

Assembly Instructions

Hand Dosing Valve VMS-05

Article Numbers: **Standard**

V05-...

Special Design

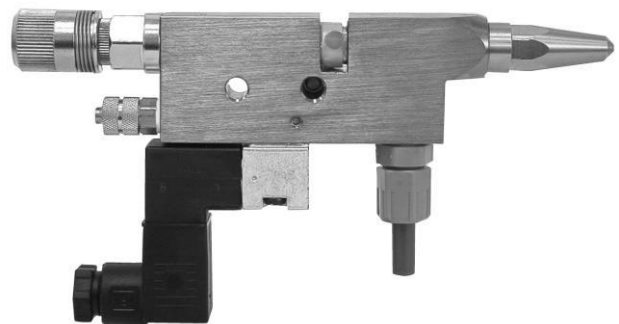
V05-033040028012070

V05-253040028012070

V05-253080028012070



VMS-05 Standard



VMS-05 Special Design



NOTE

Please read the Assembly Instructions carefully before first using the incomplete device and strictly adhere to the instructions!

This incomplete device may only be worked with and worked on by persons who are familiar with the Assembly Instructions and the current regulations for industrial safety and accident prevention.

**Always keep this translated version of the 'original Assembly Instructions' at the device!
The instructions have to be close at hand any time!**

Table of Contents		Page
EC DECLARATION OF INCORPORATION		4
1	INTRODUCTION	5
1.1	TARGET GROUP OF THE ASSEMBLY INSTRUCTIONS	5
1.2	LIST OF SIGNS AND SYMBOLS	5
2	SAFETY.....	5
2.1	GENERAL INFORMATION	5
2.2	DANGERS FROM RESIDUAL ENERGY	5
2.3	WARRANTY AND LIABILITY	5
2.4	CORRECT USE	6
2.5	INCORRECT USE	6
2.6	QUALIFICATIONS OF PERSONNEL.....	6
3	TRANSPORT	7
3.1	PACKAGING	7
3.2	TASKS BEFORE TRANSPORT	7
4	DESCRIPTION OF FUNCTION	7
4.1	DESIGNATED PURPOSE OF THE INCOMPLETE DEVICE	7
4.2	TECHNICAL DATA	8
4.3	TYPE LABEL	8
5	INITIAL START-UP.....	9
5.1	MOUNTING AND INSTALLATION	9
5.2	HOSE MOUNTING.....	9
5.3	ADJUSTING THE INCOMPLETE DEVICE	10
5.4	OPERATING ELEMENTS STANDARD	10
5.5	OPERATING ELEMENTS SPECIAL DESIGN	10
6	OPERATION	11
6.1	GENERAL INFORMATION	11
6.2	OPERATION INSTRUCTIONS / OPERATING CONDITIONS.....	11
7	TAKING OUT OF SERVICE	12
7.1	SHORT INTERRUPTION	12
7.2	LONG-TERM INTERRUPTION.....	12
7.3	SHUTDOWN OF DEVICE.....	12
8	MAINTENANCE AND REPAIR	13
8.1	GENERAL INFORMATION	13
8.2	CLEANING	13
8.3	REPLACING NEEDLE AND NOZZLE.....	13
8.4	REPLACING THE SEALING BUSHING.....	14
8.5	INSERTING SEALINGS AND O-RINGS.....	14
8.6	SPARE PARTS	15
8.7	ROUTINE TASKS.....	15
8.8	CUSTOMER SERVICE / SUPPORT.....	15
9	TROUBLESHOOTING	16
9.1	GENERAL INFORMATION	16
9.2	MALFUNCTIONS	16
10	APPENDIX.....	17
10.1	VMS-05 STANDARD	17
10.1.1	<i>Dimensioned Drawing VMS-05 Standard</i>	17

10.1.2	Spare Part Drawing VMS-05 Standard	18
10.1.3	Spare List VMS-05 Standard	19
10.2	VMS-05 SPECIAL DESIGN	20
10.2.1	Dimensioned Drawing VMS-05 Special Design MV LV (long version)	20
10.2.2	Dimensioned Drawing VMS-05 Special Design MV KV (short version)	20
10.2.3	Spare Part Drawing VMS-05 Special Design	21
10.2.4	Spare Part List VMS-05 Special Design	22
10.3	ARTICLE NUMBERS FOR NOZZLES, NOZZLE NEEDLES AND MAGNETIC VALVES.....	23
10.4	ACCESSORIES	25
10.5	DATA SHEET MICRO SWITCH 97190003	25

EC Declaration of Incorporation

in accordance with EU Machinery Directive 2006/42/EU, dated 17 May 2006, Appendix II B

We herewith confirm that the below mentioned incomplete device meets the basic requirements for safety and health as stated in EU Machinery Directive 2006/42/EU for its design and construction as well as for the configuration released by us on the market. This machine component will not be operated before it has been determined that the incomplete system where the machine component will be installed also meets the requirements of the Directive (2006/42/EG).

Manufacturer

Walther Systemtechnik GmbH
Hockenheimer Straße 3
D- 76726 Germersheim

Description

VMS-05 Hand Dosing Valve, Article No. V05-...

We also declare the conformity with other, product-relevant directives/guidelines:

Mach. Direct. 2006/42/EU App. I, Clause: 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.3.2, 1.3.3,
1.3.4, 1.5.1, 1.5.9
EMC- Directive 2014/30/EU, dated 26. February 2014

Applied harmonized standards, in particular:

DIN EN ISO 12100 Safety of Machinery – General Design Principles –
Risk Assessment and Risk Reduction (ISO
12100:2010)

In addition, we also confirm that the special documentation according to Appendix VII Part B has been prepared.

The manufacturer, respectively his authorized representative obligates himself to submit this documentation to the market surveillance authorities, if requested.

This EC Declaration of Incorporation becomes invalid if the incomplete device will be altered or changed without consent of Walther Systemtechnik GmbH.

Authorized representative for Technical Documentation:

Stefan Hirl, Hockenheimer Straße 3, D- 76726 Germersheim

Germersheim, 19 April 2016

(Place, Date)



(Stefan Hirl, Management)

1 Introduction

1.1 Target Group of the Assembly Instructions

- Operating Personnel
- Maintenance Personnel

1.2 List of Signs and Symbols

The assembly instructions warn users of operations which may put their health at risk.

The warnings are indicated by combinations of text and symbols as follows:



DANGER

Describes a potentially dangerous situation. Death, grievous bodily harm or severe material damage **WILL** occur if the respective measures of precaution have not been taken



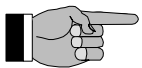
WARNING

Describes a potentially dangerous situation. Death, grievous bodily harm or severe material damage **MAY** occur if the respective measures of precaution have not been taken.



CAUTION

Describes a potentially dangerous situation. Slight injuries **CAN** occur if the respective measures of precaution have not been taken. This signal word is also used to describe possible property damages.



IMPORTANT

Indicates tips for usage and other particularly useful information. **No** dangerous situation.

2 Safety

2.1 General Information

The construction of this incomplete device is according to the latest technology and is absolutely reliable. The individual components as well as the complete device are continuously checked by our quality management.

2.2 Dangers from Residual Energy

Please instruct the operating personnel on the respective measures to be taken against the occurrence of mechanical, hydraulic, pneumatic and electric / electronic residual energies.

2.3 Warranty and Liability

According to the conditions laid down by the German Engineering Association (VDMA), Walther Systemtechnik GmbH has a guarantee of 12 months under normal European operating conditions on its own parts (spare parts are excluded); or according to the conditions of the manufacturer.

This guarantee can only be granted by Walther Systemtechnik GmbH, if:

- the user has thorough knowledge of the content of the assembly instructions;
- the user follows the instructions and notes contained in the assembly instructions;
- the user does not rebuild or make changes on parts of the device without prior consent of WST Systemtechnik GmbH.

2.4 Correct Use

The **VMS-05** Hand Dosing Valve is suitable for the application of media such as sealants, adhesives, greases, pastes and oils. Under no circumstance will aggressive media be processed! In case of doubt, please contact the manufacturer if a certain medium is suitable for this device.



WARNING

Do not use solvents or cleaners from the chlorinated hydrocarbon group; for example, 1.1.1 trichloromethane or methylene chloride can react explosively with aluminum or galvanized parts.

The **VMS-05 Special Design** valve is a needle valve and will be used for processing materials which can be sprayed in continuous or intermitting operation. Under no circumstances shall aggressive media such as acids, alkaline solutions, detergents, chemicals or others be sprayed. If you are not sure, please contact the manufacturer if a certain spray medium is suitable for this device.

2.5 Incorrect Use

- Operating the incomplete device with insufficient knowledge about the operation, maintenance and care of the device.
- Making changes, extensions or alterations on the incomplete device that may hamper its safety without the prior consent of Walther Systemtechnik GmbH.
- Operating the incomplete device with defective safety installations or not properly attached or malfunctioning safety devices.
- Using unsuitable materials.
- Handling the incomplete device while energized

2.6 Qualifications of Personnel

Only trained and instructed personnel may conduct work on the equipment.

The responsibilities of the personnel for assembly work, operation, repair work or maintenance work must be clearly assigned to individuals!

Persons in training may work with the equipment only under supervision of an experienced person.

Task	Personnel	Instructed Personnel	Personnel with Technical Qualification	Specialist	Supervisor
Packaging, Transport		X	-	-	-
Commissioning			X	X	-
Operation		X			-
Troubleshooting, general			X	X	-
Troubleshooting mechanical		-	X	-	-
Troubleshooting electrical		-	-	X	-
Setting up		-	X	-	-
Maintenance		-	X	-	-
Repair		-	X	X	-
Taking out of service, Storage		-	X	X	-

3 Transport

3.1 Packaging

The type of packaging depends on the individual mode of shipping. If not separately contracted, the packaging is in accordance with the rules and regulations of Walther Systemtechnik GmbH. This rule is in accordance with the Federal Association for Packaging HPE.

3.2 Tasks before Transport

The following has to be done before transport:

- Disconnect all power lines.

The actual transport of the incomplete device and its individual parts requires special care in order to prevent damages from external forceful impact or careless on- and off-loading. Depending on the mode of transportation, suitable transport and load securing has to be selected. The incomplete device will be aligned and leveled by appropriate fastening elements.

4 Description of Function

4.1 Designated Purpose of the Incomplete Device



CAUTION

The use of other media can cause functional failures, damages or even the destruction of the device.

Standard

The **VMS-05 Hand Dosing Valve** was designed for the application of sealants, adhesives, greases, pastes and oils. The selected nozzle defines the actual application. Depending on the viscosity of the medium to be applied, the application result can be individually adjusted through the nozzle size, the material supply pressure and the needle stroke. The medium will be supplied via a material connection. The **VMS-05** hand dosing valve is a high-precision device which will be a long-term reliable tool if the following notes are observed.

Operating the micro-switch (15) sends an electric impulse to a pilot valve (not included in scope of delivery). This pilot valve will then send an air impulse to the Dosing Valve which will start the spraying process.

A pilot valve can come as magnetic valve. In this case, the Dosing Valve will spray as long as the micro-switch is pushed.

A pilot valve can also come as a time-control. In this case, the Dosing Valve will spray according to the pre-set time, and the micro-switch does not have to be pushed constantly.

Special Design

Due to their low weight and a very compact design, the valves of the **VMS-05 Special Design series MV LV/KV** are ideally suitable for all applications with only little space for installation in machines or robots.

Using LV-nozzles (long versions) allows you to install the devices with an incline towards each other, but not much more mounting space is required. The valves are predominantly used for the application of sealants, adhesives and oils. Depending on the nozzle size, media with different viscosities can be processed. The **VMS-05 Special Design MV LV/KV** valves are high-precision devices which will be a long-term reliable tool if the following notes are observed.

The valve is a pneumatically controlled application device for processing materials such as sealants, adhesives, greases, paints, oils etc. A mutual application of air on the working piston results in opening and closing of the nozzle needle. When the control air is turned off or fails, the spring closes the nozzle needle. The spraying medium is supplied from a pressured container or a pump. The valve operates with a full jet.

4.2 Technical Data

General Data - Standard

Dimensions [mm] KV-type	ca. \varnothing 45 x 250
Weight [g]	ca. 700
Sealing material	Viton

Energy Supply

Control air pressure [bar]	min. 6
Material pressure [bar]	max. 100

General Data - Special Design

Dimensions [mm] KV-type	ca. 122 x 15 x 75 (see Appendix!)
Dimensions [mm] LV-type	ca. 142 x 15 x 75 (see Appendix!)
Weight [g]	ca. 265
Sealing material	Viton

Energy Supply

Control air pressure [bar]	min. 6
Material pressure [bar]	max. 30

4.3 Type Label

The type label has been etched in near the material connection. The serial number will be hammered into the type label.

5 Initial Start-up

5.1 Mounting and Installation

Connect the **VMS-05 Hand Dosing Valve** with a pressured container or a pump via the material connection (4). Connect the micro-switch (15) with a pilot valve (magnetic valve or time control or other). Adjust material pressure at the pressured container or the pump (max. 20bar). When you now operate the micro-switch, material will be discharged from the nozzle.

The **VMS-05 Special Design** valves can be installed in any position. The distance to the application area depends on the desired application image.

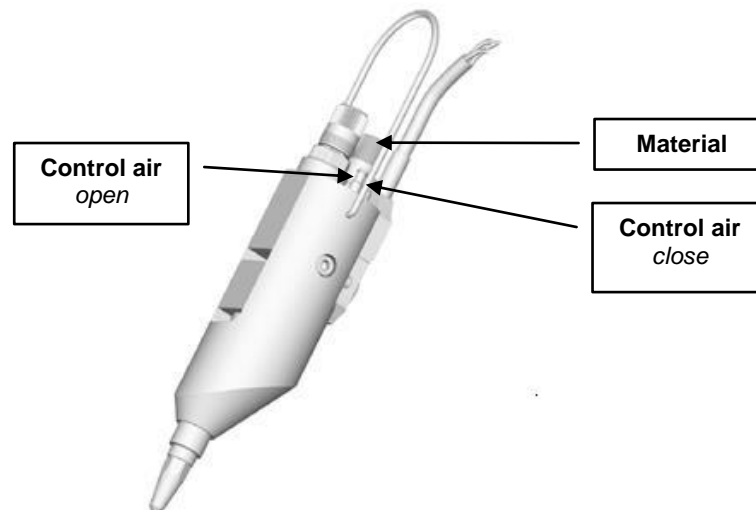
An intermittent operation of the device will cause certain vibrations. Therefore make sure that the device is safely and securely fixed and installed. The device comes with two borings of 5mm diameter in the valve body which can be used for a solid installation. Try to avoid extremely large vibrations (transfer from machines to valve).

5.2 Hose Mounting

Standard

Three functional hoses will be connected as follows:

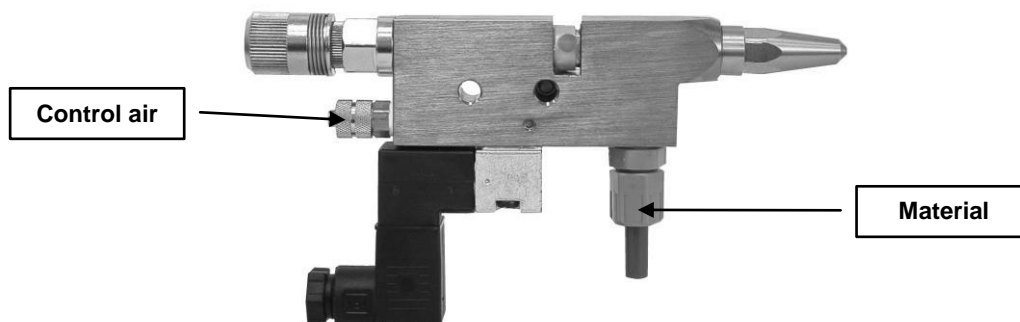
1. Control air (black) to plug-in nipple (open 7 SA)
2. Control air (black) to plug-in nipple (close 7 SZ)
3. Material (transparent) to 1/4"-connection (4)



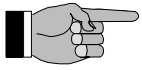
Special Design

Two functional hoses will be connected as follows:

1. Control air to M5-connection (21.0.0)
2. Material to 1/4"-connection (21.20)



5.3 Adjusting the Incomplete Device



IMPORTANT

Do not turn the raster-needle locking screw any further counter-clockwise if no more stops are noticeable while turning it! The maximum needle stroke adjustment has been reached already.

Further turning will cause the raster-needle locking screw to jump out!!



IMPORTANT

Nozzle and needle can be damaged by wrong handling. Only decrease the material flow (by a right turn of the regulating screw) if material spills out. Do not turn the regulating screw further to the right after the nozzle is closed!

Standard

The individual material quantity can be adjusted with the needle-stroke regulation (10, 11 or 12).

Functional Principle:

Turn the raster head/regulating spindle to the right:

decrease the material quantity

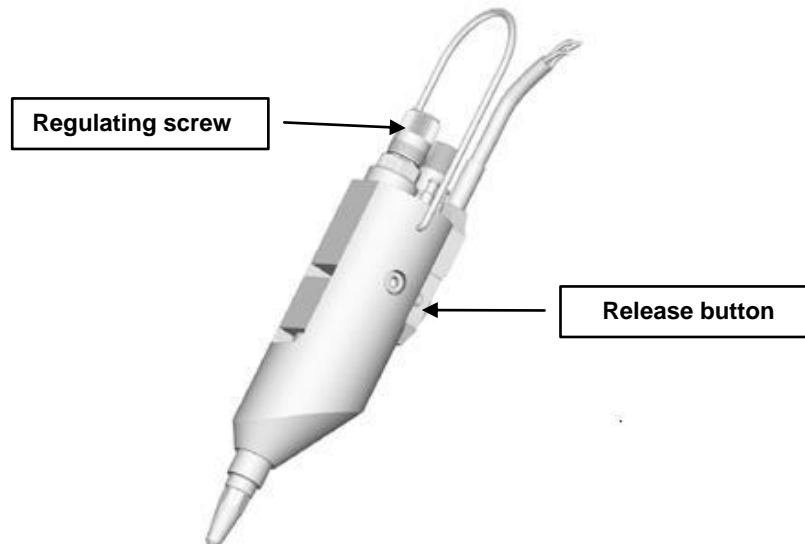
Turn the raster head/regulating spindle to the left:

increase the material quantity

Special Design

The amount of material can be regulated via the stroke adjustment of the needle. A left turn of the locking screw increases the material amount. A fine precision thread affects a needle rise that results in an adjustment of 0.5 mm with each turn of the adjusting knob

5.4 Operating Elements Standard



5.5 Operating Elements Special Design



6 Operation

6.1 General Information

This device will only be operated if the safety-related equipment is permanently effective and not suspended during operation or altered in its intended effectiveness.

6.2 Operation Instructions / Operating Conditions



CAUTION

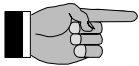
Never point the jet at people. The wearing of eye protection is strongly recommended. The spraying process can create noise depending on the air and fluid pressures used. Ear protection should be worn, if required.



WARNING

Danger caused by flammable, harmful fluid. Always follow the safety instructions on the container or the safety data sheet for the fluid.

The valves of the **VMS-05 Special Design** series generally operate with a control air pressure of 6 bar and material pressures of up to 30 bar.



IMPORTANT

Accident prevention directions will be **strictly** followed when applying high material pressures. Please strictly follow the following instructions when planning and constructing application systems.

The valves are able to perform contact-applications or also contact-free applications. The valves can be controlled for intermittent or continuous use. According to the individual application, the control air must be adjusted to the operating cycles and to the higher or lower material pressures. 40 tacts per second can be reached under appropriate operating conditions (material pressure, control air pressure, needle stroke, and short conductions).

The amount of material can be regulated via the stroke adjustment of the needle. A left turn of the locking screw increases the material amount. A fine precision thread affects a needle rise that results in an adjustment of 0.5 mm with each turn of the adjusting knob.



IMPORTANT

The base for an optimum setting of the application image is a device-specific adjustment. Basic values from lab tests can be used as references. However these have to be adjusted individually. Parameters such as nozzle size, opening time, opening stroke, material pressure and maybe also temperature have to be combined.

For longer times of standstill, the material can remain in the valve, if it remains under pressure (no contact to outside air).

7 Taking out of Service

7.1 Short Interruption

A short interruption (15 min or more) has to be followed by a clean spraying.

**IMPORTANT**

Please follow the Operating Manual!

7.2 Long-term Interruption

The following has to be observed for a long-term interruption of the device/machine:

- Depressurize material supply lines
 - Remove air cap and clean nozzle with a special thinner and a soft cloth. Make sure that no cloth fibers are left on the nozzle tip.
-

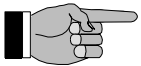
**IMPORTANT**

Please follow the maintenance guidelines!

7.3 Shutdown of Device

The following is important for a shutdown of the machine / device:

- Clean full-jet valve with a special thinner.
-

**IMPORTANT**

Please follow the maintenance guidelines!

8 Maintenance and Repair

8.1 General Information

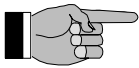
The valves of the **VMS-05** series are high-quality precision devices which will not fail if treated correctly and will operate almost maintenance-free. Always keep clean and observe minimum instructions to maintain a long life of the valve. Always use clean and filtered material only. The control air must also be clean and should be slightly oiled, if necessary. Maintenance also depends on the individual operating conditions and the type of media used.



CAUTION

Before starting any maintenance or repair work, ensure that all air-operated tools are depressurized and disconnected from the air supply.
Before opening the dosing pen it must be disconnected from the air and fluid supply.
Otherwise, ejected components can cause injuries.

8.2 Cleaning



IMPORTANT

Only use soft brushes for outside cleaning of the nozzle tips. Never use metal tools with sharp edges.

Wash equipment thoroughly after use to remove residues and dirt, especially if nozzle needle, sealing bushing or nozzle have to be exchanged.

Use the thinner for sprayable media as detergent. A daily cleansing rinse will remove residues of the sprayable medium and clean almost all parts and channels which have been in contact with the sprayable medium.

8.3 Replacing Needle and Nozzle



CAUTION

First depressurize all connections.

Standard Needle (8) and Nozzle (1)

First unscrew screws (14) and then remove valve from device body (13). Completely unscrew needle lock (10, 11 or 12). Unscrew nozzle (1). From the nozzle side, carefully push out needle (8) to the back. Re-assemble with slightly greased new parts in reverse order. We do not recommend reusing old needles. Piercing of slightly dirty needles through the needle gaskets (pos. 5.1) can cause leakages.

Special Design Needle (7.10) and Nozzle (2.10)

Completely unscrew raster-needle lock (pos. 9.02) and nozzle (pos. 2.10). Remove needle spring (8.10) and carefully push out the needle (pos. 7.10) towards the nozzle end. Re-assemble with slightly greased new parts in reverse order. We do not recommend reusing old needles. Piercing of slightly dirty needles through the needle gaskets (pos. 5.50) can cause leakages.

8.4 Replacing the Sealing Bushing

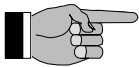
Standard Sealing Bushing (6)

Unscrew screws (14) and remove valve from device body (13). Completely unscrew needle lock (pos. 10, 11 or 12) and nozzle (pos. 1). Carefully push out the needle (pos. 8) towards the nozzle end. Then unscrew the sealing sleeve (pos. 6.0.0) from the thread with a screwdriver. Since the outer O-ring (pos. 5.3) prevents the sealing sleeve from falling through the mounting thread of the valve body (pos. 3), it is necessary to push the sealing sleeve together with O-ring (pos. 5.3) carefully backwards through the thread using a thin strip of metal (0.5 – 1.0 mm) which you push between the recess in the body and flat in front of the front end of the sealing sleeve. You can then take the sealing sleeve out of the enclosure.

Special Design Sealing Bushing (6.00)

Completely unscrew raster-needle lock (pos. 9.02) and nozzle (pos. 2.10). Carefully push out the needle (pos. 7.10) towards the nozzle end. Then unscrew the sealing sleeve (pos. 6.00) from the thread with a screwdriver. Since the outer O-ring (pos. 5.30) prevents the sealing sleeve from falling through the mounting thread of the valve body (pos. 4.10), it is necessary to push the sealing sleeve together with O-ring (pos. 5.30) carefully backwards through the thread using a thin strip of metal (0.5 – 1.0 mm) which you push between the recess in the body and flat in front of the front end of the sealing sleeve. You can then take the sealing sleeve out of the enclosure.

8.5 Inserting Sealings and O-Rings



IMPORTANT

Gaskets and gasket holders can be damaged.
Do not use any sharp or pointed metallic implements for inserting the sealings!

Standard

If a complete packing sleeve (pos. 6) is not available as a replacement, the old gaskets must be removed and replaced with new ones. In order to do so, the sealing sleeve must be thoroughly cleaned so that no particles of the previous spraying fluid impair the installation of the new gaskets. The O-ring seats should be lightly greased with a lubricant (technical Vaseline). First insert O-ring (pos. 6.2) into the rear hole of the sealing sleeve until it reaches the end. Then insert O-ring (pos. 5.3) into the outer groove. Insert the special form gasket (pos. 5.1) into the front seat. Since this form gasket is not symmetrical, the side with the larger boring must be inserted facing forwards, i.e. it must point in the direction of the nozzle after the complete sealing sleeve has been installed. Lightly grease the sealing sleeve (pos. 6) and insert it back into the valve body (pos. 3). Use a screwdriver to carefully push it through the mounting thread together with the outer O-ring (pos. 5.3) without twisting it. Then screw the sealing sleeve into the thread (gently tighten).

Do not use any metallic or sharp-edged aids or tools when you insert the O-rings and the form gasket. Despite all its outstanding sealing qualities, the form gasket is a sensitive precision component, which cannot tolerate impacts or pressure.

Special Design

If a complete packing sleeve (pos. 6.00) with integrated material sealing set (5.00) is not available as a replacement, the old gaskets must be removed and replaced with new ones. In order to do so, the sealing sleeve must be thoroughly cleaned so that no particles of the previous spraying fluid impair the installation of the new gaskets. The O-ring seats should be lightly greased with a lubricant (technical Vaseline). First insert O-ring (pos. 6.20) into the rear hole of the packing sleeve until it reaches the end. Then insert O-ring (pos. 5.30) into the outer groove. Insert the special form gasket (pos. 5.50) into the front seat. Since this form gasket is not symmetrical, the side with the larger boring must be inserted facing forwards, i.e. it must point in the direction of the nozzle after the complete packing sleeve has been installed. Lightly grease the sealing sleeve (pos. 6.00) and insert it back into the valve body (pos. 4.10). Use a screwdriver to carefully push it through the mounting thread together with the outer O-ring (pos. 5.3.0) without twisting it. Then screw the sealing sleeve into the thread (gently tighten).

Do not use any metallic or sharp-edged aids or tools when you insert the O-rings and the special form gasket. Despite all its outstanding sealing qualities, the special form gasket is a sensitive precision component, which cannot tolerate impacts or pressure.

8.6 Spare Parts

IMPORTANT

Only use original spare parts from the manufacturer!



Wrong or defective spare parts from other manufacturers can damage the device. If other than original spare parts of the manufacturer will be used, all obligations from the manufacturer or his sales partners, such as guarantees, service contracts etc will be **forfeited** without further notice.

8.7 Routine Tasks

No.	Description	Cleaning	Lubricating	Inspecting	Additional tasks	Frequency
1.	connections (tightness)			X		monthly
2.	nozzle	X		X	exchange if damaged	monthly
3.	complete valve	X			check for wear	after 10 mio. switching operations

8.8 Customer Service / Support

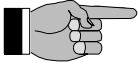
Walther Systemtechnik GmbH

Hockenheimer Straße 3
D-76726 Germersheim
Germany

Phone ++49(0)7274-7022-0
Telefax ++49(0)7274-7022-91
Email info@walther-2000.de
Internet www.walther-2000.de

9 Troubleshooting

9.1 General Information



IMPORTANT

First check all supply lines for connection and serviceability.

In case of serious problems that cannot be resolved, please contact the Walther Systemtechnik GmbH customer service.

9.2 Malfunctions

Standard

Fault	Possible Cause	Action
Nozzle needle does not open	Not enough control air supplied	Check if enough control air available (5 - 6 bar).
	Valve does not activate	Check if micro-switch is defective
	Leakages	Check if O-Rings (6.2 and 8.1) are defective.
	Nozzle needle (8) is sticky within the sealing screw (6).	Disassemble and clean.
	Needle stroke is set too low.	Check if needle stroke is correctly set.

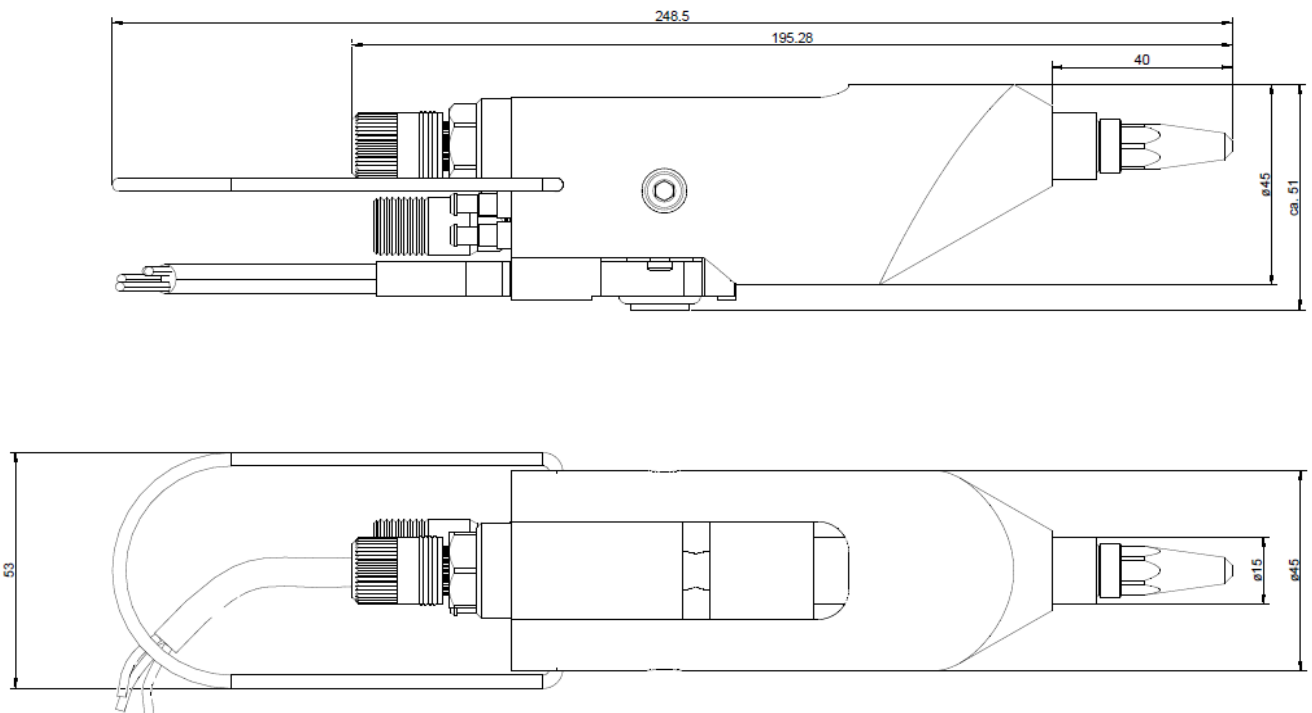
Special Design

Fault	Possible Cause	Action
Nozzle needle does not open	Not enough control air supplied	Check if enough control air available (5 - 6 bar).
	Leakages	Check if O-Rings (6.20 and 7.40) are defective.
	Needle (7.10) is sticky within the sealing screw (6.10).	Disassemble and clean.
	Needle stroke is set too low.	Check if needle stroke is correctly set.

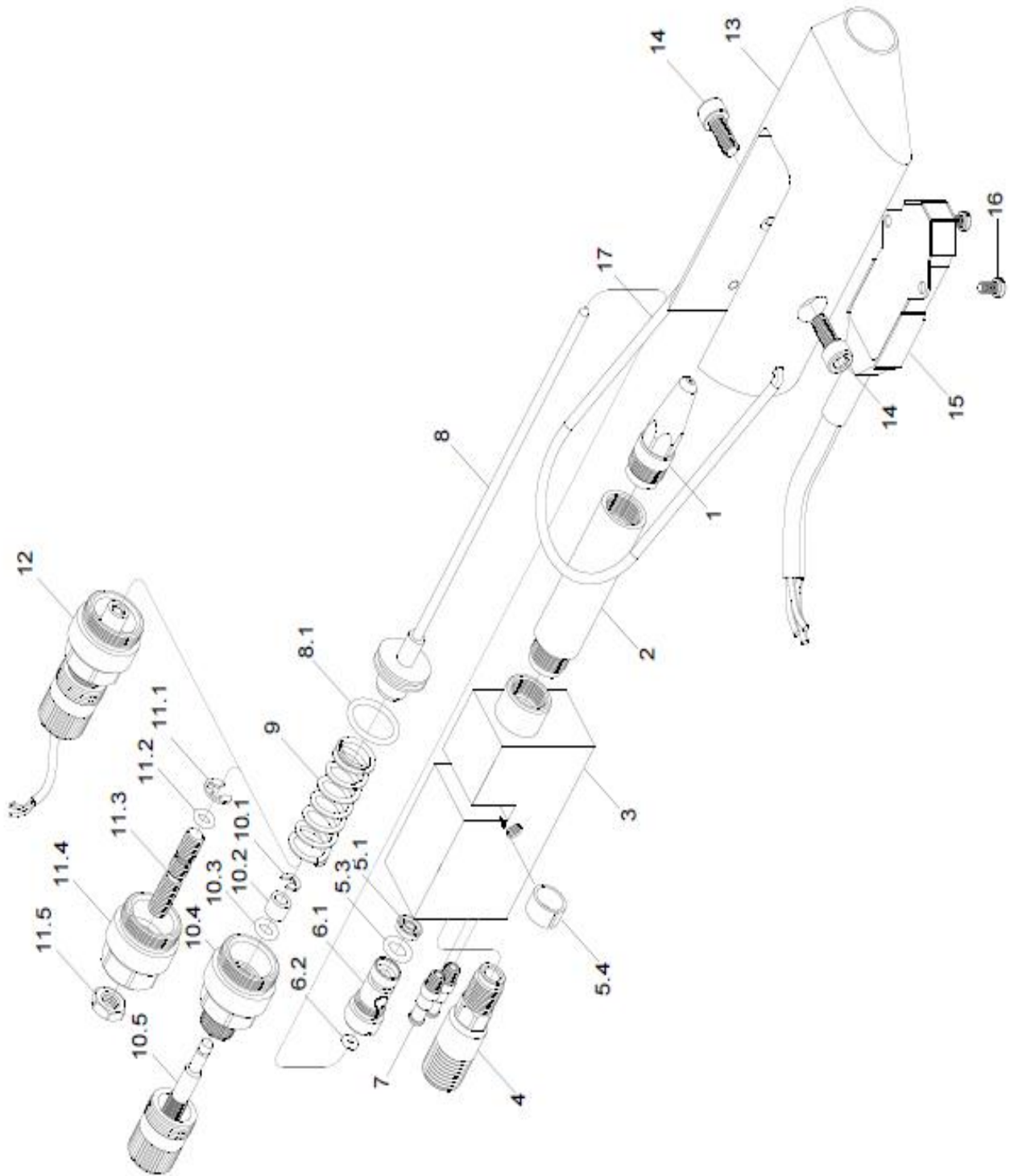
10 Appendix

10.1 VMS-05 Standard

10.1.1 Dimensioned Drawing VMS-05 Standard



10.1.2 Spare Part Drawing VMS-05 Standard



10.1.3 Spare List VMS-05 Standard

Dwg No.	Art.-No.	Qty	Description
1	*	1	Nozzle, stainless
1.1	97320005	1	Needle guide
1.2	97410053	1	Hexagon retaining ring
			Pos. 1.1 and 1.2 are not part of the drawing
2	*	1	Nozzle tube
3	97510158	1	Main body VMS-05 Standard
4	97220139	1	Reduction screw-joint, stainless steel 1/4"AG - 1/8"AG
5	97640102	1	Material sealings
5.1	97640004	1	Variseal
5.3	97640021	1	O-Ring Viton
5.4	97640101	1	Plastic protection sleeve
6	97810014	1	Sealing screw, complete
6.1	97810013	1	Sealing screw
6.2	97640026	1	O-Ring
7	97220288	2	Plug-in nipple, brass M5
8	*	1	Nozzle needle, complete
8.1	97640007	1	O-Ring Viton
9	97820044	1	Pressure spring
10	97900021	1	Raster-needle lock
10.1	97620017	1	Safety washer
10.2	97320098	1	Stop sleeve
10.3	97640027	1	O-Ring Viton
10.4	97220291	1	Raster-needle locking screw (incl. 10.3)
10.5	97610093	1	Needle stroke raster head
11	97900013	1	Normal lock
11.1	97620007	1	Safety washer
11.2	97640032	1	O-Ring Viton
11.3	97610107	1	Regulating spindle
11.4	97220115	1	Locking screw
11.5	97410007	1	Nut
12	97900044	1	Raster-needle lock with electric needle sensor
13	97510159	1	Device body – handle
14	97610011	2	Cylinder screw with inner hex
15	97190003	1	Micro-switch
16	97610005	2	Cylinder screw with slot
17	97910340	1	Hanging clamp

* Article numbers can be found on the following pages.
Please indicate the required size when ordering spare parts for nozzle sets.
Available sizes: 0.3/0.5/0.7/1.0/1.5/2.0mm Ø
Nozzle set = Nozzle needle and nozzle (should always be replaced together)

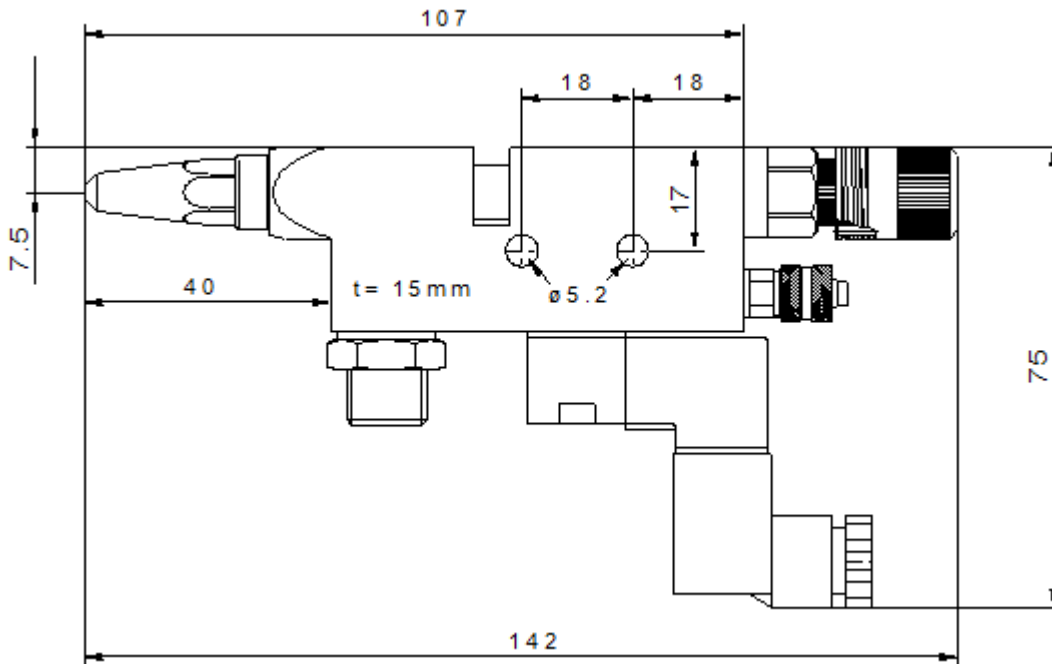


IMPORTANT

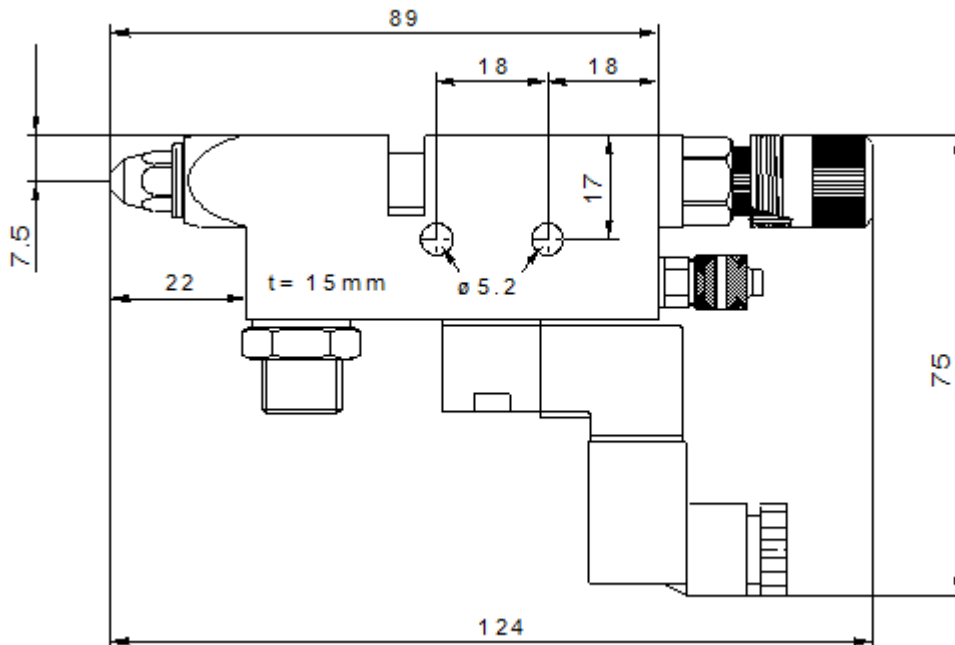
Always indicate the inscribed serial numbers when ordering spare parts!

10.2 VMS-05 Special Design

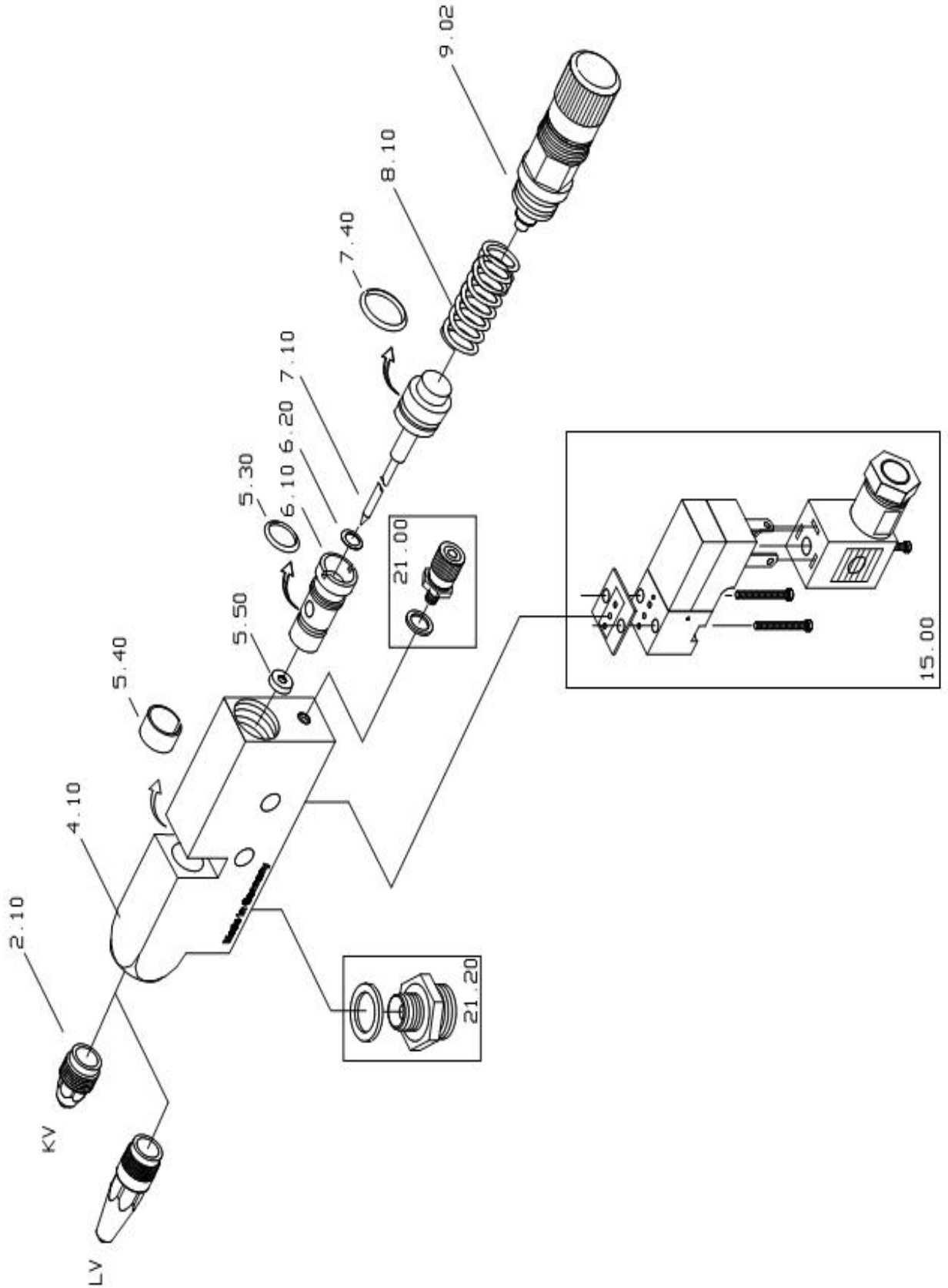
10.2.1 Dimensioned Drawing VMS-05 Special Design MV LV (long version)



10.2.2 Dimensioned Drawing VMS-05 Special Design MV KV (short version)



10.2.3 Spare Part Drawing VMS-05 Special Design



10.2.4 Spare Part List VMS-05 Special Design

Dwg No.	Art.-No.	Qty	Description
2.10	*	1	Nozzle, stainless steel
4.10	97510036	1	Main body VMS-05 MV, complete
5.00	97640107	1	Material sealing set
5.30	97640021	1	O-Ring Viton
5.40	97640101	1	Plastic protection sleeve
5.50	97640004	1	Variseal
6.00	97810014	1	Sealing screw, complete
6.10	97810013	1	Sealing screw
6.20	97640026	1	O-Ring
7.10	*	1	Nozzle needle, complete
7.40	97640007	1	O-Ring Viton
8.10	97820020	1	Pressure spring
9.02	97900008	1	Raster-needle lock
9.12	97610093	1	Needle stroke raster head
9.22	97220104	1	Raster locking screw SW 13
9.32	97640027	1	O-Ring Viton
9.42	97320022	1	Cylinder pin DIN 6325
9.52	97820000	1	Pressure spring
9.62	97610017	1	Threaded pin DIN 913
9.72	97320098	1	Stop sleeve
15.00	*	1	Magnetic valve
21.00	97220089	1	Screw joint, complete, SW 8
21.20	97220114	1	Double nipple, stainless steel, 1/4"AG-1/8"AG

* Article numbers can be found on the following pages.
 Please indicate the required size when ordering spare parts for nozzle sets.
 Available sizes: 0.2/0.3/0.4/0.5/0.6/0.7/0.8/1.0/1.2/1.5/2.0mm Ø
 Nozzle set = Nozzle needle and nozzle (should always be replaced together)



IMPORTANT

Always indicate the inscribed serial numbers when ordering spare parts!

10.3 Article Numbers for Nozzles, Nozzle Needles and Magnetic Valves

*Nozzle, LV, stainless steel Standard		
Dwg No	Article No.	Description
1	97210139	Nozzle, LV, 1.0 mm, Stainless steel
1	97210141	Nozzle, LV, 1.5 mm, Stainless steel
1	97210142	Nozzle, LV, 2.0 mm, Stainless steel
1	97210210	MG-Adapter, 0.8mm, M13 x 0.75

*Nozzle, LV, stainless steel Special Design		
Dwg No	Article No.	Description
2.10	97210132	Nozzle, LV, 0.2 mm, Stainless steel
2.10	97210133	Nozzle, LV, 0.3 mm, Stainless steel
2.10	97210134	Nozzle, LV, 0.4 mm, Stainless steel
2.10	97210102	Nozzle, LV, 0.5 mm, Stainless steel
2.10	97210136	Nozzle, LV, 0.6 mm, Stainless steel
2.10	97210137	Nozzle, LV, 0.7 mm, Stainless steel
2.10	97210138	Nozzle, LV, 0.8 mm, Stainless steel
2.10	97210139	Nozzle, LV, 1.0 mm, Stainless steel
2.10	97210140	Nozzle, LV, 1.2 mm, Stainless steel
2.10	97210141	Nozzle, LV, 1.5 mm, Stainless steel
2.10	97210142	Nozzle, LV, 2.0 mm, Stainless steel

*Nozzle, KV, stainless steel Standard		
Dwg No	Article No.	Description
1	97210144	Nozzle, KV, 0.3 mm, Stainless steel
1	97210146	Nozzle, KV, 0.5 mm, Stainless steel
1	97210148	Nozzle, KV, 0.7 mm, Stainless steel
1	97210153	Nozzle, KV, 2.0 mm, Stainless steel
1	97210210	MG-Adapter, 0.8mm, M13 x 0.75

*Nozzle, KV, stainless steel Special Design		
Dwg No	Article No.	Description
2.10	97210143	Nozzle, KV, 0.2 mm, Stainless steel
2.10	97210144	Nozzle, KV, 0.3 mm, Stainless steel
2.10	97210145	Nozzle, KV, 0.4 mm, Stainless steel
2.10	97210146	Nozzle, KV, 0.5 mm, Stainless steel
2.10	97210147	Nozzle, KV, 0.6 mm, Stainless steel
2.10	97210148	Nozzle, KV, 0.7 mm, Stainless steel
2.10	97210149	Nozzle, KV, 0.8 mm, Stainless steel
2.10	97210150	Nozzle, KV, 1.0 mm, Stainless steel
2.10	97210151	Nozzle, KV, 1.2 mm, Stainless steel
2.10	97210152	Nozzle, KV, 1.5 mm, Stainless steel
2.10	97210153	Nozzle, KV, 2.0 mm, Stainless steel

***Nozzle tube, Standard**

Dwg No	Article No.	Description
2	97850139	Nozzle tube, 60mm, Standard
2	97220813	Nozzle tube, 50mm
2	97851597	Nozzle tube, 1000mm, extension

***Nozzle needle, Standard stainless steel**

Dwg No	Article No.	Description
8	97110425	Nozzle needle, KV 0.3mm, complete
8	97110449	Nozzle needle, KV 0.5mm, complete
8	97111835	Nozzle needle, KV 0.5mm, complete for 1000mm ext.
8	97112012	Nozzle needle, KV MG-Adapter 0.8mm, complete for 1000mm ext.
8	97110388	Nozzle needle, KV 0.7mm, complete
8	97111857	Nozzle needle, KV 2.0mm, complete

***Nozzle needle, Standard stainless steel**

Dwg No	Article No.	Description
8	97111682	Nozzle needle, LV 1.0mm, complete for 50mm ext.
8	97111995	Nozzle needle, LV 1.5mm, complete for 50mm ext.
8	97111720	Nozzle needle, LV 2.0mm, complete for 50mm ext.

***Nozzle needle, LV, carbide**


Dwg No	Article No.	Description
7.10	97110221	Carbide -Nozzle needle, LV 0.2/0.3mm, complete
7.10	97110222	Carbide -Nozzle needle, LV 0.4mm, complete
7.10	97110223	Carbide -Nozzle needle, LV 0.5mm, complete
7.10	97110224	Carbide -Nozzle needle, LV 0.6/0.7mm, complete
7.10	97110225	Carbide -Nozzle needle, LV 0.8/1.0mm, complete
7.10	97110227	Carbide -Nozzle needle, LV 1.2mm, complete
7.10	97110228	Carbide -Nozzle needle, LV 1.5mm, complete
7.10	97110229	Carbide -Nozzle needle, LV 2.0mm, complete

***Nozzle needle, KV, carbide**

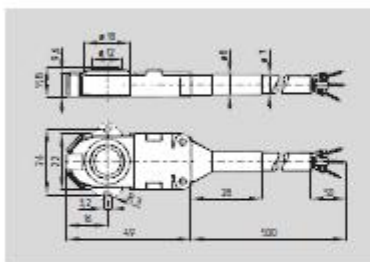
Dwg No	Article No.	Description
7.10	97110230	Carbide -Nozzle needle, KV 0.2/0.3mm, complete
7.10	97110231	Carbide -Nozzle needle, KV 0.4mm, complete
7.10	97110232	Carbide -Nozzle needle, KV 0.5mm, complete
7.10	97110233	Carbide -Nozzle needle, KV 0.6/0.7mm, complete
7.10	97110234	Carbide -Nozzle needle, KV 0.8/1.0mm, complete
7.10	97110235	Carbide -Nozzle needle, KV 1.2mm, complete
7.10	97110236	Carbide -Nozzle needle, KV 1.5mm, complete
7.10	97110237	Carbide -Nozzle needle, KV 2.0mm, complete

*Magnetic valve 3/2-way		
Dwg No	Article No.	Description
15.00	97150018	Magnetventil 24V / DC / 2,5W
15.00	97150019	Magnetventil 110V / 50Hz / 1,5W
15.00	97150020	Magnetventil 220V / 50Hz / 1,5W

10.4 Accessories

Picture	Article Number	Description
	979444	Cleaning Kit

10.5 Data Sheet Micro Switch 97190003



- Rubber enclosure
- Stainless steel case pre-wired cable
- Double-insulated E3
- M 660 without mounting flange, M 6600 with mounting flange
- Snap action, change-over contact with single break
- Gold-plated contacts
- Snap action with self-cleaning contacts
- With pre-wired cable 3 x 0.75 mm²
- Protection class IP 65
- Suitable for aggressive environmental conditions
- Good resistance to petroleum spirit and oil
- Flange or central mounting
- Cable length 0.5 m
- Other lengths on request.

Technical data

Standards: IEC/EN 60947-5-1
 Switch insert: M 660-11-2-e
 Enclosure: rubber body with stainless-steel casing
 Hexagon nuts: -
 Telescopic plunger: M 16 x 1, nickel-plated steel
 Protection class: IP 65 to EN 60529
 Contact material: gold-plated silver
 Switching system: snap action, self-cleaning contacts
 Contact type: change-over contact, single break
 Termination: cable H05VV-F
 Cable section: 3 x 0.75 mm²
 U_{imp}: 4 kV
 U_i: 250 V
 I_{thp}: 4 A
 I_e/U_e: 1 A / 230 VAC
 Utilisation category: AC-15
 Voltage withstand across contacts: 1200 VAC, 50 Hz
 Test voltage (enclosed): 2500 VAC, 50 Hz
 Max. fuse rating: 4 A gG D-fuse
 Ambient temperature: - 30 °C ... + 80 °C
 Mechanical life: 3 million operations
 Switching frequency: 30000/h
 Actuating speed: min. 1 mm/min

Contact variants

Change-over contact with double break

