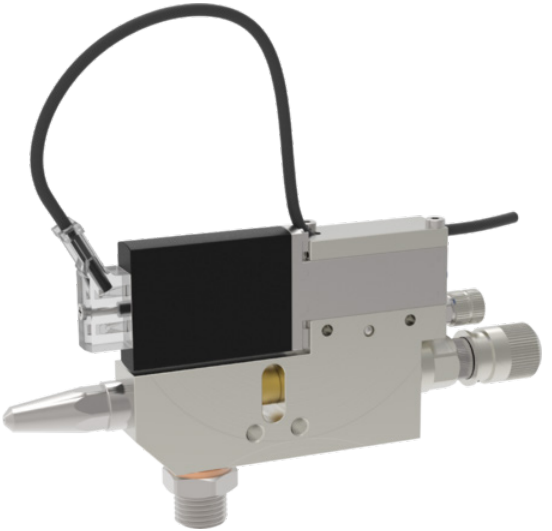
Installation and maintenance guide

DISPENSING VALVE **DA 400 EVO**



DAV TECH SRL
Via Ravizza, 30 - 36075 Montecchio Maggiore (VI) - ITALY
Tel. 0039 0444 574510 - Fax 0039 0444 574324
davtech@davtech.it - www.davtech.it

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1 INTRODUCTION

1.1 The manual

The user guide is the document that accompanies the valve from the time of its construction and throughout the period of use, it is therefore an integral part of the valve. It requires reading the manual before taking any action involving the valve. The manual must be readily available for use by staff and maintenance of the valve. The user and the attendant use are required to know the contents of this manual.

1.2 Warranty

The warranty is valid for a period of 12 months from the date of commissioning and no later than 15 months from the date delivery. The interventions carried out during the warranty period does not extend in any way the validity period of the guarantee. The seller is not liable for defects caused by normal wear of parts which by their nature are subject to wear.

1.3 Goods receiving

The original configuration of the valve must never be changed.
Upon receipt of the goods, check that:

- The packaging is intact
- The exact correspondence of the material ordered.

2 TECHNICAL DESCRIPTION

2.1 Valve Operation

The **DA 400 EVO** extrusion valve is an electro- pneumatically controlled applicator for the application of materials such as sealants, adhesives, greases or oils. The process is generated by the control air and the material feed pressure, and can take the form of either an intermittent or a continuous process. The control air for opening and closing is supplied to the valve through a flange-fitted 5/2-way solenoid valve. The apparatus is controlled separately, for example by the plant or machine controller (not included in the scope of supply). In the normal position, the solenoid valve allows air to pass through to the rear section of the piston chamber, which means that the needle is pushed into the nozzle and closes it. At the same time, a spring in the needle piston chamber helps to close the valve. When the solenoid valve receives a signal, it allows air through to the front section of the needle piston chamber. This has the effect that the needle piston is pushed back against its spring, and the needle retracts. The Material can now exit the nozzle. The function of the needle is: to open in response to compressed air and to close in response to compressed air and spring pressure. In the absence of control air, the valve is closed by the needle spring. The material is supplied to the valve from a pressure vessel or via a pump.

2.2 Technical Specification

Model	DA 400 EVO
Material pressure	max. 100 bar
Control air pressure:	min. 6 bar
Cycles:	up to 200 cycles per second
Measurements:	143 x 58 x 15 mm (LV-nozzle) - 125 x 58 x 15 mm (KV-nozzle)
Weight:	approx. 440 g
Valve body:	brass, chemically nickel plated
Nozzle:	stainless steel
Needle:	tungsten carbide
Gaskets:	Viton® (other materials on request)

2 USER INSTRUCTIONS

2.1 Purpose of the document

These instructions
> are intended as an important source of information and reference material for personnel who install and operate the device.
> describe the working procedures, assembly and servicing of the product.
> provide important advice for handling the product safely and efficiently.

2.2 Explanation of symbols

Important information, such as safety instructions, is identified by corresponding symbols.
It is essential to heed this information in order to prevent accidents and damage to the device.

WARNING! Risk of inj injury!
This symbol identifies all safety instructions in these Operating/Installation Instructions. Failure to observe them presents a risk of injury or death. Carefully observe these work safety instructions and exercise particular caution when you see this symbol.

WARNING! Electrical hazard!
This symbol draws attention to hazardous situations due to electric current. Failure to observe the safety instructions poses the risk of in jury or death. The work to be carried out must only be performed by a traine d electrician.

IMPORTANT! This symbol identifies all safety instructions in these Operating/Installation Instructions which must be observed as failure to do so could result in damage to and/or malfunction of the device.

NOTE! This symbol draws attention to useful tips and other information in these Operating/Installation Instructions. All such information should be observed in the interests of effective device operation.

2.3 Intended use

The DA 400 EVO valve has been built according to the EC directive in line with the latest state of the art and the recognised rules of engineering.

Nevertheless, its use can present risks to the life and limb of the user or third parties, or can impair the machine or cause other damage.

The DA 400 EVO valve is a needle valve for dispensing material either continuously or intermittently.

IMPORTANTE!
Only use the DA 400 EVO valve for its intended purpose and in an entirely safe operating condition! This is the only way to ensure operating safety!

2.4 Reasonably foreseeable incorrect use

WARNING! Risk of injury!

Using the automatic valve in a way other than intended can lead to serious damage!

Using them in a way that differs from or goes beyond the intended use is considered improper use!
For damage arising from improper use:
> the operator bears sole responsibility.
> the manufacturer accepts no liability.

NOTE!
Under no circumstances may aggressive materials such as acids, alkalis, cleaning agents, chemicals, poisons, highly flammable or similar substances or gases be used.
Consult the manufacturer if you have any doubt as to whether a material is suitable for use.

2.4.1 Modifications or changes

NOTE!
Unauthorised modifications or changes invalidate any liability or warranty on the part of the manufacturer.

IMPORTANT! Do not make any changes or additions without consulting the manufacturer and obtaining written agreement!

2.4.2 Spare parts, wearing parts and auxiliary materials

IMPORTANT!
Using spare and wearing parts from third third-party manufacturers can present risks.
Only use original parts or parts approve d by the manufacturer!

IMPORTANT!
The manufacturer accepts no liability for damage arising from the use of spare parts, wearing parts or auxiliary materials that have n ot been approved by the manufacturer!

2.5 Risks associated with using the product

During use, there is a possible risk of:
> injury to life and limb of the operator or third parties.
> damage to the product itself.
> other damage.

NOTE!
Knowledge of the safety and user instructions in this manual is the basis for safe and fault fault-free operation.

IMPORTANT!
The Operating Instructions must always be kept at the p lace of use! The Operating Instructions must be freely accessible at all times to operators, servicing personnel, etc.
The following must also be observed:
• General and local regulations on accident prevention and environmental protection.

The following risks in particular should be taken into account:

WARNING! Risk of injury!
Danger from the device out high high-pressure fluids.
Always wear personal protective equipment when working on the device!

WARNING! Risk of hearing damage!
Hearing damage may result from the volume and length of exposure to noise.
Wear ear protection when working with the device!

WARNING! Danger from pneumatic energy!
The pneumatic energy can cause severe injury. If a component is damaged, high high-pressure materials can escape and cause injury and damage!
Therefore:
- Before beginn ing work on the pneumatic system, always depressurise the device first.
- Do not remove safety equipment or disable it by modification.
- Do not set the pressures higher than the values specified in the Operating/Installation Instructions.

2.6 Residual risks

WARNING! Danger!
Pay attention to the possibility of residual mechanical and pneumatic energy.

WARNING! Danger!
In addition to the precautions recommended by the manufacturer, the operator must take appropriate steps to guard against the risks arising from residual energy.
Personnel must be instructed about the risks and the countermeasures to be taken.

WARNING! Danger!
Danger from pressurised media. Installation, servicing, fault finding, cleaning the device, etc. must only be done when the device is in an unpr essurised state.

WARNING! Danger!
Pay attention to the possibility of residual electrical energy.

WARNING! Electrical hazard!
The electrical energies can cause severe injury. Electricity presents mortal danger if the insulation or individual componen ts are damaged.
Therefore:
- Switch the main switch off and secure it against being switched back on before starting any servicing, cleaning or repair work.
- Before beginning work on the electrical system, always switch off the electricity supply to the device first.
– Do not remove safety equipment or disable it by modification.

!

IMPORTANT!
The device is used in a machine or plant and does not have a dedicated controller.
The user must ensure that the device is integrated in the machine or plant control system in compliance with the applicable accident prevention regulations.
Note the following in relation to this:
> The machine or plant control system must disconnect all power supply cables in the event of a power failure or emergency stop. After the power supply is restored, the device must not make any uncontrolled movements.

Imperative!
The personal protective equipment listed here must be worn when working on or with the product.

!

IMPORTANT!
The product is partly completed machinery. It must only be put into use when it is established that the machine into which the partly completed machine is intended to be incorporated meets the specifications of the applicable directives!

2.7 Obligations of the operator

The operator is obliged only to allow persons to work with the product who:
> are familiar with the fundamental regulations relating to work safety and accident prevention.
> have been instructed in working with the product, and
> have read and understood these instructions.

The operator must also identify any other hazards that may arise from the special working conditions at the place of use of the product by carrying out a risk assessment pursuant to §3 Ordinance on Industrial Safety and Health. In relation to the risk assessment, operating instructions pursuant to §9 Ordinance on Industrial Safety and Health must be prepared, which combine all further instructions and safety instructions.
The operator will also make the required protective equipment available to the personnel. A list of the necessary personal protective equipment can be found in chapter 2.9.

NOTE!
The requirements of the EC Directive on the Use of Work Equipment 2009/104/EC must be satisfied.

2.8 Obligations of the operating personnel

IMPORTANT! Only authorised, trained and instructed specialist personnel are permitted to handle the product.

All persons who are required to work on the product are obliged, before starting work:
> to observe the fundamental regulations relating to work safety and accident prevention.
> to have read and understood these instructions.
> to wear the personal protective equipment according to chapter 2.9.

NOTE!
Please contact the manufacturer of the product if you have any unanswered questions!

2.9 Personal protective equipment

Close-fitting working clothes clothes!
(low tear strength, no wide sleeves, no rings or other jewellery, etc.)

Safety goggles!
(to protect the eyes against airborne items and fluids)

Protective gloves!
(to protect the skin against friction, abrasions, aggressive mate rials, punctures and deep injuries to the hands)

Ear protection!
(to protect against hearing damage when the sound pressure level is above 80 dB (A))

NOTE!
The use of personal protective equipment depends on the environment where the device is used and on the medium being employed. For this reason, also observe the risk assessment of the workplace prepared by the operator.

2.10 Liability and warranty

All information and instructions for the operation, servicing and cleaning of the device are based on our past experience and results, and are given to the best of our knowledge.
We reserve the right to make technical modifications in the interest of enhancement of the device described in these Operating/Installation Instructions.
Translations are also provided to the best of our knowledge. We cannot accept responsibility for errors in translation. The supplied German version of the Operating Instructions remains authoritative.
The descriptions and illustrations may differ from the product supplied. The drawings and diagrams are not to scale.
It is forbidden to pass these Operating/Installation Instructions on to third parties and will result in liability for damages.

2.10.1 Warranty

A warranty with the following scope is provided for this device:
All such parts as prove to be unfit for use or whose fitness for use is greatly compromised within 24 months for one-shift, 12 months for two-shift and 6 months for three-shift operation since handover to the purchaser due to a cause predating this handover – in particular faulty design and defects in materials and workmanship – will be repaired or a replacement supplied at our discretion free of charge.
The warranty takes the form of replacement or repair of the device or individual parts thereof, at our discretion. Expenses hereby incurred (transport, toll, labour or material costs) are borne by us, unless the expenses increase because the device was subsequently brought to a location other than the customer's premises. These extra expenses are the customer's/purchaser's responsibility.
We provide no warranty for damage caused exclusively or partly by the following:
improper or unsuitable use, incorrect installation and/or putting into operation, natural wear and tear, incorrect handling and/or servicing, unsuitable coating substances, substitute materials and/or chemical, electrical and/or physical effects, unless we are responsible for them.
This declaration does not affect statutory rights or the contractual rights stemming from our general terms and conditions of business.

2.10.2 Wearing parts, lifetime warranty

Wearing parts are all parts that come into direct contact with the material and/or are subject to wear and tear due to their function (e.g. nozzles, needles, air caps, seals, O-rings, sealing screws, pistons, etc.). Such parts are excluded from warranty and defect claims in so far as they are based on wear and tear. The replacement of a part does not extend the warranty period of the device.

3 DESCRIPTION

3.1 Functional description

The DA 400 EVO extrusion valve is an electro- pneumatically controlled applicator for the application of materials such as sealants, adhesives, greases or oils. The process is generated by the control air and the material feed pressure, and can take the form of either an intermittent or a continuous process.
The control air for opening and closing is supplied to the valve through a flange-fitted 5/2-way solenoid valve. The apparatus is controlled separately, for example by the plant or machine controller (not included in the scope of supply).
In the normal position, the solenoid valve allows air to pass through to the rear section of the piston chamber, which means that the needle is pushed into the nozzle and closes it. At the same time, a spring in the needle piston chamber helps to close the valve.
When the solenoid valve receives a signal, it allows air through to the front section of the needle piston chamber. This has the effect that the needle piston is pushed back against its spring, and the needle retracts.
The Material can now exit the nozzle.
The function of the needle is: to open in response to compressed air and to close in response to compressed air and spring pressure.
In the absence of control air, the valve is closed by the needle spring.
The material is supplied to the valve from a pressure vessel or via a pump.

3.2 Parameters (technical data)

Device type	NEEDLE VALVE DA 400 EVO
Dimensions (L x W x H) - with LV nozzle - with KV nozzle	 approx. 159 x 15 x 82 mm approx. 141 x 15 x 82 mm
Weight	approx. 390g
Sound pressure level	---
Control air pressure	min. 6 bar min. 600 kPa min. 87.5 psi
Material pressure • with control air (closing air) • without control air (closing air)	max. 100 bar max. 10000 kPa max. 1450.5 psi max. 30 bar max. 3000 kPa max. 435 psi

We reserve the right to make technical changes!

4 INSTALLATION

WARNING! Risk of injury!
The pneumatic energy can cause severe injury. If a component is damaged, high high-pressure materials can escape and cause injury and damage!

4.1 Assembly

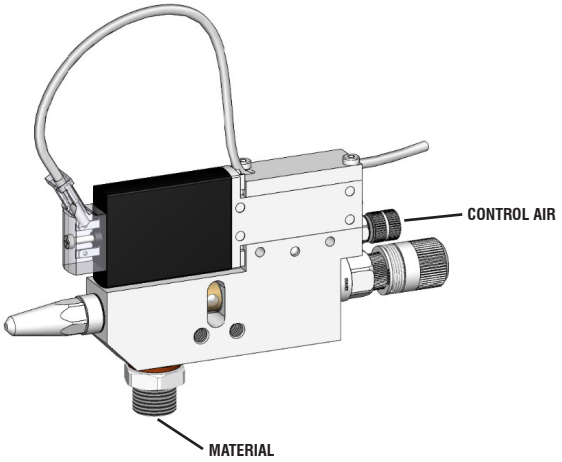
The valve DA 400 EVO can be installed in any position. Securely and tightly screw the valve to the arm or machine. Natural oscillation occurs in intermittent operation. To achieve clean application, it is essential to avoid the transmission of natural oscillation both from the machine to the valve and from the valve to the machine.

4.2 Hose installation

Control air and material are supplied to the valve via two separate connections. The connection ports are differentiated as follows):

- **Control air**
Connection S: to the compressor (compressed air supply)

- **Material**
Connection M: to pressure tank or pump



IMPORTANT!
To prevent malfunctions and damage to the valve and machine or plant, it is essential to ensure that the pressure lines are connected up to the correct hose connections on the valve.

Pressure line connection

WARNING! Risk of injury due to compressed air and material pressure!
Only qualified personnel may work on the pressure plant in accordance with the safety regulations.
When working on the pressure plant, be sure to:
> Depressurise the plant before beginning work.
> Not remove or disable safety equipment.
> Not set pressures above the maximum permitted values.
> Install all hoses safely so that the pressure lines ca nnot be damaged by moving machine or plant components.
> Not put the pressure plant into operation until work is completed.

Hose installation:

Control air
1. Unscrew the retaining cap from the screwed connection and push it over the hose.
2. Push the open hose end onto the connection port on the screwed connection.
3. Screw the retaining cap back onto the screwed connection and tighten.

Material
Connection to G1/4" thread

IMPORTANT!
Only hoses which can withstand the maximum working pressure of the pressure line may be used.

4.3 Installation instructions

WARNING! Risk of injury!
To prevent personal injury and/or property damage, it is essential to observe the following when installing the device in a machine or plant:

The device must be installed in a machine or plant in such a way as to rule out hazards like:
> the escape of high-pressure fluids
> defects in the compressed air supply
> electricity
> malfunctions of the device, machine or plant
> failure or malfunction of plant control
> loud noises or interference with acoustic signals

in the vicinity. To protect persons working on the device, machine or plant, effective safety devices and warning signs must be put in place. In addition, relevant safety instructions must be incorporated into the Operating/Installation Instructions for the machine or plant.

4.4 Putting into operation

WARNING! Risk of injury!
Only trained qualified personnel may put the machine or plant into operation in accordance with the safety and accident preve ntion regulations.

Observe the following before putting the machine or plant into operation:
> Ensure that no tools or other foreign bodies are inside the machine or plant.
> Check that the device and all other parts are secure.
> Check that all electrical, hydraulic and pneumatic connections are on the correct ports and are secure.
> Check that the set pressures correspond to the ratings and connection values of the device.
> Check that safety devices are working.

1. Switch on power supply.
2. Switch on the control air supply and material supply.
3. Turn on device at plant controller.
4. Check that device is functioning and operating correctly.
5. Check that device is within all the specified set value ranges.

Once it has been established that the device is functioning perfectly, the device may be operated in accordance with all accident prevention regulations.

4.5 Electrical connection

WARNING! Electrical hazard!
Work on the electrical equipment must only be carried out by qualified personnel in accordance with the safety regulations. Before beginning work, the electrical supply must be switched off, and secured against being switched back on.

5 OPERATION

5.1 General and safety instructions for operation

In normal operation the device does not require operating personnel. The device is operated via the plant controller. To prevent disruptions, device function must be checked regularly by trained supervisors.

IMPORTANT!
In the event of faults or irregularities, shut down the plant immediately and inform the local person in charge.

If device faults cannot be corrected, inform the manufacturer's Customer Service.
Only deploy instructed personnel for regular cleaning.

The device presents the following hazards during operation:

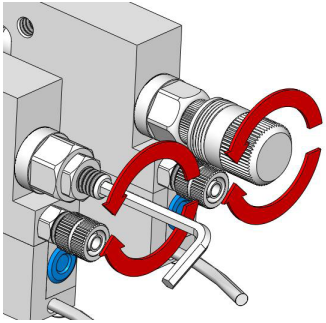
WARNING! Risk of injury!
Danger from the device out high high-pressure fluids. Always wear personal protective equipment when working on the device device!

WARNING! Risk of hearing damage!
Hearing damage may result from the volume and length of exposure to noise.
Wear ear protection when working with the device!

WARNING! Risk of injury!
Housing parts with sharp edges and pointed corners can cause skin abrasions.
Wear protective gloves when working on the device!

5.2 Operating instructions

> The extrusion valve may be used in continuous or intermittent operation. In intermittent operation the control air pressure must be matched to the switching frequency and the material feed pressure. In ideal operating conditions (material pressure, control air pressure, needle stroke, short lines) up to 200 cycles per second are possible.
> The control air pressure should be at least 6 bar.
> If the material is kept pressurised with no contact with the outside air, it can remain in the valve during long periods without operation.
> Only clean, filtered material and control air may be used. The control air supplied to the valve should ideally be lightly oiled.



NOTE! The flow of material can be adjusted to suit individual requirements by turning the regulating screw (Fig. 5.2/1):
Turn screw to the right: ↷ to reduce the material flow
Turn screw to the left: ↶ to increase the material flow

NOTE! The illustrations in these instructions may differ slightly from the actual version of the device. Incorrect handling can damage the nozzle and nozzle needle. Only reduce the material flow (by turning the regulating screw to the right) while the material is being dispensed. Once the nozzle closes, do not turn the regulating screw any further to the right.

5.3 Switching on

WARNING! Risk of injury!
Only trained qualified personnel may switch the device on and off in accordance with the safety and accident prevention regulations.

1. Switch on power supply.
2. Switch on the control air supply and material supply.
3. Turn on device at plant controller.
4. Check that device is functioning and operating correctly.
5. Check that device is within all the specified set value ranges.

5.4 Switching off

1. Shut down device at plant controller.
2. Switch off the control air supply and material supply.
3. Switch off power supply.

5.5 Shutdown

Before shutting the device down for an extended period, the following steps must be taken in accordance with the safety regulations:
> Switch off device and prevent it from being switched back on.
> Remove material residue from the device.
> Clean device inside and out.

6 MAINTENANCE AND SERVICING

6.1 General and safety instructions for maintenance and servicing

Cleaning
The valve must be cleaned when
> it is soiled by use
> a different material is to be used
> wearing parts have to be replaced.

This applies in particular to the nozzle needle, the sealing bush and the nozzle.

IMPORTANT!
Do not use any sharp sharp-edged, metallic aids for external cleaning; only use soft brushes.

Servicing
The valve is a high-quality precision device, which will usually operate fault-free and without any servicing if handled correctly provided that only clean, filtered material is used. It is also essential that the control air is clean and, ideally, supplied to the valve lightly oiled.
Individual operating conditions and the properties of various materials require a minimum of care to be given to the device.

Before beginning any servicing work:
> Put on personal protective equipment.
> Switch off device and prevent it from being switched back on.
> Switch off pressure plant and prevent it from being switched back on. Depressurise all supply pressure lines and disconnect them from the device.

NOTE!
The device should be checked regularly for wear. It is not possible to specify when wear and tear may occur, since this depends on the material being processed, the switching frequency, and the conditions under which the device is used.

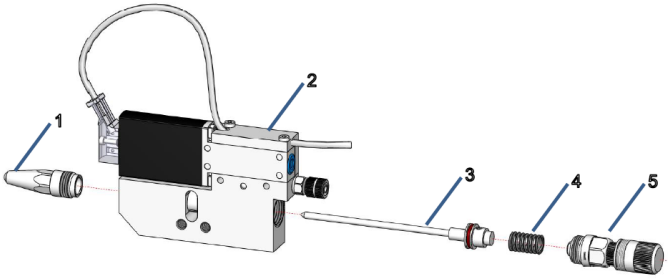
Safety instructions

WARNING! Risk of injury!
Improper handling of the device carries the risk of severe personal injury and serious damage. Therefore, servicing and cleaning work must only be carried out by qualified personnel or personnel who have been specially trained in these tasks (training to be documented)!

WARNING! Risk of injury!
Only perform servicing and cleaning work on the device when the device and plant are at a standstill!

WARNING! Risk of injury!
There is a risk that components will be ejected! The valve must only be opened after the device has bee n depressurised and is not operational!

6.2 Changing the nozzle and nozzle needle

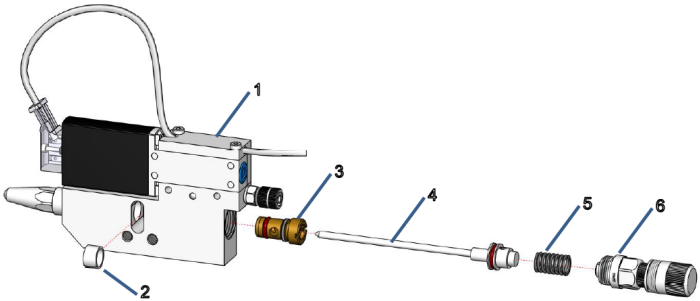


1. **Depressurise all connections and stop the supply of energy and material!**
2. **Unscrew the lock (5) (Important: the lock is under spring tension).**
3. **Remove the pressure spring (4) and pull the old nozzle needle (3) out of the main body (2). As you do this, ensure that the pressure spring (4) does not get lost.**
4. **Unscrew and remove the nozzle (1).**
5. **Lightly grease the new nozzle needle (3) and push it into the main body (2). Then remove any remaining grease from the needle tip.**
6. **Screw the new nozzle (1) into the main body (2).**
7. **Only now should the lock (5) be screwed back into the main body (2). At this stage, make sure that the pressure spring is positioned correctly, as described under Point 3.**
8. **Perform a functional test of the device after changing the nozzle and needle.**

IMPORTANT!
Always install a new nozzle (1) and nozzle needle 3) at the same time.

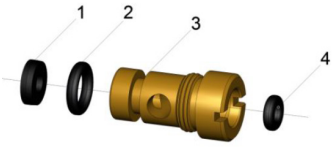
NOTE!
When installing nozzles and nozzle needles that have already been in use, they must first be cleaned of all deposits and material residues. Material residues in nozzles can result in leaks in the nozzle nozzle-needle system, while nozzle needles with hardened material residues can cause damage to the sealing elements in the valve.

6.3 Changing the sealing screw



1. Depressurise all connections and stop the supply of energy and material!
2. Remove the protective plastic sleeve (2).
3. Undo the lock (6) and unscrew it. (Important: the lock is under spring tension)
4. Remove the pressure spring (5) and pull the nozzle needle (4) out of the main body (1).
5. Unscrew the sealing screw (3) from the main body (1) using a suitable flat-blade screwdriver.
6. Screw in the new sealing screw (3), making sure that the sealing screw is lightly greased with technical Vaseline. (see Ch. 6.4)
7. Reassemble the DA 400 EVO in the reverse order.

6.4 Changing the sealing elements of the sealing screw

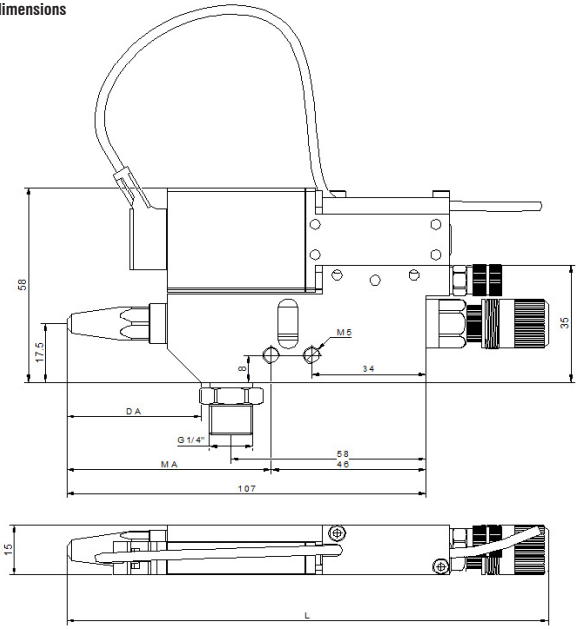


1. Remove the old sealing elements (1, 2, 4) from the sealing screw (3).
2. Using technical Vaseline, carefully mount the new sealing elements (1, 2, 4) onto the sealing screw (3).
3. Coat the sealing screw (3) with technical Vaseline so that the sealing elements are not damaged when the sealing screw is fitted into the main body.

! **IMPORTANT! Seals and seal sets can get damaged. Therefore, do not use any sharp, sharp-edged or metallic objects to remove or insert the seals.**

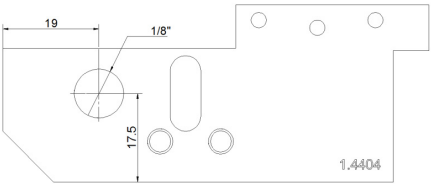
7 DIMENSIONS AND SPARE PARTS

7.1 Valve dimensions

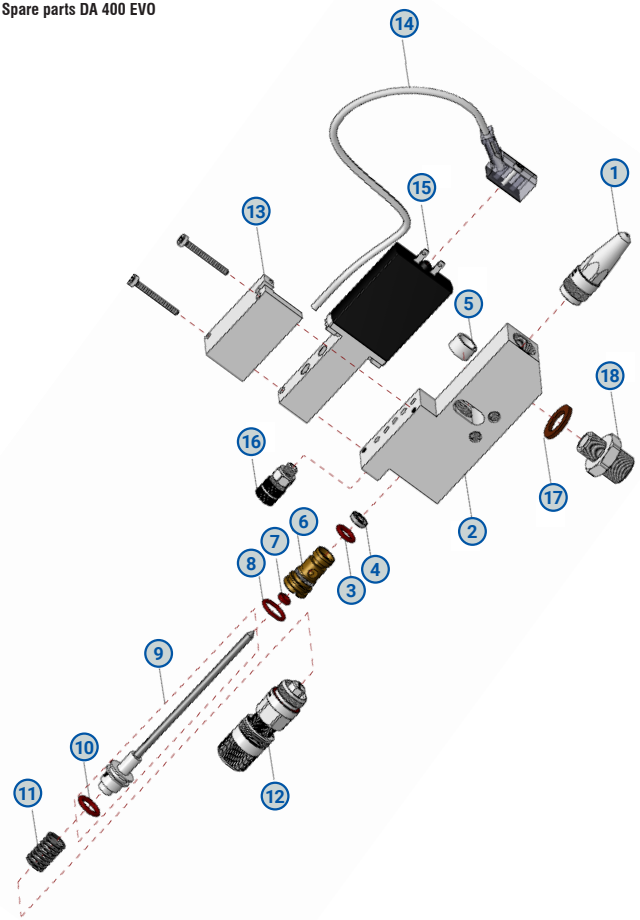


NOZZLE	DIMENSION IN MM
KV	DA 21.5
	MA 42.5
	L approx. 125
LV	DA 39.5
	MA 50.5
	L approx. 143

Main body with side connection



7.2 Spare parts DA 400 EVO



7.3 Spare parts list DA 400 EVO

Ref.	Description		Code
1	NOZZLE	1	see next table
2	MAIN BODY DA 400 EVO	1	511051
3	O-RING	1	640021
4	VARISEAL	1	640004
5	PLASTIC COLLAR	1	640101
6	BUSH	1	810013
7	O-RING	1	640026
8	O-RING	1	640046
9	NEEDLE COMPLETE	1	see next table
10	O-RING	1	640001
11	SPRING	1	820020
12	MICROMETRIC REGULATION	1	900051
13	FIXING PLATE	1	910344
14	SOLENOID VALVE CONNECTOR	1	150127
15	SOLENOID VALVE 5/2 FESTO	1	150126
16	AIR FITTING	1	220089
17	WASHER	1	640058
18	DOUBLE NIPPLEX, STAINLESS STEEL, EXTERNAL THREAD 1/4" - INTERNAL THREAD 1/8".	1	220114
	GASKET KIT COMPLETE		GASKETKIT-DA400EVO

Other sealing materials available on request.

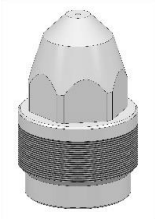
8 SPARE PARTS AND ACCESSORIES

8.1 General and safety instructions for use

When ordering nozzle sets (nozzle needle and nozzle) as spare parts, please state the required size. Nozzle sets should always be replaced together!
Available nozzles and needle sizes (dia.):
0.1 / 0.2 mm / 0.3 mm / 0.4 mm / 0.5 mm / 0.6 mm / 0.7 mm / 0.8 mm / 1.0 mm / 1.2 mm / 1.5 mm / 2.0 mm
Special nozzles and needles can be developed for your particular application upon request!

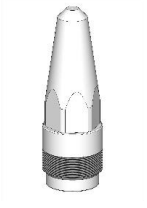
8.2 Nozzles

8.2.1 version KV



NOZZLE, KV, stainless steel	
Code	**Description**
210143	NOZZLE, KV, 0.2 mm, stainless steel
210144	NOZZLE, KV, 0.3 mm, stainless steel
210145	NOZZLE, KV, 0.4 mm, stainless steel
210146	NOZZLE, KV, 0.5 mm, stainless steel
210147	NOZZLE, KV, 0.6 mm, stainless steel
210148	NOZZLE, KV, 0.7 mm, stainless steel
210149	NOZZLE, KV, 0.8 mm, stainless steel
210150	NOZZLE, KV, 1.0 mm, stainless steel
210151	NOZZLE, KV, 1.2 mm, stainless steel
210152	NOZZLE, KV, 1.5 mm, stainless steel
210153	NOZZLE, KV, 2.0 mm, stainless steel

8.2.2 Version LV



NOZZLE, KV, stainless steel	
Code	**Description**
210132	NOZZLE, LV, 0.2 mm, stainless steel
210133	NOZZLE, LV, 0.3 mm, stainless steel
210134	NOZZLE, LV, 0.4 mm, stainless steel
210102	NOZZLE, LV, 0.5 mm, stainless steel
210136	NOZZLE, LV, 0.6 mm, stainless steel
210137	NOZZLE, LV, 0.7 mm, stainless steel
210138	NOZZLE, LV, 0.8 mm, stainless steel
210139	NOZZLE, LV, 1.0 mm, stainless steel
210140	NOZZLE, LV, 1.2 mm, stainless steel
210141	NOZZLE, LV, 1.5 mm, stainless steel
210142	NOZZLE, LV, 2.0 mm, stainless steel

8.3 Needle nozzle

8.3.1 Version KV

Carbide Needle, KV, complete	
Code	**Description**
112455	Carbide needle, KV, 0.2/0.3 mm, complete
114229	Carbide needle, KV, 0.4 mm, complete
112459	Carbide needle, KV, 0.5 mm, complete
114363	Carbide needle, KV, 0.6/0.7 mm, complete
112457	Carbide needle, KV, 0.8/1.0 mm, complete
113813	Carbide needle, KV, 1.2 mm, complete
113754	Carbide needle, KV, 1.5 mm, complete
113117	Carbide needle, KV, 2.0/2.5 mm, complete

8.3.2 Version LV

Carbide Needle, LV, complete	
Code	**Description**
112456	Carbide needle, LV, 0.2/0.3 mm, complee
112458	Carbide needle, LV, 0.4 mm, completo
112461	Carbide needle, LV, 0.5 mm, complete
112490	Carbide needle, LV, 0.6/0.7 mm, complete
112460	Carbide needle, LV, 0.8/1.0 mm, complete
113812	Carbide needle, LV, 1.2 mm, complete
114364	Carbide needle, LV, 1.5 mm, complete
113265	Carbide needle, LV, 2.0/2.5 mm, complete

8.4 Sensor block complete

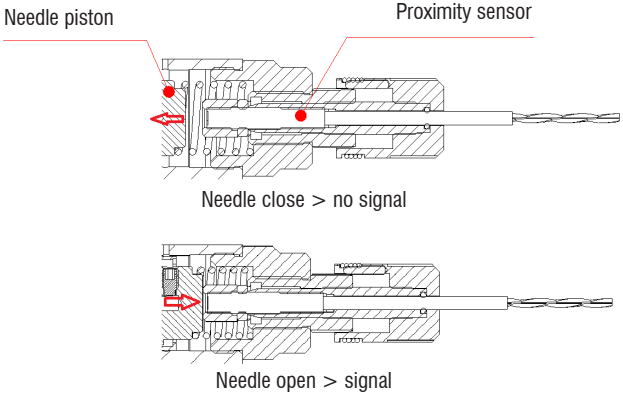
Sensor block complete	
Code	**Description**
900053	Sensor block complete

In the DA 400 EVO it is possible to optionally install a raster needle sensor; The inductive sensor can be used to monitor whether the needle is open.

8.5 Adjusting the sensor

The function of the raster needle sensor is depicted in the following image.

The needle stroke must be at least 14 “raster”.



8.6 Setting the needle stroke for needle sensing

1. Activate device (open the needle)
2. Close the needle (nozzle) by turning the regulating screw clockwise
(Important: Excessive clockwise turning causes permanent damage to the nozzle!)
3. Do not further activate device
4. Then turn it anticlockwise to open at least 14 “raster”
5. Set the raster stroke as required, observe needle stroke of at least 14 “raster” for correct function of needle sensing.
6. The device can be completely put back into operation.

9 FAULTS

9.1 General and safety instructions in relation to faults

Only qualified electricians/electronic technicians/engineers may rectify faults. Mechanical, pneumatic or hydraulic faults must be rectified by personnel trained and qualified in the relevant field.
The manufacturer must be informed of faults which cannot be rectified by the measures described.

9.2 In the event of a fault

In case of faults which pose an immediate risk for persons, property and/or the safe operation of the device or plant:
> Stop device immediately at the EMERGENCY OFF switch.

In case of faults which do not pose an immediate risk of personal injury or property damage:
> Switch off device, machine or plant at the plant controller.
> Prevent device, machine or plant from being switched back on.
> Inform operator of fault immediately.
> Have qualified personnel identify the type and cause of the fault.
> Have qualified personnel rectify the fault.

WARNING! Risk of injury!
Improper, incorrect work on the device, machine or plant poses serious risks of personal injury and/or damage. Therefore, only trained qualified personnel may correct faults.
The notices and safety rules in chapter 6 “Maintenance and servicing” must be observed before, during and after all work to rectify faults faults!

9.3 Malfunctions

Fault	Possible cause	Rectification
Nozzle needle does not open	Nozzle needle is stuck inside the needle seal	Completely clean needle seal
	Control air pressure too low	Check whether there is sufficient control air pressure at the extrusion valve
	Needle stroke too short	Increase needle stroke by turning the raster screw
	O-ring faulty	Replace O-ring
	Pilot valve does not switch	Check the pilot valve
No material comes out	Nozzle blocked by material	Clean the nozzle and the needle
	Material pressure too low	Check whether sufficient material pressure is being applied to the valve

10 TRANSPORT, PACKAGING AND STORAGE

10.1 Transport

Always transport and store the device with great care:
> Do not throw or drop the device.
> Do not place objects on the device or packaging.
> Protect the device from dirt, damp, heat and cold.
> Do not use force when unpacking the device. Do not damage plastic parts.
> If storing the device, leave it in its packaging until installation.

10.2 Transport inspection

Immediately on receipt of the device, check that it is complete and has not been damaged in transit. If you see external damage in transit, do not accept the delivery, or accept it only with reservation. Note down the extent of damage on the carrier's transport documentation/delivery note. Make a claim. Report hidden defects as soon as they are discovered, as claims for damages can only be made within the applicable deadlines.

10.3 Packaging

Only environmentally friendly materials are used for packaging.
Therefore, please follow these rules:
> Separate different types of packaging material for environmentally friendly disposal.
> Recycle recyclable materials.
> Reuse reusable packaging materials.

10.4 Storage

Store device in its packaging until installation.
The following instructions apply to device storage:
> Store in a dry place. Relative humidity: max. 60%.
> Do not store in the open or in an aggressive atmosphere.
> Protect from direct sunlight. Storage temperature: 15°C to 25°C.
> Keep dust off device. Avoid mechanical vibration and damage.
> Do not place underneath other objects or place other parts on top of it.

11 DISPOSAL

Collect all material residues from the processing, and dispose of them in an environmentally sound manner or - if possible - reprocess or recycle them.
All parts, auxiliary and operating materials for the valve:

> Separate by type:
  - recycle metallic components
  - dispose of non-metallic parts properly and professionally
> Dispose of according to local regulations and directives.

DECLARATION OF CONFORMITY

CE

Brand: **DAV Tech Srl**

Address: Via Ravizza, 30 - 36075 Montecchio Maggiore (VI)

DECLARE THAT

the **NEEDLE VALVE DA 400 EVO**

CONFORMS TO THE REQUIREMENTS FOR CE MARKING

according to directives 2006/42/CE, 2014/30/UE, 2014/35/UE

Any modification or tampering with them discharges DAV Tech from any responsibility.

Montecchio Maggiore, 16 July 2018

The legal representative

Andrea Grazioli

DAV TECH SRL Via Ravizza, 30 - 36075 Montecchio Maggiore (VI) - ITALY - Tel. 0039 0444 574510 - Fax 0039 0444 574324
davtech@davtech.it - www.davtech.it