

USE AND MAINTENANCE MANUAL

ELECTRIC PRESSURE PLATE PUMP



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TRANSLATED FROM ORIGINAL
Read carefully before use!

EN




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1 GENERAL INFORMATION

This manual contains information regarding the installation, use, maintenance and end of life of the component and provides indications for the most suitable behavior for correct operation. This manual has been designed to be simple and as straightforward as possible, with a subdivision into chapters and sub-chapters that allows you to find any information you need quickly. In addition, the manual begins by giving a general description of the contents, then an overview of the component, to arrive at aspects of safety, transport, installation and use and finally to the end of life. If you have any doubts about the interpretation or reading of this document, please contact the manufacturer.

-  DAV Tech declines any responsibility relating to improper use of the component. Observe the specifications in this manual.
-  Read this manual before handling the component or performing any action on it.
-  The manual is an essential safety requirement and must accompany the component throughout its life cycle.

It is the task of the end user to optimize the functionality of the component, always considering the purpose for which it was built.

-  You are asked to keep this manual, together with the attached documentation, in good condition, legible and complete. In addition, it must be stored in the vicinity of the component or, in any case, in a place accessible and known to all personnel who use the component itself or who must perform maintenance or inspection interventions. If the manual deteriorates or is no longer complete, a copy must be requested from the manufacturer, indicating the code of the manual and the revision.
-  The manual is intended for personnel who use the component (operators), who perform maintenance on it (maintenance technicians), and for personnel who must perform checks or inspections. The manufacturer is not liable for damage to the component caused by personnel who have not followed the instructions in the manual.

If you have any doubts about the correct interpretation of the information contained in this manual, please contact the manufacturer.

GUARANTEE

During the design phase, a careful choice of materials and components to be used in the project was made and they were subjected to regular testing before delivery. All elements have been designed and manufactured with an adequate degree of safety, such as to be able to withstand stresses greater than those of normal use.

The warranty is valid for a period of 12 months from the date of commissioning and in any case no longer than 15 months from the date of delivery. Work carried out during the warranty period does not extend the warranty period in any way.

The manufacturer is not liable for defects due to normal wear and tear of parts which, by their nature, decay.

1.1 Symbology

Below are the symbols that are used to give a greater impact to the importance of the concept you want to give.



ATTENTION!

Refers to a warning that could lead to minor damage (minor injuries, damage to the component requiring maintenance work).



DANGER!

It refers to a major event that could cause major damage (death, permanent injury, irreversible breakage of the component).



NOTE. Indicate relevant information or insight.



OBLIGATION. It indicates a task that must be performed, related to both the component and the manual.



REFERENCE. Links to an external document that is important to view

In addition, the list of symbols is integrated with that of the personnel responsible for using the component and its function, together with other symbols used within the manual.



Operator

A (qualified) person capable of operating the component, adjusting, cleaning, starting or resetting the component. The operator is not authorized to perform maintenance.



Mechanical maintenance technician

Qualified technician able to carry out mechanical, adjustment, maintenance and routine repair work described in this manual. He is not authorized to carry out interventions on electrical systems in the presence of voltage.



Electrical maintenance technician

Qualified technician able to carry out electrical, adjustment, maintenance and routine repair work described in this manual. It can work in the presence of voltage on electrical cabinets and junction boxes. He is not authorized to carry out interventions on the mechanical side.



Manufacturer's technician

Qualified technician made available by the manufacturer to carry out operations of a complex nature in particular situations, or in any case as agreed with the customer.

1.2 Reference standards

The reference standards and directives of this manual are the following:

Directives

- 2006/42/EC – Machinery Directive;

1.3 Declaration of incorporation (Annex II B DIR. 2006/42/EC)

Manufacturer's name: DAV Tech Srl
Address: Via G. Ravizza, 30, .36075, Montecchio Maggiore (VI)

DECLARES THAT THE ALMOST MACHINE

Component: PPE
Model: Electronic Pressure Plate Pump
Year: 2024
Intended use: Fluid supply to the dosing station

COMPLIES WITH THE INCORPORATION PROVISIONS OF DIRECTIVE 2006/42/EC

The technical documentation has been drawn up in accordance with Annex VII B, as required by the following:

- Machinery Directive 2006/42/EC of the European Parliament and Council of 17 May 2006

IT ALSO DECLARES THAT:

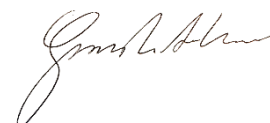
- Undertakings are undertaken to provide, in response to a properly substantiated request from the national authorities, relevant information on this partly completed machine;
- The technical file was prepared by Andrea Grazioli, via Ravizza, 30, Montecchio Maggiore (VI), IT.

This quasi-machine cannot be used until the machinery on which it will be used is declared compliant with regulation 2006/42/EC.

Montecchio Maggiore, 12 September 2024

The legal representative

Andrea Grazioli



1.4 Glossary

The following are the most used terms within this manual with their meanings.

TERM	DEFINITION
Enable	Term that defines the act of preparing (enabling) an action. The action will be triggered as soon as the criteria are met, which consequently leads to the activation of the enabled action.
Active	The action that is performed instantaneously when the control is activated.
Human controls	This defines those commands that, used for manual operations, must be kept activated for the action to be performed. When the command is released, the action stops.
Two-hand controls	Human-controlled controls require two manual controls to be operated simultaneously to perform an action.
P.P.E.	Personal protective equipment. They include all the items necessary to ensure the protection of personnel from possible accidental damage (safety shoes, gloves, helmet, and more).
Display	It is used to display information. It can be in any shape and size, even touch screen.
Manufacturer	Natural or legal person who designed and manufactured the component covered by this manual.
HP	High Pressure. An acronym that indicates high pressure.
Icon	A small image that represents a command, a function or even a document or an operating program, which appears on a computer screen. When selected by the user, it initiates the function or program it symbolizes.
Joystick	Lever manipulator used in control panels.
N.A.	Not Applicable, i.e. it indicates that it is a field that does not apply to this manual and that it cannot be integrated into the component.
Operator panel	A control station where the component control tools are located
P.I.	Possible Implementation, i.e. it is currently absent from the component described in this manual, but it is possible to make an addition and implement it.
Screen	Interface system between man and component. Screenshots are defined as images displayed on the operator panel that allow the user to receive and provide information to the management software.
Push-button panel	Composition of buttons and selectors that allow you to act directly on the behavior of the component.
Keyboard	Keyboard only (stand-alone element) or in addition to a display (keys only, no selectors or other)
Touch screen	Touch screen that allows the user to interact with a graphic interface using their fingers or objects.

1.5 Service and manufacturer contact details

For any reason relating to the use, maintenance or request of spare parts, the customer must contact the manufacturer (or the service center if present) directly, specifying the identification data of the component.

The customer can make use of the technical and commercial support of local agents or importers, who are in direct contact with the company DAV Tech Srl.

Company name	DAV Tech Srl
Postal address	Via Ravizza, 30, 37065, Montecchio Maggiore (VI) – (IT)
Telephone	+39 0444 574510
Fax	+39 0444 574324
email	davtech@davtech.it
Website	www.davtech.it

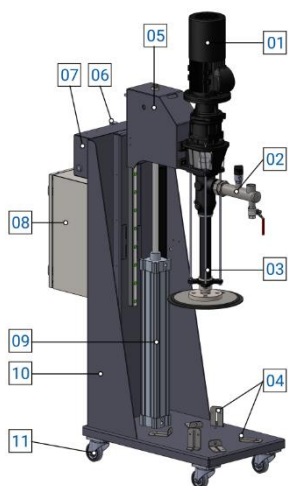
2 PRESENTATION AND OPERATION

In this manual we want to explain the operation of the single-component electric pressure plate pump. This type of pump has the main characteristic of operating with an electric motor, which pushes the fluid inside the pump itself to maintain a constant (settable) outlet pressure, i.e. the motor rotates the rotor at a higher or lower speed based on the feedback received from the pressure sensor placed on the outlet in such a way that the set pressure remains constant.

In other words, the function of this component is:

FLUID SUPPLY TO THE DOSING SYSTEM IN SUCH A WAY THAT THE PUMP OUTLET PRESSURE IS CONSTANT.

Intended use is the use described in the chapter below, while improper use is considered any other use that is not described in this manual, with products of different material and format from those for which it was built.



No. DESCRIPTION

01	Electric motor
02	Fluid output
03	Pumping unit
04	Clamping Groups
05	Top Cover
06	Pneumatic unit
07	Two-hand control cabin
08	Electrical substation
09	Piston
10	Component Cover
11	Handling wheels

Figure 01 – PPE detail

Before using a certain type of fluid, it is necessary to check that:

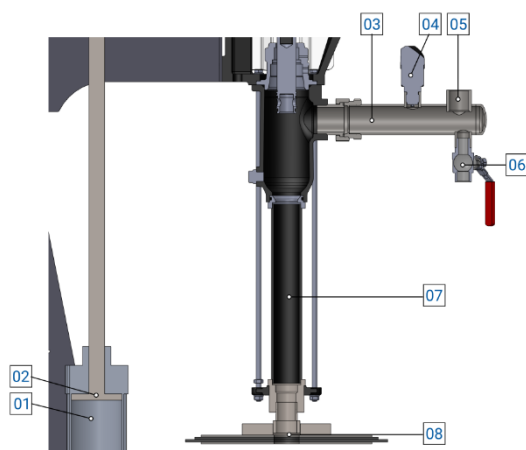
- The viscosity of the fluid is compatible with the characteristics of the pump;
- The characteristics of the fluid meet the desired requirements;
- The technical data sheet of the fluid provided by the manufacturer contains all the information regarding the product such as viscosity, applications, drying times and storage;
- The fluid storage time has not been exceeded;
- The fluid packages are hermetically sealed;
- Check the chemical compatibility of the fluid with the materials in contact.

If it is necessary to use several fluids with the same pump, the system must be thoroughly cleaned to prevent residues from the previous processing from affecting the work to be performed.

SPECIAL VERSIONS

N.A.

OPERATION



No.	DESCRIPTION
01	Pneumatic chamber
02	Pneumatic cylinder piston
03	Fluidic sleeve
04	Fluidic pressure sensor
05	Fluid output
06	2-way purge valve
07	Fluidic inlet
08	Pressing plate

Figure 02 – PPE internal section

To raise and lower the pump, the operator must hold down a two-hand control, which keeps his hands on the panel, thus avoiding any injuries due to crushing limbs. When the pump reaches level with the fluid, the operator can start the process of sucking the fluid, which flows inside the pump through an auger that pushes it towards the outlet. There's also a pressure sensor here to check that the fluid is flowing. For this type of pump, the start is only manual.

For the working parameters, please refer to [chapter 2.2](#).

The pumps cannot operate autonomously. To ensure that it can dose correctly, it must be connected to a dosing system.



ATTENTION!

It is recommended to connect the pumps to the systems indicated in this manual in [chapter 2.2](#). Connecting them to other systems or products with features not listed in this manual may break them.

The following is intended to explain how PPE pumps work.

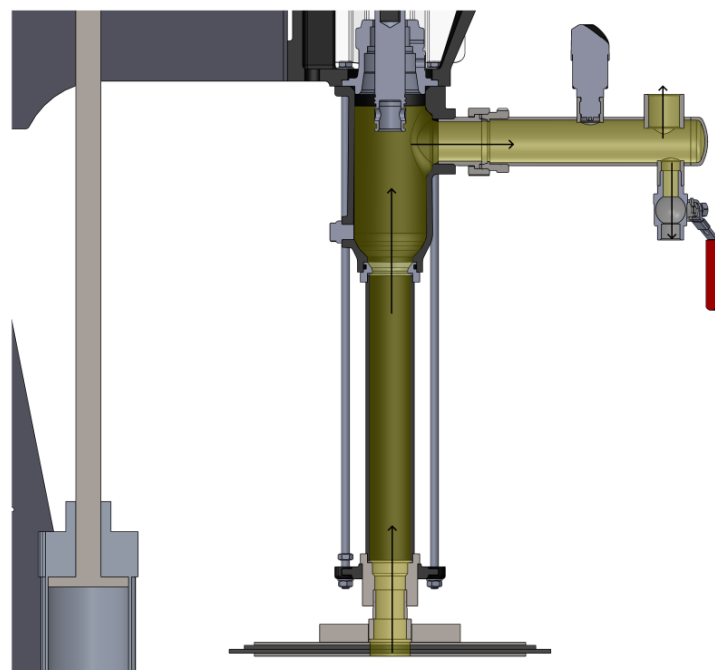


Figure 03 – Feeding phase

Once the drum has been inserted into position, the operator must anchor it to the structure using the special hooks provided and make sure that the drum is centered with respect to the pressing plate. Once this is done, he can go to the push-button panel and lower the pump pressure plate, checking that the drum is centered. Once the platter is inside the drum, you should see fluid coming out of the hole on the platter. Once the fluid starts to come out, it means that the pump is resting on the fluid inside the drum and is therefore ready to start working. From here, by closing the hole with a special pad, the machining of the pump itself can start. Once the operator starts the pump, it begins to dispense fluid, which passes inside the pneumatic piston through a progressive cavity system, which pushes the fluid until it reaches the product exit point and passes through a pressure sensor, which sends the pressure currently read in analog mode to the system. As the product is used, the platter lowers, together with the piston of the pneumatic cylinder, which lowers inside the cylinder itself, and the cover is also lowered by means of a special linear guide. There are two proximity sensors on the pump that are used to detect the fluid level, one of which is activated when you want the system to send an attention signal, while the second is used to send the end-of-product alarm signal. From here, the operator raises the pump by means of a two-hand control and changes the drum.



ATTENTION!

This guide is for explaining operation only. For the drum change procedure, see [chapter 7.9](#)

USEFUL TIPS



ATTENTION!

The parameters shown are indicative, as the pump also has special applications. Always ask for advice from technicians during the design phase to have an application suitable for your use

- The purge outlet (No. 06 Figure 02) must not be connected to any pipe. This is to avoid problems with the backpressure of residual fluid from previous purges, which contaminate the product inside the system

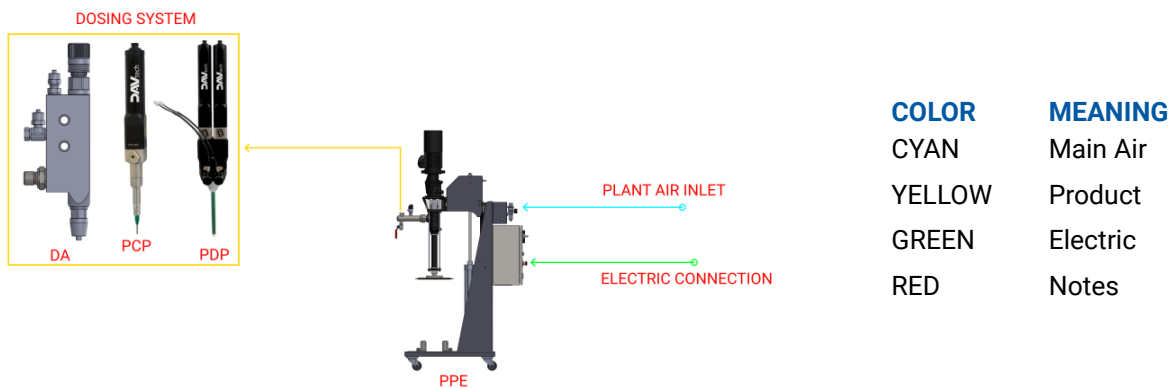


Figure 04 – Connection example

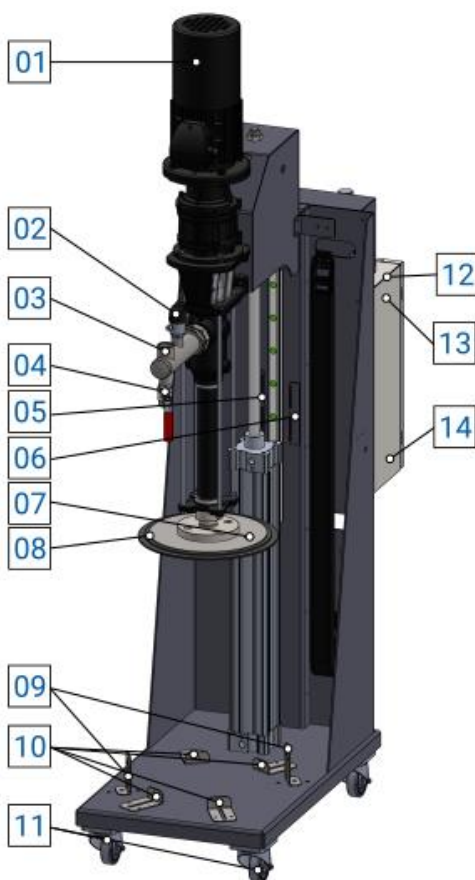


ATTENTION!


Pipes must not be connected to the vent outlet (No.06 Figure 02), otherwise there is a risk of generating back pressure when it is time to vent which risks generating air bubbles inside the circuit.

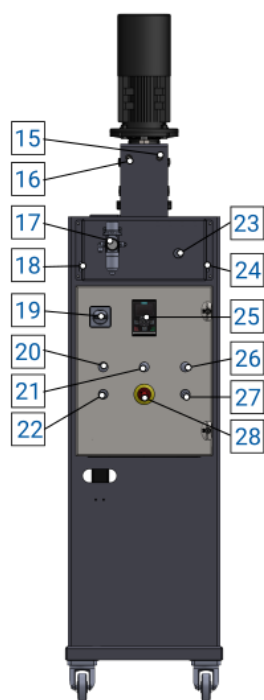
2.1 Exploded

The following is a list of the main valve components with spare part numbers.



Front Dimetric View

No	Description
01	Electric motor
02	Fluid outlet pressure sensor
03	Fluid output
04	Fluid purge
05	Level Alarm Sensor Plate
06	Level Warning Sensor Plate
07	Air vent from drum
08	Pressing plate
09	Shell hooks
10	Drum centering devices
11	Structure wheels
12	Electrical substation
13	Safety Warnings
14	<p>Position of the CE marking plate. The plate contains the following information:</p> <ul style="list-style-type: none"> - Name; - Logo; - CE marking; - Component model; - Serial number; - Rated voltage; - Nominal frequency; - Year of construction. <p>It is recommended that if the license plate becomes illegible, a new one must be requested.</p> 



Rear view

No	Description
15	Level Alert Sensor
16	Level Alarm Sensor
17	Pneumatic inlet reducer filter
18	Two-hand down control
19	Main switch
20	Inverter alarm light
21	Product Level Warning Light
22	Pump start button
23	Two-hand control up
24	Two-hand down control
25	Display inverter
26	Minimum level alarm light
27	Pump stop button
28	Emergency button



IMPIANTI DI MICRODOSAGGIO

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 +39 0444 574510 www.davtech.it davtech@davtech.it

PPE PUMP

Serial number 40/23 Year 2023
 Voltage 380-400VAC 1500W
 Frequency 50-60Hz



Example of CE plate on the component in position 14 with the relevant data

2.2 Technical data

All the technical characteristics concerning the component of this manual are indicated below.

SPECIFICATIONS		
Description	UdM	Values
General features		
Model	\	PPE
Materials used in contact with the fluid	\	Aluminum
		Stainless steel
		NBR (other materials on request)
Fluid outlet nozzle thread	inch	1
Electrical Characteristics		
Input	W	1000
Type of power supply	V	380 (three-phase)
Type of engine	\	Electric
Type of fluid thrust system	\	Progressive cavity auger
Pneumatic characteristics		
Pneumatic tube section	mm	8x6
Pneumatic inlet pressure	bar	5 ÷ 8
Pneumatic pressure cylinder rising	bar	4 ÷ 6
Pneumatic cylinder pressure downhill	bar	2 ÷ 4



ATTENTION!

During the design phase of the component, the manufacturer's technical department must be contacted for any customizable details, such as the size of the drums to be used.

ENVIRONMENTAL CHARACTERISTICS		
Description	UdM	Values
Working Ambient Temperature	°C	5 ÷ 45
Storage Ambient Temperature	°C	-20 ÷ 55
Permissible non-condensing humidity	%	5 ÷ 90

USABLE FLUIDS

Paste products

Silicones

NLGI Greases 1 - 3

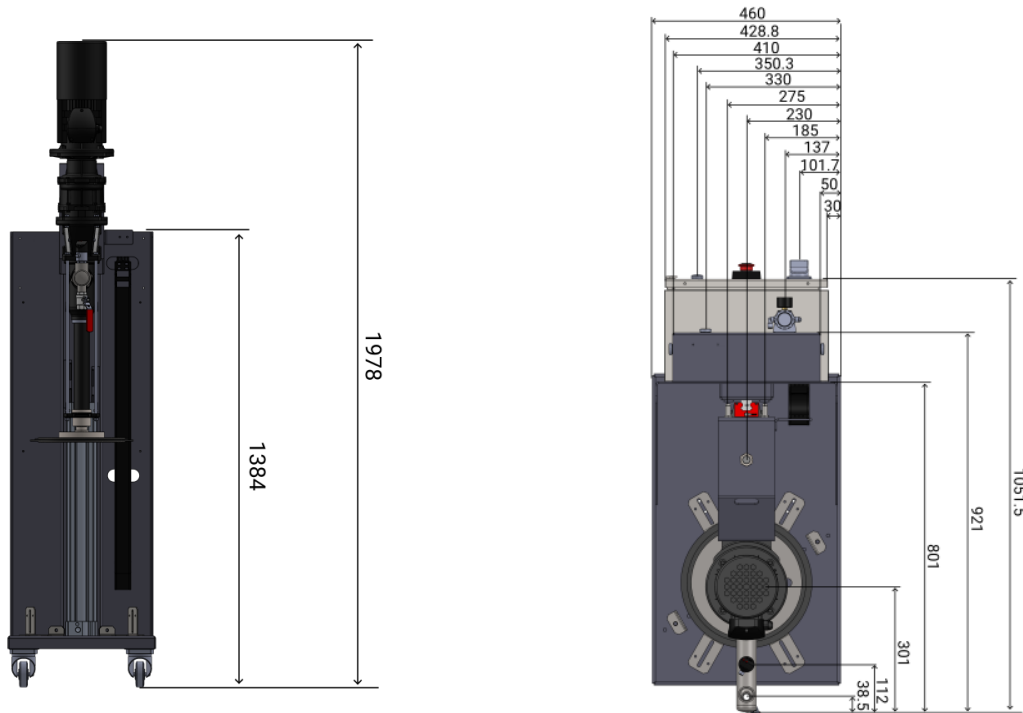
Resins

Various medium-high viscosity products compatible with NBR, aluminum and stainless steel (contact the manufacturer for more information)

DIMENSIONAL AND WEIGHT CHARACTERISTICS

Description	UdM	Value
Component length (min ÷ max)	mm	460
Component depth (min ÷ max)	mm	1051.5
Component height (min ÷ max)	mm	1978
Component weight	kg	150

Component



You can request the 3D of the component in the desired version from the manufacturer without any obligation.

3 SAFETY

The following is a list of warnings regarding the component covered by this manual. Please read carefully before proceeding to the next chapters.



DANGER!

Before operating the component or performing any action on it, read this manual carefully.



DANGER!

Do not use the component while under the influence of drugs or other substances that may impair attention and reaction ability.



DANGER!

Operators must only perform operations or interventions that are within the competence of the role and qualification assigned.



DANGER OF CRUSHING!

Do not introduce hands, arms or any part of the body into areas where there are moving parts, both during the handling of the component and during the phase in which the component is operational. It is also forbidden to park under suspended loads.



FIRE/EXPLOSION HAZARD!

This component is not designed to work in an ATEX environment.



DANGER!

Some products can create irritation or be harmful to health. Always carefully read the classification sheets and the safety and use information for the product you are using and follow all recommendations.



RISK OF ELECTROCUTION!

Always disconnect the component from a power source before performing maintenance and/or replacement. Any maintenance, cleaning or repair carried out with the electrical system live can result in serious accidents, including fatalities.



DANGER!

During the maintenance phases, the area concerned must be cordoned off and a sign must be affixed to the control panel indicating the state of downtime for maintenance of the component, as well as being carried out by a single operator to avoid random or involuntary activations



DANGER!

Be very careful when servicing the component, especially when working with very heavy components. If necessary, get help.



ATTENTION!

Modifications to the component must not be made to achieve performance other than that for which it was designed and built, unless authorized by the manufacturer.



ATTENTION! WEARING PPE

The personnel responsible for operating the component (depending on the operations to be carried out) must always wear the PPE indicated. The manufacturer declines all responsibility for any damage to people caused by failure to use PPE or by modification of the same.



ATTENTION! RISK OF DRAGGING

Personnel are prohibited from wearing clothing and accessories that could become entangled in the component such as: loose clothing, ties, belts, necklaces, bracelets, watches, earrings, rings, etc.



ATTENTION! DO NOT REMOVE PROTECTIVE EQUIPMENT

The safety, protection and/or control devices of the component must not be neutralized, removed, modified or rendered inefficient.



ATTENTION!

Check the packaging or the documentation attached to it for the weight to be lifted and the pre-established attachment points. In addition, suitable lifting equipment must be used.



ATTENTION!

Avoid introducing foreign bodies, even small ones, into the pneumatic system, which could cause a malfunction of the system and compromise the safety of the component.



ATTENTION!

For load handling, ISO 11228:1 recommends the following limits:

MEN		WOMEN	
Age (years)	Weight (kg)	Age (years)	Weight (kg)
18 ÷ 45	25	18 ÷ 45	20
Less than 18 or above 45	20	Less than 18 or above 45	15



The component may only be used by trained and authorized operators and for the sole purpose for which it was designed and manufactured.



The component is manufactured in compliance with the technical safety standards in force at the time of its construction.

3.1 Component Safety Devices



ATTENTION!

The replacement of component safety components is reserved exclusively for the manufacturer's technicians. This must be done in accordance with the manufacturing specifications of the component.



The safety devices must be kept in working order. Use only original spare parts when replacing safety components.

The safety devices of the component are all those components (both mechanical and electrical) installed to ensure that personnel can work safely and in compliance with the regulations in force at the time of construction. Despite this, staff are required to maintain an appropriate level of attention while in the vicinity of the component. The symbols used for some of the safety devices are listed below.

Symbol	Meaning	Presence
	Emergency button: It is a button that, when pressed, removes power from the motors, securing the work area	YES
	Fixed guards: These are devices that are designed to be static, for example doors that need a key to be opened. They typically do not need to be connected to alarms or lock component functions as they can only be accessed via key or other unlocking device.	YES
	Interlocked movable guards: These are devices that are used to protect the operator while they are closed. If they are opened while the component is running, an alarm is triggered, and the torque is removed from the motors.	NO
	Safety labels: These are labels placed in places where there is a danger and caution is recommended.	YES
	Valve air interceptor: it is a device capable of maintaining air in a certain place even if there is no line air	NO
	Pneumatic disconnecter: This is a device used to regulate the pressure of the incoming air and, if necessary, remove it (in case of interventions or problems)	YES
	Electrical disconnecter: It is positioned just outside the electrical panel and is used to remove the torque from the motors and the voltage from the entire component	YES
	Beacons: This is a device that indicates the status of the component. It is indicated in this chapter because it is also used to indicate alarm states.	NO
	Acoustic signals: These are devices that are used to alert personnel of a particular event (it can be an error or even the end of the cycle, depending on the settings)	NO

3.1.1 Static signaling devices

These are all those devices that are used to signal the presence of a danger to the operator or maintenance technician. In general, static signaling devices can be labels or signs.

The positions of the static signaling devices are given in [chapter 2.1](#) number 13. The reports are shown below.



ATTENTION!

Labels should be replaced if they are worn or illegible in any way.

3.1.2 Guards (fixed and mobile interlocked)

These are all those devices that are used to secure personnel by closing/blocking certain areas of the component, to prevent there from being problems with involuntary crushing. If they are opened or are not working, the system sends an error to the operator's HMI panel with the corresponding message.

The following devices are present in this component:

- Fixed guard: 1 device given by the electrical substation ([chapter 2.1](#) number 12);



DANGER!

Opening the electrical cabinet doors is not bound to the main electrical switch; therefore, before opening them, the main switch must be turned to "OFF". In addition, their opening is allowed only to personnel in charge of operating inside the cabinet.

3.1.3 Electrical and pneumatic disconnecting devices

These are all those devices that are used to interrupt the electrical or pneumatic flow in emergencies or if maintenance needs to be performed on the component. Pneumatic disconnecting devices are used to remove air from the system, but the power supply is maintained; while the electrical disconnecting devices are used to de-energize the system.

In this component there is one device per type, of which:

- The pneumatic disconnecting system is in position 16 in [chapter 2.1](#);
- The electrical disconnecting system (main switch) is in position 18 in [chapter 2.1](#).

**ATTENTION!**

The handling of the disconnecting devices may only be carried out by qualified personnel.

The electrical disconnecting system has two working modes, namely

- Position 0 – "OFF": The operator panel and the component are not powered;
- Position 1 – "ON": The operator panel and component are powered.

In addition, there is the possibility of applying a padlock when the switch is in position 0 to secure the component.

3.1.4 Emergency stop devices

These are all those devices that are used to interrupt the operation of the component instantaneously, removing torque from the motors and deactivating the auxiliary circuits.

In this component there is a single emergency stop device, located in position 27 in [chapter 2.1](#).

**DANGER!**

The emergency device does not remove the voltage from the component. Pay attention to the parts you are going to touch.



In order to resume normal work once the emergency stop button has been pressed, the button must be reset according to the instructions written on it, the active errors must be eliminated on the HMI display (reset the alarms, [chapter 9](#)) and press the auxiliary reset button (located in position 30 in [chapter 2.1](#)).



Use the emergency button only when you need it.

3.1.5 Signaling devices (light and sound)

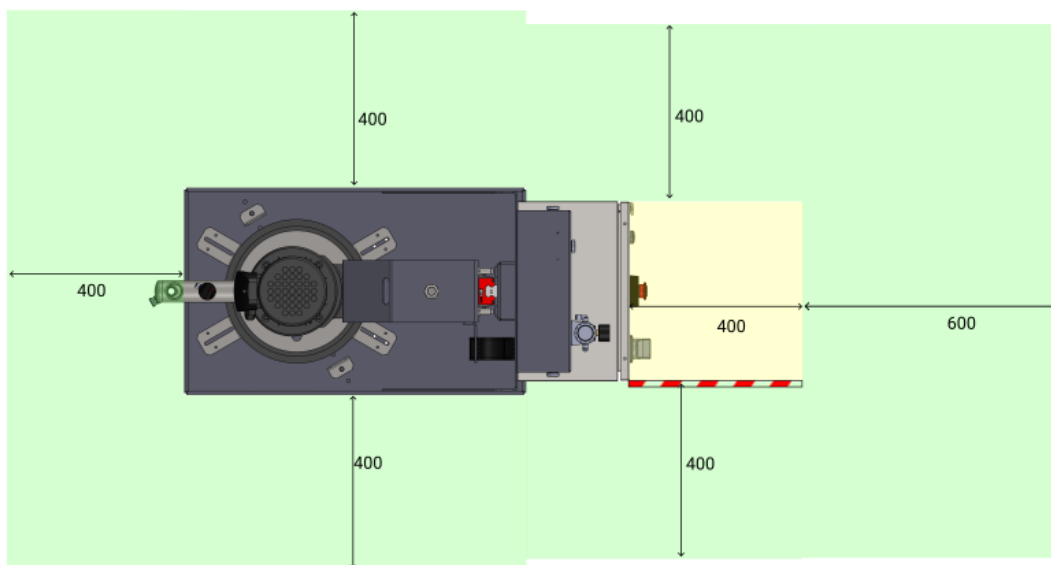
These are those devices that signal certain states of the component to the staff. These reports can be made in two ways:

There are no light and/or acoustic signaling devices in this component.

3.2 Free useful spaces

These are those spaces that must be respected during the installation of the component and serve to allow the passage of personnel safely, as well as allowing maintenance and cleaning operations to be carried out safely.

For the electrical panel, a free space equal to the size of the open door increased by 60cm is required.



In this image, the areas that are clear of any obstacles have been marked in green and the areas that may contain obstacles in yellow; The red-white lines are used to indicate the maximum extension of the doors.

3.3 Risk areas and residual risk

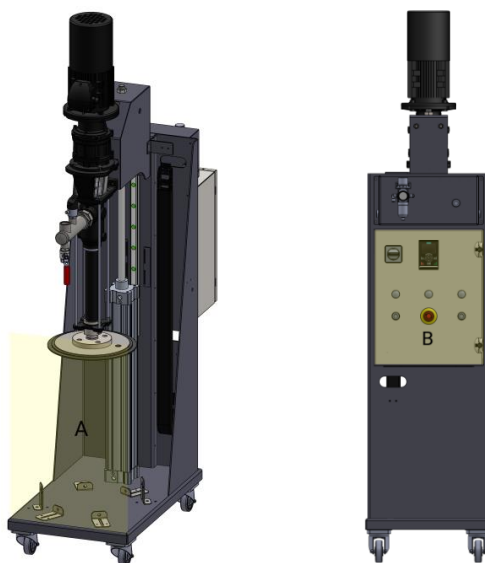
These are areas whose danger has not been completely removed, and it is recommended that the staff pay particular attention when they are near those areas. Some methods that remove the risk can be the presence of two-hand controls or guards on the doors of the moving areas and on the doors of the electrical cabinet.

AREAS AT RISK

There are no risk zones in this component, as all zones are covered by special security, as can be seen in the next chapter "Residual risk zones".



RESIDUAL RISK AREAS


These are areas where risks remain even if appropriate safety measures have been taken to reduce them.





In this case there are two residual risk areas, given by the drum change area (A) and the electrical panel (B)

- DANGER!**

 Risk of electrocution and electrocution due to the presence of residual electric current. Once the switch has been set to the "0 – OFF" position, wait at least two minutes before working on the inside of the cabinet.
-  The opening of the electrical cabinet doors is not constrained to the position of the main electrical switch.
- DANGER!**

 The drum change operation involves the use of two-hand controls, in which the operator is bound to keep his hands on the buttons to prevent damage. This operation must be followed by a single operator, to avoid accidental damage during the handling of the plates.
- DANGER!**

 Risk of crushing when changing the drum. Operate with caution when loading/unloading the product drums.
- ATTENTION!**

 Risk of dangerous fumes due to the product inside the drums. Allow the area to air and wear the appropriate PPE when changing the drums.

The component is also free of burrs, corners and cutting edges; however, it is required to pay the utmost attention during loading and unloading not to hit body parts against the pallet.

4 TRANSPORT AND HANDLING

Once you have received the goods, you must check that the packaging is intact and that there is an exact correspondence with the material ordered. Once the integrity of the goods has been checked, two methods can be used to carry out the handling of the component:

1. Manually, i.e. if the component has been removed from the various packages and unloaded from the pallet and is located near the work area, it can be moved using the wheels below the component itself. This method is recommended for short stretches of the route;
2. By lift, i.e. a lift (a forklift or similar) must be used to remove it from the pallet or to move it along medium-long distances. In this case, it is advisable to respect the method indicated in the figure below as a method to lift the component, otherwise there is a risk of doing damage (even permanent) to the component, damaging its integrity.



ATTENTION!

The original configuration of the component must not be changed. The manufacturer is not liable for damage caused by inappropriate use of the component.



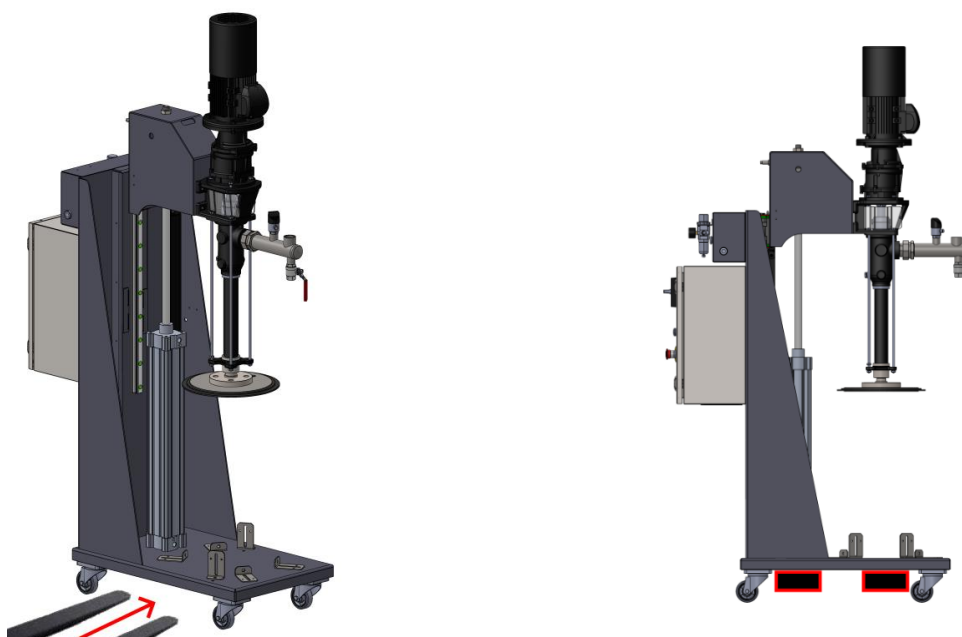
ATTENTION!

If the packaging is not intact, contact the manufacturer immediately, also sending photos of the condition of the packaging. Do not open it until you have notified the manufacturer.



ATTENTION!

If damage is done to the component during handling due to an incorrect method of loading the component, the manufacturer is not liable.



Description	Units of Measurement	Value
Component Mass	Kg	150

5 INSTALLATION



The installation of the component is carried out by the customer. If necessary, you can contact the manufacturer to have a specialist technician help you.

To install the component, it must be ensured that there is a solid support base and the correct environmental characteristics (lighting, ventilation), so that the operator can work in optimal conditions and safely. In addition, a check must be carried out that all the arrangements agreed between the manufacturer and the customer have been complied with.



It is recommended that you perform a component check before beginning the installation. If it is evidently damaged, please contact the manufacturer.



ATTENTION!

Please remove the packaging with the utmost care. If damage is caused to the component, the manufacturer is not liable.



Dispose of the packaging correctly, considering the different nature of the components and following the regulations in force in the country.

5.1 Positioning

Once positioned at the workplace, this component is equipped with 4 wheels (No. 11 [chapter 2.1](#)), 2 of which can be locked, so that the component does not move on its own.



DANGER!

It is important to lock the wheels once they are brought into position, otherwise the vibrations could cause the component to move and damage objects around it or even people.



ATTENTION!

The component must be installed in a location that is free of slopes. If there are slopes that make the component move even with the brakes activated, the manufacturer does not assume responsibility for any damage to objects and/or property.









During the testing phase of the component, checks are carried out to be sure that the brakes are working correctly and are not defective.

5.2 Connections

In this chapter, we want to explain the connection method that must be used for the component. The following types of connection are provided:

- Electrical connection;
- Pneumatic connection;
- Fluid connection

5.2.1 Electric

Authorized personnel	 PPE to wear					
Component status	Component and electrical panel installed, with cable with outgoing industrial socket					
Power Values	See chapter 2.2					
Necessary preparations	Electrical system with industrial socket and correct power supply					
Materials needed	N.A.					
Equipment needed	N.A.					









The electricity connection is at the expense of the customer.



The electrical connection must only be made after the positioning and possible fixing and at the end of the assembly of all the parts that make up the component.

To make the electrical connection, you must take the cable with the industrial electrical socket supplied. Since the socket is red, it must be connected to a 380 VAC power supply.

5.2.2 Pneumatic







Authorized personnel	 PPE to wear					
Component status	Component installed and shut down					
Power Values	See chapter 2.2					
Necessary preparations	Working pneumatic air system					
Materials needed	N.A.					
Equipment needed	N.A.					



The pneumatic connection is the responsibility of the customer.

To connect the air system, the hose of the size specified in [section 2.2](#) must be routed to the pneumatic inlet of the component (No. 17 [chapter 2.1](#)).

5.2.3 Fluidic

Authorized personnel		PPE to wear					
Component status	Component installed and shut down						
Necessary preparations	Dosing system present (no need for it to be working)						
Materials needed	Connection hose with nut for locking on the system						
Equipment needed	Dedicated fixing key						



The pneumatic connection is the responsibility of the customer.

To connect the component to the metering system, a special hose must be taken (depending on the application) and connected to the fluidic outlet No. 03 [chapter 2.1](#).



ATTENTION!

Make sure the hose is securely connected, otherwise you may have fluid leaks from the fitting.

5.3 Commissioning

The commissioning of the component is carried out once the positioning and connection of the connections has been completed. Before commissioning the component, the following checks must be carried out:

- Verify that the component placement has been done correctly;
- Check that the connections have been connected correctly;
- Check that the component is free of dirt or residues of various kinds;



ATTENTION!

If even one of the above points does not comply, commissioning must not be carried out. Commissioning should only be carried out when all points have been successfully completed.

6 SOFTWARE

In this chapter we want to deepen the software part of the component, in particular we want to see both the operator terminal and the screens that are displayed and how to change screens.

The panel was designed by a company outside the manufacturer; therefore, it is not managed by the manufacturer himself. If you need to log in or have a user manual, ask the manufacturer for the manual for the panel.

7 PROCEDURE

This chapter describes all the procedures that apply to the component.

ATTENTION!



Please follow the procedures that are listed here and in the manner they are described. If errors and/or deficiencies are found, please contact the manufacturer for a comparison and, if necessary, update the manual. Deviating from what is described in the next chapters can lead to component breakage or injury.



Below we refer to equipment that is used to secure the component (for example, padlock and related key). These tools are not included and are the responsibility of the customer, both for supply and maintenance. The manufacturer accepts no responsibility if they are lost during use.

7.1 First start

Authorized personnel		PPE to wear	
Component status	<ul style="list-style-type: none"> Performed the installation procedure 		

This procedure must be followed during the first phase of ignition of the component and gives advice and guidelines to both operators and maintenance technicians. During this phase you are also helped by the manufacturer's technicians.

01

ELECTRICAL



- Make sure the cable is connected to the mains (final part [chapter 5](#));
- Turn the main switch to the "ON" position

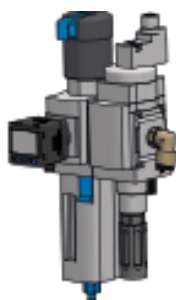


ATTENTION!

Once the main switch is turned ON, there is voltage on the component. Please pay attention.

02

PNEUMATIC SYSTEM



- Make sure the air hose is connected (final part [chapter 5](#));
- Make sure the main air valve is open;
- Generally, the pressure is already adjusted by technicians to perform tests in the factory; If it is necessary to adjust it, you must:
 - Unlock the adjustment knob by pulling upwards;
 - Turn counterclockwise to decrease the pressure or clockwise to increase it;
 - Lock the adjustment knob by pushing down.
- It is recommended to also insert the padlock to prevent tampering:
 - Push the blue slider located above the knob outwards;
 - Insert the padlock and close it;
 - Remove the key.



ATTENTION!

The next step is to be carried out only if it is the first drum that is being put in place. For any other kegs, follow the procedure in [chapter 7.9](#)

03

FIRST BATING

- Increase the elevator pressure up to 2-3 bar;
- Press and hold the button to raise the plate (No. 23 [chapter 2.1](#)) for at least 10 seconds



ATTENTION!

This is to be done only if there are no kegs already primed. For the drum change, follow [chapter 7.9](#)

N.A.

- Place the drum under the pressing plate, calibrating the centering devices (No. 10 [chapter 2.1](#)) so that the drum is central;
- Unscrew the pad to let the air flow (No. 07 [chapter 2.1](#))
- Press the two platter lowering buttons (No. 18 and No. 24 [chapter 2.1](#)) until the platter meets the fluid;
- When the platter meets the fluid, fluid comes out of the newly opened hole. As soon as it starts to come out, close the hole with the appropriate pad;
- Open the purge valve (No. 04 [chapter 2.1](#)) and place a large container underneath;
- Press the "pump start" button (No. 22 [chapter 2.1](#)) and let the product flow from the purge valve until you see a linear flow of fluid, therefore without air bubbles.



ATTENTION!

If the inverter fails during this phase due to the excessive flow rate required for purging, close the purge valve slightly

- Press the "pump stop" button (No. 27 [chapter 2.1](#));
- Close the purge valve (No. 04 [chapter 2.1](#))
- Connect the pipes and proceed with the processing.

To start machining the component, see [chapter 7.6](#)



ATTENTION!

Always follow the instructions of the manufacturer's technicians in case there are problems or there are special procedures to follow.

7.2 Daily component start-up

Authorized personnel		PPE to wear				
Component status	<ul style="list-style-type: none"> Off, No Voltage, with Air Connected and Open 					

This procedure is used for the daily start-up of the component, in case it must be switched off every evening.

01

- N.A.
- Turn the main switch to the "ON" position;

To start machining the component, see [chapter 7.6](#)



ATTENTION!

Once the main switch is turned ON, there is voltage on the component. Please pay attention.

7.3 Daily component shutdown

Authorized personnel		PPE to wear				
Component status	<ul style="list-style-type: none"> In operation 					

This procedure is used for the daily shutdown of the component, in case it is to be done.

01

- N.A.
- Press the button on the operator panel to stop the pump (No. 27 [chapter 2.1](#))
 - Place a container under the purge valve (No.04 [chapter 2.1](#)) and open it;
 - Keep it open until it reaches a value of less than 1 bar;
 - Close the purge valve;
 - Turn the main switch to "OFF";
 - The panel turns off automatically after a few minutes, you don't need to turn it off manually.



ATTENTION!





If you use the emergency button to "turn off" the component, it is still on (it still has voltage) and you risk endangering any people who do not know that it is still active, as well as being a waste of electricity.



ATTENTION!

If the product is not removed from the pipe through the purge valve, the product tends to separate, generating problems for the fluidic system.

7.4 Extraordinary component shutdown

Authorized personnel		PPE to wear			
Component status	<ul style="list-style-type: none"> • In normal operation; • With alarms in progress; • Off 				

This procedure should be used if it is necessary to perform an extraordinary shutdown of the component. This can be due to:

- Prolonged shutdowns of the component;
- Active alarms that, to be solved, require extraordinary maintenance;
- General maintenance (both ordinary and extraordinary).



ATTENTION!

Only the staff in charge can intervene in these cases and with the appropriate equipment.

01

FLUIDIC SYSTEM

N.A.

- Press the emergency button (No. 28 [chapter 2.1](#));
- Place a container under the purge valve (No.04 [chapter 2.1](#));
- Open the purge valve;
- Allow the pressure on the sensor to drop to below 1 bar;
- Close the purge valve.



This operation must be carried out by the maintenance manager (mechanical side).

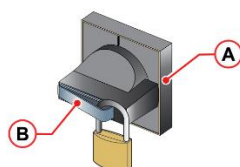


ATTENTION!

If the fluidic pressure is not discharged from the system, the product risks separating, leading to various problems for the system itself.

02

ELECTRICAL



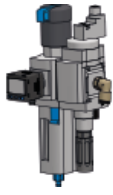
- Turn the main switch (A) to the "OFF" position;
- Press on the front of the lever (B) of the switch to pull out the padlock insertion slot;
- Insert the padlock and close it;
- Remove the key from the lock.



This operation must be carried out by the maintenance manager (electrical side).

03

PNEUMATIC SYSTEM



- Unlock the knob by pulling it upwards;
- Turn the knob counterclockwise, to close the system and drain the residual air;
- Press the knob by pushing down;
- Pull the slider (blue) located at the top of the knob outwards;
- Insert the padlock and close it;
- Pull the key out of the lock



This operation must be carried out by the maintenance manager (mechanical side).

7.5 Extraordinary component start-up

Authorized personnel		PPE to wear			
Component status	<ul style="list-style-type: none"> Performed the extraordinary shutdown of the previous chapter 				

This procedure should be used if you have blocked the component for an extraordinary shutdown. In this case, to reactivate the component, you must follow the steps below:



ATTENTION!

Only the staff in charge can intervene in these cases and with the appropriate equipment.

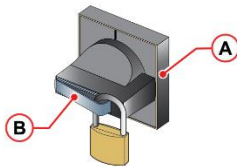


ATTENTION!

Check that there are no non-persons in charge of this operation near the component throughout the procedure.

01

ELECTRICAL



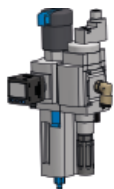
- Insert the key into the padlock and open it;
- Remove the padlock;
- Turn the main switch (A) to the "ON" position.



This operation must be carried out by the maintenance manager (electrical side).

02

PNEUMATIC SYSTEM







- Insert the key into the padlock and open it;
- Remove the padlock;
- Put the blue slider back in its seat;
- Unlock the knob by pulling it upwards;
- Turn the knob clockwise until the operating pressure is reached ([chapter 2.2](#));
- Press the knob by pushing down;
- It is recommended to lock the knob; To do this, you must:
 - Pull the slider (blue) located at the top of the knob outwards;
 - Insert the padlock and close it;
 - Pull the key out of the lock
- Reset the emergency and press the auxiliary reset button.



This operation must be carried out by the maintenance manager (mechanical side).

To start machining the component, see [chapter 7.6](#)

7.6 Start of processing

Authorized personnel		PPE to wear				
Component status	<ul style="list-style-type: none"> Component On Hold 					

This procedure is used to explain how a new start of a new processing takes place.





01

PROCESSING

N.A.





- Press the start machining button (No. 22 [chapter 2.1](#));
- When you want to stop dosing, press the stop processing button (No. 27 [chapter 2.1](#)).
- In the case of extended breaks, follow these steps:
 - Place a container under the purge valve (No.04 [chapter 2.1](#));
 - Open the valve and remove fluid until the pressure is 1 bar lower;
 - Close the valve.

7.7 Changing the processing

Authorized personnel		PPE to wear				
Component status	<ul style="list-style-type: none"> In operation 					

N.A.

7.8 Machining Block

Authorized personnel		PPE to wear				
Component status	<ul style="list-style-type: none"> In operation Danger to people or problems with the component 					

This procedure is used to block any operation of the component, which may be due to emergencies related to both the component and the person or line to which it is connected.

01

PNEUMATIC LOCKING AND UNLOCKING



- Press the emergency button to stop any component activity;
- Once the emergency has returned, turn the button in the direction indicated to reset the emergency;
- Now the component is ready to work. Follow [chapter 7.6](#) to start machining.

02

FLUIDIC BLOCK

N.A.

- Press the dispensing stop button to stop the fluid dispensing (No. 27 [chapter 2.1](#));
- To relieve fluidic pressure on the circuit:
 - Go with a container on the purge valve (No.04 [chapter 2.1](#));
 - Open the valve and remove the fluid until it reaches a pressure of less than 1 bar;
 - Close the valve.

7.9 Fluid container change

Authorized personnel		PPE to wear				
Component status	<ul style="list-style-type: none"> In operation Active tank level alarm 					

In this procedure we want to explain how to perform the change of the shells. This procedure is to be applied when the minimum level alarm appears and the dosing cycle is finished, to have the pump stopped. At this point, the pump does not carry out any further dosing cycles until the drum is changed.

01 DRUM CHANGE

- Switch off the pump by pressing the appropriate button (No. 27 [chapter 2.1](#));
- Press the platter rise button (No. 23 [chapter 2.1](#)) for no more than 2 seconds.

ATTENTION!



This first ascent is to prevent the fluid from coming out of the platter at the next point. Trying to lift the platter without performing the next steps can lead to the collapse of the drum itself as a vacuum is generated inside

- Remove the pad from the pump plate by unscrewing it counterclockwise, to allow air to enter;



It is advisable to keep the pad close to the component as it must be used quickly afterwards

- Return to the push-button panel and press the same buttons as in the above point for enough time to make the platter rise out of the barrel;

N.A.



If the plate remains blocked for about 30 seconds, the pneumatic pressure must be increased using the special reducer in increments of 1 bar at a time.

- Remove the straps that hold the drum to the component and place a new one;
- If the pneumatic pressure has had to be increased to get the plate out, it must be decreased to the working pressure (see [chapter 2.2](#));
- Press the two-hand control button for the descent of the platter (No. 18 and 24 [chapter 2.1](#)). Keep it pressed until the platter meets the fluid;
- When the platter meets the fluid, the fluid itself begins to come out of the place where the pad is to be inserted. When it starts to come out, close it with the pad by screwing it clockwise;
- Lock the barrel with the appropriate straps. Now the component is ready to continue machining.



During the drum change phase, before inserting the new drum, it is advisable to apply generic fat or petroleum jelly on the part of the plate that touches the inside of the drum. This is to facilitate the descent of the plate into the barrel and prevent it from wearing out too much.

ATTENTION!



If, once the product has been primed, there are leaks from the sides of the pressing plate, it may be that the centering of the drum is incorrect or that the plate is not resting correctly on the product. Check that the drum is correctly centered and that there is no air inside the drum, as well as that the plate does not have elevations on the points from which the product draws.

7.10 Service connection

Authorized personnel		PPE to wear			
Component status	<ul style="list-style-type: none"> In operation 				

This procedure is used by operators in case they need to connect remotely to perform assistance on the component through the HMI display.

01

LINK

- Access the electrical panel



DANGER!

There is voltage inside the electrical panel. Risk of electrocution!

N.A.

- Connect the ethernet cable to the appropriate slot located approximately in the center of the electrical panel. You can recognize it since it is the only isolated ethernet port, with no device nearby.
- Carry out the service work, following the instructions given by the manufacturer's technicians;
- When finished, remove the ethernet cable, close the electrical panel and resume normal use.



To make the connection permanent, go through the appropriate passage on the underside of the electrical panel and connect it to the appropriate connector, so that you can open and close the electrical panel without problems and have an ethernet cable permanently connected to the appropriate port.

7.11 Inverter programming

Authorized personnel		PPE to wear			
Component status	<ul style="list-style-type: none"> In operation 				

This procedure is used to set the parameters and states of the inverter correctly. The constant pressure maintenance system works with the principle of PID (Proportional, Integral and Derivative, see controller manual).

01

SETTING

- Access the display;
- On the "my parameters" page there are parameters that can be set and customized, namely:
 - "FIX VAL": corresponds to the pressure you want at the outlet;
 - "Kp" (p2280): Corresponds to the proportional constant;
 - "Ti" (p2285): Corresponds to integral time;
 - "Td" (p2274): Corresponds to the advance time (derivative);
 - "Fixed V1 Reg_PID" (P2201): Indicates the outlet pressure setpoint

N.A.

DANGER!



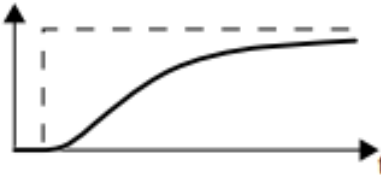
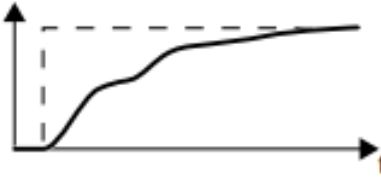
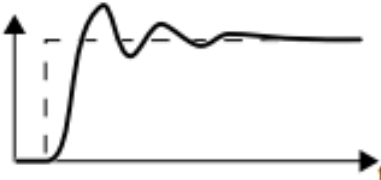
Changing these parameters has immediate effects on the operation of the component. If they change independently, the manufacturer is not responsible in the case of incorrectly set parameters.

DANGER!



Only the parameters listed above need to be changed. Going to modify others can lead to effects that cannot be predicted, even to the breakage of the component itself.

As a guideline for setting the PID, follow the following image:

	<p>The actual value only slowly approaches the setpoint.</p> <ul style="list-style-type: none"> • Increase the proportional component K_p and reduce the integration time T_i.
	<p>Actual value only slowly approaches the setpoint with slight oscillation.</p> <ul style="list-style-type: none"> • Increase the proportional component K_p and reduce the rate time T_d (differentiating time).
	<p>The actual value quickly approaches the setpoint, but overshoots too much.</p> <ul style="list-style-type: none"> • Decrease the proportional component K_p and increase the integration time T_i.

8 MAINTENANCE

Maintenance interventions are all those activities that must be performed on the component which, if carried out correctly, allows it to have a longer life. In general, maintenance is divided into two groups:

- **Ordinary maintenance**, which are interventions on a regular basis or that can be carried out by the customer's staff, are the most important activities as they allow the component to be kept in good working condition;



ATTENTION!

Ordinary maintenance must be carried out in the manner and timing indicated in the following chapters.

- **Extraordinary maintenance**, i.e. all those interventions that are not regularly carried out or that have not been planned, or interventions that cannot be carried out by the Customer. They can also arise from the lack of routine maintenance.



ATTENTION!

Extraordinary maintenance work must be carried out together with the manufacturer's specialized technicians.

Regarding attendance, it must be considered that:

- **When necessary**: Operation to be carried out when the need to be carried out is seen;
- **Each job start or end**: Indicates a daily period, in general. This can imply every 24 hours (i.e. at the beginning of the shift of every day, or the end of the shift of every day), or even more frequently, depending on the application;
- **Long pause**: Indicates a period approximately greater than an hour;
- **Each drum change**: Indicates each time the fuel system is changed;
- **Weekly**: Indicates a period equal to seven calendar days;
- **Monthly**: Indicates a period equal to one calendar month;
- **Semi-annual**: Indicates a period equal to six calendar months;
- **Yearly**: Indicates a period equal to one calendar year.



ATTENTION!

The times given below are indicative as they depend on how the component is used. Follow the variations suggested by the technicians.

Assigned	Description	Frequency	Chapter
	Leak control from the pneumatic and fluidic circuit	Every start or end of work	\
	Leak check (and level) glass of oil	Every start or end of work	\
	Emptying component condensation	weekly	8.1
	Changing the rubber on the pressing plate	Semiannual	\
	Changing seals on pump ⁽¹⁾	Annual	\

⁽¹⁾ If the pump seals need to be changed, it is advisable to call the manufacturer.

8.1 Emptying component condensation

Assigned	Periodicity	Materials and equipment
	Weekly	Normal cleaning equipment

PPE to wear

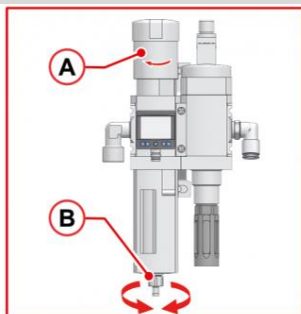


ATTENTION!

Before proceeding, the component must be made safe by following the extraordinary shutdown procedure in section [7.4](#)

01

REDUCER FILTER



- Turn the pressure regulator (A) counterclockwise to drain the system;
- Turn the knob (B) to open the drain valve to drain the condensate;
- Close the drain valve;
- Set the working pressure.

9 SYSTEM MESSAGES

In this chapter, the two types of messaging that are present within the component are explored and listed.

The component software is managed entirely by a component that was not designed by the manufacturer. If you need to investigate this further, you should ask the manufacturer for the user manual of the component.

10 END OF LIFE

End-of-life refers to all those activities that put the component out of service. End-of-life activities can be:

- **Storage**, i.e. when the component is placed inside the warehouse for an unspecified period waiting for a third party to buy it. Typically, you are stocking more than one component;
- **Relocation**, i.e. when, for reasons of moving, the component must be moved;
- **Dismantling**, i.e. when the component has reached the end of work period, whether it is due to age, obsolescence or faults that cannot be repaired, or that it is possible to repair but it is worth buying a new component.

If installation is not planned soon, the component can remain packaged and must be stored in a sheltered and preferably closed place. The ambient temperatures to be observed are given in [chapter 2.2](#).



In the case of long periods of storage, the parts of the component without paint should be sprinkled with lubricating grease.



The relocation of the component must be carried out by the manufacturer's specialized technicians or by technicians authorized by the manufacturer.



The component must be hooked on the points provided and indicated in this manual and suitable, tested and certified lifting equipment must be used.

On the other hand, for the dismantling and consequent scraping of the component or its parts, the different nature of the various components must be considered, and a differentiated scrapping must be carried out. We recommend that you commission specialist companies for this purpose and must always observe the applicable laws on waste disposal.