep clean and without obstructions the tube for the adhesive.

Clean items with a soft tissue and aspire the dust that can be accumulated.

### Pneumatic system

Control regularly the pressure feeding circuit. Very low pressures do not allow proper loading of the adhesive. Very high pressures can produce splash of molten adhesive in the tank of the melting unit and even cooling of the hot melt.

Monitor periodically if there is any leak in the pneumatic circuit. In addition to being a useless expense resulting in loss of pressure and thus malfunction of the system load.

### Control of the load sensor

It is necessary to control if the load sensor is working properly and that it allows you to maintain the desired levels.

A low load will cause a decline in the level and the possibility of not having the amount of necessary hot-melt adhesive. By contrast, an overload can cause the overfilling of the tank with subsequent sealing of the loading mouth.

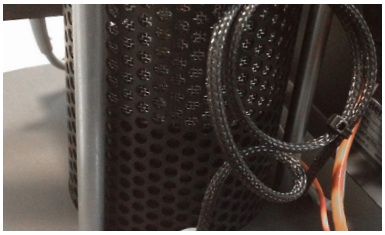
The load sensor should remain clean of charred adhesive that may affect the proper level detection.

### Inspection of the aspiration tube

Monitor that the aspiration tube is not obtured with sticked glue pallets or perls. This tube should be perfectly free of any glue plugs that impedes the smooth transfer of the adhesive from container to the tank of the melting unit.

The tube is mostly transparent to facilitate visual inspection of the same.

### Filter maintenance



Periodically review the state of the filter located inside the discharge zone. Blow compressed air impurities that may have acceded to.

This filter avoids dust particles or glue pallets itself being spilled outside with the exhaust air. If it arrived to be plugged the system might not work properly.

To clean, unscrew the three screws of the rotary elbow lid and extract the filter.

### Control of pneumatic vibrator

Reviewing the correct operation of the pneumatic vibrator located in the suction mouth. Ensures that it vibrates and its vibration is adequate.

Clean up the exhaust silencer of impurities and adhesive dust.

## Sensitivity adjustment of the capacitive sensor

**Important:** Use the working adhesive and at the working temperature.

**Warning:** Hot zone with high temperatures. Risk of burns. Use thermal protective equipment.

### Sensitivity adjustment of the Tank capacitive sensor

1. Clean the tank as indicated in the part 'Cleaning the tank' of the instruction manual of your equipment.
2. Clean the sensor by completely removing all adhesive remains.
3. Melt the adhesive at working temperature until it covers the sensor just above it.

4. The amplifier that adjusts the sensor´s sensitivity is located in the control cabinet.

This amplifier has two states indicated with two different LED colours (1):

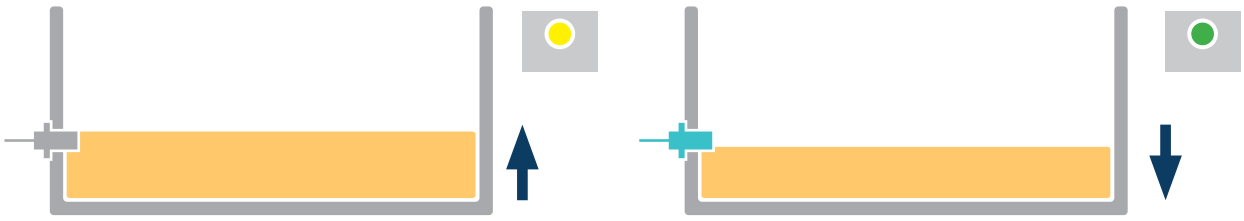
- Green: there is no adhesive (empty).
- Yellow: there is adhesive (full).

5. Remove the plastic plug of the amplifier to access the sensitivity adjustment potentiometer (2) and turn the adjusting screw at least 3 turns counterclockwise. The LED must be green.
6. With the sensor still covered by melted adhesive, gently turn the adjusting screw clockwise, just until the LED turns yellow (sensor activated).
7. Gently turn the adjusting screw ¼ turn counterclockwise. The LED will change back to green.

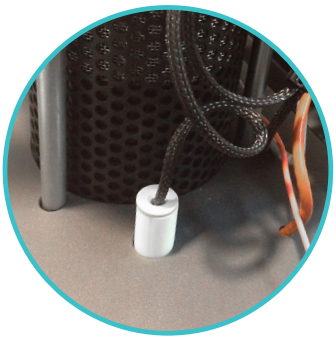

### Verification of the Tank sensor regulation

1. Increase slightly the adhesive level of the tank. The LED should change to yellow.
2. Decrease the adhesive level of the tank. As soon as the detector is visible, the LED should change to green.

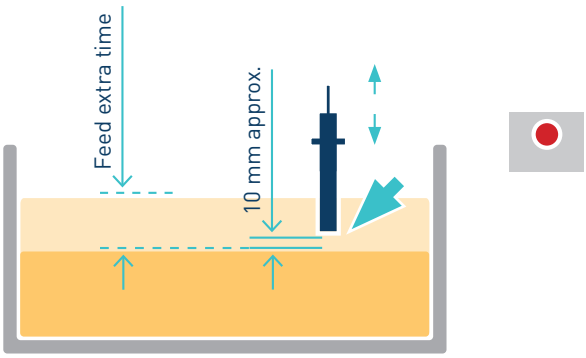
It is recommended to carry out a verification of the signals once the equipment is in automatic operation.

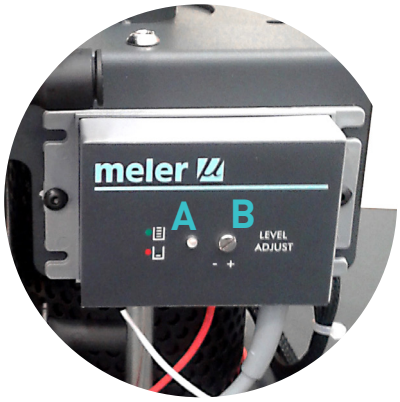


### Sensitivity adjustment of the automatic feeder capacitive sensor



1. Clean the tank as indicated in the part 'Cleaning the tank' of the instruction manual of your equipment.
2. Clean the sensor by completely removing all adhesive remains.
3. Fill the tank with the working pellet up to the level considered as 'full tank' and approximately 10 mm from the sensor.




4. The amplifier that adjusts the sensor´s sensitivity is located in the automatic feeder.

   This amplifier has two states indicated with two different LED colours (A):

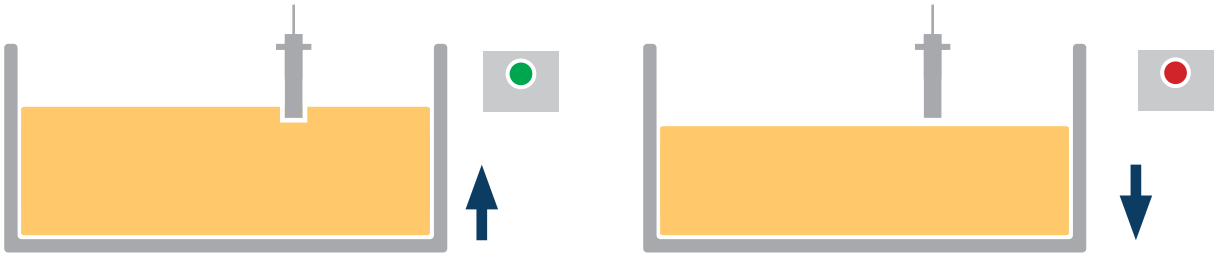
   - Red: no adhesive (empty).
   - Green: there is adhesive (full).

5. Turn the adjusting screw (B) at least 3 turns counterclockwise. The LED must be red.
6. With the sensor still covered by melted adhesive, gently turn the adjusting screw clockwise, just until the LED turns green (sensor activated).
7. Gently turn the adjusting screw ¼ turn counterclockwise. The LED will change back to red.

**Verification of the automatic feeder capacitive sensor regulation**

1. Increase slightly the adhesive level of the tank. The LED should change to green.
2. Decrease the adhesive level of the tank. The LED should change to red.

It is recommended to carry out a verification of the signals once the equipment is in automatic operation.



## Remove the equipment from its base

For more thorough equipment maintenance, it is necessary to remove it from its present location to be able to perform operations more comfortably and with greater accessibility.

To do this, the equipment should be removed from its base following these indications:

1. Turn off the machine switch
2. Depressurise the system.
3. Disconnect the hoses connected to the distributor outputs both electrically and hydraulically.
4. Disconnect the input power supply and ground connection.
5. Raise the machine to extract it from the base.

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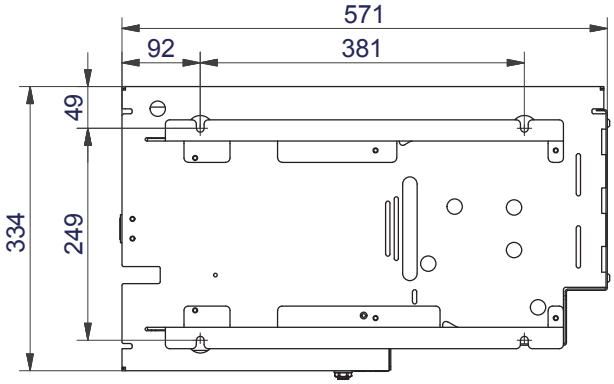
# 6. TECHNICAL CHARACTERISTICS

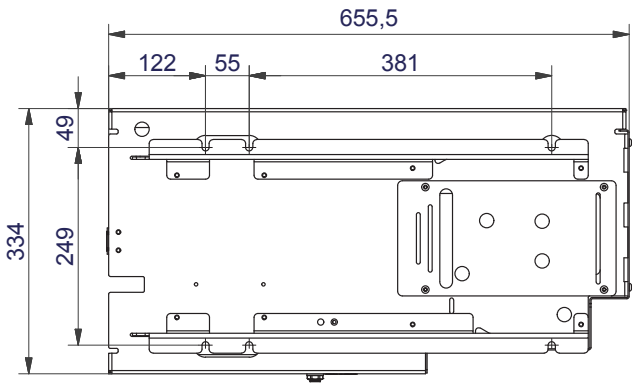
## Generals

| | Micron+ 5 TPD | Micron+ 10 TPD |
|---|---|---|
| Tank capacity | 5.15 liters | 9,7 liters |
| Pumping rate | 29.3 kg/h 7cc/stroke pump (*) | |
| Melting rate | 9.0 kg/h (*) | 13.5 kg/h (*) |
| Number of hydaulic outputs | 6 (thread 9/16) | |
| Temperature range | 40 to 200°C (100 to 392°F) | |
| Temperature control | RTD ±0.5°C (±1°F) - Ni-120 / Pt-100 | |
| Max. working pressure (at 6 bar) | 81.6 bar (1183 psi) | |
| Max. installation power (at 230V) | 5.900 W (2 electrical outputs)<br>9.500 W (4 electrical outputs) | 6.900W (2 electrical outputs)<br>10.500 W (4 electrical outputs) |
| Electrical requirements | 3N ~ 400/230V 50Hz + PE | |
| Workplace temperature | 0 a 40°C | |
| Weight | 40 kg (empty) | 48 kg (empty) |
| (*) Under standard conditions | | |

## Dimensions


MOUNTING THE EQUIPMENT Micron+ 5 TPD




MOUNTING THE EQUIPMENT Micron+ 10 TPD

**Note:** the indicated holes are for M8 screws.

## Automatic Feeder

| | |
|---|---|
| Adhesive type | pads or pearls up to 12 mm |
| Max. transfer length | 25 m **(*)** |
| Max. transfer height | 8 m **(*)** |
| Max. refilling speed | 400 kg/h **(*)** |
| Tube standard dimensions | Ø30 mm x 4 m |
| Recommended air presssure | 6 bar |
| Consumption at 6 bar | 360 l/min (in charge mode) |
| Power supply | LN ~ 230V 50/60Hz + PE |
| Container capacity | 50 kg |
| Melter units | for the full range 'meler' |
| Dimensions | |
| Control box + loading input | 190 x 290 x 210 |
| Filter | 20 mesh (< 1mm) |

**(*) Depending on the type and form of the adhesive**

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# 7. ELECTRICAL DRAWINGS

To view the the electrical drawing of the purchased equipment, see the USB of electrical drawings included.

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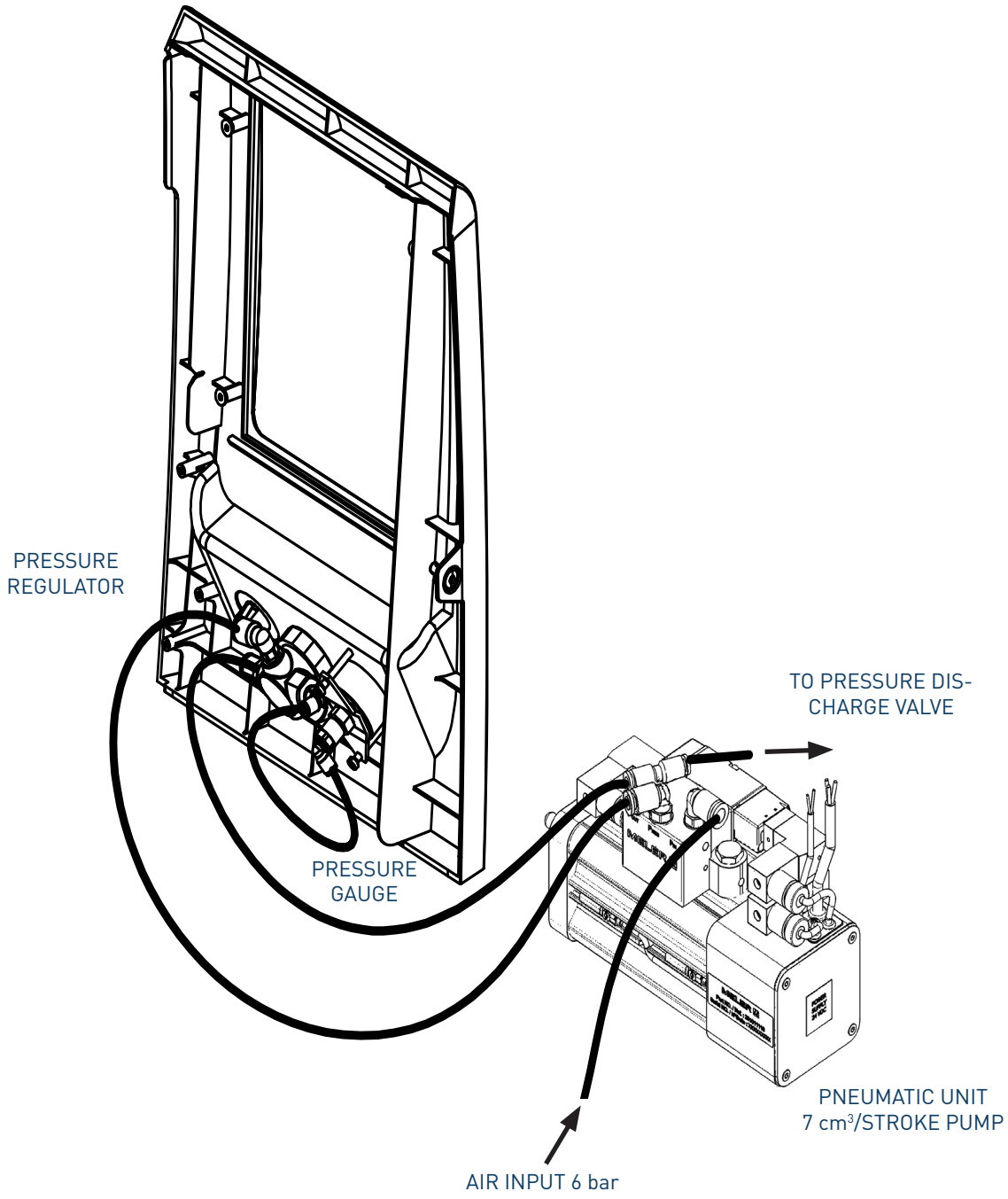
# 8. PNEUMATIC DIAGRAM

## Components list

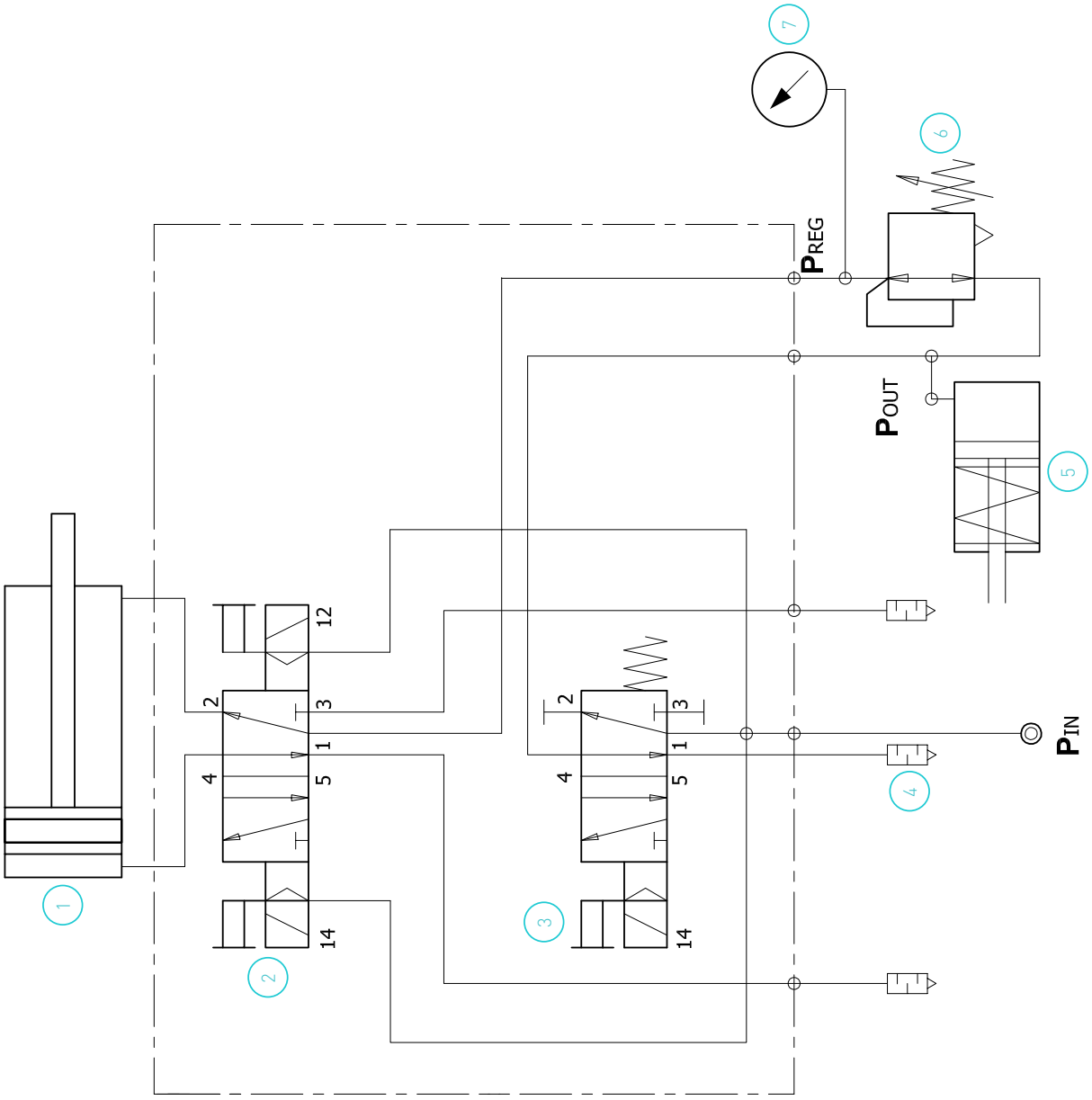
**7 cm3/stroke pump**

1. Pneumatic cylinder double acting double chamber
   Ø50x50 (7cm$^3$/stroke pump)
2. 5/2 bistable valve
3. 5/2 monostable valve
4. Exhaust port filter
5. Pressure discharge valve
6. Pressure regulator 1-8 bar
7. Pressure gauge 0-10 bar

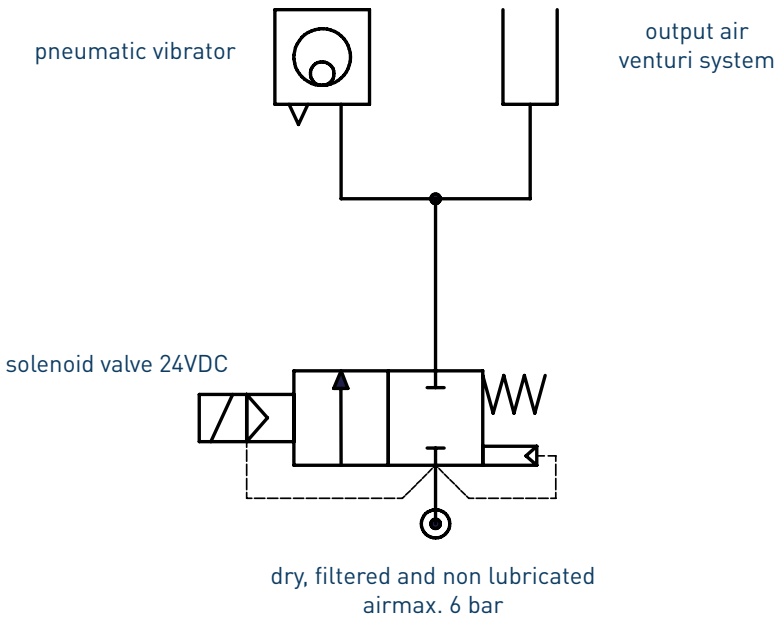
## Pneumatic connection for 7 cm³/stroke PUMP



## Pneumatic diagram for 7 cm³/stroke PUMP



## Pneumatic diagram automatic feeder



# 9. SPARE PARTS LIST

The list of the most common spare parts for Micron+ series machines appears in this section, providing a quick and reliable guide to choosing them.

The spare parts are grouped together naturally, in the same way as they are located in the melters.

As a visual aid, drawings of the parts are included and are numbered to help identify them in the list. For further information about the content of the spare parts, click on the number of the spare part.

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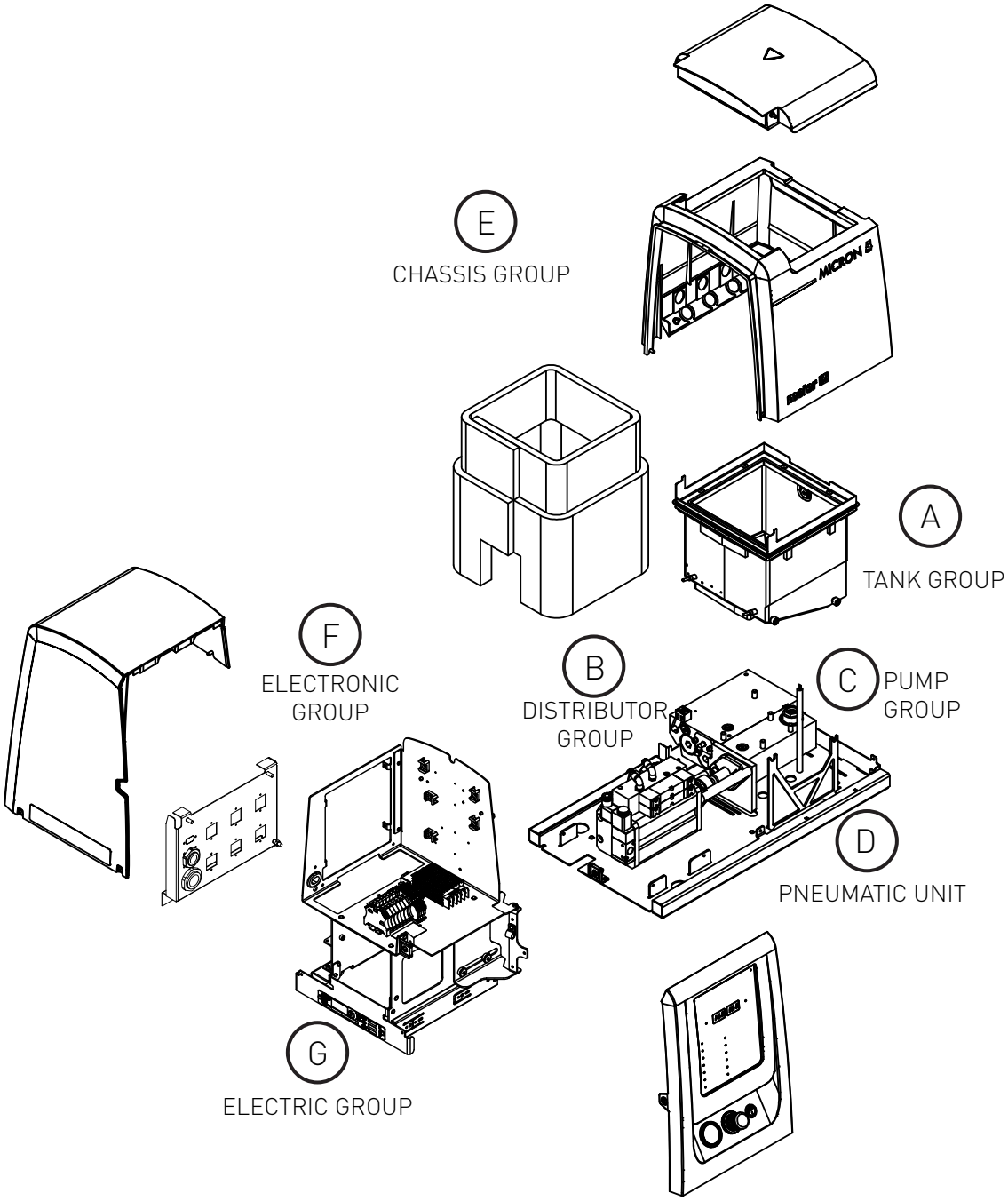
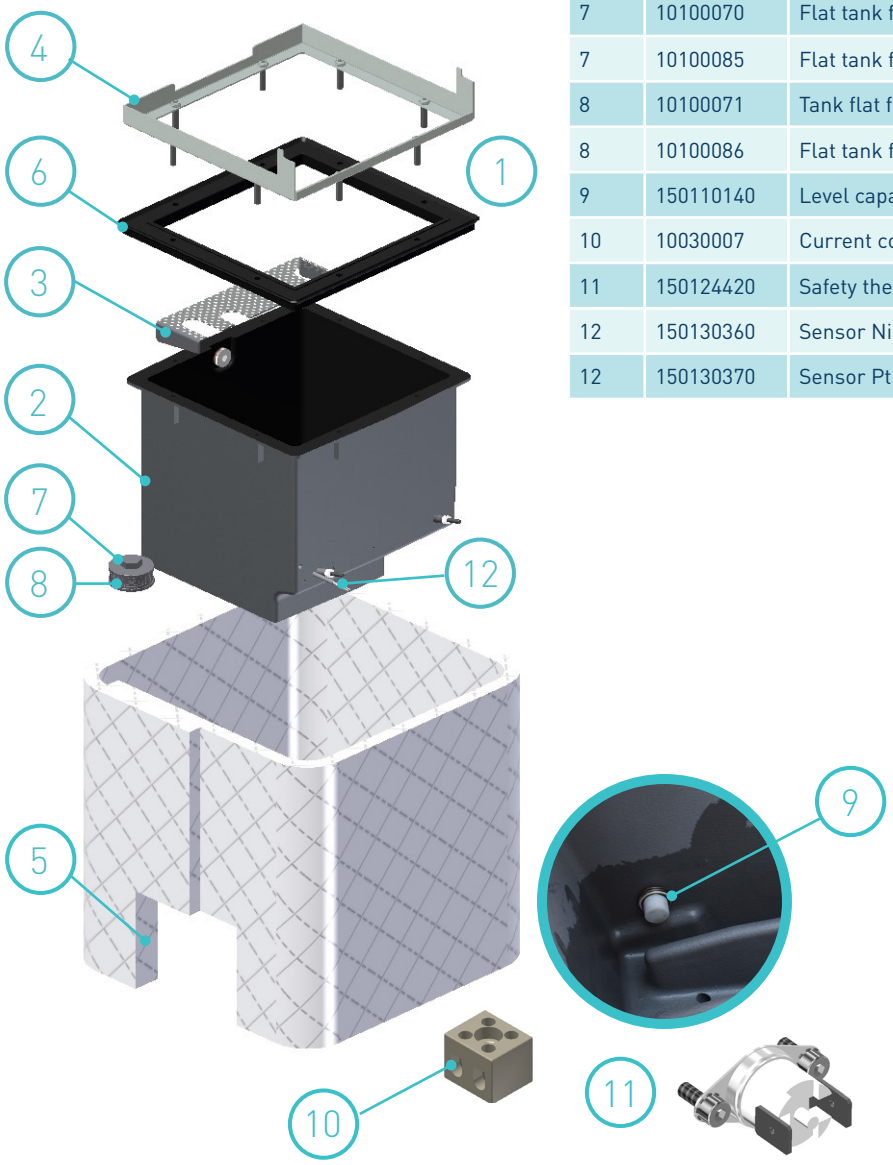



H, I - Spare parts for automatic feeder

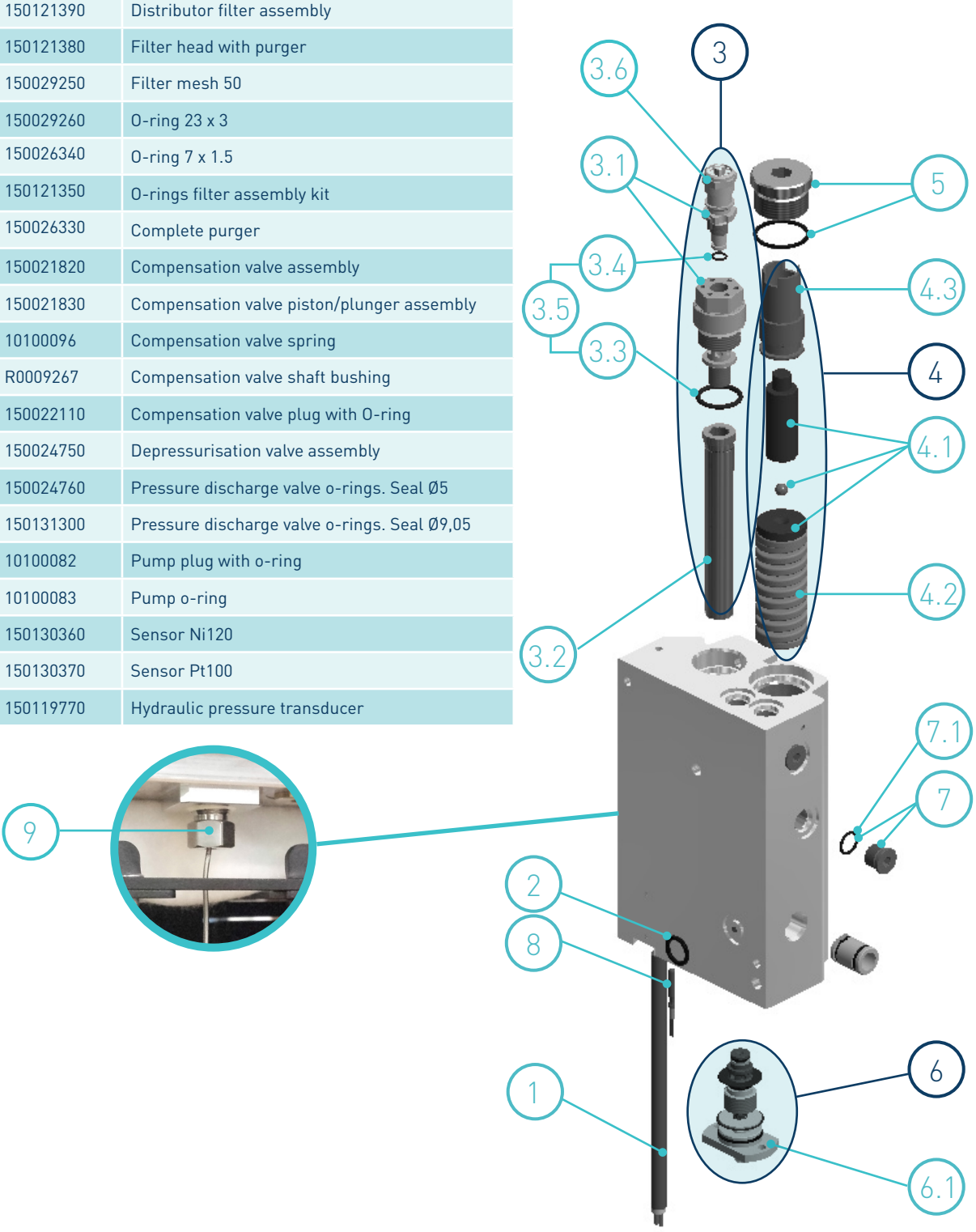
## A. TANK ASSEMBLY

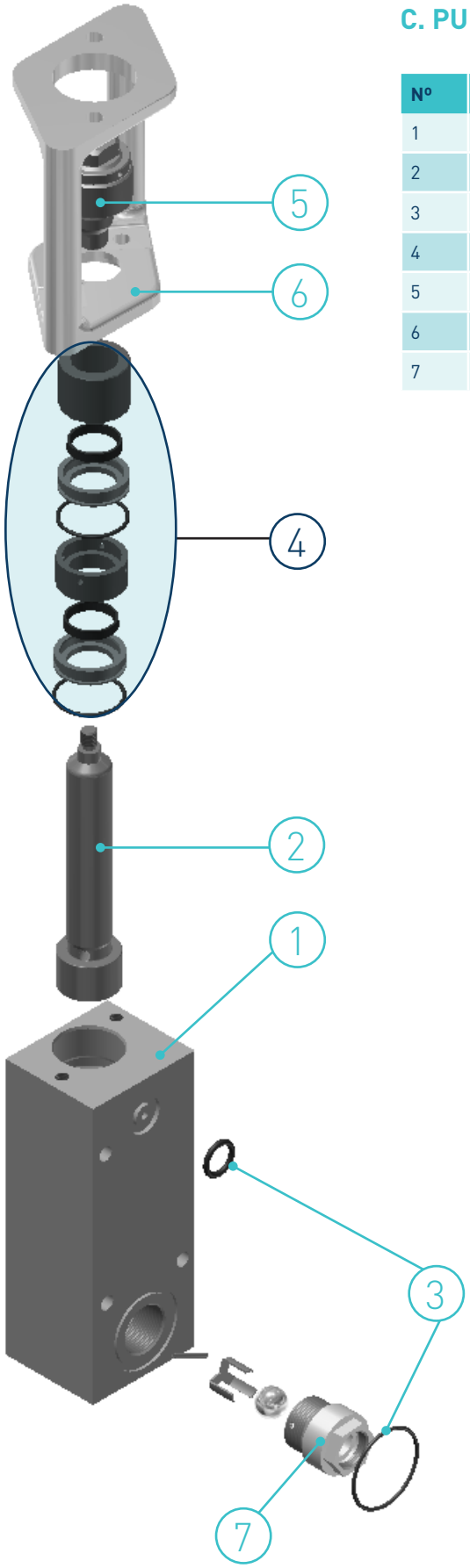
| Nº | Ref. | Description |
|---|---|---|
| 1 | 150129210 | Complete tank assembly micron+ 5 cer. UL Cap. D. |
| 1 | 150132230 | Complete tank assembly micron+ 10 cer. UL Cap. D. |
| 2 | 150127970 | Ceramic coated tank micron+ 5 Capacitive Detec. |
| 2 | 150129020 | Ceramic coated tank micron+ 10 Capacitive Detec. |
| 3 | 150113370 | Tank grid micron 5-10L |
| 4 | 150113380 | Inlet tank micron 5 |
| 4 | 150113390 | Inlet tank micron 10 |
| 5 | 150124530 | Tank insulation mantle micron+ 5 UL |
| 5 | 150124540 | Tank insulation mantle micron+ 10 UL |
| 6 | 150124550 | Insulation mantle inlet tank micron+ 5 UL |
| 6 | 150124560 | Insulation mantle inlet tank micron+ 10 UL |
| 7 | 10100070 | Flat tank filter |
| 7 | 10100085 | Flat tank filter, extra-thick |
| 8 | 10100071 | Tank flat filter mesh |
| 8 | 10100086 | Flat tank filter screen, extra-thick |
| 9 | 150110140 | Level capacitive detector |
| 10 | 10030007 | Current connection strip |
| 11 | 150124420 | Safety thermostat, up to 200°C |
| 12 | 150130360 | Sensor Ni120 |
| 12 | 150130370 | Sensor Pt100 |



## B. DISTRIBUTOR UNIT

| Nº | Ref. | Description |
|---|---|---|
| 1 | 150026350 | Heating element 300 W |
| 2 | 10120032 | Tank-distributor seating o-ring |
| 3 | 150121390 | Distributor filter assembly |
| 3.1 | 150121380 | Filter head with purger |
| 3.2 | 150029250 | Filter mesh 50 |
| 3.3 | 150029260 | O-ring 23 x 3 |
| 3.4 | 150026340 | O-ring 7 x 1.5 |
| 3.5 | 150121350 | O-rings filter assembly kit |
| 3.6 | 150026330 | Complete purger |
| 4 | 150021820 | Compensation valve assembly |
| 4.1 | 150021830 | Compensation valve piston/plunger assembly |
| 4.2 | 10100096 | Compensation valve spring |
| 4.3 | R0009267 | Compensation valve shaft bushing |
| 5 | 150022110 | Compensation valve plug with O-ring |
| 6 | 150024750 | Depressurisation valve assembly |
| 6.1 | 150024760 | Pressure discharge valve o-rings. Seal Ø5 |
| 6.1 | 150131300 | Pressure discharge valve o-rings. Seal Ø9,05 |
| 7 | 10100082 | Pump plug with o-ring |
| 7.1 | 10100083 | Pump o-ring |
| 8 | 150130360 | Sensor Ni120 |
| 8 | 150130370 | Sensor Pt100 |
| 9 | 150119770 | Hydraulic pressure transducer |



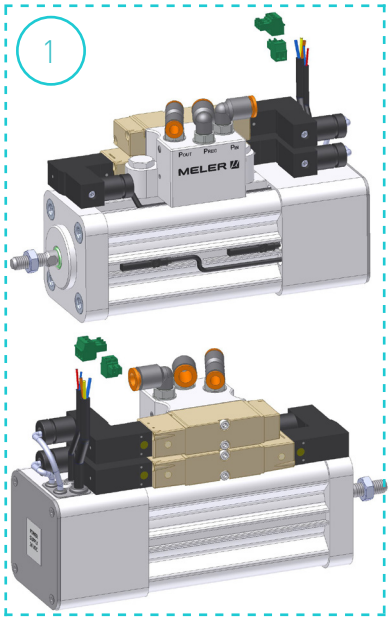


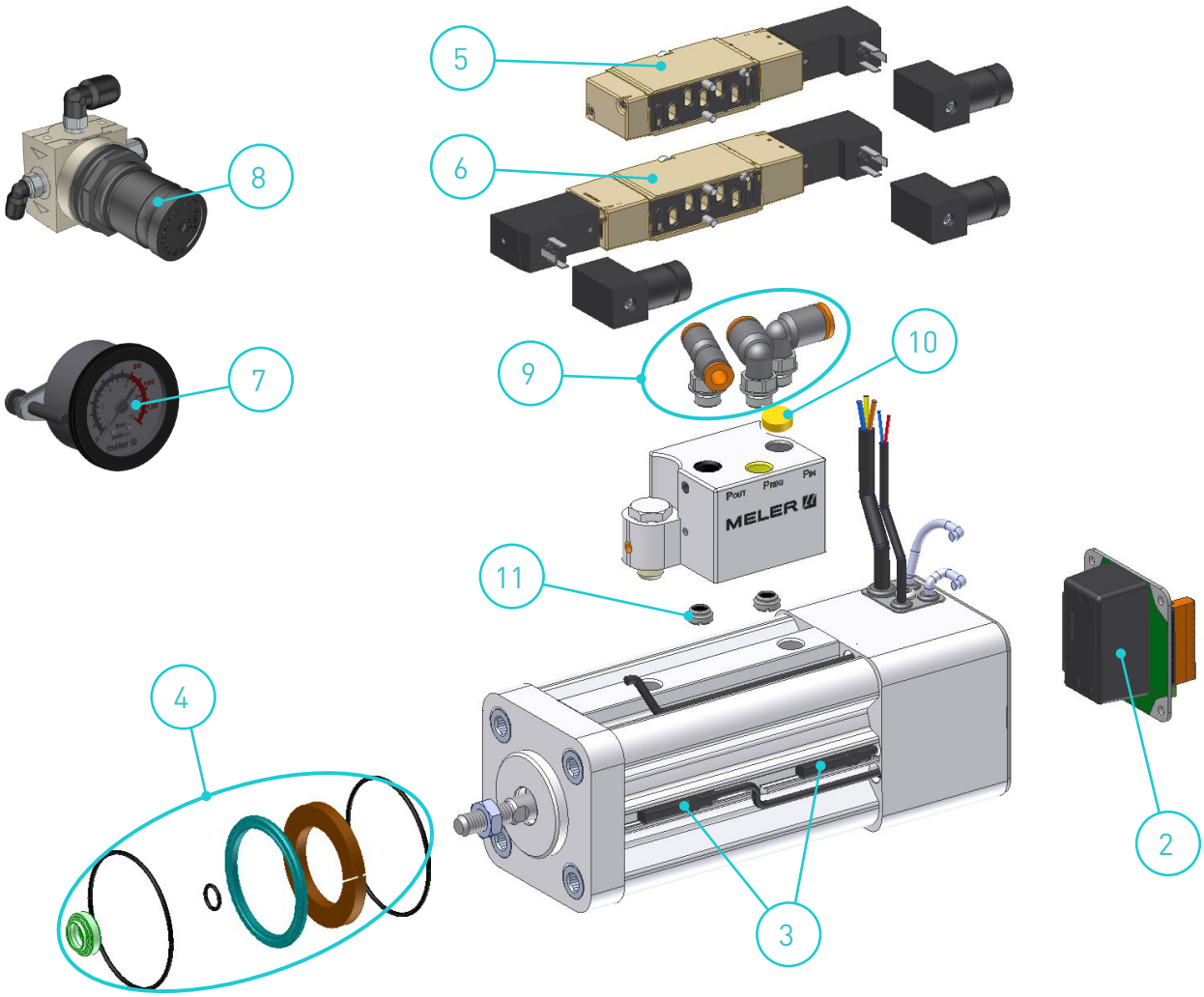

## C. PUMP ASSEMBLY

| Nº | Ref. | Description |
|---|---|---|
| 1 | 150113550 | 7cc pump body with braces and fittings |
| 2 | 10100011 | Pump shaft 7cc |
| 3 | 150113570 | Tank-pump-distributor seating O-ring kit |
| 4 | 150113530 | 7cc pump guide bushing kit |
| 5 | 150020590 | Short ball and socket joint for pump shaft activator |
| 6 | 150113580 | Pump holding support 7cc |
| 7 | 150024970 | Inlet valve fitting micron pump 7cc |

## D. PNEUMATIC UNIT ASSEMBLY 7cc

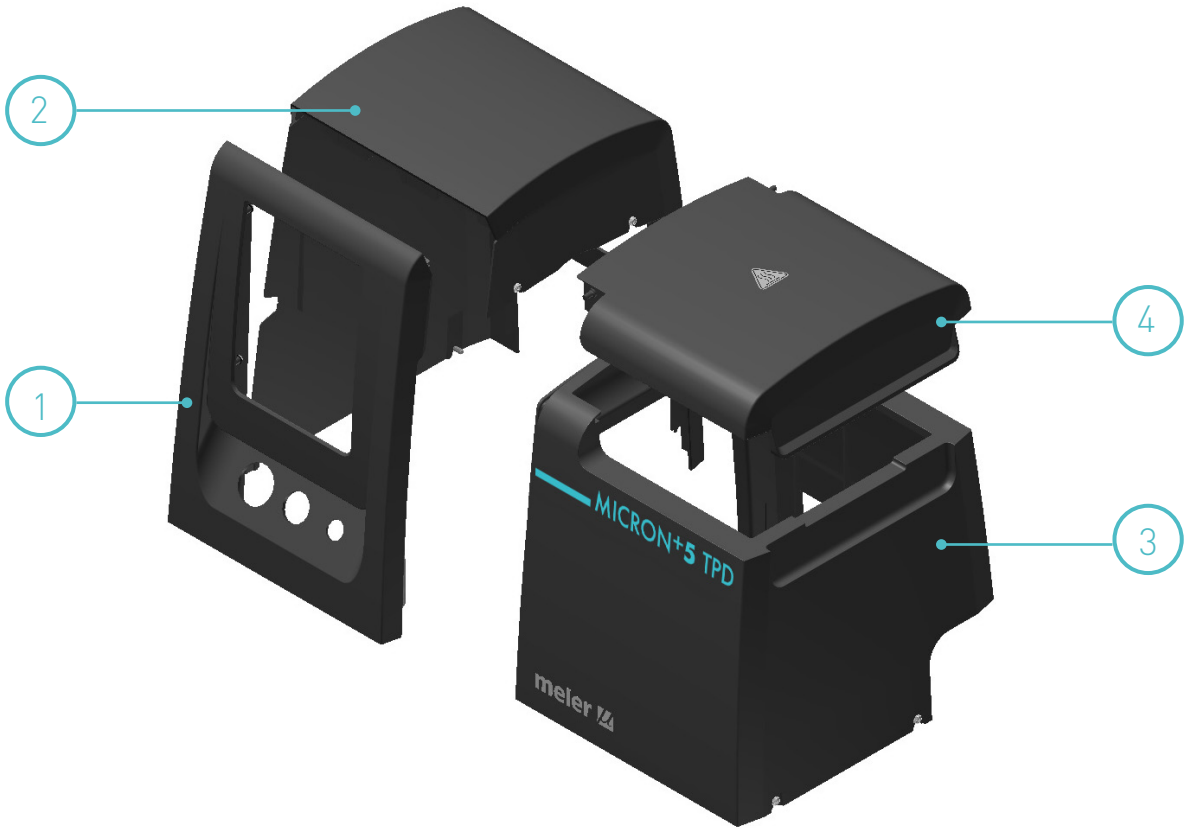
| Nº | Ref. | Description |
|---|---|---|
| 1 | 150136250 | Assy pneumatic cylinder 7cc 230VAC elec detection |
| 1 | 150136270 | Assy pneumatic cylinder 7cc 24VDC elec detect FM |
| 2 | 150136240 | Control card pneumatic cylinder elec detection |
| 3 | 150136230 | Magnetic sensor pneumatic cylinder elec detection |
| 4 | 150136190 | Kit seals Ø50 pneumatic cylinder elec detection |
| 5 | 150136210 | Monostable valve pneumatic cylinder elec detection |
| 6 | 150136220 | Bistable valve pneumatic cylinder elec detection |
| 7 | 150114480 | Pressure gauge |
| 8 | 10110031 | Pressure regulator 0-8 bar G1/8" |
| 9 | 150136480 | Connectors kit pump unit elec detection |
| 10 | 150136460 | Air inlet filter assy pneumatic elec detection |
| 11 | 150136490 | Compact 1/8" bronze silencer |



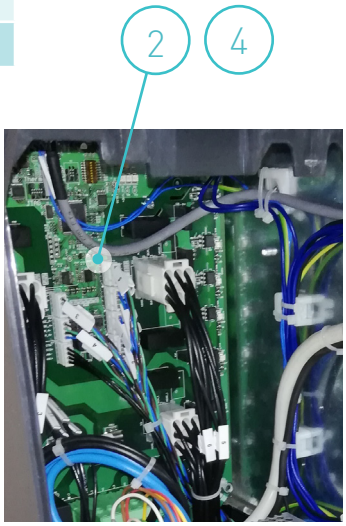
## E. CHASSIS ASSEMBLY

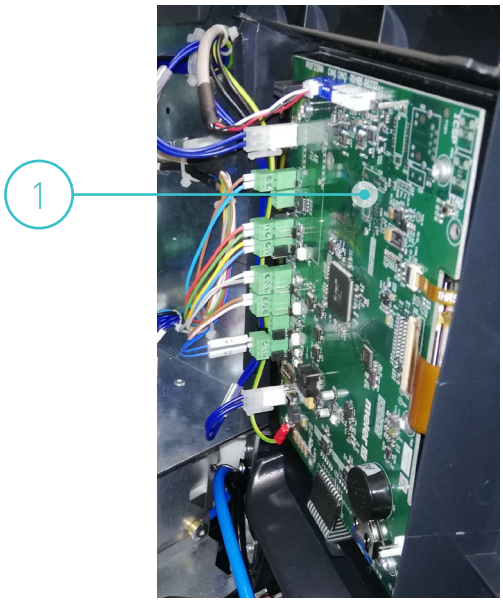
| Nº | Ref. | Description |
|---|---|---|
| 1 | 150130380 | Micron electrical cabinet door casing Micron+ |
| 2 | 150130390 | Electrical cabinet casing assembly without warning light |
| 3 | 150122930 | Micron+ 5 tank housing assembly |
| 3 | 150126960 | Micron+ 5 TPD tank housing assembly |
| 3 | 150122940 | Micron+ 10 tank housing assembly |
| 3 | 150126970 | Micron+ 10 TPD tank housing assembly |
| 4 | 150130410 | Micron+ 5 tank cover assembly |
| 4 | 150130420 | Micron+ 10 tank cover assembly |



## F. ELECTRONIC ASSEMBLY

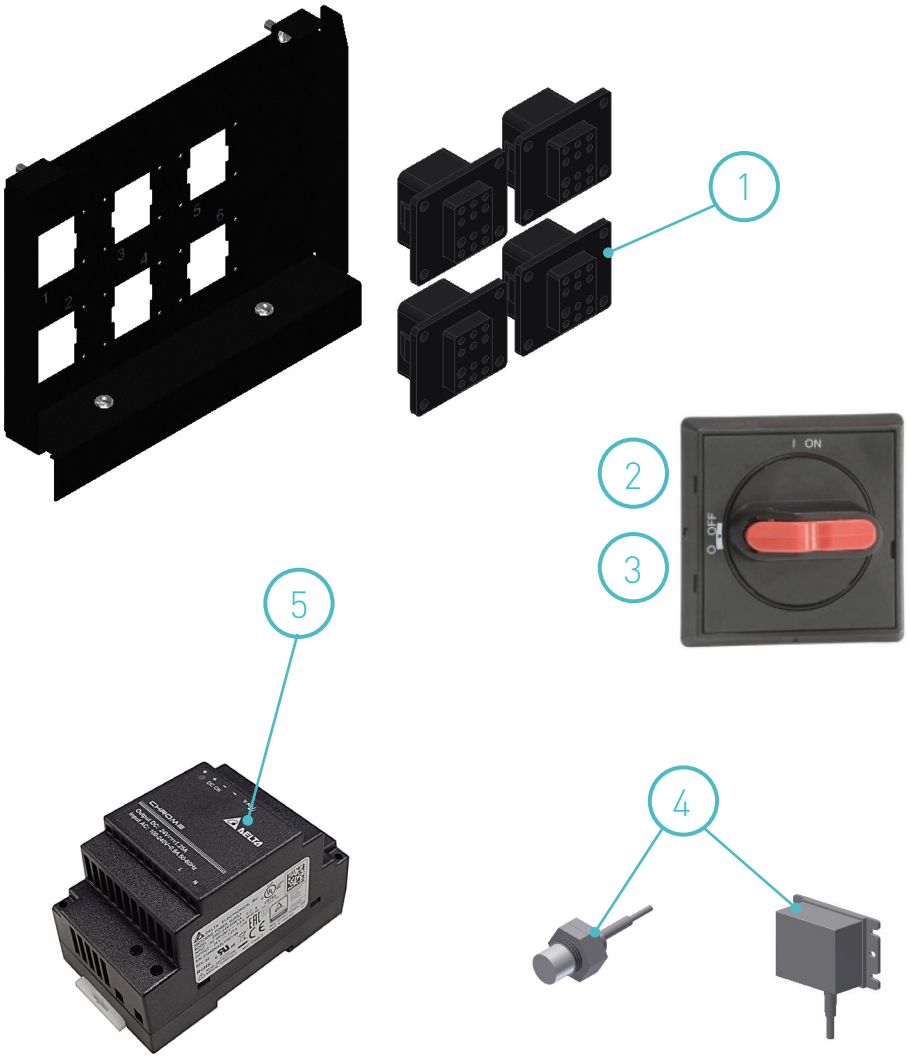
| Nº | Ref. | Description |
|---|---|---|
| 1 | (*) | HMI micron+ TPD control board |
| 2 | 150122980 | Temperature control board 2 outputs |
| 2 | 150122990 | Temperature control board 6 outputs |
| 3 | 150119760 | Pressure sensor display |
| 4 | 150126180 | Fuse 10A 5x20 electrical outputs |
| 4 | 150126170 | Fuse 10A 6,3x32 distributor |
| 4 | 150126160 | Fuse 16A 6,3x32 tank |
| **(*)** Indicate reference and serial number of the unit | | |

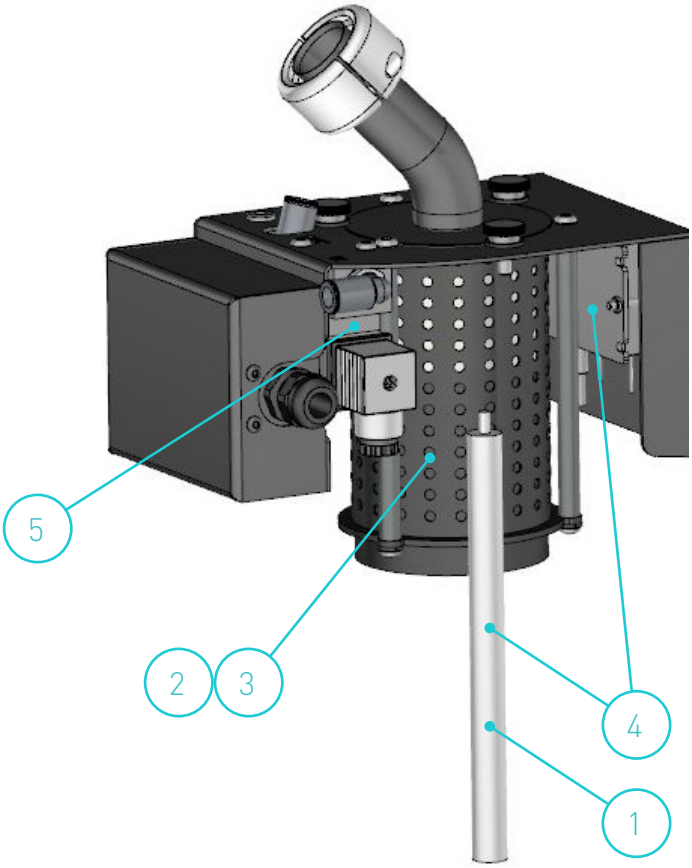

## G. ELECTRIC ASSEMBLY

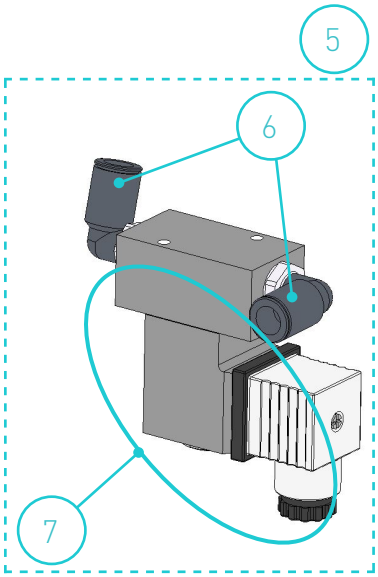
| Nº | Ref. | Description |
|---|---|---|
| 1 | 150020720 | Female connector 12 pin (base housing) |
| 1 | 16010003 | Female connector 8 pin (base housing) |
| 2 | 150118130 | Main switch 40A 4P |
| 3 | 150118150 | Main switch handle |
| 4 | 150114760 | Capacitive sensor and amplifier kit |
| 5 | 150124360 | Micron+ piston pump power supply 24V 30W 1,25A |



## H. AUTOMATIC FEEDER

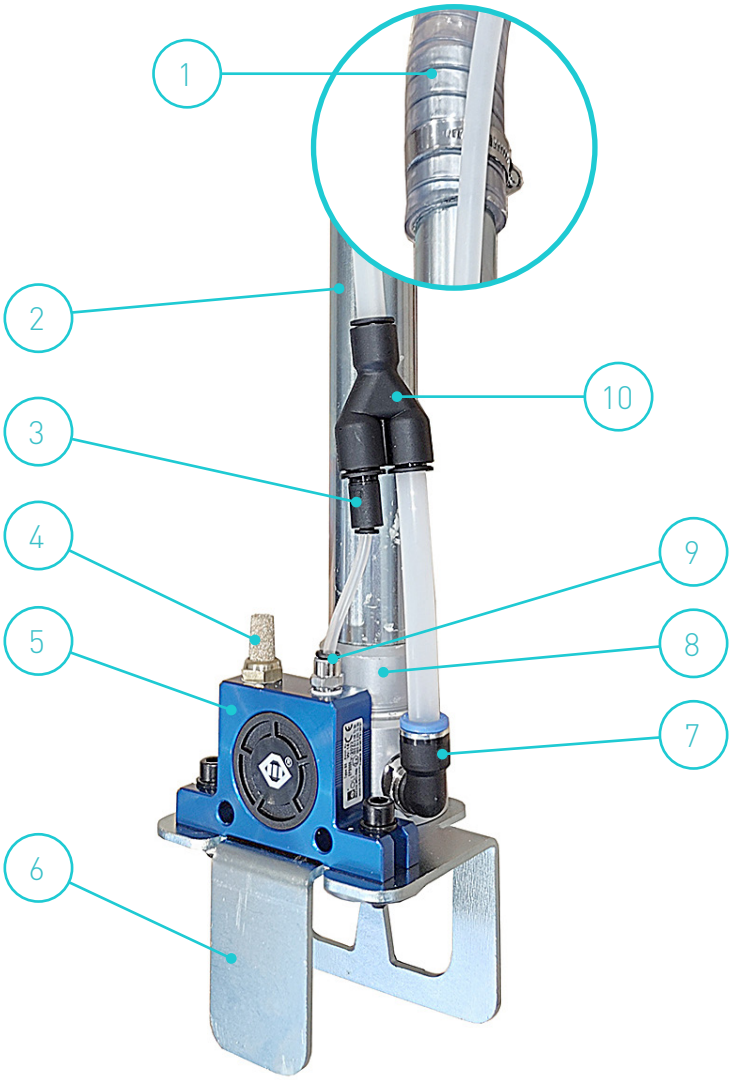
| Nº | Ref. | Description |
|---|---|---|
| 1 | 150025870 | O-ring capacitive sensor g.Feeder |
| 2 | R0009323 | Paper filter feeder system |
| 3 | 150025770 | Grid filter 20 mesh |
| 4 | 150143240 | Capacitive level sensor (amplifier & probe) |
| 5 | 150125550 | Solenoid valve 2/2 24V CC 10W with fittings |
| 6 | 150025790 | Fitting 90‡ 3/8 Ï10 fast air connector |
| 7 | 150060070 | Complete solenoide valve 2/2 24VDC 10W |



## I. SUCTION TUBE

| Nº | Ref. | Description |
|---|---|---|
| 1 | 150025660 | Hose vacuum feeder Ø30 (meter) |
| 2 | 150025670 | Metal suction tube |
| 3 | 150025740 | Reduction Ø10-Ø4 quick plug |
| 4 | 21300000 | Silencer |
| 5 | 150025710 | Pneumatic vibrator vacuum feeder |
| 6 | 150025690 | Support for suction tube |
| 7 | 150025700 | Fitting 90° 3/8 Ø10 quick plug |
| 8 | 150025680 | Venturi suction tube |
| 9 | 150110180 | Straight fitting 1/8 Ø4 quick plug |
| 10 | 150025650 | Fitting y Ø10 quick plug |
| - | 150025810 | Complete suction tube vacuum feeder |



# 10. TROUBLESHOOTING

This chapter shows basic help for solving simple problems without intervention from 'meler' technical personnel.

It is very important to respect the security instructions in this manual at all times. Failure to do so may result in personal injury and/or damage to the machine or to the rest of the installation.

**Warning:** The melter/applicator equipment is equipped with current technology, but with certain foreseeable risks. Therefore, only allow appropriate personnel with enough training and experience to use, install or repair this equipment.

Each observed problem corresponds to a chapter section. There are four different columns in each one:

- Possible causes
- Verification to be performed
- Useful observations
- Actions

The system is simple. Locate the chapter section that corresponds to the observed problem. Starting from the column on the left, follow vertically the causes. Once the cause is found check, the action is performed taking into account the comments and once the error checked carried out in each case corrective action.

If you do not reach the cause follow to the next problem.

If you are unable to solve the problem with the help provided in this chapter, contact your Area Technical Service Center or 'meler' headquarter directly.

## Melter

### The equipment doesn't turn on

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure in equipment power supply | Check voltage between phases and neutrals of the main terminal<br>Check voltage in X7 connector (TC board) | The voltages will vary depending on the equipment | Check over cables.<br>Check network voltage. |
| Failure ON/OFF switch | Check continuity of the switch (2S0)<br>Check power supply | Ensure that the supply receives 220 volts and outputs 24 v | Change switch |
| Power supply failure | Check input voltage(230 v ac)<br>Check output voltage (24v dc) | Ensure visually that the green LED of the supply turns on | Replace power supply |
| HMI board failure (does not turn on) | Check voltage in X9 and X6<br>Check power supply output (24V) | Ensure that voltage arrives | Change HMI board |
| TC board failure (does not turn on) | Check voltage in X6<br>Check power supply output (24V) | Ensure that voltage arrives | Change TC board |

### Short circuit in the equipment

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Short circuit in tank | Release connector X10 from the TC board | If the short circuit is there, the thermal magnetic circuit breaker of the installation will stop pulling.<br>The equipment turns on | Check over cables<br>Change tank |
| Short circuit in distributor | Release connector X10 from the TC board | If the short circuit is there, the thermal magnetic circuit breaker of the installation will stop pulling. The equipment turns on | Check over cables<br>Replace resistance of the distributor |
| Short circuit in hose-applicator | Release each of the connectors from the different channels (X11, X12 and X13) of the TC board | Later it will be necessary to find out if it is in the hose or in the applicator | Check over cables<br>Change hose or applicator |

## Tank

### The tank does not heat

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure in equipment power supply | Check voltage between phases and naturals of the main terminal. Check voltage between phases and neutrals of the X7 connector | The voltages will vary depending on the equipment | Check over cables<br>Check network voltage |
| Broken tank fuse | Check continuity in fuse (FH2) between FH2.1 and FH2.2 | Release fuse to verify it by unplugging the equipment | Replace fuse |
| Damaged TC board | Check voltage in X6<br>Check power supply output (24V) | Correct operation if 24V and the D5 LED is on | Replace TC board |
| Supply cable to damaged tank | Check voltage in X10 between TANK and N1<br>Check voltage in tank resistance | If there is voltage in X10 and not in the tank connections, replace cable<br>*The voltage at this point may oscillate between 0 and 230V | Check over cables<br>Replace cables |
| Melted or damaged resistance | Check ohm value of resistance and make sure it has voltage | The ohm value of the resistance can vary depending on the size of the tank<br>*Check in the electric diagram | Replace tank |

### The tank doesn't stop heating

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure in TC board | Visually ensure that the TANK led is turned off<br>Check voltage in X10 between TANK and N1<br>Visually ensure that the TANK led is turned on or blinking<br>Check voltage in X10 between TANK and N1 | If it is turned off and there is voltage, the TC board is damaged<br>If it is turned on and there is voltage, the HMI board is damaged | Replace TC board |
| Failure in solid state relay | Check output voltage of each relay and neutral (5K4 and 5K6) | If there is voltage when the TANK LED is off and there is no voltage in X10, replace the relay or capacitor.<br>*The voltage at this point may oscillate between 0 and 230V | Change solid state relay<br>Change condenser |

### The tank has temperature fluctuations

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure temperature sensor | Check ohm value of the sensor with the multimeter | Look at connector X17, between TANK - and TANK + and their status, as well as that of the cables | Change the sensor / Exchange the connector |
| Sensor wrongly positioned | See position of the sensor in its positioning | The sensor must be put in all the way | Put sensor in up to the end of the housing |
| Failure in TC board | Last breakage option | Check before sensor, connections and cables | Change TC board |

## Distributor

### The distributor does not heat

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure in equipment power supply | Check voltage between phases and naturals of the main terminal Check voltage between phases and neutrals of the X7 connector | The voltages will vary depending on the equipment | Check over cables<br>Check network voltage |
| Broken distributor fuse | Check continuity in fuse (FH2) between FH1.1 and FH1.2 | Release fuse to verify it by unplugging the equipment | Replace fuse |
| Damaged TC board | Check voltage in X6<br>Check power supply output (24V) | Correct operation if 24V and the D5 LED is on | Replace TC board |
| Supply cable to damaged distributor | Check voltage in X10 between DISTR and N1<br>Check voltage in distributor resistance | If there is voltage in X10 and not in the distributor connections, replace cable<br>*The voltage at this point may oscillate between 0 and 230V | Check over cables<br>Replace cables |
| Melted or damaged resistance | Check ohm value of the distributor resistance and make sure it has voltage | The ohm value of the resistance can vary depending on the type of equipment<br>*Check in the electric diagram | Replace tank |

### The distributor doesn't stop heating

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure in TC board | Visually ensure that the DISTRIBUTOR led is turned off<br>Check voltage in X10 between DISTR and N1<br>Visually ensure that the TANK led is turned on or blinking<br>Check voltage in X10 between DISTR and N1 | If it is turned off and there is voltage, the TC board is damaged<br>If it is turned on and there is voltage, the HMI board is damaged | Replace TC board |

### The distributor has temperature fluctuations

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure temperature sensor | Check ohm value of the sensor with the multimeter | Look at connector X17, between DISTR - and DISTR + and their status, as well as that of the cables | Change the sensor / Exchange the connector |
| Sensor wrongly positioned | See position of the sensor in its positioning | The sensor must be put in all the way | Put sensor in up to the end of the housing |
| Failure in TC board | Last breakage option | Check before sensor, connections and cables | Change TC board |

## Pump

### The shaft does not move (manometer does not indicate pressure)

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Lack of air pressure | Check pressure in network | In the manometer, we would only see pressure if the equipment is at OK temperature and has pumping activated | Connect the equipment with air to a maximum of 6 bars |
| Lacks OK temperature | Check all the components connected on the screen | Check it from the HMI board | Repair broken component |
| Electrovalve (4Y5) does not open | Check that the electrovalve receives 24 V DC<br>Ensure that the board gives 24 V DC when complying with the conditions | If it receives voltage but does not let air through, the electrovalve is damaged<br>If the HMI board does not send voltage, it is damaged | Change electrovalve<br>Change HMI board |
| The safety contacts are not closed | Check that the safety contacts have closed | The safety contacts are on the rear panel at a1 x b1 and a2 x b2 | Close the contacts and/ or check the wiring. |

### The shaft does not move (manometer indicates pressure)

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| The shaft does not change pumping direction | Ball joint incorrectly positioned (adjustment) | The ball joint must be placed on the end of the shaft | Reposition the ball joint |
| The shaft does not change pumping direction | Try the pneumatic cylinder outside of the equipment or substitute valves | Outside of the equipment it does not change direction, damaged valves, start with the differential | Replace valves in pneumatic cylinder |
| Stuck or blocked shaft | Uncouple the ball joint and move the shaft manually | If, at OK temperature, the shaft does not move pneumatically or by hand, shaft seized | Replace shaft and collars |
| Air leaks | Put the equipment on & bars of pressure | Any component may leak | Change fittings, valves, etc. |

### The pumping is not efficient

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Absence of hot-melt in the tank | Check adhesive level in tank | Fast movement in both directions of the shaft | Fill the tank with adhesive |
| Dirty tank filter | Check the status of the filter emptying the equipment and cleaning the bottom | Clean the bottom of the tank well before removing the filter | Replace filter |
| Malfunctioning of the intake valve | Put the equipment under pressure and check visually if there is a return of adhesive through the valve | The fast pumping occurs in the direction of the tank | Tighten or replace intake valve |
| Malfunctioning of the shaft | Observe if there is pressure return of the adhesive to the tank when putting the equipment under pressure through one of the return holes. | The fast pumping occurs in the direction of the pneumatic cylinder | Change shaft or collars |
| Depressurization valve malfunctioning | Observe if there is a return of adhesive through the valve during pumping, putting the equipment under pressure and temperature | Fast pumping in both directions. Discontinuous output of adhesive | Change depressurizing valve |

## Adhesive leaks

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Leak through pump shaft | Place the system (equipment+hose+applicator) under pressure. | The bushings are worn | Change full shaft. |
| Purge through depressurized valve. | Place the system (equipment+hose+applicator) under pressure. | The distributor indicator is stained with glue. | Change depressurized valve. |
| Leak through distributor lids. | Place the system (equipment+hose+applicator) under pressure. | Dripping below the distributor. | Change joint of the lid and press it. Possibility of broken thread. |
| Leak due to tank-pump connection. | Place the system (equipment+hose+applicator) under pressure. | Dripping through pump | Change the connection joint of both parts. |
| Leak through hose fittings. | Place the system (equipment+hose+applicator) under pressure. | Dripping through outer part of the distributor | Change joint of the fitting and press it. |

## Hose

### Hose not hot

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Damaged hose. | Exchange the hose with another one that we know works. | Exchange hose in another channel | Change the hose |
| Faulty pin and cable layout. | Check voltages at the power connectors of the board and at the hose outlet (with the hose attached). | Board connector (X11, X12, X13, Hx and Nx Cable) | Change connectors |
| Damaged TC board fuse. | Check continuity in the fuse. | Look at continuity with the equipment turned off | Change the fuse. |
| Damaged TC board. | Check the voltage at the board outlet (with the hose attached). | Board connector (X11, X12, X13, Hx and Nx Cable). Fuse has continuity. LED stays on. | Change TC board |

### The distributor hose doesn't stop heating

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Damaged TC board | Check TC board | HOSE LED indicator constantly turned off. | Replace TC board |
| Failure in connection of temperature sensor | Ensure that the actual temperature shown is correct | Exchange hose with another channel | Repair or replace connector |

### Temperature fluctuations

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure hose temperature sensor. | Exchange with another hose that doesn't have problems. | Change the hose's channel. | Change the hose. |
| Sensor cables | Look at sensor connectors of the TC board and the hose connection. | Connect temperature board | Change connector |

## Applicator

### Applicator does not heat

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Broken applicator | Exchange the applicator with another one that we know works | Try the applicator in another channel. | Change applicator. |
| Hose broken | Exchange the hose-applicator set with another. | Change the set to another channel | Change the hose. |
| Faulty pin and cable layout | Check voltages at the connectors of the board and at the applicator outlet (with the applicator attached) | (X11, X12, X13, Cable G? And N?) | Change connectors |
| Broken TC board fuse. | Check continuity in the fuse | Remove the fuse with the equipment turned off and look at the continuity of the fuse outside of the equipment. | Change the fuse. |
| Damaged TC board. | Check the voltage at the board outlet. | (X11, X12, X13, Cable G? And N?) Board connector. Fuse gives continuity. LED ++ stays on. | Change TC board. |

### The applicator doesn't stop heating

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Damaged TC board | Check TC board | HOSE LED indicator constantly turned off. | Replace TC board |
| Failure in connection of temperature sensor | Ensure that the actual temperature shown is correct | Exchange applicator with another channel | Repair or replace connector |

### Temperature fluctuations

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Failure applicator temperature sensor. | Exchange with another applicator that doesn't have problems. | Change the applicator's channel. | Change applicator. |
| Sensor cables | Look at sensor connectors of the temperature board and applicator connection. | Connect temperature board | Change applicator. |

## Input/Output Signals

### Low glue level not detected

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Adhesive stuck to the sensor | Open the tank and check if there is adhesive stuck to the sensor | | Clean off the adhesive |
| Sensitivity out of adjustment | Sensor 6B2 is always active (yellow LED amplifier) | The amplifier has a built-in potentiometer to adjust the sensitivity | Adjust the potentiometer until the light turns green |
| The sensor is damaged | The LED indicator always stays the same colour | | Replace the sensor |
| Low level input is out of configuration | Check that the level detection function is enabled | The configuration is explained on page 4-18 of the manual | Enable the level detection function |

### The temperature OK signal does not activate

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Incorrect wiring | The external contact does not close even though the screen shows OK temperature. | The wiring goes from the HMI card to the connector | Fix the wiring |
| Incorrect configuration | The external contact does not close even though the screen shows OK temperature. | Select output DO3 | Correctly configure output DO3 |

### The external standby seal does not activate

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Incorrect wiring | The standby status does not appear on the HMI screen. | The wiring goes from the HMI card to the connector | Fix the wiring |
| Incorrect configuration | The standby status does not appear on the HMI screen. | Select input DI2 | Correctly configure input DI2 |

### Channel inhibition is not working

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Incorrect wiring | Channels are not inhibited when the contacts are closed | The wiring goes from the TC card to the connector | Fix the wiring |
| Incorrect inhibition configuration. | Check groups and inhibitions in "Heating=>Inhibitions" | Page 4-14 of the manual | Correctly configure the inhibitions |

### The pressure is not indicated correctly

| Causes | Checking | Comments | Actions |
|---|---|---|---|
| Gefran controller out of configuration | Configure the controller exactly as explained in the manual | It is explained on page 4-31 of the manual | Reprogramming of the GEFRAN controller |
| Broken sensor | Replace the sensor | | |

## Alarms

### Tank overheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A01: General tank overheating"** | The actual tank temperature is higher than the general temperature limit | Failure in TC board | Visually ensure that the TANK led is turned off | If it is turned off and there is voltage, the TC board is damaged | Replace TC board |
| **"A15: "Tank overheating"** | The actual tank temperature is higher than the set point temperature due to a difference higher than the programmed error limit | | Check voltage in X10 between TANK and N1 | | |
| | | | Visually ensure that the TANK led is turned on or blinking | If it is turned on and there is voltage, the HMI board is damaged | Replace TC board |
| | | | Check voltage in X10 between TANK and N1 | | |

### Distributor overheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A02: General distributor overheating"** | The actual distributor temperature is higher than the general temperature limit | Failure in TC board | Visually ensure that the DISTRIBUTOR led is turned off | If it is turned off and there is voltage, the TC board is damaged | Replace TC board |
| **"A16: Distributor overheating"** | The actual distributor temperature is higher than the set point temperature due to a difference higher than the programmed error limit | | Check voltage in X10 between DISTR and N1 | | |
| | | | Visually ensure that the TANK led is turned on or blinking | If it is turned on and there is voltage, the HMI board is damaged | Replace TC board |
| | | | Check voltage in X10 between DISTR and N1 | | |

### Hose overheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A03: General hose 1 overheating"** | The actual hose temperature is higher than the general temperature limit | Damaged TC board | Check TC board | HOSE LED indicator constantly turned off. | Replace TC board |
| **"A05: General hose 2 overheating"** | | Failure in connection of temperature sensor | Ensure that the actual temperature shown is correct | Exchange hose with another channel | Repair or replace connector |
| **"A07: General hose 3 overheating"** | | | | | |
| **"A09: General hose 4 overheating"** | | | | | |
| **"A11: General hose 5 overheating"** | | | | | |
| **"A13: General hose 6 overheating"** | | | | | |
| **"A17: Hose 1 overheating"** | The hose temperature is higher than the set point temperature due to a difference higher than the programmed error limit | | | | |
| **"A18: Hose 2 overheating"** | | | | | |
| **"A20: Hose 3 overheating"** | | | | | |
| **""A22: Hose 4 overheating"** | | | | | |
| **"A24: Hose 5 overheating"** | | | | | |
| **"A26: Hose 6 overheating"** | | | | | |

### Applicator overheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A04: General applicator 1 overheating"** | The actual applicator temperature is higher than the general temperature limit | Damaged TC board | Check TC board | GUN LED indicator constantly turned off. | Replace TC board |
| **"A06: General applicator 2 overheating"** | | Failure in connection of temperature sensor | Ensure that the actual temperature shown is correct | Exchange applicator with another channel | Repair or replace connector |
| **"A08: General applicator 3 overheating"** | | | | | |
| **"A10: General applicator 4 overheating"** | | | | | |
| **"A12: General applicator 5 overheating"** | | | | | |
| **"A14: General applicator 6 overheating"** | | | | | |
| **"A18: Applicator 1 overheating"** | The actual applicator temperature is higher than the set point temperature due to a difference higher than the programmed error limit | | | | |
| **"A19: Applicator 2 overheating"** | | | | | |
| **"A21: Applicator 3 overheating"** | | | | | |
| **"A23: Applicator 4 overheating"** | | | | | |
| **"A25: Applicator 5 overheating"** | | | | | |
| **"A26: Applicator 6 overheating"** | | | | | |

### Tank underheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A27: Tank underheating"** | The actual tank temperature does not reach the set point and the difference is greater than the maximum programmed error limit | Broken tank fuse | Check continuity in fuse (FH2) between FH2.1 and FH2.2 | Release fuse to verify it by unplugging the equipment | Replace fuse |
| | | Damaged TC board | Check voltage in X6 | Correct operation if 24V and the D5 LED is on | Replace TC board |
| | | Supply cable to damaged tank | Check voltage in X10 between TANK and N1 | If there is voltage in X10 and not in the tank connections, replace cable | Check over cables |
| | | | Check voltage in tank resistance | *The voltage at this point may oscillate between 0 and 230V | Replace cables |
| | | Melted or damaged resistance | Check ohm value of resistance and make sure it has voltage | The ohm value of the resistance can vary depending on the size of the tank | Replace tank |
| | | | | *Check in the electric diagram | |

### Distributor underheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A28: Distributor underheating"** | The actual distributor temperature does not reach the set point and the difference is greater than the maximum programmed error limit | Broken distributor fuse | Check continuity in fuse (FH2) between FH1.1 and FH1.2 | Release fuse to verify it by unplugging the equipment | Replace fuse |
| | | Damaged TC board | Check voltage in X6 | Correct operation if 24V and the D5 LED is on | Replace TC board |
| | | | Check power supply output (24V) | | |
| | | Supply cable to damaged distributo | Check voltage in X10 between DISTR and N1 | If there is voltage in X10 and not in the distributor connections, replace cable | Check over cables |
| | | | Check voltage in distributor resistance | *The voltage at this point may oscillate between 0 and 230V | Replace cables |
| | | Melted or damaged resistance | Check ohm value of the distributor resistance and make sure it has voltage | The ohm value of the resistance can vary depending on the type of equipment | Replace tank |
| | | | | *Check in the electric diagram | |

### Hose underheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A31: Hose 2 underheating"** | The actual hose temperature does not reach the set point and the difference is greater than the maximum programmed error limit | Damaged hose | Exchange the hose with another one that we know works | Exchange hose in another channel | Change the hose |
| **"A33: Hose 3 underheating"** | | Faulty pin and cable layout | Check voltages at the power connectors of the board and at the hose outlet (with the hose attached) | Board connector (X11, X12, X13, Hx and Nx Cable) | Change connectors |
| **"A35: Hose 4 underheating"** | | Damaged TC board fuse | Check continuity in the fuse. | Look at continuity with the equipment turned off | Change the fuse. |
| **"A37: Hose 5 underheating"** | | Damaged TC board | Check the voltage at the board outlet (with the hose attached) | Board connector (X11, X12, X13, Hx and Nx Cable). Fuse has continuity. LED stays on | Change TC board |
| **"A39: Hose 6 underheating"** | | | | | |

### Applicator underheating

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A30: Applicator 1 underheating"** | The actual hose temperature does not reach the set point and the difference is greater than the maximum programmed error limit | Broken applicator | Exchange the applicator with another one that we know works | Try the applicator in another channel | Change applicator. |
| **"A32: Applicator 2 underheating"** | | Hose broken | Exchange the hose-applicator set with another | Change the set to another channel | Change the hose. |
| **"A34: Applicator 3 underheating"** | | Faulty pin and cable layout | Check voltages at the connectors of the board and at the applicator outlet (with the applicator attached) | ((X11, X12, X13, Cable G And N) | Change connectors |
| **"A36: Applicator 4 underheating"** | | Broken TC board fuse | Check continuity in the fuse | Remove the fuse with the equipment turned off and look at the continuity of the fuse outside of the equipment | Change the fuse. |
| **"A38: Applicator 5 underheating"** | | Damaged TC board | Check the voltage at the board outlet | (X11, X12, X13, Cable G And N) Board connector. Fuse gives continuity. LED ++ stays on | Change TC board. |
| **"A40: Applicator 6 underheating"** | | | | | |

### Tank sensor broken

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A41: Sensor tank broken"** | The board does not detect the tank sensor | Failure temperature sensor | Check ohm value of the sensor with the multimeter | Look at connector X17, between TANK - and TANK + and their status, as well as that of the cables | Change the sensor / Exchange the connector |
| | | Sensor wrongly positioned | See position of the sensor in its positioning | The sensor must be put in all the way | Put sensor in up to the end of the housing |
| | | Failure in TC board | Last breakage option | Check before sensor, connections and cables | Change TC board |

### Distributor sensor broken

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A42: Sensor distributor broken"** | The board does not detect the distributor sensor | Failure temperature sensor | Check ohm value of the sensor with the multimeter | Look at connector X17, between DISTR - and DISTR + and their status, as well as that of the cables | Change the sensor / Exchange the connector |
| | | Sensor wrongly positioned | See position of the sensor in its positioning | The sensor must be put in all the way | Put sensor in up to the end of the housing |
| | | Failure in TC board | Last breakage option | Check before sensor, connections and cables | Change TC board |

### Hose sensor broken

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A43: Sensor hose 1 broken"** | The board does not detect hose sensor | Failure hose temperature sensor | Exchange with another hose that doesn't have problems | Change the hose's channel. | Change the hose. |
| **"A45: Sensor hose 2 broken"** | | Sensor cables | Look at sensor connectors of the TC board and the hose connection | Connect temperature board | Change connector |
| **"A47: Sensor hose 3 broken"** | | | | | |
| **"A49: Sensor hose 4 broken"** | | | | | |
| **"A51: Sensor hose 5 broken"** | | | | | |
| **"A53: Sensor hose 6 broken"** | | | | | |

### Applicator sensor broken

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A44: Sensor applicator 1 broken"** | The board does not detect the applicator sensor | Failure applicator temperature sensor | IExchange with another applicator that doesn't have problems | Change the applicator's channel | Change applicator. |
| **"A46: Sensor applicator 2 broken"** | | Sensor cables | Look at sensor connectors of the temperature board and applicator connection | Connect temperature board | Change connector |
| **"A48: Sensor applicator 3 broken"** | | | | | |
| **"A50: Sensor applicator 4 broken"** | | | | | |
| **"A52: Sensor applicator 5 broken"** | | | | | |
| **"A54: Sensor applicator 6 broken"** | | | | | |

## Other alarms

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A66: Thermostat"** | Safety thermostat | Thermostat | Reset tank thermostat | | Monitor to find out why it fired |
| | | Thermostat cable | Check cables | | Change or clean cables |
| | | TC board | Change TC board | | Change TC board |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A71: Cabin overheating"** | Temperature of the electric cabinet high | Room temperature | Ensure that the room temperature isn't too high | | Change locations or cool the area |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A72: RTC"** | Real time clock Clock failure | Battery | Ensure that the battery is charged | | Change battery |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A65: Watchdog"** | Conflict notice | Programming out of range | Check programming | Notice that is used to protect the board from a possible programming conflict | Reset or send to the system by default (factory settings) |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A61: CAN communications"** | Communication failure between boards | Software missing | Check software versions | | Update or install the different software |
| | | CAN cable damaged | Check communication cable between boards | | Substitute CAN cable |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A79: Test time expired"** | The test time of the equipment has expired | Equipment on loan for xxx minutes | Call salesperson or after sales service | Equipment unused after going through test time | Call salesperson or after sales service |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A68: Open lid"** | The lid of the equipment is open | Open tank lid | Close lid | | Close lid |
| | | Damaged open lid sensor | Check the sensor, make sure its clean, check cables, signal, etc. | | Replace lid sensor |

| Alarm | Meaning of the alarm | Causes | Checking | Comments | Actions |
|---|---|---|---|---|---|
| **"A67: Adhesive level low"** | Adhesive level low in tank | Adhesive missing | Check adhesive level by opening the tank lid | | Llenar deposito |
| | | Damaged sensor | If there is enough of a level, the sensor could be damaged | Check sensor | Replace sensor |

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# FCC - REGULATORY NOTICES

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

## RF exposure safety

This device complies with the FCC RF exposure limits and has been evaluated in compliance with mobile exposure conditions.

The equipment must be installed and operated with minimum distance of 20 cm of the human body.

## Class A device notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

# ISED - REGULATORY NOTICES

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with ISED license-exempt RSS(s).

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

## RF exposure safety

This device complies with ISED RF exposure limits and has been evaluated in compliance with mobile exposure conditions.

The equipment must be installed and operated with minimum distance of 20 cm of the human body.

## CAN ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

# AVIS DE CONFORMITÉ RÉGLEMENTAIRE - ISED

Les changements ou modifications non expressément approuvés par la partie responsable de la conformité peuvent annuler le droit de l'utilisateur à utiliser l'équipement.

L'équipement est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

## Sécurité d'exposition aux RF

Cet appareil est conforme aux limites d'exposition RF d'ISDE et a été évalué conformément aux conditions d'exposition mobile.

L'équipement doit être installé et utilisé à une distance minimale de 20 cm du corps humain.

## CAN NMB-003

Cet appareil numérique de classe A est conforme à la norme canadienne NMB-003.

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