

Assembly Instructions

Micro Point Pulse Valve MPP-02

Article number: MPP-02



Fig. MPP-02 with standard nozzle MPP-01



NOTE

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

The 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 a translated version of the original Assembly Instructions at the incomplete device!
The assembly instructions have to be close at hand any time!**

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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

MPP-02 Micro Point Pulse Valve, article-No. MPP-02

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, 1.5.8, 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 personal
- Maintenance personal

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 the 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 due to 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 Federation (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 incomplete device is a needle valve suitable for the processing of sprayable media in continuous as well as intermittent use. It is not suitable for spraying aggressive fluids such as acids, alkaline solutions, cleaning agents, chemicals, etc. In case of doubt, please contact the manufacturer.

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 Qualified 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.

Personnel Task	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 Functional Description

4.1 Function

The **MPP-02** Micro Point Pulse Valve is an incomplete, pneumatically controlled application device designed for the application of materials such as sealants, adhesives, greases, paints, oils, etc. The needle piston is alternately impinged on by air, triggering an opening and closing of the needle. If the control air is cut off or fails, the spring closes the needle. The medium is transported to the valve either out of a pressure tank or a pump. The valve discharges a full jet.

4.2 Technical Data of the Incomplete Device

General data

Dimensions [mm]	Approx. Length (size is depending on employed nozzle) x 15 x 82 (Dimensioned drawing – see attachment!)
Weight [g]	approx. 375
Switching frequency [Hz]	40 (depending on the medium used!)
Switching time [ms]	10

Energy supply

Control air pressure [bar]	min. 5 – max. 8
Material pressure [bar]	max. 100
Voltage [VDC]	24
Power input [W]	1.6

4.3 Type Label of the Incomplete Device

The type designation is etched in close to the material connection. The serial number is also inscribed in this area.

5 Initial Start-up

5.1 Installation

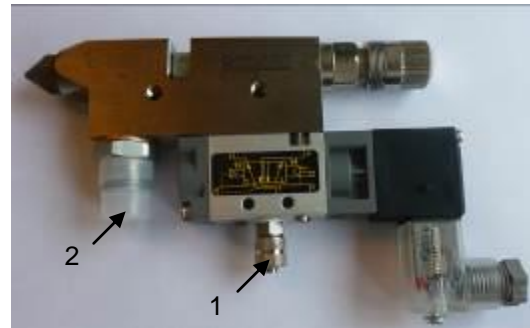
The valves can be installed in any position. The distance to the surface to be applied with the medium depends on the spray pattern.

Vibrations of the valve caused by fast intermitting cycles require solid and tight installation. Machine vibrations to the valves should be avoided.

5.2 Hose Connection

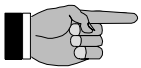
The two function hoses are to be connected as follows:

- 1 control air to plug connection for 6mm hose (11.0)
- 2 medium to 1/8"-connection (can be ordered as accessories)



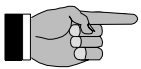
5.3 Adjustment of the Incomplete Device

The amount of material can be regulated via the stroke adjustment of the needle (7.0). A left turn of the regulating knob increases the material amount. A fine precision thread affects a needle rise that results in an adjustment of 0.5mm with each turn of the adjusting knob.



IMPORTANT

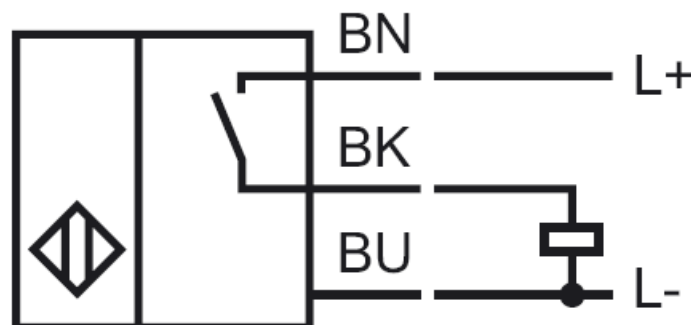
Do not turn the regulating knob further to the left if no more stops are noticeable while turning it! The maximum fluid outlet has been reached.



IMPORTANT

Nozzle and needle can be damaged by wrong handling. Only decrease the material flow by a right turn of the regulating knob.

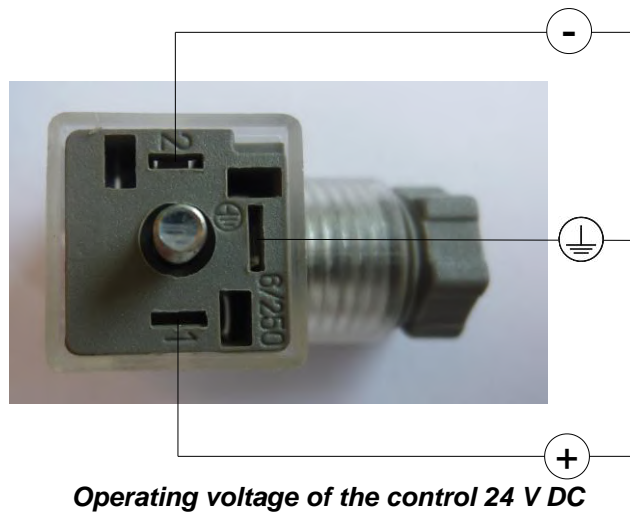
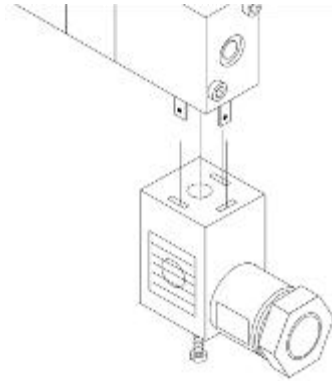
5.4 Connection Scheme for Needle Sensor



5.5 Connection Scheme for Pressure Sensor

pin assignment	white – out / ground brown – 24 VDC
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5.6 Connection Scheme of the Magnetic Valve



6 Operation

6.1 General Information

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

6.2 Operating Instructions



CAUTION

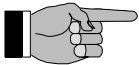
Never point the jet at people. The wearing of eye protection is strongly recommended. The spraying process can create noise depending on the air and fluid pressures used. Ear protection should be worn, if required.



WARNING

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

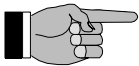
The **MPP-02** Micro Point Pulse Valve usually works with a control air pressure of 5 – 6 bar and material pressures of up to 30 bar. To obtain a consistent application pattern, the air supply must be kept constant without any fluctuations.



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 suitable for contactless and regular application and 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 valve works with an opening time from 10ms upwards. The opening time (in real time) must correspond with the theoretical value, in order to enable constant opening and closing.



IMPORTANT

A plant-specific setting is required for an optimal adjustment of the application pattern. Starting values from laboratory tests can be used as a basis. However, these may need to be adjusted for the specific plant. A combination of the following parameters is necessary: nozzle size, opening time, opening stroke, material pressure and temperature (if applicable).

It is harmless to leave fluid in the valve during longer standstills if system stays under pressure (no connection 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 fine spraying.



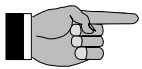
IMPORTANT

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
 - Clean nozzle (1.0) with a special thinner and a soft cloth. Make sure that no cloth fibers are left on the nozzle tip.
-



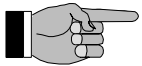
IMPORTANT

Please follow the maintenance guidelines!

7.3 Final Shutdown of System / Device

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

- Clean pulse valve with a special thinner.
-



IMPORTANT

Please follow the maintenance guidelines!

8 Maintenance and Repair

8.1 General Information

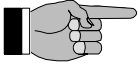


CAUTION

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

The **MPP-02** Micro Point Pulse Valves are high precision tools. Always keep clean and observe minimum instructions to maintain a long life of the valve. We recommend lubricating moveable parts regularly and greasing threads, especially the nozzle threads, when replacing or cleaning the nozzle. 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.

8.2 Cleaning



IMPORTANT

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

Wash incomplete device thoroughly after use to remove residues and dirt; especially if needle (5.0), sealing screw (4.0) or nozzle (1.0) are to be exchanged.

8.3 Replacing Needle (5.0) and Nozzle (1.0)

Completely unscrew ratchet needle lock (7.0) and nozzle (1.0). Pull out needle spring (6.0) and carefully push out the needle (5.0) towards the nozzle end. Slightly grease replacement parts and re-assemble them in reverse order. Do not reuse old needles. Even slightly dirty needles and needle shafts can cause leakage in the special form gasket (3.3).

8.4 Replacing Sealing Screw (4.0)

Completely unscrew ratchet needle lock (7.0) and nozzle (1.0). Pull out needle spring (6.0) and carefully push out the needle (5.0) towards the nozzle end. Then unscrew the sealing screw (4.0) from the thread with a screwdriver. Since the outer O-ring (3.1) prevents the sealing screw from falling through the mounting thread of the valve body (2.0), it is necessary to push the sealing screw together with O-ring (3.1) 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 screw. You can then take the sealing screw out of the enclosure.

8.5 Replacing Gaskets and O-rings

If a complete sealing screw (4.0) with an inserted gasket set (3.0) is not available as a replacement, the old gaskets must be removed and replaced with new ones. In order to do so, the sealing screw 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 (4.2) into the rear hole of the sealing screw until it reaches the end. Then insert O-ring (3.1) into the outermost groove. Insert the special form gasket (3.3) into the front seat. Since this form gasket is not symmetrical, the side with the larger outer diameter must be inserted facing forwards, i.e. it must point in the direction of the nozzle after the complete sealing screw has been installed. Lightly grease the sealing screw (4.0) and insert it back into the valve body (2.0). Use a screwdriver to carefully push it through the mounting thread together with the outer O-ring (3.1) without twisting it. Then screw the sealing screw into the thread (gently tighten).

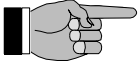
Do not use any metallic or sharp-edged aids or tools when you insert the O-rings and the special form gasket. Despite all its outstanding sealing qualities, the special form gasket is a sensitive precision component, which cannot tolerate impacts or pressure.

8.6 Tasks to be performed regularly

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

8.7 Spare Parts

IMPORTANT



Only use original spare parts from the manufacturer!

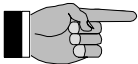
Wrong or defective spare parts from other manufacturers can damage the device. If other than original spare parts of the manufacturer will be used, all obligations from the manufacturer or his sales partners, such as guarantees, service contracts etc will be **forfeited** without further notice.

8.8 Customer Service / Support

Walther Systemtechnik GmbH	phone	++49(0)7274-7022-0
Hockenheimer Straße 3	fax	++49(0)7274-7022-91
D-76726 Germersheim	e-mail	info@walther-2000.de
Germany	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 Failure

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-Ring (4.2) or (5.1) is defective.
	Check, if needle is sticky within the sealing screw (5.0 /16.0).	Disassemble and clean.
	Needle stroke is set too low.	Check if needle stroke is correctly set.

10 Appendix

10.1 Dimensioned Drawing

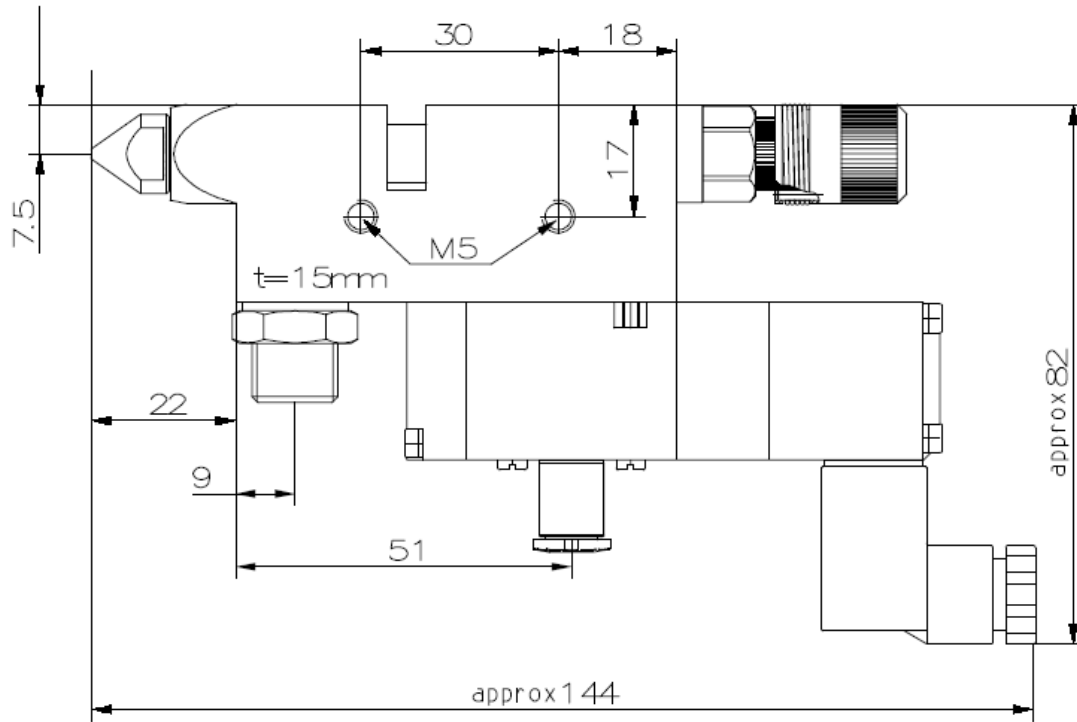


Fig. MPP-02 with standard nozzle MPP-01

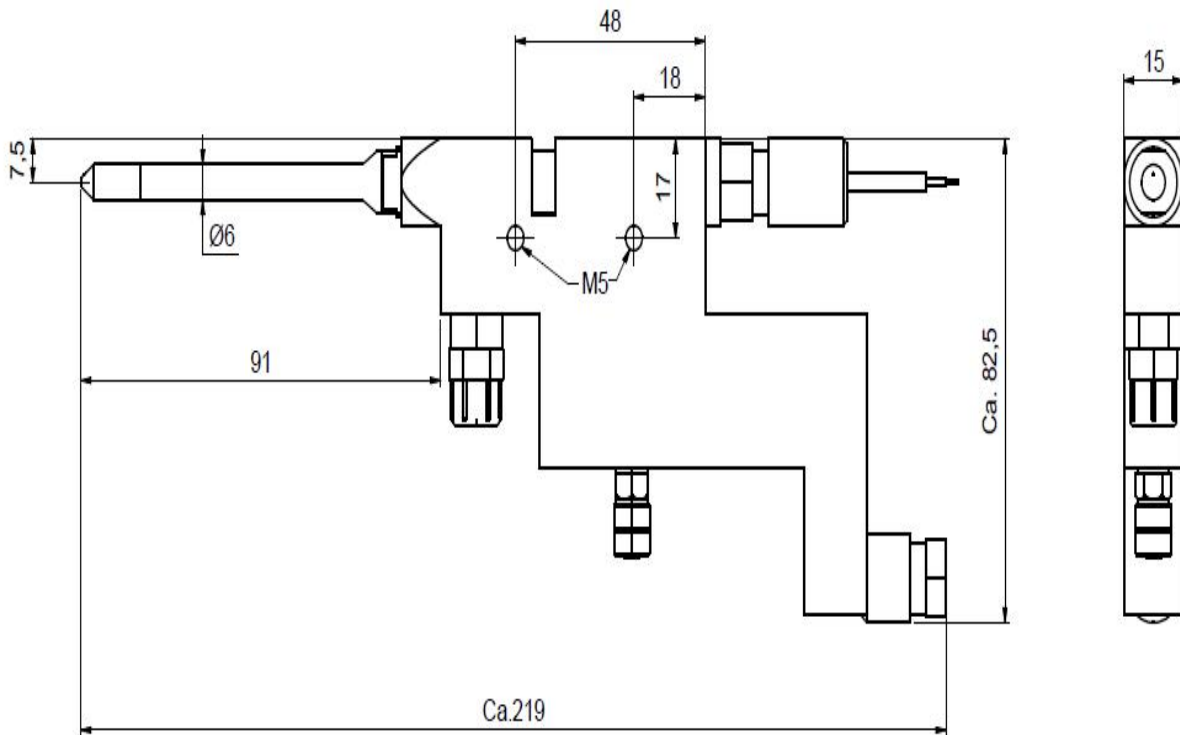
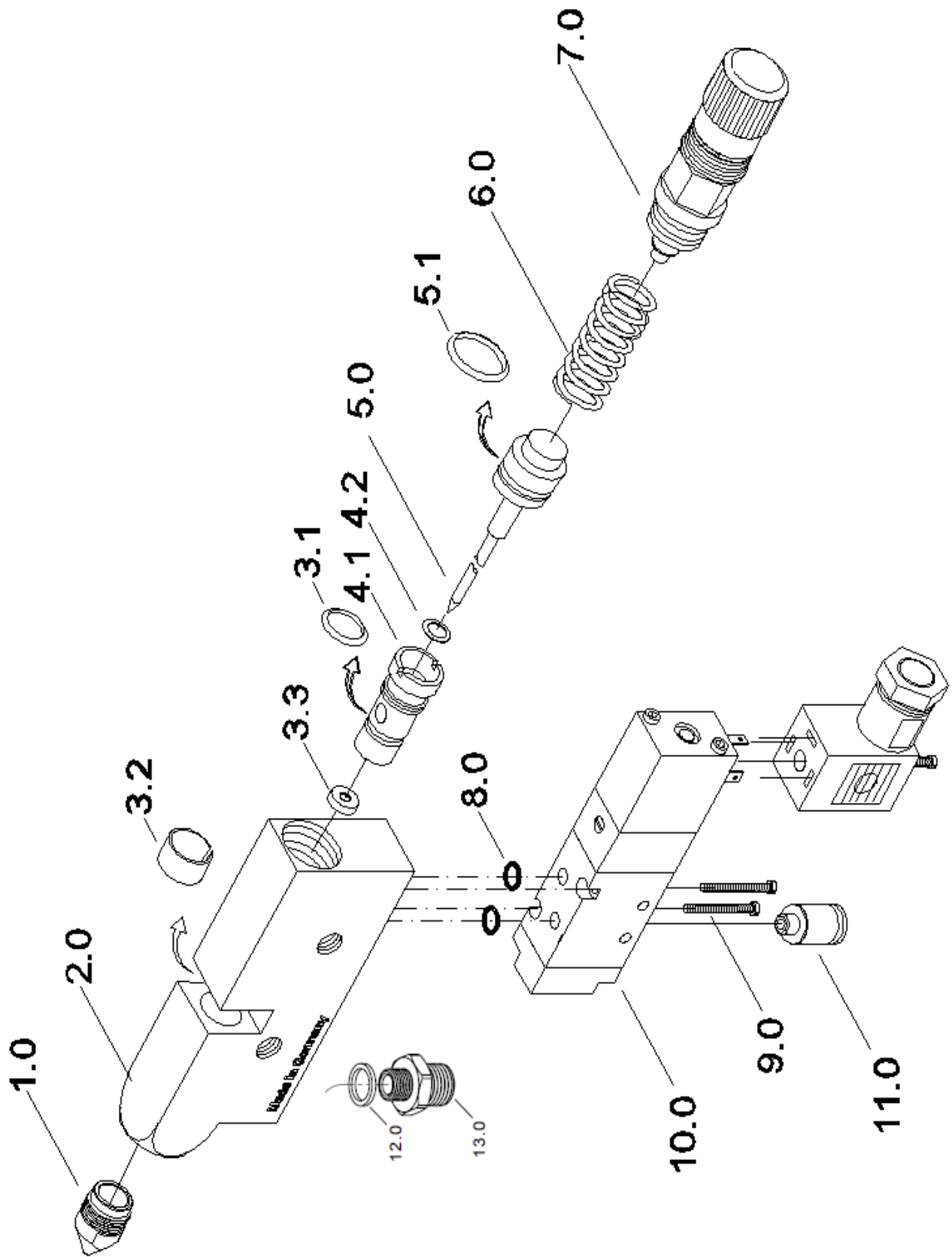


Fig. MPP-02 with nozzle GL80mm

10.1.1 Spare Parts Drawing

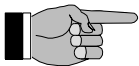


10.1.2 Spare Parts List

Pos.	Article-No.	Qty	Description
1.0	*	1	nozzle, stainless steel
1.1	MPP-E00-00	1	needle guide (not illustrated in drawing)
2.0	97510064	1	valve body, complete
3.0	97640102	1	gasket set
3.1	97640021	1	O-ring / Viton®
3.2	97640101	1	protecting cover, ø 10 x 6mm
3.3	97640004	1	Variseal
4.0	97810014	1	packing sleeve, complete, 11 x 21mm , Viton®
4.1	97810013	1	packing sleeve , Diam. 11 x 21mm
4.2	97640026	1	O-ring / Viton®
5.0	*	1	needle, complete (incl. Piston of stainless and Quad-ring 5.1)
5.1	2000128.0000	1	Quad-ring / Viton®
6.0 ¹	97820020	1	pressure spring 1.1 x 22mm (0 - 30 bar material pressure), blasting
6.0	97820024	1	pressure spring 1.2 x 21.5mm (30 - 100 bar material pressure), blasting
7.0	*	1	Raster needle lock
8.0	97640077	2	O-ring / Viton®
9.0	97610457	2	screw DIN 84 M2,5 x28
10.0	97150012	1	solenoid valve 24 VDC, with plug
10.1	97150131	1	plug with LED
11.0	97220089	1	Screw joint, complete
12.0	97640058	1	Copper Sealing ring, 10x16x1.5mm
13.0	97220114	1	Double nipple, stainless steel, 1/4"AG-1/8"AG

¹ Standard

* Article numbers can be found on the following pages.

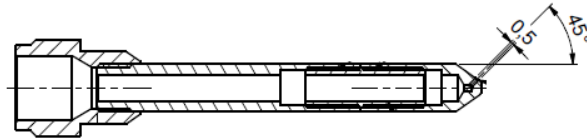


IMPORTANT

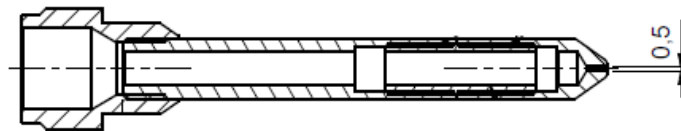
Always indicate the inscribed serial numbers when ordering spare parts!

10.2 Article Numbers for Nozzles

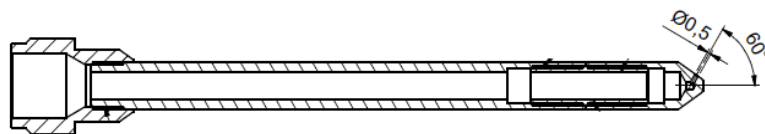
1.0		Nozzle
Article No.	Description	
97212466.00Z001	Nozzle GL 50mm, 45°, needle sealing	




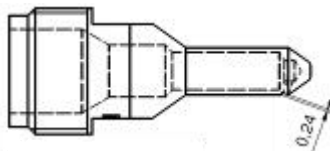
1.0		Nozzle
Article No.	Description	
97212466.07Z000	Nozzle GL 50mm, 0° straight, needle sealing	



1.0		Nozzle
Article No.	Description	
97212466.08Z000	Nozzle GL 80mm, 60°	







1.0	Nozzle	
Article No.	Description	
97212466.011	Full-jet nozzle Ø 0.2mm , GL29mm, 1x0°	
97212466.012	Full-jet nozzle Ø 0.3mm , GL29mm, 1x0°	
97212466.013	Full-jet nozzle Ø 0.5mm , GL29mm, 1x0°	
97212466.021	Full-jet nozzle Ø 0.2mm , GL29mm, 1x90°	
97212466.022	Full-jet nozzle Ø 0.3mm , GL29mm, 1x90°	
97212466.023	Full-jet nozzle Ø 0.5mm , GL29mm, 1x90°	
97212466.031	Full-jet nozzle Ø 0.2mm , GL29mm, 2x90°	
97212466.032	Full-jet nozzle Ø 0.3mm , GL29mm, 2x90°	
97212466.033	Full-jet nozzle Ø 0.5mm , GL29mm, 2x90°	
97212466.041	Full-jet nozzle Ø 0.2mm , GL29mm, 4x90°	
97212466.042	Full-jet nozzle Ø 0.3mm , GL29mm, 4x90°	
97212466.043	Full-jet nozzle Ø 0.5mm , GL29mm, 4x90°	
97212466.051	Full-jet nozzle Ø 0.2mm , GL29mm, 1x110°	
97212466.052	Full-jet nozzle Ø 0.3mm , GL29mm, 1x110°	
97212466.053	Full-jet nozzle Ø 0.5mm , GL29mm, 1x110°	
97212466.061	Full-jet nozzle Ø 0.2mm , GL29mm, 1x45°	
97212466.062	Full-jet nozzle Ø 0.3mm , GL29mm, 1x45°	
97212466.063	Full-jet nozzle Ø 0.5mm , GL29mm, 1x45°	



Other nozzles available upon request

10.3 Article Numbers for Nozzle needles

1.0	Nozzle Needles	
Article No.	Description	
97212466.07Z001	Nozzle needle with valve piston D6, GL 50mm, 0° straight	
97212466.07Z003	Nozzle needle with valve piston D6, GL 50mm, 45°	
97212466.08Z001	Nozzle needle with valve piston D6, GL 80mm, 60°	
97212466.01	Nozzle needle with valve piston D6, GL 80mm	
97xxxxxx	Other nozzle needles available upon request	

10.4 Article numbers for Raster needle lock

7.0	<i>Raster needle lock</i>	
Article-No.	Description	
97900008	Raster needle lock "standard"	
97900040	Raster needle lock "24 VDC sensor for raster needle"	

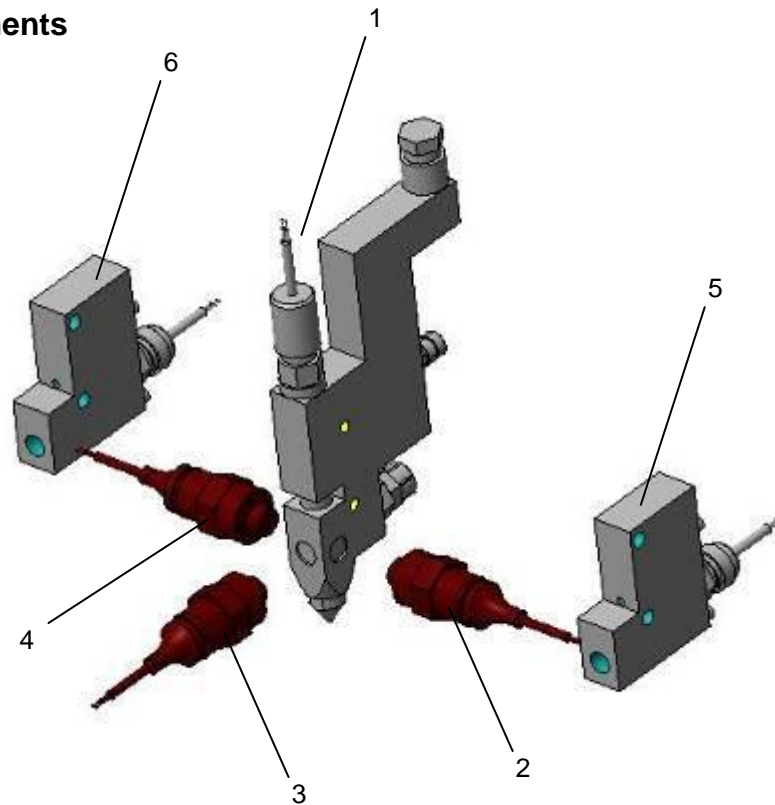
10.5 Wear Parts Kits

	<i>Wear parts kits complete</i>
Article No.	Description
979593.02	Gasket set Viton

10.6 Accessories

Picture	Article number	Description
	979565.002	Hot plate (see Product Catalog ACCESSORIES)
	97PA21G-XX	Pressure sensor (see Product Catalog „Testing“)
	979444	Cleaning set (see also Product catalog ACCESSORIES)
	979309.02	Timer relay with 2 time ranges Time range 0,01 to 99,99s

10.6.1 Add-on elements




Sensor for Raster Needle

The installation of a sensor for raster needle is factory-made. It is integrated in the raster needle lock (pos. 7.0 of spare parts list). As a spare part, the raster needle lock is always delivered as a complete unit, since the initiator is factory-adjusted and pasted in.

Pos.	Description
1	Sensor for raster needle

Pressure Sensor

The attachment of a pressure sensor is also factory-made. Its position can optionally be on the side (left / right) or on top. For additional information please refer to the Assembly Instructions "Pressure Sensors 97PA-21x-xxx".

Pos.	Description
2	Pressure sensor mounted on the left of the pulse valve
3	Pressure sensor mounted on top of the pulse valve
4	Pressure sensor mounted on the right side of the pulse valve
	Gasket ring pressure sensor



IMPORTANT

The Viton - gasket and the gasket ring, article number F490013 have to be mounted before the actual installation!

Heating Plate

The installation of a heating plate is also factory-made. Its position can optionally be on the left or on the right side. For further information please refer to the Description "*Heating and Accessories*".

Pos.	Description
5	Heating plate mounted on the left side of the pulse valve
6	Heating plate mounted on the right side of the pulse valve