

AIR OPERATED

Fluid Pressure Regulator

306813J

250 psi (1.8 MPa, 18 bar) Maximum Inbound Fluid Pressure

30 psi (210 kPa, 2.1 bar) Maximum Inbound Air Pressure

0–30 psi (0–210 kPa, 0–2.1 bar) Regulated Pressure Range

Model 206200, Series E

- Large, easy to read fluid pressure gauge.
- Durable parts for long service life.
- Revolving fluid inlet for horizontal connection.
- Well suited for remote control of multiple outlet, low pressure system.



Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.

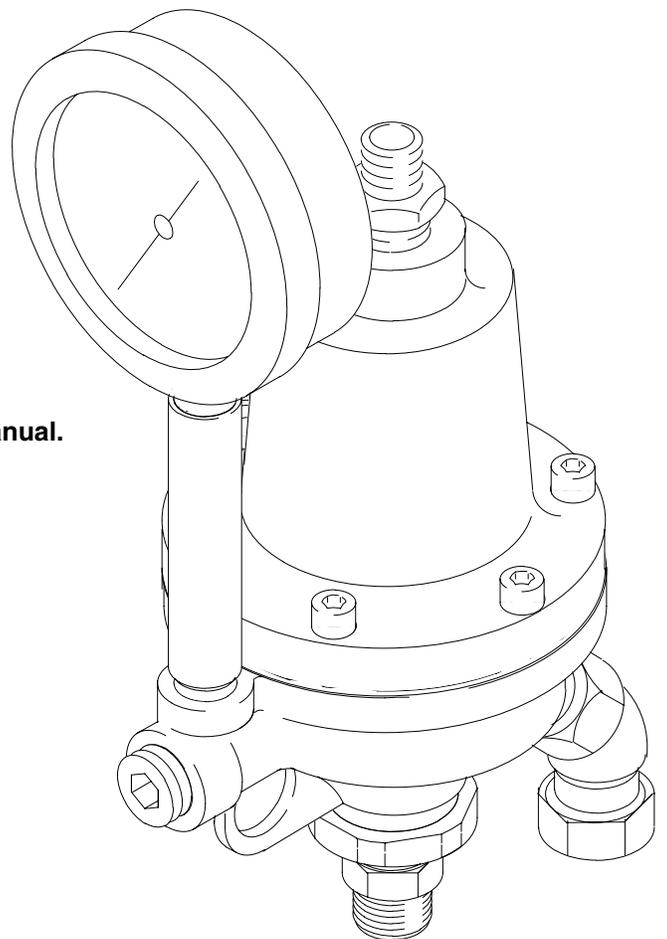


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Symbols

Warning Symbol



This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the corresponding instructions.

! WARNING



EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in a serious injury.

- This equipment is for professional use only.
- Read all the instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component.
- Use fluids that are compatible with the equipment wetted parts. See the **Technical Data** section of all the equipment manuals. Read the fluid manufacturer's warnings.
- Route the hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below -40°F (-40°C).
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state, and national fire, electrical, and other safety regulations.
- Never use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.

WARNING



PRESSURIZED EQUIPMENT HAZARD

Spray from the gun, hose leaks, or ruptured components can splash fluid in the eyes or on the skin and cause serious injury.

- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** on page 5 whenever you: are instructed to relieve the pressure; stop spraying; clean, check, or service the equipment; and install or clean the fluid nozzle.
- Tighten all the fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.



TOXIC FLUID HAZARD

Hazardous fluids or toxic fumes can cause a serious injury or death if splashed in the eyes or on the skin, swallowed, or inhaled.

- Know the specific hazards of the fluid you are using. Read the fluid manufacturer's warnings.
- Store hazardous fluid in an approved container. Dispose of the hazardous fluid according to all local, state, and national guidelines.
- Wear appropriate protective clothing, gloves, eyewear, and respirator.
- Pipe and dispose of the exhaust air safely. If the diaphragm fails, the fluid may be exhausted along with the air. See your separate pump instruction manual for further information.

Installation

⚠ CAUTION

Before installing the regulator, check the tightness of the capscrews (1). The screws may be loose before the regulator is installed and put under pressure. See Fig. 3 for the tightening sequence and torque value. After 24 hours or if the regulator leaks during operation, check and torque the screws again.

Blow out and flush the supply line to remove particles that could clog or damage the regulator.

Locate outlets along the permanent supply line as close as possible to the points of use. An accessory outlet with shut-off valve, for 3/4 in. lines, is shown below. Install one outlet with shut-off valve and fluid regulator for each spray gun, dispensing valve, etc. See Fig. 1. The regulator should be mounted so the gauge is upright and easy to read. If the fluid gauge must be turned for easier reading, be sure to reapply sealer to the threads and use the wrench on the stud to turn the gauge.

Connect a fluid hose between the 3/8 npsm(m) outlet of the regulator and spray gun inlet.

NOTE: For horizontal configuration, use the alternate 3/8 npt(f) outlet.

Mount the air regulator in the desired location. The air regulator used should have very good low-pressure sensitivity, since the fluid regulator cannot be more accurate than the air regulator controlling it.

Connect a 1/4 in. minimum ID air line between the air regulator and 1/4 npt(m) air inlet of the fluid regulator. Use a larger ID air line if long runs are necessary, and be sure to blow out air lines before connecting to the regulator. When several fluid regulators are to be controlled by one air regulator, air lines to fluid regulators should be of approximately equal lengths. See Fig. 2. This eliminates variations in fluid pressure due to uneven pressure loss in the air lines.

Connect an air regulator to the main air supply.

KEY:

- A 1/4 npt(m) Air Inlet
- B Gauge
- C Fluid Regulator
- D Spray Gun
- E 3/8 npt Alternate Fluid Outlet
- F 3/8 npsm Fluid Outlet

- G 3/8 npt Fluid Inlet
- H Fluid Supply
- J Air Supply
- K Air Regulator
- L Supply Line Outlet with Shutoff Valve
- M Air Lines (1/4" minimum ID)

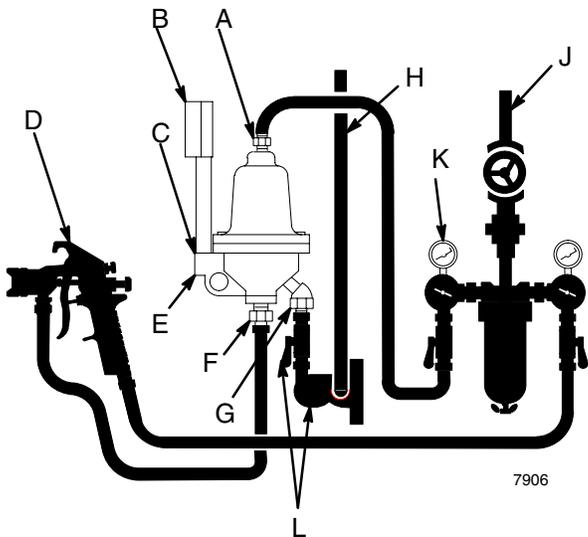
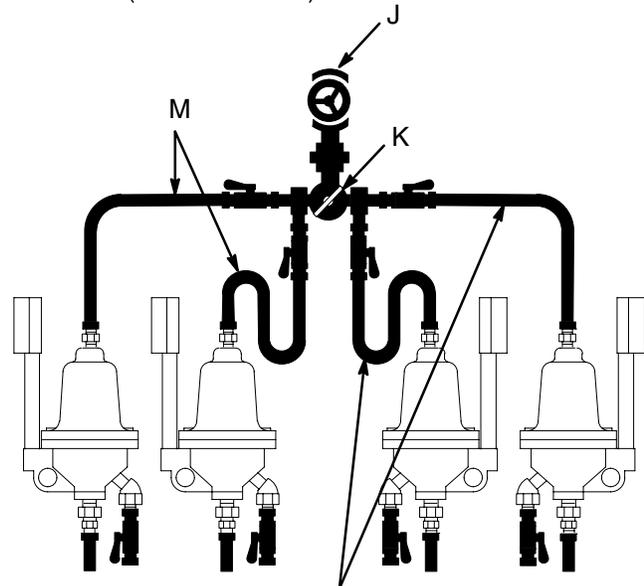


Fig. 1



NOTE: Air lines should be approximately equal lengths.

Fig. 2

Operation

Pressure Relief Procedure

WARNING

PRESSURIZED EQUIPMENT HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. To reduce the risk of an injury from accidental spray from the gun, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray nozzle.

1. Lock the gun trigger safety.
2. Close the bleed-type master air valve (required in your system).
3. Shut off air pressure to the regulator.
4. Unlock the gun trigger safety.
5. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
6. Lock the gun trigger safety.
7. Open the drain valve (required in your system), having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, very slowly loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely, then clear the tip or hose.

Using the Air Regulator

CAUTION

Do not exceed the regulated pressure specification (30 psi [210 kPa, 2.1 bar]) of your regulator. Pressures higher than specified could damage the gauge.

Use the air regulator to control fluid pressure. Fluid pressure at the fluid regulator outlet will be the same as the air pressure at the fluid regulator air inlet.

If an air pressure gauge is not used on the air regulator, fluid pressure may be read directly from the gauge on the fluid regulator. When reducing air pressure, be sure to relieve pressure in the fluid outlet hose to insure a correct reading on the fluid pressure gauge. If the fluid pressure gauge shows a reading when not under pressure, remove the rim and glass and recalibrate the gauge by turning the adjustment screw and resetting the needle to zero.

Flush the regulator whenever the main fluid supply line is to be flushed. Disconnect the fluid outlet hose if the spray gun, etc., is not to be flushed. Pump solvent through the regulator until clean. Do not remove the regulator from the line unless necessary.

CAUTION

Be sure that the solvent you use is compatible with the fluid being supplied by the system.

Troubleshooting

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 5.

Before servicing this equipment always make sure to **Relieve the Pressure**.

Note: Check all possible causes and solutions before disassembling the gun.

Problem	Cause	Solution
No pressure regulation.	Damaged or clogged air regulator or line.	Clear; service.
	Damaged diaphragm.	Replace.
Fluid leaks from under cap.	Loose cap; worn gasket.	Tighten screws; replace gasket.
	Damaged diaphragm.	Replace.
Pressure creeps above setting.	Damaged or clogged air regulated or line.	Clear; service.
	Loose cap; worn gasket.	Tighten screws; replace gasket.
	Damaged diaphragm.	Replace.
	Held open or worn fluid control valve.	Flush; replace.
Pressure drops below setting.	Damaged or clogged air regulator line.	Clear; service.
	Loose cap; worn gasket.	Tighten screws; replace gasket.
	Clogged fluid supply line or fluid valve.	Flush; service.
	Using regulator beyond capacity.	Install additional regulators.
Air leaking continuously from small hole in the cover near the air inlet fitting.	Small hole (.031 in. diameter) in cover of regulator.	This is normal. Air will continuously bleed from this hole in the dynamic state to provide more consistent fluid pressure regulation.

Service

Disassembly and Repair

Shut off the pump, close the shutoff valve at the regulator inlet, and **relieve the pressure**. Disconnect the air and fluid lines and remove the regulator from the system.

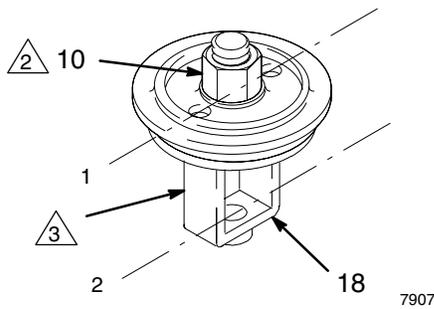
Remove the outlet bushing (14) and spring (7) from the regulator housing (15) and unscrew the valve stem (25) from the hanger (18) with a 3/16 in. Allen wrench. Remove the regulator cap (19) and lift the diaphragm (23) and hanger from the housing. Using a 9/16 in. socket wrench, unscrew the valve seat (24) from the housing. See Fig. 3.

Disassemble the diaphragm (23) and hanger assembly (18) only if damaged. Clean and inspect all parts for wear or damage, replacing as necessary. Be careful to avoid chipping the hard carbide parts of the valve stem (25) and seat (24).

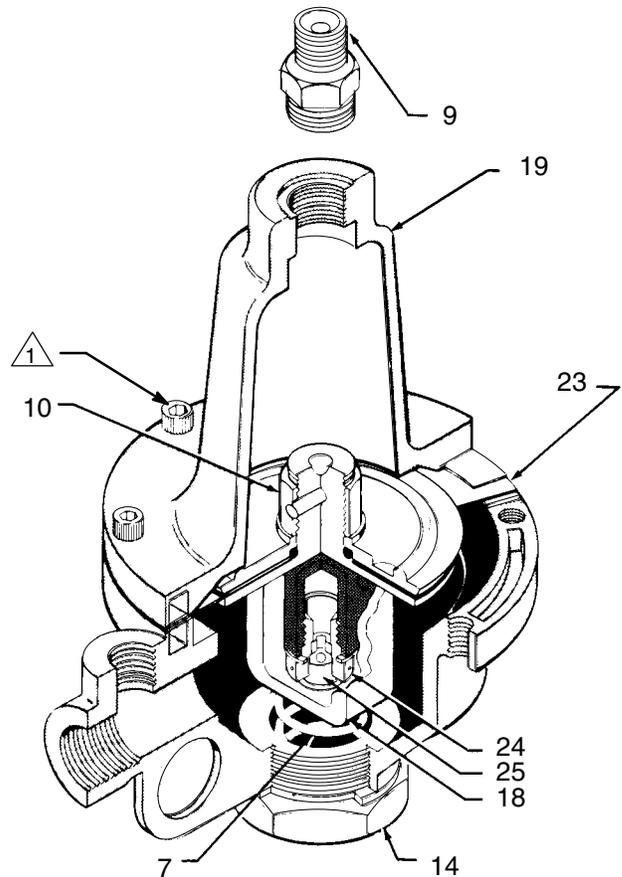
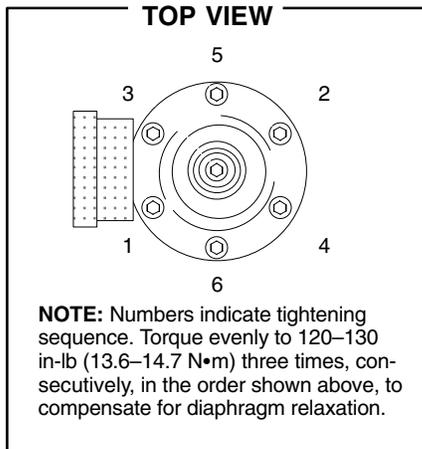
Reassemble the regulator in reverse order of disassembly. When assembling the diaphragm and hanger, be sure all parts are clean and smooth. The hanger should be in line with one pair of holes in the diaphragm, and nut (10) should be torqued to 20 ft-lb (27 N•m). See Fig. 3. Turn the valve stem (25) snugly against the seat (24) and back off 1/2 turn to set valve clearance. See Fig. 3.

Torque all capscrews evenly to 120–130 in-lb (13.6–14.7 N•m) three times, consecutively, in the order shown in the TOP VIEW, to compensate for diaphragm relaxation.

- 1 Torque to 120–130 in-lb (5.9–6.6 N•m)
- 2 Torque to 20 ft-lb (27 N•m)
- 3 Clamp in vise here



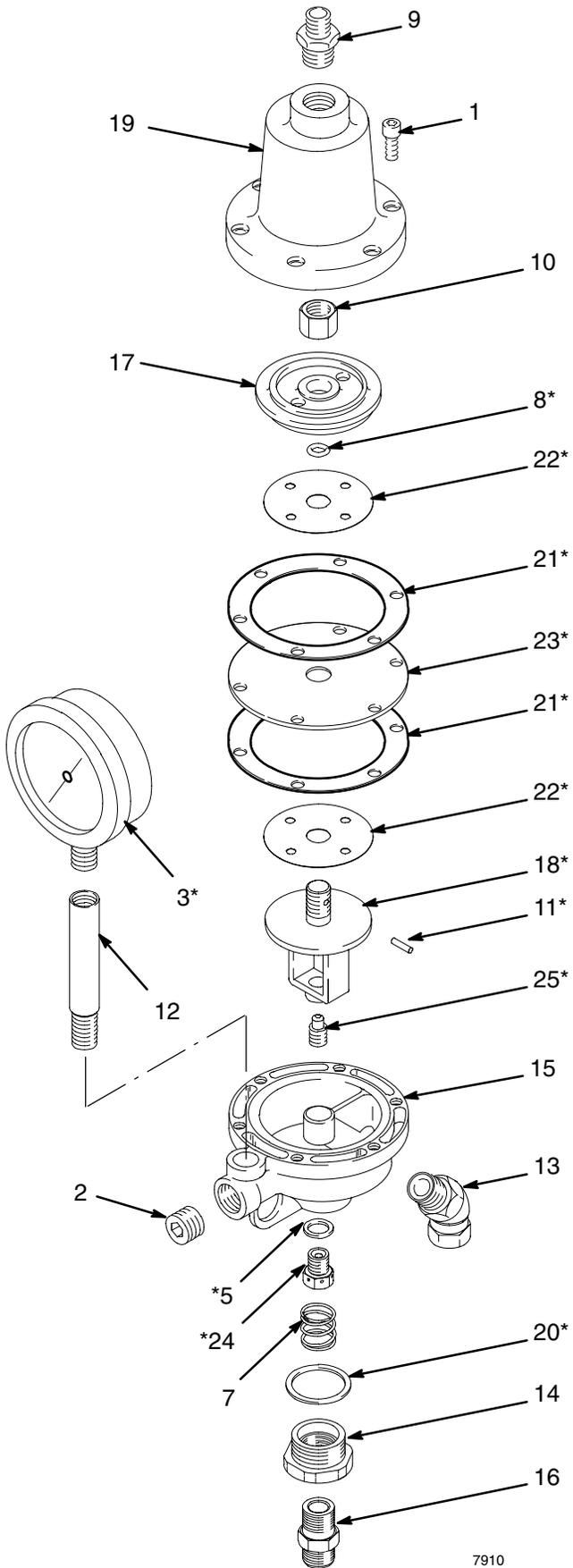
NOTE: Opposite holes (center line 1) must be parallel to yoke (Center line 2)



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Fig. 3

Parts

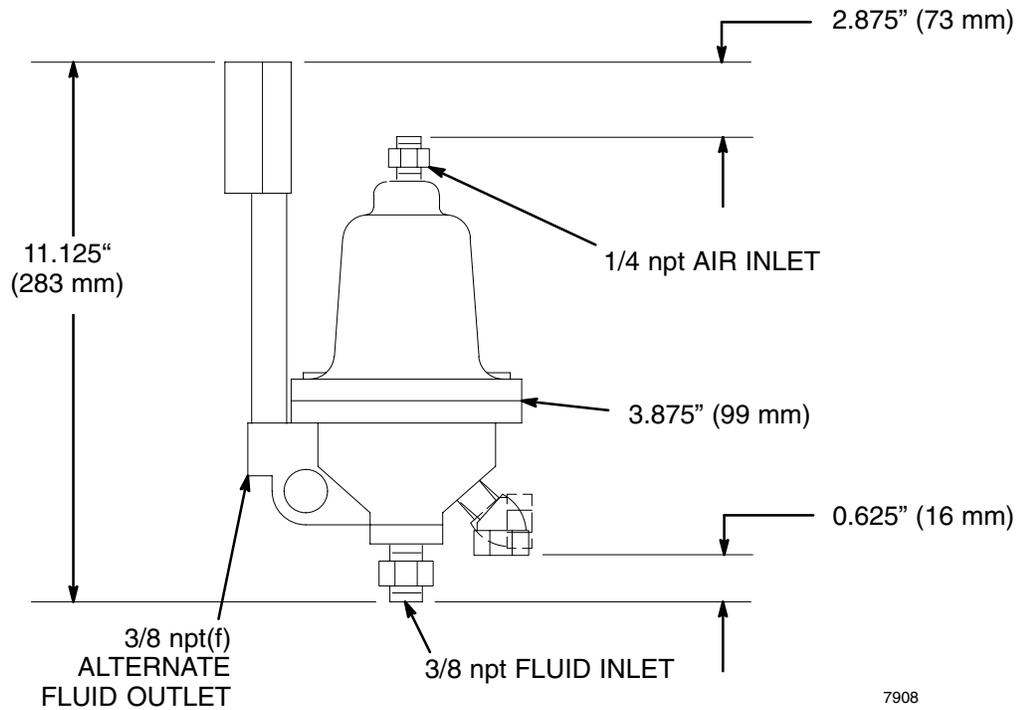


Ref No.	Part No.	Description	Qty.
1	101682	SCREW, soc hd cap; 1/4-20 x 5/8"	6
2	101754	PLUG, soc hdless pipe; 3/8 npt	1
3*	187875	GAUGE, fluid press; 0-30 psi (0-210 kPa, 0-2.1 bar)	1
5*	150670	GASKET, copper	1
7	105933	SPRING, helical compression	1
8*	157277	SEAL, o-ring	1
9	157350	NIPPLE, hex reducing; 3/8 x 1/4 npt	1
10	160741	NUT, diaphragm plate	1
11*	160742	PELLET, nylon locking	1
12	160745	TUBE, gauge mounting	1
13	161889	UNION, 45° swivel; 3/8 npt (m x f)	1
14	161357	BUSHING, fluid outlet	1
15	161358	HOUSING, fluid regulator	1
16	162485	NIPPLE, hex; 3/8 npt x 3/8 npsm	1
17	164864	PLATE, diaphragm	1
18*	164865	HANGER, diaphragm	1
19	166225	CAP, regulator	1
20*	171198	GASKET, acetal	1
21*	171912	GASKET, cellulose fiber	2
22*	171913	GASKET, cellulose fiber	2
23*	162202	DIAPHRAGM, mylar; 0.010" thick	1
24*	206523	SEAT, valve	1
25*	206920	STEM, valve	1

* Recommended tool box spare parts. Keep on hand to reduce down time.

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Dimensions



Technical Data

Category	Data
Maximum inbound fluid pressure	250 psi (1.8 MPa, 18 bar)
Maximum inbound air pressure	30 psi (210 kPa, 2.1 bar)
Regulated pressure range	0–30 psi (0–210 kPa, 0–2.1 bar)
Approx. maximum flow	0.75 gpm (2.8 lpm) with 100 centipoise fluid at 60 psi (410 kPa, 4.1 bar)
Air inlet	1/4 npt(m)
Fluid inlet	3/8 npt(f)
Fluid outlet	3/8 npsm(m)
Alternate fluid outlet (horizontal)	3/8 npt(f)
Weight	5 lb (0.9 kg)
Wetted parts	Tungsten carbide, Zinc, Stainless steel, Carbon steel, Nylon, Brass, Thiokol

Thiokol® is a registered trademark of the Thiokol Chemical Corporation.

Graco Standard Warranty

Graco warrants all equipment 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 the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the 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 makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

1-800-328-0211 Toll Free
612-623-6921
612-378-3505 Fax

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This manual contains English. MM 306813

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Revised 06/2009