

INSTRUCTIONS-PARTS LIST



307-066

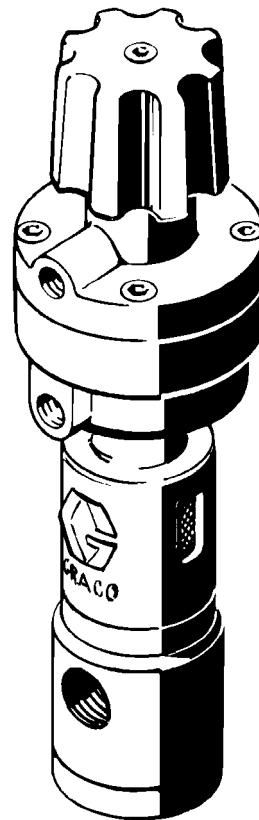
Rev. C
Supersedes B

This manual contains IMPORTANT
WARNINGS AND INSTRUCTIONS
READ AND RETAIN FOR REFERENCE

High Volume, High Pressure AUTOMATIC DISPENSING VALVE

1500 psi (105 bar) MAXIMUM WORKING FLUID PRESSURE
150 psi (10 bar) MAXIMUM INCOMING AIR PRESSURE

Model 208-424, Series B



WARNINGS

**HIGH PRESSURE SPRAY CAN CAUSE SERIOUS INJURY.
FOR PROFESSIONAL USE ONLY. OBSERVE ALL WARNINGS**
Read and understand all instruction manuals before operating equipment.

FLUID INJECTION HAZARD

General Safety

Fluids under high pressure from spray, leaks or ruptured components can penetrate the skin and cause extremely serious bodily injury, including the need for amputation.

NEVER point the dispensing valve at anyone or at any part of the body.

NEVER put hand or fingers over the fluid outlet.

ALWAYS follow the **Pressure Relief Procedure**, at right, before removing the valve from the system.

NEVER try to stop or deflect leaks with your hand or body.

Be sure all equipment safety devices are operating properly before each use.

Medical Alert – Airless Spray Wounds

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.** Tell the doctor exactly what fluid was injected.

Note to Physician: *Injection into the skin is a traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.*

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow this procedure whenever the pump is shut off, when checking or servicing any part of the system, when removing the dispensing valve and whenever you stop dispensing.

1. Turn off the air regulator to the pump.
2. Close the bleed-type master air valve (required in system).
3. Deactivate the bleed-type air solenoid valve.
4. Open the pump drain valve (required in system), having a container ready to catch the drainage.
5. Leave the drain valve open until you are ready to dispense again.

If you suspect the valve or hose is clogged or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen the hose end coupling and relieve pressure gradually, then loosen completely. Now clear the valve or hose obstruction.

HOSE SAFETY

High pressure fluid in the hoses can be very dangerous. If the hose develops a leak, split or rupture due to any kind of wear, damage or misuse, the high pressure spray emitted from it can cause a fluid injection injury or other serious bodily injury or property damage.

ALL FLUID HOSES MUST HAVE A SPRING GUARD ON BOTH ENDS! The spring guards help protect the hose from kinks or bends at or close to the coupling which can result in hose rupture.

TIGHTEN all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling.

NEVER use a damaged hose. Before each use, check the entire hose for cuts, leaks, abrasion, bulging cover, or damage or movement of the hose couplings. If any of these conditions exist, replace the hose immediately. DO NOT try to recouple high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

HANDLE AND ROUTE HOSES CAREFULLY. Do not pull on hoses to move equipment. Do not use fluids or solvents which are not compatible with the inner tube and cover of the hose. DO NOT expose Graco hose to temperatures above 180° (82° C) or below -40° F (-40° C).

Hose Grounding Continuity

Proper hose grounding continuity is essential to maintaining a grounded dispensing system. Check the electrical resistance of your air and fluid hoses at least once a week. If your hose does not have a tag on it which specifies the maximum electrical resistance, contact the hose supplier or manufacturer for the maximum resistance limits. Use a resistance meter in the appropriate range for your hose to check the resistance. If the resistance exceeds the recommended limits, replace it immediately. An ungrounded or poorly grounded hose can make your system hazardous. Also, read **FIRE OR EXPLOSION HAZARD**, below.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the equipment or accessories, such as overpressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, can cause them to rupture and result in fluid injection or other serious bodily injury, fire, explosion or property damage.

NEVER alter or modify any part of this equipment; doing so could cause it to malfunction and make it dangerous to operate.

CHECK all equipment regularly and repair or replace worn or damaged parts immediately.

Read and follow the fluid and solvent manufacturer's literature regarding the use of protective clothing and equipment.

System Pressure

This dispensing valve has a *MAXIMUM WORKING FLUID PRESSURE* of 1500 psi (105 bar) at 150 psi (10 bar) *MAXIMUM INCOMING AIR PRESSURE*. NEVER exceed the maximum working pressure of the valve or any other component or accessory used in the system.

FIRE OR EXPLOSION HAZARD

Static electricity is created by the high velocity flow of fluid through the pump and hose. If every part of the equipment is not properly grounded, sparking may occur. Sparks can ignite vapors from solvents and the fluid being pumped, dust particles and other flammable substances, whether you are dispensing indoors or outdoors, and cause a fire or explosion, serious bodily injury, and property damage. Sparks may also occur when plugging in or unplugging a power supply cord. Do not plug in or unplug any power supply cords in the dispensing area when there is any chance of igniting vapors still in the air.

If you experience any static sparking or feel even a slight shock while using this equipment, **STOP DISPENSING IMMEDIATELY**. Do not use the system again until the cause of the problem is identified and corrected.

Flushing Safety

Before flushing, be sure the entire system and flushing pails are properly grounded. Refer to **Grounding**, at right. Follow the **Pressure Relief Procedure** on page 2 before flushing. Use the lowest possible fluid pressure during flushing.

Grounding

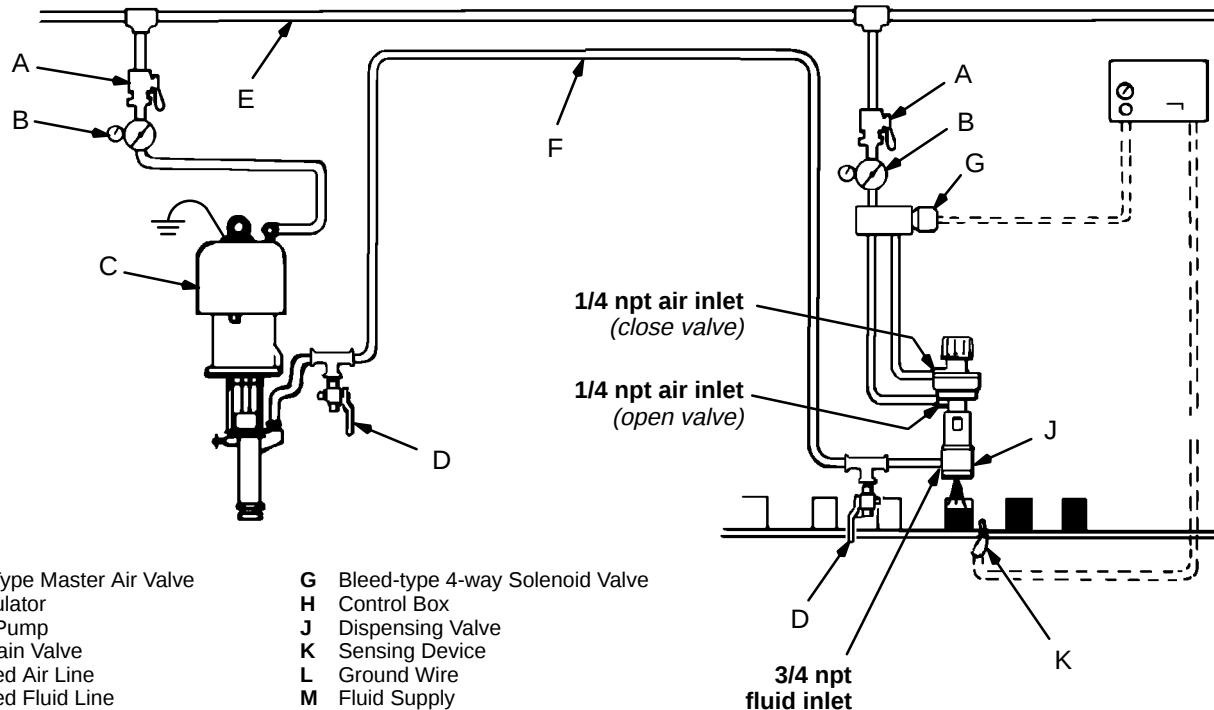
To reduce the risk of static sparking, ground the pump and all other equipment used or located in the dispensing area. CHECK your local electrical code for detailed grounding instructions for your area and type of equipment. Ground all of this equipment:

1. *Pump*: use a ground wire and clamp as instructed in your pump manual.
2. *Fluid and Air Hoses*: use only grounded hoses with a maximum of 500 feet (150 m) combined hose length to ensure grounding continuity. Refer to **Hose Grounding Continuity**.
3. *Air Compressor*: according to manufacturer's recommendations.
4. *Dispensing Valve*: obtain grounding through connection to a properly grounded fluid hose and pump.
5. *Fluid Supply Container*: according to local code.
6. *Container being dispensed into*: according to local code.
7. *All solvent pails used when flushing*, according to local code. Use only metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.

IMPORTANT

United States Government safety standards have been adopted under the Occupational Safety and Health Act. These standards – particularly the General Standards, Part 1910, and the Construction Standards, Part 1926 – should be consulted.

INSTALLATION



TYPICAL INSTALLATION DRAWING

General Information

The **TYPICAL INSTALLATION**, above, is only a guide for selecting and installing a metering system. Contact your Graco distributor for assistance in planning a system to suit your needs.

Reference numbers and letters in parentheses in the text refer to the illustrations.

Installation

NOTE: Install the accessories in the order shown in the Typical Installation Drawing.

1. Mount the control valve (J) in the desired location.
2. Install a bleed-type 4-way air solenoid valve (G) in the air supply line (E).
3. Install one air regulator (B) upstream of the air solenoid valve (G) and another air regulator upstream of the pump (C) to control air inlet pressure to the pump and solenoid valve.
4. Install one bleed-type master air valve (A) upstream of the air solenoid valve air regulator and another bleed-type master air valve upstream of the pump air regulator. Use the valves to relieve trapped air.

WARNING

Trapped air can cause the pump to cycle unexpectedly, which could result in serious bodily injury, including splashing in the eyes or on the skin or injury from moving parts.

The bleed-type master air valves (A) are required in your system to relieve air trapped between this valve and the pump or dispensing valve after the air regulators are closed.

The 4-way air solenoid valve (G) **MUST** be a bleed-type.

5. Connect *grounded* air lines from the solenoid valve to both 1/4 npt dispensing valve air inlets. (One air line opens the valve, the other closes it.)
6. Connect a *grounded* fluid supply line (F) to the 3/4 npt dispensing valve fluid inlet.
7. Install a fluid drain valve (D) near the pump fluid outlet and another drain valve near the dispensing valve fluid inlet. Use the valves to relieve fluid line pressure.

WARNING

The fluid drain valves (A) are required in your system to relieve pressure in the fluid hose (F). The drain valve reduces the risk of property damage or serious bodily injury, including splashing in the eyes or on the skin.

8. Ground the system as instructed on page 3.

WARNING

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow this procedure whenever the pump is shut off, when checking or servicing any part of the system, when removing the dispensing valve and whenever you stop dispensing.

1. Turn off the air regulator to the pump.
2. Close the bleed-type master air valve (required in system).
3. Deactivate the bleed-type air solenoid valve.
4. Open the pump drain valve (required in system), having a container ready to catch the drainage.
5. Leave the drain valve open until you are ready to dispense again.

If you suspect the valve or hose is clogged or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen the hose end coupling and relieve pressure gradually, then loosen completely. Now clear the valve or hose obstruction.

Prime the System

Refer to your pump instruction manual. Be sure to eliminate all air from the fluid lines to prevent fluttering or spitting spray.

Adjust the Flow Rate

1. Place a waste container under the dispensing valve outlet.
2. Activate the system.

3. With the dispensing valve open, adjust the pump to the minimum speed required to give the dispensing valve the proper flow rate. The dispensing valve **MUST** have a *minimum* of 50 psi (3.5 bar) air pressure to operate properly.
4. If the dispensing valve leaks at the outlet after it is closed, turn the adjustment knob (13) *clockwise* until the leaking stops, or increase the air pressure to close the valve, but **DO NOT** exceed 150 psi (10 bar) air pressure.

WARNING

NEVER exceed 150 psi (10 bar) air supply pressure to the dispensing valve. Higher pressures could cause the valve to rupture and result in serious bodily injury and property damage.

WARNING

NEVER remove the dispensing valve adjustment knob (13) when there is air or fluid pressure to the valve! The spring under the knob is under great tension when the valve is pressurized and it could propel out of the valve if the knob was removed, resulting in serious bodily injury. ALWAYS follow the **Pressure Relief Procedure**, at left, before removing the adjustment knob.

Set the Cycle Length

Calculate a trial setting for your control box (H) based on your pump's performance. Adjust the control box setting until you find the proper cycle length.

NOTE: The Graco Adjust-A-Stroke® is available for precise metering. See **ACCESSORIES**.

Shut Down the System

Shut down the system by following the **Pressure Relief Procedure** at left.

WARNING

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow the **Pressure Relief Procedure**, on page 5, whenever the pump is shut off, when checking or servicing any part of the system, when removing the dispensing valve and whenever you stop dispensing.

Disassembly

1. Follow the **Pressure Relief Procedure Warning**, on page 5.
2. Disconnect all air and fluid lines from the dispensing valve, and remove the valve from its mounting.
3. Unscrew the adjustment knob (13) to release spring (3) tension. Slide a 1/4 in. diameter rod through the opening in the piston housing (15) to hold the spring.
4. Insert a hex key wrench through the fluid outlet and unscrew the needle retaining screw (1).
5. Continue with the following instructions for repairing the **Needle, Seat, and Packings** and/or the **Air Piston, Springs, and Seals**.

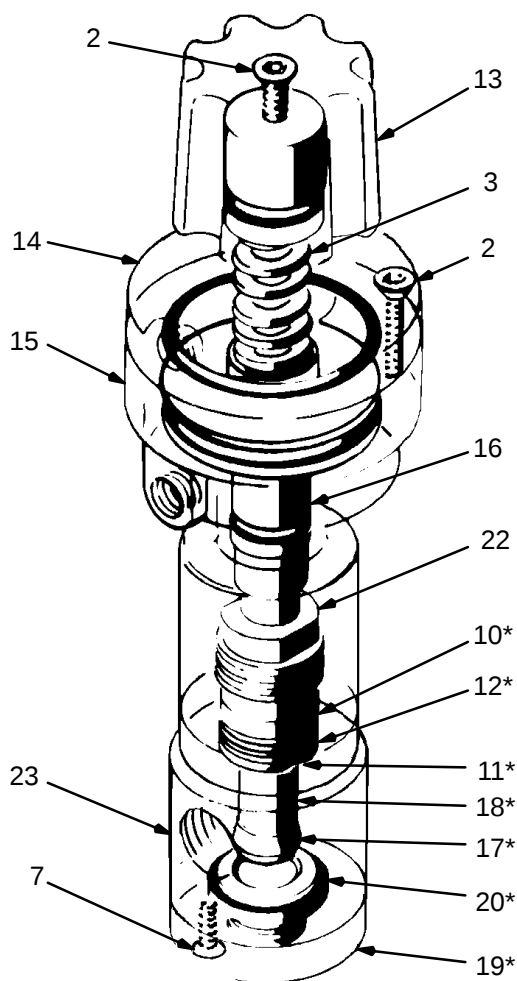
Needle, Seat, and Packings

1. Unscrew the valve housing (23) from the piston housing (15). See Fig 1. Remove the 1/4 in. dia. rod.
2. Unscrew the packing nut (22). Pull out the valve stem (18) and remove packings (12) and glands (10,11).
3. Remove the valve tip (17) through the fluid inlet.
4. Unscrew the seven screws (7) holding the valve plate (19). Remove the valve plate, valve seat (20) and o-ring (6).
5. Clean and inspect all parts, replacing them as needed. The valve seat (20) is reversible and can be turned over if one side is worn.
6. Lubricate the glands (10, 11) and packings (12) with light, waterproof grease. Install them through the top of the valve housing (23). BE SURE the lips of the v-packings face *DOWN* in the housing.
7. Screw the valve housing (23) onto the piston housing (15).
8. Install the valve tip (17) and needle retaining screw (1).

9. Lubricate the o-ring (6). Install the o-ring, valve seat (20), and valve plate (19).
10. Install the screws (7). Torque them to 100 in-lb (11.3 N•M).

Air Piston, Springs, and Seals

1. Remove the screws (2) and spring housing (14) from the piston housing (15).
2. Remove the spring (3), and gently push the piston (16) out.
3. Clean and inspect all parts. Check the four o-rings (4, 5, 8, 9) for cracks or wear. Replace the parts as needed.
4. Lubricate all parts and reassemble the dispensing valve.

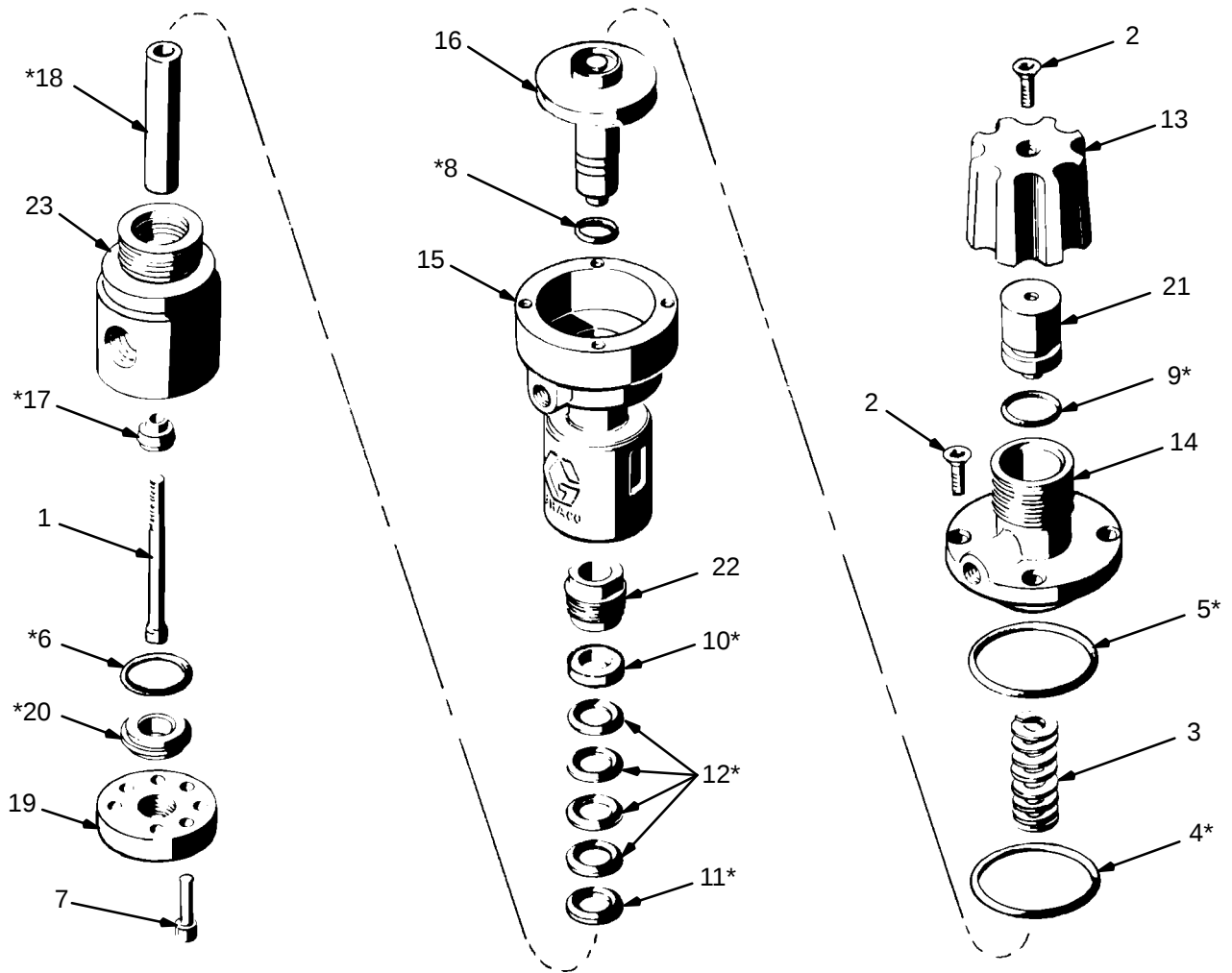


NOTE: Torque all screws to 100 in-lb (11.3 N•m)

Fig 1

PARTS DRAWING

Automatic Dispensing Valve Model 208-424, Series B



PARTS LIST

REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	103-262	CAP SCREW, soc hd; 5/16-18 x 3-1/2"	1	16	169-764	PISTON	1
2	103-263	SCREW, mach, oval hd; 1/4-20 x 3/4	5	17*	169-765	TIP, valve	1
3	103-264	SPRING, compression	1	18*	169-766	STEM, valve	1
4*	103-265	O-RING, nitrile rubber	1	19*	169-767	PLATE, valve	1
5*	103-266	O-RING, nitrile rubber	1	20*	169-768	SEAT, valve	1
6*	103-341	O-RING, Teflon®	1	21	169-769	GUIDE, spring	1
7	103-345	CAP SCREW, soc hd; 1/4-20 x 1-1/4	7	22	169-770	NUT, packing	1
8*	155-332	O-RING, nitrile rubber	1	23	169-771	HOUSING, valve	1
9*	160-516	O-RING, nitrile rubber	1				
10*	179-979	GLAND, female	1				
11*	179-980	GLAND, male	1				
12*	164-55	V-PACKING, Teflon	4				
13	169-761	KNOB, adjustment	1				
14	169-762	HOUSING, spring	1				
15	169-763	HOUSING, piston	1				

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

Order parts by name and series letter of the assembly for which you are ordering.

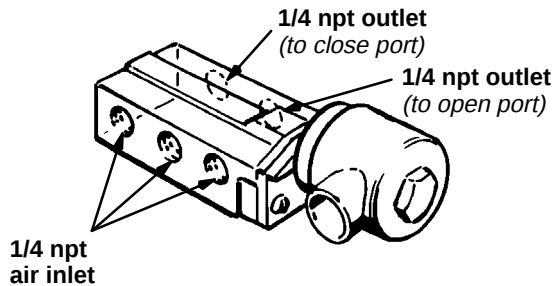
SERVICE INFORMATION: The manual was revised to change the series letter on the cover from A to B.

ACCESSORIES

Accessories must be purchased separately.
Use only **GENUINE GRACO PARTS AND ACCESSORIES**.

4-WAY AIR SOLENOID VALVE 103-342

150 psi (10 bar) MAXIMUM WORKING PRESSURE
Bleed-type, 1/4 npt air inlet and outlet ports



ADJUST-A-STROKE®

Controls pump stroke travel to convert a fluid displacement pump into a positive metering cylinder

210-514 For Monark® and Fire-Ball® Pumps

210-515 For President™ Pumps

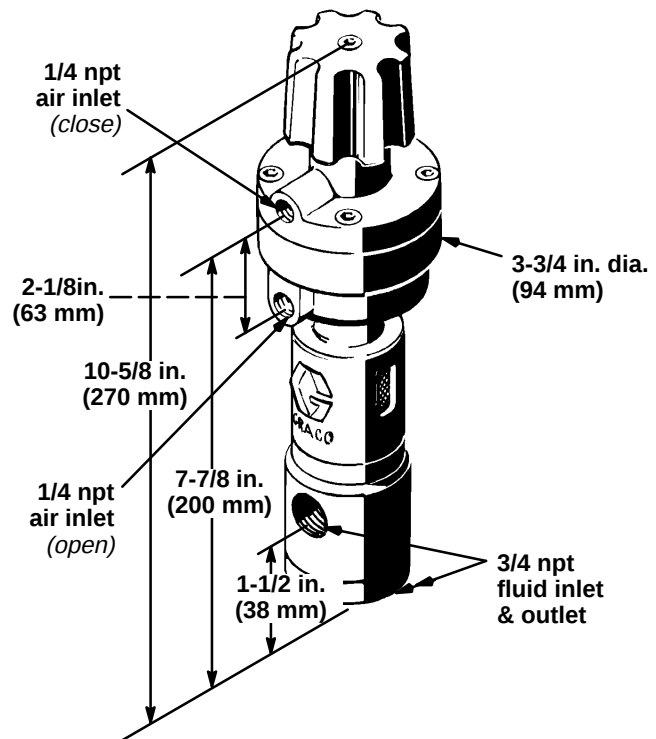
210-516 For Sanitary Monark Pumps

210-302 Bulldog® Adjust-A-Stroke Air Motor

925-356 King® Adjust-A-Stroke Air Motor for use with drum length pumps only; special order

ADJUST-A-STROKE COUNTER 212-093

DIMENSIONAL DRAWING



THE GRACO WARRANTY AND DISCLAIMERS

WARRANTY

Graco warrants all equipment manufactured by it 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. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven 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, 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 with Graco equipment of 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.

DISCLAIMERS AND LIMITATIONS

THE TERMS OF THIS WARRANTY CONSTITUTE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND ARE IN LIEU OF ANY OTHER WARRANTIES (EXPRESS OR IMPLIED), INCLUDING WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY NON-CONTRACTUAL LIABILITIES, INCLUDING PRODUCT LIABILITIES, BASED ON NEGLIGENCE OR STRICT LIABILITY. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS IS EXPRESSLY EXCLUDED AND DENIED. IN NO CASE SHALL GRACO'S LIABILITY EXCEED THE AMOUNT OF THE PURCHASE PRICE. ANY ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS OF THE DATE OF SALE.

EQUIPMENT NOT COVERED BY GRACO WARRANTY

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO ACCESSORIES, EQUIPMENT, MATERIALS, OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motor, 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.

Factory Branches: Atlanta, Chicago, Dallas, Detroit, Los Angeles, West Caldwell (N.J.)

Subsidiary and Affiliate Companies: Canada; England; Switzerland; France; Germany; Hong Kong; Japan

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441

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