

# Installation and maintenance guide

**DAV**tech

## VOLUMETRIC DISPENSING VALVE DAV 150



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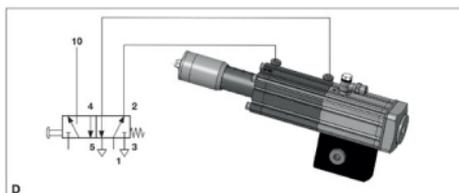
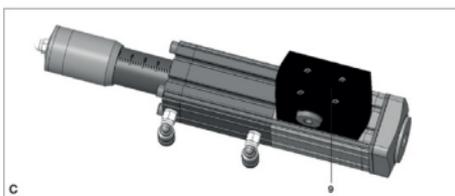
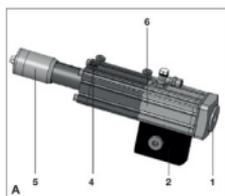
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## 1 INTRODUCTION

### 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.

Reproduction of any part of this manual, in any form, without the express written permission of DAV Tech. The text and illustrations in this manual are not binding, the DAV tech reserves the right, at any time and without notice, the right to make any changes to improve the product or for reasons of character manufacturing or commercial.

### 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 DAV 150 volumetric dispensing valve is a pneumatically operated component designed for precision dispensing of low viscosity lubricants.

The exchange of the pneumatic supply, at a pressure equal to or greater than 6 bar, will lead to the emptying of the volumetric chamber and the relative outflow of a constant and adjustable quantity of fluid.

### 2.2 Technical specification

<b>Model</b>	DAV 150
<b>Configuration</b>	Standard (assembly block)
<b>Dispensing range [mm<sup>3</sup>]</b>	3-200
<b>Dispensing range [ml]</b>	0,003-0,200
<b>Weight [kg]</b>	0,78
<b>Connection (medium intake) inside thread</b>	G 1/8"
<b>Connection (medium discharge/pressure discharge) inside thread</b>	G 1/8"
<b>Optimal medium intake working pressure [bar]</b>	1-6
<b>Max. medium intake working pressure [bar]</b>	12
<b>Connection (compressed air) inside thread</b>	M5 for hose ø4 mm
<b>Bleed hose connection</b>	ø 4 mm
<b>Min./max. pneumatic operating pressure [bar]</b>	5/7
<b>Optimal pneumatic operating pressure [bar]</b>	6
<b>Compressed air quality</b>	ISO 8573-1:2020 [6:4:4]

# Installation and maintenance guide

## 3. WARRANTY

### Safety warnings

Read this operating manual carefully to familiarise yourself with the safe and efficient operation of the product. Retain this manual as a reference. This operating manual contains important provisions and information for the safe and proper operation of the product. It is also intended to help operating and maintenance personnel to minimise hazards, repair costs and downtime, and to improve the reliability and service life of the product. It is therefore important to ensure access to this document at all times for any person assigned to the care of the product.

### Intended use

The product may be used only under the intended operating conditions. Any other or further use is considered improper use. The manufacturer is not liable for damage due to improper use. Intended use includes:

- Observing and complying with all notices and warnings in this operating manual.
- Performing all inspection and maintenance work.

### Obligations of the operating company

The person responsible for the safety of the product has to ensure that:

- Only qualified personnel is assigned to work on the product.
- The operating manual is always available to said personnel during all work, and the personnel is obliged to consistently follow it.
- The accident prevention rules and regulations applicable for the place of use are observed, and the prescribed maintenance and repair work is carried out.

### Fundamental safety instructions

The following must be observed for the safe handling and trouble-free operation of this product:

- Using the product for other than its intended use is prohibited.
- No changes may be made to the product.
- A safe operating state has to be maintained at all times. Upon request, we can provide equipment training to bring your personnel up to the required level of knowledge.
- Disconnect the product from all energy sources prior to any maintenance work.
- All lines, hoses and screw connections must be inspected for leaks and externally visible damage at regular intervals. Damage has to be repaired promptly by qualified personnel; damaged parts must be replaced with original parts.
- Protective devices may only be removed after the product is standing still and has been secured to prevent restarting.
- All safety equipment must be installed properly and has to be fully functional each time before the product is put into use.
- The required personal protective equipment must be provided by the operating company.
- All safety and protective devices have to be inspected regularly.



#### WARNING OF A HAZARD

Warnings are information about hazards that may lead to physical injury and/or damage to property.



#### NOTE

Notices provide valuable information and user tips.



#### RISK OF CRUSHING

Warning of danger of crushing.



#### ENVIRONMENTAL HAZARD

Proper disposal of the various materials protects the environment.

**Safety notices for using the product**

All parts and assemblies were developed and built according to recognised safety-related rules. Nevertheless, improper use or handling may result in hazards for the user or third parties or damage to the product or other material assets.

The product may only be used:

- According to the intended use.
- In safe and proper technical condition.

**SPECIFIC HAZARDS****Electrical energy****ELECTRICAL VOLTAGE**

Warning of electrical hazards that may lead to physical injury and/or damage to property.

**Hydraulic and pneumatic energy****HYDRAULIC AND PNEUMATIC SYSTEMS**

Warning of hydraulic and pneumatic hazards that may lead to physical injury and/or damage to property.

**Hazards due to hydraulic and pneumatic energy**

Depending on the version, the product works with high hydraulic or pneumatic pressure (see technical data). Sections of the system that need to be opened, such as pressure lines, valves or loads, have to be de-pressurised before the start of repairs. No residual pressure is permitted to remain.

**Hazards due to lubricants**

The safety notices and instructions of the lubricant manufacturer have to be observed and followed. The manufacturer of this product disclaims any liability for incidents resulting from failure to follow the regulations, instructions and recommendations of the lubricant manufacturer.

**Maintenance, upkeep and troubleshooting**

- Prescribed adjustment and maintenance tasks according to the maintenance schedule have to be carried out in a timely manner.
- Inform the operating personnel about adjustment and maintenance work.
- The master switch (if any) has to be turned off.
- Disconnect the energy supply from the network and secure it against unintentional reconnection.
- Pneumatic and/or hydraulic systems must be de-pressurised.
- Check all threaded connections and fittings for tightness.
- All safety devices and operating functions have to be checked after completion of the work.

**CAUTION**

The product always has to be shut off prior to all work.



**ENVIRONMENTAL HAZARD** The various materials/liquids have to be handled properly and disposed of separately according to the respective applicable national regulations.

**Warranty and liability**

Warranty and liability claims for personal injury and damage to property are excluded when they are due to one or more of the following causes:

- Improper use of the product.
- Work carried out by other than qualified personnel.
- Improper transportation, storage, assembly, commissioning, operation and maintenance of the product.
- Failure to observe the information in the operating manual regarding safety, transportation, storage, assembly, commissioning, operation, maintenance and setup of the product.
- Operating the product with defective protective devices or improperly installed or non-functional safety and protective devices.
- Structural changes to the product.
- Changing the compression ratios for pressure protection, and operating at pressures higher than intended for the product.
- Insufficient monitoring of machine components that are subject to wear.
- Improper repairs and using third-party components.

# Installation and maintenance guide

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## Safety warranty

Read the instructions carefully to familiarize yourself with the safe and efficient operation of this product. Keep this manual for future reference. These operating instructions contain important instructions and warnings for the safe and correct operation of the product. They will also assist operational and maintenance personnel maintenance in order to minimize hazards, repair costs and downtime, increasing the reliability and life of the product. Therefore, it is important to ensure that all persons entrusted with product assistance are consulted at all times by this document.

## Product description - Purpose

The needle metering valve is used for dispensing low viscosity lubricants.

## Labelling

The needle metering valve is labelled according to the model code (Figure A/No. 6).

## Functionality

Due to the compressed air connections, the needle metering valve can be controlled externally via a 5/2-way valve (Figure D/ No. 10). This initiates dispensing in the hydraulic section, provided the needle metering valve is connected to an active pump. The desired dispensing volume is continuously adjustable in the range from 3 mm<sup>3</sup> to 200 mm<sup>3</sup> with the adjustment screw (Figure A/No. 5). A locking screw (Figure A/No. 4) is provided to retain the set quantity. The vent with hose connection (Figure B/No. 7) permits the clean discharge of the medium.

## Description of the pictured components (Figures A – D)

- 1 Medium discharge
- 2 Connection block
- 3 Medium intake
- 4 Locking screw
- 5 Dispensing screw
- 6 Type key
- 7 Bleed screw
- 8 Pneumatics connection
- 9 Mounting holes
- 10 5/2-way valve (Not included in the scope of delivery)

## Assembly/installation

The product has to be set up or installed at the intended installation site under consideration of the following conditions.

- The applicable legal provisions on site have to be clarified and compliance must be assured.
- The available space has to be clarified prior to installation/setup of the product in order to ensure ongoing safe operation for the personnel and product. The product has to be set up/installed so that ongoing safe operation is assured.
- The product may only be set up and put into operation by qualified personnel with corresponding special training.
- The product is designed for use in rooms protected against the effects of weather (industry standard).
- Operation and storage in aggressive, excessively damp environments or outdoors may lead to corrosion damage.
- The valves can be installed in any position.
- The distance to the application surface depends on the desired application pattern.

**Commissioning**

- The lubricant supply hose must be filled with lubricant before connecting a needle metering valve (bleeding process).
- Then connect the supply hose to the medium input (Figure B/No. 3).
- Connect control air to the pneumatic connections (Figure B/No. 8).
- The maximum flow volume has to be adjusted during commissioning. In order to do so, loosen the locking screw (Figure A/No. 4) and turn the dispensing screw (Figure A/No. 5) to the rear stop (display: 100 %).
- Open the bleed screw (Figure B/No. 7) until medium is discharged, then close the screw again immediately.
- For clean bleeding, a pneumatic hose can be connected to the bleed screw to cool the air/medium mixture.
- Adjust the dispensing volume for application by changing the
  - dispensing volume using the dispensing screw (Figure A/No. 5)
  - medium pressure (if applicable with the optional material pressure regulator or directly with the pump pressure)
  - control air pressure (changes the dispensing time) until the application quality is correct.

**CAUTION**

**Do not aim the jet at people. Wearing eye protection is highly recommended. Depending on the material conveying pressure, the spraying process may be accompanied by noise. Hearing protection should be worn if needed.**

- Re-tighten the locking screw (Figure A/No. 4).

**Operation**

- As a rule, the needle metering valve works with a control air pressure of 6 bar and material pressure of 1 – 6 bar. For consistent application, ensure that the air and lubricant supply is constant without pressure fluctuations and the lubricant viscosity does not change.
- Depending on the application case, the control air pressure has to be adjusted to the switching frequency that is used on the one hand and the higher or lower material pressure on the other hand.

**CAUTION**

**Do not aim the jet at people. Wearing eye protection is highly recommended. Depending on the material conveying pressure, the spraying process may be accompanied by noise. Hearing protection should be worn if needed.**

**Packaging, transportation and storage**

DAV Tech prepares the product for transportation to the respective initial destination. The packing unit must not be subjected to excessive strain. Protect the packaging and contents against exposure to moisture. Keep the temperature between -20 °C and +40 °C during transportation.

**Transport damage**

If transport damage is found during the receiving inspection, proceed as follows:

- Notify the carrier (shipper etc.)
- Record the damage
- Inform the supplier

**Storage**

Operation and interim storage in aggressive, damp environments or outdoors may lead to corrosion and other damage. Maintain the storage temperature in the range of -20 °C to +40 °C.

# Installation and maintenance guide

## 4 TRAINING OF PERSONNEL

Only trained and instructed personnel who have read and understood all points in the operating instructions may work on the product. The personnel must also be able to control the operating states, and identify and implement the interrelated safety aspects. Personnel in training may only work on the product under the supervision of qualified personnel.

## 5 TROUBLESHOOTING, FAULT RESOLUTION



### CAUTION

All of the faults described below may only be resolved by trained, qualified personnel.

FAULT	POSSIBLE CAUSE	REMEDY
The needle metering valve switches but no lubricant is ejected	The feed pump is not supplying lubricant	Consult the operating manual for the feed pump
The needle metering valve switches but no lubricant is ejected	Material pressure too low	Increase pump pressure
The dispensing valve is leaking	The control air pressure/counter-pressure of the spring is too low	Increase the control air pressure, reduce the material pressure, install a stronger spring
The dispensing valve is leaking	Defective seals	Replace seals
Air in the system	Air pockets in the grease container Air pockets in the hoses	Loosen supply hose. Bleed system. Reconnect supply hose.
Leaky valve	Defective seals	Replace seals
Irregular dispensing	No constant grease and air	Upstream installation of optional material pressure regulator MDR

## 6 MAINTENANCE

Needle metering valves are precision instruments that are not susceptible to faults, given proper handling, and operate largely without maintenance, assuming that the application material is generally processed in clean condition, not contaminated by foreign particles. We recommend the following maintenance intervals to optimise the service life:

WHEN	WHAT	HOW	WHO
Weekly	Check valve for tightness	Visual	Qualified personell
Weekly	Check all threaded connections and fittings for leaks		
Monthly	Check seals for damage and wear		
Annually	Complete maintenance	Dismantle, clean and replace seals	

The specified maintenance intervals are for single shift operation. Maintenance has to be carried out more often depending on the field of application, medium and in case of operation in more than one shift.



**CAUTION** All work on the system is basically only to be carried out when it is at a standstill. The pneumatic and hydraulic systems have to be de-pressurised. The pressure gauges have to show 0 bar.

**Customer service/support**

DAV Tech Srl  
Via Ravizza, 30 - 36075 Montecchio Maggiore - VICENZA - ITALY  
Tel. +39 0444 574510  
davtech@davtech.it - www.davtech.it

**Shutdown****Short interruptions:**

In case of short interruptions (15 minutes or more), the product has to be shut off and completely de-pressurised. No residual pressure is permitted to remain in the system.

**Longer interruptions:**

For longer interruptions (more than one day), note the following points:

- The main switch/pump must be turned off
- No residual pressure is permitted to remain in the system (check the indicators)



**CAUTION Risk of accidents and environmental damage: Grease/oil on floors increases the risk of accidents. Properly dispose of grease/oil according to the applicable national regulations (special waste).**

**Drawings and replacement parts**

Accessories, drawings, dimension sheets, data sheets and spare parts can be found at [www.davtech.it](http://www.davtech.it).

**Decommissioning and disposal**

Observe the following points for decommissioning the product/taking it out of operation:

- Turn the master switch (if any) off
- Disconnect the mains plug (if any) from the network
- No residual pressure is permitted to remain in the system.
- The medium must be removed and properly disposed of.



**ENVIRONMENTAL HAZARD The various materials/liquids have to be handled properly and disposed of separately according to the respective applicable national regulations. Lubricants are considered special waste.**

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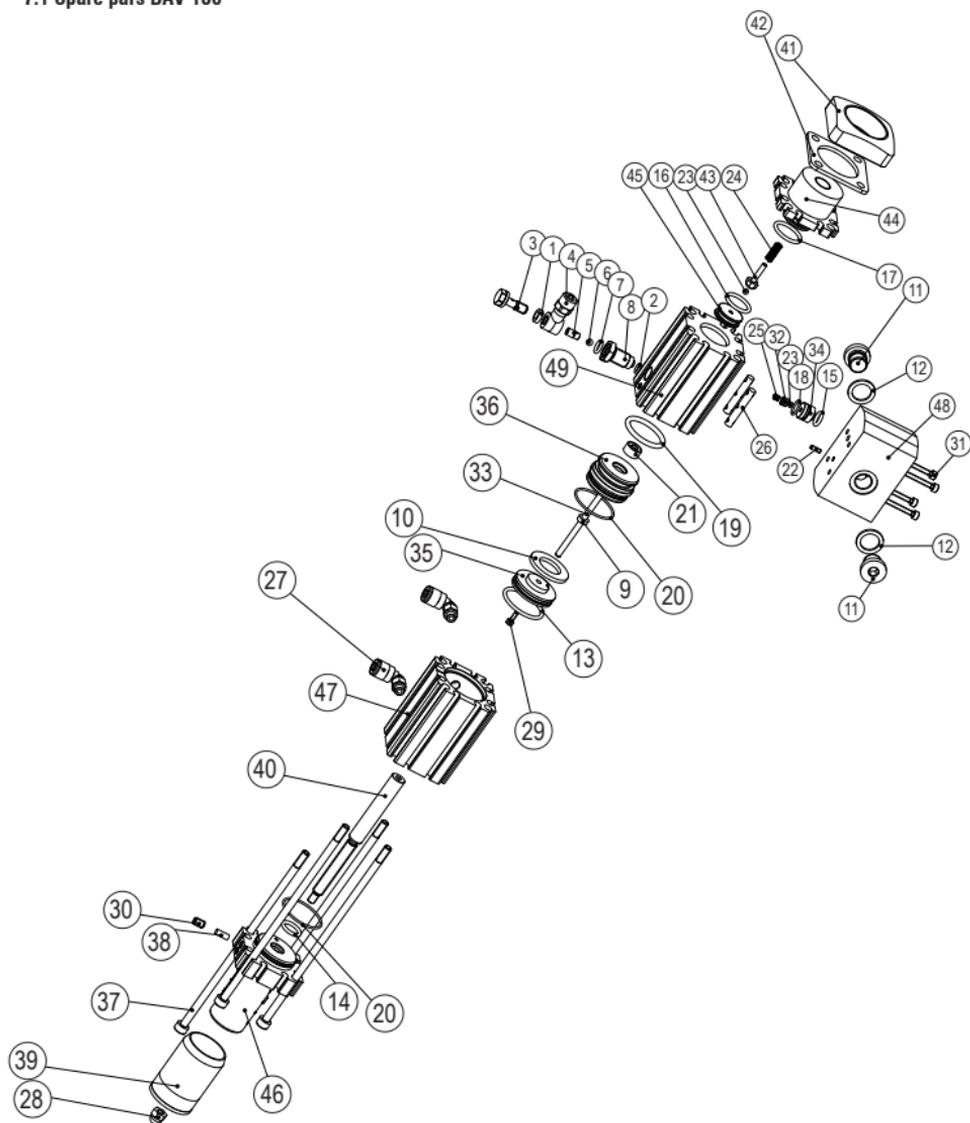
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**Resale**

This operating manual is part of the product and must be included in the scope of delivery in case of resale.

# Installation and maintenance guide

## 7.1 Spare parts DAV 150



## 7.1 Spare parts list DAV 150

POS.	CODE	QUANTITY	DESCRIPTION
1	0011286	1	GASKET
2	8220900	1	O RING
3	0010025	1	FITTING SCREW
4	0010026	1	FITTING BODY
5	0010105	1	PIN
6	8206600	1	BALL
7	8221801	1	O RING
8	0010106	1	FITTING CASE
9	0010031	1	NEEDLE GASKET
10	0001528	1	MAGNETIC RING
11	8430001	2	FITTING CAP
12	8259300	2	SHAPED GASKET
13	0001590	1	O-RING
14	8223500	1	O-RING
15	0005047	1	O-RING
16	8226800	1	O-RING
17	8227300	1	O-RING
18	0007775	1	O-RING
19	0005121	1	O-RING
20	8232100	2	O-RING
21	8353502	1	LIP SEAL
22	8460002	1	SPRING PIN
23	0007776	2	BALL
24	0009349	1	SPRING
25	0007777	1	SPRING
26	0002213	2	NUT
27	8634200	2	AIR FITTING
28	8411000	1	NUT
29	0001226	1	FLAT HEAD SCREW
30	8512700	1	GRUB SCREW
31	0001593	4	FLAT HEAD SCREW
32	0008608	1	VALVE SEAT
33	0011573	1	NEEDLE
34	0008602	1	VALVE SEAT
35	0008601	1	PNEUMATIC PISTON
36	0009071	1	BUSH
37	0010174	4	FLAT HEAD SCREW
38	0001589	1	PIN
39	0010173	1	MICROMETRIC REGULATION
40	0008598	1	STOPPER
41	0005068	1	FRONTAL PLATE DAV-150
42	0008597	1	SEAT
43	0010108	1	BODY VALVE
44	0008595	1	FRONTAL BODY DAV-150
45	0011292	1	VALVE SEAT
46	0008592	1	REGULATION BODY
47	0008591	1	PNEUMATIC BODY DAV-150
48	0008590	1	CONNECTION BODY
49	0008588	1	MID BODY DAV-150
	GASKETKIT-DAV150		GASKET KIT COMPLETE

## **Declaration of Incorporation**

according to the EU Machinery Directive 2006/42/EG, Annex II, 1.B for partly completed machinery

### **Manufacturer:**

DAV Tech Srl

Via Ravizza, 30 - 36075 Montecchio Maggiore

VICENZA - ITALY

### **Person residing within the Community authorised to compile the relevant technical documentation:**

Andrea Grazioli

DAV Tech Srl

Via Ravizza, 30 - 36075 Montecchio Maggiore

VICENZA - ITALY

### **Description and identification of the partly completed machinery:**

Type: Volumetric valves

Model: DAV 100, DAV 150, DAV 200, DAV 300, DAV 400, DAV 100 MAN, DAV 200 MAN, DAV 300 MAN, DAV 400 MAN.

**It is also declared that the relevant technical documentation has been compiled in accordance with part B of Annex VII.**

**It is expressly declared that the partly completed machinery the machinery fulfils all relevant provisions of the following EU Directives:**

- 2006/42/CE
- 2006/42/EG
- 95/16/EG

The manufacturer or his authorised representative undertakes to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place:

This does not affect the intellectual property rights!

**Important note! The partly completed machinery may be put into service only if it was determined, where appropriate, that the machinery into which the partly completed machinery is to be installed meets the provisions of this Directive.**

Andrea Grazioli  
