

HYDRAULIC VALVE 2/2-WAY DN 6

Pneumatically operated hydraulic valve for
fluid materials preferably 2K components



Fig. 1



Fig. 2

The original nameplate is on the hydraulic valve.

Please compare the specifications and complete if necessary.

READ AND FOLLOW UP THE OPERATING AND SAFETY
INSTRUCTIONS BEFORE STARTING UP!

KEEP FOR FUTURE USE !



Information
regarding
personal safety



Important
information for
operation

CONTENTS

	Page
CORRECT USE	2
FUNCTIONAL DIAGRAM	2
PRODUCT DESCRIPTION	3
SUITABILITY, MATERIAL	3
TECHNICAL DATA	4
Key to designation	4
Data	4
Materials in contact with the fluid	4
Dimensions, connection threads	5
Model and mounting	5
Attachment position	6
LIST OF TOOLS	6
START UP	6
OPERATION	7
MAINTENANCE, INSPECTION, REPAIR	7
TORQUE MOMENTS	9
TROUBLESHOOTING	9
REMARK	9
REPLACEMENT PARTS	10
ACCESSORIES	11

The following documents are included separately :

Test certificate (Final acceptance)

Manufacturer's declaration

Subject to change

Page 1 of 11

Prepared 4.11.99	USER INFORMATION - OPERATING INSTRUCTIONS -	Issued 11.99
Checked 4.11.99		B 13.47.08-B

CORRECT USE

The 2/2-way hydraulic valve DN 6 is exclusively manufactured for the usual applications in surfacing technology or similar work.

Any other purpose above and beyond this, is considered as incorrect use. We are not liable for any damage or injury resulting from this; the user will bear sole liability in such cases.

Correct use includes following operating, maintenance and inspection conditions and regulations laid down by us.

The 2/2-way hydraulic valve DN 6 may only be installed, maintained and repaired by personnel familiar with, and trained to recognize the inherent dangers.

The relevant accident prevention regulations as well as safety and medical rules must be respected.

Unilateral changes to the 2/2-way hydraulic valve DN 6 will cause us to waive our responsibility for any damage or injury caused.

The user is responsible for correct attachment/installation.

FUNCTIONAL DIAGRAM

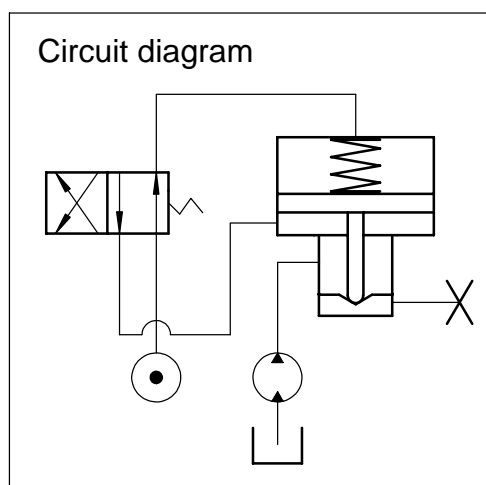


Fig. 3

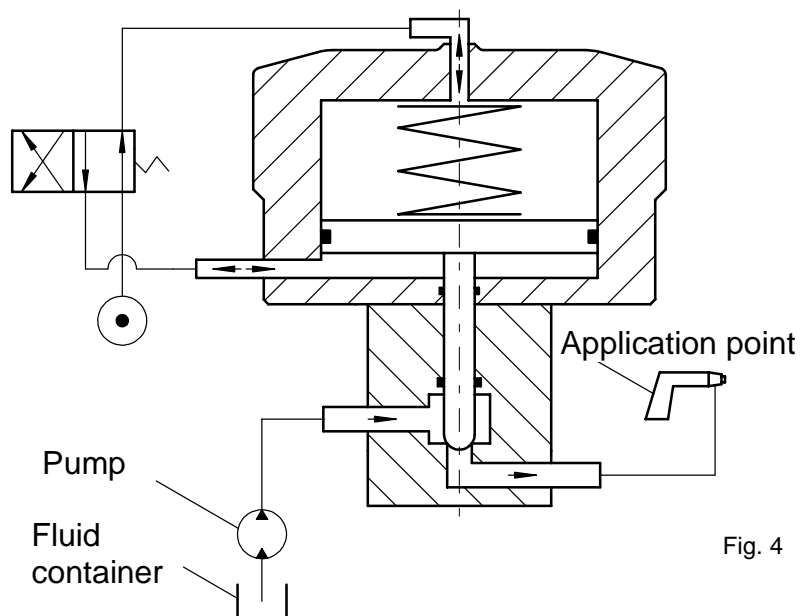


Fig. 4

PRODUCT DESCRIPTION

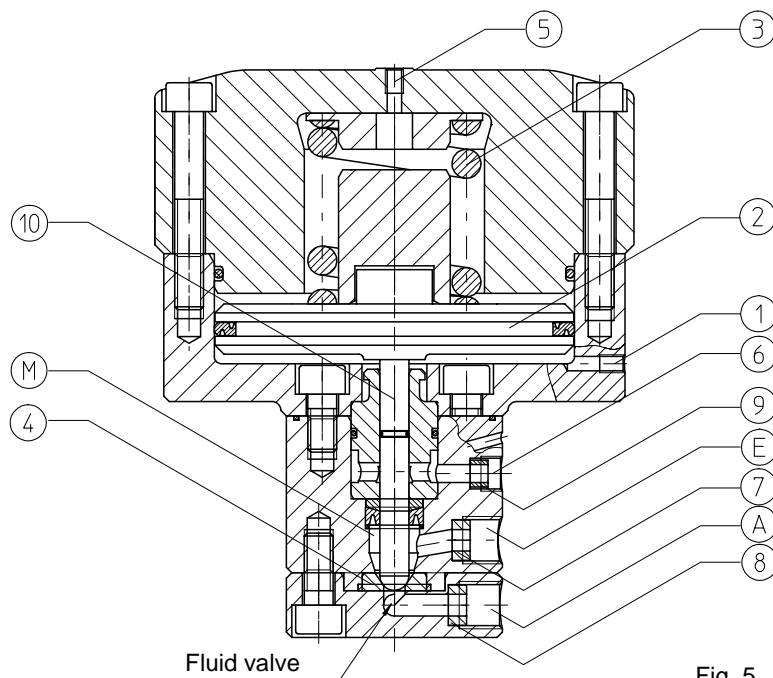


Fig. 5

The 2/2-way hydraulic valve DN 6 is operated pneumatically. The control air is fed via the connection ① underneath the piston ②, the fluid valve opens against the force of the pressure springs ③. The fluid flows from the inlet ⑤ into the fluid space ④ and then through the valve seat ④ to the outlet ⑧. When the control air is added at the piston top connection ⑤, the fluid valve closes due to the force of the air and the spring. The control air is alternately switched on and off. Both fluid connections and the connection for the priming fluid ⑥ are provided with internal sealing rings ⑦, ⑧, ⑨. The valve needle ⑩ and valve seat ④ are made of hardened steel. The area in contact with the fluid is suitable for water-based paints (Stainless Steel).

COMPATIBILITY, MATERIAL

Fluid	Compatibility
Neutral	Highly suitable
Corrosive	Highly suitable
Abrasive	Suitable under certain conditions
Caustic	Suitable under certain conditions
Inflammable ¹⁾	Suitable

¹⁾ Hydraulic valve must be properly grounded

Please consult us when processing highly abrasive and aggressive materials.

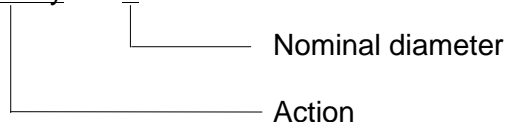
Kinematic viscosity in mm ² /s	Compatibility
up to 500	Highly suitable
500 to 750	Suitable
over 1500	Suitable under certain conditions must be tested

Solids content	Compatibility
Low	Highly suitable
Low to 1%	Suitable
1 to 3%	Suitable under certain conditions
Over 3%	Must be tested – not suitable

TECHNICAL DATA

KEY TO DESIGNATION

Hydraulic valve 2/2-way DN 6



DATA

Hydraulic valve 2/2-way DN 6 without attachments, Part No. 77584 010002

Fluid inlet pressure	max. allowable	500	Bar
	above 60 °C	250	Bar
Fluid temperature	max. allowable	80	°C
Operating air pressure	max. allowable	6	Bar
Recommended switching frequency	not above	200	Strokes/min
Weight		4.65	Kg
Test pressure		550	Bar

MATERIALS IN CONTACT WITH THE FLUID MATERIAL

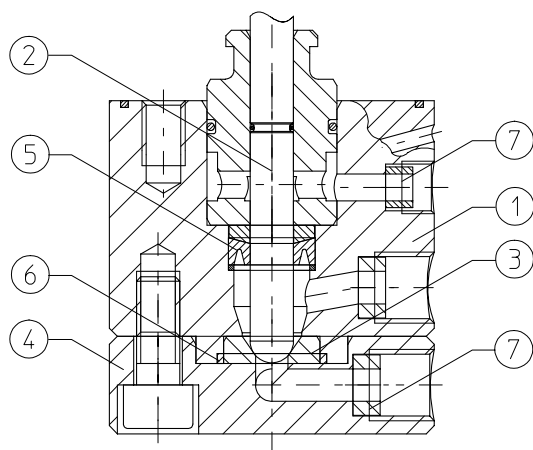


Fig. 6

Ref	Description	Material
1	Valve housing	SST 1.4305
2	Valve needle	Hardened steel
3	Valve seat	Hardened steel
4	Cover	SST 1.4305
5	Grooved ring	PE
6	Seal	PE
7	Seal	POM



Take care with attachments.

Materials that contain chlorinated hydrocarbons such as trichloro-ethane or methylene chloride react with aluminum to form metal-organic compounds.

These compounds are explosive and extremely caustic.

GROUNDING, CONNECTION THREAD

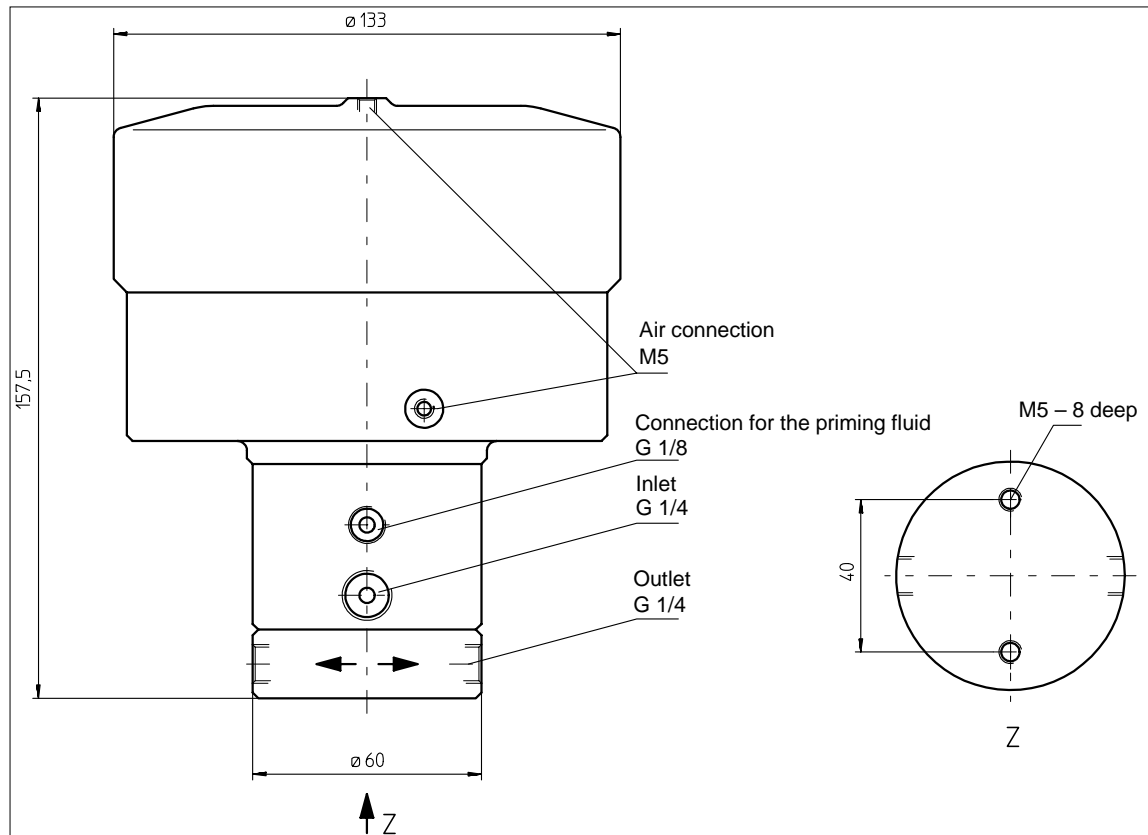


Fig. 7

Nominal diameter of the air pressure hoses preferred DN3; hose length ≤ 10 m.

CONSTRUCTION AND MOUNTING

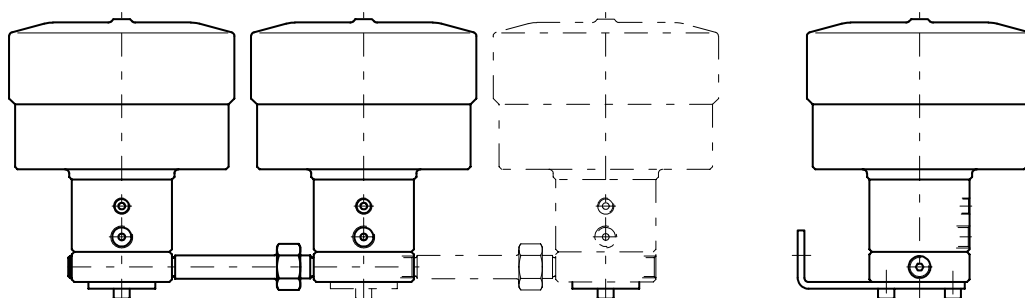


Fig. 8

The 2/2-way hydraulic valve DN 6 has a fluid outlet on both sides. This means that any number can be connected in series. The 2/2-way hydraulic valve DN 6 is mounted to a wall on a bracket. If several hydraulic valves are mounted in series, only the two outer ones need a bracket.

ATTACHMENT POSITION

Vertical – air pressure connection at the top.

LIST OF TOOLS

Assembly tools for the 2/2-way hydraulic valve DN 6

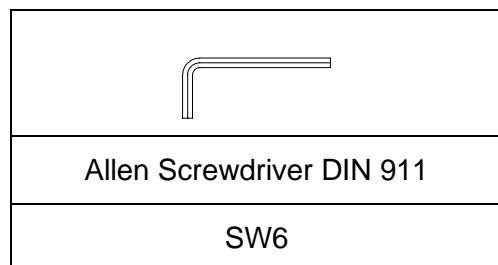


Fig. 9

Assembly tools for the accessories

Open-end spanner DIN 895	SW 8	Air pressure inlet
	SW 17	Connection of the fluid supply unit
	SW 12, SW 24	Detachable union nipple
Allen Screwdriver DIN 911	SW 5	Wall fastening

START UP

Install hydraulic valve

- The fluid connections in the cover and valve housing (Fig. 6) are sealed from the inside.
 - Sealing ring Part No. 76188 010004 (3x), Part No. 76188 010003 (1x)
- Note attachment position

Connect connection parts and hose lines

- Check that there are no leaks.

Flush the hydraulic valve

- All hydraulic valves are tested for operation with an anti-corrosion liquid after factory assembly. On start up, the residue from this liquid must be thoroughly flushed out with solvents (detergents).



Any detergent used must be compatible with materials to be used later; we recommend to consult your material supplier.

Start up the hydraulic valve

- Before starting up, fill with the priming fluid. Operating the hydraulic valve without the priming fluid can lead to premature wear of the grooved ring (valve needle seal).



Do not use nitro thinners or solvents as flushing agents.

- First apply air pressure to the hydraulic valve ↓ then fluid pressure.

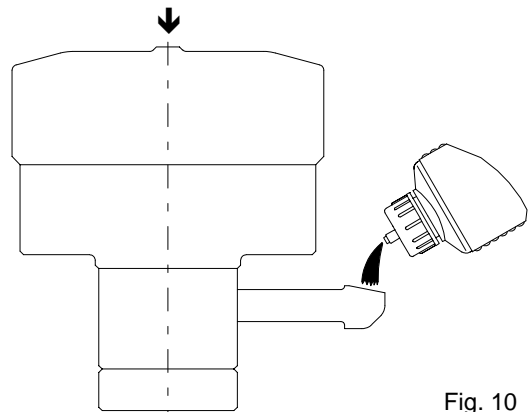


Fig. 10

OPERATION

- Do not exceed the specified technical data (page 4).
- Before prolonged shutdown (holidays), the hydraulic valve should be flushed and the detergent left in the system until it is used the next time.



With prolonged operating pauses and/or shut off, no energy potential (fluid and/or air pressure) may be present at the hydraulic valve.

MAINTENANCE, INSPECTION, REPAIR

- The hydraulic valve 2/2-way DN 6 requires little maintenance.

- Flush thoroughly before operating pauses.
- Drain the condensed water every day from the filter or filter regulator when there is no automatic water drainage in the air pressure supply to the hydraulic valve
- Check the leakage behavior (air or fluid escaping from the leakage hole and/or from the priming fluid supply unit) of the hydraulic valve at regular intervals, at least once a day.
 - If there is air escaping replace the O-ring at the valve needle.
 - If fluid is escaping replace the grooved ring (with a backup ring). (Page 8)
- Regularly check the level of the fluid priming supply unit and top up if necessary.
- The service life of the hose lines is adversely affected, and thus shortened, by surrounding influences (oxygen in air, temperature, light, etc.), even if correctly operated.

It is recommended that they undergo regular visual checks and occasional checking of performance.

As a precaution the hose lines should be replaced by new ones at intervals set by the operator.



Repairs must be carried out by professionals. (VGB87)

- Use only genuine repair parts. Our obligation to replace equipment for the hydraulic valves is forfeited when non-genuine repair parts are used.



Remove pressure from the hydraulic valve on both the fluid and air side, before dismantling.



Lightly grease the parts before assembly.

– We recommend grease OKS 270“ (Tube 100g, Part No. 70950 003001).

Assembly of the grooved rings



Do not assemble the grooved ring with tools that have sharp edges – danger of damage.

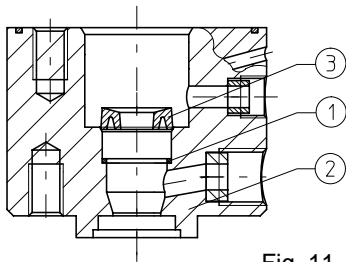


Fig. 11

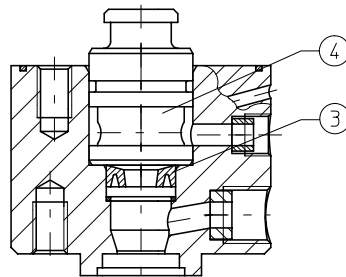


Fig. 12

Insert the ring (1) in the valve housing (2).

Insert the grooved ring (3) on the introduction incline centrally in the valve housing.

Press in the grooved wing with the bushing (4) as far as it will go.

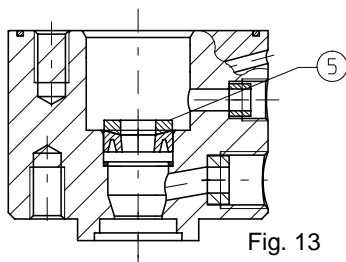


Fig. 13

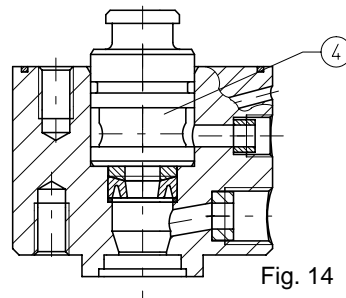


Fig. 14

Remove the bushing and place the backup ring (5) on the grooved ring (incline in the direction of the grooved ring). Press in the bushing as far as it will go.

TIGHTENING TORQUE

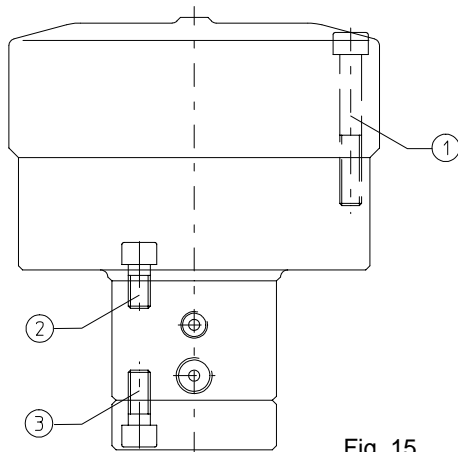


Fig. 15

Ref.	Thread	Material	Tightening torque
1 , 2 , 3	M 8	8.8	15 Nm

TROUBLESHOOTING

BREAKDOWN ANALYSIS				
Component group	Nature of defect	Defect symptoms	Possible cause	Counter measure
Hydraulic valve	Loss of fluid at the hydraulic valve	Fluid escaping from the leakage hole	Grooved ring / valve needle worn	Replace grooved ring / valve needle
	Loss of air at the hydraulic valve	Air escaping from the leakage hole	O-ring at valve needle defective	Replace O-Ring
	The hydraulic valve does not open	Air escaping from the venting system of the control valve	Piston – seal defective	Piston – replace seal
	Loss of air at the hydraulic valve	Air escaping from the cover	O-ring on the cover defective	Replace O-Ring
	Hydraulic valve does not close	Flow of fluid in the closed valve position	Valve seat and/or valve needle defective	Replace valve seat and valve needle
Air pressure pipeline	The hydraulic valve does not open	The fluid does not flow	Foreign bodies or kink in the air hose	Check the air hoses, remove the fault

REMARK

The 2/2-way hydraulic valve DN 6 is intended for attachment/installation in a machine and start up is prohibited until it has been established, that the machine to/in which the hydraulic valve is to be attached/installed conforms to the regulations of the EU Machine directive 89/392/EEC.

REPLACEMENT PARTS

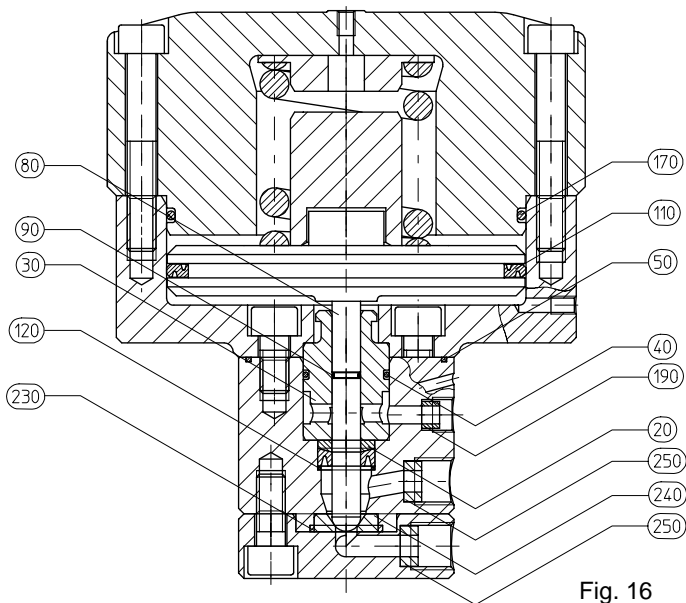


Fig. 16

Repair kit, fluid valve			Part No. 79978 584002
Ref.	Quantity	Designation 1	Designation 2
20	1 Off	Grooved ring	8 x 16 x 5
30	1 Off	Bushing	8 x 24 x 36
40	1 Off	O-ring	20 x 2
80	1 Off	Needle complet.	D8 L89
90	1 Off	O-ring	6 x 1
110	1 Off	Piston seal	PK 100 x 3.7
120	1 Off	Spacer	13 x 16 x 1
170	1 Off	O-ring	90 x 3
230	1 Off	Seal	17.8 x 20.2 x 2.2
240	1 Off	Valve seat	D 6

Repair kit, seals			Part No. 79978 584003
Ref.	Quantity	Designation 1	Designation 2
20	1 Off	Grooved ring	8 x 16 x 5
40	1 Off	O-ring	20 x 2
50	1 Off	Seal	53 x 55.8 x 1.4
90	1 Off	O-ring	6 x 1
110	1 Off	Piston seal	PK 100 x 3.7
120	1 Off	Spacer	13 x 16 x 1
170	1 Off	O-ring	90 x 3
190	1 Off	Seal	5 x 7.5 x 5
230	1 Off	Seal	17.8 x 20.2 x 2.2
250	3 Off	Seal	6 x 11.2 x 5

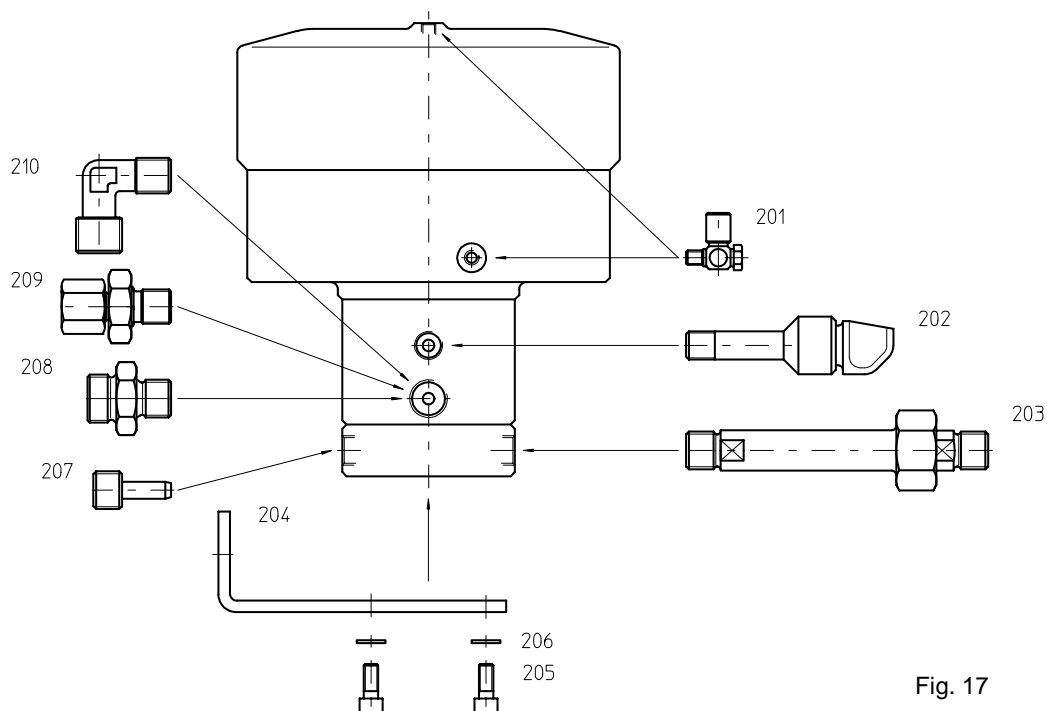


Fig. 17

Ref.	Description	Material	Notes	Part No.
201	Plug	Ms	M5 - 4	75210 001002
202	Level indicator	SST	G 1/8	77875 002002
203	Detachable union nipple	SST	L 105	77240 006003
204	Bracket	Zinc plated steel	-	76654 020002
205	Cheese head screw	8.8	M6 x 12	74006 015033
206	Washer	Zinc plated steel	B 6,4	74094 010003
207	Set screw	SST	G 1/4 x 27	76051 014002
208	Nipple	SST	6-G 3/8 - G 1/4	76639 039002
209	Adapter union	SST	GE 10-PS/R 1/4	75204 009234
210	Angular union	SST	G 1/4 - G 3/8	75214 118002

a)
b)

ACCESSORIES

- a) Replacement O-ring Part No. 74186 023020 for Ref. 202
b) Replacement sealing ring Part No. 76188 024017 for Ref. 203

Order Example

Please lay out each order as follows:

Designation	Ref. No	Part No.
Plug	201	75210 001002

GRACO N.V.
Industrieterrein "Oude Bunders"
Loc. 2206 – Slakweidestraat 31
3630 Maasmechelen - Belgium
Tel.: 32 89 770 700 Fax: 32 89 770 777

GRACO STANDARD WARRANTY

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the repaid return of equipment claimed to be defective to an authorized Graco distributor for verification of claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco does not extend its warranty to accessories, appliances, materials or components which are sold by Graco but are not manufactured by Graco and makes no guarantee, however implied, with regard to the brand capability and suitability for a certain purpose. These parts sold by Graco but not manufactured by Graco (such as electric motors, switches, hoses, etc.) are covered by the warranties of the respective manufacturers. Graco will support the buyer in enforcing any warranty claim with the proviso that in no event can Graco be made liable for indirect, incidental, special or consequential damages which arise from the supply of appliances by Graco under the conditions governed by these provisions, or the supply, performance or use of any products or other goods which are sold under the conditions governed by these provisions, whether as the result of breach of contract, breach of warranty, negligence on the part of Graco or for any other reason.

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