

# USER INFORMATION

# 6000314E

KEEP FOR FUTURE USE

Rev B

B.12.30.03



P 10-RP

Pressure regulation valve (check valve)®

**GRACO N.V.**

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## REGULAR TESTING OF THE APPLIANCES

Test certificate No.	Test date	Person responsible	
		Company	Name

Liquid spray equipment is intended in particular for surfacing (e.g. airless paint spraying equipment, two-component coating equipment).

The operator must ensure that liquid spray equipment is tested for proper operation after an operating pause of more than 6 months, and at least every 12 months by a competent person<sup>1)</sup>.

The operator must ensure that the test results are properly recorded in writing for every liquid spray equipment<sup>2)</sup> and kept until the next test.

The operator must ensure that the test certificate is available at the place of use<sup>3)</sup> of the liquid spray equipment.

<sup>1)</sup> A competent person is somebody who on the basis of their professional training and experience has sufficient knowledge in the field of liquid spray equipment and is sufficiently conversant with the relevant national health and safety regulations, accident prevention regulations, recommendations and generally accepted rules and industrial norms that they are in the position to evaluate liquid spray equipment.

<sup>2)</sup> Written records (test results) can, for example, be in the form of test certificates.

<sup>3)</sup> At the place of use, a copy of the test certificate or a test stamp on the appliance is considered as compliance with the requirement.

-Extract from: Working with liquid spraying equipment (VBG 87)

Issued on: 10th October 1993

§ 23 (1), (3) and (4)

Implementation instructions VBG 87

to § 1 Para. 1 and to §23 Para. 1, Para. 3, Para. 4

## PRESSURE REGULATION VALVE (CHECK VALVE) P10-RP

Pneumatically regulated check valve for liquid materials, particularly for coatings.



Fig. 1

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

Read and follow up the operator manual and the safety instructions before commissioning the pump

In this manual important information is marked with the following symbols.



Information affecting your safety



Important operational directions

### CONTENTS OF USER INFORMATION

	Page
<u>OPERATING INSTRUCTIONS</u>	
CORRECT USE	02
FUNCTIONAL DIAGRAM	02
PRODUCT DESCRIPTION	03
SUITABILITY, MATERIAL	03
TECHNICAL DATA	04
Key to designation	04
Data	04
Materials of the area in contact with the fluid	04
Dimensions, Connection thread	05
Build-up position	05
LIST OF TOOLS	05
START-UP	06
OPERATION	06
MAINTENANCE, INSPECTION, REPAIR	06
TORQUE MOMENTS	07
SOLVING BREAKDOWNS	07
FOOTNOTE	07
LIST OF REPLACEMENT PARTS	08
ACCESSORIES	08

The MANUFACTURER'S DECLARATION is attached separately.

## CORRECT USE

The pressure regulation valve (check valve) P10-RP 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 P10-RP 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 rules must be respected.

Unilateral changes to the pressure regulation valve P10-RP will cause us to waive our responsibility for any damage or injury caused.

The user is responsible for correct attachment/installation.

## FUNCTIONAL DIAGRAM

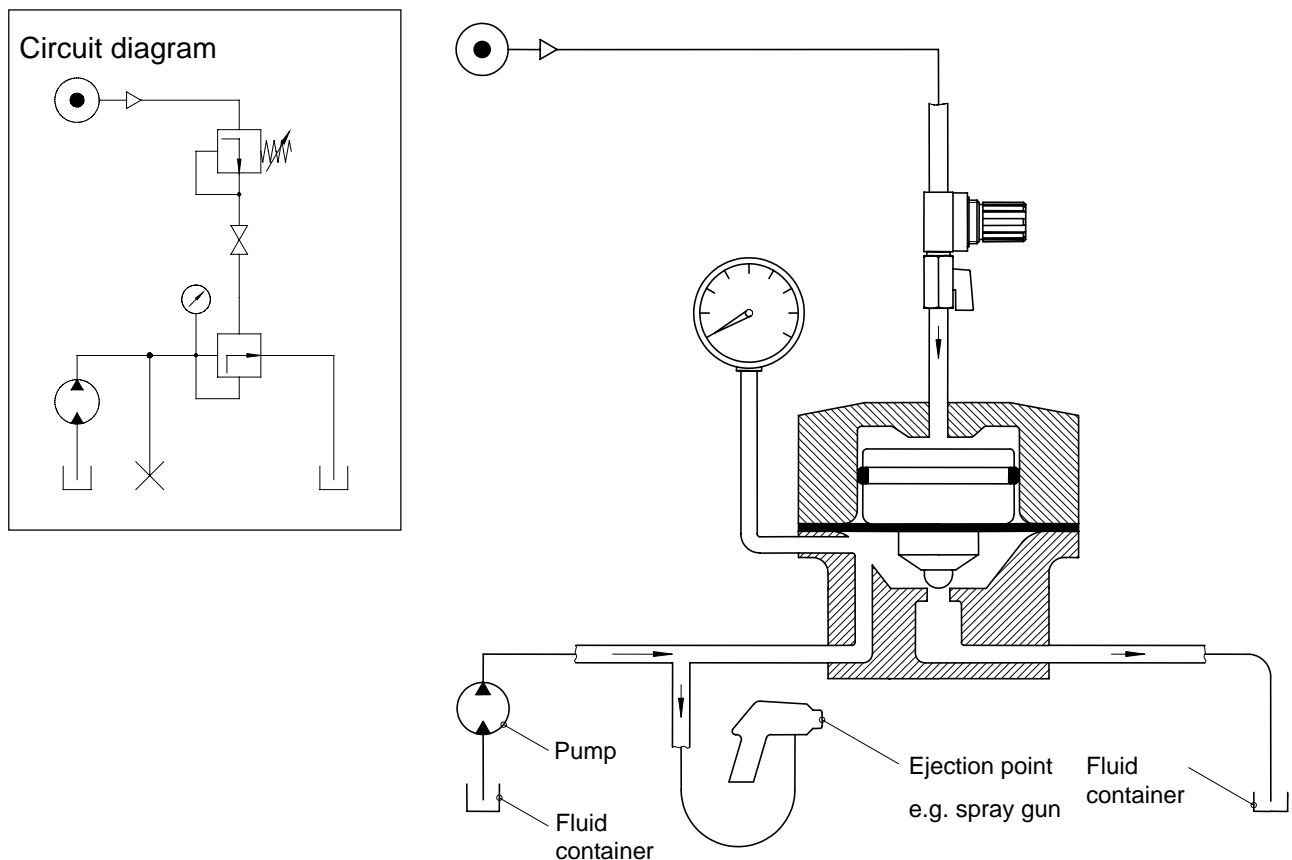


Fig. 2

## PRODUCT DESCRIPTION

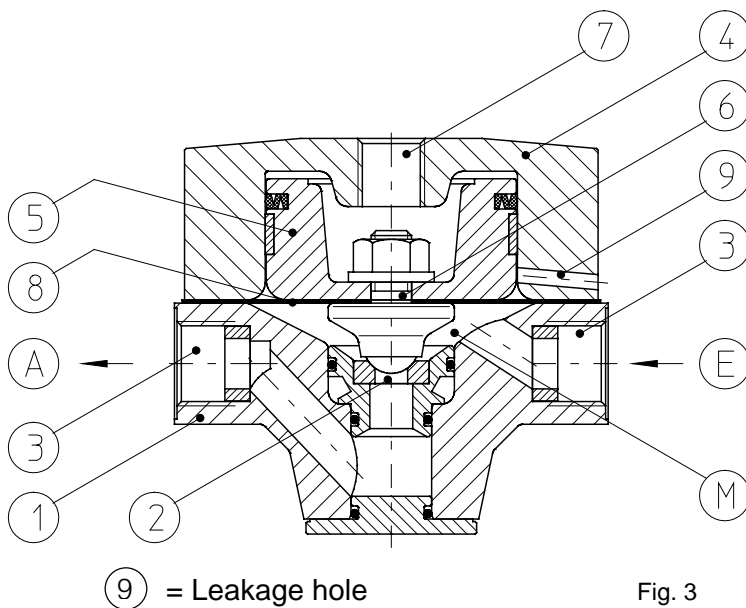


Fig. 3

The pressure regulation valve P10-RP consists of the housing bottom part ① with valve seat ②, fluid connection holes ③ and the housing top part ④ with piston ⑤, valve tappet ⑥ and compressed air connection ⑦.

The diaphragm ⑧ is situated between the top and bottom housing parts as a separating element between the fluid space and the air space.

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 (E) to the diaphragm space (M) and from there via the valve seat to the outlet (A).

Changes in the fluid inlet pressure are transmitted to the diaphragm charged with compressed air. This changes the position of the valve tappet in relation to the valve seat which leads to opening and closing of the valve and to maintaining constant 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	Highly suitable
500 up to 750	Suitable
over 750	Suitable under certain conditions (must be tested)

Solids content	Suitability
Low	Highly suitable
Low to 1%	Suitable
Medium 1 to 3%	Suitable under certain conditions
Over 3%	must be tested - not suitable

## TECHNICAL DATA

### KEY TO DESIGNATION

Pressure regulation valve	P 10 - R P	
	Operating mode	Pneumatic
	Action	Back pressure (pressure retaining)
	Regulation pressure	10 bar max.

### DATA

Pressure regulation valve P10-RP without add-on parts (basic version), Article No. 79636 003003

Material inlet pressure      max. allowable      10 Bar

Material temperature      max. allowable      90 °C

Regulation pressure range      1 – 10 Bar

Operating air pressure      max. allowable      10 Bar

Volume flow (characteristic)      29 l/min (operating air pressure 4 bar, fluid inlet pressure 6 bar - dynamic, <sup>2)</sup>)

<sup>2)</sup> Local and fluid temperature below 20 C, viscosity 10 mm<sup>2</sup>/s (water)

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

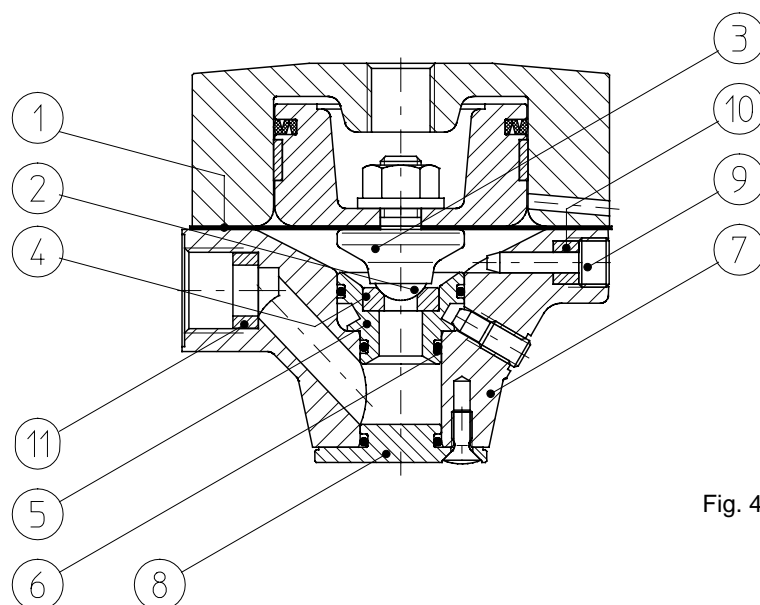


Fig. 4

Pos.	Designation	Material
1	Flat diaphragm	PTFE/NBR
2	Ball	Hardened steel G10
3	Valve tappet	SST
4	Valve seat	Hardened steel G10
5	Frame	SST
6	O-ring	FPM
7	Housing bottom part	SST
8	Cover	SST
9	Fixing screw	SST
10	Seal washer	POM
11	Washer	PTFE



Materials that contain chlorinated hydrocarbons such as trichloroethane or methylene chloride react with aluminum to form metallo-organic compounds. These compounds are explosive and extremely caustic.

– The use is not permissible

## EARTH, CONNECTION THREAD

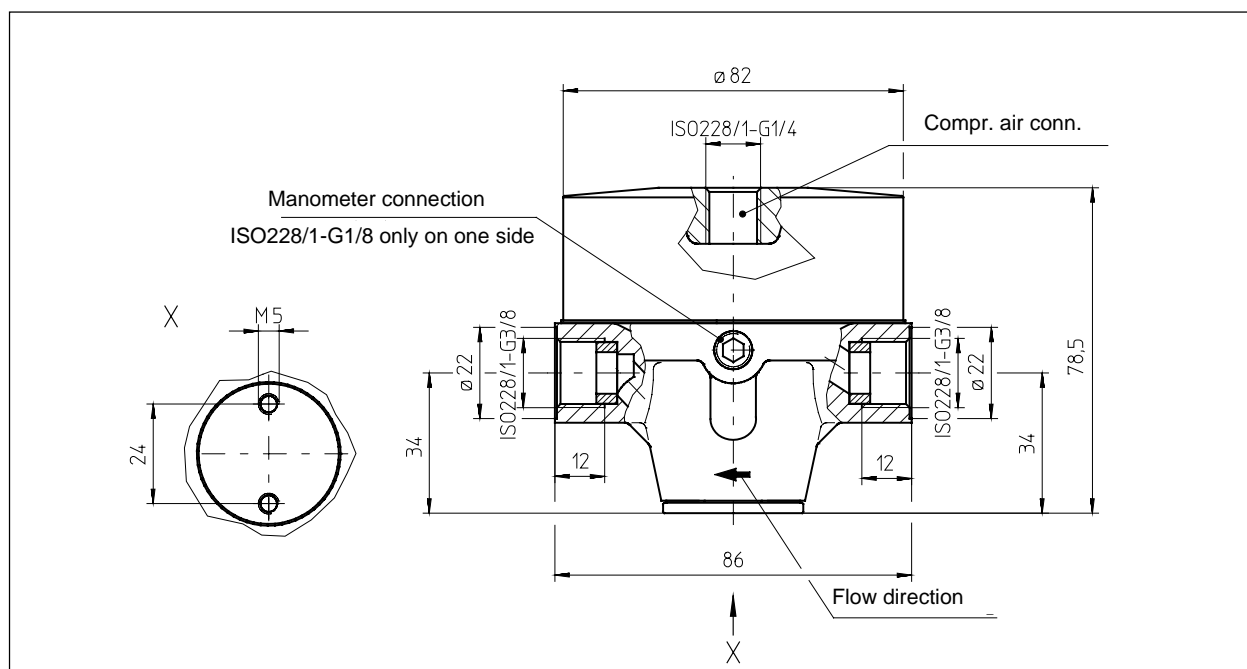


Fig. 5

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


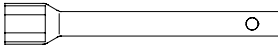
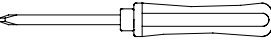
		
Allen Screw DIN 911	Tubular socket wrench DIN 659	Screwdriver for Phillips screws DIN 5262
SW 3, SW 4, SW 5	SW 13	Gr. 2 (for thread M4)

Fig. 6

## COMMISSIONING

### Install pressure regulation valve

- The material connections are sealed inside in the housing bottom part
  - Washer Article No. 76104 118001
- Note attachment position

### Connect hoses, hose lines (pipe 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).

## OPERATION

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

## MAINTENANCE, INSPECTION, REPAIR

- The pressure regulation valve P10 – RP 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 ⑨ product description)] at regular intervals – once a day.
  - If there are considerable amounts of air escaping, the piston seal should be replaced.
  - If material is escaping, the diaphragm and the piston seal should be replaced.
- Fit the PTFE side of the flat diaphragm to the fluid space
- 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 valve tappet with ball and valve seat with mounting and O-Rings as well as the flat diaphragm.





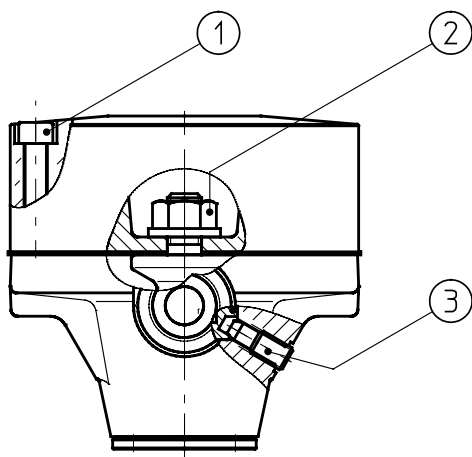
Never at any time dismantle a pressure regulation valve which is under pressure.



Lightly grease the parts before assembly.

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

## TIGHTENING TORQUES



Pos.	Thread	Torque Moment
1	M5	4-5 Nm
2	M8	5 Nm
3	M6	2 Nm

Fig. 7

## 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
Piston seal	Fluid – drop in pressure	Air escaping from the leakage hole	Piston seal worn out	Replace piston seal
Valve parts	Material – drop in pressure	Fluid pressure fallen	Valve parts worn out	Replace valves and flat diaphragm
Air connection	Fluid – drop in pressure	No fluid – maintenance of pressure	Air supply interrupted	Check the plug connections and air hose

## FOOTNOTE

The pressure regulation valve P10-RP is 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 98/37/EEC.

## LIST OF REPLACEMENT PARTS

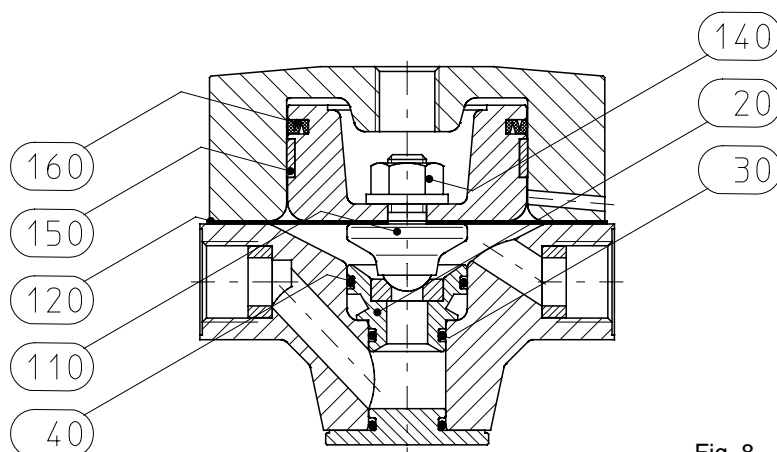


Fig. 8

Replacement parts set, fluid valve			Part No. 79978 636001	
Pos.	Number	Designation		
20	1	Valve seat complete	D 6,5	
30	2	O-ring	12 x 2 B	
40	1	O-ring	20 x 2 B	
110	1	Valve tappet complete		

Replacement parts set, diaphragm			Part No. 79978 636002	
Pos.	Number	Designation		
120	1	Flat diaphragm	D 83 x T 0,65	
150	1	Drive band	8 x 1.55 x 143	
160	1	Piston seal	PK 50 x 2.8	

## ACCESSORIES

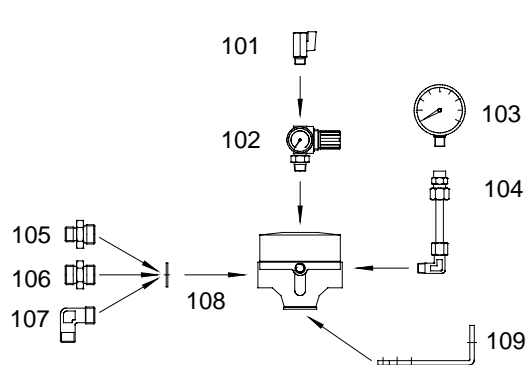


Fig. 9

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 0-16 bar	75782 006001
104	Pipe complete	PN 100	77796 064003
105	Nipple reduction	6-G3/8-G1/4	76639 016003
106	Nipple reduction	8-G3/8	76640 005001
107	Elbow	R3/8-G1/4	75214 011001
108	Seal washer	A17 x 21	74188 015090
109	Elbow complete	-	77654 003001

Please lay out each order as follows:

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

## **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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