

USE AND MAINTENANCE MANUAL

FLUIDIC PRESSURE REDUCER DAT-090



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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 appropriate behavior for correct operation. This manual has been designed to be simple and as immediate as possible, with a subdivision between chapters and sub-chapters that allows any desired information to be found quickly. Furthermore, the manual begins by giving a general description of the content, then an overview of the component, to arrive at aspects of safety, transport, installation and use and finally the end of life. In case of doubts about the interpretation or reading of this document, please contact the manufacturer.



DAV Tech disclaims all responsibility relating to improper use of the component. Comply with what is specified in this manual.



Read this manual before handling the component or performing any action on it



The manual constitutes an essential safety requirement and must accompany the component throughout its entire life cycle.

It is the responsibility of the end user to optimize the functionality of the component, always keeping in consideration the purpose for which it was built.



This manual must be kept, together with the attached documentation, in good condition, readable and complete. Furthermore, it must be stored near the component or, in any case, in a place accessible and known to all personnel who use the component itself or who must carry out maintenance or inspection interventions. In the event that the manual deteriorates or is no longer complete, a copy must be requested from the manufacturer, indicating the manual code and revision.



The manual is intended for personnel who use the component (operators), who perform maintenance on it (maintenance technicians), and personnel who must carry out checks or inspections. The manufacturer is not liable for damage to the component caused by personnel who have not followed the indications contained within the manual itself.

In case of doubts about the correct interpretation of the information contained in this manual, please contact the manufacturer.

GUARANTEE

During the design phase, a careful selection 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 withstand stresses greater than those of normal use.

The warranty is valid for a period of 12 months from the commissioning date and in any case not beyond 15 months from the delivery date. Interventions carried out during the warranty period do not extend the validity period of the warranty itself in any way.

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

1.1 Symbology

The following symbols are used to give greater impact to the importance of the concept to be conveyed.



ATTENTION!

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



DANGER!

Refers to a major event that could cause significant damage (death, permanent injury, irreversible component failure).



NOTE. Indicates relevant information or elaboration.



OBLIGATION. Indicates an activity that must be performed, related to both the component and the manual.



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

Furthermore, the symbol list is integrated with that of personnel authorized to use the component and their function, together with other symbols used within the manual.



Operator

Qualified person capable of operating on the component, performing adjustment, cleaning, start-up or restart operations. The operator is not authorized to perform maintenance.



Mechanical maintenance technician

Qualified technician capable of performing mechanical interventions, adjustment, maintenance and ordinary repair described in this manual. Not qualified to perform interventions on electrical systems in the presence of voltage.



Electrical maintenance technician

Qualified technician capable of performing electrical interventions, adjustment, maintenance and ordinary repair described in this manual. Capable of working in the presence of voltage on electrical cabinets and junction boxes. Not qualified to perform interventions on the mechanical side.



Manufacturer's technician

Qualified technician made available by the manufacturer to perform complex operations in particular situations, or in any case according to what has been agreed with the customer.

1.2 Reference standards

The normative and directive references for this manual are as follows:

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 PARTLY COMPLETED MACHINERY

Component: DAT-090A, DAT-090B, DAT-090C
Model: Fluid pressure reducer/stabilizer
Year: 2025
Intended use: Pressure reduction from medium-high to medium-low

COMPLIES WITH THE INCORPORATION PROVISIONS DICTATED BY DIRECTIVE 2006/42/EC

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

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

FURTHER DECLARES THAT:

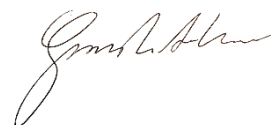
- We undertake to transmit, in response to an adequately motivated request from national authorities, relevant information on this partly completed machinery;
- The technical file has been constituted by Andrea Grazioli, via Ravizza, 30, Montecchio Maggiore (VI), IT.

This partly completed machinery cannot be used until the machinery on which it will be used is declared compliant with standard 2006/42/EC.

Montecchio Maggiore, 28 January 2025

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 activated as soon as criteria are satisfied which, as a consequence, lead to the activation of the enabled action.
Activate	The action that is performed instantaneously upon command actuation.
Hold-to-run Commands	Commands that, used for manual operations, must be kept activated for the action to be completed. When the command is released, the action stops.
Two-hand Commands	Hold-to-run commands that require simultaneous actuation of two manual commands to perform an action.
PPE	Personal Protective Equipment. Includes all objects necessary to ensure personnel protection from possible accidental damage (safety shoes, gloves, helmet, and others).
Display	Used to display information. Can be in any form and size, including touch screen.
Manufacturer	Natural or legal person who designed and manufactured the component subject to this manual.
HP	High Pressure. Abbreviation indicating high pressure.
Icon	Small image that symbolically represents a command, function or even a document or operating program, which appears on a computer screen. When selected by the user, it starts the function or program it symbolizes.
Joystick	Lever controller used in command panels.
N/A	Not Applicable, indicating a field that does not apply to this particular manual and cannot be integrated into the component.
Operator Panel	Command station where machine control instruments are located.
P.I.	Possible Implementation, currently absent from the component described in this manual, but possible to add and implement.
Screen	Interface system between man and component. Screen images displayed on the operator panel that allow the user to receive and provide information to the management software.
Control Panel	Composition of buttons and selectors that allow direct action on component behavior.
Keyboard	Keyboard only (standalone 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 graphical interface using fingers or special objects.

1.5 Service and manufacturer contact details

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

The customer can avail themselves of commercial technical support from area agents or importers, who are in direct contact with 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 manual aims to explain in detail the operation of the DAT-090 fluid pressure reducers, which serve to reduce the pressure of the fluid passing through them. This type of component can work with various types of fluids, as described in [chapter 2.2](#).

In other words, the function of this component is:

TO REDUCE THE FLUID PRESSURE OF THE PASSING FLUID.

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

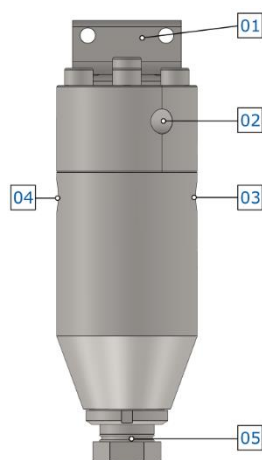


Figure 01 – Detail DAT-090

No. DESCRIPTION

01	Support bracket
02	Fluid inlet
03	Fluid outlet
04	Fluid outlet
05	Fluid pressure adjustment knob

Before using a particular type of fluid, it must be verified that:

- The viscosity of the fluid is compatible with the valve characteristics;
- The fluid characteristics satisfy the desired requirements;
- The fluid technical data sheet provided by the manufacturer contains all information regarding the product such as viscosity, applications, drying and storage times;
- The fluid storage time has not been exceeded;
- The fluid containers are hermetically sealed.

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

SPECIAL VERSIONS

This component can be supplied in 3 variants, based on the fluid pressure range desired at the component outlet. For more information, see [chapter 2.2](#)

OPERATION

This component must be connected to two fluid systems, with the inlet connected on one side and the outlet connected on the other (generally, the inlet is connected to the supply system, which can be a PP pump, while the outlet goes to the dosing system). It does not need pneumatic connections, as this component is managed mechanically.

For minimum working pressures, refer to [chapter 2.2](#).

The component cannot operate autonomously. For it to function correctly, it must be connected to a fluid source, such as a PP pump, and to the dosing system.



ATTENTION!

It is recommended to connect the component to the sources indicated in this manual in [chapter 2.2](#). Connecting them to other sources or to products with characteristics not indicated in this manual could break them.

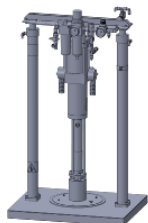
The following explains the operation of the DAT-090 component.

This component consists of a spring loaded by a knob screw, which acts on an internal piston that presses a ball valve (counterbalanced by a conical spring), which regulates the fluid flow. Based on the ball displacement, the fluid outlet pressure is determined, which is counterbalanced by the inlet fluid pressure and the conical spring present below the ball itself. An increase in outlet pressure causes the piston to move, which closes the ball valve and, therefore, interrupts the fluid outlet.

USEFUL TIPS

P.I.

PRESSURE PLATE PUMP



MANOMETER



DOSING SYSTEM

DAT-090

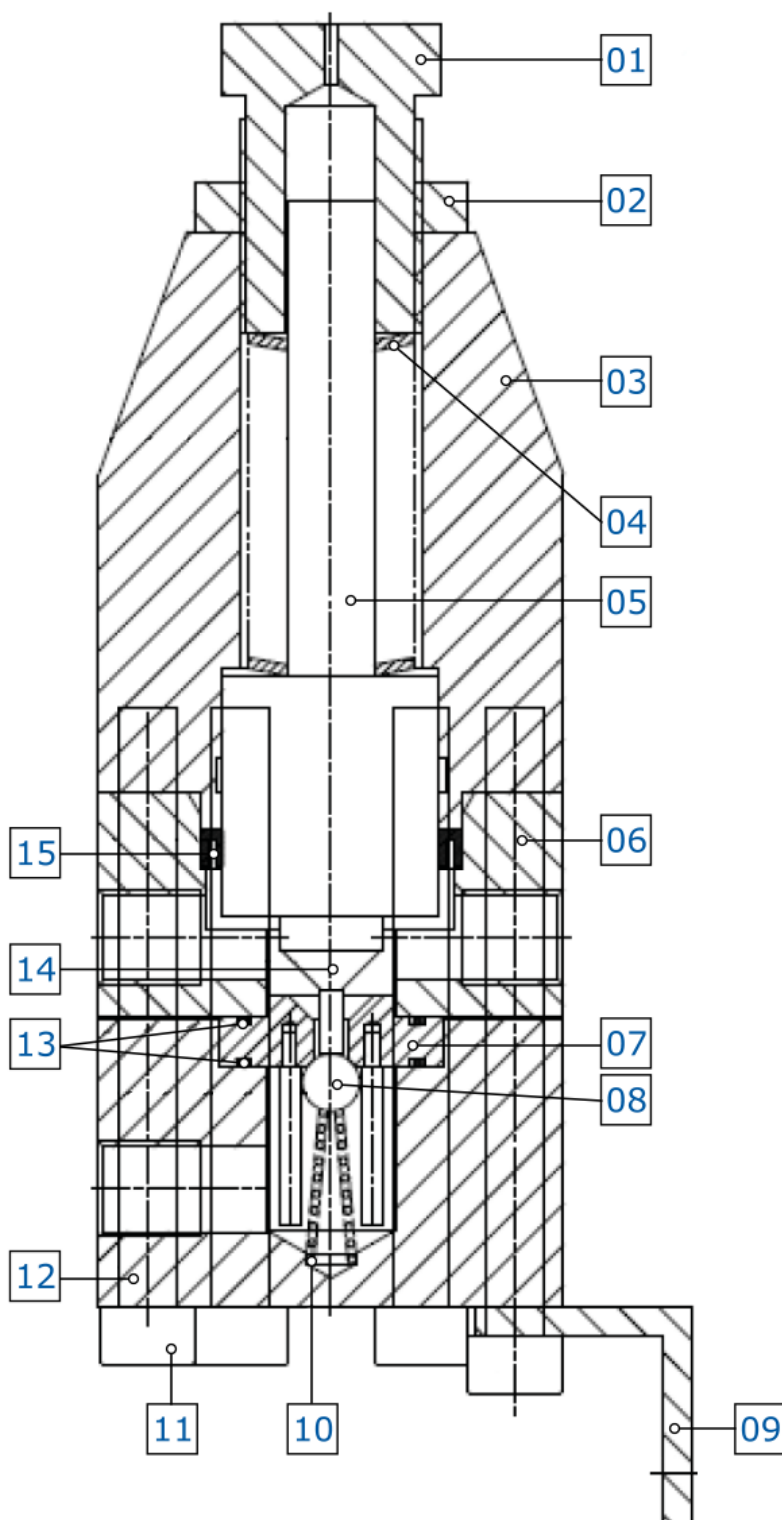


COLOR	MEANING
YELLOW	Product
RED	Notes

Figure 02 – Connection Example

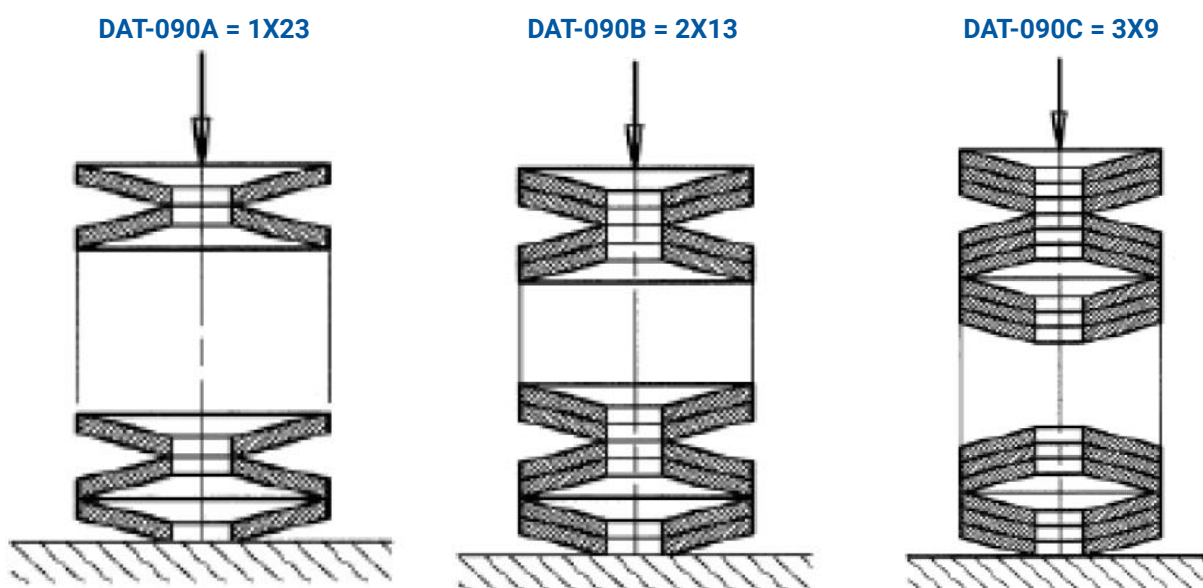
2.1 Exploded view

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



No.	Description	Var.	Code	Variant details
01	ADJUSTMENT SCREW	-	B59403	-
02	M25 LOCK NUT	-	K30362A	-
03	REDUCER UPPER BODY	-	B59122	-
04	DISC SPRING ^{^(1)^}	-	H26602	-
05	HARDENED SHUTTER PISTON	-	B59553	-
06	REDUCER CENTRAL BODY	-	B59022	-
07	COMPLETE HARDENED BALL SEAT	-	T604400	-
08	5/16" CARBIDE BALL	-	K81304	-
09	SUPPORT	-	E50662	-
10	VALVE SPRING	-	H21803A	-
11	SCREW	-	K13962	-
12	REDUCER LOWER BODY	-	B58922	-
13	O-RING	-	L14906	-
14	SHUTTER ROD	-	B61903	-
15	LIP SEAL	-	L41808	-
-	REPAIR KIT	-	T9062.00	-

⁽¹⁾ For disc springs, see the following diagram for number and installation direction:



2.2 Technical data

The following indicates all the technical characteristics regarding the component of this manual.

TECHNICAL CHARACTERISTICS		
Description	UdM	Values
Model	\	DAT-090
Drive	\	Mechanical
Maximum inlet fluid pressure	bar	300
Outlet pressure regulation range DAT-090A	bar	10 ÷ 60
Outlet pressure regulation range DAT-090B	bar	30 ÷ 120
Outlet pressure regulation range DAT-090C	bar	40 ÷ 180
Product inlet thread	inch	G 1/4" F
Product outlet thread	inch	G 1/4" F
Pressure gauge connection thread	inch	G 1/4" F
Flow adjustment	\	Screw
Materials used	\	Carbon steel
		PE
		Tungsten carbide
		Hardened steel

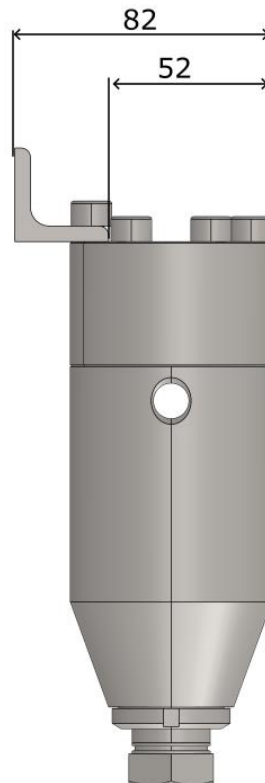
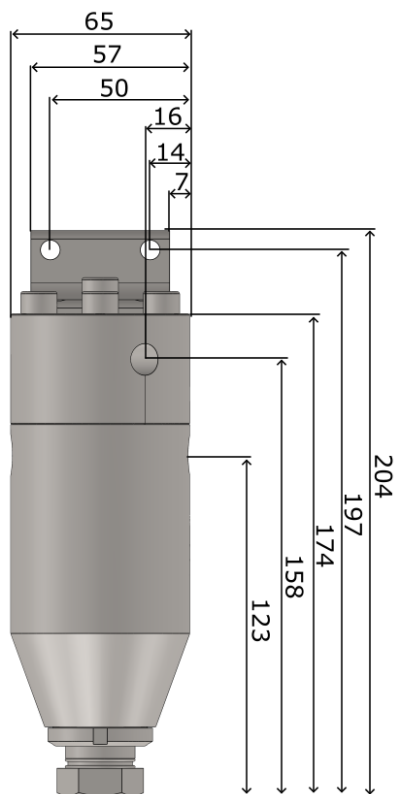
ENVIRONMENTAL CHARACTERISTICS		
Description	UdM	Values
Working Ambient Temperature	°C	5 ÷ 45
Storage Ambient Temperature	°C	-20 ÷ 55
Permissible non-condensing humidity	%	5 ÷ 90

USABLE FLUIDS	
Silicones	
Liquid gaskets	
Greases	
Resins	
Various medium-high viscosity products (contact manufacturer for more information)	

DIMENSIONAL AND WEIGHT CHARACTERISTICS

Description	UdM	Value
Component length (min ÷ max)	mm	65
Component depth (min ÷ max)	mm	82
Component height (min ÷ max)	mm	204
Component weight	kg	3.43

Component



It is possible to request the component 3D model in the desired version from the manufacturer without any commitment.

3 SAFETY

The following presents the list of warnings regarding the component that is the subject of this manual. Please read carefully before proceeding with the next chapters.



DANGER!

Before putting the component into operation or performing any action on it, read this manual carefully.



DANGER!

Do not use the component under the influence of drugs or other substances that may alter attention and reaction capacity.



DANGER!

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



FIRE/EXPLOSION HAZARD!

This component is not designed to work in ATEX environment.



DANGER!

Pay close attention during component maintenance, especially when dismantling components that have pressurized springs inside.



DANGER!

Do not use fluids that react in contact with the materials indicated in [chapter 2.2](#)



DANGER!

Never exceed the maximum pump pressure shown in [chapter 2.2](#)



DANGER!

If fluids at high temperatures are used, the pumping element can reach temperatures that cause burns if touched.



DANGER!

Do not use chlorinated and halogenated solvents (for example, Trichloroethane and Methylene Chloride) with equipment containing aluminum or galvanized and zinc-plated parts, as they can react chemically and cause an explosion.



ATTENTION!

Modifications to the component to obtain performance different from that for which it was designed and built must not be performed, unless authorized by the manufacturer.

**ATTENTION!**

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

**ATTENTION!**

Verify the chemical compatibility of the materials of which the pump is made with those of the fluid in use

**ATTENTION!**

Ensure that the pipes are in good condition and are not worn



The component can only be used by trained and authorized operators and only for the purpose for which it was designed and built.



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

3.1 Component safety devices

N.A.

3.2 Required free spaces

N.A.

3.3 Risk and residual risk zones

N.A.

4 TRANSPORT AND HANDLING

Once the goods are received, it must be verified that the packaging is intact and that there is an exact correspondence with the ordered material.



ATTENTION!

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



ATTENTION!

If the packaging is not intact, immediately contact the manufacturer, also sending photos of the packaging condition. Do not open it before notifying the manufacturer.

5 INSTALLATION



The component installation is performed by the customer. If necessary, they can contact the manufacturer to have a specialized technician help them.

The component has been designed to work vertically, i.e., in such a way that its body is perpendicular to the ground. Furthermore, it is equipped with a bracket that has two Ø7mm through holes which allow the component to be installed both on the wall and on a secondary bracket.



It is recommended to perform a component check before starting installation. If it shows obvious damage, please contact the manufacturer.



ATTENTION!

Please remove the packaging with maximum care. In case damage is caused to the component, the manufacturer is not responsible.



Dispose of packaging correctly, taking into account the different nature of the components and following the regulations in force in the Country.

5.1 Positioning

N.A.

5.2 Connections

This chapter aims to explain the connection method to be used for the component. The following types of connections are provided:

- Fluidic connection

5.2.1 Fluidic

Authorized personnel	  PPE to wear					
Component Status	Installed component					
Power Values	See chapter 2.2					
Required Preparations	Fluid system ready for connection					
Required Material	Tightening wrenches					
Required Equipment	N.A.					



The fluidic connection is the customer's responsibility.

To perform the fluidic connection, connect the pressure gauge to one of the two outlets, while connecting the delivery tube to the dosing system to the other; the inlet must be connected with tubes going to the supply system. For hole dimensions, see [chapter 2.2](#)

5.3 Commissioning

Component commissioning is performed once the positioning and connection operations are completed. Before performing component commissioning, the following checks must be performed:

- Verify that connections have been connected correctly;
- Verify that the component is free of dirt or residues of various types;



ATTENTION!

Since the component is tested with oil, it is recommended to connect the supply system to a purge system and clean the component by performing some purge cycles.



ATTENTION!

If even one of the points above is not compliant, commissioning must not proceed. Commissioning must only proceed when all points have been completed successfully.

6 SOFTWARE

N.A.

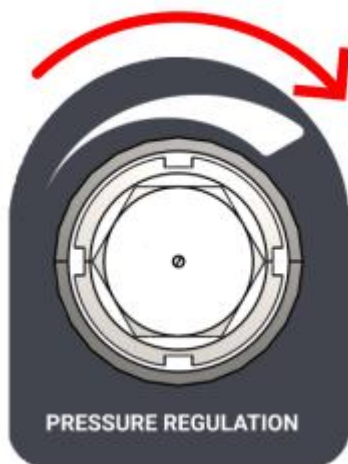
7 PROCEDURE

This chapter aims to explain the main configurations that can be used on the component that is the subject of this manual. Specifically, it aims to explain in detail:

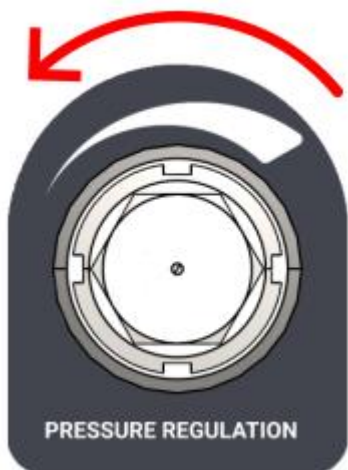
- How to adjust the pressure reducer;

7.1 Pressure reducer adjustment

This paragraph aims to explain how to perform pressure reducer adjustment. This adjustment is fundamental to have the desired fluid pressure at the outlet, as well as to prevent the dosing system from malfunctioning. Particular attention must be paid to staying within the parameters shown in [chapter 2.2](#).



If turned clockwise, the pressure inside the pressure reducer increases; therefore, you go from a lower pressure to a higher one.



If turned counterclockwise, the pressure inside the pressure reducer decreases; therefore, you go from a higher pressure to a lower one.



It is recommended to always perform pressure adjustment in INCREASE mode, i.e., if you need to decrease the pressure or have exceeded the threshold you want to set, you must first decrease the pressure below the threshold at which you want to work, then increase the pressure to the set value. Doing otherwise risks having a negative pressure oscillation, therefore stabilizing at an incorrect and lower value than desired.

8 MAINTENANCE

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

- **Ordinary maintenance**, which are interventions at regular intervals or that can be performed by the customer's personnel, are the most important activities as they allow the component to be maintained in good working conditions;



ATTENTION!

Ordinary maintenance interventions must be performed with the methods and timing indicated in the following chapters.

- **Extraordinary maintenance**, i.e., all those interventions that are not at regular intervals or that have not been foreseen, or interventions that cannot be performed by the customer. They can also arise from the lack of ordinary maintenance interventions.



ATTENTION!

Extraordinary maintenance interventions must be performed together with the manufacturer's specialized technicians.

Regarding frequency, it must be considered that:

- **When necessary**: Operation to be performed when the need to perform it is seen;
- **Every start or end of work**: Indicates a daily time period, in general. This can imply every 24 hours (therefore at the beginning of shift every day, or end of shift every day), or even more frequently, based on applications;
- **Long pause**: Indicates a time period greater than approximately one hour;
- **Every drum change**: Indicates every time the supply system is changed (tank, drum, cartridge or other);
- **Every mixer disassembly**: Indicates that every time the mixer is replaced, a specific operation must be performed;
- **Weekly**: Indicates a time span equal to seven calendar days;
- **Monthly**: Indicates a time span equal to one calendar month;
- **Semi-annual**: Indicates a time span equal to six calendar months;
- **Annual**: Indicates a time span equal to one calendar year.



ATTENTION!

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

Assigned	Description	Frequency	Chapter
	Perform a component function test	Every start or end of work	\
	Perform superficial component cleaning	Every start or end of work	\
	Perform an internal component cleaning cycle	Every start or end of work	\
	Valve disassembly and reassembly	Annual	8.1

ATTENTION!



It is very important that for long pauses (based on the type of fluid used, see the technical data sheet) an internal component cleaning is performed, especially if you have products that tend to crosslink, with appropriate solvents (based on the product used). If this is not performed, there is a risk of component malfunction, which leads to performing a complete overhaul or component replacement.



ATTENTION!

For valve cleaning, use only soft brushes or cotton cloths.

8.1 Component disassembly and reassembly

Assigned	Periodicity	Materials and equipment
	Annual	N.A.

PPE to wear



Component disassembly and reassembly is very intuitive, based on the exploded view in [chapter 2.1](#). Some aspects to pay particular attention to:

- **Disc springs**, which must respect the assembly direction indicated always in the same chapter.
- **Tightening screws**, which **MUST** be tightened to 35 Nm, as indicated always in the same chapter;
- **Adjustment ball**, this component is made of tungsten carbide, which is very delicate. If it falls to the ground or suffers impacts, it risks chipping, then affecting the product's operating quality;
- **Ball spring**, which is slightly conical. This conicity must absolutely be respected when reassembled, otherwise the ball's operating effectiveness is lost.

9 TROUBLESHOOTING

This chapter addresses the most common problems that could arise using the component of this manual.



ATTENTION!

Once the operator has found a problem or supposes there is a problem, they must call the technician responsible for maintenance. Maintenance must always be performed by a specialized and qualified technician.

DEFECT	CAUSE	SOLUTION
Fluid pressure drop at outlet	Ball blocking in its seat	Disassemble the component and clean it.
	Passage obstruction by foreign bodies	
Outlet fluid pressure increases up to inlet fluid pressure level	Ball valve and seat are worn or blocked	Remove pressure and screw the regulator to the stop and then unscrew it.
		Clean the ball and seat, replacing worn or damaged parts.
	Disc springs are worn	Replace springs
Fluid leakage from control hole	Worn gasket	Replace gasket

10 END OF LIFE

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

- **Storage**, meaning when the component is temporarily placed in the warehouse for future use;
- **Stocking**, meaning when the component is placed in the warehouse for an unspecified period waiting for a third party to buy the component;
- **Dismantling**, meaning when the component has reached the end of working period, whether due to age, obsolescence or failures that cannot be repaired, or that can be repaired but it is more convenient to buy a new component.

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

Instead, for dismantling and consequent scrapping of the component or its parts, the different nature of the various components must be taken into account and differentiated scrapping must be performed. It is recommended to entrust specialized companies for this purpose and the laws in force regarding waste disposal must always be observed.