

Declaration of conformity

The product: _____

Model nº: _____

Serial nº: _____

Year of manufacture: _____

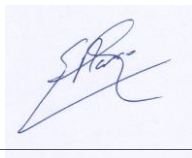
Described in the enclosed documentation is in conformity with:

- Directive 2006/42/EC of 29 December 2009 which replaces Directive 98/37/EC of 22 June 1998 on *the approximation of the laws of the Member States relating to machinery*, which regroups Directives 89/392/EEC of 14 June 1989, 91/368/EEC of 20 June 1991, 93/44/EEC of 14 June 1993 and 93/68/EEC of 22 July 1993. Directive applicable to standard EN ISO 12100-1 and EN ISO 12100-2, related to *safety of machinery*; standard EN ISO 14121-1 and EN ISO 14121-2, related to *safety of machinery. Risk assessment*; standard UNE-EN 60204-1, related to *safety of machinery. Electrical equipment of machines*; standard UNE-EN 61310-1, UNE-EN 61310-2 and UNE-EN 61310-3, related to *safety of machinery. Indication, marking and actuation*.
- Directive 2014/35/UE of April, relating to electric equipment.
- Directive 2014/30/UE of April, relating to electromagnetic compatibility.
- Directive 93/68/EEC of 22 July 1993 which modifies 73/23/EEC and Directive 89/336/EEC.

Within the scope of the specifications indicated in the chapter describing the equipment with a B1 risk level. Since it is intended to form part of a set of machines which, to obtain a result, are arranged and connected to perform together, it cannot be operated until the set of machines has been declared in conformity with the applicable Directives by the person responsible for the final assembly.

Orcoyen, on : / /

Signed.: _____



Gonzalo Marco, Managing director.



Polígono Industrial Agustinos, calle G, nave D-34
Tel.: +34.948.321.580 Fax: +34.948.326.584
31160 ORCOYEN (Navarra) SPAIN



CONTROL REGISTRATION

CONTROL NUM:

DATE:

ELECTRIC CHECK: ☐

CONTROL BOARD CHECK: ☐

TEMPERATURE CONTROL CHECK 150°/180°: ☐

HYDRAULIC CHECK (100 bar): ☐

PNEUMATIC CHECK: ☐

APPLICATOR SERIAL NUMBER:

GUARANTEE CARD

DISTRIBUTOR:

CONTACT:

ADDRESS: TELEPHONE:

OEM:

ADDRESS:

TYPE: BRAND: MODEL:

USER: CONTACT:

ADDRESS:

SYSTEM LOCATION:

TELEPHONE: DATE OF INSTALLATION:

GARANTEE UNTIL:

APPLICATOR SERIAL NUMBER:



IMPORTANT!

THIS INSTRUCTION MANUAL SHOULD BE KEPT IN AN ACCESSIBLE PLACE KNOWN TO ALL OPERATORS AND MAINTENANCE PERSONNEL.

READ THE INSTRUCTIONS CAREFULLY BEFORE OPERATING THE MACHINE AND FOLLOW THEM WHILE THE MACHINE IS IN OPERATION.

FOLLOW THE SAFETY INSTRUCTIONS PROVIDED IN THIS MANUAL WHEN USING AND HANDLING THE MACHINE.

FAILURE TO FOLLOW SAFETY INSTRUCTIONS MAY RESULT IN BURNS, INJURY OR PERMANENT PHYSICAL DAMAGE. YOU MAY ALSO DAMAGE THE EQUIPMENT OR OTHER MATERIALS.

WARNING:

If you alter the function, performance or safety aspects of the machine, replacing original parts with other similar but not identical components (substantial alterations), without the authorisation of MELTON, and as specified in Directive 89/392/EEC, you will be classified as a manufacturer and therefore become liable for the alterations made.

TABLE OF CONTENTS

TABLE OF CONTENTS	4
CHAPTER 1 SAFETY INSTRUCTIONS	6
1.1. SYMBOLS AND TERMS:	7
1.2. EQUIPMENT MARKING	9
1.2. PURPOSE:	10
1.3. FIRST AID:	11
CHAPTER 2 DESCRIPTION	12
2.1. INTRODUCTION:	13
2.2. MAIN PARTS:	13
2.3. TECHNICAL CHARACTERISTICS:	18
2.4. VACUUM FEEDING MAIN PARTS:	19
2.5. DIMENSIONS:	21
CHAPTER 3 MACHINE INSTALLATION	22
3.1. INTRODUCTION:	23
3.2. TRANSPORT:	23
3.3. INSTALLATION REQUIREMENTS:	23
3.4. MECHANICAL INSTALLATION:	24
3.5. PNEUMATIC INSTALLATION:	31
3.6. ELECTRIC INSTALLATION:	31
CHAPTER 4 MACHINE ADJUSTMENT	38
4.1. TEMPERATURE CONTROL:	39
4.2. ADJUSTING THE OUTPUT PRESSURE:	54
4.3. MELTON-RECHNER LEVEL SENSOR:	55
4.4. LEVEL SENSOR SETUP:	56
CHAPTER 5 OPERATION	59
5.1. INTRODUCTION:	60
5.2. START UP:	60
5.3. STOPS:	64
5.4. VACUUM FEEDING OPERATION	64
5.4.1. INTRODUCTION:	64
5.4.2. START-UP:	64
5.4.3. TANK FILLING PROCESS:	64
5.4.4. STOPS:	65
CHAPTER 6 MAINTENANCE	67
6.1. INTRODUCTION:	68
6.2. MAINTENANCE RECOMMENDATIONS:	69
6.3. MAINTENANCE PROCESSES:	69
CHAPTER 7 TROUBLESHOOTING THE EQUIPMENT	71
7.1. INTRODUCTION:	72
7.2. MECHANICAL FAULTS:	72
7.3. ELÉCTRICAL FAULTS:	75
7.4. ADHESIVE APPLICATION PROBLEMS:	81



CHAPTER 8 EQUIPMENT REPAIR GUIDE	87
8.1. INTRODUCTION:	88
8.2. CHANGING THE FILTER:	88
8.3. REPAIRING THE MANIFOLD:	89
8.4. REPAIRING THE PNEUMATIC PUMP UNIT:	90
8.5. CLEANING VALVES:	99
8.6. REPAIRING ELECTRIC COMPONENTS:	100
8.7. REPAIRING VACUUM FEEDER:	101
CHAPTER 9 SOFTWARE SPECIFICATIONS	103
9.1 I/O FUNCTIONS. I/O CARD PULSES:	104
9.2 MODBUS COMMUNICATIONS:	106
CHAPTER 10 LOG SHEETS	115

CHAPTER 1

SAFETY INSTRUCTIONS

1.1. SYMBOLS AND TERMS:



Miscellaneous prohibitions



European Community markings



Danger hot surface



Note of special interest



Miscellaneous precautions



Use of goggles required



Precaution: Electric current



Use of safety gloves required



Precaution: Flammable liquid



Elements susceptible to electrostatic discharge



Precaution: risk of fluid leakage under high pressure



Precaution: risk of entrapment between mobile parts

Burns:



Burns can be caused by the uncovered parts of the applicator, such as the guns, or by splashes of hot melt.

The hot adhesive under pressure in the nozzles can cause serious skin injury.

Hazardous voltage:



Not following the security indications could result in personal injury, death, or damage to equipment.

Qualified personnel:

Qualified personnel are technical staff members who have acquired sufficient knowledge in a specific field, through either training or experience.

These personnel must be familiar with safety and accident prevention standards, and have general knowledge of the technical aspects of the machine.

Protective clothing:

Clothing will be compliant with EN510 and EN340 standards, protecting against flying debris and high temperatures.

Clothing will be as tight as possible to prevent it from catching on mobile machine parts, and the sleeves, waist, legs, etc. will be adjustable to the size of the wearer.

Goggles and face shields:



Goggles will be compliant with the EN 166 standard, protecting against flying debris and high temperatures.

Goggles only protect the eyes. Face shields are preferable, as they protect the entire face.

Protective gloves:



Gloves will be compliant with EN 407 and EN 420 standards, protecting the hands against burns caused by external, heated substances at temperatures above 100 °C.

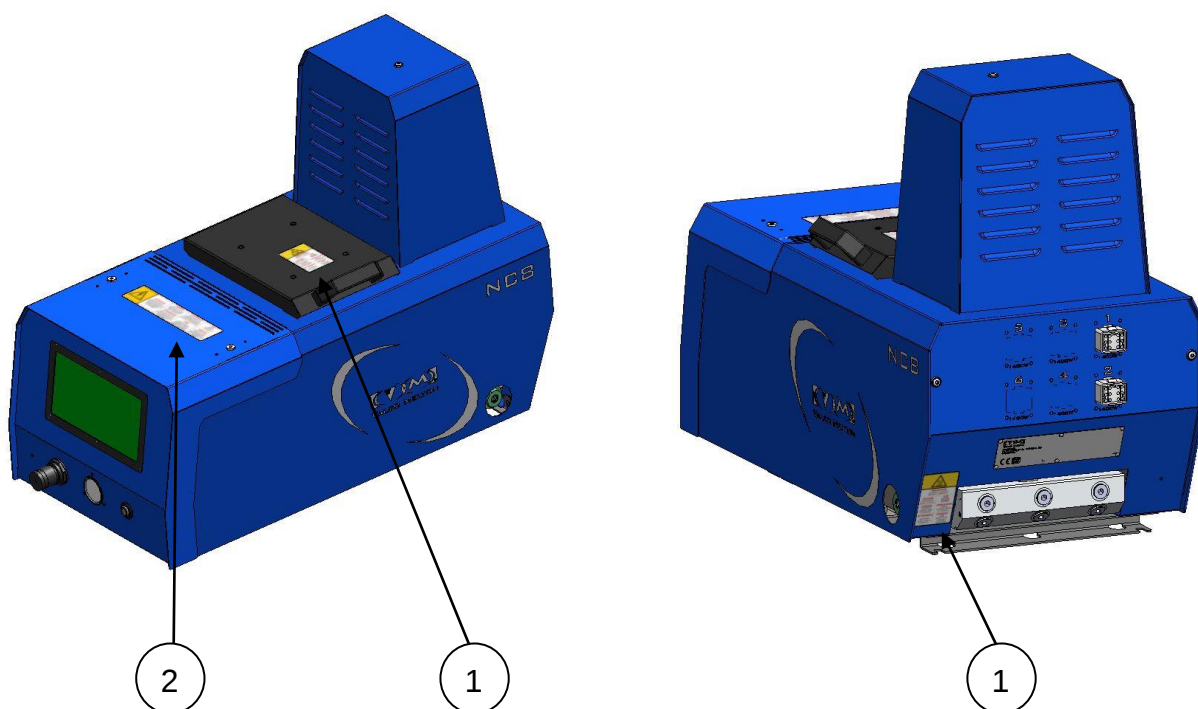
Elements susceptible to electrostatic discharge:



When handling equipment, avoid contact with electronic components and metal pins on the connectors.

1.2. EQUIPMENT MARKING

Nº	LABEL	DESCRIPTION
1	 PRECAUCION SUPERFICIE CALIENTE. EVITAR EL CONTACTO. CAUTION HOT SURFACE. AVOID CONTACT. 注意 熱表面を 避る接触 CUIDADO SUPERFICIE QUIENTE. EVITE O CONTACTO. PRECAUTION SURFACE CHAUD. EVITER LE CONTACT. ATTENZIONE SUPERFICIE CALDA. EVITA IL CONTATTO. VORSICHT HEIßE OBERFLÄCHE. KONTAKT VERMEIDEN.	CAUTION. Hot surface. Avoid contact.
2	 ADVERTENCIA VOLTAJE PELIGROSO. DESCONECTAR TODOS LOS CABLES DE ALIMENTACIÓN ELÉCTRICA ANTES DE REALIZAR TAREAS DE MANTENIMIENTO. WARNING HAZARDOUS VOLTAGE. DISCONNECT ALL POWER SUPPLY CONNECTIONS BEFORE SERVICING. AVVERTIMENTO TENSIONE PERICOLOSA. SCOLLEGARE TUTTI I CAVI DI ALIMENTAZIONE PRIMA DI ESEGUIRE LA MANUTENZIONE. 警告 危険電圧！ 作業前電源ケーブルを の電源切断 ADVERTISEMENT RISQUE D'ÉLECTROCUTION. DÉCONNECTER TOUS LES BRANCHEMENTS ÉLECTRIQUES AVANT D'EFFECTUER LA MAINTENANCE. AVISO TENSÃO PERIGOSA. DESCONECTE TODAS AS CONEXÕES DA FONTE DE ALIMENTAÇÃO ANTES DE REALIZAR A MANUTENÇÃO. WARNUNG GEFÄHRLICHE SPANNUNG. TRENNEN SIE VOR WARTUNGSARBEITEN ALLE STROMVERSORGUNGSANS- CHLÜSSE.	WARNING. Hazardous voltage. Disconnect all power supply connections before servicing.



1.2. PURPOSE:



This unit has been manufactured according to current safety standards.

This unit has been designed for the purpose described in chapter 2 of this manual, "Description."

To use the machine correctly, follow the instructions provided in the Operating Manual, particularly:



- The machine should only be installed and used by qualified personnel, previously trained in correct operation (contacting the manufacturer whenever necessary), the risks involved and required safety measures, including adjustment and maintenance, and expressly-forbidden operations.
- This unit is not designed to operate in hazardous, explosive and/or flammable atmospheres.
- When working with this machine, wear protective clothing, gloves and face shields, and remove rings, bracelets and watches.
- Since the machine is designed to form part of a series of machines, arranged to work together, the hot melt applicator cannot be operated until the entire series has been declared in compliance with applicable directives.
- The equipment must have an external switching device.
- This machine should never work without the provided guards in place (do not remove). These guards should be checked and maintained according to the maintenance schedule.
- Make sure that the equipment is properly grounded.
- Never operate the machine if you are aware that there is a leak in the glue circuit.
- Maintenance operations and/or repairs should be performed by personnel with a basic knowledge of the machine, and of the mechanical, pneumatic and electrical circuits involved.
- Maintenance operations and/or repairs should always be performed with the machine switched off at the mains, and with the main switch locked and tagged out.

1.3. FIRST AID:

In case of burns:



Immerse the affected part in cold, clean water as quickly as possible, until the adhesive has cooled.

Do not attempt to remove the adhesive from the skin, even after it has cooled, as this may cause more serious injury.

Seek qualified medical attention immediately.

In case of an accident with the solvent:



CONTACT WITH THE SKIN: Wash the site with soap and water and discard all contaminated cloths.

CONTACT WITH EYES: Wash the eyes in an eye bath for at least 15 minutes.

INHALATION: In case of exposure to fumes, take the patient to fresh air and let them rest.

INGESTION: Do not attempt to induce vomiting. Seek medical attention at once.

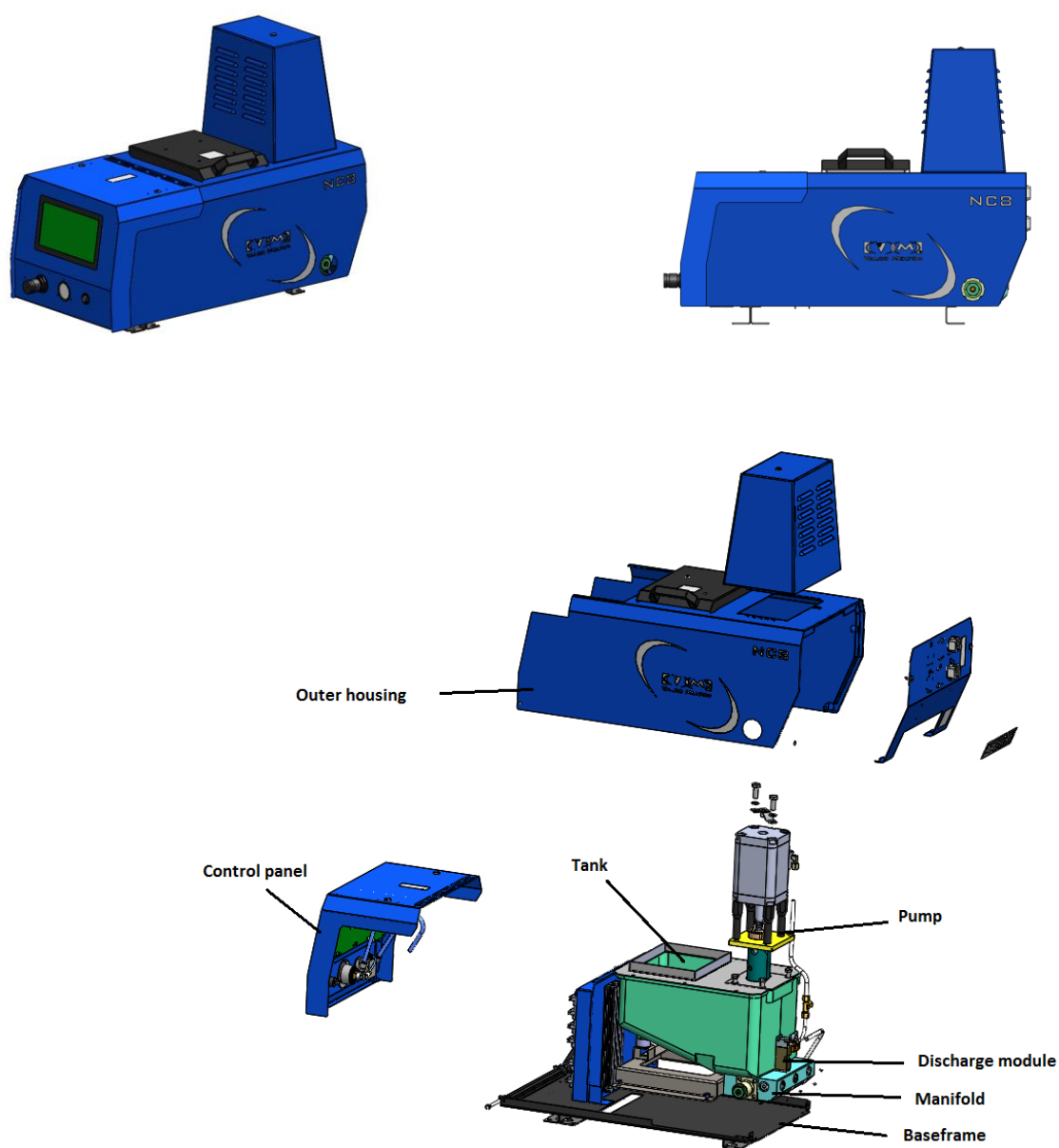
CHAPTER 2 DESCRIPTION

2.1. INTRODUCTION:

This machine is designed to melt hot-melt adhesive, or similar materials, in a heated reservoir. A pump then pressurizes the adhesive and transfers it to a manifold, where it flows through heated hoses to the application point.

2.2. MAIN PARTS:

The main machine parts are shown in the following figure:



Equipment description

N.	DESCRIPTION
1	Baseframe
2	Pump
3	Manifold
4	Tank
5	Control panel
6	Outer housing
7	Discharge module

Optional parts

DESCRIPTION
Level sensor
Vacuum feeder

2.2.1. Frame:

The frame consists of a base plate on which the equipment is installed.

2.2.2. and 2.2.3. Pump-distribution system:

This system transfers adhesive from the tank to the manifold.

Manifold:



The manifold distributes the Hot-Melt, once filtered, to the hoses and guns.

Made of aluminium, it is located on the lower part of the tank so the tank heaters can heat it indirectly.

The manifold filter consists of a core and a fine, in-line filter screen to filter crystal particles or dirt that could be present in the adhesive.

The manifold has six outlet holes to connect the Hot-Melt hoses: three on the top row and three on the bottom row.

Pump:

The pump delivers the Hot-Melt, or other molten product, at a set pressure, from the tank to the substrate (or material to be glued), after passing through a manifold, filter, hoses and guns.

The pump system consists of an electrovalve, a pneumatic cylinder and a double-acting hydraulic pump with a pressure compensator, to avoid a drop in the flow produced when changing pump direction, and enabling uniform Hot-Melt discharge.

Do not disassemble the manifold. This operation should only be done if there is a Hot-Melt leak between the tank and the distributor.

2.2.4. Tank:



The Tank is where the Hot-Melt or other similar material is melted (the other material can be in the form of pellets or blocks). The cast aluminium tank is lined with Teflon to avoid carbon deposits and crystal formation, and incorporates a resistance heating system.

A sensor with a micro-controller controls resistance heating, and can be programmed up to 240°C.

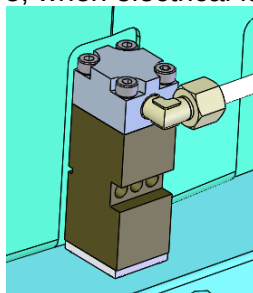
2.2.5. Control Panel:

The control panel, containing the machine's operating and adjustment switches, is on the front of the main electrical cabinet.

2.2.6. Discharge module:

The discharge module actuates like a flow valve. When the system is operating normally, the module stays closed, but if there is an electric failure, the module will open immediately (the air to maintain it closed has been stopped due to the electric failure), so that pressure in the hoses and guns will go to the tank.

The purpose of this module is to avoid dangerous situations, due to residual adhesive pressure, when electrical failures occur.



2.2.7. Level sensor:

The level sensor measures the adhesive level in the tank. With this, it is possible to determinate acceptable high and low adhesive levels in the tank. After adhesive reaches the top level, the sensor sends the signal to stop filling. When it reaches the lowest level, it sends the low signal and the vacuum feeder is automatically activated.

2.2.8. Vacuum Feeder:

The purpose of the vacuum feeder is to automatically fill the tank with adhesive from an external container. This system is controlled by a sensor that automatically detect a need for adhesive.

If the sensor detects a low level of adhesive, the electrovalve opens and the vacuum feeder will supply adhesive until it detects high adhesive level. If the adhesive does not load before 200 seconds, a red-colored light will blink and an alarm will sound.

When the vacuum feeder lid is opened, it will deactivate. To reactivate it, close the lid and lock it properly.

2.2.9. Other key elements:

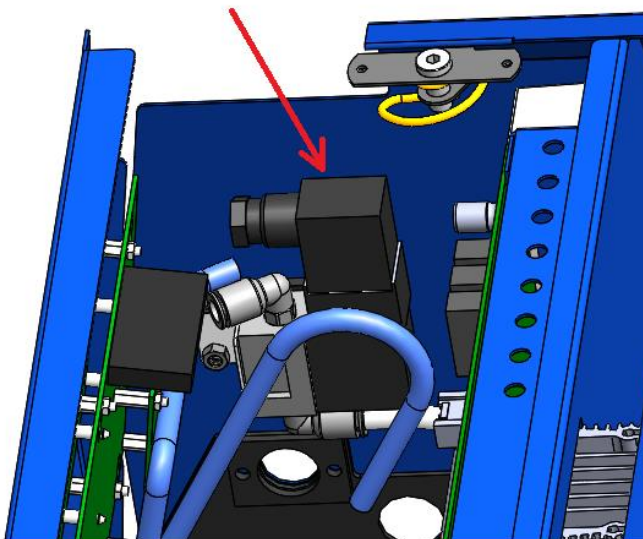
Pressure regulator:

This is the element used to raise or lower the pressure to the piston pump. It is regulated dependent on the application. It includes an air filter to prevent impurities entering the machine.



Bleed electrovalve:

This is the element that controls air passage to the pump. It is electrically connected to the electrical control system. This allows the applicator to adapt to the main machine speed.

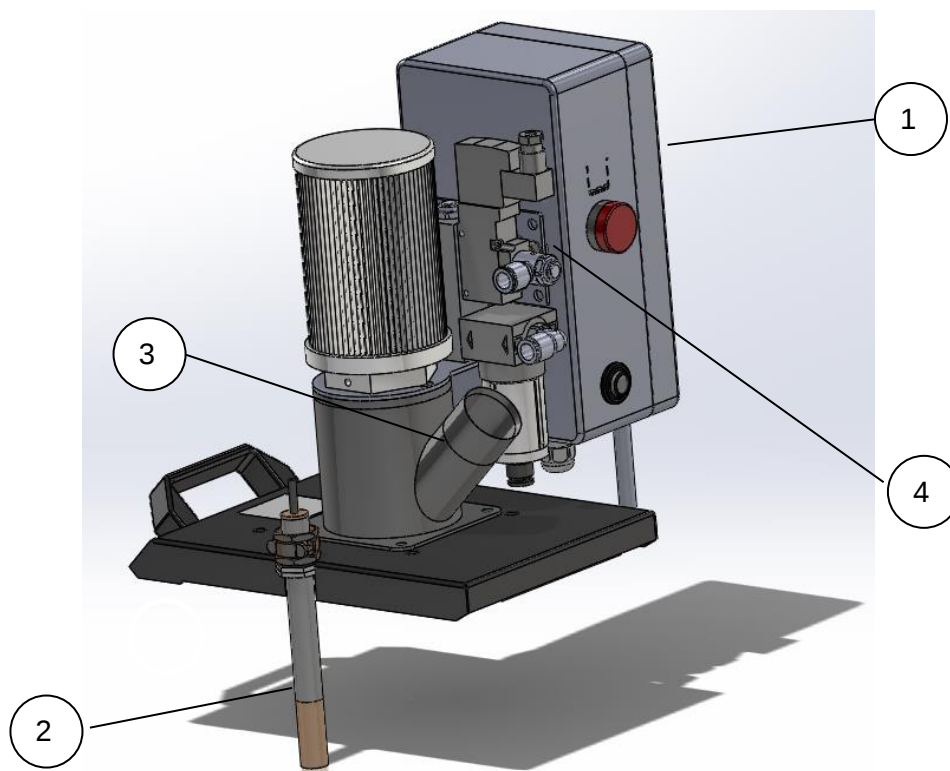


2.3. TECHNICAL CHARACTERISTICS:

ELEMENT	DATA
GENERAL	
Power supply	I 240V+N+T (50/60Hz), III 240V+T (50/60 Hz), III 400V+N+T (50-60Hz)
Hoses (max.)	6
Hydraulic pressure (maximum working)	2.8 – 80 bar (40 – 1138 psi)
Noise level	63 dB
Working temperature	-10 – 50 °C (32 – 122°F) HR 20% to 80% non-condensed
CONTROL	
Working temperature	15° - 230° C (59° - 446° F)
Temperature control precision	+/- 0.5° C (+/- 1° F)
Type control	PID Control
PUMP	
	LOW FLOW HIGH FLOW
Pumping capacity (Kg./h)	35100
Pump compression ratio	1:141:13
Pneumatic working pressure	0.5 to 6 bar
TANK	
	NC4 NC8 NC16
Volume (litres)	4816
Melting capacity (Kg./h)	4.27.915.5
Tank electrical consumption (W)	120018004000
VACUUM FEEDING	
Compressed air input	2 - 6 bar (29 up to 87PSI) - 350 l/min (92 gallon/minute)
Hose length	3m

2.4. VACUUM FEEDING MAIN PARTS:

The main parts are shown in the pictures below*:

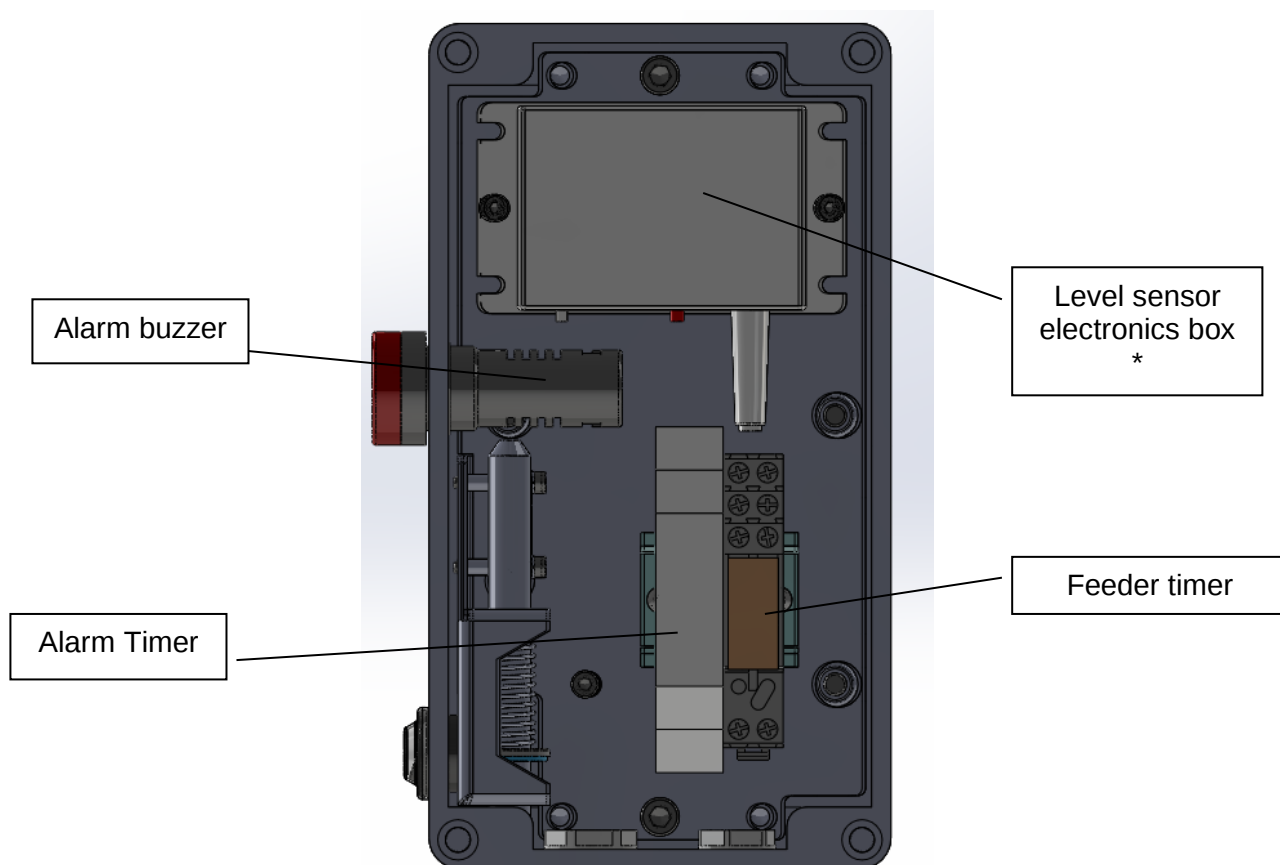


N.	DESCRIPTION
1	Electric cabinet
2	Level sensor
3	Feeder
4	Electrovalve

* The feeder model may vary depending on the hot-melt unit it is designed to be fitted to.

2.4.1. Electric cabinet:

It contains the 24V DC power supply, feeder timer relay, the level sensor electronics box and the alarm buzzer.



* Shown without the potentiometer screw plastic cap.

2.4.2. Level sensor

It controls the adhesive level inside the tank.

2.3.3. Vacuum feeder

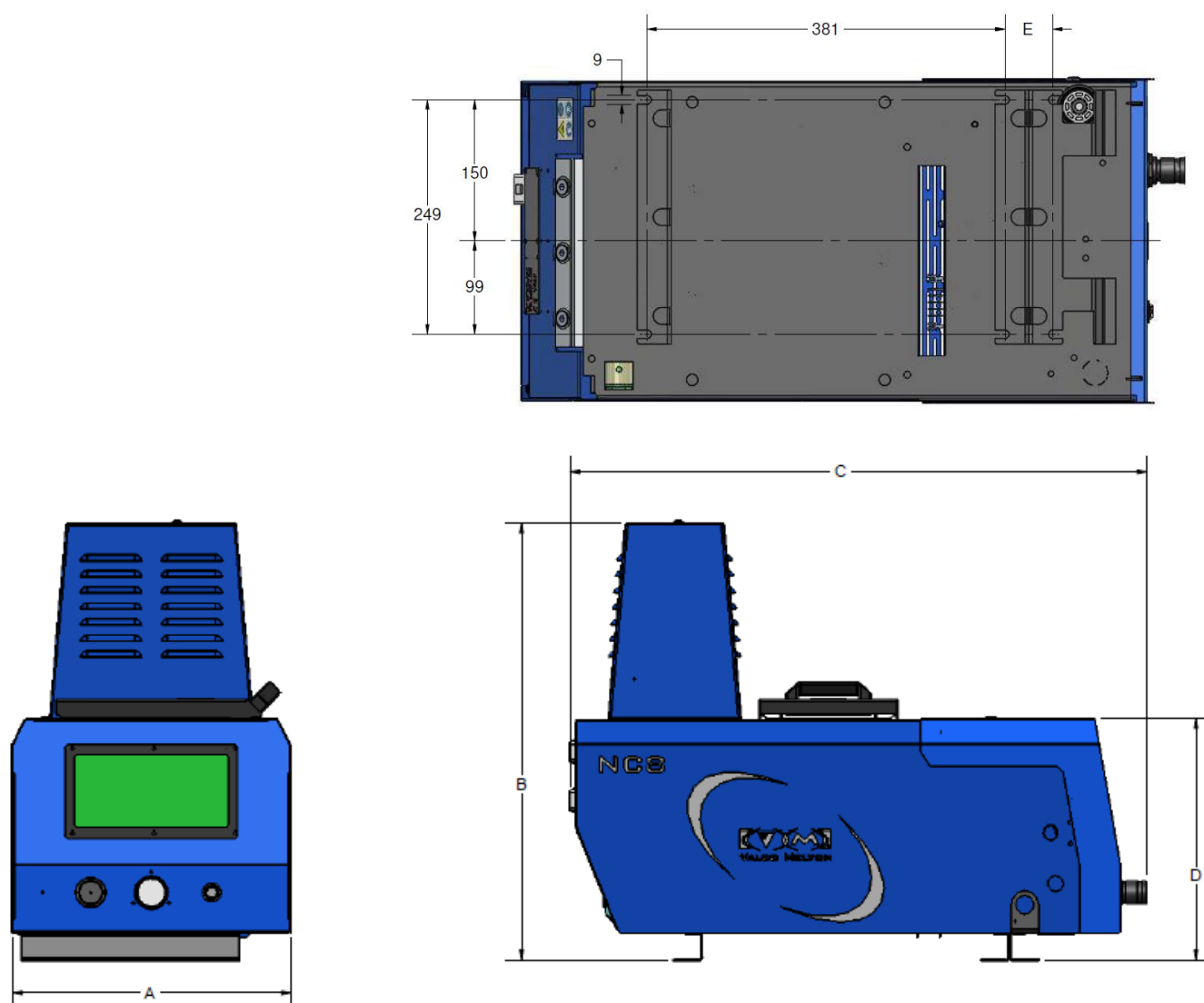
It is composed by a container for the adhesive pellets, a feeder tube with the vibrator module fitted on it's end, the electrovalve, the tank door assembly and the hose.

2.4.4. Electrovalve

It controls the airflow to the vibrator module.

2.5. DIMENSIONS:

2.5.1. GENERAL DIMENSIONS:



Dimensions (mm)	NC4	NC8	NC16
A	345	345	345
B	540	540	600
C	640	714	714
D	300	300	360
E	0	51	51

CHAPTER 3

MACHINE INSTALLATION

3.1. INTRODUCTION:



This chapter explains how to install the machine correctly.

WARNING: The operations described in this chapter should be performed by qualified personnel, following safety instructions.

3.2. TRANSPORT:

The unit is supplied packed in a cardboard box.

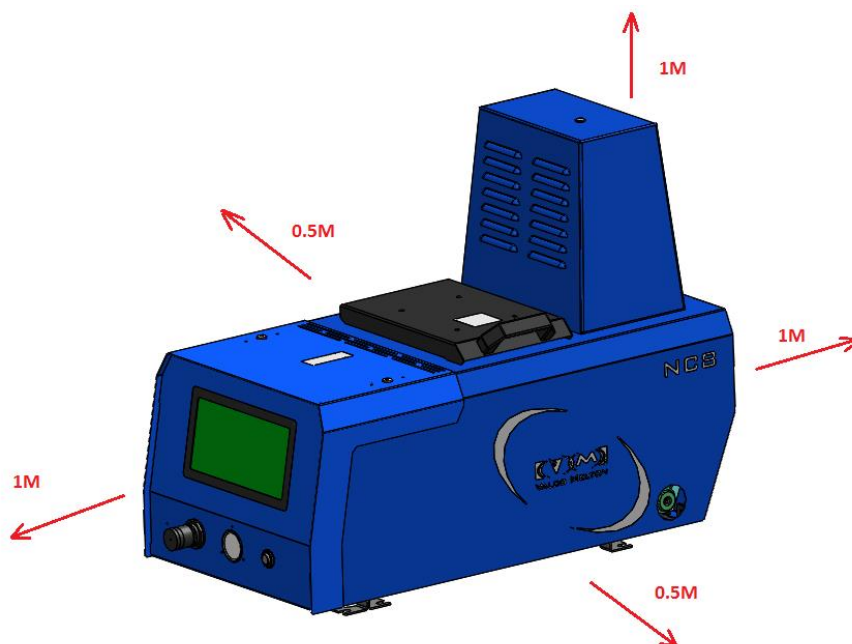
Remove the top and sides to unpack it.



Unpack carefully to prevent machine damage. Inspect the equipment for damage caused during transport.

3.3. INSTALLATION REQUIREMENTS:

Install the following equipment, leaving enough space for access during operations.



Avoid extreme temperatures (below -10°C and above +50 C).

Avoid installing the equipment where there are drafts. If this is not possible, the guns will need protection; if the temperature falls rapidly they may not work properly.

3.4. MECHANICAL INSTALLATION:

Mechanical installation includes the following:

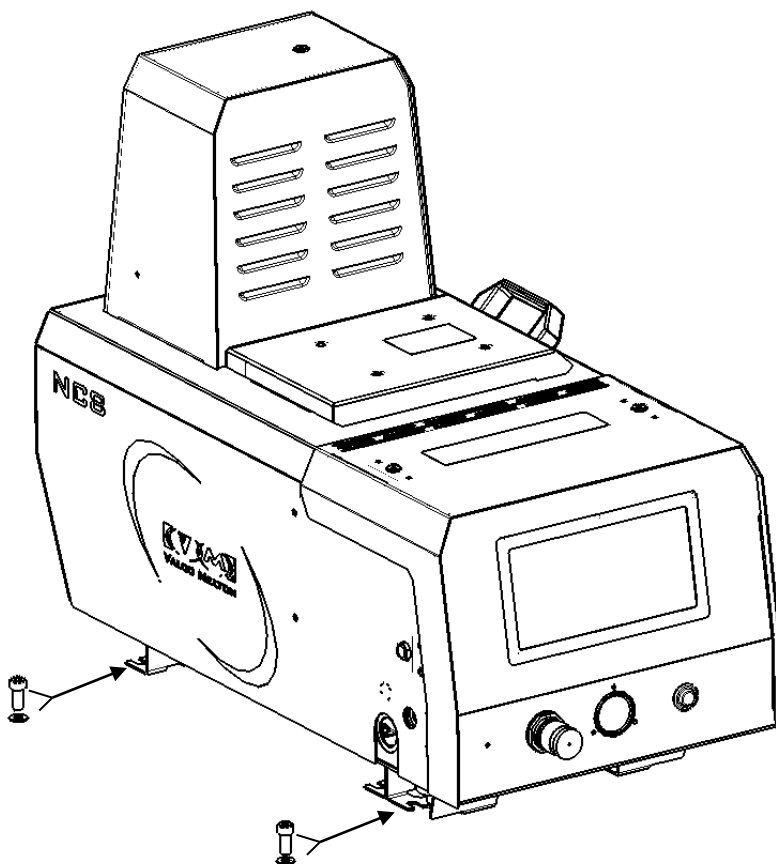
- Positioning the equipment.
- Connecting the hoses.
- Connecting the Vacuum feeder.

Positioning the equipment:

Prepare the parent machine or support structure according to installation requirements (chapter 3.3).

Remove the equipment from the box and position it following the instructions:

1. Mark the base bolt pattern on the parent machine or support structure and then drill holes for four 8mm mounting bolts (customer-supplied).
2. Bolt the frame to the parent machine using four 8mm mounting bolts as shown in the illustration.



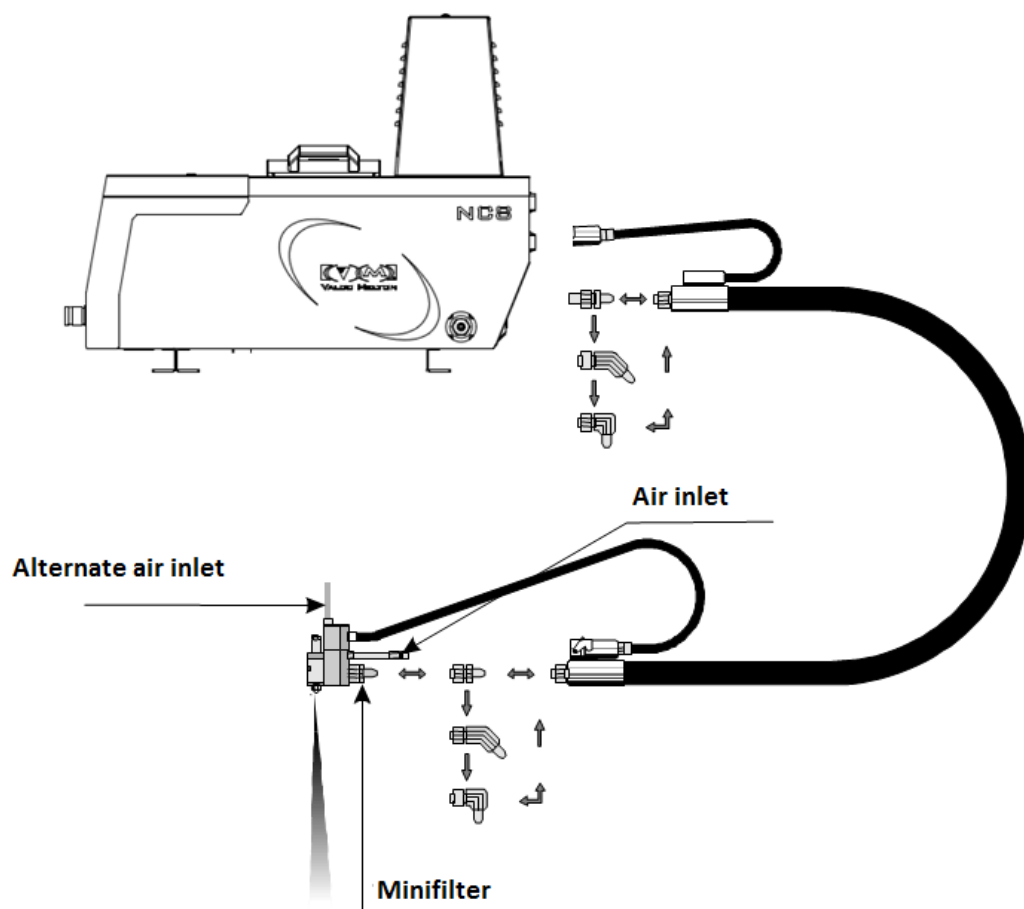
Connecting the hoses:

Proceed as follows:

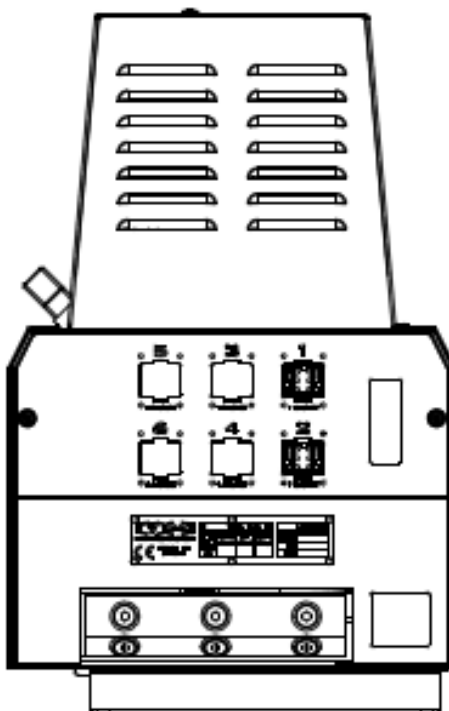


Make sure the equipment is depressurised before connecting the hose. Set the air pressure regulator to zero and activate valves to bleed pressure. Heat the machine to melt any adhesive that may be present.

Remove the appropriate hose outlet plug from the manifold (see below):



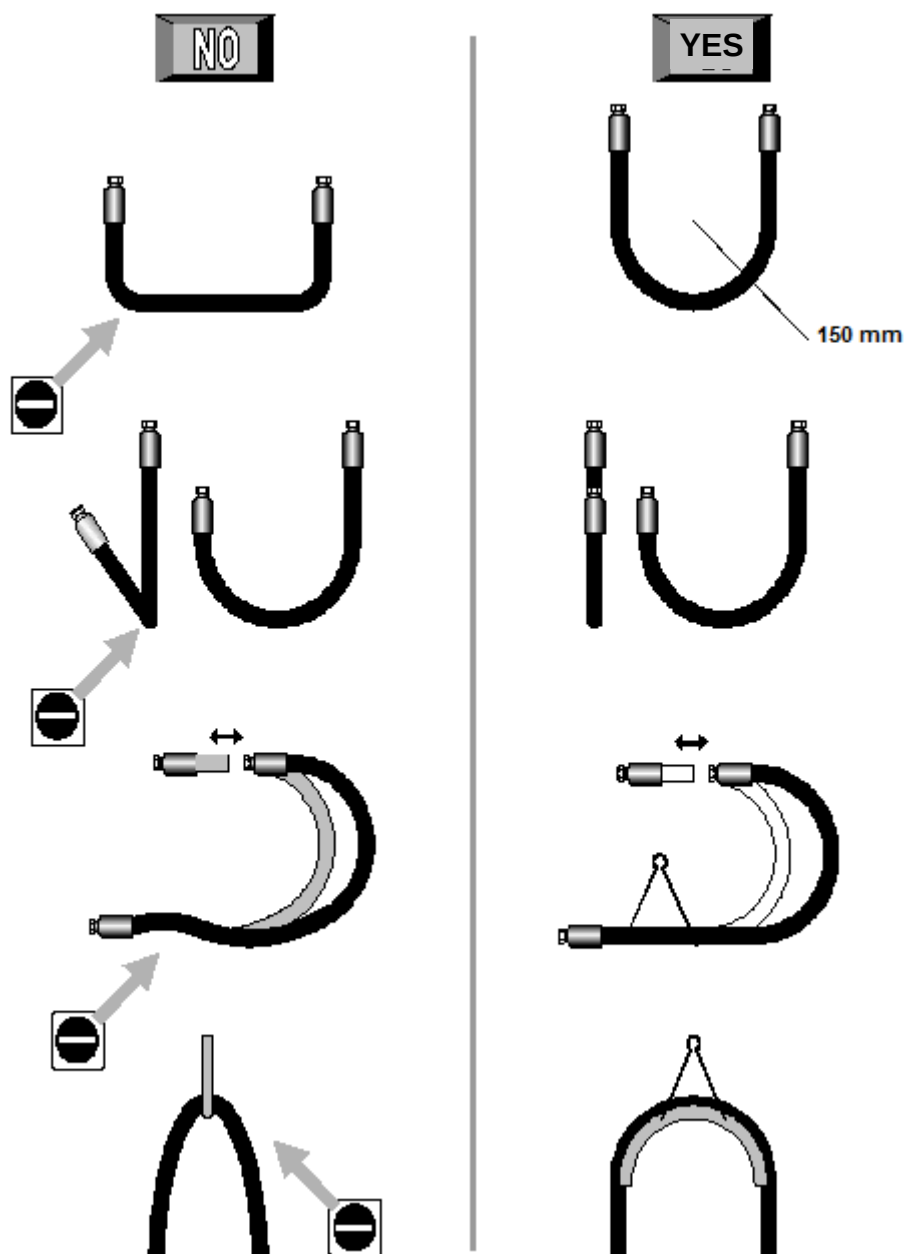
Connect the hoses from right to left. Failing to do so will create a dead spot where carbon deposits accumulate, increasing nozzle blockage problems.



For the hydraulic connection: If the unit is full of adhesive, heat the tank before removing the manifold cap.

Hose Installation:

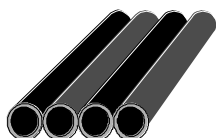
Never bend the hoses to a radius less than 150 mm.



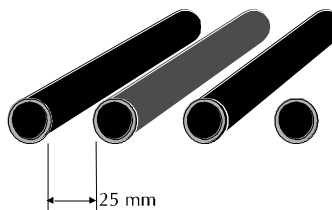
The hoses should not be in contact with very wide, cold surfaces.

Do not install hoses side-by-side; leave a minimum separation (25 mm) between them so heat can dissipate.

NO

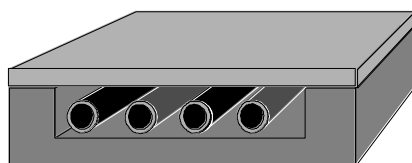


YES

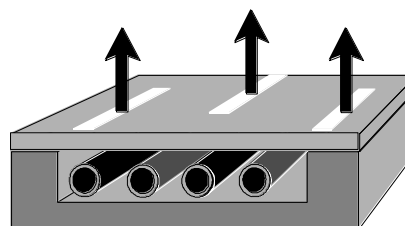


Do not cover the hoses. If it is necessary to do so, leave ventilation holes for heat dissipation.

NO

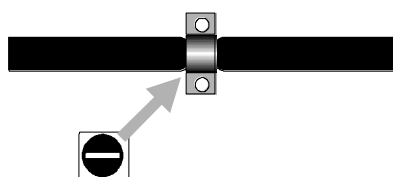


YES

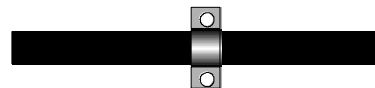


Do not install hoses with tight clamps.

NO



YES

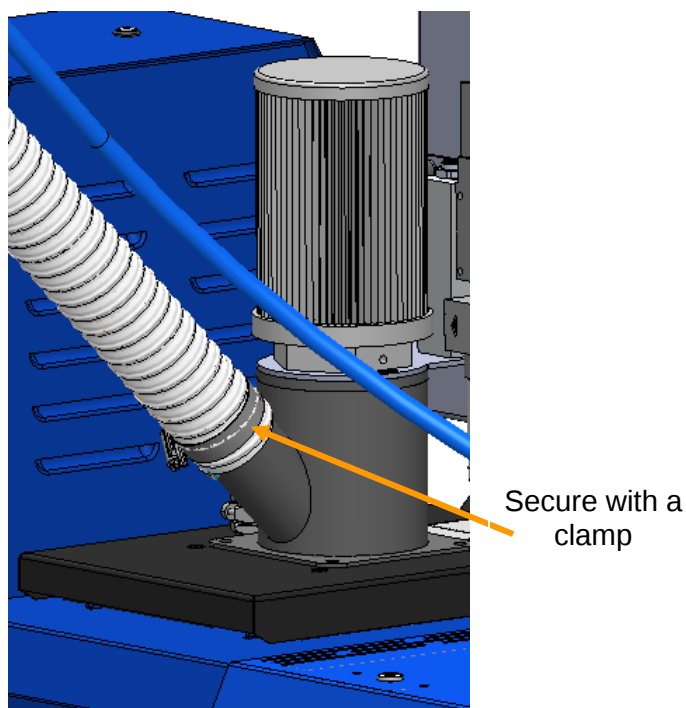


The installation of any of the accessories to the machine, must be done by a qualified VM technician.

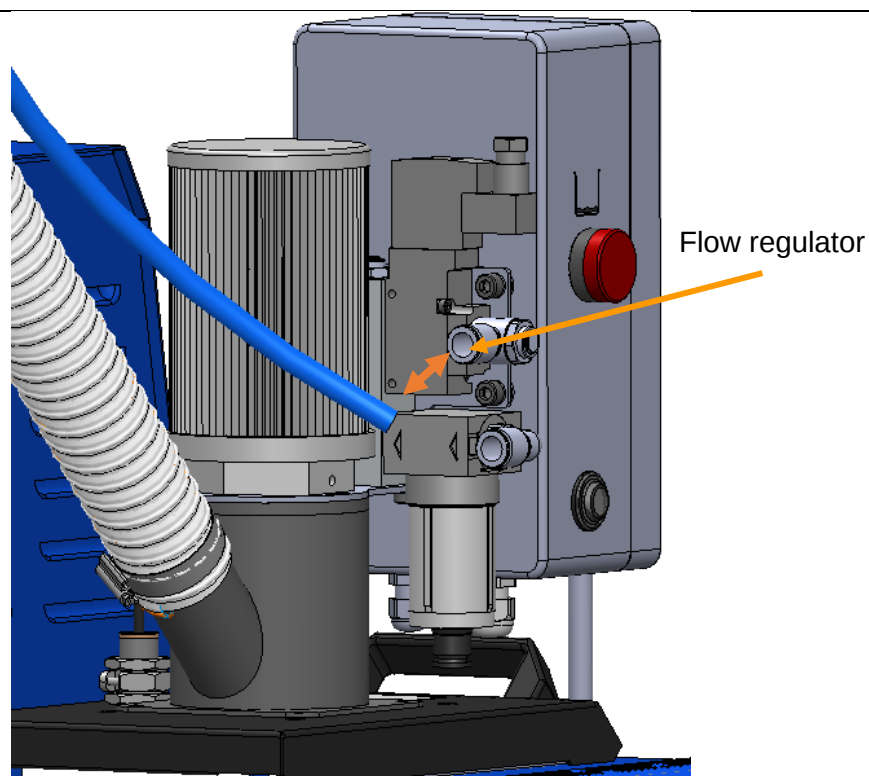
Installing the Vacuum Feeder:

Proceed as follows to connect the vacuum feeder:

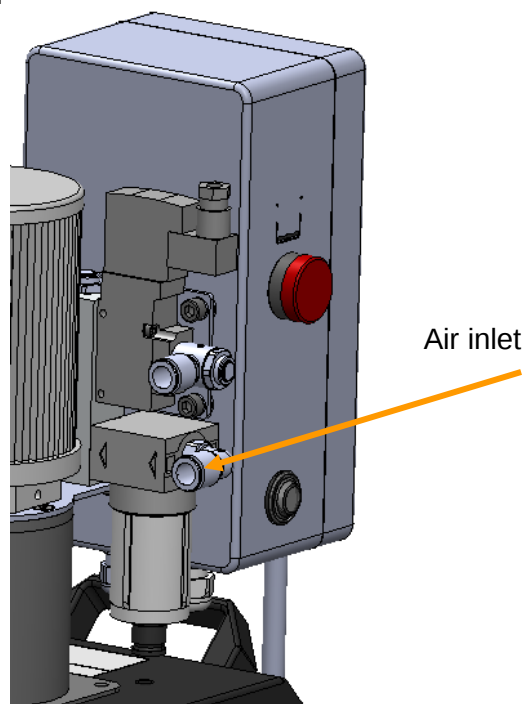
1. Remove the vacuum feeding kit from the packaging. This kit includes all of the tubes needed to install the feeder, as well as other components to be explained later.
2. Use a clamp to connect the lower tube to the part of the chimney (located above the tank cover) reserved for the feed outlet, as shown in the picture.



3. Connect the air line (provided in the vacuum feeder kit) to the flow regulator, as shown in the picture.



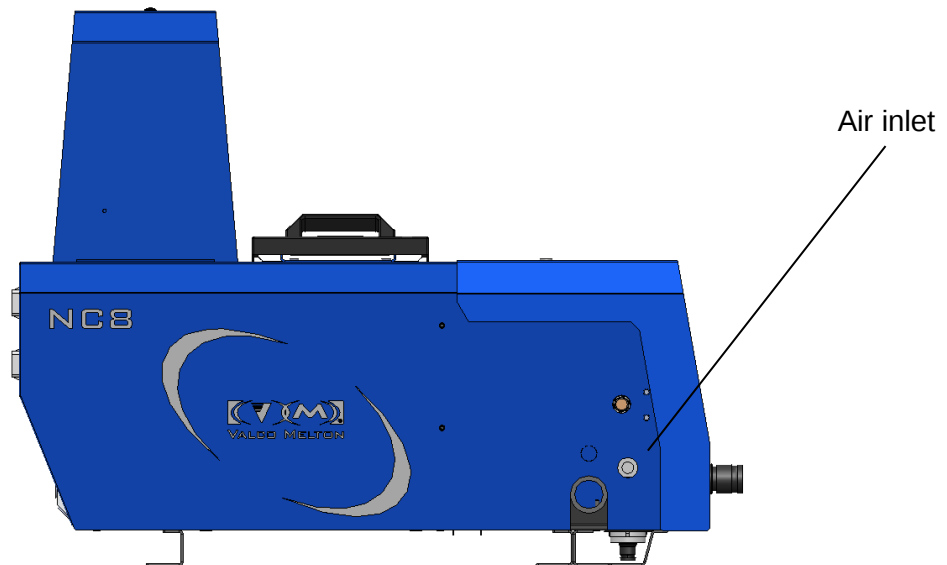
4.- Connect the air line to the vacuum feeder. The air connection of the vacuum feeder is prepared for a pipe Ø10. Ensure the correct installation of the pipe.





3.5. PNEUMATIC INSTALLATION:

Connect the air line to the regulator. Make sure the air-connection line has the capacity necessary for proper pump operation.



3.6. ELECTRIC INSTALLATION

3.6.1. Routing low-voltage leads



Warning: Failure to observe could result in personal injury, death, or damage to equipment.

When routing low-voltage leads, follow these guidelines:

- Do not route low-voltage leads in the same conduit as wires carrying a high-current load.
- Do not route low-voltage leads adjacent to, or across wires carrying a high-current load. If low-voltage leads must cross or run parallel to wires carrying high current, keep the leads at least 6" (152 mm) from high-current wires.
- Do not splice or solder leads.
- Trim leads to the required length. Leads should be only as long as necessary for installation.
- All wiring should be in conduits or wireways.

3.6.2. Connecting the electrical power



Warning: Electrical connections should be made only by experienced service personnel! Failure to observe could result in personal injury, death, or damage to equipment.

When connecting the supply of electrical power, follow these guidelines:

Connect the unit to a “clean” supply of electrical power. Use a dedicated circuit if possible

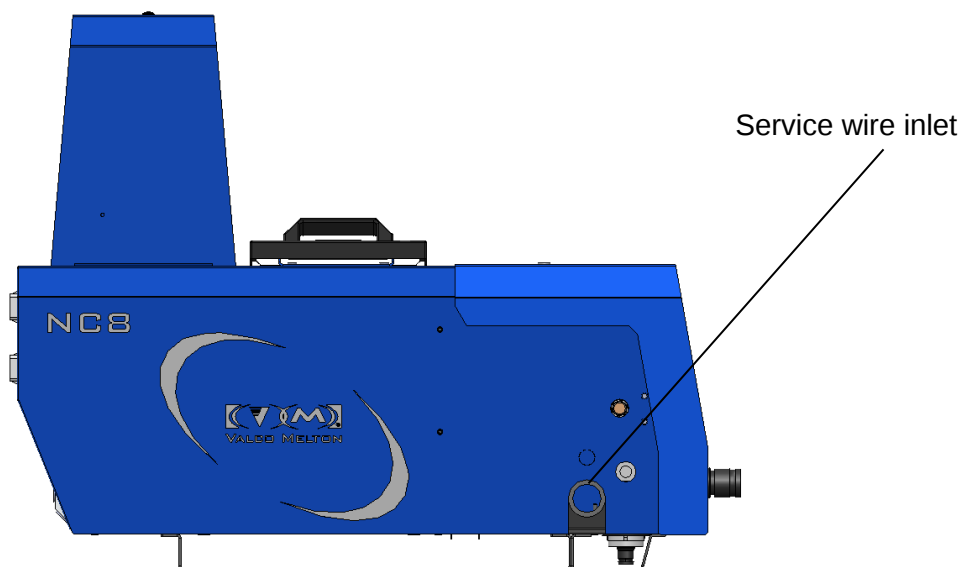
Caution: If a dedicated circuit is not available, do not connect the unit to a circuit that supplies high-amperage equipment—use another circuit such as a lighting circuit. Otherwise, equipment may not function properly.

Warning: The external power source must be turned off before connecting power to the unit! Failure to observe could result in personal injury, death, or damage to equipment.

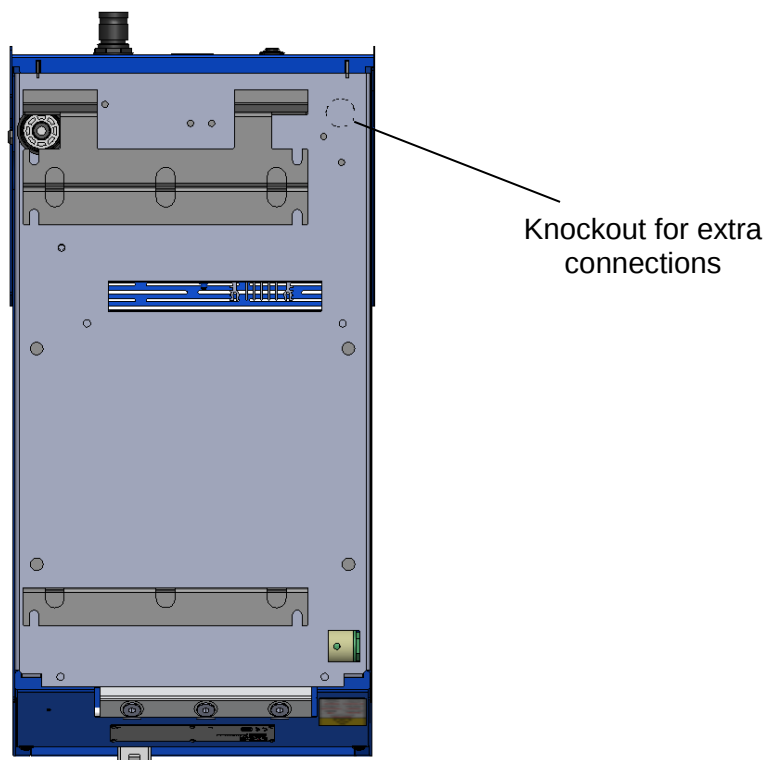
Only experienced service personnel should connect power to the unit! Failure to observe could result in personal injury, death, or damage to equipment.

The use of an earth-leakage or ground-fault power breaker is recommended with this unit. This unit must be earthed or grounded. Failure to observe could result in personal injury, death, or damage to equipment.

The incoming electrical service must be connected through the available inlet (hole: 27,8 mm and flat surface: 36,5 mm) for service wires indicated in the illustration below:



If a secondary connection is required in case the unit has accesories, connect the wires through the knockout placed in the unit base:



The system should be connected via a suitable type of flexible or rigid conduit from a supply isolator and ground-fault power breaker. The field wiring conductors must have insulation rated minimum 90°C (167°F). The supply should be clean and free from excess interference from other machines.

The connection depends on the NC unit:

NC until 4 outputs:

The NC hot melt unit can be set up to use one of the following power sources:

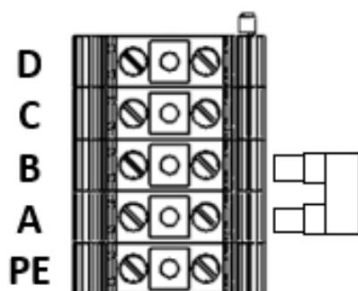
INCOMING ELECTRICAL SERVICE			Ground screw	POWER IN CONNECTOR TERMINALS				
				A	B	C	D	GND
400VAC 3PH with Neutral (5 wire service)	3PH/N/GND AC 400/240V	Min Field Wire: 12 AWG Min Ground Wire: 10 AWG	GND	L1	L2	L3	N	
200 to 240VAC 3PH w/o Neutral (4 wire service)	3PH/GND AC 200-240V	Min Field Wire: 10 AWG Min Ground Wire: 8 AWG	GND		L1	L2	L3	
200 to 240VAC 1PH w/o Neutral (3 wire service)	1PH/GND AC 200-240V	Min Field Wire: 10 AWG Min Ground Wire: 8 AWG	GND	L1			L2/N	

The maximum ampacity present in the unit power supply is indicated in the tables below:

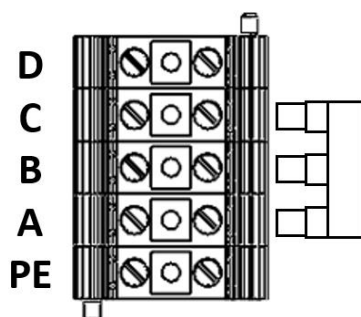
VOLTAGE RATING: 380V THREE PHASE Y CONNECTION (50/60HZ)				
Model	Hose/Applicators	Current rating L1 (A)	Current rating L2 (A)	Current rating L3 (A)
NC04	2	0,3	7	13
	4	0,3	7	25
NC08	2	0,3	12	13
	4	0,3	12	25
NC16	2	0,3	17	13
	4	0,3	17	25
VOLTAGE RATING: 240V THREE PHASE Δ CONNECTION (50/60HZ)				
Model	Hose/Applicators	Current rating L1 (A)	Current rating L2 (A)	Current rating L3 (A)
NC04	2	8	13	20
	4	8	25	33
NC08	2	12	13	25
	4	12	25	38
NC16	2	18	13	30
	4	18	25	40
VOLTAGE RATING: 240V SINGLE PHASE (50/60HZ)				
Model	Hose/Applicators	Current rating L1 (A)	Current rating L2 (A)	Current rating L3 (A)
NC04	2	20	0	0
	4	33	0	0
NC08	2	25	0	0
	4	38	0	0
NC16	2	30	0	0
	4	40	0	0



Warning: You MUST follow these steps to connect power to the unit, or personal injury and/or damage to the unit may result.

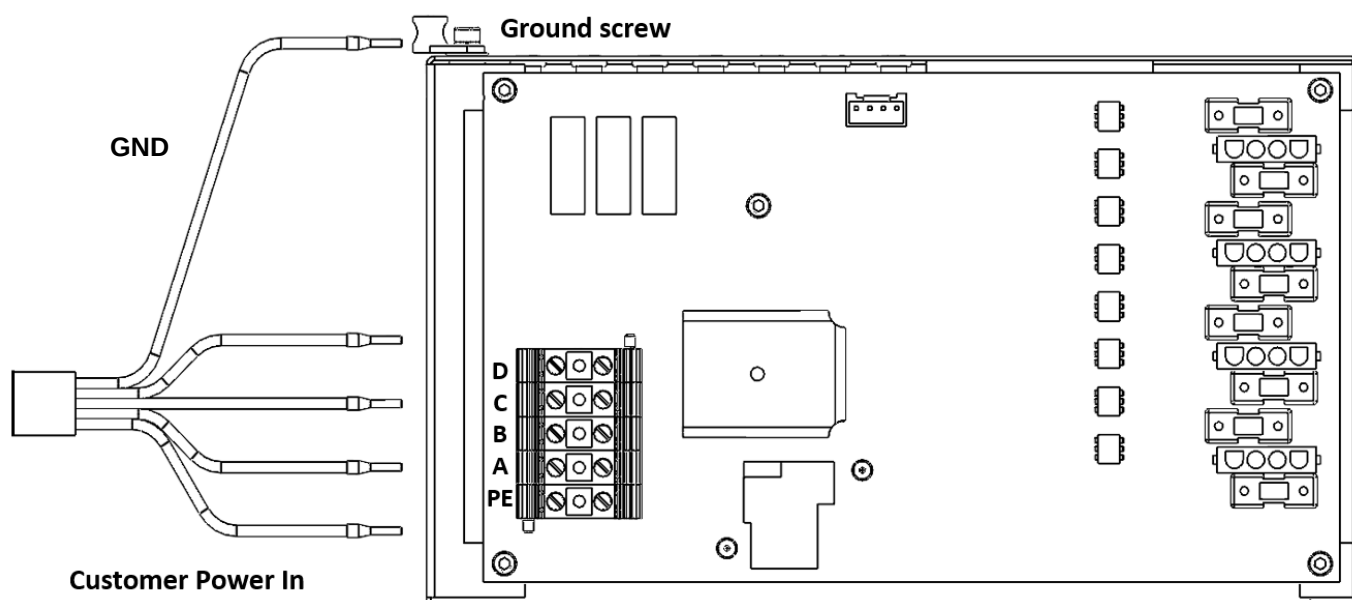


200 to 240VAC 3PH w/o
neutral (4 wire service)



200 to 240VAC 1PH w/o
neutral (3 wire service)

1. Open the electrical enclosure door.
2. Route the power cables through the cable clamp in the chassis of the unit. The power wires must meet the minimum requirements given in the chart above.
3. Locate the appropriate voltage selector plug corresponding to the incoming electrical service.
4. Connect the power wire leads to the power connector terminals as shown in the chart above.
5. Connect the Ground wire to the ground screw connector as shown in the illustration.
6. Install the appropriate voltage selector plug into the connector in the power board
7. Verify that all connectors are fully seated and the power connector terminal screws are secure.
8. Close the electrical enclosure door.



NC until 6 outputs:

The NC hot melt unit can be set up to use one of the following power sources:

INCOMING ELECTRICAL SERVICE			Ground screw	POWER IN CONNECTOR TERMINALS					Selector plug
				A	B	C	D	GND	
400VAC 3PH with Neutral (5 wire service)	3PH/N/GND AC 400/240V	Min Field Wire: 10 AWG Min Ground Wire: 8 AWG	GND	L1	L2	L3	N		400 III + N
200 to 240VAC 3PH w/o Neutral (4 wire service)	3PH/GND AC 200-240V	Min Field Wire: 10 AWG Min Ground Wire: 8 AWG	GND	L1	L2		L3		240 III
200 to 240VAC 1PH w/o Neutral (3 wire service)	1PH/GND AC 200-240V	Min Field Wire: 10 AWG Min Ground Wire: 8 AWG	GND	L1			L2/N		240 I + N

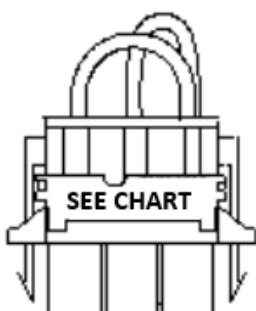
The maximum ampacity present in the unit power supply is indicated in the tables below:

VOLTAGE RATING: 380V THREE PHASE Y CONNECTION (50/60HZ)				
Model	Hose/Applicators	Current rating L1 (A)	Current rating L2 (A)	Current rating L3 (A)
NC04	2	0,3	7	16
	4	0,3	7	31
	6	16	7	31
NC08	2	0,3	12	16
	4	0,3	12	31
	6	16	12	31
NC16	2	7	10	16
	4	7	10	31
	6	23	40	31
VOLTAGE RATING: 240V THREE PHASE Δ CONNECTION (50/60HZ)				
Model	Hose/Applicators	Current rating L1 (A)	Current rating L2 (A)	Current rating L3 (A)
NC04	2	16	7	23
	4	32	7	39
	6	40	23	39
NC08	2	16	12	28
	4	32	12	40
	6	40	28	40
NC16	2	23	17	26
	4	39	17	40
	6	40	33	40
VOLTAGE RATING: 240V SINGLE PHASE (50/60HZ)				
Model	Hose/Applicators	Current rating L1 (A)	Current rating L2 (A)	Current rating L3 (A)
NC04	2	23	0	0
	4	39	0	0
	6	40	0	0
NC08	2	28	0	0
	4	40	0	0
	6	40	0	0

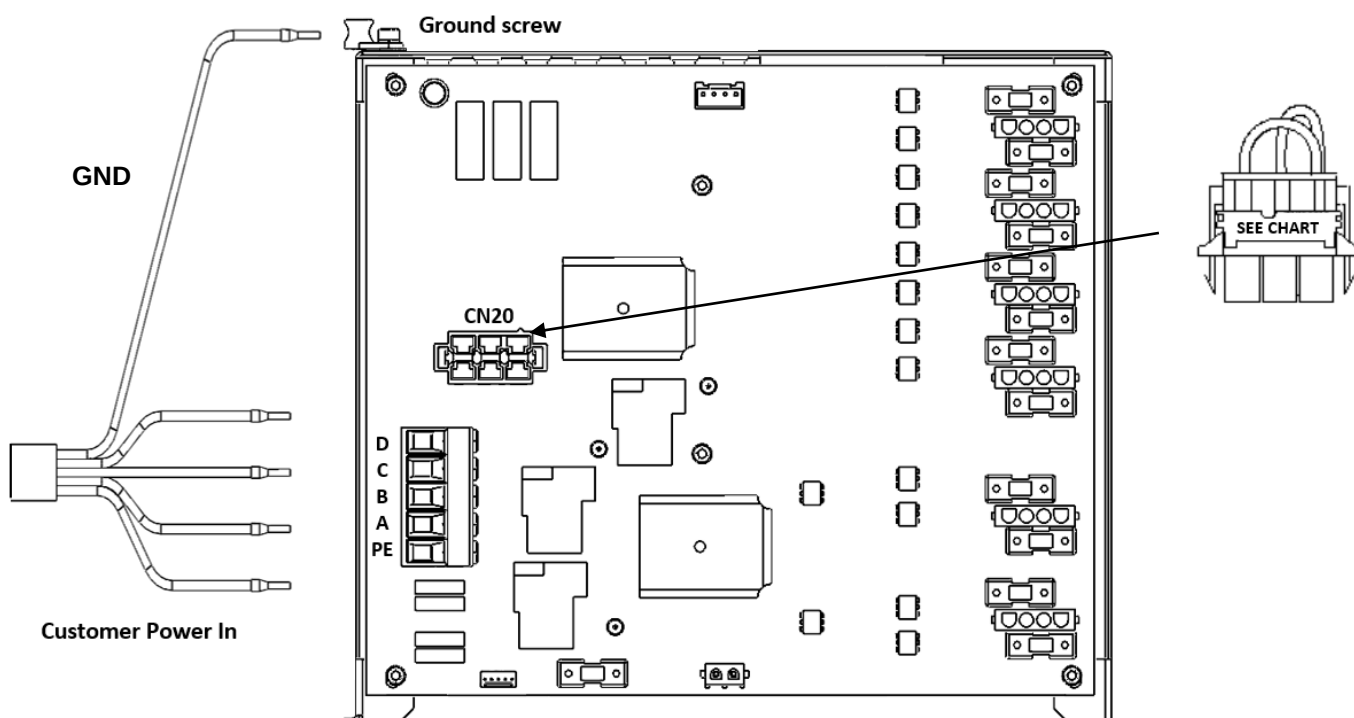
NC16	2	33	0	0
	4	40	0	0
	6	40	0	0



Warning: You MUST follow these steps to connect power to the unit, or personal injury and/or damage to the unit may result.



1. Open the electrical enclosure door.
2. Route the power wire through the cable clamp in the chassis of the unit. The power wires must meet the minimum requirements given in the chart above.
3. Referring to the chart above, locate the appropriate voltage selector plug corresponding to the incoming electrical service.
4. Remove the connector from the board and connect the power wire leads to the power connector terminals as shown in the chart above.
5. Connect the Ground wire to the ground screw connector as shown in the illustration.
6. Install the appropriate voltage selector plug into the connector marked CN20 in the power board
7. Plug the power connector into the board.
8. Verify that all connectors are fully seated and the power connector terminal screws are secure.
9. Close the electrical enclosure door.



CHAPTER 4

MACHINE ADJUSTMENT

The following adjustments should be made before the machine is switched on or while it is working. They will ensure that the machine works properly and safely.

4.1. TEMPERATURE CONTROL:

4.1.1. Introduction:

The temperature of the tank, hoses and guns in the Hot – Melt application equipment is regulated by a digital electronic device controlled by microprocessor.

Regulation is proportional, with factory-set parameters for the separate heating inertias of the tank, hoses and guns.

The temperature is measured by the RTD sensor on each of the heating devices. These can be programmed individually and on each output channel between 30° - 240° C (86°F – 464°F).

The range ability (measurement range) of the controller is between - 25°C(-13°F) and 240°C(464°F).



Below -10 °C(40°F), the equipment will display a probe short circuit fault. Above 220 °C(454°F), the display will report on an open probe fault.

4.1.2. Brief description of how the unit operates:

The unit is equipped with proportional temperature control for the heating resistances connected to 4 double hose-gun channels and a special channel for heating the tank, with menus to access parameter programming and control of the operating clearance for the main machine, alarms and different operating functions (SCAN, ENERGY SAVING, etc.), which will be described later.

The control panel includes a 10-digit display with 7 ultra-bright segments showing the unit's operating data, plus the alarms that are produced by the sensor signals. There are also LEDs displaying heating resistance output status, pressure pump, overheating alarms, safety and energy saving status.

Preheat function:

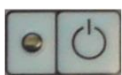
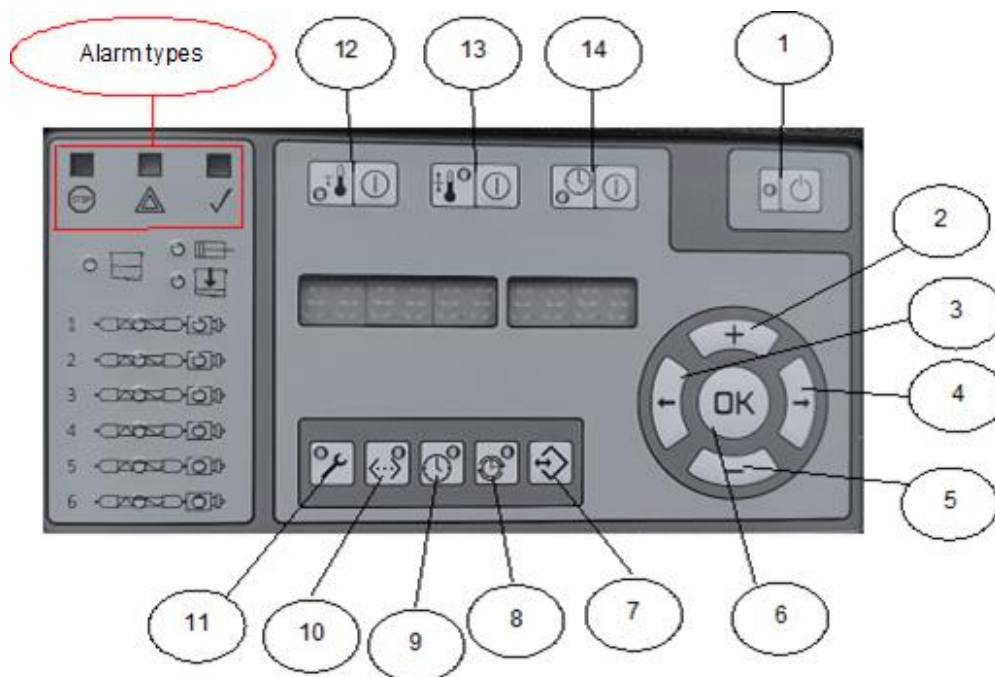
Because the heat inertia of the glue tank is much greater than for all the peripheral devices, these devices reach the programmed temperature much earlier than the tank. This rapid heating process has an ageing effect on resistances and insulation. This phenomenon also creates excessive fluid pressure in the hoses.

To offset this problem, the unit has been fitted with a preheat system that heats all the peripheral devices (hoses and guns) in a sequential manner, while the tank is heated at normal speed. When the tank reaches 75% of the programmed temperature, heat is supplied to the hoses. When the hoses reach 75% of the programmed temperature, heat is supplied to the guns.

4.1.3. Description of the control panel:

4.1.3.1 Keyboard:

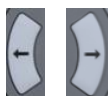
The melt unit control panel has 11 control keys to access the programming menus and general handling operations.



KEY 1: (Warm-up On/Off) Turns the melt unit on and off. When turned on, it will be in operating mode or energy-saving mode, depending on the status in which it was turned off. When the melt unit is turned off, the display shows the day of the week and the time, as well as the day of the week and time of the next connection if the CLOCK function is enabled.



KEYS 2 AND 5: Keys to change the programmable values.



KEYS 3 AND 4: Keys to navigate between canals or programming settings.



KEY 6 (OK): Key to confirm any change in programmed data. This key is also used to reset the alarm buzzer.



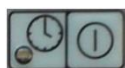
KEY 7 (Programming): Key to access, move through and exit the programming menu.



KEY 12: (Energy-saving mode on/off): Activates the ENERGY-SAVING MODE in which the melt unit operates using 50-80% energy.



TEMP. KEY 13: Shows the screens for temperatures.



KEY 14: (Clock On/Off) Enables CLOCK function connection and disconnection programming.

4.2.3.2 Display:

The control panel has a display with 10 digits, grouped into 2 blocks.



The 6-digit block to the left shows the device or area ID.

The 4-digit block to the right shows the CURRENT operating temperature data and is also used as an additional display for some programming phases.

Canal display:

Using the navigation keys, you can see the chosen canal, programmed temperature and measured temperature.

Tank	OFF
Hose OUTLET 1	OFF
Gun OUTLET 1	OFF
Hose OUTLET 2	OFF
Gun OUTLET 2	OFF
Hose OUTLET 3	OFF
Gun OUTLET 3	OFF
Hose OUTLET 4	OFF
Gun OUTLET 4	OFF
Hose OUTLET 5	OFF
Gun OUTLET 5	OFF
Hose OUTLET 6	OFF
Gun OUTLET 6	OFF

4.2.3.3 Indicator LEDs:

- ON/OFF Status:



ON/OFF LED: Indicates the melt unit status.



CLOCK LED: Indicates Clock function status



P. TEMP LED: Indicates Temperature function status



ES LED: Indicates that the melt unit is in ENERGY-SAVING MODE.

- Warm-up and pump status:



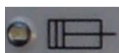
LEDs 1, 3, 5, 7, (9, 11 depending on the model): Indicate the activation of the output power. Hoses.



LEDs 2, 4, 6, 8, (10, 12 depending on the model): Indicate the activation of the output power towards the heating resistors on the dispensing guns.



0 LED: Indicates the activation of the tank heating resistors.



B1 LED: Indicates whether Pump Permission has been given.



- Other statuses:

STOP LED: Stop signal due to serious failure. Warm-up disabled.



AL. LED: Indicates alarm



OK LED: Melt unit operating. (Blinks → while heating up.)



LED P. CLOCK1. (8): Indicates that the melt unit is in the connection and disconnection programming process through the calendar-clock.



LED P. CLOCK2. (9): Indicates that the melt unit is in the process of setting the calendar-clock.

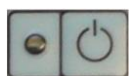


I/O LED (10): Indicates that the melt unit is in I/O mode.



SYSTEM LED (11): Indicates that the melt unit is in System mode.

4.2.3.4 Features:



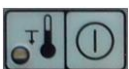
ON / OFF function:

Warm-up on and off. Through the control panel, direct Connection through I/O and through RS-485 communications. If communication via Modbus is installed and enabled, it must stay connected so the PLC it is connected to can capture the temperature drop and control the melt unit. The display shows the date and time when OFF.



CLOCK function:

When enabled, the melt unit makes the programmed connections and disconnections.



ENERGY-SAVING Function

It puts the programmed temperatures at a programmed %. (50% a 80%) The associated pump and permission to the outside are disabled and the corresponding LED will turn on. A vertical line will appear on the display.

This function can go into effect in four different ways:

- Pressing the key 
- Calendar-clock programming.
- Activating the ENERGY-SAVING external signal **(OPTION)**
- As the programmed time runs out without any glue coming out, "Applicator" function. (OPTION).

- Through RS-485 communications (Modbus). **(OPTION)**

Temperature regulation:

The temperature is regulated by a window control. It activates heating when the temperature drops 2°C below the ref. temperature and begins counting the heating when the reference temperature is reached.

This control guarantees greater control component stability and minimizes disturbances to the outside, thus complying with the Electromagnetic Compatibility regulation (EMC).

Pump-permission control:

The pressure generation pump and associated relay granting permission to the outside (with free power switches) activate when the temperature of all the heating devices (tank, hoses and gun) is in the temperature range defined by the reference temperature deviations defined in the melt unit configuration, normally 5°C. They deactivate when out of this deviation.

There is a permission delay setting which provides extra heating time; in other words, it delays pump permission and begins counting when the last element enters the operating temperature range. The permission delay time is inhibited while the tank remains within the deviation temperature, even after the melt unit is turned on and off.

The green LED will blink during heating while the melt unit is at the proper temperature and the waiting time has not finished.

Preheat function:

The preheat system (PREHEAT) makes all peripherals (hoses and guns) heat up sequentially while the tank does so at normal speed. When the tank reaches 50-80% of the programmed temperature, energy is applied to the hoses. When the tank reaches 75% of the programmed temperature, energy is applied to the guns.

4.1.3.5 Alarms:

The melt unit has several alarms that report failures in the measuring sensors, temperatures out of range and above the safety level.

Alarm types:



Fixed green light: The melt unit is ready to work.



Fixed yellow light: The temperature is outside the programmed point.

Yellow blinking light + beeping: The charger is not filling the tank.



Fixed yellow light and blinking red light: Failure in the RTD (shown as AAA or CCC on screen). It has 2.5 minutes to solve the problem before the machine stops.



Fixed red light + beeping: Machine safety stop. RTD failure or overheating. All LEDs will be disabled and the screen will blink.

There will be a beep for each charger or stop alarm. You can stop the

beeping by pressing the key . The charger alarms are reset once the adhesive level is correct again.



- Safety:

Whenever any device reaches the safety temperature programmed, the YELLOW LED will turn on and the external alarm will go off. The RED LED will also turn on intermittently for 2.5 minutes. If the safety alarm status remains after this time, the RED LED will become fixed, all outlets will be disabled (by the general switch) and the melt unit will be blocked. The displays will show the data intermittently.

The melt unit also has a safety system that includes a bimetal thermostat on the tank wall calibrated to 240°C.

A rise in the thermostat will disable the general switch reel to disconnect the power from the heating resistors yet maintaining power to the control electronics in order to be able to locate the device that caused the incident on the panel display.

When in blocked status, the melt unit freezes all probe temperature measuring data and the user can verify the status of each one.

To be able to reset the melt unit, it must be turned off and then turned back on after having resolved the breakdown.



- Yellow

Due to the temperature:

Whenever any device goes out of the operating temperature programmed as the ALARM MARGIN, the external alarm will go off and the YELLOW indicator LED will turn on due to the temperature being outside the range.

Probe failures:

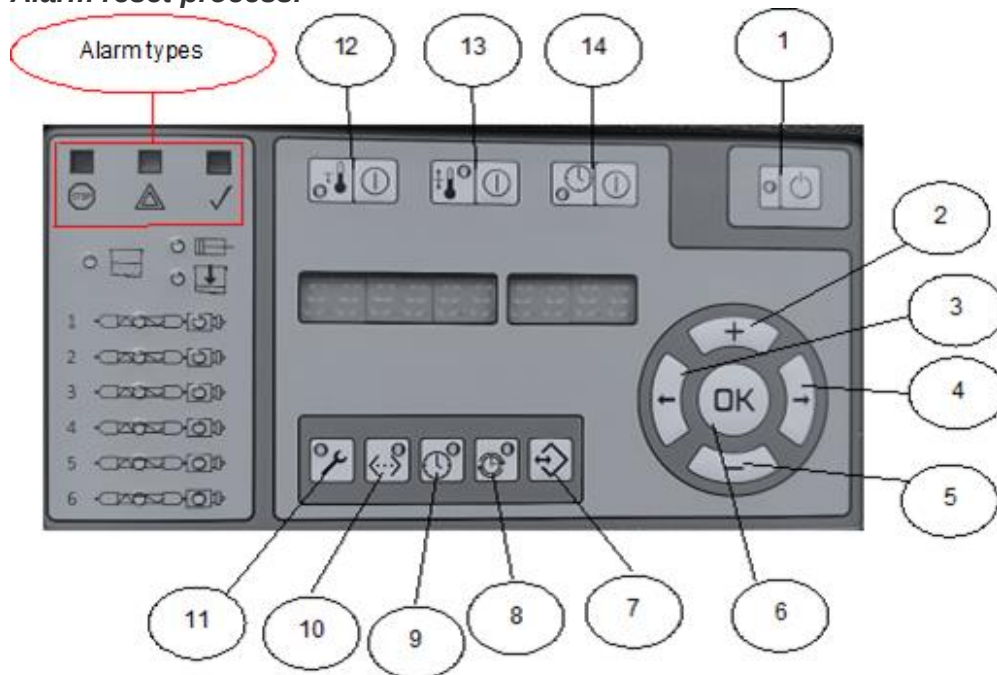
If there is a short circuit failure in a measuring probe, the melt unit will display the CCC indication instead of the temperature for that part (tank, hose, gun) in the corresponding canal. If a probe failure in an open circuit is detected, the melt unit will show the AAA indication instead of the temperature for the corresponding canal part.

Whenever there is an alarm of this kind and the corresponding canal is activated, the YELLOW LED will turn on and the external alarm will go off. The RED LED will also turn on intermittently for 2.5 minutes. If any of the alarms described remain on after this time, the RED LED will become fixed, all outlets will be disabled (by the general switch) and the melt unit will be blocked.

- Filter Change:

This filter change alarm will go off whenever the melt unit reaches 2000 hours (the parameter is set by default at 2000 hours) of operation. You can recognize this alarm when the three LEDs under the START button blink at the same time (Red+Yellow+Green). You can readjust the alarm by choosing canal P10 and pressing the CLOCK button.

Alarm reset process:



Press “7” → Access to program the menu.

Enter the password → PASS = “123” +

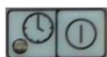


Enter

→ SEGURI = “1” +



Press “4” until you access FILTER.



Press “14” → The filter change alarm will now be turned off.



Press “7” to get out of the programming menu.

End of the filter change alarm readjustment process.



- Green

When this light turns on, the temperature of all devices is correct and no alarm is present. The melt unit is ready to work.

4.2.3.6 Connections to the Main Machine:

Permission to the outside:

This free power switch closes when the melt unit is ready for operation; in other words, when permission has been granted to the pump.

Alarm indication:

This free power switch closes when the control connects the ALARM LED (yellow LED).

Safety stop indication:

This free power switch closes as the control activates the STOP indicator LED.

Access Levels:

There are two access levels:

- a) Allow programming mode, → PASS = 232; SEGURI = [1]
- b) Allow changes to all settings, → PASS = 123; SEGURI = [2]

Having these two levels implies that P1 must have three access types, which are as follows:

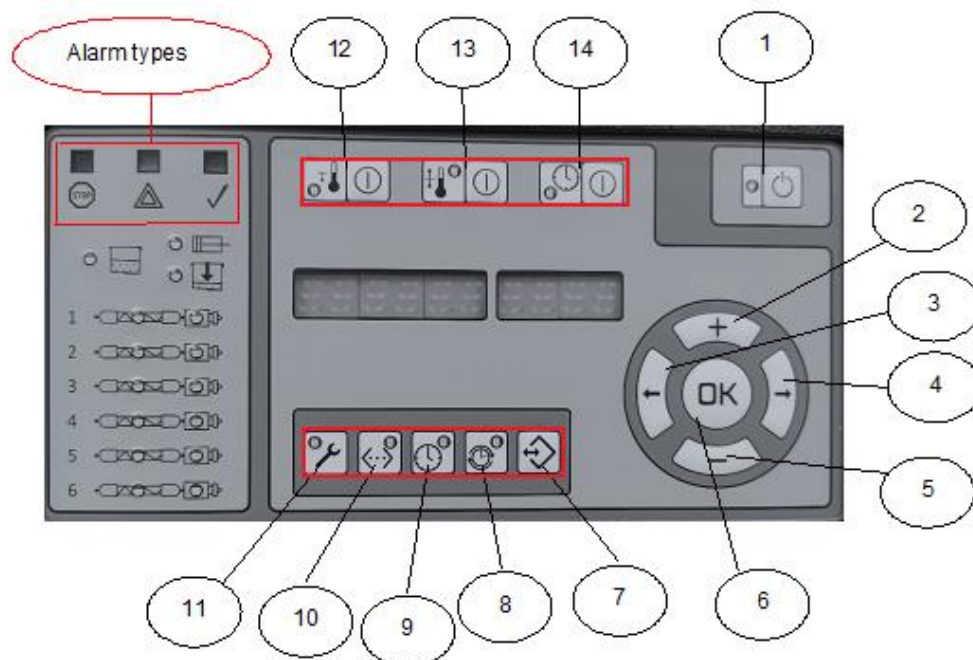
- a) SEGURI = 2, no passwords; you can enter the programming mode and change the P settings.
- b) SEGURI = 1, you can enter the programming mode but not change the P settings data. ([Admissible range])
- c) SEGURI = 0, PASS appears to enter the Password upon trying to enter programming mode. If you press ENTER with the incorrect password, you will be kicked out of the programming menu. With the correct password and pressing ENTER, you move into the programming menu and must confirm to set the access level. If access is not confirmed, you will lose privileges and be kicked out of the programming menu. **You should be able to enter any of the passwords. (232, 123). If you enter 123, you should be able to go to the programming menu to switch P1 to 2. (The passwords do not necessarily have to be entered in order. 232 → 123.)**

Navigation when entering the Access Password (P0) allows you go move from 0 to 255 in an ascending and descending direction.

The PASS parameter will be freely accessible but will always show 000. Irrespective of the access level on the melt unit.

The parameter SEGURI will restrict the possible modifications as per the melt unit access level or password entered.

4.2.3.7 Programming Menus:



Temperature programming menu:

Allows the pre-selection of the operating temperature for each hose and each gun, as well as that of the tank within a range of 30 to 240°C (85-464°F). Anywhere under 30°C (85°F), the device will be turned off (OFF) permanently.

LED on: The operating temperatures of the different devices are being programmed.



ENERGY-SAVING programming menu:

Allows the pre-selection of a % of operating temperature for the tank, hoses and guns.

Tank, hoses and guns can be selected with different operating temperature percentages when the melt unit is in ENERGY-SAVING mode. You can choose values between 50 and 80%.

LED on: The percentage values of the operating temperatures of the different devices are being programmed (divided into 3 groups: tank, hoses and guns).



System programming menu:

Allows the entry of melt unit settings data such as the temperature measurement unit (°C or °F), delay time for permission, maximum temperature, temperature deviations to set off alarms, enabled options, operating time display, etc.

There is a parameter to automatically copy the value of the chosen temperature for the tank to all output canals enabled (canals not OFF).

LED on: The general operating parameters are being programmed.



I/O Menu:

Allows configuration of the melt unit inlets and outlets, as well as the node number for communications and the type of communication (modbus and ethernet).

LED on: The I/O settings are being programmed



Clock connection-disconnection programming menu:

Allows you to enter the automatic connection and disconnection hour and minute data. Up to 2 connection/disconnection groups can be programmed for each day of the week as well as the change to on, off or energy-saving mode.

LED on: The clock connection-disconnection settings are being programmed



Clock on programming menu:

Allows you to enter the data for the current day of the week, hour and minute for the calendar-clock to come on.

LED on: The time and date on the clock are being programmed.

4.2.4. Melt unit settings:

To enter programming mode for the operating parameters on the control panel, just press the button  until you enter the desired programming menu.

To end the process, keep  pressed down.



If the melt unit remains in the programming menu for more than 1 minute without any button being pressed, the melt unit will automatically leave programming mode.

Operating temperature programming:

To enter this programming mode, press  (the LED will turn on).

The two digits to the left will show the name of the canal to be programmed, which can be selected by using the buttons  to the right of the digits.

The digits to the right indicate the programmed temperature value. Use the keys   below these digits to change the temperature value anywhere between 30 and 240°C. Anywhere below the minimum value, the display will show OFF which means the canal is disabled.

Pressing the key  you can save the operating temperature value shown.

Moving over the programmed canal and keeping  pressed down, the reference tank temperature will be copied on all active canals.

The canals are indicated according to the following codes:

Tank
Hose OUTLET 1
Gun OUTLET 1
Hose OUTLET 2
Gun OUTLET 2
Hose OUTLET 3
Gun OUTLET 3
Hose OUTLET 4
Gun OUTLET 4
Hose OUTLET 5
Gun OUTLET 5
Hose OUTLET 6
Gun OUTLET 6

The number of outlets depends on the melt unit model, considering two different types: 4 double outlets (up to t8) and 6 double outlets (the one in this table)

To end the process, re-press .

Energy-saving mode programming:

To enter this programming mode, press .

The two digits to the left will show the name of the setting to be programmed, which can be selected by using the buttons  until you reach the STBY% setting.

The digits to the right show the % value of the operating temperature to be used as the energy-saving mode regulation value. Use the keys   to change the temperature value to between 50 and 80%.

Pressing the key  you can save the temperature % shown.

To end the process, re-press .

Programming general operating settings:

To enter this programming mode, press  and choose the icon .

The digits to the left will show the name of the setting to be programmed, which can be selected by using the buttons  to the right of these digits.

The digits to the right show the setting value. Use the keys   to the right of these digits to change the values within the ranges specified in Table 1.

Pressing the key  you can save the operating setting data shown.

To end the process, re-press .

Table 1. General setting codes: (The standard default values are in parentheses).

Name	Description
Enter password. (000)	Allows you to enter the code to modify the access level. [000,255]
Access Levels (0).	Configure the access level on the melt unit. [0,1,2]
Measuring unit. (0)	Select the measuring degrees unit. [0 -°C; 1- °F]
Waiting time for Pump permission. (15)	Time delay in minutes to activate the pump and permission after preheating. [0, 60 mins.]
Maximum Admissible Temperature (240°C / 464°F).	Maximum melt unit temperature. [80, 240°C; 176, 464 °F].
Deviation for the alarm on the tank, hose and gun (5°C /9°F).	Any probe that measures the temperature above or below the operating temperature +/- a deviation will activate the temperature alarm light and the corresponding external warning. [1, 30°C; 2, 54°F].
Time to energy-saving mode from the last signal (0).	If the time selected (1 to 255 minutes) passes without any EV pulses, the melt unit will enter ENERGY-SAVING MODE. Value 0 disables this function. (I/O CARD REQUIRED)
Time counter	Displays the number of hours the melt unit has been operating.
Hours until filter change. (2000)	Time until filter change. [0,2000]
Language choice (Spanish)	Allows you to choose the screen language (Spanish, English, French, German, Italian).
Time to Auto Off from the last signal (0).	If the time selected (1 to 255 minutes) passes without any EV pulses, the melt unit will enter AUTO OFF. Value 0 disables this function. (I/O CARD REQUIRED)
Energy-saving mode (50%)	Temperature percentage programmed it will drop to upon entering energy-saving mode. [50%,80%]
Charger (Off)	Allows the addition of an external charger to the melt unit (On, Off)

1.Maximum Temperature Setting:

If there is a change in this value below the programmed temperature of any canal, they will be made equal to the maximum temperature value.

I/O Programming:

To enter this programming mode, press  and choose the icon .

The digits to the left will show the name of the setting to be programmed (In1 to In9, node and communication), which can be selected by using the buttons   to the right of these digits.

The digits to the right show the setting value. Use the keys   to the right of these digits to make changes.

Pressing the key  you can save the operating setting data shown.

To end the process, re-press .

Configurable I/O Statuses. [In1 to In9]	OFF (Disabled) SB (AUTOSB) ON (Start/Stop) STBY (Energy-Saving) ON1 (Hose-gun 1 canal) ON2 (Hose-gun 2 canal) ON3 (Hose-gun 3 canal) ON4 (Hose-gun 4 canal) ON5 (Hose-gun 5 canal) ON6 (Hose-gun 6 canal)
NODE (0)	0-200
COMM (OFF)	OFF MODB ETH

Disabled

This function disables this setting so it has not impact.

Application

If there is a “0” (no power, open switch) at the inlet assigned the “application function” for more time than shown in the AUTOSB setting (value in minutes) and there is pump permission, the melt unit will move into energy-saving mode.

If there is a “1” (close switch) before the AUTOSB time ends, the timing resets and the AUTOSB value is valid again.

Once the melt unit is in energy-saving mode and there is a “1” (close switch) at the inlet assigned the “application function”, the melt unit will go into normal operating mode.

When there is a “1” at the corresponding inlet, melt unit operation will be normal, and the timer with the AUTOSB will not count.

If AUTOSB =0 the application function will be disabled because the timer is disabled.

Energy-Saving

When there is a “0” (open circuit) at the inlet with “energy-saving mode function” the melt unit will operate in normal mode.

When there is a “1” (closed switch), the melt unit will enter energy-saving mode. In order to maintain energy-saving mode, you must maintain that “1” (closed switch) at the inlet.

If the “Applicator” and “Energy-Saving Mode” functions are configured, the system prioritizes the “Energy-Saving Mode” function, allowing the “Applicator” function to operate normally when the “Energy-Saving Mode” is at “0”; in other words, when the melt unit is allowed to operate normally.

Start/Stop

When there is a “0” (open circuit) at the inlet with “start/stop function” the melt unit will stay on.

When there is a “1” (closed switch), the melt unit will turn off.

Hose-gun canal

When there is a “0” (open circuit) at the inlet with “hose-gun function” the canal will be enabled. (ON)

When there is a “1” (open circuit) at the inlet with “hose-gun function” the canal will be disabled. (OFF)

Clock on:

To enter this programming mode, press  and choose the icon .

The digits to the left show the code indicating the day of the week (Mon, Tues, Wed, Thur, Fri, Sat, Sun) which can be selected using the keys  .

The digits to the right show the clock on value. Use the keys   to change this value.

Pressing the key  you can save the data.

To end the process, re-press .

Programming the clock connection-disconnection data:

To enter this programming mode, press  and choose the icon .

The digits to the left show the code indicating the day of the week (Mon, Tues, Wed, Thur, Fri, Sat, Sun), the shift worked (1 to 4) along with a dot and free space referring to the melt unit function (0 to 3) which can be programmed using the keys  .

The digits to the right are used to choose the programmed time.

Pressing the key  you can save the data shown.

Table 2. Clock connection/disconnection setting codes.

This setting works as follows:

0	The melt unit does nothing
1	Normal melt unit operation
2	The melt unit moves into ENERGY-SAVING MODE
3	The melt unit is turned off

For easier data entry, press the key  to the positions of the first parameter of the day, copy the 12 programming figures from Monday to the corresponding day as per the key pressed.

To end the process, re-press .

4.2. ADJUSTING THE OUTPUT PRESSURE:

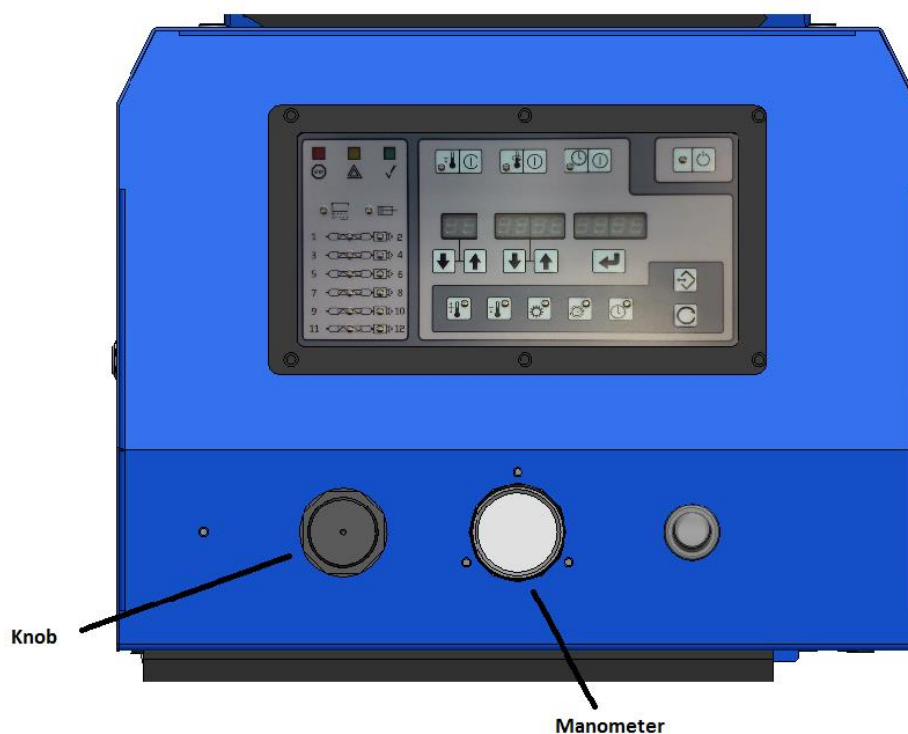
The adhesive output pressure is controlled by the pressure regulator and electrovalve unit. It is located at the front of the unit.

Pressure gauge:

This is the element that indicates pressure, in bar and psi, at which the pneumatic pump and the compensating valve are operating.



Pull the knob out to set and push it down to lock.
Set the pump pressure to 40 Psi (2.5 bar)
The pump will operate and pressurize the system.



This pressure is a starting point setting. You may need to change the pressure setting, depending on application.

The ratio between pneumatic and hydraulic pressure is 1:14. This means that, for each pneumatic bar indicated on the pressure gauge, there will be 14 hydraulic bar at the pump.

4.3. MELTON-RECHNER LEVEL SENSOR:

This is a capacitive level sensor.

It detects the level of adhesive. There is a three-second disconnect delay when going from a low to a high level,

Visual Indications:



Green Light → Full; Output not activated



Red-Yellow blinking light → Full; Output activated, delay at disconnect



Red Light → Empty; Output activated

- **Green Light: Positive Detection.**

The sensor interprets that the tank is full. It does not activate the output.

- **Red Light: Negative Detection.**

The sensor interprets that the tank is not full and it does activate the output

- **Red/Yellow Intermittent Light: Positive Detection, Disconnect Delay.**

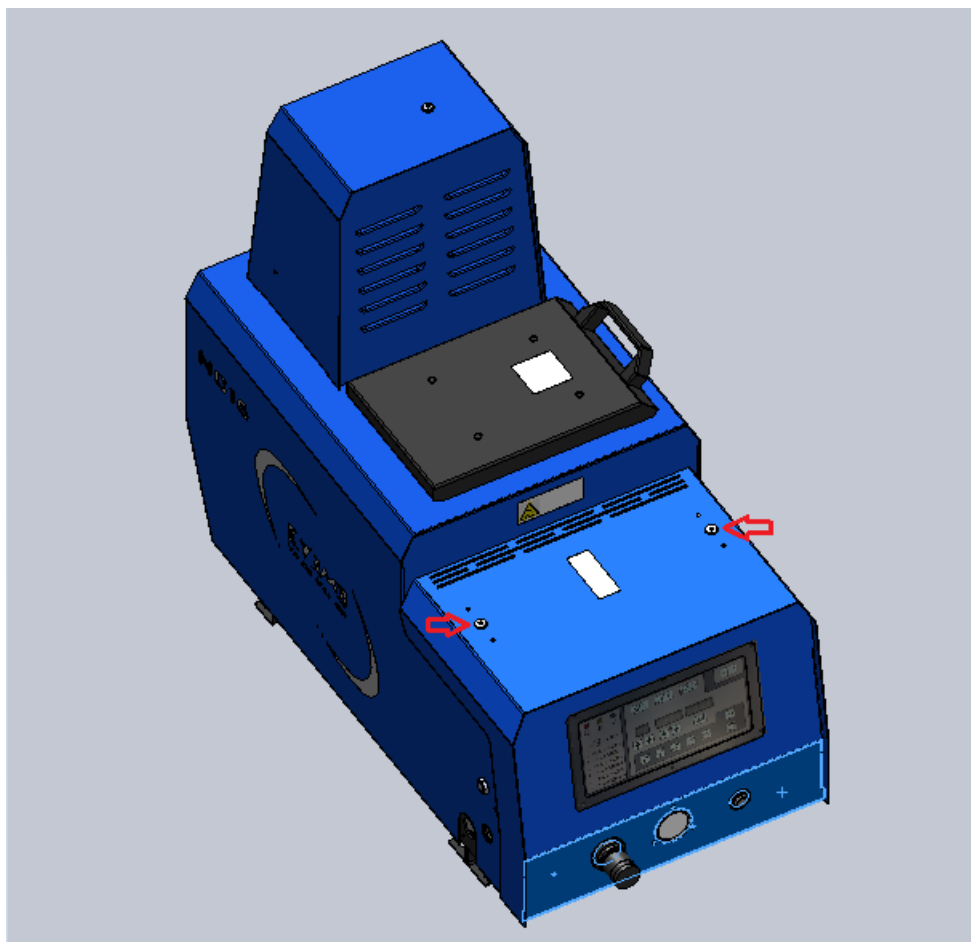
After switching from a negative detection to a positive detection, the sensor maintains the feeder load signal for three seconds. This delay does not apply to the initial transition; in other words, when the probe is turned on.

NOTE: As a last resort, if you need a longer delay it could be increased by an external timer.

PRECAUTIONS:

- The high-level detector must be situated at the level where the adhesive covers the tip of the probe slightly. If the probe is re-calibrated to the level with the probe fully covered, there may be a risk of adhesive overflow and high air filter wear due to adhesive splash during the filling process.
- It is necessary to secure the reference conductor connection to the ground of the unit (probe red cable). Its disconnection could cause that the system becomes unstable.

4.4. LEVEL SENSOR SETUP:



To adjust the sensor, follow the procedure:

Turn off and turn on the unit.

Find the electrical box of the probe into the unit.



Drain the adhesive in the tank until this one be empty.

Remove the screw of the potentiometer.

IF THE LIGHT IS RED (NEGATIVE DETECTION):

- Turn the screw clockwise just until the light changes to RED-YELLOW (flashing). Observe that after three seconds of flashing, the light is green.
- After that, turn the screw 2 turns counterclockwise.

IF THE LIGHT IS GREEN (POSITIVE DETECTION):

- Turn the screw counterclockwise just until the light changes to red.
- Now, turn carefully the screw clockwise just until the light changes to RED-YELLOW (flashing). Observe that after three seconds of flashing, the light is green.
- After that, turn the screw 2 turns counterclockwise.

Assembly the unit and test the working.

In order for the level sensor to be calibrated properly, it must be done with the tank completely empty, or with the least amount of adhesive possible.

For more information on the level sensor, call our toll-free assistance number.

CHAPTER 5 OPERATION



Warning: The equipment should be used only by qualified personnel who have understood the processes to be performed and are familiar with safety measures.

5.1. INTRODUCTION:

This chapter instructions for operating the equipment are explained.



Before verify that the operator is properly protected and all safety measures are followed, providing all equipment safety measures in perfect condition.

5.2. START UP:



- 1º Press the main switch.
- 2º Check that the set of equipment are appropriate for the desired operation, adjust if otherwise.
- 3º When the equipment is at the set temperature and no alarm activated relay service lights.
- 4º Permits the main machine takes into if they are both connected. The system has two terminals for external connections.
- 5º Can now start the application.

The equipment does not work, if be attached to a main machine until you have the required permissions.

These terminals are shorted factory.



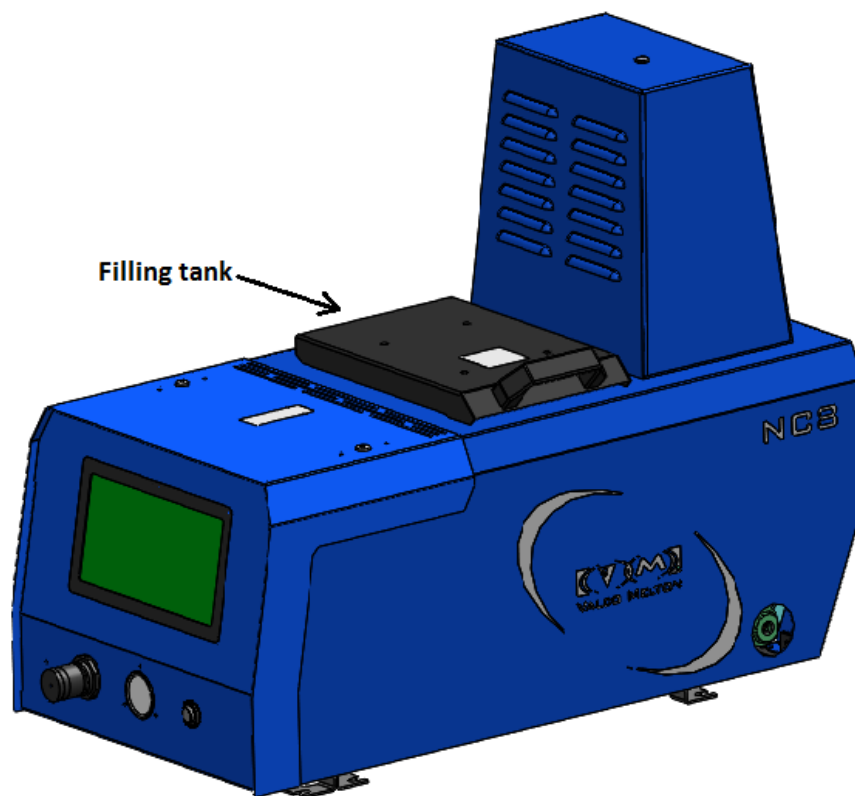
FILL THE TANK:

Before filling the tank please use goggles, gloves and long sleeves to avoid burns from splashing hot adhesive.

➤ **Standard models (Without Vacuum Feeding):**



- 1° Make sure the tank is clean and free of foreign particles.
- 2° Fill the tank heated by the hot melt material up to 10mm below the rim of the tank.
- 3° Close the lid of the tank immediately after filling.



➤ **Models with Vacuum Feeding:**



1. Make sure that the tank is clean and free of foreign particles.
2. In this case, the equipment is fed automatically by the installed vacuum feeder. The sensors detect when the tank needs adhesive, as well as when it is no longer needed. This way, the person handling the equipment does not have to worry about anything except making sure the vacuum feeder is always supplied with adhesive, in the container used to hold it. Said container must be placed near the equipment so the tubes comprising the vacuum feeder are not pulled, which might cause damage.

Warning: When you wish to check the tank adhesive level, you can do so while the equipment is loading, without any problem, as the micro (sensor) installed on the cover allows the equipment to detect when the cover is opened and stops the vacuum feeding. Once the cover is closed, it will begin loading again automatically.



Note: Never operate the applicator if the tank is empty. If the quantity of hot-melt material is very small, the adhesive may degrade, leading to the carbonisation of the HOT-MELT material, and the formation of deposits inside the unit. This may lead to unnecessary downtimes later on.

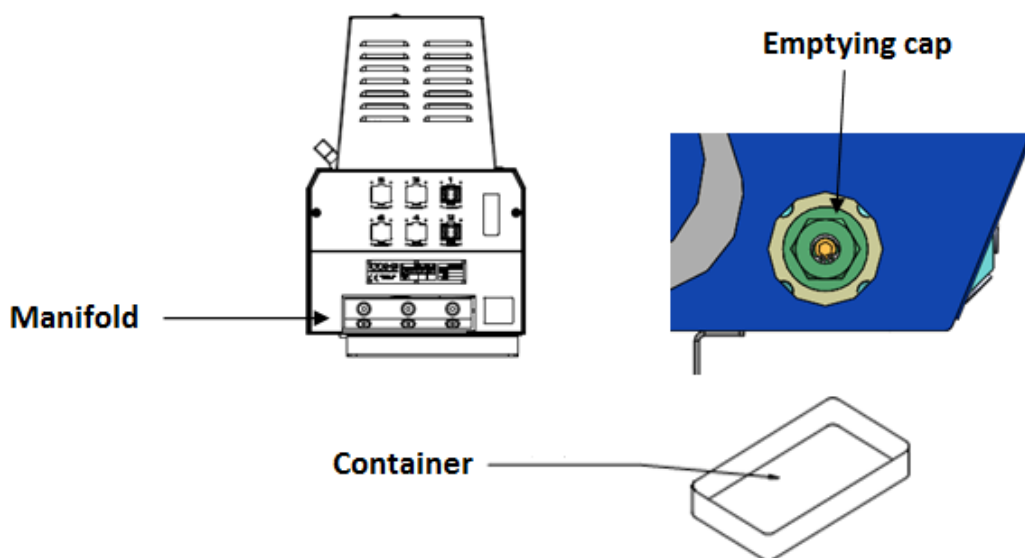


Emptying the Tank:

Before emptying the tank, put on a face shield, gloves and long-sleeve shirt to prevent possible burns caused by hot adhesive splashing.

1. Warm the equipment to the working temperature.
2. Reduce the air pressure to zero.
3. Eliminate system pressure by releasing the manual guns or opening the bleed valve.
4. Place an appropriate container under the manifold to collect the adhesive.
5. Unscrew the purging valve with a screw driver.
6. Increase the pressure gradually until adhesive flows through the purging valve and the manifold, and the tank empties.

7. Changing the filter and seals on the dismantled parts is recommended once the tank is empty.



Bleed Process:

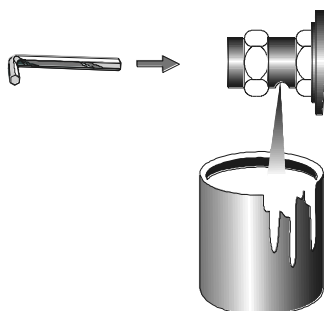
The bleed process is done to sweep away small crystallisations that may be produced in the filter, and to depressurize the system.

Before purging the filter, put on goggles, gloves and a long-sleeve shirt to prevent possible burns caused by hot adhesive splashing.

1. To purge the filter, the applicator must be at the operating temperature.
2. Reduce the air pressure of the applicator to "0".
3. Place a container below the equipment to collect the adhesive from the manifold.
4. Open the bleed valve with a screw driver.

Tip:

Bleed the equipment once a week, or every 40 hours of operation.



5. Increase the air pressure until the adhesive flows through the bleed hole and leaves the filter free of any contaminating particles.
6. Close the bleed valve with a screw driver.
7. Return the pressure to the appropriate working pressure.

5.3 STOPS:

There are two cases:

Pump stop:

If you wish to stop pumping, you must turn the pressure regulator to 0.

The temperature control will maintain the equipment temperature.



If the stop is to be for an extended period, activating the Setback function is recommended. (See Section 4, 4.18 and Section 5, 5.5)

Total stop:

To power down the equipment, switch the unit off.

5.4. VACUUM FEEDING OPERATION



WARNING: This equipment should only be used by qualified personnel who understand all the procedures and are familiar with the necessary safety measures.

5.4.1. INTRODUCTION:

This chapter explains how to use the equipment.

First of all, make sure that the person operating the machine is duly protected and that all safety instructions are followed. All safety equipment should be in perfect condition.



5.4.2. START-UP:

- 1 Press the main switch.
- 2 Check that the equipment is correctly adjusted. Readjust if necessary
- 3 Close the tank door.
- 4 The application can start.



5.4.3. TANK FILLING PROCESS:

When the level sensor detects a low adhesive level in the tank, the electrovalve will open and the vacuum feeder will transfer adhesive pellets from their container to the tank, until a correct adhesive level is detected in the tank.



If the tank is not loaded after 4 minutes (programmable), the amber indicator will light up and the alarm buzzer will sound. The feeder will continue trying to fill the tank until the level sensor detects a correct adhesive level again.

To reset the feeder alarm, press the main switch. When the equipment is switch on, the alarm time timer is also reset to 0.

5.4.4.STOPS:

Press the main switch to completely disconnect the equipment.

CHAPTER 6 MAINTENANCE



WARNING: The maintenance operations described in this chapter should be performed only by qualified personnel who understand the processes and are familiar with the safety measures involved.

6.1. INTRODUCTION:

This chapter contains the procedures involved in the maintenance of the EC equipment. These maintenance procedures guarantee safe operation and increase machine life. Before starting a maintenance operation, read chapter 1. "Safety" carefully.

General recommendations for proper maintenance:

- Keep the tank as full of adhesive as possible. This will reduce the formation of charred adhesive on the tank's inner walls.
- Keep the tank cover closed. (Any contamination in the tank will increase the possibility of low performance. Humidity, dirt and charred adhesive are the main causes of nozzle obstruction).
- Use cheesecloth to remove material leaking from the seals and other connectors when the machine is hot, but not in operation.
- Empty and clean the system completely when there are frequent obstructions, due to dirt and char.

Make sure that you are properly protected and follow all pertinent safety measures:



1. Switch off the air at the mains.
2. Switch off the main switch.
3. Lock and tag out the main switch.
4. Make sure power is off.
5. Follow all applicable safety standards.

6.2. MAINTENANCE RECOMMENDATIONS:

The following table shows the frequency with which maintenance operations should be performed:

Frequency	Maintenance
Weekly (40 hours)	Clean the outer surface of the equipment. Use a liquid cleaner, following the instructions for the adhesive being used.
	Inspect all the electric, pneumatic and hydraulic connections. Replace or repair when necessary
	Bleed the drain valve.
6 Months (2000 hours)	Change the air regulator filter.
	Clean the tank filter.

Operation frequency depends on the type of adhesive used and the environmental conditions where the equipment is placed.

6.3. MAINTENANCE PROCESSES:

6.3.1. Cleaning the equipment



Vacuum the dust or glue remnants, or remove them with a soft cloth, especially from the manifold and bleed valves.

Clean the control panel periodically with a soft cloth. Do not use solvents, which could damage the control panel.

Use a soft cloth to remove dust and glue remnants from the cylinder, valve and exhaust mufflers.



If you use a cleaning agent, make sure that it is compatible with the adhesive being employed.

When in doubt, contact the adhesive manufacturer.

6.3.2. Bleeding the pressure regulator air filter:

Bleed the air-regulation unit by pushing the lower button on the filter.

Change the regulator filter as necessary, depending on the contaminants that accumulate in the pneumatic system.

6.3.3 Changing Adhesive



To replace one adhesive with another, empty the system (See 5.2 "Emptying the Tank").

Emptying the system is important when changing the adhesive. Not doing so may cause equipment damage.

CHAPTER 7

TROUBLESHOOTING THE EQUIPMENT



WARNING: The maintenance operations described in this chapter should be performed only by qualified personnel who understand the processes and are familiar with the safety measures involved.

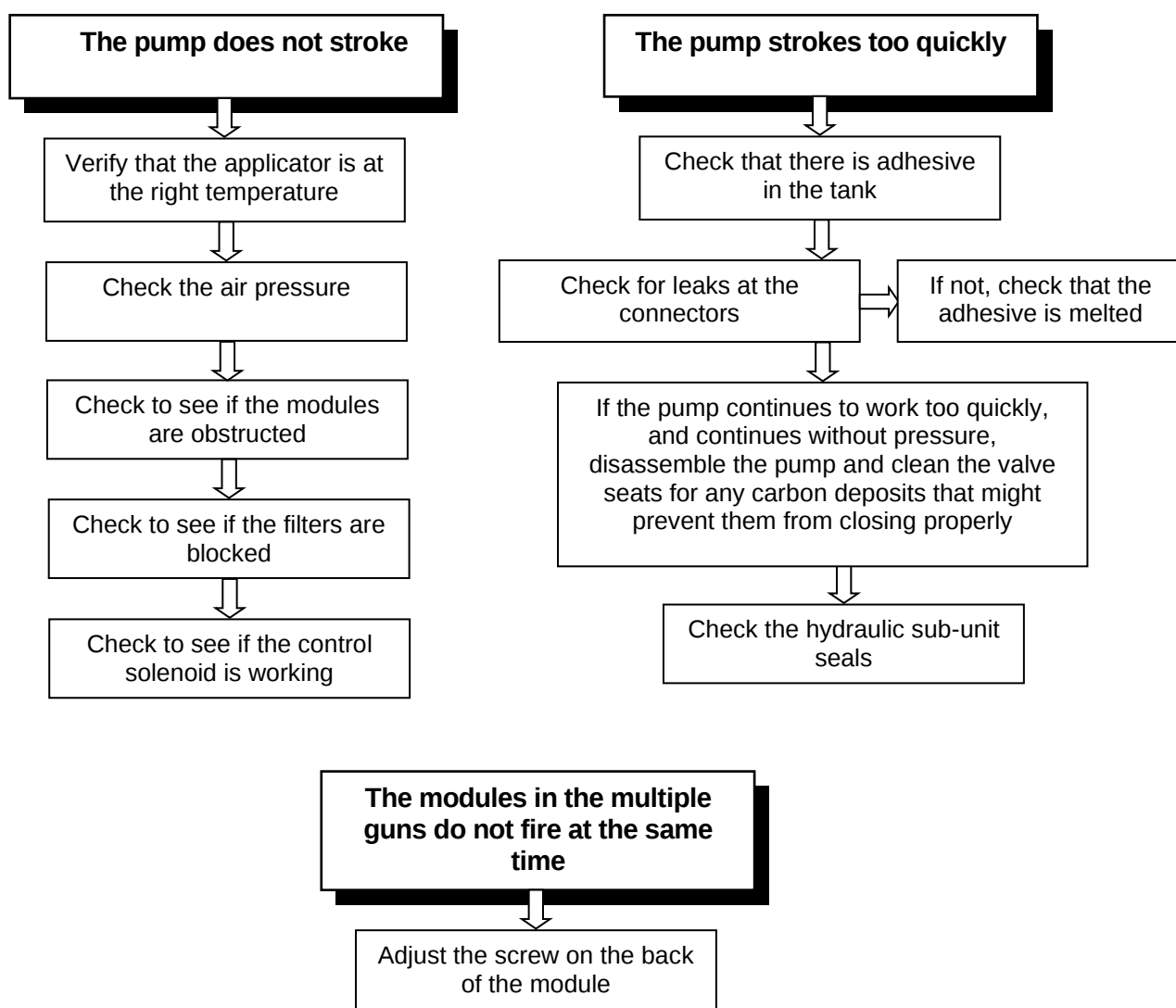
7.1. INTRODUCTION:

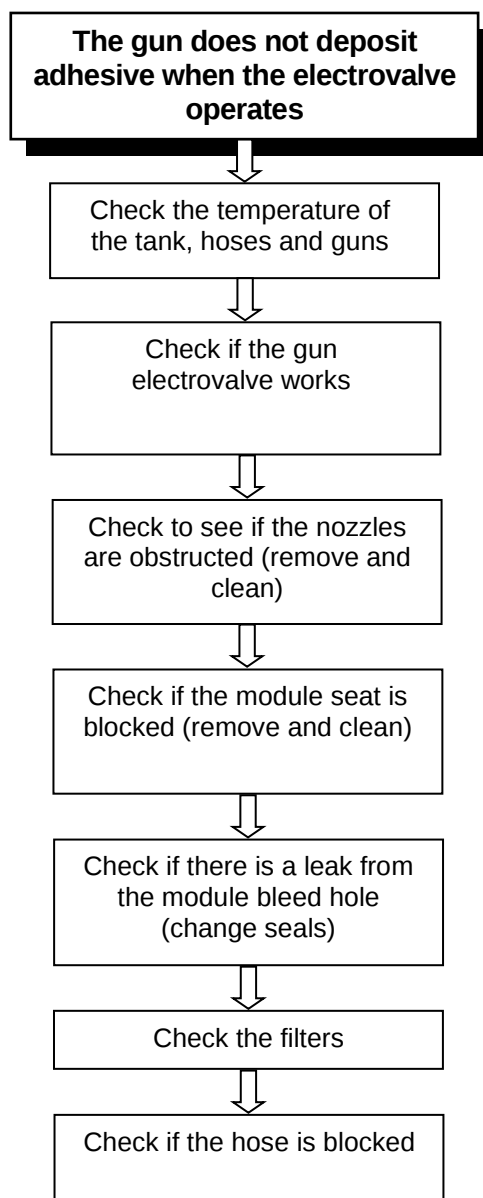
This chapter refers to the most common equipment faults.

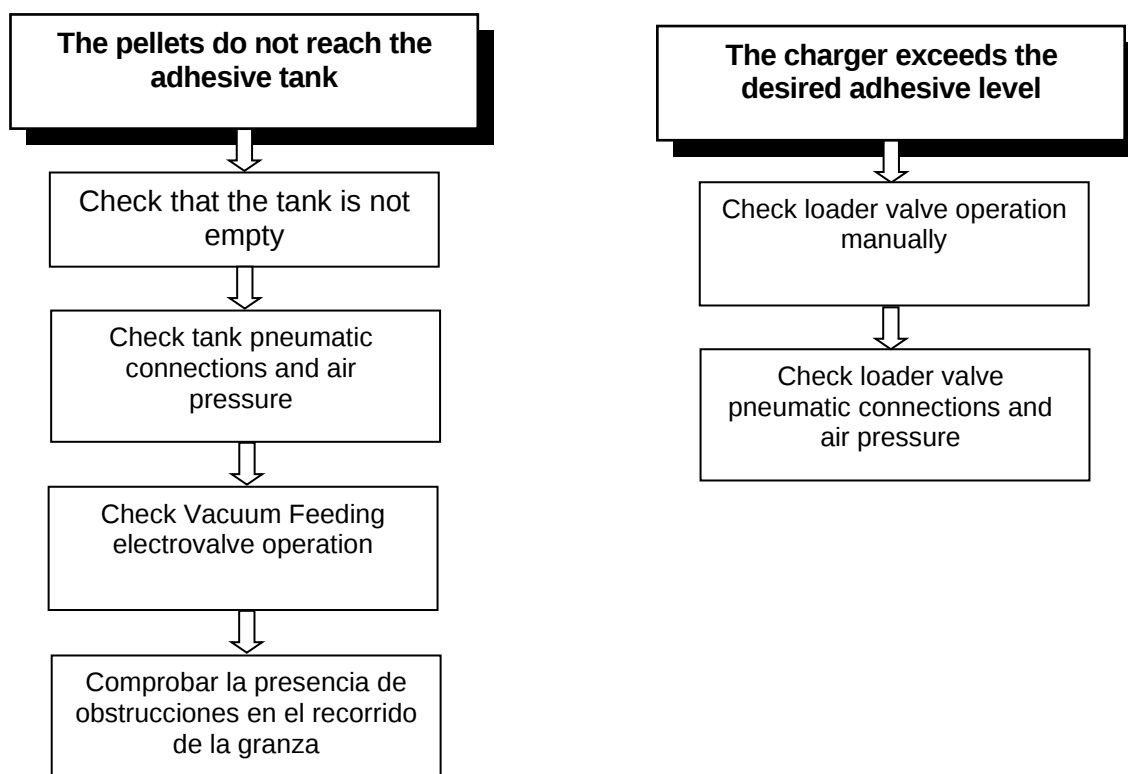
Problems may occur when glue flow is reduced or stopped, or when the alert system signals a fault. Many problems can be solved with the help of this manual.

If the problem cannot be solved with the information provided here, contact your Melton representative.

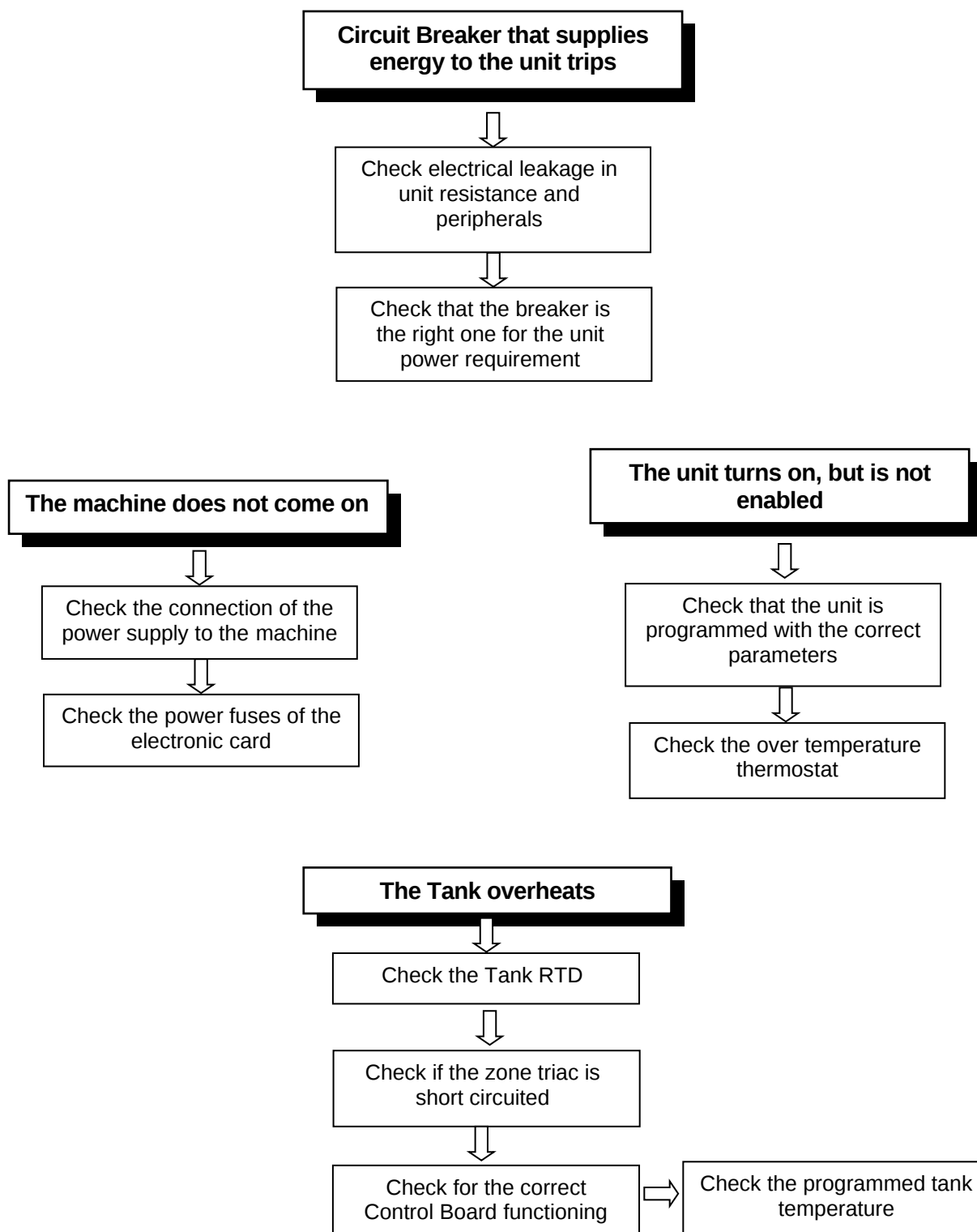
7.2. MECHANICAL FAULTS:

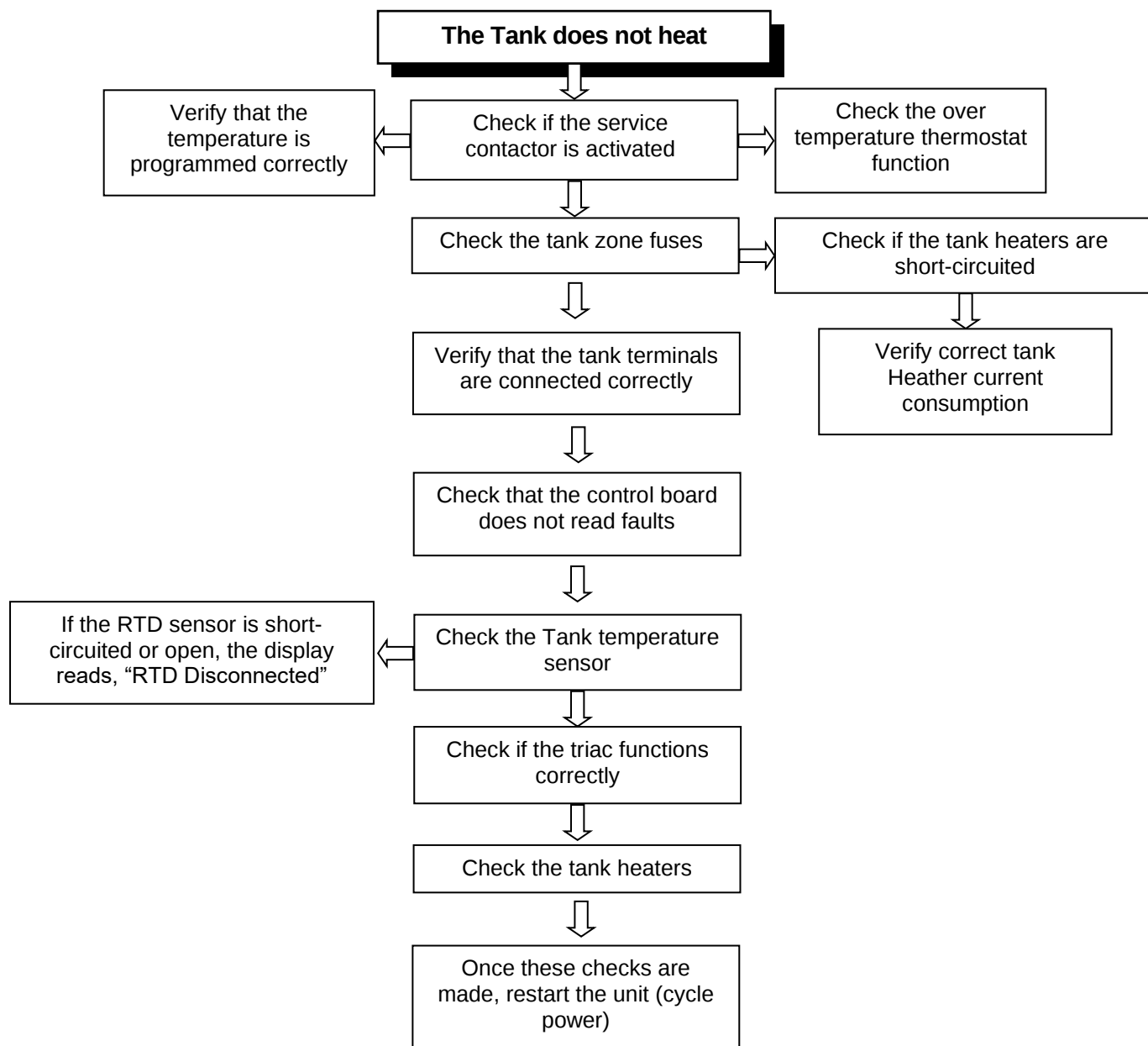


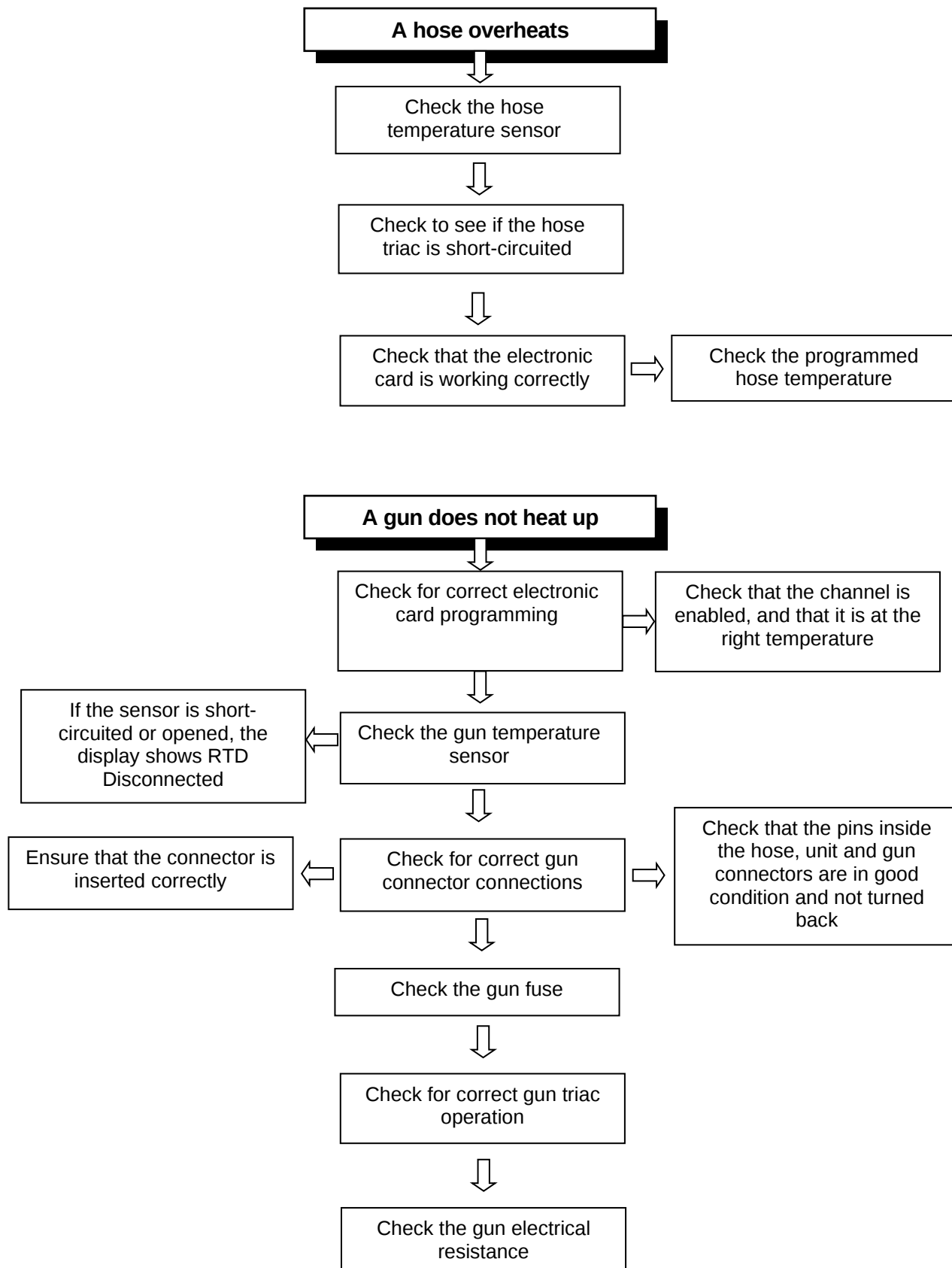


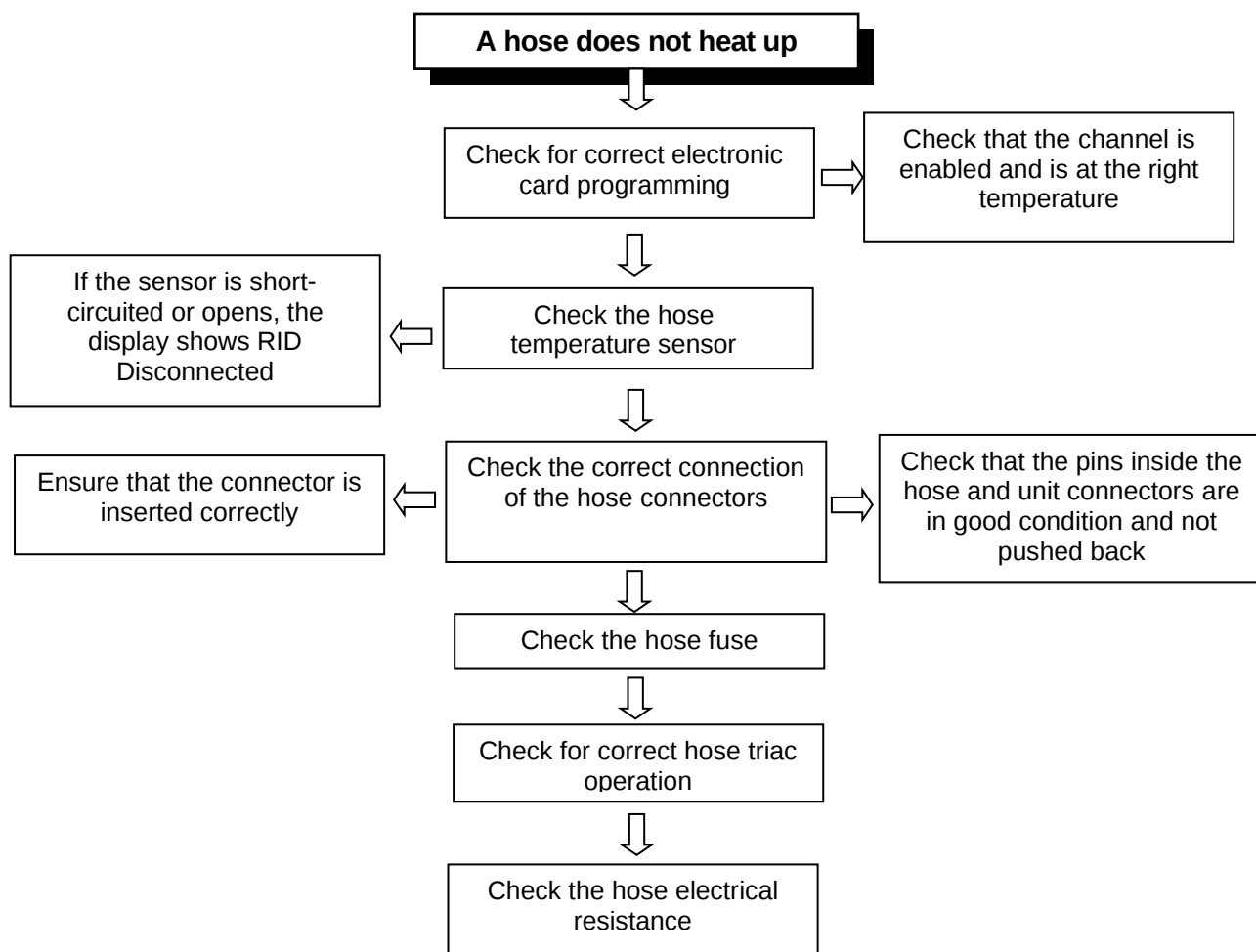


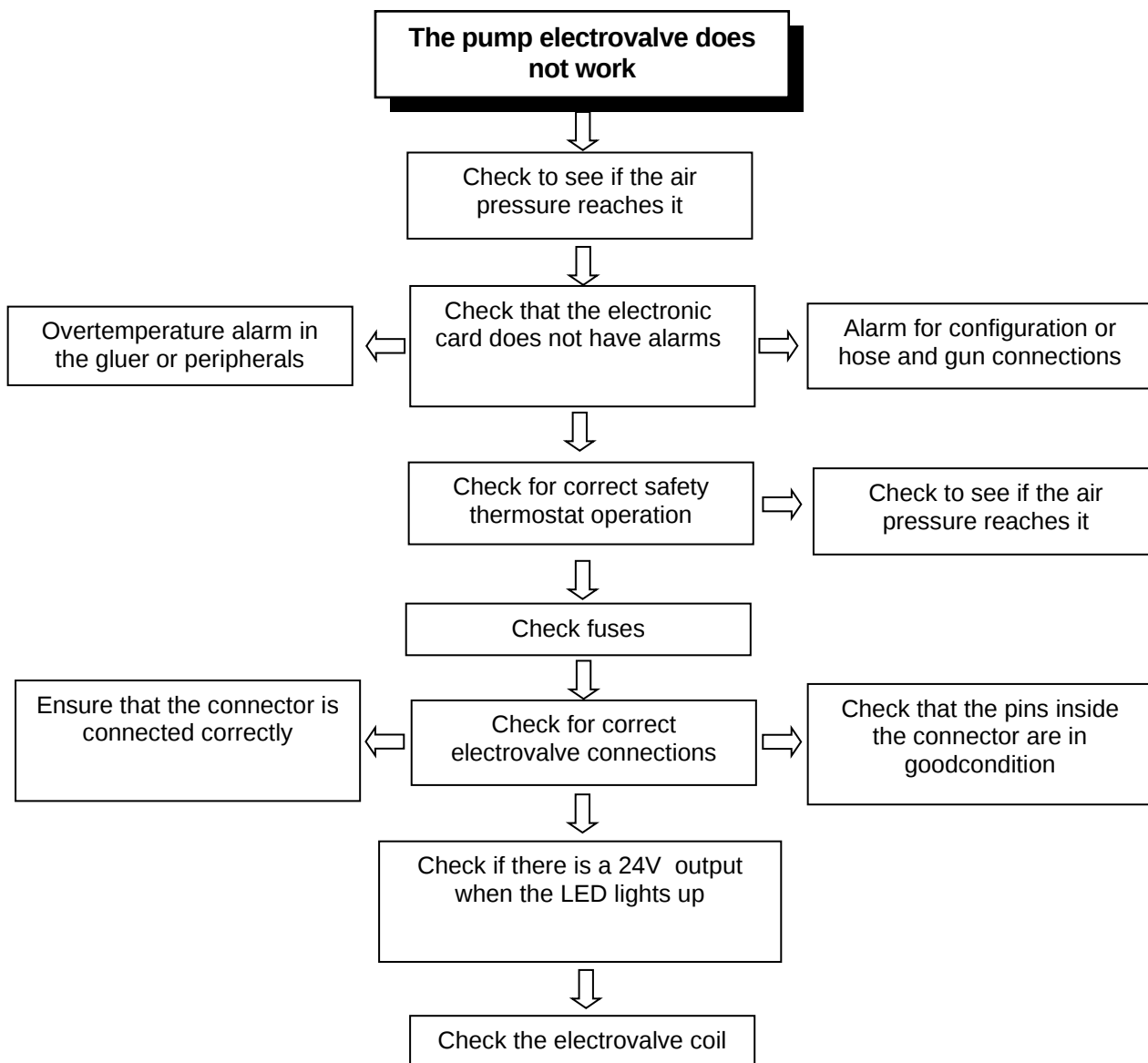
7.3. ELÉCTRICAL FAULTS:











The unit does not switch on

Check the equipment power connection

Check the fuse cabinet

The charger exceeds the desired adhesive level

Check that the probe ground wire is attached to the unit

Check that the charger timer settings are correct. Consult your ValcoMelton representative.

The charger does not fill the tank at the desired level

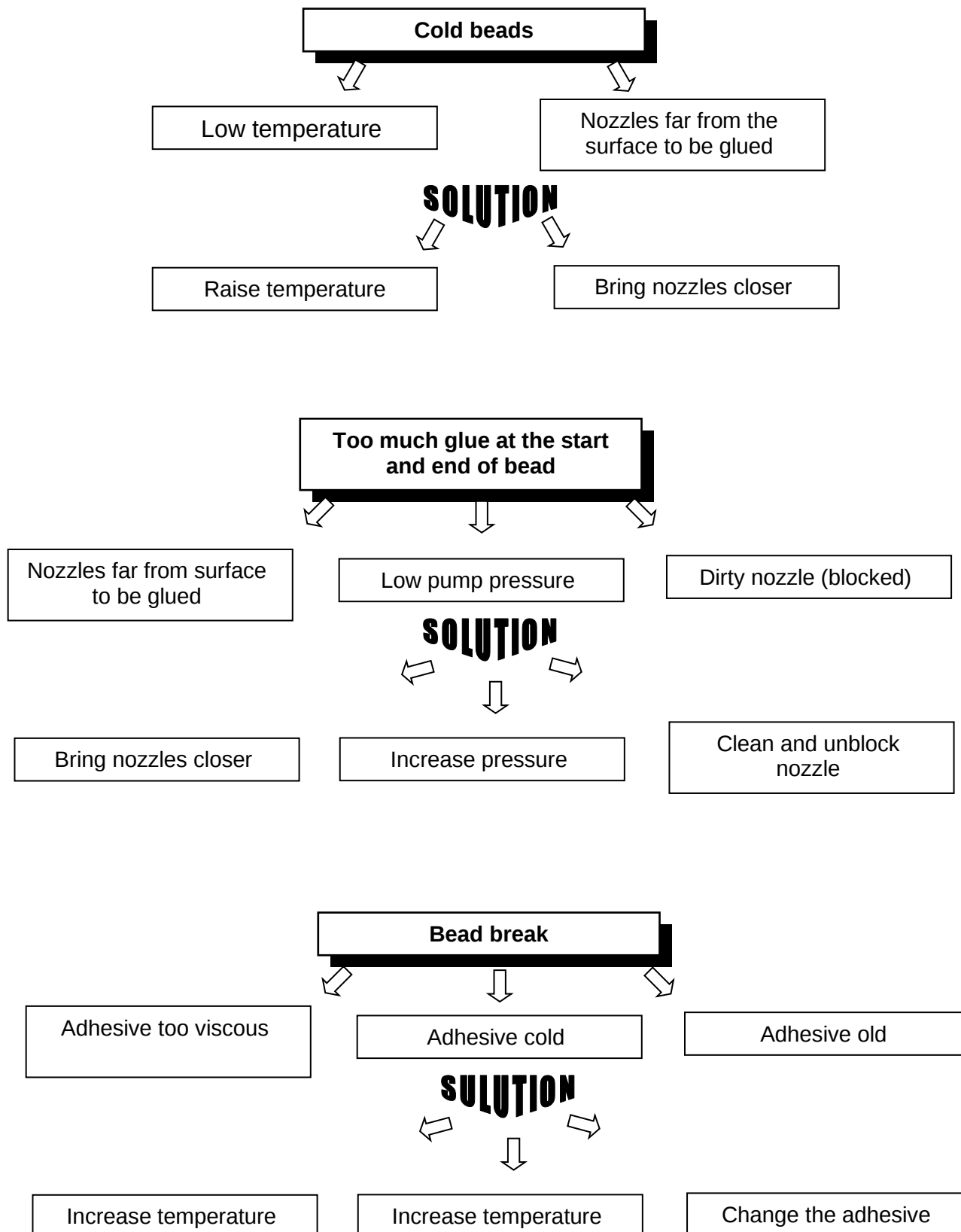
Check the air hoses and the correct pressure in the charger

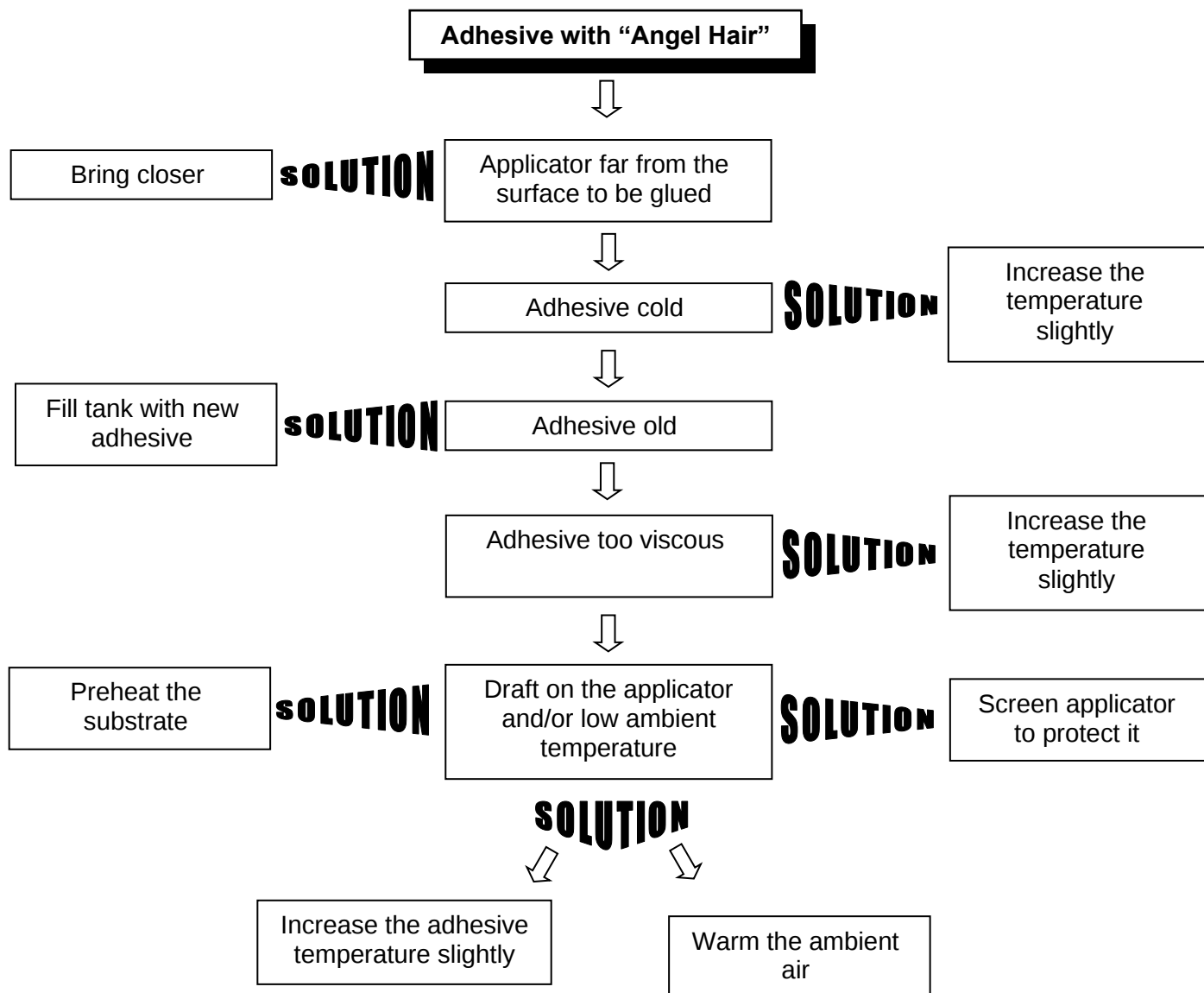
Check that the probe ground is linked to the unit

Check that the charger timer settings are correct. Consult your ValcoMelton representative.

Check that the alarm timer settings are correct. Consult your ValcoMelton representative.

7.4. ADHESIVE APPLICATION PROBLEMS:





Drops of adhesive forming on the applicator nozzle

Hole blocked and/or seat worn or dirty

Incorrect adjustment

Incorrect air pressure to shut-off valves

SOLUTION

Clean and/or replace dirty and/or worn parts

Adjust the stroke opening

Adjust air pressure

Frequent nozzle obstructions

Rinse the system

SOLUTION

Increase in solids

SOLUTION

Clean filters

SOLUTION

Change adhesive type

Reduce temperature

Too much adhesive flow

Excessive pump pressure

Valve stroke opening too large

Nozzle outlet too large

SOLUTIONS

Reduce pump pressure

Close by twisting several times

Change to a smaller nozzle

Splashes of adhesive from the substrate



Adhesive temperature too high

SOLUCIONES

Reduce the temperature



Reduce pump pressure

SOLUCIONES

Pump pressure too high



Reduce pump pressure

SOLUCIONES

Adhesive viscosity too low

SOLUCIONES

Use smaller nozzle

SOLUCIONES



Reduce temperature

Use higher-viscosity adhesive

Open the regulator

Adhesive is smoking



Applicator is too far from the substrate



Adhesive too hot

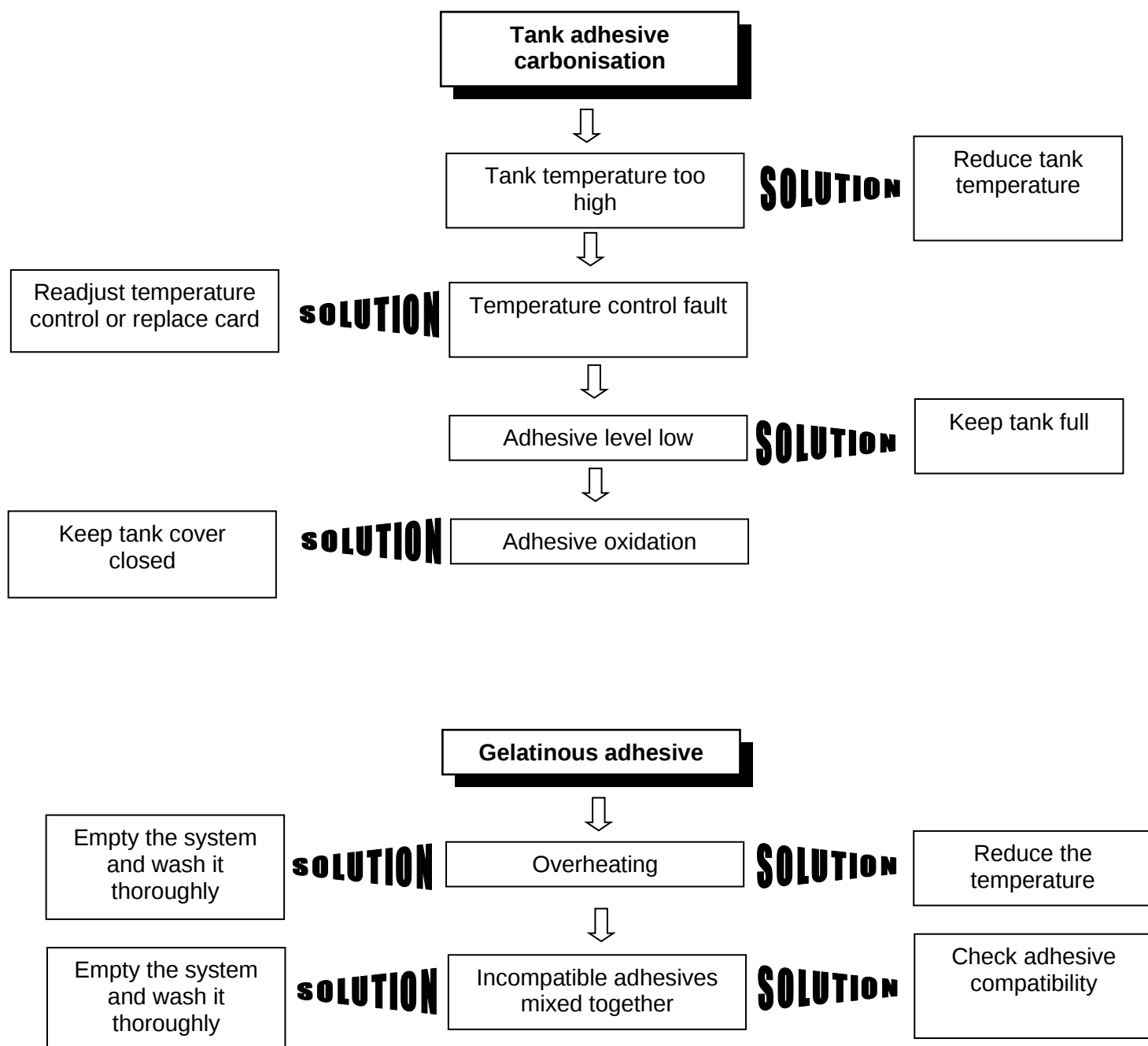
SOLUCIONES

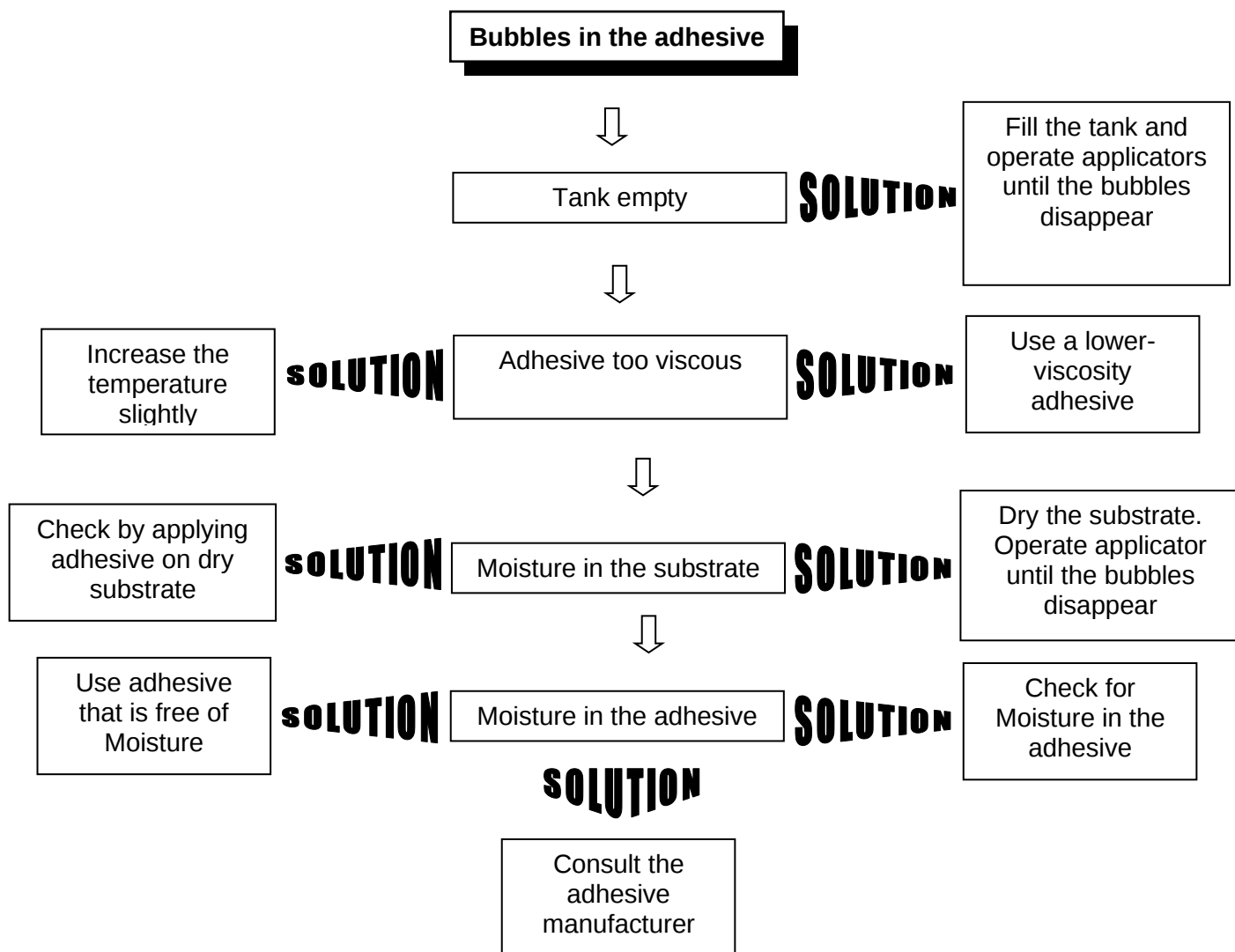
Reduce temperature

SOLUCIONES



Use more stable adhesive





CHAPTER 8

EQUIPMENT REPAIR GUIDE



WARNING: The maintenance operations described in this chapter should be performed only by qualified personnel who understand the processes and are familiar with the safety measures involved.

8.1. INTRODUCTION:



This chapter explains the procedures for dismantling and replacing some components. These procedures must be done during maintenance tasks, or when there is a failure.

Before beginning, make sure the operator is properly protected and all safety measures are being followed.

1. Switch off the air at the mains.
2. Switch off the main switch.
3. Lock and tag out the main switch.
4. Make sure the electricity is off.
5. Follow applicable safety and health standards.

Attached are the exploded views that illustrate the procedures.



8.2. CHANGING THE FILTER:

Before changing the filter, put on a face shield, gloves and a long-sleeve shirt to prevent possible burns caused by hot adhesive splashing.

Keeping a filter on hand, to replace when necessary, is recommended. This replacement is quick and improves equipment performance.



1. To change the filter, the applicator should be at working temperature.
2. Reduce the applicator air pressure to "0".
3. Place a receptacle below to collect the adhesive from the manifold.
4. Open the drain valve with a screwdriver to eliminate residual pressure.
5. Open the filter plug screw with a screwdriver, and take out the filter unit.
6. Place the filter into the manifold and screw it in with a screwdriver.
7. Close the drain valve with a screwdriver.
8. Set to the desired working pressure.

8.3. REPAIRING THE MANIFOLD:

The manifold is the element that distributes Hot-Melt, after it has been filtered, to the hoses and guns.

It is assembled at the bottom of the tank so that the tank heaters heat it indirectly.

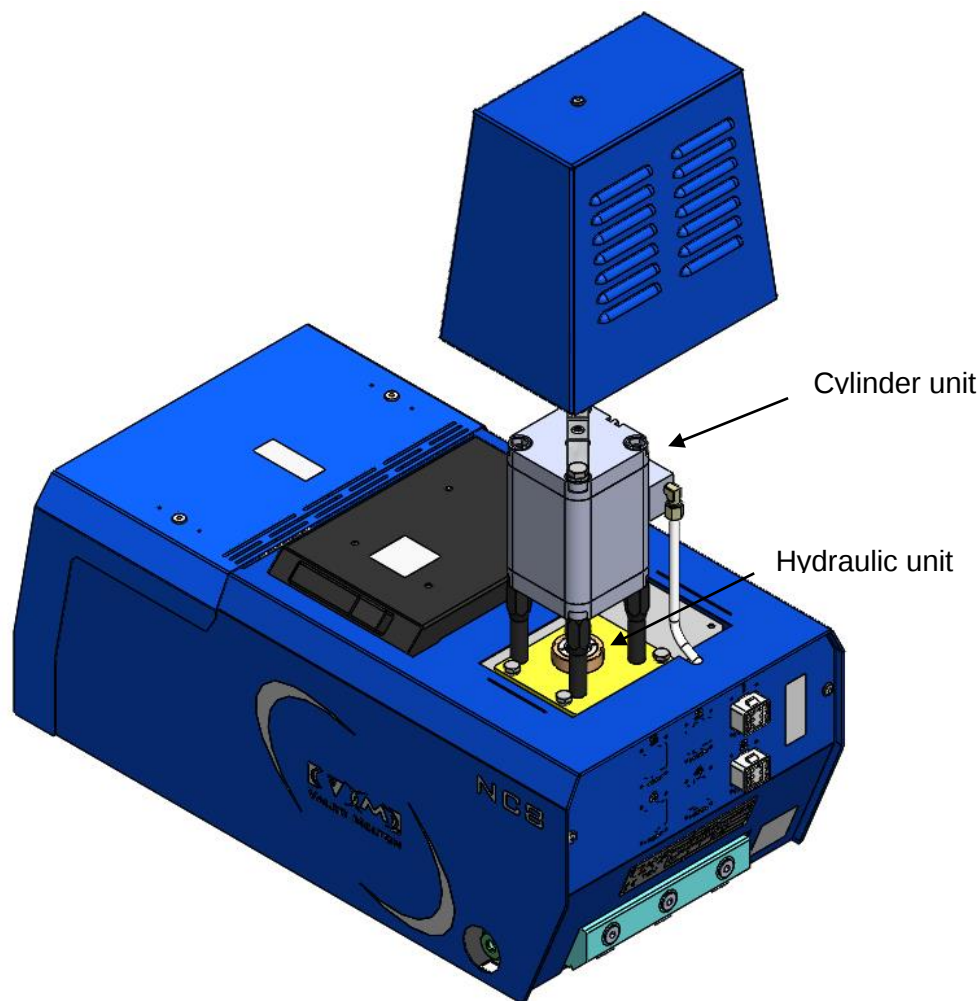
The manifold has six outlet ports to connect the Hot-Melt hoses; three at the bottom and another three at the front.



Do not disassemble the manifold. This operation should only be done if there is a Hot-Melt leak between the tank and the manifold.

8.4. REPAIRING THE PNEUMATIC PUMP UNIT:

The pump unit consists of a valve, a shifter valve, a pneumatic cylinder and a double-acting hydraulic pump, equipped with a pressure compensator to avoid a drop in flow rate that occurs when changing pump direction, and to enable maximum uniformity in Hot-Melt flow.



Before disassembling the hydraulic unit, put on goggles, gloves and long sleeves to avoid possible burns from splashes of hot adhesive.

1. Warm the tank until the adhesive is melted.
2. Reduce the air pressure to zero.
3. Eliminate system pressure by releasing the guns manually or by opening the bleed valve.
4. Disconnect the electricity.
5. Disconnect the regulator unit electrically and mechanically.

-
6. Loosen the two pump cover screws 1/4 turn and lift the pump casing.



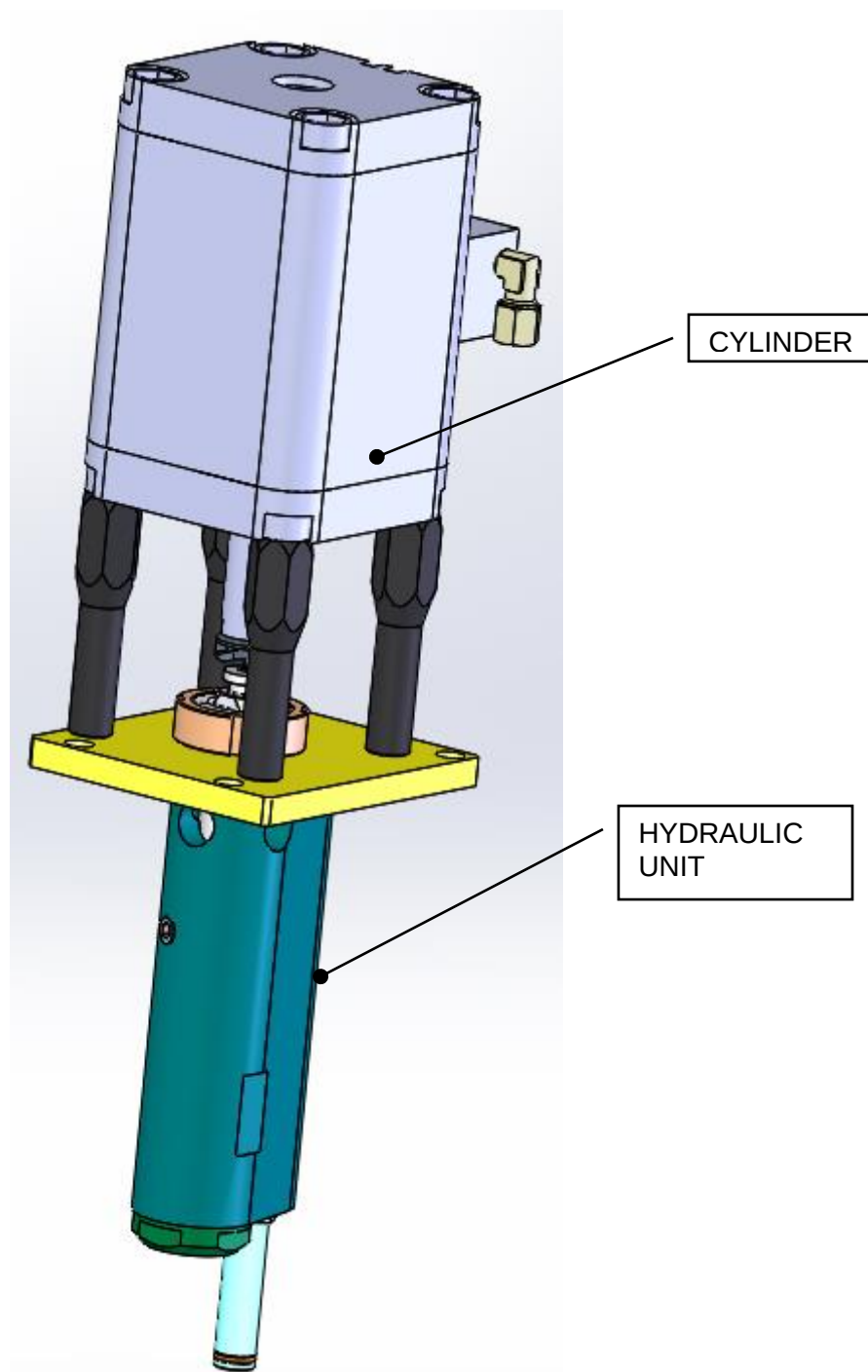
Follow the assembly procedure instructions carefully.

Positioning and alignment of some elements are critical to perfect pump operation.

In the event the pump not working correctly, carry out the following checks.

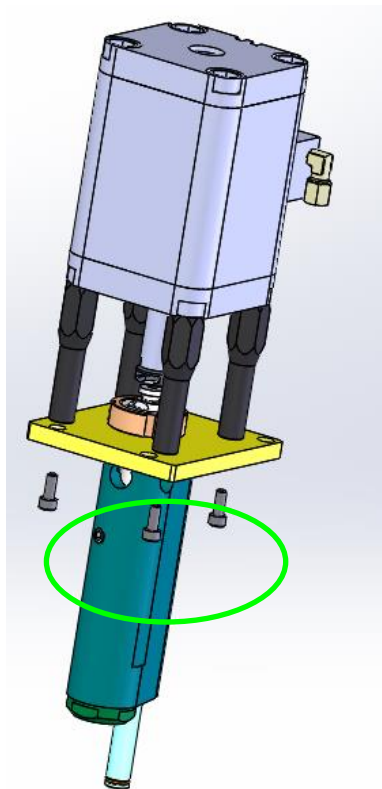
Is the air pipe connected? Does the electrovalve work? Is the equipment at the right temperature? Is the regulator working at the right pressure? Are the filters clean? Are the modules blocked? Is the shaft aligned correctly?
--

8.4.1 High Flow Pump:

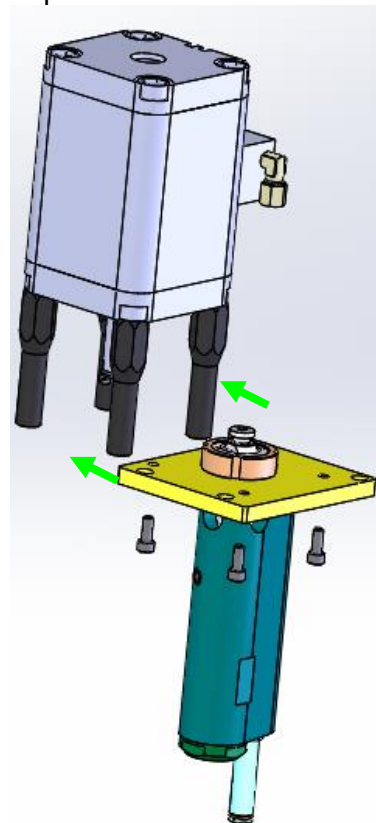


8.4.1.1 CYLINDER:

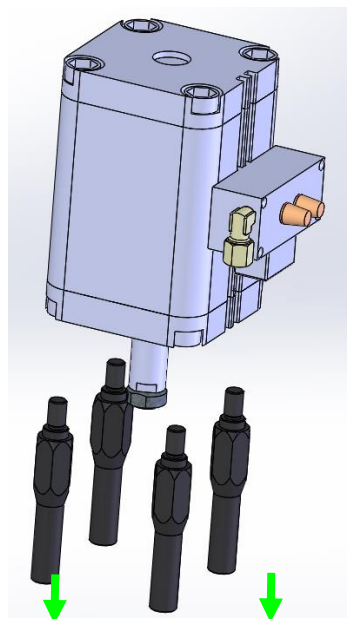
1. Loosen the screws.



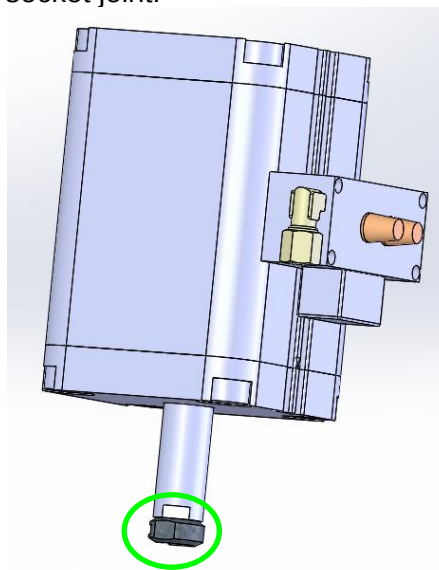
2. Separate the units.



3. Loosen the four standoffs.

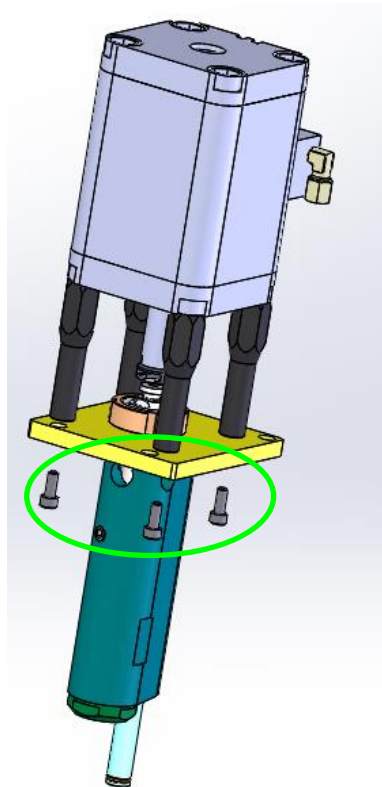


4. Loosen the shaft knob and socket joint.

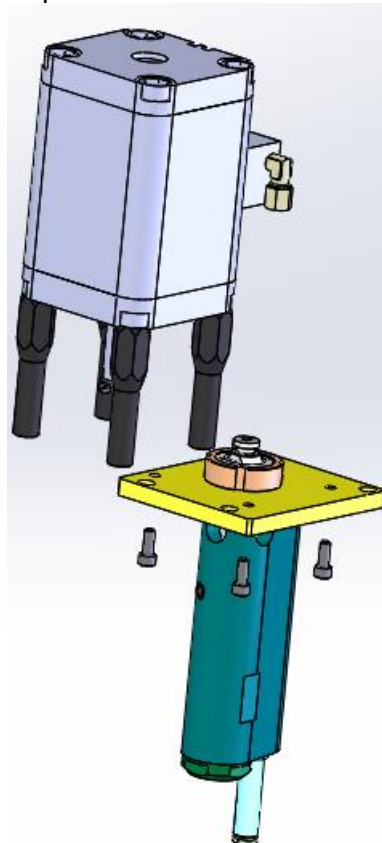


8.4.1.2 HYDRAULIC UNIT:

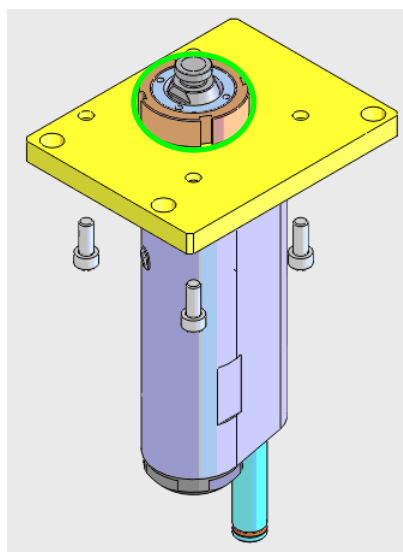
1. Loosen the screws.



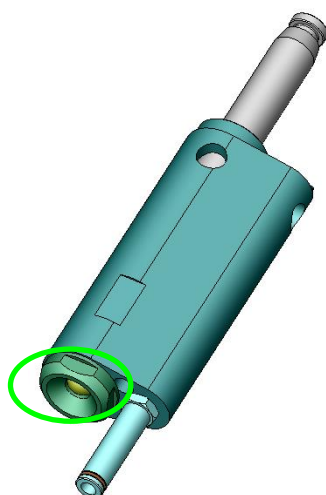
2. Separate the units.



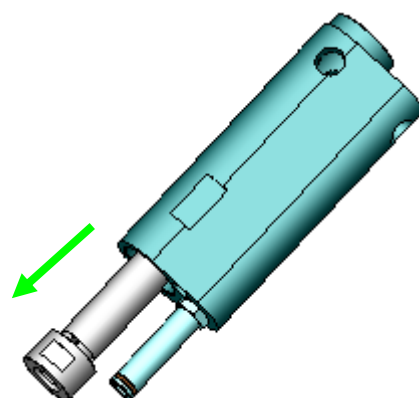
3. Turn and separate the nut.



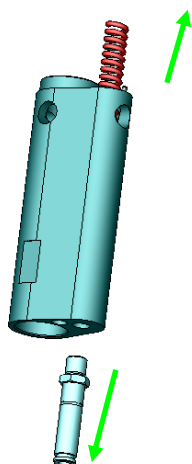
4. Loosen.



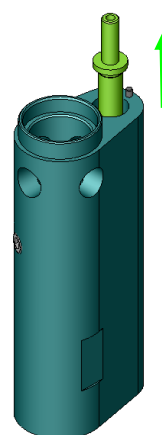
5. Remove the shaft.



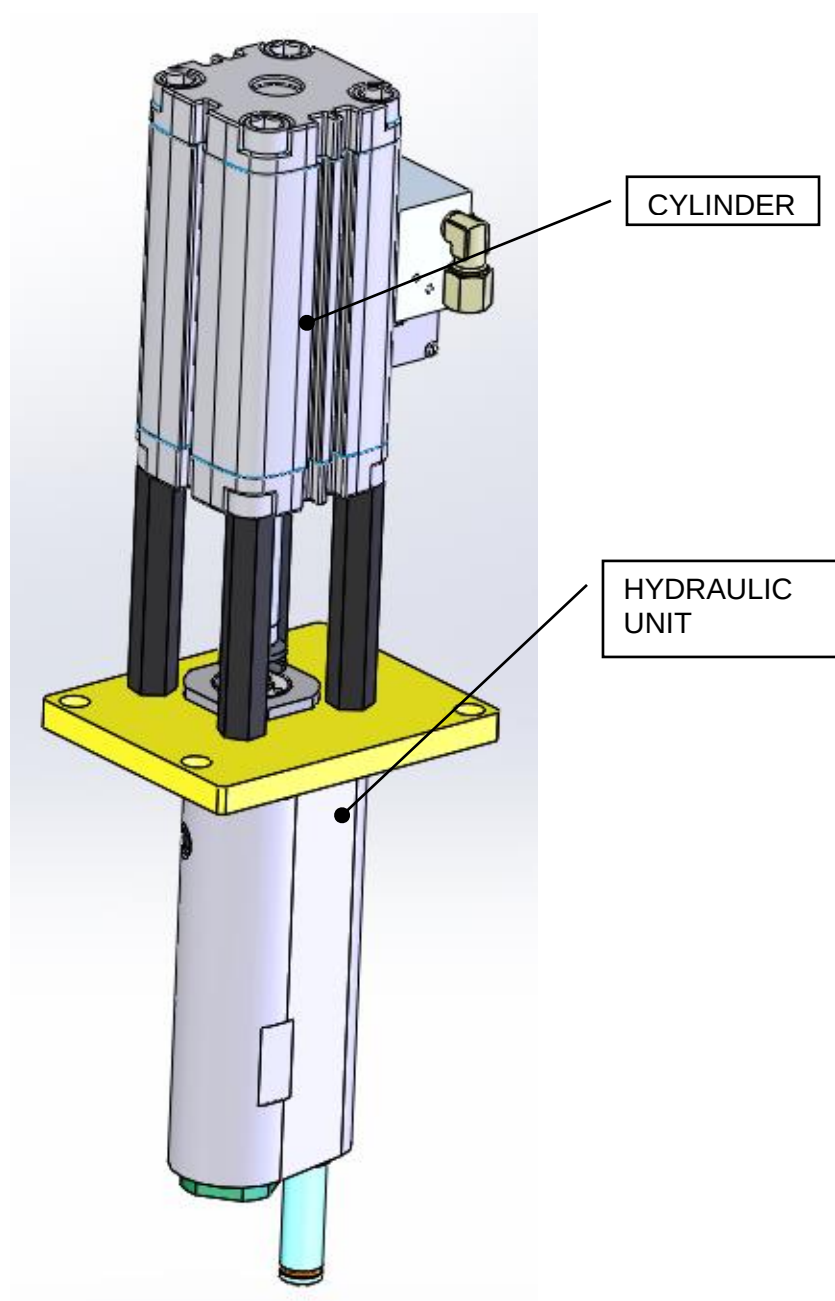
6. Remove the spring and inlet tube.



7. Remove the spring guide.

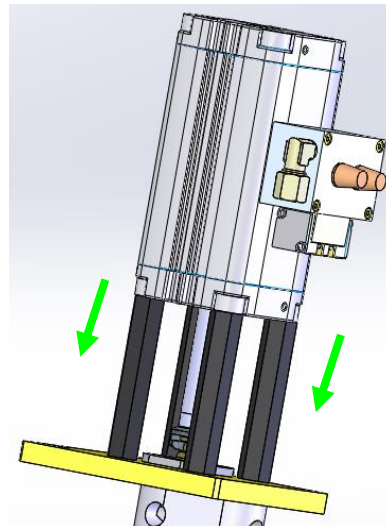
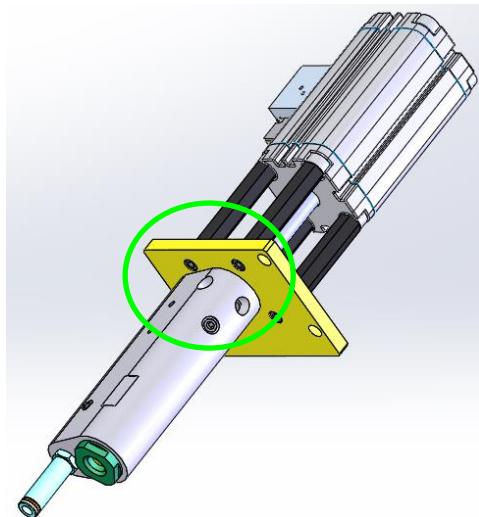


8.4.2 Low Flow Pump:

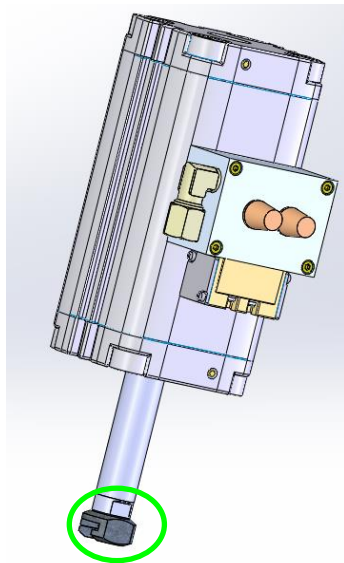


8.4.2.1 CYLINDER:

1. Loosen the four screws on the bottom.
2. Loosen the four standoffs.

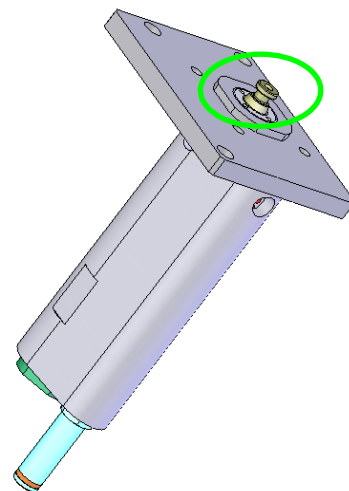
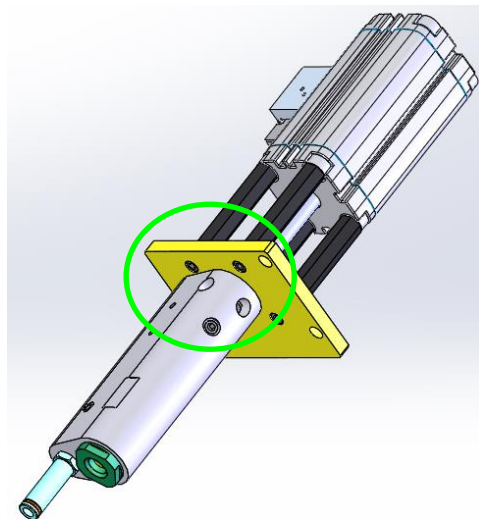


3. Loosen the shaft knob and socket joint.



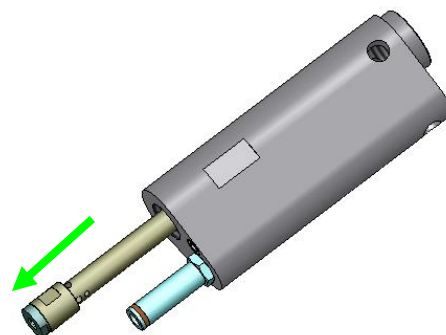
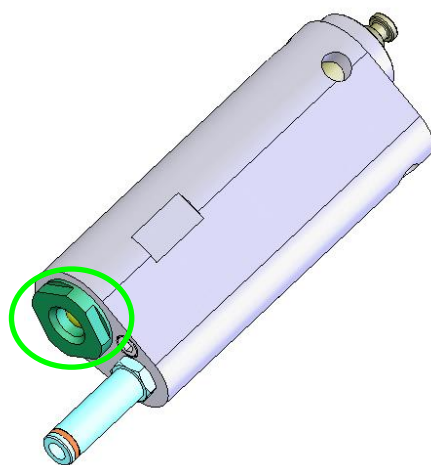
8.4.2.2 HYDRAULIC UNIT:

1. Loosen the four screws on the bottom.
2. Loosen.

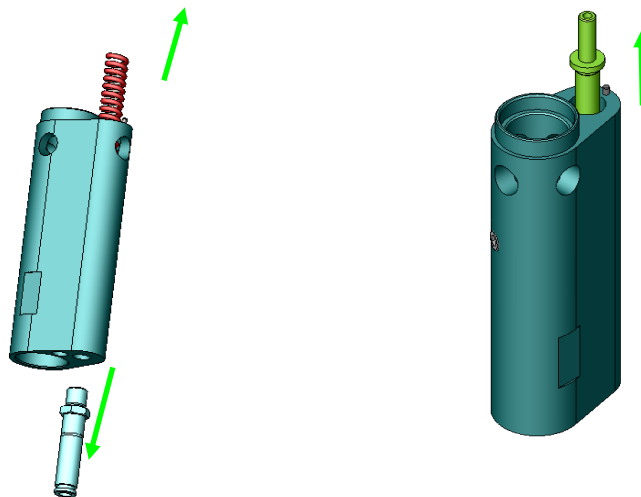


3. Loosen.

4. Remove the shaft.

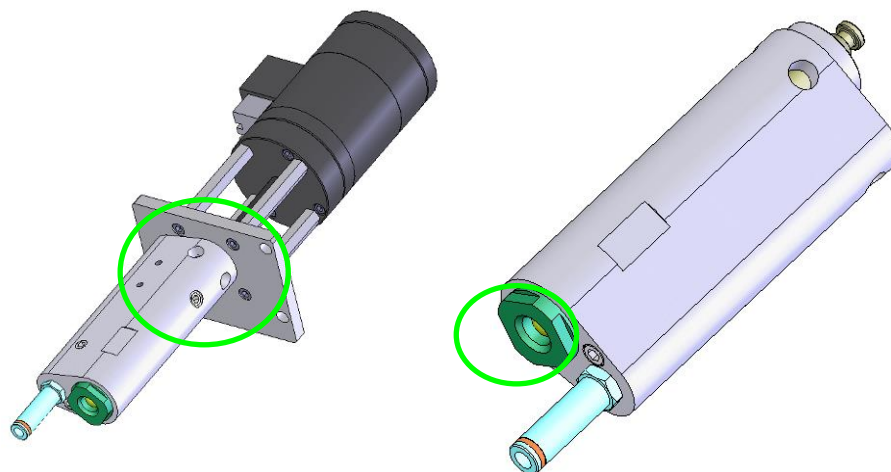


5. Remove the spring and inlet tube.
6. Remove the spring guide.

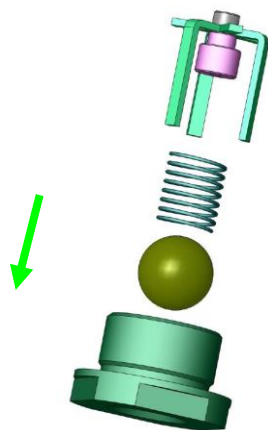


8.5. CLEANING VALVES:

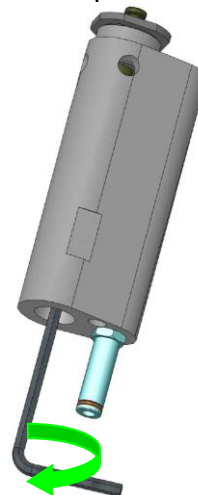
1. Loosen the four screws on the bottom.
2. Loosen.



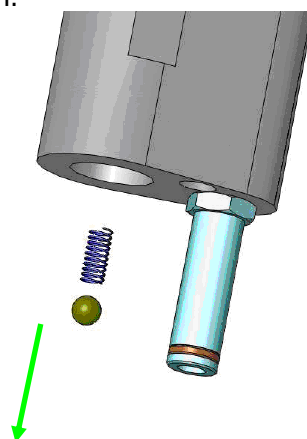
3. Clean the valve.



4. Use the M6 Allen wrench to remove the compression valve.



7. Remove the ball and spring and clean.



8.6. REPAIRING ELECTRIC COMPONENTS:



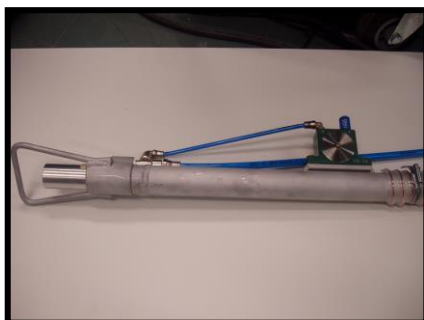
If one of the electric components needs to be repaired, proceed according to the part listings in Addendum A and the electric diagrams in Addendum B.

All these operations should be performed with the machine switched off at the mains and disconnected from the main air circuit, making

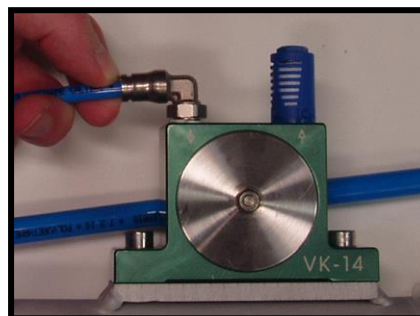
8.7. REPAIRING VACUUM FEEDER:

For any electrical part requiring replacement, contact your Melton dealer. For mechanical, stress the following:

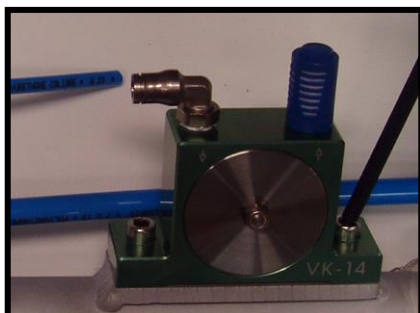
Changing the vibrator module



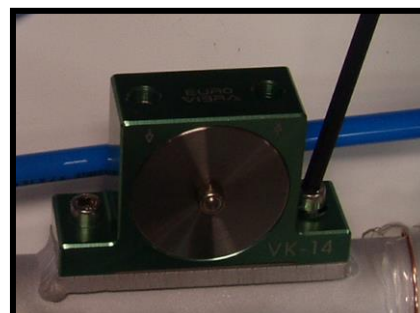
Locate the vibrator module,
mounted on the loader arm



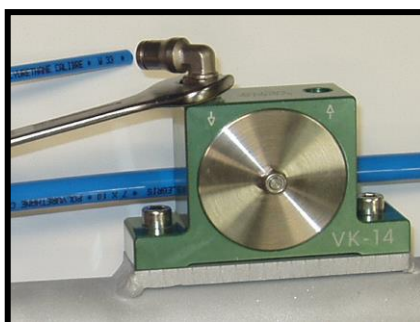
Remove the air hose fitting.
Press the plunger



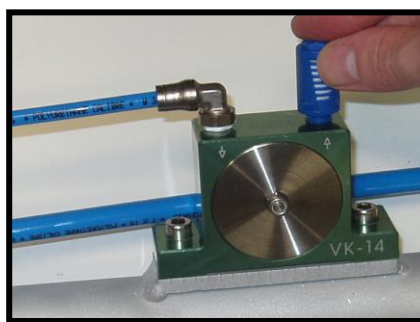
Remove the two screws and
remove the module



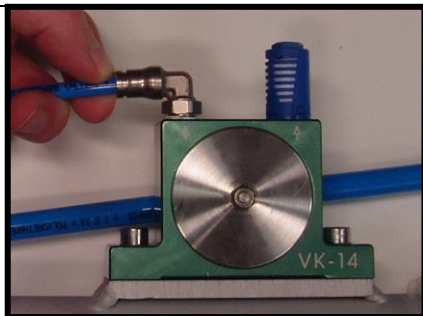
Install the new module with
the screws



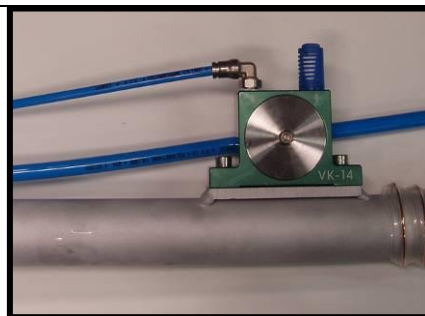
Attach the quick connect fitting
to the air inlet



Place the air filter onto the exhaust
module



Press the end of the cable and
insert the air hose



Vibrator module mounted

Open the main air inlet.
Turn on the equipment.

The equipment is ready again!

CHAPTER 9

SOFTWARE SPECIFICATIONS

9.1 I/O FUNCTIONS. I/O CARD PULSES:

I/O card diagram:

Besides supporting communications by RS-485 the I/O card is able to have a wired communication. This wiring system has four functions.

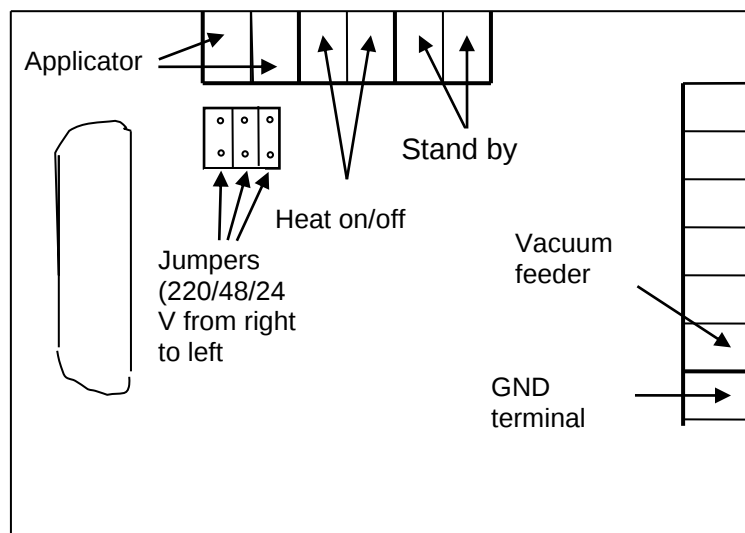
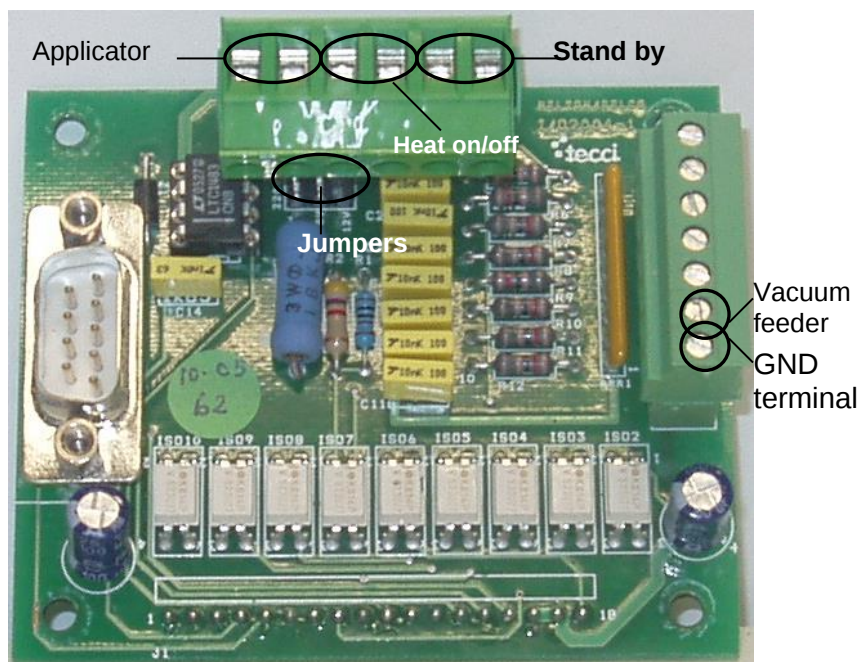


Photo
of the
I/O



Connector	Function
Applicator	Application function
Heat on/off	Heat on/off function
Stand by	Stand by function
Vacuum feeder	Level sensor input

Application function

This function operates as following:

When the pulse signal is no longer received for a time (minutes) exceeding the value set in P8 the unit goes to stand-by mode.

Once the unit is in stand-by mode there are two options for setting the unit in standard operation:

- a) Pressing the button situated in the panel
- b) Causing a signal at the stand by function input.

If a pulse is caused at the input before finishing the P8 time then the time resets and begins to count again.

Heat on/off function

The operating mode of the unit changes if there is a pulsed on/off signal.

Stand by function

The unit goes into stand-by mode if there is a pulsed on/off signal.

Feeder alarm function.

The unit is enabled to deal the feeder alarm by this input. This function will be always wired and working for the right working of the feeder system.



When we close the circuit between the GNR and the I/O card then it send a pulse. If the contact is close, it can't send signal to others contacs.

Con1 (1-2) Con X D – GND

Con2 (3-4)

Con3 (5-6)

It can't send more than one pulse.

9.2 MODBUS COMMUNICATIONS:

9.2.1 Communication structure:

COMMUNICATION MODES SELECTION: P27 PARAMETER.

This parameter is used to know if external communication are going to be used.

If P27= 0 it means that external communications by PROFIBUS or MODBUS protocols or by I/O States are not going to be used.

If P27= 1 then the MODBUS communications and the I/O States are activated.

In both cases, when it used 4 exits equipments in the position that it isn't used, because they are exclusive that 6 exits equipments, the system send a "0".

In both cases, when we use 4 exits equipments in the position that it isn't used, because they are exclusive of the 6 exits equipments, the system sends a "0".

MICRO-CONTROLLER FUNCTIONS:

The micro-controller (μ C) always communicates by Modbus functions.

The programming of the μ C only supports two functions:

(0x03): reading of stored register

(0x10): writing of multiple register

(0x03) : Reading of stored register:

This function realizes a continuous reading of register list. The function specifies first register address and then it reads as the number of values that the function shows.

Function characteristics:

Petition:

Function code:	1Byte	0x03.
Start address:	2 Bytes	0x0000 a 0xFFFF.
Register quantity:	2 Bytes	1 a 125 (0x7D).

Reply:

Function code:	1Byte	0x03.
Bytes quantity:	1 Bytes	2 x N* (Register quantify)
Register values:	N* x 2 Bytes.	

Error:

Error code:	1 Byte	0x83
Exception code:	1 Byte	01 ó 02 ó 03 ó 04

Example:

Petition			Reply		
Function	03		Function		03
Start address	Hi	00	Bytes quantity		06
Start address	Lo	6B	Register value	Hi	(108) 02
Nº register	Hi	00	Register value	Lo	(108) 2B
Nº register	Lo	03	Register value	Hi	(109) 00
			Register value	Lo	(109) 00
			Register value	Hi	(110) 00
			Register value	Lo	(110) 64

(0x10): Writing of multiple register:

This function realizes a continuous block writing of no more than 120 registers (in our case 32).

The sending writes in two bytes the values of one register. The answer sends function code, Start address and register quantity.

Function characteristics:

Sending:

Function code:	1Byte	0x10.
Start address:	2 Bytes	0x0000 a 0xFFFF.
Register quantity:	2 Bytes	0x0001 a 0x0078
Bytes quantity:	1 Bytes	2 x N* (Cantidad de Registros)
Register values:	N* x 2 Bytes.	

Reply:

Function code:	1Byte	0x10.
Start address:	2 Bytes	0x0000 a 0xFFFF.
Register quantity:	2 Bytes	1 a 123 (0x7B)

Error:

Error code:	1 Byte	0x90
Exception code:	1 Byte	01 ó 02 ó 03 ó 04

Example:

Sending				Reply			
Function			10	Function			10
Start address	Hi		00	Start address	Hi		00
Start address	Lo		01	Satart address	Lo		01
Register quantity	Hi		00	Register quantity	Hi		00
Register quantity	Lo		02	Register quantity	Lo		02
Bytes quantity			04				
Register value	Hi		00				
Register value	Lo		0A				
Register value	Hi		01				
Register value	Lo		02				

9.2.2 Communication modes: MODBUS (RS-485, 8n +1)

With this communication mode, the micro-controller is a slave, that is to say, it waits for PLC request about state of values that it wants.

Using previous functions, PLC starts communications, and it makes that micro-controller sends the state of values.

PLC reads continuously the equipment values to actualize them.

MODBUS PROTOCOL ADDRESSES:

MODBUS DATA AND ADDRESS		
NECESSARY DATA	MODBUS HEX ADDRESS	NOTES
Dep prog	0x0100	L/E
M1 prog	0x0101	L/E
P1 prog	0x0102	L/E
M2 prog	0x0103	L/E
P2 prog	0x0104	L/E
M3 prog	0x0105	L/E
P3 prog	0x0106	L/E
M4 prog	0x0107	L/E
P4 prog	0x0108	L/E
M5 prog	0x0109	L/E 6 exits
P5 prog	0x010A	L/E 6 exits

M6 prog	0x010B	L/E 6 exits
P6 prog	0x010C	L/E 6 exits
B1	0x010D	L/E
B2	0x010E	L/E
B3	0x010F	L/E
P1	0x0110	L/E
P2	0x0111	L/E
P3	0x0112	L/E
P4	0x0113	L/E
P5	0x0114	L/E
P6	0x0115	L/E
P7	0x0116	L/E
P8	0x0117	L/E
P11	0x0118	L/E
P12	0x0119	L/E
P13	0x011A	L/E
P14	0x011B	L/E
P15	0x011C	L/E Channel 5 in 6 exits in 4 exits – it sends “0”
P16	0x011D	L/E Channel 6 in 6 exits in 4 exits – it sends “0”
P17	0x011E	L/E N° Terminal. 4 and 6 exits
P18	0x011F	L/E 4 and 6 exits
P19	0x0120	L/E 4 and 6 exits
P20	0x0121	L/E 4 and 6 exits
P21	0x0122	L/E 4 and 6 exits
P22	0x0123	L/E 4 and 6 exits
P23	0x0124	L/E 4 and 6 exits
P24	0x0125	L/E 4 and 6 exits
P25	0x0126	L/E 4 and 6 exits in 4exits – it sends “0”
P26	0x0127	L/E 4 and 6 exits in 4exits – it sends “0”
HC1	0x0128	L/E MONDAY
MC1	0x0129	L/E MONDAY

TC1	0x012A	L/E MONDAY
HD1	0x012B	L/E MONDAY
MD1	0x012C	L/E MONDAY
TD1	0x012D	L/E MONDAY
HC2	0x012E	L/E MONDAY
MC2	0x012F	L/E MONDAY
TC2	0x0130	L/E MONDAY
HD2	0x0131	L/E MONDAY
MD2	0x0132	L/E MONDAY
TD2	0x0133	L/E MONDAY
HC1	0x0134	L/E TUESDAY
MC1	0x0135	L/E TUESDAY
TC1	0x0136	L/E TUESDAY
HD1	0x0137	L/E TUESDAY
MD1	0x0138	L/E TUESDAY
TD1	0x0139	L/E TUESDAY
HC2	0x013A	L/E TUESDAY
MC2	0x013B	L/E TUESDAY
TC2	0x013C	L/E TUESDAY
HD2	0x013D	L/E TUESDAY
MD2	0x013E	L/E TUESDAY
TD2	0x013F	L/E TUESDAY
HC1	0x0140	L/E WEDNESDAY
MC1	0x0141	L/E WEDNESDAY
TC1	0x0142	L/E WEDNESDAY
HD1	0x0143	L/E WEDNESDAY
MD1	0x0144	L/E WEDNESDAY
TD1	0x0145	L/E WEDNESDAY
HC2	0x0146	L/E WEDNESDAY
MC2	0x0147	L/E WEDNESDAY
TC2	0x0148	L/E WEDNESDAY
HD2	0x0149	L/E WEDNESDAY
MD2	0x014A	L/E WEDNESDAY
TD2	0x014B	L/E WEDNESDAY
HC1	0x014C	L/E THURSDAY

MC1	0x014D	L/E THURSDAY
TC1	0x014E	L/E THURSDAY
HD1	0x014F	L/E THURSDAY
MD1	0x0150	L/E THURSDAY
TD1	0x0151	L/E THURSDAY
HC2	0x0152	L/E THURSDAY
MC2	0x0153	L/E THURSDAY
TC2	0x0154	L/E THURSDAY
HD2	0x0155	L/E THURSDAY
MD2	0x0156	L/E THURSDAY
TD2	0x0157	L/E THURSDAY
HC1	0x0158	L/E FRIDAY
MC1	0x0159	L/E FRIDAY
TC1	0x015A	L/E FRIDAY
HD1	0x015B	L/E FRIDAY
MD1	0x015C	L/E FRIDAY
TD1	0x015D	L/E FRIDAY
HC2	0x015E	L/E FRIDAY
MC2	0x015F	L/E FRIDAY
TC2	0x0160	L/E FRIDAY
HD2	0x0161	L/E FRIDAY
MD2	0x0162	L/E FRIDAY
TD2	0x0163	L/E FRIDAY
HC1	0x0164	L/E SATURDAY
MC1	0x0165	L/E SATURDAY
TC1	0x0166	L/E SATURDAY
HD1	0x0167	L/E SATURDAY
MD1	0x0168	L/E SATURDAY
TD1	0x0169	L/E SATURDAY
HC2	0x016A	L/E SATURDAY
MC2	0x016B	L/E SATURDAY
TC2	0x016C	L/E SATURDAY
HD2	0x016D	L/E SATURDAY
MD2	0x016E	L/E SATURDAY
TD2	0x016F	L/E SATURDAY

HC1	0x0170	L/E SUNDAY
MC1	0x0171	L/E SUNDAY
TC1	0x0172	L/E SUNDAY
HD1	0x0173	L/E SUNDAY
MD1	0x0174	L/E SUNDAY
TD1	0x0175	L/E SUNDAY
HC2	0x0176	L/E SUNDAY
MC2	0x0177	L/E SUNDAY
TC2	0x0178	L/E SUNDAY
HD2	0x0179	L/E SUNDAY
MD2	0x017A	L/E SUNDAY
TD2	0x017B	L/E SUNDAY
DIA	0x017C	L/E
HOUR	0x017D	L/E
MINUTES	0x017E	L/E
HEAT ON/OFF	0x017F	L/E
TIMER	0x0180	L/E
ENERGY SAVING	0x0181	L/E
P10	0x0182	L/E= HOURS TO FILTER CHANGE
P9	0x0183	L
Tank present	0x0184	L
Hose 1 present	0x0185	L
Gun 1 present	0x0186	L
Hose 2 present	0x0187	L
Gun 2 present	0x0188	L
Hose 3 present	0x0189	L
Gun 3 present	0x018A	L
Hose 4 present	0x018B	L
Gun 4 present	0x018C	L
Hose 5 present	0x018E	L 6 EXITS
Gun 5 present	0x018F	L 6 EXITS
Hose 6 present	0x0190	L 6 EXITS
Gun 6 present	0x0191	L 6 EXITS

Note 1: L = reading y E= writing

Note 2: where only appear 6 exits are data that 6 exits card utilizes. In 4 exits cards sends value "0".

Note 3: Positions where appear C series, means that N series has not this data so N series sends value "0"

Note 4: P10 changes of direction from 0x0119 to 0x0182 because in a 4 outputs series it is only a reading data.(C6 L/E in that way it becomes compatible)

Note 5: P9 changes from 0x0118 to 0x183 because it is only a L data.

Note 4 and 5: Changes are done to have all the L/E data together and all the L data together to permit in that way ask all data at once.



Important:: When the current temperature is readed, 25 (Centigrade scale) must be subtracted to the sent answer. In that way measuring negatives values of temperature is avoided, which can't be sent. For example:

If the answer is 1 the PLC must subtract 25, getting in that way the real value of the measured temperature, -24° C. real temperature.

When Fahrenheit scale is used, you have to subtract 13 to have the value of the real temperature.

Summing up, the following operations must be applied depending on the used scale.

CENTIGRADE SCALE: Current real T^a(°C)=Current measured T^a-25

FARENHEIT SCALE: Current real T^a (F)= Current measured T^a-13

It happens in directions from 0x0184 to 0x0191.(Current temperature)

Status Word: 0,0,0,0,0,0,0,0,0,0, Pump permissive, Fault, Warning, OK



I/O contacts in 4 exits equipment will be configurable too like 6 exits equipment



Node number will be in the same parameter 4 as well as 6 outputs.P17

CHAPTER 10 LOG SHEETS

DATE	INCIDENCE