PARTS, SYSTEMS AND AUTOMATIONS FOR FLUID DISPENSING

USE AND MAINTENANCE MANUAL

DA-400 MINI PEEK NEEDLE METERING VALVE

COD.: **DTVI_DA400MP_2404**
REV.: **00**
DATE: **13/02/2024**

TRANSLATED FROM ORIGINAL
Read carefully before use!

EN

Summary

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: DA 400 MINI PEEK valve
Model: Pressure-time dosing valve with solenoid valve
Year: 2024
Intended use: Volumetric dispensing of low and medium viscosity fluid

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:

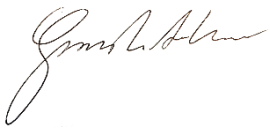
- Undertakings are undertaken to provide, in response to a properly substantiated request from the national authorities, relevant information on this partly completed machine;
- The technical file was prepared by Andrea Grazioli, via Ravizza, 30, Montecchio Maggiore (VI), IT.

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, 19 January 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.
D.P.I.	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.
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

This metering valve is an electro-pneumatically controlled component designed for precision dispensing of low and medium viscosity fluids. Its idle state is normally closed, i.e. without pneumatic power the valve does not dispense fluid, since there is a safety spring inside the component. When a supply of at least 6 bar arrives from its inlet, the valve begins to release the fluid and, therefore, to dose; In addition, given the short stroke required by the needle, the valve has very fast reaction times, allowing greater precision. This action can be modulated both by adjusting the fluidic pressure at the inlet but also by adjusting the opening of the needle, present on its upper part.

In other words, the function of this component is:

PRECISION DISPENSING OF LOW AND MEDIUM VISCOSITY FLUID

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.

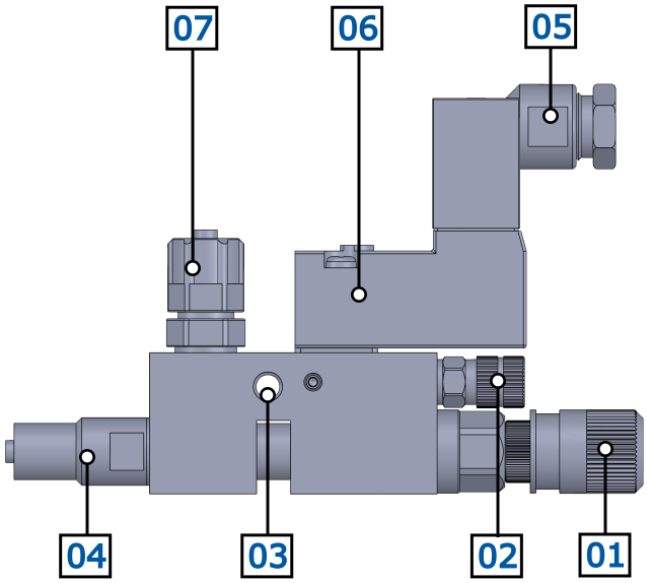


Figure 01 – Detail DA 400 MINI PEEK

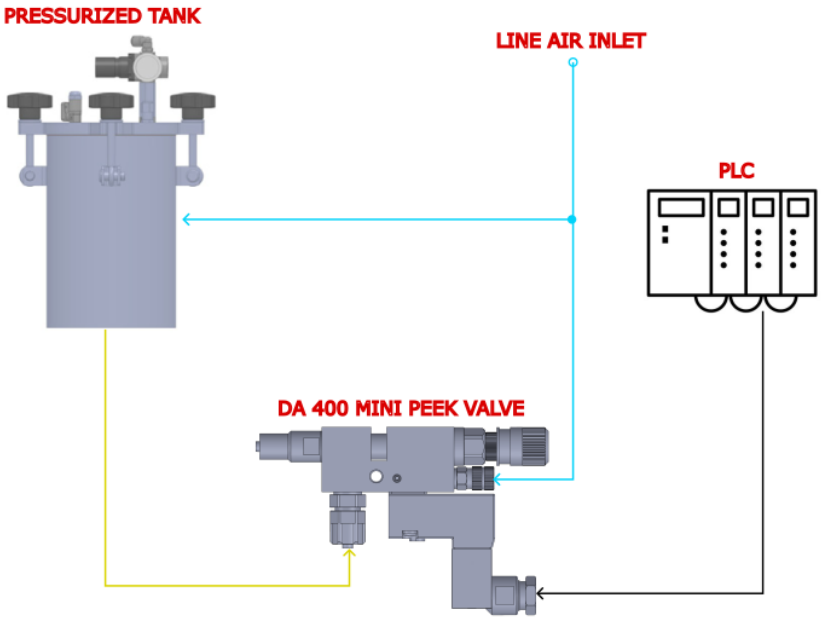
No.	DESCRIPTION
01	Adjustment knob
02	Air inlet
03	Threaded fixing hole
04	Product Output
05	Solenoid valve cable entry
06	Solenoid valve
07	Product Input

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 valve;
- 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.

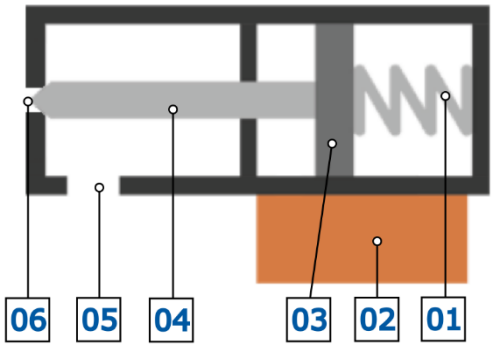
If it is necessary to use several fluids with the same valve, it must be cleaned thoroughly to prevent residues from the previous processing from affecting the processing to be performed.

OPERATION



COLOR	MEANING
CYAN	Air
YELLOW	Product
BLACK	Data
RED	Notes

Figure 02 – Connection Example



No.	DESCRIPTION
01	Spring
02	Solenoid valve 3/2
03	Piston
04	Pin
05	Fluid inlet
06	Needle coupling / fluid outlet

Figure 03 – Internal section DA 400 MINI PEEK

The valve is included with a solenoid valve which, connected to the PLC, allows it to be managed with a single air inlet, leaving the PLC and the solenoid valve the task of managing opening and closing. This type of valve can only be operated as a single-acting valve; therefore, only the opening of the valve itself is managed by pneumatic actuation and 3/2 valve.

In addition, the valve can be used to perform two types of dispensing:

- Line mode, in which fluid continuously exits the nozzle;
- Point mode, in which a very rapid and localized dosage is performed.

ATTENTION!
To use it in dot mode, ask the manufacturer for more information, as there are many aspects to consider to perform an optimal dosage.

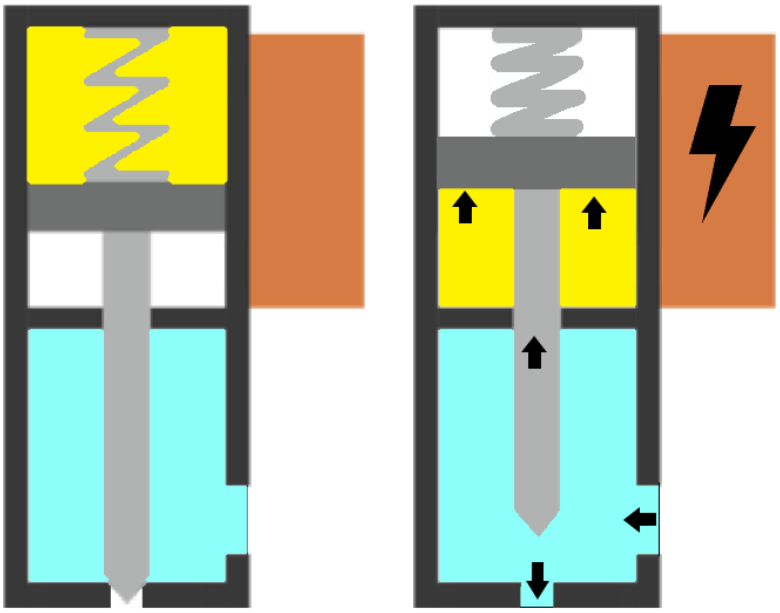
Figure 02 shows the most complete case. For minimum working pressures, please refer to Chapter 2.2.

The valve cannot operate autonomously. To ensure that it dispenses product, it must be connected to a power source, which can be a tank, a pump or other, depending on the system and the customer's needs.

ATTENTION!
It is recommended that the valve be connected to the sources indicated in this manual in chapter 2.2. Connecting it to other sources or products with features not listed in this manual may break the valve.

The valve is also equipped with a flow regulator, which is used to determine how much product to dose. In practice, the adjustment of the pin determines, together with the pressure of the material and the opening time, the quantity of product dispensed. To use the knob (or the set screw), you can turn clockwise to decrease the stroke of the needle and, therefore, the amount of fluid dispensed (until it is completely closed); Turning in the other direction increases the amount of fluid delivered.

Below we want to explain the operation through the section of the DA 400 MINI PEEK valve. Note that blue indicates the fluid inlet/outlet, yellow the air, when present.



During the first phase (the closing phase), the valve transmits air inside the circuit through the solenoid valve.

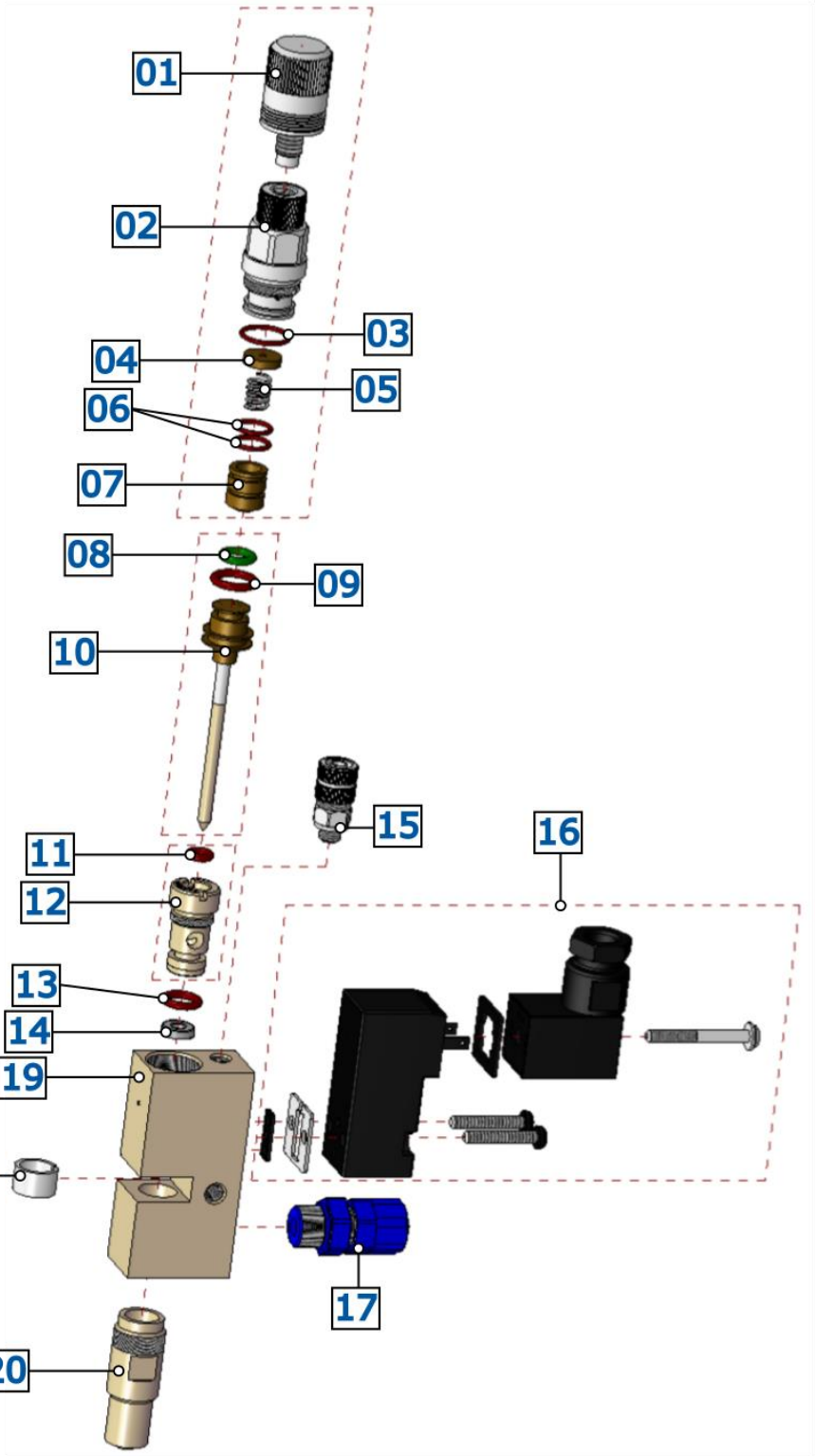
When the solenoid valve receives command, it lets air in from the inlet to open the dosing valve, raising the needle and allowing the fluid to exit continuously, pushed by the pressure of the fluid itself. As soon as the signal from the PLC stops, the solenoid valve lets the air out of the opening chamber, filling the closing chamber and letting the spring act, to close the fluid passage hole.

USEFUL TIPS

- In the presence of fluids that react with metal, plastic nozzles must be used, otherwise there are obstructions in the dosing system;
- The needle thread (present between the nozzle and the nozzle holder) must always be greased with generic grease (e.g. petroleum jelly grease) to prevent the product from drying out between the nozzle and the nozzle holder, ruining the valve;
- It must be considered that the product inside the tip of the nozzle can cross-link and dry out; To avoid this, the valve must either be changed frequently or an automatic product purge system must be provided, to give recirculation to the product at the tip of the nozzle and prevent it from drying out. Purge times vary from product to product, please see the product manual;
- During maintenance, it must be ensured that the environment is clean and does not have foreign material to the valve (e.g. shavings), including hands, otherwise there is a risk of dust (or other) entering the valve, which could have reactions inside the valve that could rupture the valve. The use of gloves is recommended whenever the valve needs to be opened.

2.1 Exploded

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



No.	Description	Var.	Code	Variant details
01	ADJUSTMENT RING	-	610092	-
02	BODY ADJUSTMENT	-	220132	-
03	O-RING	-	640052	-
04	DISC SPRING	-	930010	-
05	COMPRESSION SPRING	-	820023	
06	O-RING	-	640019	
07	ADJUSTMENT BUSH	-	710016	
08	O-RING	-	640002	
09	O-RING	-	640001	
10	PIN		-	-
-		10.a	111938	LV 0.4mm PEEK
-		10.b	112654	LV 0.5mm PEEK
-		10.c	112021	KV 0.2/0.3 mm PEEK/Luer Lock
-		10.d	112652	Standard 0.5mm PEEK
		10.e	114719	KV 0.5mm
		10.f	114720	KV 0.8/1mm
11	O-RING	-	640026	-
12	COLLET	-	-	-
-		12.a	810165	Sleeve without o-rings
-		12.b	810166	O-ring socket (new model)
13	O-RING	-	640021	-
14	SEAL	-	640004	-
15	COMPLETE SCREWED CONNECTION		220089	-
16	SOLENOID VALVE 3/2 WITH CONNECTOR	-	150104	
17	FLUID CONNECTION	-	220022	-
18	PLASTIC SLEEVE	-	640101	-
19	PEEK MAIN BODY	-	511117	-
20	NOZZLE	-	-	-
-		10.a	211606	LV 0.4mm
-		10.b	212235	LV 0.5mm
-		10.c	211709	Luer-Lock M12x0.75, PEEK
-		10.d	213063	Ø1.0mm, 31mm, M 1/8”
		10.e	213812	KV0.8mm
		10.f	213981	Luer Lock 1.5mm
		10.g	213982	Luer Lock 2mm
		10.h	213132	KV 0.3mm
		10.i	213133	KV 0.5mm
\	COMPLETE GASKET KIT	-	GASKETKIT-DA400MINIPEEK	-

2.2 Technical data

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

SPECIFICATIONS		
Description	**UdM**	**Values**
Model	\	DA 400 MINI PEEK
Activation	\	Single Effect
Solenoid valve power supply	VDC	24
Solenoid valve power consumption	W	2
Minimum electrical cable cross-section	mm	0.35
Maximum fluid pressure	bar	10
Minimum pneumatic pressure	bar	6 ÷ 8
Maximum frequency of use dosage	points/s	30
Step per micrometer shot	mm/click	0.01
Pin lift every 360° micrometric	mm	0.5
Air inlet thread	\	M5
Air inlet hose	mm	6x4
Fluid inlet thread	\	1/8 GAS
Fluid outlet thread	\	GAS threaded nozzle
		Nozzle with ring nut
		Luer lock needle holder
		Steel nozzles of various shapes and sizes
Maximum control frequency	cycles/min	200
Passage adjustment	\	Micrometric
Materials used	\	PEEK
		Viton
		PTFE

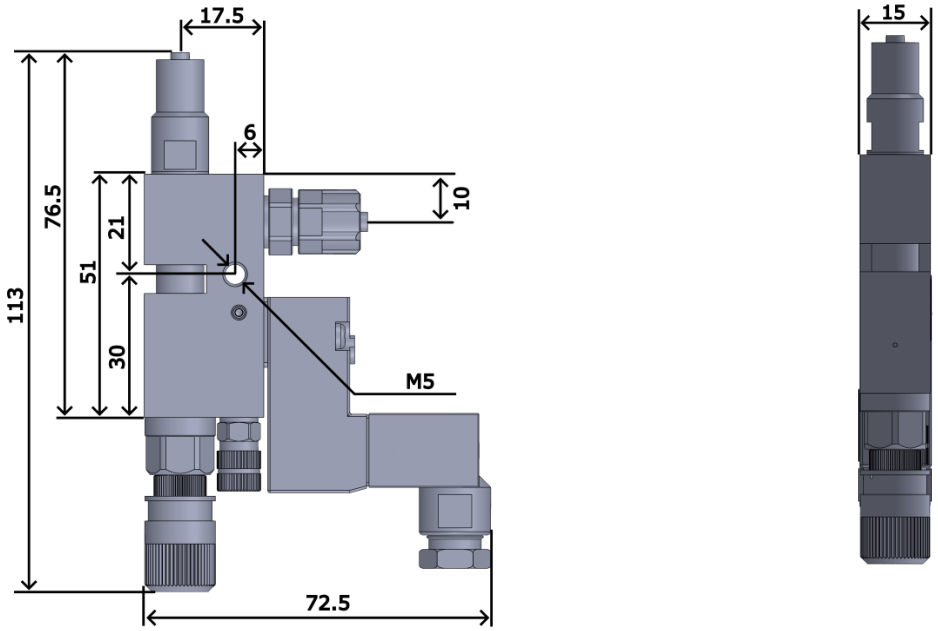
ATTENTION!
With inlet fluid pressures above 8 bar, use reinforced hoses

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
Glues
Anaerobic materials
Liquid gaskets
Grease
Resins
Oil
Products not compatible with metal
Miscellaneous products with low - medium viscosity (contact the manufacturer for more information)

DIMENSIONAL AND WEIGHT CHARACTERISTICS		
Description	**UdM**	**Value**
Component length (min ÷ max)	mm	~113
Component depth (min ÷ max)	mm	15
Component height (min ÷ max)	mm	72.5
Component weight	kg	0.11

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.

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 Component safety devices

N.A.

3.2 Free useful spaces

N.A.

3.3 Risk areas and residual risk

There are the following residual risks on the component:

- **Dangers due to electricity:** the passage of pressurized fluid generates static electricity which, if touched by personnel who are not properly isolated, can be dangerous;
- **Hazards due to inhalation of hazardous vapors:** The component is not designed to have insulation from any toxic and/or hazardous vapors; personnel working with this device should be aware of this during its use;
- **Fire hazard due to vapors:** Personnel working near this component must absolutely not have any heat sources that could start a fire;
- **Risk due to fluid projection under pressure:** Due to incorrect maintenance of the component, it can lead to the expulsion of some parts of the component and consequent expulsion of fluid.

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.

The valve has been designed to be used in the following cases:

- Work independently as a fluid dispenser on a pressure/time basis;

It is also equipped with a threaded hole (number 03, figure 01, chapter 2) to provide for fixing it. It is also advisable to fix it well to the support, as the vibrations that are caused by the machinery in operation could take the valve off-center, resulting in a dosage that is not optimal.

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;

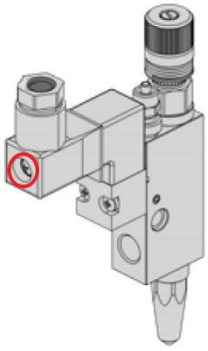
5.2.1 Electric

Authorized personnel		**PPE to wear**	    
Component status	PLC installed, with outgoing communication cable		
Power Values	See chapter 2.2		
Necessary preparations	Electrical cable with correct power supply		
Materials needed	N.A.		
Equipment needed	N.A.		

The electricity connection is at the expense of the customer.

To make the electrical connection, the electric cable (which must comply with the specifications given in chapter 2.2) must be connected to the appropriate socket, which can be reached in this way:

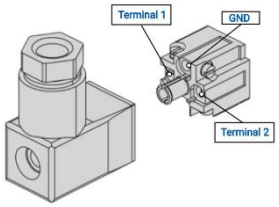
01



- Unscrew the screw that holds the entrance of the electrical connection wires in place. Make sure the screw comes out completely.

ATTENTION!
You must make sure that the screw comes out completely, otherwise it risks keeping the connection block blocked. Also, pay attention to the presence of a gasket.

02



- Using a flat screwdriver, lift the connection block, bringing the connections to light as shown in the figure;
- Unscrew the cable locking ring;
- Insert the cable inside the block;
- Make electrical connections.

There is a coil inside, so terminal 1 and terminal 2 can be connected freely.

Once you have performed the steps above, close everything and lock the cable with the appropriate lock.

5.2.2 Pneumatic

Authorized personnel		**PPE to wear**	    
Component status	Component installed and turned off		
Power Values	See chapter 2.2		
Necessary preparations	Working pneumatic air system		
Materials needed	Fixing screws (for centering holes)		
Equipment needed	Wrench or screwdriver		

The pneumatic connection is the responsibility of the customer.

Before assembling the valve, it is recommended to calibrate it, so as to perform it precisely and once performed, you can proceed with the assembly and possible fixing by screws passing through the centering holes. For connections, it is recommended to connect the pneumatic hose first (or both in the case of double-acting work) and then proceed with the connection of the product hose (using the data given in chapter 2.2).

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;

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 perform needle adjustment via micrometric configuration;

It should be noted that the output fluid does not depend only on the needle adjustment, but also on other factors, namely:

- **Nozzle diameter:** the larger the nozzle diameter, the higher the flow rate of fluid at the outlet;
- **Fluid pressure:** the higher the fluid pressure, the higher its outlet flow rate;
- **Needle stroke adjustment:** The larger the needle stroke, the higher the flow rate.

7.1 Micrometric adjustment

In this case, the adjustment knob must be adjusted (see chapter 2, figure 01, number 01), to adjust the amount of fluid dispensed with extreme precision, namely:

- Turn counterclockwise to increase the needle stroke and therefore the amount of fluid dispensed;
- Turn clockwise to decrease the needle stroke and therefore the amount of fluid dispensed. If you reach the end of the stroke, the valve is completely closed and, therefore, there is no fluid delivery.

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 conducted when the need to be conducted is seen;
- **Every machine 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 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 test function of the valve	Every machine start up or job end	\
	Perform a surface cleaning of the valve	Every machine start up or job end	\
	Cleaning and/or replacing the nozzle	Semiannual	8.1, points 4 and 5
	Disassembly and reassembly of the valve	Annual	8.1

ATTENTION!
Apply the grease tip at the end of the work and at every prolonged pause in the system, to preserve the fluid inside the system and the functionality of the valve itself

ATTENTION!
Only use soft brushes or cotton cloths to clean the valve.

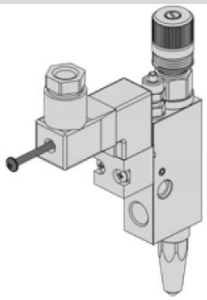
8.1 Disassembly and reassembly of the valve

Assigned	Periodicity	Materials and equipment
	Annual	• Key of 13; • Key of 9 or 10; • Narrow-nose pliers; • Slotted screwdriver.

PPE to wear

ATTENTION!
Before performing this procedure, it is necessary to relieve the pressure from the system and disconnect the air connection, as well as to disconnect the power to the circuit.

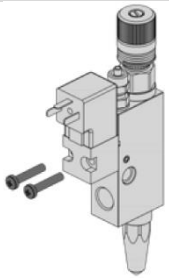
01



- Unscrew the fixing screw of the electrical connection block of the solenoid valve;
- Remove the electrical connection block;

ATTENTION!
Pay attention to electrical wiring. There is no need to remove them because, in the next step, the solenoid valve block is removed, but care must still be taken.

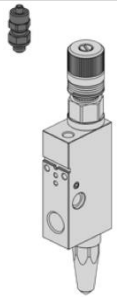
02



- Remove the fixing screws of the solenoid valve block and remove it.

ATTENTION!
There is a molded junction underneath this block. It must be reinstalled in the same direction as it is located, otherwise there will be malfunctions in the system.

03

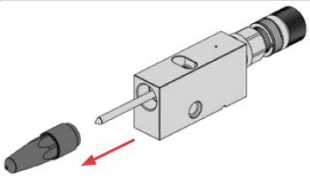


- Unscrew the air connection using a 9mm wrench.

04

- Unscrew the needle adjustment using the appropriate adjustment nut (or micrometric valve) until there is no more resistance

05

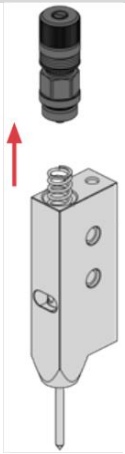


Unscrew the nozzle with a wrench of 10.

Once the nozzle has been disassembled, a simple cloth can be used to clean it. If you find it necessary to use a tool to perform cleaning, you should use the appropriate cleaning needle.

Points 04 and 05 are used to disassemble the outlet nozzle only. To reassemble it, follow the reverse procedure.

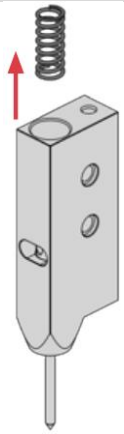
06



Unscrew the adjustment lock with a wrench of 13

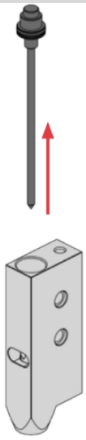
ATTENTION!
Under this block there is a spring that is in compression.
Unscrew it paying close attention.

07



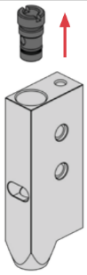
Sweep the spring

08



Remove the pin with the help of narrow-nosed pliers

09



Unscrew the sleeve with a slotted screwdriver and remove it from the valve body.

10

Check the wear and condition of the components in positions 11, 13 and 14 of chapter 2.1 and replace them if necessary. In any case, always lubricate the components before reassembling them with grease or silicone-based oil specifically designed for o-rings.

To reassemble the valve, follow the same steps just seen but in reverse. Before starting the assembly phase, always clean the components, check the o-rings for wear (replace them if necessary) and always lubricate the o-rings.

ATTENTION!
When installing the micrometer regulator or clamping screw, pay particular attention that the thread is inserted correctly, i.e. perpendicular to the body, and not that it is inclined.

ATTENTION!
Before screwing the nozzle into place, check that the adjusting screw, or knob, is completely loose to avoid damaging the nozzle and needle. To loosen them, turn counterclockwise until they no longer resist.

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
Low fluid output or no fluid	The valve does not receive the command	Check the valve control (solenoid valve). Perform a manual test
	Fluid pressure is too low or no fluid	Check the pressure of the fluid supply unit and increase it if necessary
	The nozzle is clogged	Unscrew and clean the nozzle
	The filter is dirty (if any)	Wash or replace the filter
	A tube is kinked	Check the condition of the fluid supply hoses
	Insufficient operating pressure	Check the actuation pressure (chap. 2.2)
	Fluid residues present in the system	Disassemble and clean any solid particles
	Lubricant with too high viscosity	See chapter 2.2 and fluid data sheet
Fluid leaking from the collet	Damaged scraper or pin	Replace the scraper or pin
Fluid leakage between valve body and fixing plate	O-Ring on the damaged fluid hose holder	Replace hose holder o-rings
Nozzle drips even if valve is not piloted	Dirt in the nozzle	Clean or replace the nozzle
Valve opens late	Insufficient operating pressure	Check the actuation pressure (chap. 2.2)
	O-Ring on Damaged Air Piston	Replace O-Ring on Pneumatic Piston
The valve activates, but the fluid is not expelled	The feed pump does not lubricate pump	Observe the operating instructions for the feed pump
	Nozzle blocked by residue	Clean the nozzle
	Fluid pressure too low	Increase the fluid pressure (see chapter 2.2)
Continuous signal from the sensor	Faulty sensor	Replace sensor
No signal from the sensor	Broken cable	Replace the cable
	Faulty sensor	Replace the sensor
Air in the system	Air bubbles in the lubricant container	Loosen the inlet hose. Vent the system. Reassemble the inlet hose.
	Air bubbles in the pipes	
Non-hermetic valve	Defective gasket	Replace the gasket
The pin does not open	Needle stuck inside the nozzle	Clean the nozzle
	Low control air pressure	Check the line air pressure (chap. 2.2.)
	Pin stroke too short	Increase the stroke of the needle using the special screw
	Faulty O-Ring	Replace O-rings
	Faulty line air pilot valve	Check the line air pilot valve

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 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.