

## PRESSURE REGULATION VALVE (CHECK VALVE) P360-RP DN7

Pneumatically regulated check valve for liquid highly viscous materials, preferably for coatings.

<b>GRACO</b> VERFAHRENSTECHNIK GMBH			
DUISBURGER STRASSE 7, D-33647 BIELEFELD			
<b>DRUCKREGELVENTIL</b>	<b>P 360-RP DN 7</b>		
<b>MATERIALTEMPERATUR</b>	<b>MAX 80 °C</b>	<b>HERSTELL-NR.</b>	
<b>MATERIALEINGANGSDRUCK</b>	<b>MAX 360 bar</b>		
<b>EINSTELLDRUCKBEREICH</b>	<b>60 - 360 bar</b>		
<b>BETÄTIGUNGSLUFTDRUCK</b>	<b>MAX 6 bar</b>		

Fig. 1



The original manufacturing nameplate is on the pressure regulation valve. Please compare the data and alter if necessary.

**CONTENTS OF USER**

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

KEEP FOR FUTURE USE !



Information which affects your safety



Important information for operation

**INFORMATION****OPERATING INSTRUCTIONS**

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Replaces issue 03.98

The manufacturer's declaration is attached separately

Subject to change

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Processed by 21.09.99 Stengele	<b>USER INFORMATION</b> <b>- OPERATING INSTRUCTIONS -</b>	Issued 09.99
Checked		B 12.60.20-B

## CORRECT USE

The pressure regulation valve (check valve) P360-RP DN7 is exclusively manufactured for the usual applications in surfacing technology or similar work.

Any other purpose above and beyond this is considered as inappropriate use. We shall not be liable for any damage or injury resulting from this; the user shall bear sole responsibility in such cases.

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

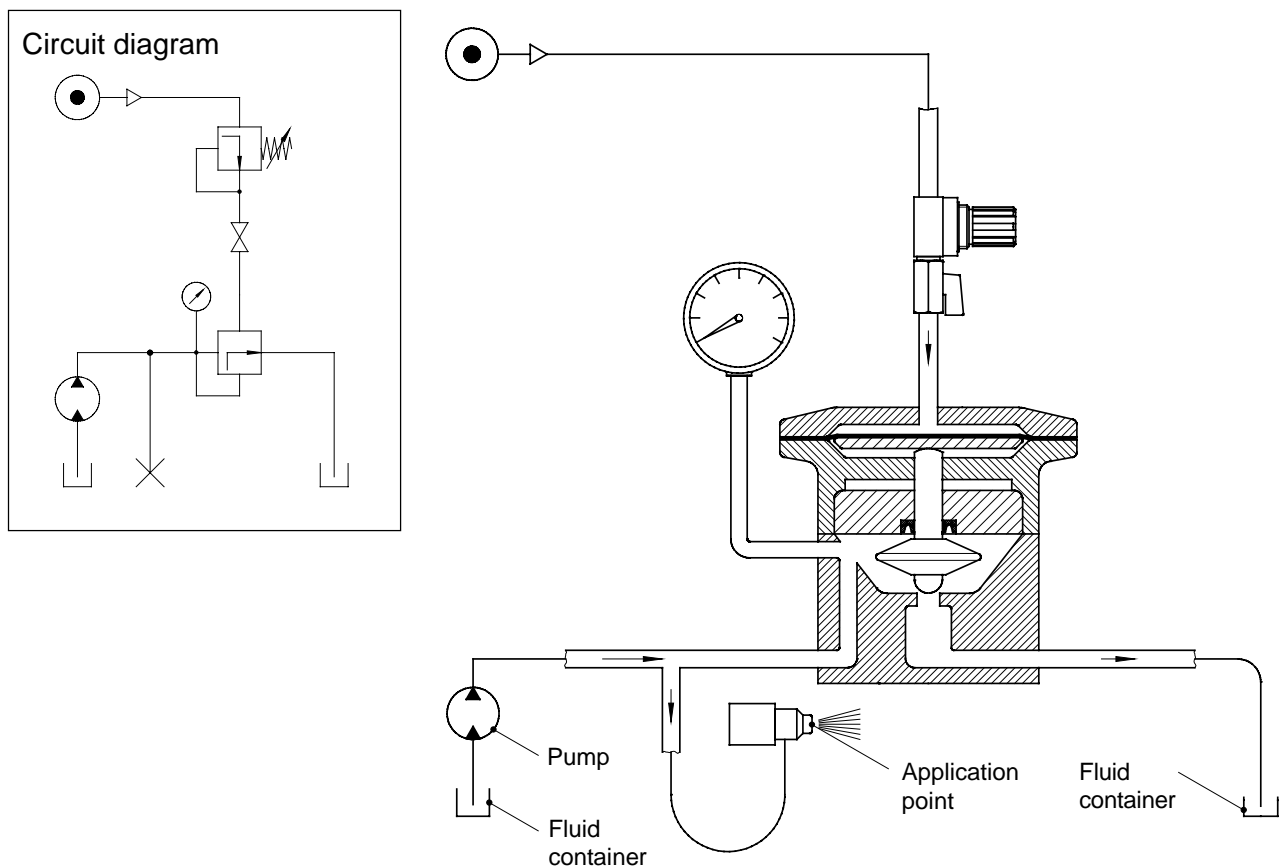
The pressure regulation valve P360-RP DN7 may only be installed, maintained and repaired by personnel familiar with, and trained to recognize the inherent dangers.

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

Unilateral changes to the pressure regulation valve P360-RP DN7 will cause us to waive our responsibility for any damage or injury caused.

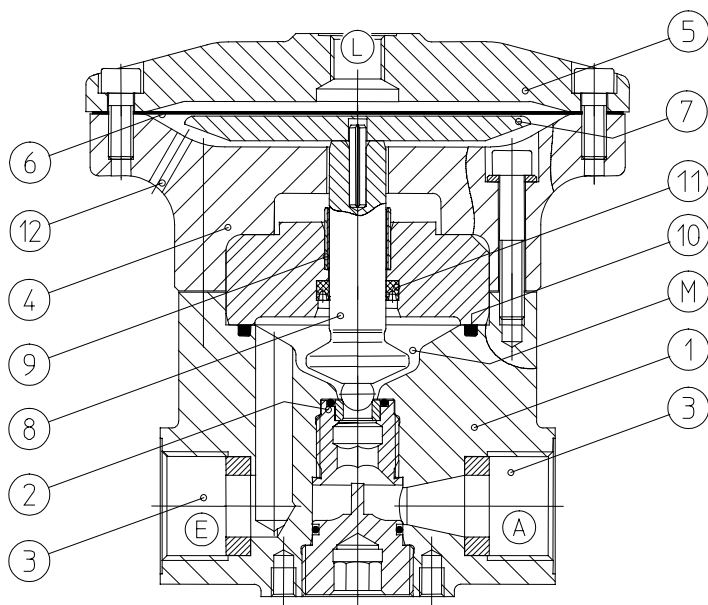
The user is responsible for correct attachment/installation.

## FUNCTIONAL DIAGRAM



A shut-off mechanism between the compressed air regulation valve and the check valve considerably improves the operation.

## PRODUCT DESCRIPTION



⑫ = Leakage hole

Fig. 3

The pressure regulation valve P360-RP DN7 consists of the housing bottom part ① with valve seat ② and the connection holes ③ as well as the diaphragm housing ④ with housing top part ⑤, flat diaphragm ⑥, diaphragm plate ⑦, valve tappet with ball ⑧ and bearing bush (tappet guide) ⑨.

A static seal (O-Ring) ⑩ and a dynamic seal (grooved ring) ⑪ are located between the diaphragm housing and the housing bottom part.

The pressure regulation valve (check valve) is usually installed in a circuit (circulation line).

During operation, the fluid under pressure, after exceeding the regulated retaining pressure, flows from the inlet ⑤ into the fluid space ⑭ and from there via the valve seat to the outlet ①.

Changes in the fluid inlet pressure are transmitted via the valve tappet to the diaphragm charged with compressed air (compressed air connection at ⑬) and have the effect of changing the cross-section (opening and closing) in the valve seat – maintaining the pressure by removal of fluid.

## SUITABILITY, MATERIAL

Material	Suitability
Neutral	highly suitable
Corrosive	highly suitable
Abrasive	suitable under certain conditions
Acidic	suitable under certain conditions
Inflammable <sup>1)</sup>	highly suitable

<sup>1)</sup> Pressure regulation valve connected to earth.

In the case of strongly abrasive and aggressive materials, please contact us.

Kinematic viscosity in mm <sup>2</sup> /s	Suitability
up to 500	must be tested
500 up to 600	suitable under certain conditions
600 up to 1500	suitable
over 1500	suitable under certain conditions must be tested

Solids content	Suitability
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

Pressure regulation valve P 360 - R P DN7

Nominal diameter	7
Operating mode	Pneumatic
Action	Back pressure (pressure maintenance)
Regulation pressure	360 bar

### DATA

Pressure regulation valve P360-RP DN7 without accessories (basic version), Article No. 79638 007002

Fluid inlet pressure	max.	360 bar
Pressure at the fluid outlet	allowable	100 bar
Fluid temperature	max.	80 °C
Regulation pressure range	allowable	60 to 360 bar
Operating air pressure	max.	6 bar
Test pressure	allowable	480 bar, fluid exits without pressure
Volume flow	fluid-dependent – specification only with the processing material	
Weight	3.8 kg	



Pressure at the fluid outlet must not be exceeded !

### MATERIALS OF THE AREA IN CONTACT WITH THE FLUID MATERIAL

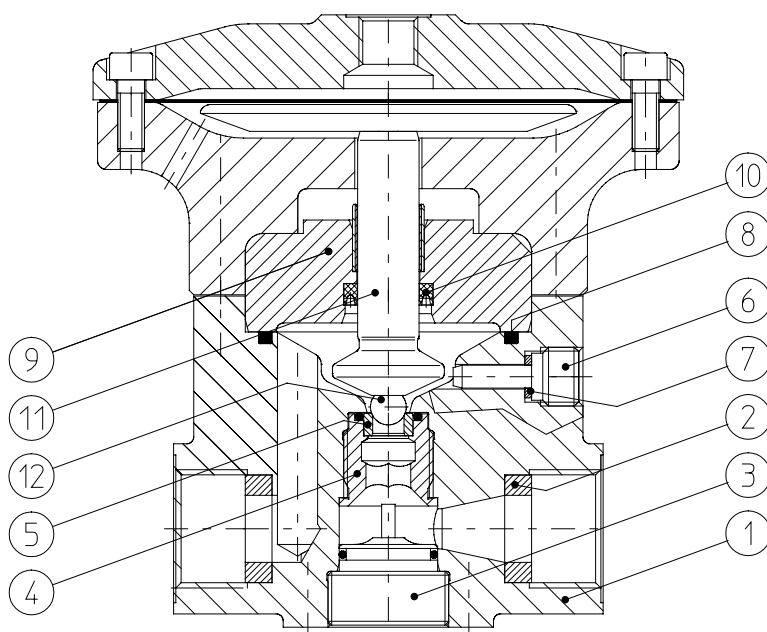


Fig. 4

Pos.	Designation	Material
1	Housing	SST
2	Washer	PTFE
3	Fixing screw	SST
4	Mounting for the valve seat	SST
5	Frame	Hardened steel G10
6	Set screw	SST
7	Sealing washer	POM
8	O-ring	FPM
9	Housing	SST
10	Grooved ring	PE
11	Valve tappet	SST / chrome-plated
12	Ball	Hardened steel G10



The diaphragm housing and top part are made of aluminum. Take care with materials that contain chlorinated hydrocarbons such as trichloroethane or methylene chloride. They react with aluminum to form metallo-organic compounds. These compounds are explosive and extremely caustic.

## EARTH, CONNECTION THREAD

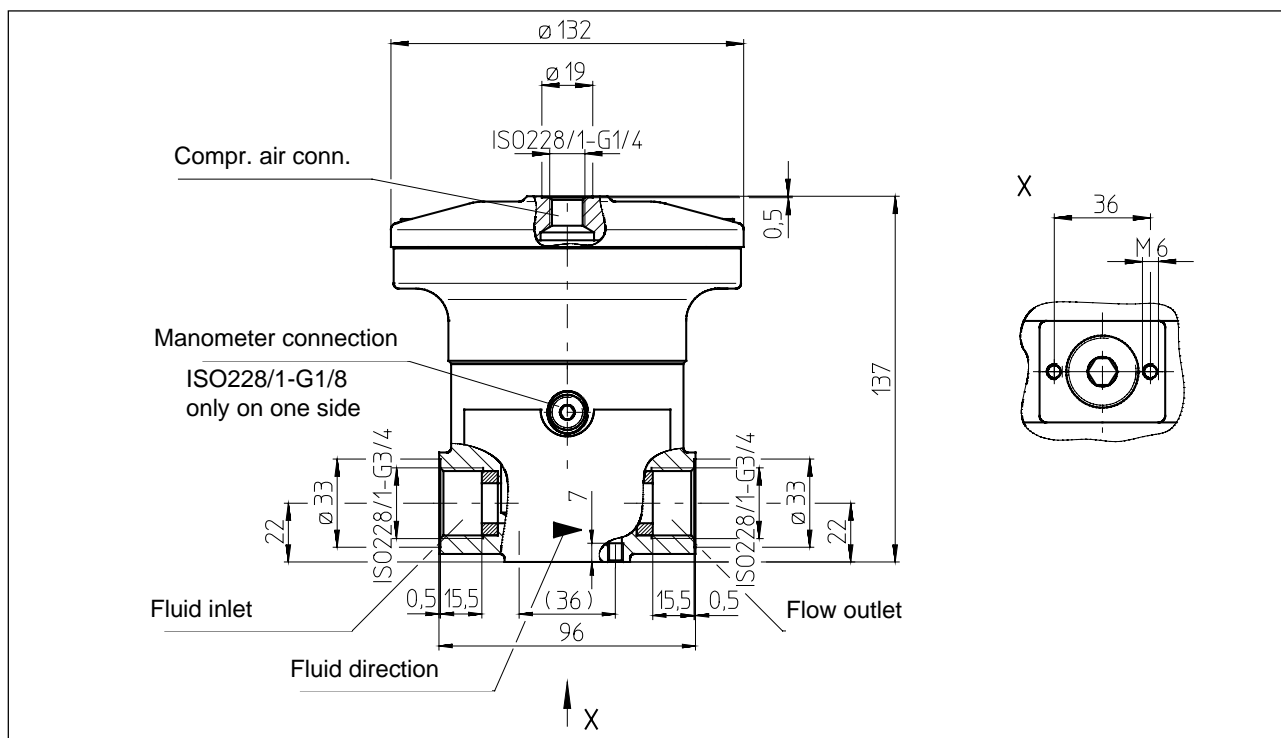


Fig. 5

Nominal diameter of the compressed air hose preferred DN 6; hose length < 1.5 m also DN 4.

## BUILD-UP POSITION

Vertical – compressed air connection at the top.

## TOOL LIST

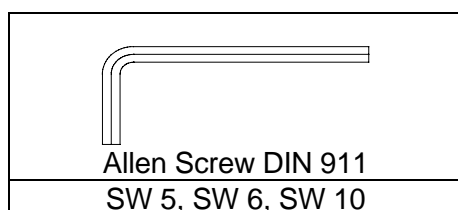


Fig. 6

## COMMISSIONING

### Install pressure regulation valve

- The fluid connections are sealed inside in the housing bottom part
  - Washer article No. 76104 130001
- Note attachment position

### Connect pipes, hoses

Check sealing.

### Flush pressure regulation valve

All pressure regulation valves are tested for operation with an anti-corrosion liquid after factory assembly. On commissioning, the residue from this liquid as well as contaminants that may have been generated during installation must be thoroughly flushed out with solvents (detergents).

### Commission pressure regulation valve

Apply compressed air to the flat diaphragm with the material pressure line shut off and without pressure.

Then shut off the compressed air supply and put the fluid pressure line / the pressure regulation valve under pressure.

## OPERATION

Do not exceed the specified technical data (page 4).

Before prolonged shutdown (holidays), the pressure regulation valve should be flushed and the detergent left in the system until the next time it is used.

## MAINTENANCE, INSPECTION, REPAIR

- The pressure regulation valve P360 – RP DN7 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 compressed air supply to the pressure regulation valve.
- Check leakage behavior [air or material escaping from the leakage hole (Pos ⑫, page 3)] at regular intervals – once a day.
  - If air is escaping, the flat diaphragm should be replaced.
  - If fluid is escaping, the grooved ring, the O-Ring and the flat diaphragm should be replaced.
- 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 handled. 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.

- A change in system pressure can be a sign of progressive wear and tear of the valve parts. When repairing, replace the complete valve tappet and valve seat, the O-rings as well as the flat diaphragm.



Never at any time dismantle a pressure regulation valve which is under pressure.



Lightly grease the parts before assembly.

– We recommend “grease OKS 270” (Tube 100g, article no. 70950 003001).

## TIGHTENING TORQUES

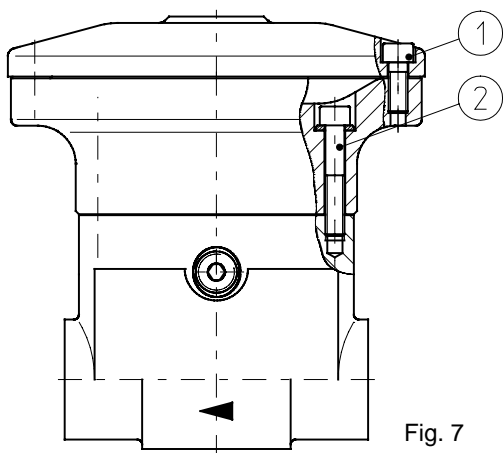


Fig. 7

Pos.	Thread	Tightening torque
1	M6	10 Nm
2	M6	10 Nm

## SOLVING BREAKDOWNS

TROUBLESHOOTING				
Component group	Nature of defect	Defect symptoms	Possible cause	Countermeasure
Flat diaphragm	Fluid – drop in pressure	Fluid escaping from the leakage hole	Flat diaphragm damaged	Replace flat diaphragm
Tappet sealing	Fluid – drop in pressure	Fluid escaping from the leakage hole	Grooved ring worn out	Replace grooved ring and flat diaphragm
Valve parts	Fluid – drop in pressure	Fluid pressure fallen	Valve parts worn out	Replace valve parts, grooved ring and flat diaphragm
Air connection	Fluid – drop in pressure	No fluid – pressure maintenance	Air supply interrupted	Check the plug connections and air hose

## FOOTNOTE

The pressure regulation valve P360 – RP DN7 intended to be attached/installed to/in a machine for surfacing technology and commissioning is prohibited until it can be established that the machine to/in which the pressure regulation valve is to be attached/installed, complies with the specifications of the EU directive Machines in the version 93/44/EEC.

## LIST OF REPLACEMENT PARTS

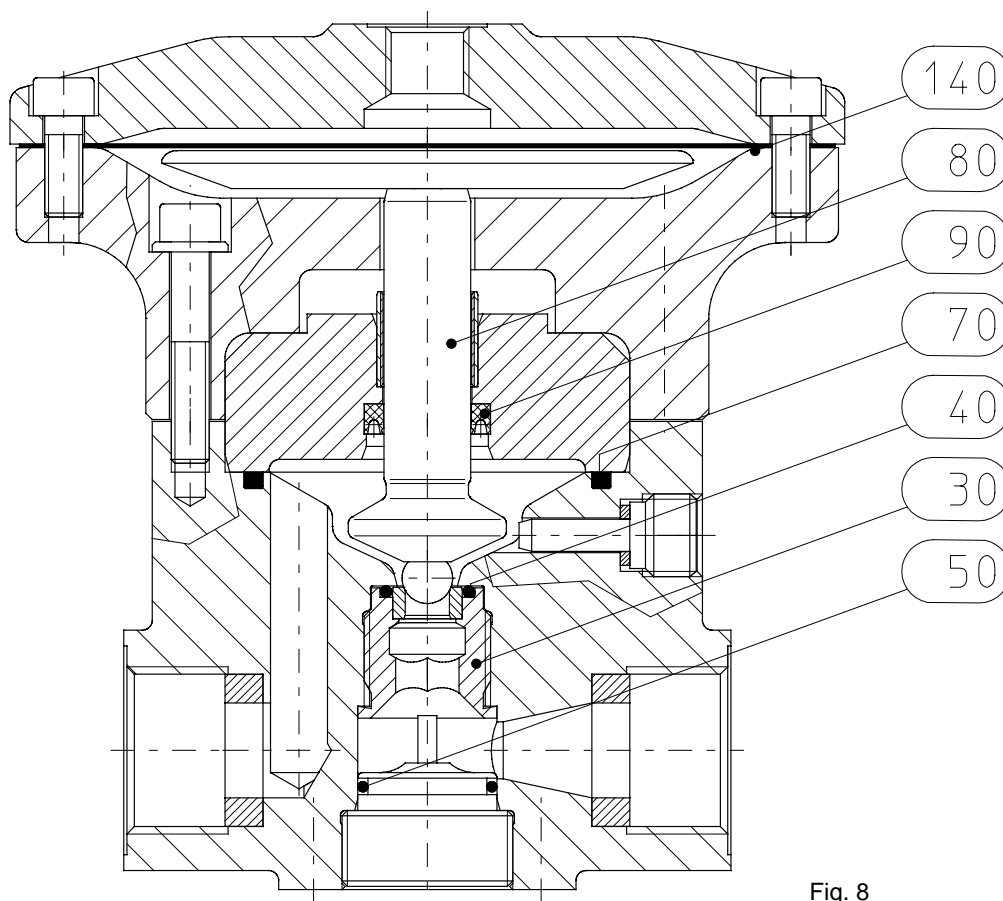


Fig. 8

Replacement parts set, fluid valve			Part No. 79978 060001	
Pos.	Number	Designation		
30	1	Valve seat complete	D 7	
40	1	O-ring	11 x 2 B	
50	1	O-ring	18 x 2 B	
70	1	O-ring	52 x 3 B	
80	1	Valve tappet complete		
90	1	Grooved ring	13.8 x 20 x 4.3	
140	1	Flat diaphragm	D129 x T0,55	

Spare parts set, flat diaphragm			Part No. 76196 073001	
Pos.	Number	Designation		
140	1	Flat diaphragm	D129 x T 0.55	

Spare parts set, Tappet seal			Part No. 79978 061002	
Pos.	Number	Designation		
70	1	O-ring	52 x 3 B	
90	1	Grooved ring	13.8 x 20 x 4.3	
140	1	Flat diaphragm	D129 x T0.55	



## ACCESSORIES

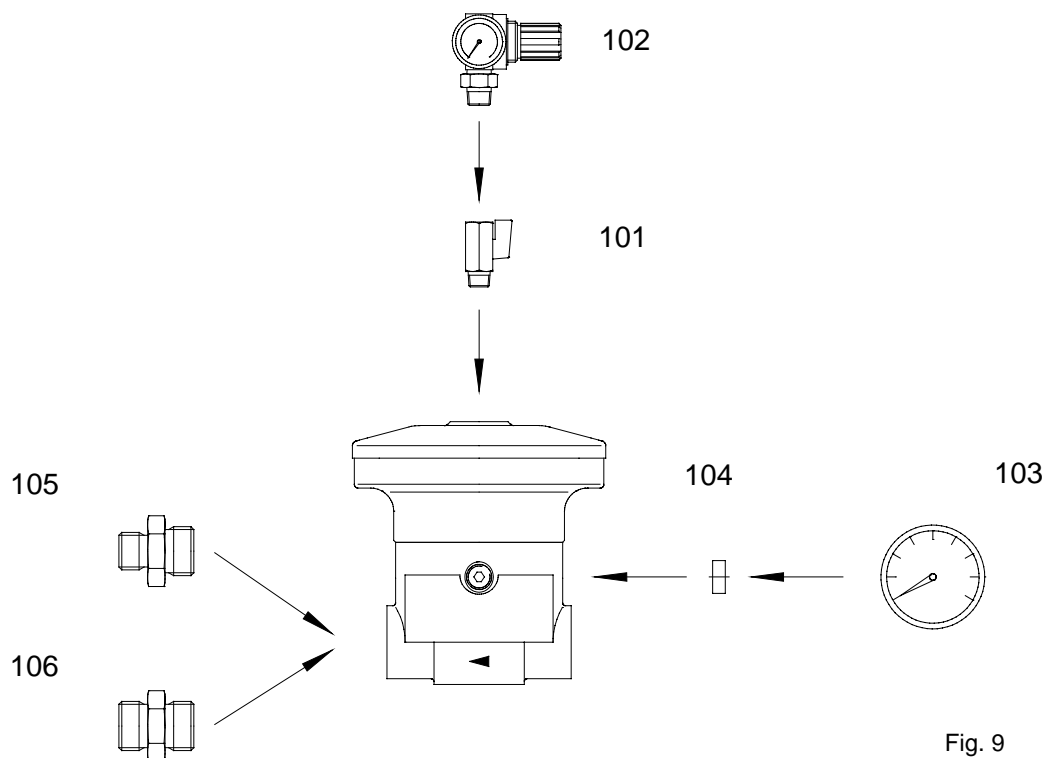


Fig. 9

Pos.	Designation	Notes	Article No.
101	Ball cock complete	PN 15 G 1/4	77601 005002
102	Pressure regulation valve complete	G1/4 0-10 bar	77631 014002
103	Manometer	G1/4 0-400 bar	75781 015001
104	Sealing washer	A5.2 x 9.5-1.5	75194 025050
105	Nipple reduction	8-G 3/4-G 3/8	76639 021001
106	Nipple reduction	16-G1-G 3/4	76639 045002

Please lay out each order as follows:

Designation	Pos. No.	Article No.
Ball cock complete	101	77601 005002

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## **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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