PRESSURE REGULATION VALVE P 320-VP DN 7

Pneumatically regulated pressure regulation valve for liquid materials, preferably for highly viscous coating materials.

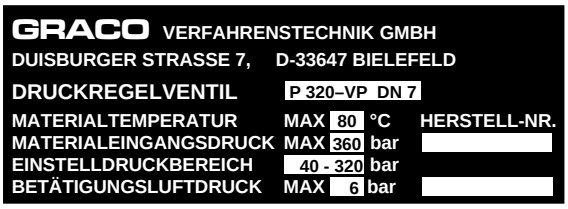

Fig. 1

Fig. 1.1

The original manufacturing nameplate is on the pressure regulation valve. Compare the data and change if necessary.

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

KEEP FOR FUTURE USE!

Information which affects your safety

Important information for

CONTENTS OF USER INFORMATION

The manufacturer's declaration is attached separately

We reserve the right to make

Proc. 07.03.00 Hilse	USER INFORMATION - OPERATING INSTRUCTIONS -	Issued on	06.00
Checked 08.03.00 Kuhn		B.12.55.54-B	

Note protection mark in accordance with DIN 34

CORRECT USE

The pressure regulation valve P 320 – VP DN 7 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 responsible for any damage or injury resulting from this; the user bears the 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 P 320 - VP DN 7 may only be installed, maintained and repaired by personnel familiar with, and trained to recognise the inherent dangers.

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

Unilateral changes to the pressure regulation valve P 320 – VP DN 7 will cause us to waive our responsibility for any damage or injury caused.

The user is responsible for proper attachment/installation.

FUNCTIONAL DIAGRAM

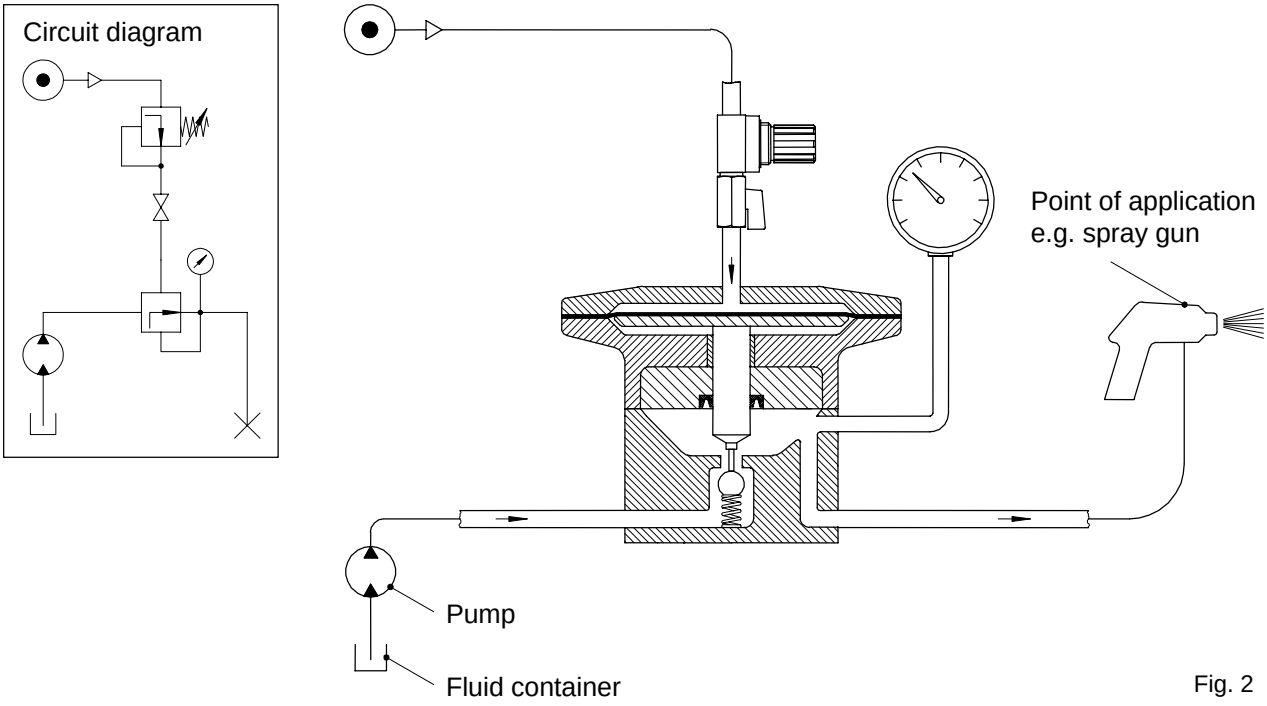

Fig. 2

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

PRODUCT DESCRIPTION

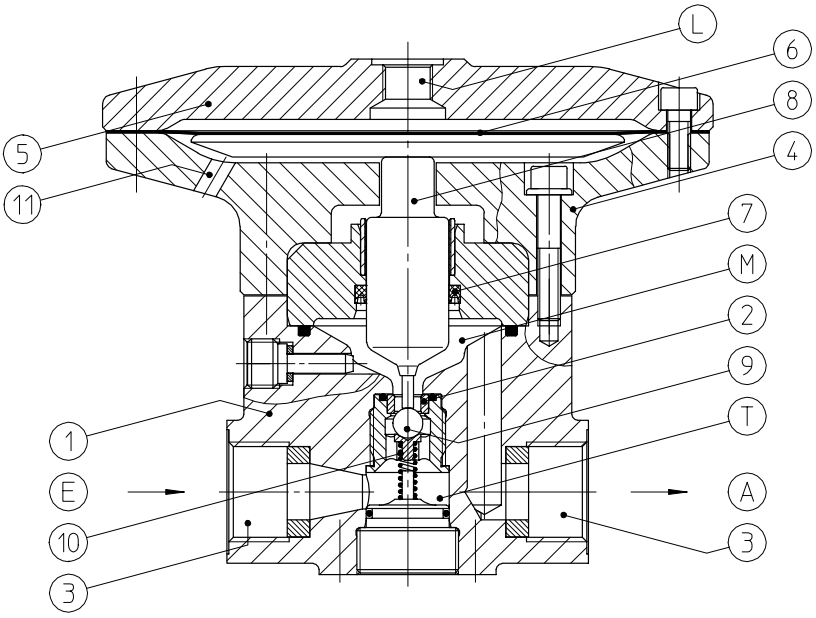

Fig. 3

⑪ = Leakage hole

The pressure regulation valve P 320-VP DN7 essentially consists of the housing bottom part ① with valve seat ② and fluid connection holes ③, the diaphragm housing ④ as well as the housing top part ⑤ with compressed air connection Ⓛ.
A diaphragm ⑥ is located between the housing top part and the diaphragm housing acting as a separating element (air space/diaphragm space). The grooved ring ⑦ seals the fluid space from the diaphragm. The valve tappet ⑧ transmits the movement of the diaphragm to the valve ball ⑨.

During operation the fluid under pressure flows from the inlet Ⓔ via the spring-loaded ball valve (support spring ⑩) to the fluid space Ⓜ and from there to the outlet Ⓐ.

Changes in pressure due to removal of fluid at the consumer end are transmitted via the valve tappet to the diaphragm charged with compressed air (compressed air connection Ⓛ)and have a regulatory effect through the coupling of diaphragm, diaphragm plate, valve tappet, ball and support spring.

– Valve closes when the regulated pressure is reached at the fluid outlet
– Valve opens when the pressure drops at the fluid outlet.

The pressure regulation valve is designed for straight pipe assembly.

The fluid path in the pressure regulation valve passes from the inlet to a turbulence zone Ⓣ (in order to prevent deposits) and rises from below via the ball valve to the outlet.

SUITABILITY, MATERIAL

Material	Suitability
Neutral	highly suitable
Corrosive	highly suitable
Abrasive	suitable under certain conditions
Acidic	suitable under certain conditions
Inflammable [1)]	highly suitable

[1)] Pressure regulation valve connected to earth.

Please consult us concerning strongly abrasive or aggressive materials.

Kinematic viscosity in mm^2/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 320 – V P DN 7

Nominal diameter	7
Operating mode	Pneumatic
Action	Admission pressure (pressure regulation)
Regulation pressure max.	320 bar

DATA

Pressure regulation valves without accessories (basic version), Article No. 79637 015003

Fluid inlet pressure	max. permissible	360	Bar
Fluid temperature range		10-80	°C
Regulation pressure range		40–320	Bar
Operating air pressure	max. permissible	6	Bar
Volume flow	fluid-dependent		Specification only with the processing fluid
Weight		5.2	Kg

MATERIALS OF THE AREA IN CONTACT WITH THE FLUID

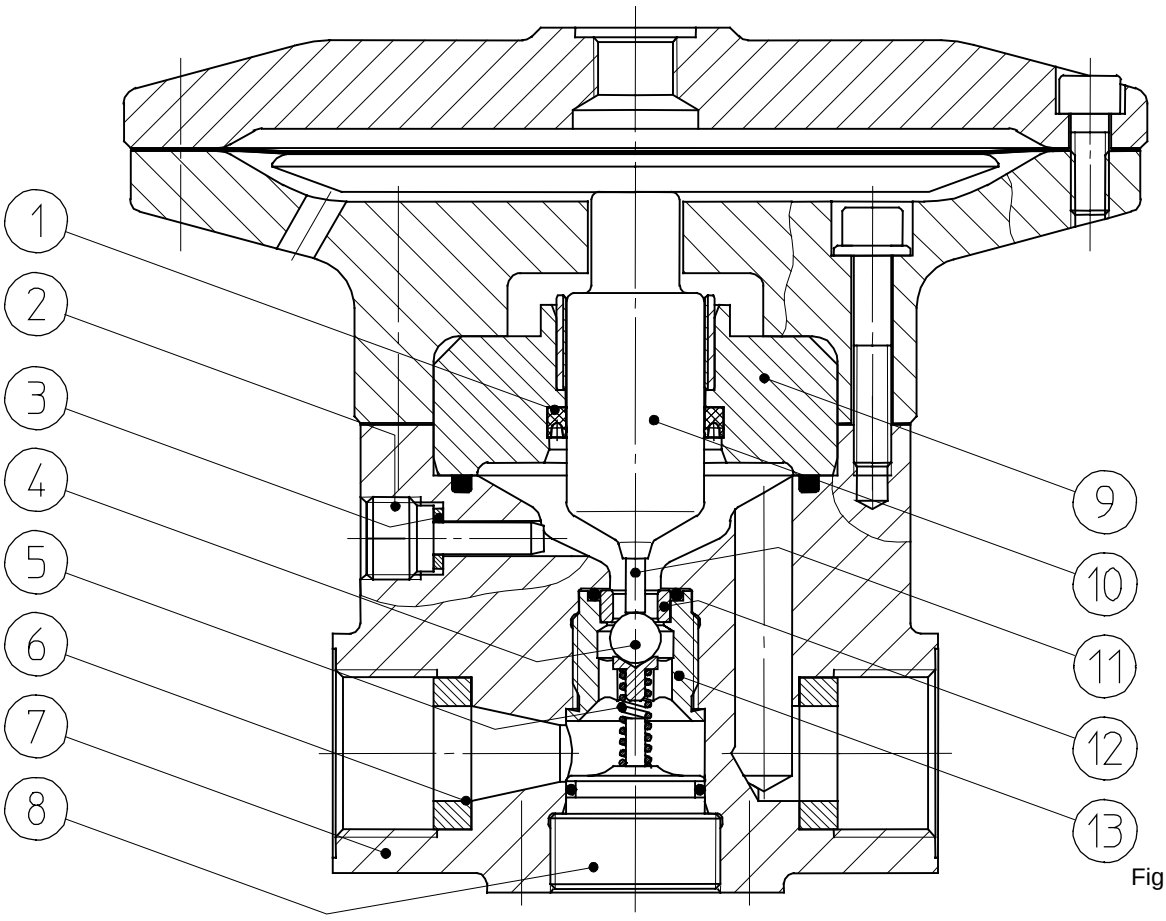

Fig. 4

Pos.	Designation	Material
1	Grooved ring	PE-UHMW
2	Set screw	SST
3	Sealing washer	POM
4	Ball	Hardened steel
5	Pressure spring	SST
6	Ring	PTFE
7	Housing bottom part	SST
8	Fixing screw	SST
9	Housing	SST
10	Valve tappet	SST
11	Parallel pin	Hardened steel
12	Valve seat	Hardened steel
13	Frame	SST
All O-Rings		FPM

The diaphragm housing and top part are made of aluminum.
Take care with fluids 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

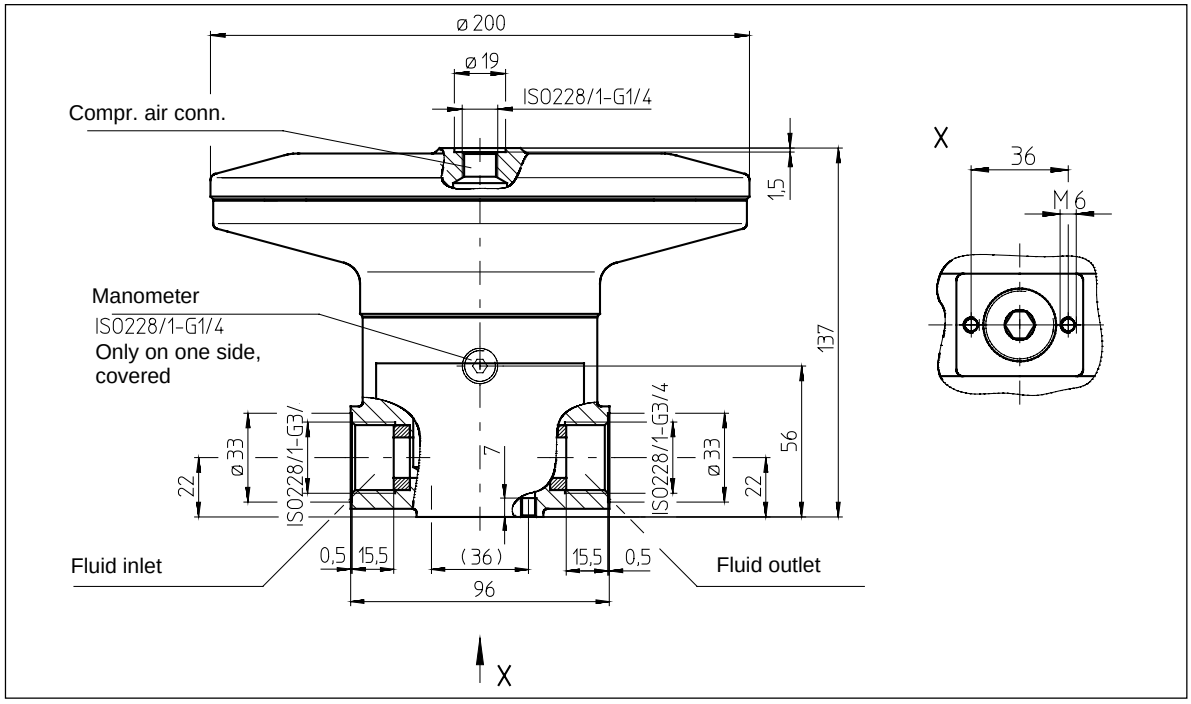

Fig. 5

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

BUILD-UP POSITION

Vertical – compressed air connection at the top.

TOOL LIST

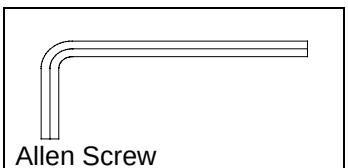

Fig. 6

COMMISSIONING

Install pressure regulation valve

- The fluid connections are sealed inside in the housing bottom part
  – Ring Article No. 76104 130001
- Note attachment position

Connect pipes, hose lines

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 produced during installation must be thoroughly flushed out with solvents (detergents).

Commission pressure regulation valve

- Apply compressed air to the diaphragm with the fluid pressure line shut off.
  Then fill the pressure regulation valve with fluid.
  – At the same time slowly increase the fluid inlet pressure.
- Set the desired fluid outlet pressure. Then shut off the compressed air supply.

The fluid inlet pressure should be at least 40 bar higher than the regulated fluid outlet 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 P 320 – VP DN 7 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 behaviour [air or fluid escaping from the leakage hole (Pos ⑪, page 3)] at regular intervals – once a day.
  – If air is escaping, the flat diaphragm should be replaced.
  – If fluid is escaping from the grooved ring, the O-Ring between the housing and the housing bottom part 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 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.
- A change in the system pressure can be a sign of progressive wear of the valve parts
  When repairing, replace the complete valve seat, the valve ball, the O-Rings, the grooved ring 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).

TORQUE MOMENTS

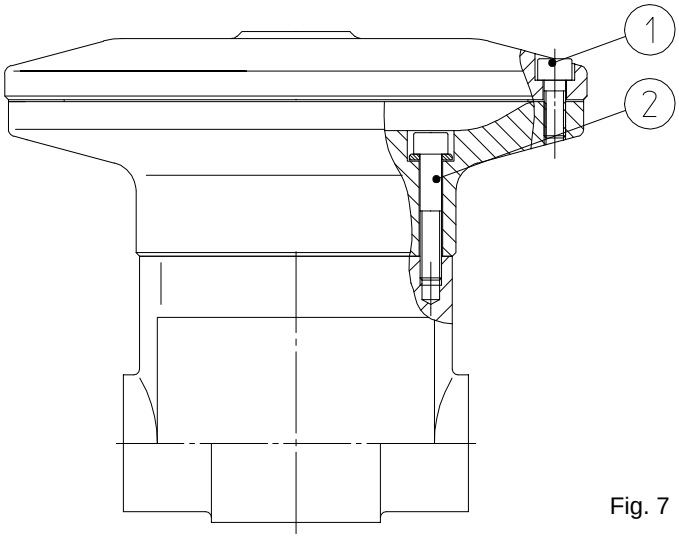

Fig. 7

Pos.	Thread	Torque Moment
1	M6 - 8.8	10 Nm
2	M6 - 12.9	12 Nm

TROUBLESHOOTING

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

FOOTNOTE

The pressure regulation valve P 320 – VP DN 7 is intended to be attached/installed to/in a machine for surfacing technology and commissioning is prohibited until it can be demonstrated 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

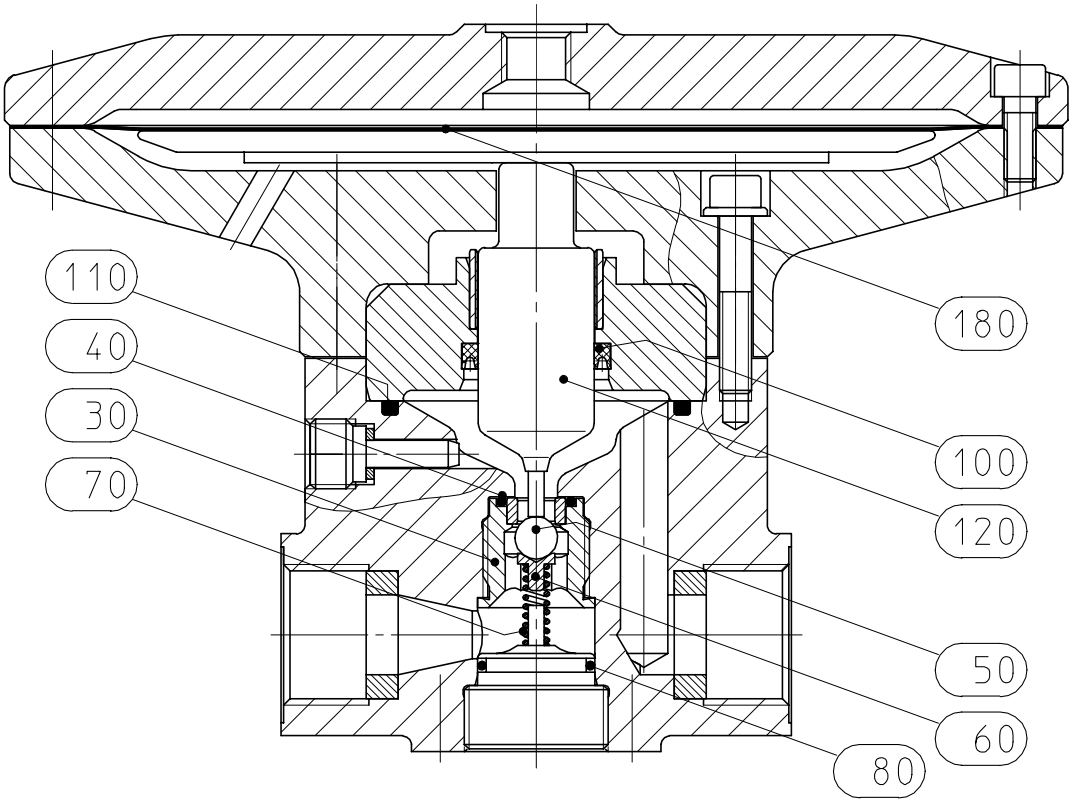

Fig. 8

Replacement part sets, fluid valve				Article No. 79978 098001
Pos.	Number	Designation		
30	1	Valve seat complete	D 7	Hardened steel
40	1	O-ring	11 x 2 B	FPM
50	1	Ball	8 mm	Hardened steel
60	1	Ball support	10 x 2 B	FPM
70	1	Pressure spring	4.5 x 1 x 20.2	SST
80	1	O-ring	18 x 2 B	FPM

Replacement part sets, valve tappet and sealing				Article No. 79978 100001
Pos.	Number	Designation		
100	1	Grooved ring	21.8 x 28 x 4.3	PE
110	1	O-ring	52 x 3 B	FPM
120	1	Valve tappet complete		SST

Single part, flat diaphragm				Article No. 76196 081002
Pos.	Number	Designation		
180	1	Flat diaphragm	D 160 x T 0.55	NBR

ACCESSORIES

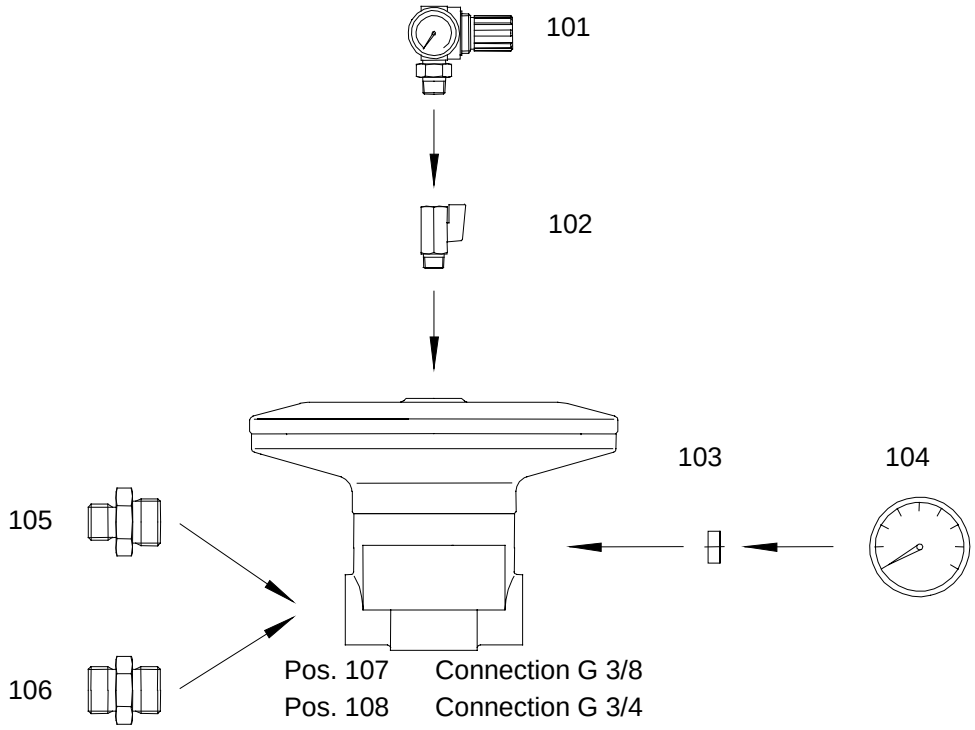

Fig.

Pos.	Designation	Notes	Article No.
101	Pressure regulation valve	G1/4 0-10 bar	75631 014002
102	Ball cock complete	PN15 G1/4	77601 005002
103	Sealing washer	A5.2 x 9.5-1.5	75194 025050
104	Manometer	G1/4 0-400 bar	75781 015001
106	Nipple reduction	8 - G 3/4- G 3/8	76639 021001
107	Nipple reduction	16 - G1 - G ¾	76639 045002

Please lay out each order as follows:

Designation	Pos. No.	Article No.
Ball cock complete	102	77601 005002

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3630 MAASMECHELEN - BELGIUM
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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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