PRESSURE REGULATION VALVE P 200-VP

Pneumatically regulated pressure regulation valve for liquid materials, preferably for coatings.

GRACO VERFAHRENSTECHNIK GMBH			
DRUCKREGELVENTIL	P 200 - VP		
MATERIALTEMPERATUR	MAX 90 °C	HERSTELL-NR.	
MATERIALEINGANGSDRUCK	MAX 360 bar		
EINSTELLDRUCKBEREICH	40 - 250 bar		
BETÄTIGUNGSLUFTDRUCK	MAX 6 bar		

Fig. 1

Fig. 1.1

The original manufacturing nameplate is on the pressure regulation valve. Please compare the data and make any necessary alterations.

READ AND OBSERVE THE OPERATING AND SAFETY INSTRUCTIONS BEFORE COMMISSIONING!

KEEP FOR FUTURE USE !

Information which affects your safety

Important information for operation

CONTENTS OF USER INFORMATION

The manufacturer's declaration is attached separately

Note the protection mark in accordance with DIN 34

CORRECT USE

The pressure regulation valve P 200 – VP 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 200–VP 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 200–VP will cause us to waive our responsibility for any damage or injury caused.

The user is responsible for proper attachment/installation.

FUNCTIONAL DIAGRAM

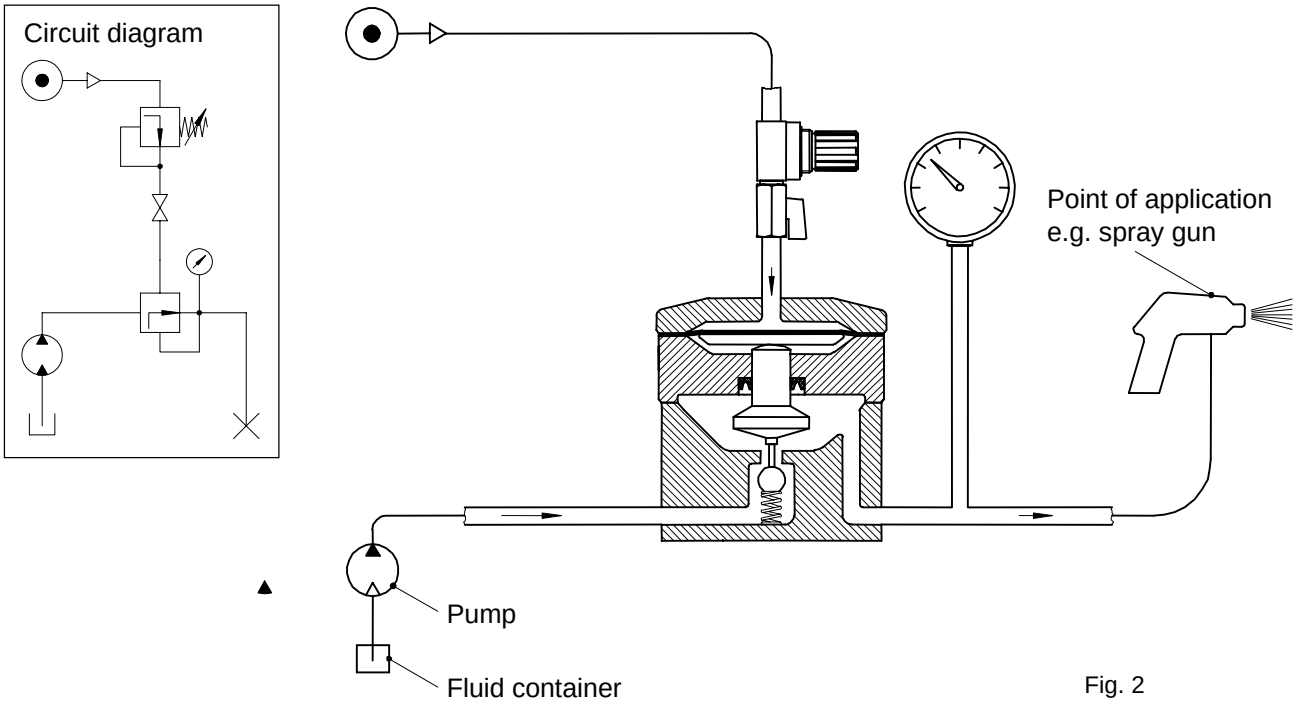
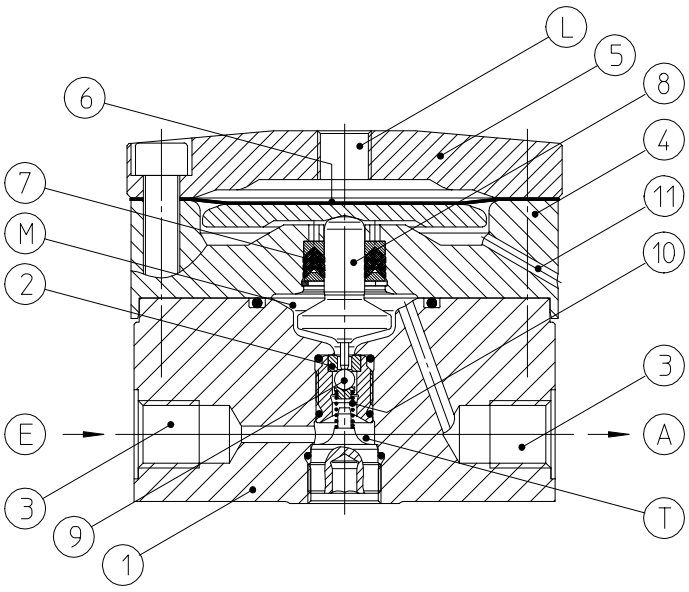


Fig. 2

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

PRODUCT DESCRIPTION



⑪ = Leakage hole

Fig. 3

The pressure regulation valve P 200–VP essentially consists of the housing bottom part ① with valve seat ② and fluid connection holes ③, the packing stack ④ as well as the housing top part ⑤ with compressed air connection Ⓛ.

A membrane ⑥ is situated between the housing top part and the packing stack as a separating element (air space/membrane space).The packing ⑦ seals the fluid space from the membrane. The valve tappet ⑧ transmits the membrane movement to the valve ball ⑨.

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

Changes in pressure caused by removal of the fluid at the consumer end are transmitted via the valve tappet to the membrane 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

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

Kinematic viscosity in mm^2/s			Suitability
	up to	500	highly suitable
500	up to	750	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 200 – V P

Operating mode	pneumatic
Action	Admission pressure (pressure regulation)
Regulation pressure max.	200 bar

DATA

Pressure regulation valve without accessories parts (basic version), Article No. 79637 001003

Fluid inlet pressure	max. permissible	360	Bar	
Fluid temperature		0 – 90	°C	
Regulation pressure range		40 – 250	Bar	
Operating air pressure	max. permissible	6	Bar	
Volume flow (characteristic)		18	l/min	free passage in the pressure regulation valve [Viscosity 45 mm²/s (cSt)], Spray gun with 5,3 mm² (Ø2.6) nozzle Local and fluid temperature about 20°C
Weight		1.8 Kg		

MATERIALS OF THE AREA IN CONTACT WITH THE FLUID MATERIAL

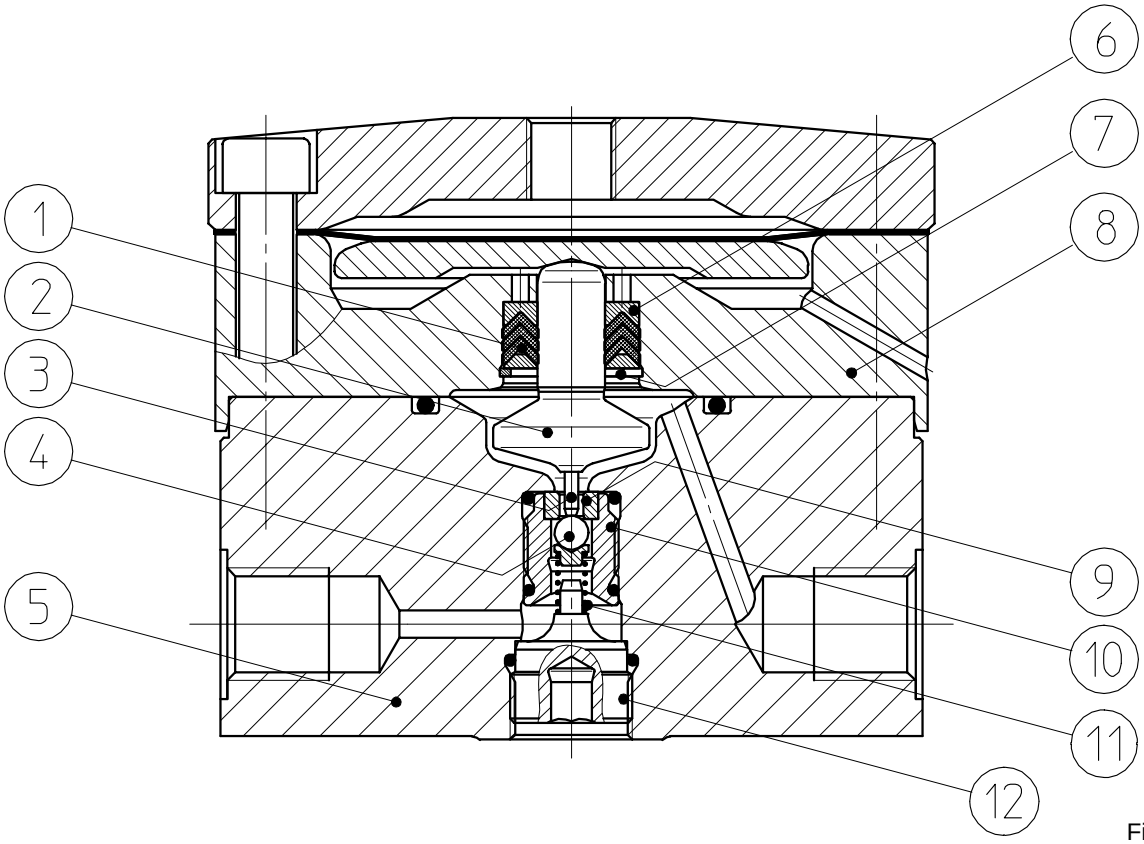


Fig. 4

Pos.	Designation	Material
1	Packing stack	PTFE
2	Valve tappet	SST
3	Parallel pin	Hardened steel
4	Ball	Hardened steel
5	Housing bottom part	SST
6	Gland	SST
7	Retaining ring	SST
8	Diaphragm housing	SST
9	Valve seat	Hardened steel
10	Frame	SST
11	Pressure spring	SST
12	Fixing screw	SST
All O-Rings		FPM

The housing top part is 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

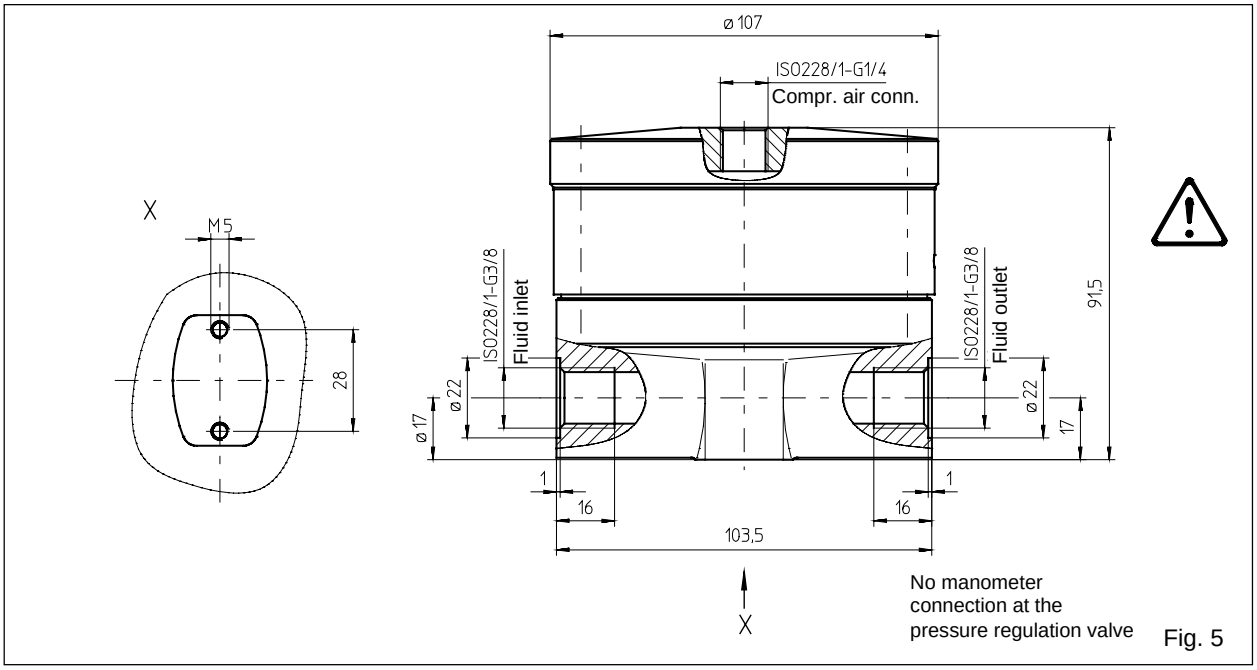


Fig. 5

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

BUILD-UP POSITION

Vertical – Compressed air connection at the top.

TOOL LIST

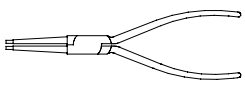
	
Allen Screw DIN 911	Pliers DIN 5256 C
SW 6	for retaining ring ∅ 19- 60

Fig. 6

COMMISSIONING

Install pressure regulation valve

- 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 the 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 membrane 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.
- Regulate 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 material output 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 200 – VP requires little maintenance.
- Flush thoroughly before operating pauses
- Drain the condensed water once a 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, Seite 3)] at regular intervals – once a day.

  – If air is escaping the flat diaphragm should be replaced.

  – If fluid is escaping, the diaphragm housing, the O-Ring between the packing stack and 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 system pressure can be a sign of progressive wear and tear of the valve parts. When repairing, replace the complete valve seat, the valve ball, the O-rings, the packing stack 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

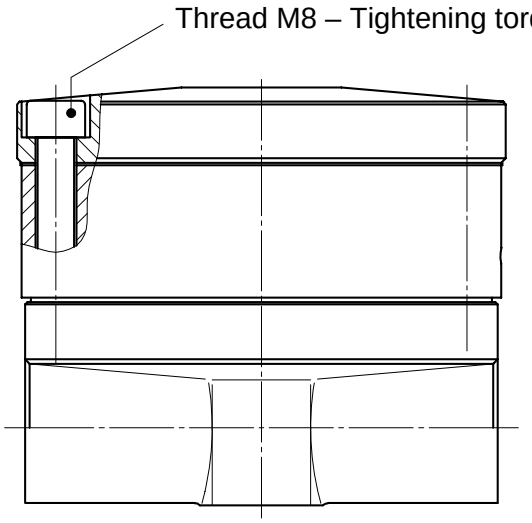


Fig. 7

SOLVING BREAKDOWNS

TROUBLESHOOTING				
Component group	Nature of defect	Defect symptoms	Possible cause	Counter measure
Flat diaphragm	Fluid - drop in pressure	Air escaping from the leakage hole	Flat diaphragm damaged	Replace flat diaphragm
Tappet sealing (packing stack)	Material - Drop in pressure	Fluid escaping from the leakage hole	Packing stack worn out	Replace packing stack
Valve parts	Fluid - rise in pressure	Fluid - pressure rises with valve closed	Valve parts worn out	Replace valve parts, packing stack 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 200 – VP 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/EWG.

REPLACEMENT PARTS SET

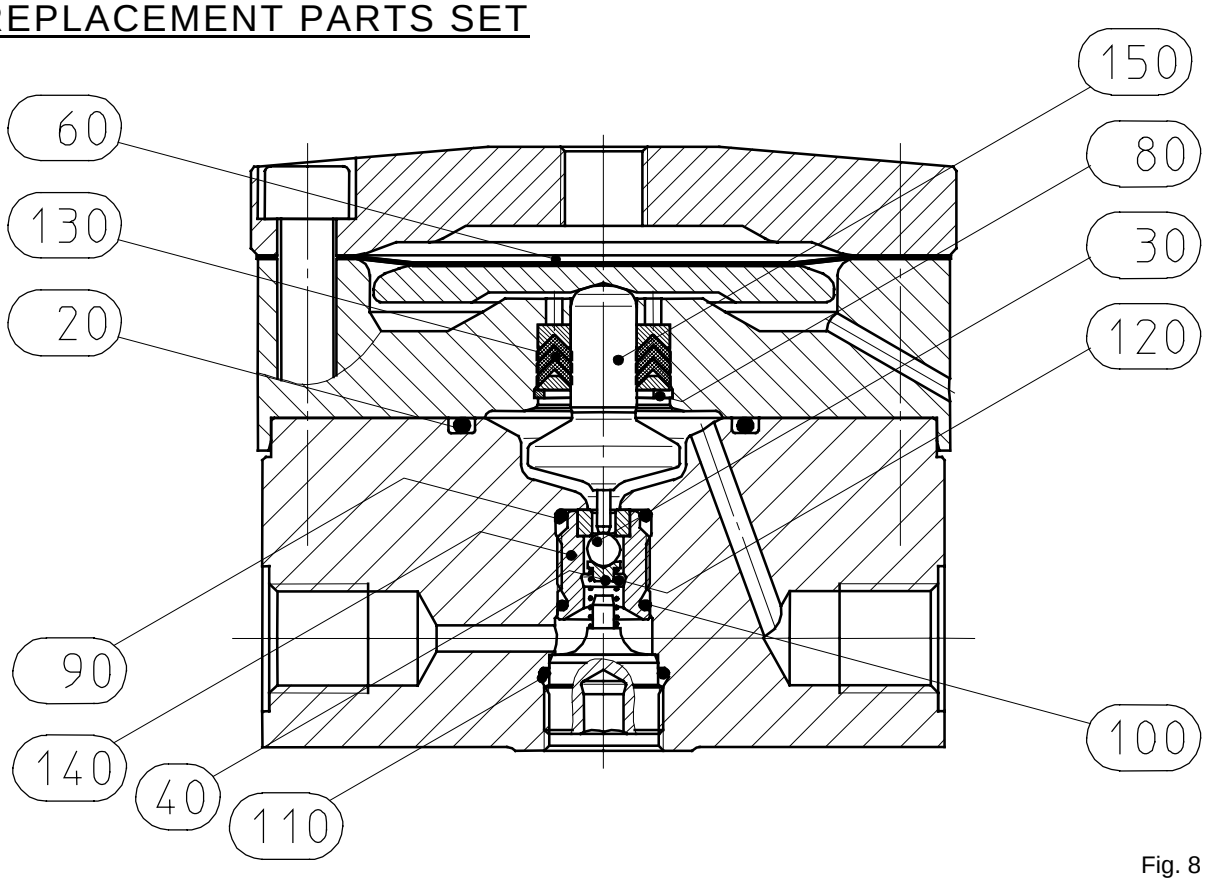


Fig. 8

Replacement parts set, material valve			Article No. 79978 096001	
Pos.	Number	Designation		
30	1	Ball	5 mm	Hardened steel
40	1	Ball support		SST
90	1	O-ring	10 x 2 B	FPM
100	1	O-ring	11 x 2 B	FPM
110	1	O-ring	16 x 2 B	FPM
120	1	Pressure spring	4.3 x 0.7 x 14.5	SST
140	1	Valve seat complete		Hardened steel

Replacement parts set, valve tappet and sealing			Article No. 79978 097001	
Pos.	Number	Designation		
20	1	O-ring	40 x 3 B	FPM
80	1	Retaining ring	20 x 1	SST
130	1	Packing stack	10 x 20 x 9.4	SST/PTFE
150	1	Valve tappet complete		SST

Single part, flat diaphragm			Article No. 76196 070001	
Pos.	Number	Designation		
70	1	Flat membrane	D 105.5 x T 0.65	NBR/PTFE

ACCESSORIES

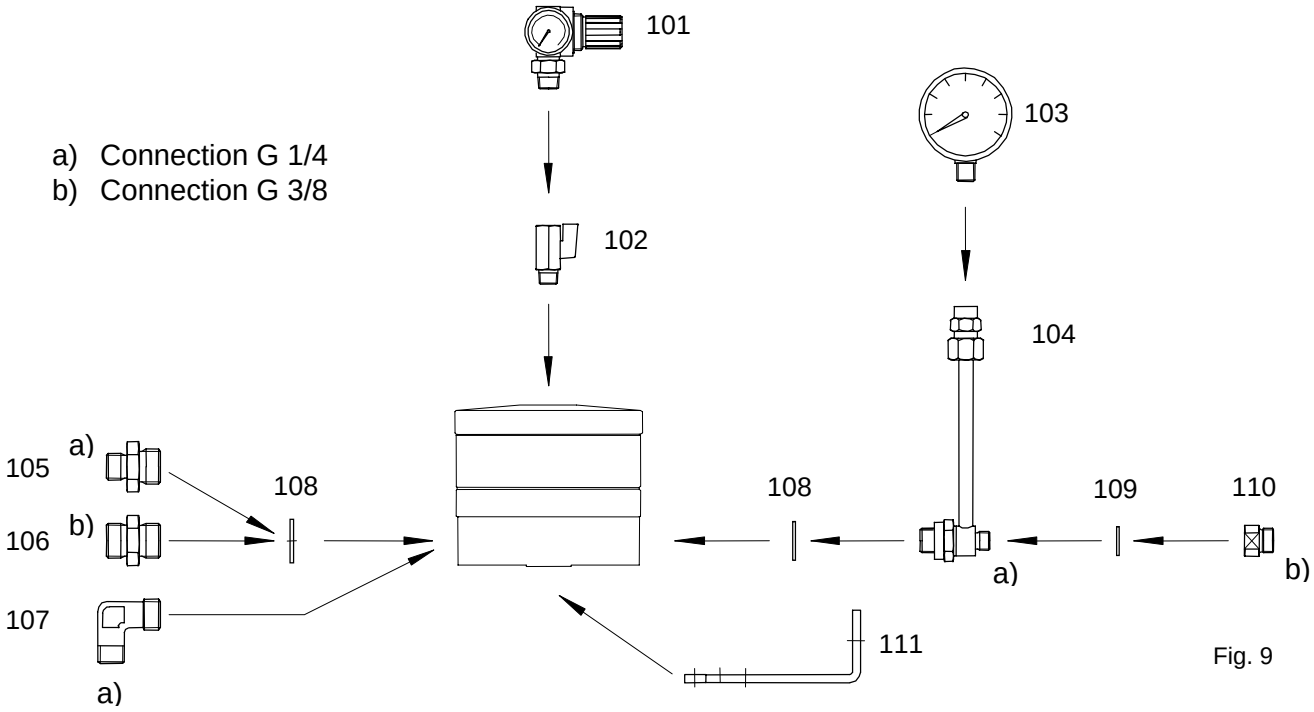


Fig. 9

Pos.	Designation	Notes	Article No.
101	Pressure regulation valve	G1/4 0-10 bar	75631 014002
102	Ball cock complete	PN 15 G1/4	77601 005002
103	Manometer	G1/4 0-250 bar	75782 013001
104	Pipe complete	PN 250	77796 063001
105	Nipple reduction	6-G3/8-G1/4	76639 016003
106	Nipple	8-G3/8	76640 005001
107	Elbow	R3/8-G1/4	75214 011001
108	Washer	A 17 x 21	74188 015090
109	Washer	A 14 x 18	74188 012090
110	Nipple	G 3/8 A – G1/4	76641 017001
111	Elbow complete	-	77654 003001

Please lay out each order as follows:

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

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.

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