PARTS, SYSTEMS AND AUTOMATIONS FOR FLUID DISPENSING

USE AND MAINTENANCE MANUAL

PP-5 PUMP

COD.: **DTVI_PP5_2447**
REV.: **00**
DATE: **20/11/2024**

TRANSLATED FROM ORIGINAL
Read carefully before use!

EN

Summary

1 GENERAL INFORMATION 1

1.1 SYMBOLOGY 2
1.2 REFERENCE STANDARDS 3
1.3 DECLARATION OF INCORPORATION (ANNEX II B DIR. 2006/42/EC) 4
1.4 GLOSSARY 5
1.5 SERVICE AND MANUFACTURER CONTACT DETAILS 6

2 PRESENTATION AND OPERATION 7

2.1 EXPLODED 10
2.2 TECHNICAL DATA 14

3 SAFETY 16

3.1 MACHINE SAFETY DEVICES 17
3.2 FREE USEFUL SPACES 17
3.3 RISK AREAS AND RESIDUAL RISK 17

4 TRANSPORT AND HANDLING 17

5 INSTALLATION 18

5.1 POSITIONING 18
5.2 CONNECTIONS 18
5.2.1 Electric 18
5.2.2 Pneumatic 19
5.2.3 Fluidic 19
5.3 COMMISSIONING 20

6 SOFTWARE 20

7 PROCEDURE 21

7.1 CHANGING THE DRUM (PUMP WITH STAND) 21
7.2 CHANGING THE DRUM (PUMP WITHOUT STAND) 21
7.3 FIRST PRIMING 22

8 MAINTENANCE 23

8.1 REPLACEMENT OF THE PRESSURE PLATE GASKET 25
8.2 FILTER CLEANING (IF ANY) 26

9 TROUBLESHOOTING 27

10 END OF LIFE 28

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

Harmonized standards

- EN ISO 12100:2010 Safety of machinery – General principles of design – Risk assessment and risk reduction;
- EN ISO 4414:2012 Pneumatics – General rules and safety requirements for systems and their components

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: PP-5
Model: Piston pump
ID:
Year: 2024
Intended use: Fluid supply to dosing systems

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

In addition, this component complies with the following harmonized standards:

- EN ISO 12100:2010 Safety of machinery – General principles of design – Risk assessment and risk reduction;
- EN ISO 4414:2012 Pneumatics – General rules and safety requirements for systems and their components.

IT ALSO DECLARES THAT:

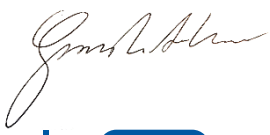
- Undertakings are undertaken to provide, in response to a properly substantiated request from the national authorities, relevant information on this partly completed machine;
- The technical file was prepared by Andrea Grazioli, via Ravizza, 30, Montecchio Maggiore (VI), IT.

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, 03 October 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 that 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 machine control instruments 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 the 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

Scope of this manual is to explain more about the operation of the PP-5 pressure plate pump. This component is an air-operated piston pump that takes the fluid from its original drum and pushes it towards the dosing plant. The fluidic thrust pressure is different from the pneumatic inlet pressure, depending on the pump model needed for the application.

In other words, the function of this component is:

FLUID SUPPLY TO THE MEDIUM-HIGH PRESSURE DOSING PLANT

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.

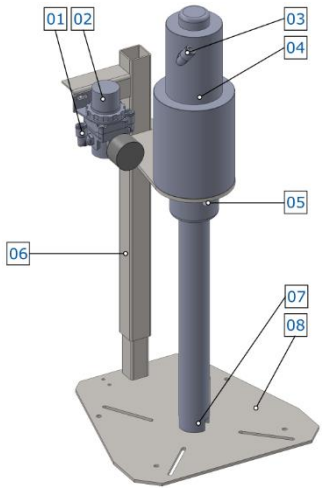


Figure 01 – PP-5 pump detail

No.	DESCRIPTION
01	Line air inlet
02	Pressure regulator
03	Pneumatic pump inlet
04	Pumping unit
05	Fluid outlet to the system
06	Adjustable stand
07	Drum fluid inlet
08	Support base and lock

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 tightly sealed.

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

SPECIAL VERSIONS

This pumping system exists in different versions, depending on the pressure ratio you need to have, the type of fluid you use and the result you want to have in the dosing system:

1. Grease version with 10:1 and 30:1 pump;
2. Oil version with 3:1 pump;

In addition, there are different lengths of the pumping unit stem, depending on the size of the drum that needs to be worked on. For more information, please contact the manufacturer's technical department.

OPERATION

This pump has an immediate operation, i.e. once the drum is inserted into position and the plate is on the surface of the fluid, just activate the pneumatic circuit and immediately there is a fluid outlet. The operation of the pump is single-acting, i.e. the loading of the fluid is divided into two phases:

1. **Loading**, in which the internal loading part of the pump reaches the bottom mouth of the fluid and draws the fluid;
2. **Pressurization**, in which the fluid withdrawn is pushed towards the fluidic outlet, as the pressure in the circuit decreases. When it reaches a certain threshold, the inner part returns to the bottom and charges new fluid.

In addition, this pump can be used in two different modes, i.e. with a pressing plate or without a pressing plate: in the first case, the plate has an external gasket that adheres perfectly to the walls of the drum, so as to draw the fluid evenly; in the second case, the tube is lowered to the bottom of the drum, so as to take the fluid from the bottom, until it is exhausted.

Depending on the type of fluid and system, it is possible that immediately after the fluidic outlet of the pump there is a filter, to prevent impurities from entering the dosing circuit, ruining the valve and other components

For working values, please refer to chapter 2.2.

The pumps cannot operate autonomously. To have a complete dosing system, they must be connected to valves or other components that regulate the dosing of the fluid itself.

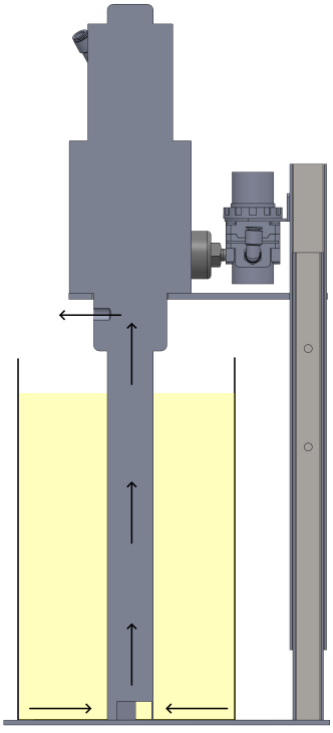


Figure 02 – PP-5 pump without pressing plate

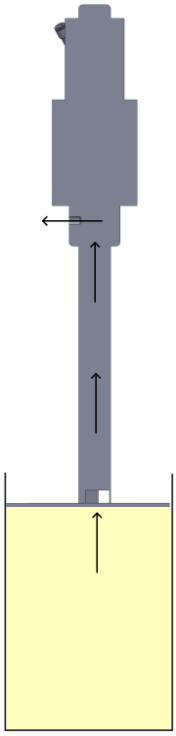
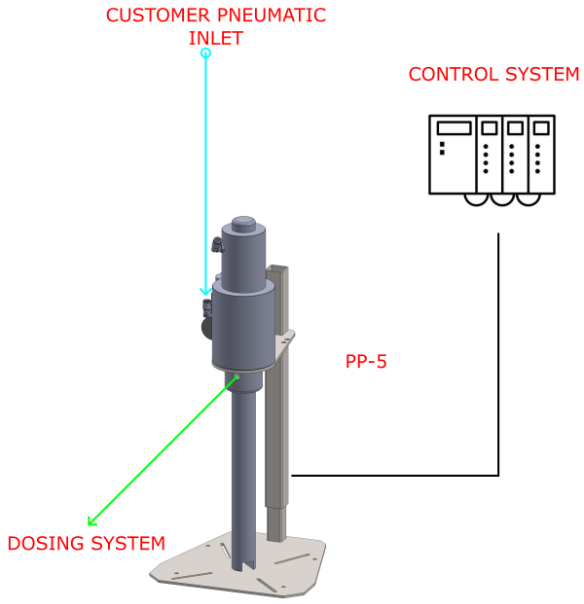


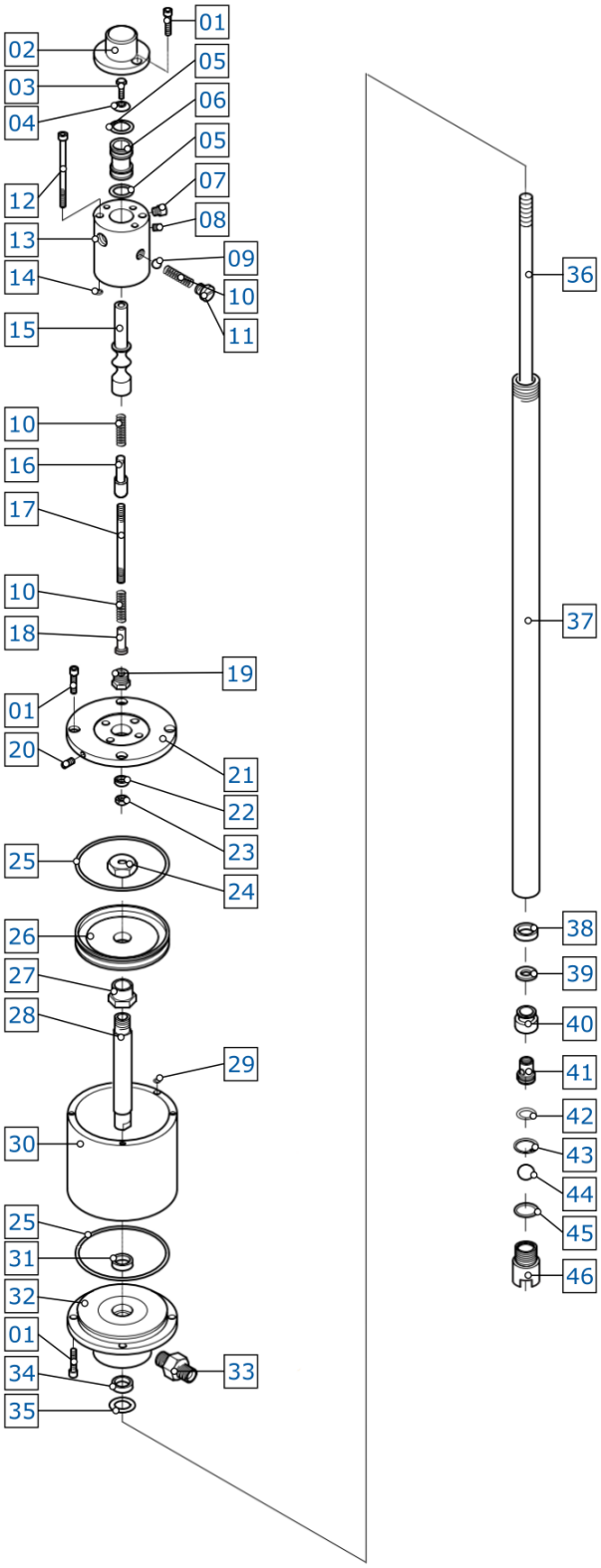
Figure 03 – PP-5 pump with pressure plate



COLOR	MEANING
CYAN	Main Air
GREEN	Product
BLACK	Data
RED	Notes

2.1 Exploded

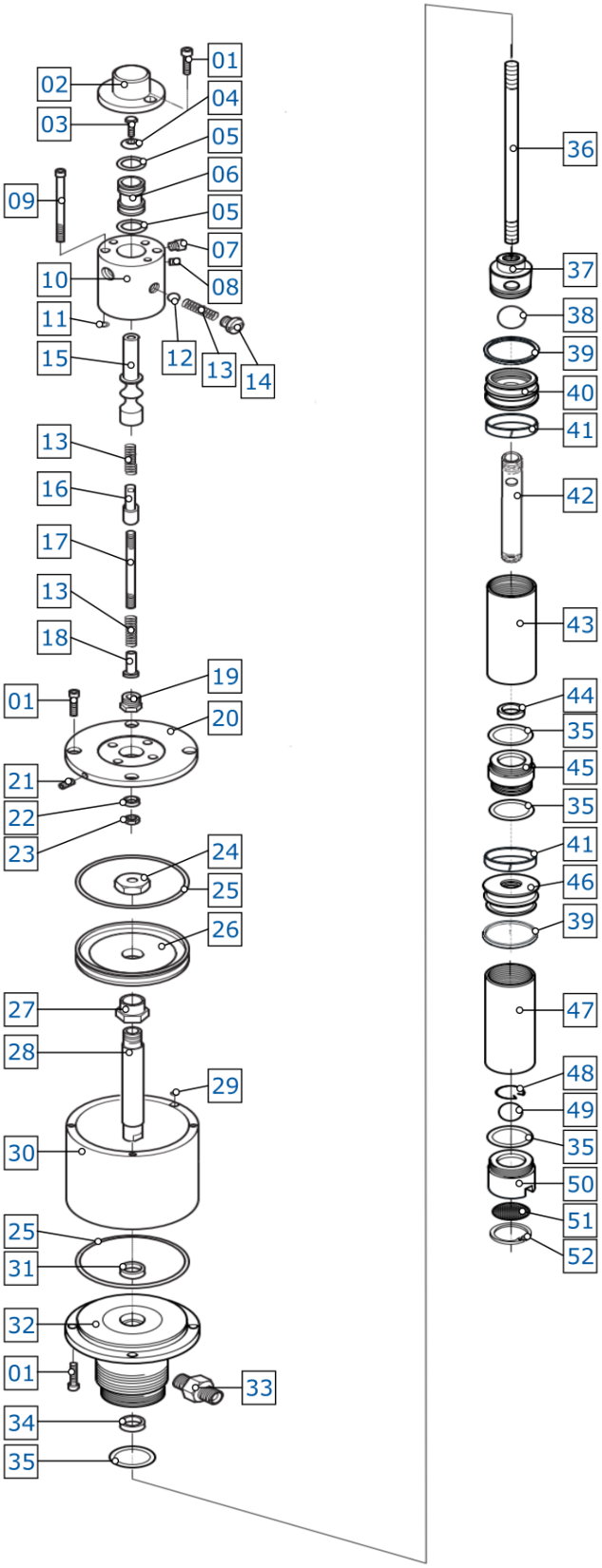
Below we want to give an exploded view of the components of the pumping unit with a ratio of 10:1 and 30:1 (grease)



No.	Description	Var.	Code	Variant details
01	TCEI SCREW 6X20	-	10150	-
02	COVER	-	10175	-
03	TE SCREW 6X12	-	10210	-
04	ROUNDED WASHER	-	10215	-
05	RING OR 2087	-	10225	-
06	AIR DISTRIBUTOR	-	10220	-
07	SILENCER 3/8"	-	10230	-
08	TEI SCREW 8X6	-	10203	-
09	1/2" BALL	-	10240	-
10	SPRING	-	10248	-
11	STOPPER	-	10250	-
12	TCEI SCREW 6X90	-	10180	-
13	DISTRIBUTOR CYLINDER	-	10255	-
14	RING OR 106	-	10185	-
15	BOBBIN	-	10260	-
16	PLUG	-	10266	-
17	THREADED PIN	-	10190	-
18	GUIDE	-	10267	-
19	NUT	-	10195	-
20	TEI SCREW 6X5	-	10205	-
21	TOP FLANGE	-	-	-
-	-	21.a	20145	Top flange for 10:1 pattern
-	-	21.b	10200	Upper flange Ø 140mm for 30:1 model
22	SEALING RING 6X12X4	-	10270	-
23	NUT M6	-	10265	-
24	NUT	-	10100	-
25	OR RING	-	-	-
-	-	25.a	20150	OR 176 ring for 10:1 model
-	-	25.b	10105	OR 4450 ring for 30:1 model
26	PISTON	-	-	-
-	-	26.a	20155	Piston for 10:1 model
-	-	26.b	10115	Piston Ø120mm for 30:1 model
27	WASHER	-	-	-
-	-	27.a	10125	Washer for 10:1 model
-	-	27.b	10126	Washer for 30:1 model
28	STEM	-	-	-
-	-	28.a	10130	Stem for 10:1 model
-	-	28.b	10131	Ø15mm stem for 30:1 model
29	RING OR 104	-	10155	-
30	CYLINDER	-	-	-
-	-	30.a	20160	Cylinder for 10:1 model
-	-	30.b	10135	Cylinder Ø140X10 for 30:1 model
31	SEALING RING 15X22X5	-	10143	-
32	LOWER FLANGE	-	-	-
-	-	32.a	10142	Lower flange for 10:1 model
-	-	32.b	10148	Lower flange Ø140mm for 30:1 model
33	NIPPLO 1/4"-3/8"	-	799004	-
34	SEALING RING 15X23X5,7	-	20062	-
35	RING OR 139	-	10170	-
36	ROD 300 MM (1)	-	100013	-
37	TUBE 300MM (1)	-	10028	-
38	SEALING RING 20X28X6,5	-	20060	-
39	FLAT WASHER	-	10114	-
40	OUTER PISTON	-	10116	-
41	INNER PISTON	-	10118	-
42	RING OR 121	-	10120	-
43	SEEGER RING	-	10122	-
44	BALL 23/32"	-	10124	-
45	RING OR 134	-	10050	-
46	FOOT VALVE	-	40110	-
-	GASKET KIT	-	-	-
-	PP-5 10:1 GASKET KIT		GASKETKIT-PP5101	Gasket kit for PP-5 pumps with 10:1 ratio
-	PP-5 30:1 GASKET KIT		GASKETKIT-PP5301	Seal kit for PP-5 pumps with 30:1 ratio

(1) Can be changed according to the length you need

Below we want to give an exploded view of the components of the pumping unit with a ratio of 3:1 (oil)



No.	Description	Var.	Code	Variant details
01	SCREW TCEI 6X20	-	10150	-
02	COVER	-	10175	-
03	TE SCREW 6X16	-	10210	-
04	DOMED WASHER	-	10215	-
05	RING OR 2087	-	10225	-
06	AIR DISTRIBUTOR	-	10220	-
07	SILENCER 3/8"	-	10230	-
08	TEI SCREW 8X6	-	10203	-
09	TCEI SCREW 6X90	-	10180	-
10	DISTRIBUTOR CYLINDER	-	10255	-
11	RING OR 106	-	10185	-
12	1/2" BALL	-	10240	-
13	SPRING	-	10248	-
14	STOPPER	-	10250	-
15	BOBBIN	-	10260	-
16	PLUG	-	10266	-
17	THREADED STUD	-	10190	-
18	GUIDE	-	10267	-
19	NUT	-	10195	-
20	TOP FLANGE	-	20145	-
21	TEI SCREW 6X5	-	10205	-
22	SEALING RING 6X12X4	-	10270	-
23	NUT M6	-	10265	-
24	NUT	-	10100	-
25	RING OR 176	-	20150	-
26	PISTON	-	20155	-
27	WASHER	-	10125	-
28	STEM	-	10130	-
29	RING OR 104	-	10155	-
30	CYLINDER	-	20160	-
31	SEALING RING 15X22X5	-	10143	-
32	LOWER FLANGE	-	20162	-
33	NIPPLES 1/2"-1/2"	-	7991	-
34	SEALING RING 15X23X5,7	-	20062	-
35	RING OR 146	-	20050	-
36	ROD	-	200001	-
37	UPPER BODY PISTON	-	200403	-
38	BALL 23/32"	-	10124	-
39	SEALING RING 40X50X7	-	20063	-
40	UPPOER PISTON LOWER BODY	-	200402	-
41	GUIDE RING	-	20064	-
42	PERFORATED STEM	-	20075	-
43	TUBE L=670 mm	-	20010	-
44	SEALING RING 20X28X6	-	20059	-
45	CONNECTING NIPPLES	-	20055	-
46	LOWER PISTON	-	2004021	-
47	TUBE L=140mm	-	20020	-
48	REATINING RING	-	20095	-
49	BALL 7/8"	-	20100	-
50	FOOT VALVE	-	20105	-
51	MESH FILTER	-	20130	-
52	SEEGER	-	20135	-
-	GASKET KIT	-	GASKETKIT-PP5OIL	-

2.2 Technical data

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

SPECIFICATIONS		
Description	**UdM**	**Values**
General		
Model	\	PP-5
Activation	\	Single Acting
Materials in contact with the fluid	\	Galvanized steel
	\	polyurethane
	\	NBR
	\	Brass
	\	Aluminum
Tire		
Working pressure	bar	1 ÷ 8
Maximum product outlet pressure (R = 10:1)	bar	80
Maximum product outlet pressure (R = 30:1)	bar	240
Maximum product outlet pressure (R = 3:1)	bar	24
Pneumatic inlet connection	mm	8X6
Fluid outlet connection (R = 10:1) (R = 30:1)	\	1/4" M
Fluidic outlet connection (R = 3:1)	\	1/2" M

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
Greases (recommended use of pump R = 10:1 and R = 30:1)
Oils (recommended use of pump R = 3:1)

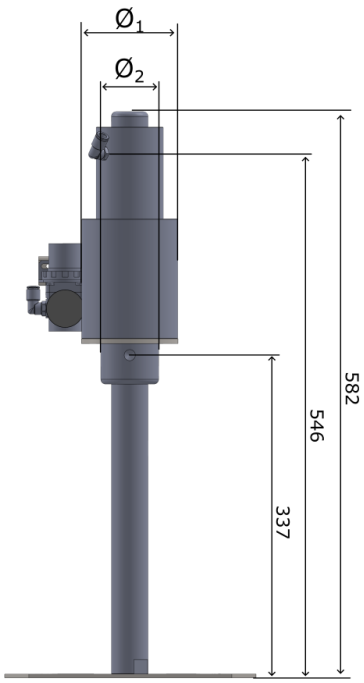
DANGER!
Depending on the working pressure of the component, it is recommended to use a certain type of hose, i.e. at high pressures it is recommended to use armored hoses.

DIMENSIONAL AND WEIGHT CHARACTERISTICS PP-5 10:1 and 3:1		
Description	**UdM**	**Value**
Component diameter (min ÷ max) (Ø1)	mm	100
Component diameter (min ÷ max) (Ø2)	mm	60
Component height (min ÷ max)	mm	582 (1)
Component weight	kg	9

DIMENSIONAL AND WEIGHT CHARACTERISTICS PP-5 30:1		
Description	**UdM**	**Value**
Component diameter (min ÷ max)	mm	140
Component diameter (min ÷ max) (Ø2)	mm	60
Component height (min ÷ max)	mm	582 (1)
Component weight	kg	11

(1) The height depends on the application. In this case, the height of the standard component is indicated.

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.

FIRE/EXPLOSION HAZARD!
This component is not designed to work in an ATEX environment.

DANGER!
Be very careful when servicing the component, especially when disassembling components that have pressure springs inside.

DANGER!
Do not use fluids that react in contact with the materials indicated in chapter 2.2

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

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 Machine safety devices

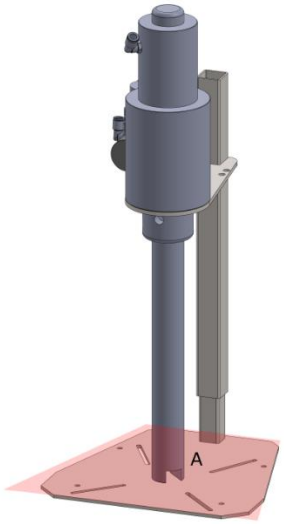
N.A.

3.2 Free useful spaces

N.A.

3.3 Risk areas and residual risk

In this component there are risk areas, i.e. the part below the pump, as shown in the figure.



ATTENTION!
Risk of crushing! Never operate under the pump while it is pressurized.

ATTENTION!
Toxic gas danger! Always use PPE to protect against gases and any residues of toxic and/or corrosive fluids

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.

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.

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.

This component can be installed in two ways:

- If there is a support base, there are 4 through-holes that allow the pump to be fixed on a surface parallel to the ground. Be sure to secure the pump firmly so that the supply and the height of the fluid are not affected by any vibrations;
- If there is no support base, a hole must be provided in the tank into which the pump body of the size given in chapter 2.2 must be inserted.

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

N.A.

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

This component can accommodate an end-of-product level sensor (in case it is used with the mount). Check the sensor's electrical connections to the control system

It is recommended that the component be grounded to prevent a build-up of electrical charges.

5.2.2 Pneumatic

Authorized personnel		**PPE to wear**					
Component status	Component placed in the work zone						
Power Values	See chapter 2.2						
Necessary preparations	Working pneumatic air system						
Materials needed							
Equipment needed							

The pneumatic connection is the responsibility of the customer.

To connect the pneumatic system of the component, it is necessary to have a Ø6X4mm hose and connect it to the pressure reducer located on the cover of the component. To connect it, simply apply a little pressure by pushing the hose inside the hole until you hear a connection confirmation sound

ATTENTION!
There is a risk of the hose disconnecting from its connection area if it is not properly inserted. Before turning on the air, perform a leak test of the hose by trying to pull slightly.

5.2.3 Fluidic

Authorized personnel		**PPE to wear**					
Component status	Component placed in the work zone						
Power Values	See chapter 2.2						
Necessary preparations	N.A.						
Materials needed	N.A.						
Equipment needed	N.A.						

The fluidic connection is the responsibility of the customer.

This component has a direct connection of the fluidic supply hose according to the dimensions given in chapter 2.2.

ATTENTION!
The tube must not be tightened too much otherwise there is a risk of breaking it or choking it too much, affecting the quality of the dosage

It is advisable to use a grease filter if you have grease that risks having impurities inside, to get a clean fluid to the dosing system, thus avoiding problems for the dosing system itself.

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:

- Check that the connections have been connected correctly;
- Check that the component is free of dirt or residues of various kinds;
- Check that the sealing knobs are secure in place;
- Check that the vent valve is closed;

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

N.A.

7 PROCEDURE

In this chapter we want to explain the main configurations that can be used on the component covered by this manual. In particular, we want to explain in detail:

- How to replace the drum (pump with support);
- How to replace the drum (pump without support);
- First baiting.

7.1 Changing the drum (pump with stand)

This procedure is to be used when the drum of fluid you are using is almost finished and you need to replace the drum with a new one; or, in the case where a level sensor has been installed, the keg must be changed when the level sensor sends the signal to the control system that the keg itself is exhausted. To be able to perform the replacement, you must proceed as follows:

- Turn the inlet pressure adjustment knob counterclockwise so that no more air enters the system and the knob vents the residual air. If it is not vented, allow the pump to work until the air is completely (or almost completely) removed from the pneumatic system;
- Open the valve located on the pump plate;
- Lift the entire pump body and lock it with the special pin located on the side of the telescopic support tube of the pump itself;
- Remove the drum of used product;
- Place another drum of product on the pump support area;
- Remove the cotter pin and lower the pump body, bringing the drum to the center of the pump plate. Accompany the body until the plate enters the inside of the barrel, including the membrane;
- Vent the air by pressing on the drum;
- Close the valve on the pressing plate;
- Gradually increase the regulator pressure (1-2 bar) until the working pressure is reached;

7.2 Changing the drum (pump without stand)

This procedure is to be used when the drum of fluid you are using is almost finished and you need to replace the drum with a new one; or, in the case where a level sensor has been installed, the keg must be changed when the level sensor sends the signal to the control system that the keg itself is exhausted. To be able to perform the replacement, you must proceed as follows:

- Turn the inlet pressure adjustment knob counterclockwise so that no more air enters the system and the knob vents the residual air. If it is not vented, allow the pump to work until the air is completely (or almost completely) removed from the pneumatic system;
- Lift the entire pump body until it comes out completely;
- Replace the drum with a new one;
- Insert the pump inside;
- Make the various connections of any other components (level sensor and other);
- Open the choke knob to the operating pressure.

7.3 First priming

This procedure is only to be used when the pump is primed for the first time, i.e. when the pump has been thoroughly cleaned and there is no fluid inside the pump.

ATTENTION!
There must be no fluidic hoses connected to the pump, and the inlet pressure reducer must be set to zero.

- Put the pump inside the drum (or the drum under the pump, depending on the type of use to be made);
- Bring the pressure to 0.5 – 1 bar maximum on the pneumatic pressure reducer;
- Wait for the exchange frequency to decrease until the fluid comes out (if the fluid is very viscous, increase the pressure once the exchange frequency decreases, so that you can see the fluid from the appropriate outlet);
- Bring the pressure on the reducer back to 0;
- Clean the area and connect the fluidic hoses;
- Bring the pneumatic pressure reducer to working pressure.

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 component start or job 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 (tank, drum, cartridge or other) is changed;
- **Each mixer disassembly:** Indicates that each time the mixer is replaced, a certain operation must be performed;
- **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
	Perform a surface cleaning of the component	Each component start or end of work	\
	Perform a leak check from the fluidic system	Each component start or end of work	\
	Perform a leak check from the pneumatic system	Each component start or end of work	\
	Perform a leak check of the platter gasket (if present)	Each component start or end of work	\
	Replacing the pressure plate gasket (if fitted)	Annual	8.1
	Cleaning the grease filter	Annual	8.2

It is advisable to keep a table with all the maintenance performed for each tank

ATTENTION!
Do not use aggressive products to clean the component, or products that may react with the tank materials or the fluid you are using.

ATTENTION!
For long work interruptions (more than a few hours), it is advisable to remove the air from the pumping circuit, even if the pump is switched off. This is because some types of grease under pressure tend to separate, causing the system to malfunction and a non-compliant product dosage.

8.1 Replacement of the pressure plate gasket

Assigned	Periodicity	Materials and equipment
	Annual	N.A.

PPE to wear

The pressing plate gasket must be replaced when air (or product) begins to draw from the edges of the drum, making the function of the pressing plate itself ineffective. To replace it, the drum change procedure (chapter 7.1) must be followed until the drum is replaced with a new one. Before inserting the new barrel, you must:

- Unscrew the screws that hold the plate pressing on the structure. They are central screws that hold the entire structure of the platter attached to the pump;
- If present, unscrew the screws that hold the two sides of the platter in place. They are generally bolted screws and are located on the outside of the plate itself;
- Replace the platter gasket with an identical one;
- Assemble the platter following the reverse disassembly procedure.

ATTENTION!
You must be sure that the material with which the gasket of the platter you are going to use is the same as the one you were using, especially if you are using dangerous fluids.

ATTENTION!
Before fitting the new gasket, check that the diameter of the new gasket and the position of the holes are identical to the one you are going to replace.

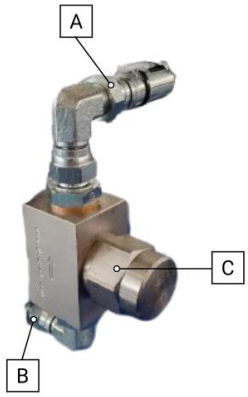
As standard, the manufacturer uses the code MEMBRANE-PP5 and it is an NBR membrane.

8.2 Filter cleaning (if any)

Assigned	Periodicity	Materials and equipment
	Annual	N.A.

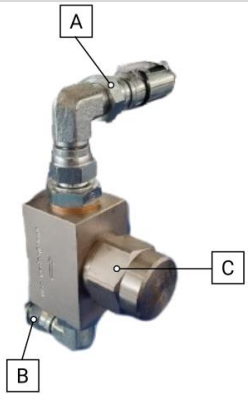
PPE to wear

01 DISASSEMBLY



- Turn the pneumatic pressure reducer knob counterclockwise to remove the pneumatic pressure;
- Let the fluidic system work until the fluid coming out of the valve has a low pressure (if a pressure gauge is present, it must be below 1 bar)
- Remove the filter from its housing by acting on the ring nuts (A) and (B) shown in the figure;
- Put the filter on a vice and, with a special wrench, unscrew the component (C);
- Paying attention to the spring inside it, remove the component and take the net;
- Clean the screen with a special cleaner (ask your product supplier for more information);

02 ASSEMBLY



- Put the components back in place;
- Close the component (C) with the appropriate key and make sure that it is closed properly;
- Put the component back in the same direction as you removed it on the fluidic circuit. If in doubt, follow the arrow on the component, which follows the flow of the fluid;
- Secure the component using special ferrules (A) and (B);
- Once the reassembly is complete, turn the knob of the pneumatic pressure reducer until the working pressure is reached.

ATTENTION!

Once the component has been reassembled, perform some purges with the dosing valve, as air has accumulated inside the fluidic system. Once the metering valve has no air bubbles inside it and performs a continuous, linear metering, resume normal work activities

9 TROUBLESHOOTING

This chapter deals with the most common problems that may arise when using the component of this manual.

ATTENTION!
Once the operator has found a problem or assumes that there is a problem, they must call the technician in charge of maintenance. Maintenance should always be performed by a specialized and qualified technician.

DEFECT	CAUSE	SOLUTION
Pump motor runs but no grease comes out	Air bubbles in the pump system or in the product drum	Open the vent valve and let the air out
		Check if the pressing plate is in contact with the grease
	Fluidic or pneumatic circuit leaks	Check all connections
	Pneumatic pressure gauge misadjusted	Bring it to an optimal setting for your system
	Foreign body blocks the pump operating mechanism	Contact the manufacturer
Contamination of output grease	Chips or various particles prevent the pump from working properly	Disassemble the pump, clean it and reassemble it on the drum, checking that the grease does not contain any foreign parts.
	The barrel of the product contains impurities	Install a grease filter at the pump outlet

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 the component;
- **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.

On the other hand, for the dismantling and consequent scrapping 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.