Instructions-Parts

AIR-OPERATED

1/2 in. NPT Fluid Port Ball Seat Applicator

310550D

EN

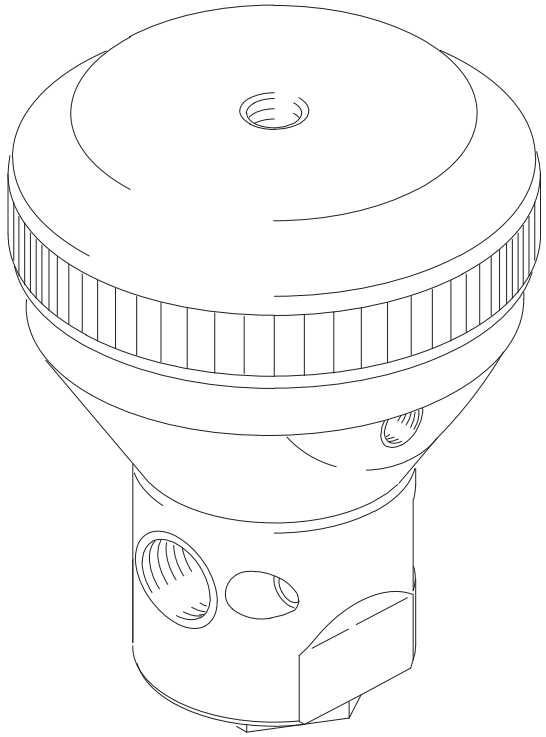
For controlling the material flow of adhesives, sealants, and other materials that are compatible with the wetted parts of the applicator. For professional use only.

Part No. 918537, Series C

1/2 in. Port Ball Seat Applicator

5000 psi (34.5 MPa, 345 bar) Maximum Working Pressure

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



PROVEN QUALITY. LEADING TECHNOLOGY.

Contents

Part Number

Part No.	Description	Series	Maximum Working Pressure	Approval
918537	Applicator, Ball Seat, 1/2 in. Port	Series C	5000 psi (34.5 MPa, 345 bar)	CE

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

TOXIC FLUID OR FUMES HAZARD

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

- Read Safety Data Sheet (SDS) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.
- When spraying, servicing equipment, or when in the work area, always keep work area well ventilated and always wear appropriate personal protective equipment. See **Personal Protective Equipment** warnings in this manual.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

SKIN INJECTION HAZARD

High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not point dispensing device at anyone or at any part of the body.
- Do not put your hand over the fluid outlet.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.

⚠ WARNING

MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power cord before servicing equipment.
- Connect only to grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on power and extension cords.
- Do not expose to rain. Store indoors.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

PERSONAL PROTECTIVE EQUIPMENT

Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury and hearing loss. This protective equipment includes but is not limited to:

- A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority.
- Protective eyewear and hearing protection.

Setup

Grounding

The following grounding instructions are minimum requirements for a basic dispensing system. Your system may include other equipment or objects that must be grounded.

System equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

Check your local electrical code for detailed grounding instructions for your area and type of equipment. Your system must be connected to a true earth ground.

Pump: connect a ground wire and clamp to a true earth ground as shown in the separate pump manual.

Applicator: ground the applicator by connecting it to a properly grounded fluid hose and pump.

Air and fluid hoses: use only electrically conductive hoses with a maximum of 500 ft. (150 m) combined hose length to ensure grounding continuity. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megohms, replace hose immediately.

Air compressor: follow manufacturer's recommendations.

Spray gun / Dispense valve: ground through connection to a properly grounded fluid hose and pump.

Fluid supply container: follow local code.

Object being sprayed: follow local code.

Solvent pails used when flushing: follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts grounding continuity.

To maintain grounding continuity when flushing or relieving pressure: hold the metal part of the spray gun/dispense valve firmly to the side of a grounded metal pail, then trigger the gun/valve.

Installation

NOTE: Read this manual thoroughly before installing the applicator.

The applicator has a mounting slot with two tapped holes, making it ideal for use in robotic equipment or multiple-manifold, high-production operations.

Refer to **Parts** on page **10** while performing the following procedure to install the applicator.

1. Inspect the applicator for shipping damage. If damage is found, notify the carrier immediately.
2. Attach the applicator to its mounting fixture using two 1/4 in. sockethead cap screws. Mount the applicator in the 0.76 in. mounting slot of the applicator body (2).

NOTICE

Only use air fittings that are rated at a temperature equal to or higher then the operating temperature of your fluid dispensing system. Lower rated air fittings could melt and cause damage to the applicator.

3. Connect the air lines to the applicator as follows:
   a. Connect the air line to the 1/4 in. NPT(f) air-to-open air inlet in the applicator body (2)
   b. Connect the air line to the 1/4 in. NPT(f) air-to-close air inlet in the cylinder cap (1) on the applicator body (2).
4. Connect the fluid line to the 1/2 in. NPT(f) fluid inlet in the applicator body (2).
5. Check each fitting for firmness to avoid pressure leakage from the applicator.

Operation

Pressure Relief Procedure

Follow the Pressure Relief Procedure whenever you see this symbol.

System equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

This procedure describes how to relieve pressure from the applicator. Follow the **Pressure Relief Procedure** described in the instruction manual for the system you are using to relieve pressure for the entire system. Use this procedure whenever you shut off the applicator and before checking or adjusting any part of the system to reduce the risk of serious injury.

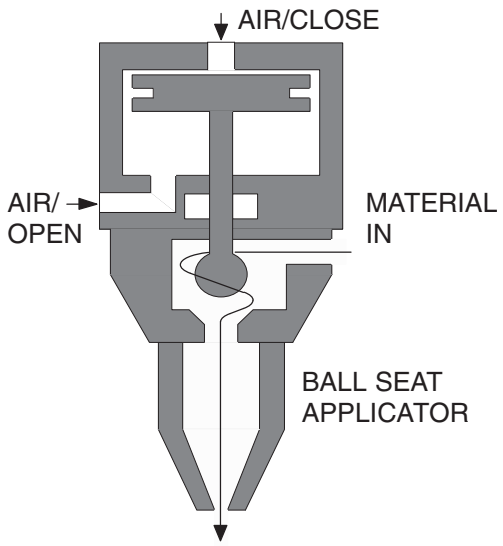
1. Shut off the material supply.
2. Close all of the air bleed valves to shut off the air supply to the applicator.
3. Actuate the applicator repeatedly until no fluid flows. Have a container ready to catch the drainage from the applicator.
4. If the applicator nozzle or fluid hose is completely clogged of if pressure has not been fully relieved after following the preceding steps, very slowly loosen the ball seat applicator (6) from the applicator body (2) or hose coupling and relieve pressure gradually; then loosen completely. Clear the nozzle or hose. See **Parts** on page **10**.

How the Applicator Operates

The 1/2 in. ball seat applicator has a 60:1 power ratio. The applicator uses the air-opened, air-closed mode of operation to control the piston inside the applicator. The ball seat applicator has two 1/2 in. NPT fluid ports. The fluid inlet port is the supply port for feeding material into the applicator. The fluid outlet port dispenses material from the applicator through a dispense nozzle in regulated amounts.

The air-operated piston and ball needle move at the same time. When air lifts the piston and ball needle from its seat, it opens the fluid outlet port. Material can be pumped into the applicator and dispensed from the applicator when the fluid outlet port is open.

When air pushes the piston and ball needle down into the seat, it closes the fluid outlet port. No material can be pumped into the applicator or flow from the applicator when the fluid outlet port is closed.



Adjusting the Applicator

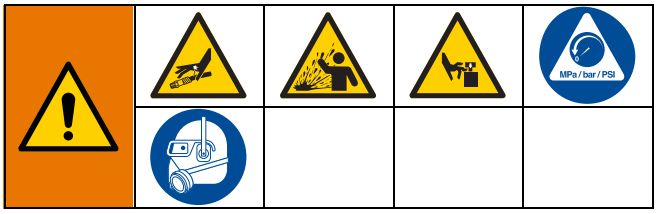
There are no adjustments for the ball seat applicator. If fluid begins to discharge, drip, string, or weep irregularly from the fluid inlet port, the applicator may require cleaning, servicing, or replacement.

A repair kit is available to service the applicator. See **Parts** on page **10** for information. For best results, replace the original parts with the new parts in the repair kit.

Applicator Inspection Frequency

Inspect the applicator, material, and air hoses at least once every two weeks, specifically for leakage and other visible damage.

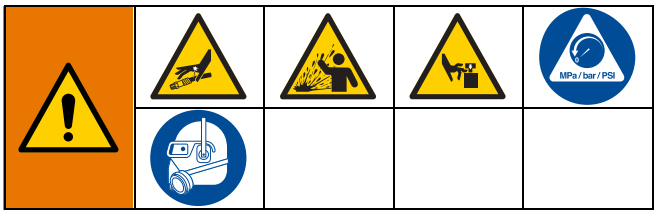
Troubleshooting



1. Some solutions require disassembling the applicator. Follow the **Pressure Relief Procedure** on page **6** before checking or repairing the applicator.
2. Check all possible problems and causes before disassembling the applicator.
3. Refer to **Parts** on page **10** for the parts that require service or replacement.

Problem	Cause	Solution
Applicator fails to open or close as required.	The actuating air line is leaking or is improperly connected.	Check the air line connections.
	Material or debris in the applicator is blocking needle movement.	Check the applicator interior for materials or debris impeding the needle movement. Remove the impeding material.
	Worn o-rings.	Replace the piston o-rings.
Air leaks from the applicator	Loose air connections.	Check the air connections.
	Worn o-rings.	Replace the o-ring applicator body.
Material leaks from the front of the applicator	Worn needle seat.	Replace the seat.
	An obstruction inside the applicator.	Remove the seat adapter. Check and replace it if necessary.
	Worn needle.	Check and replace the needle if necessary.
Material leaks from the applicator body	The seal is not installed correctly.	Check the seal and replace it if necessary.
	Worn seal.	

Service



Preparing to Service the Applicator

NOTE: Some fluid material in the applicator may thicken or cure when cooled to room temperature or when exposed to air. If you are working with this type of material, service the applicator while the material is uncured or at a temperature where it is soft enough to work with.

Perform this procedure before servicing the applicator.

1. Relieve the system pressure. Follow the **Pressure Relief Procedure** on page **6**.
2. Be sure the material flow has been shut off.
3. Be sure the system air has been shut off.

Disassembly - 918537, Series C

Refer to **Parts** on page **10**. while performing the following procedure to disassemble the applicator.

1. Remove and keep the warning tag (19, not shown) for reattachment.
2. Hold the applicator in a bench vise by the 3.00 in. flats on the applicator body (2). Unscrew and remove the cylinder cap (1). A strap wrench may be required.
3. Remove the body from the vise. Using wrenches, unscrew and remove the ball seat (6) and o-ring (16) from the fluid body (3).
4. Insert a rod or 5/32 in. Allen wrench through the hole at the ball end of the needle assembly (15). Unscrew and remove the cap screw (8) and lockwasher (9) from the needle assembly.
5. Insert the rod or 5/32 in. Allen wrench through the tapped hole in the center of the piston (11) and push the needle assembly (15) through the seal (14) and remove it from the fluid body (3).
6. Hold the fluid body (3) in the bench vise by the 1.75 in. flats. Unscrew and remove the applicator body (2). A strap wrench or 3 in. open end wrench may be required.
7. Use a rod or 5/16 in. Allen wrench to push the piston (11) out of the applicator body (2).
8. Remove the o-ring (10) from the piston (11).
9. Remove the o-ring (12) from the applicator body (2).
10. Push the needle bearing (13) and needle seal (14) out of the fluid body (3).

Assembly - 918537, Series C

Refer to **Parts** on page **10**. while performing the following procedure to assemble the applicator.

NOTE: Repair kit 918538 is available to service the applicator. For the best results, replace the original parts with the new parts in the repair kit.

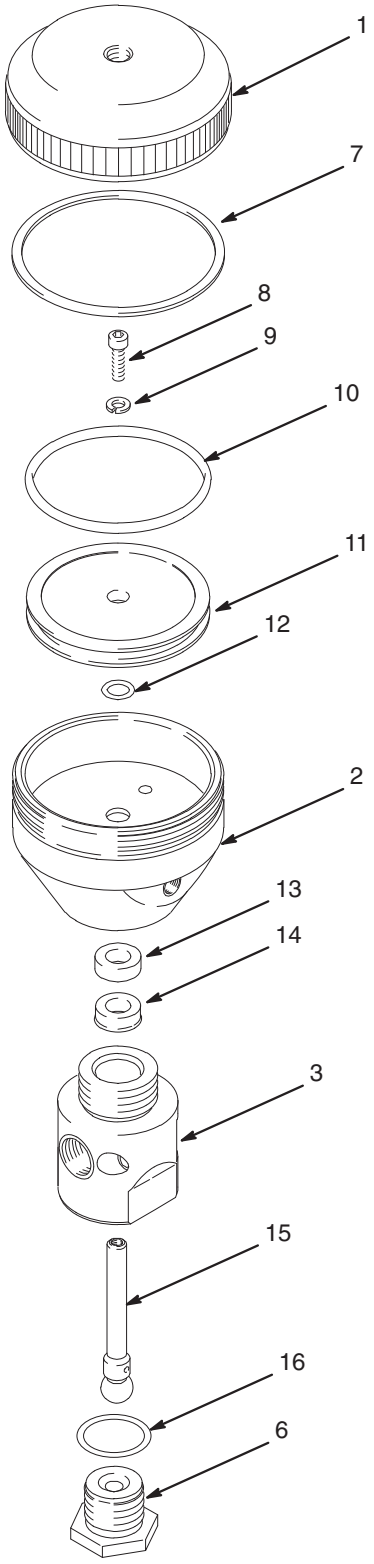
Prior to installation, lubricate all seals and o-rings with a barium-base petroleum grease. Check with the material supplier for a chemically compatible lubricant.

1. Be sure all parts are free of solid material residue.
2. Install the needle seal (14) and needle bearing (13) into the fluid body.
3. Install the o-ring (12) in the applicator body (2).
4. Hold the fluid body (3) in a bench vise by the 1.75 in. flats. Assemble the applicator body (2) onto the fluid body (3).

5. Push the needle assembly (15) carefully through the seal (14) and bearing (13).
6. Install the o-ring (10) onto the piston (11).
7. Install the piston (11) in the applicator body (2).
8. Apply blue anaerobic sealant (18) to the threads of the cap screw (8).
9. Assemble the piston (11) to the needle assembly (15) with the cap screw(8) and lockwasher(9).
10. Install the o-ring (16) onto the ball seat (6).
11. Screw the ball seat (6) into the fluid body (3).
12. Install the cap gasket (8) in the cylinder cap (1).
13. Screw the cylinder cap (1) onto the applicator body (2).
14. Reattach the warning tag (19, not shown).

NOTE: Series A and B applicators used a gasket sealing seat (6, 16) that was attached to the housing (3). The change to Series C removed the gasket and replaced it with an o-ring (16). See the Series C drawing in **Parts** on page **10**. The gasket is no longer available. The new seat (6) and o-ring (16) are both required when replacing the gasket.

Parts



Part No. 918537, Series C

Ref	Part	Description	Qty
1	---	CAP, cylinder, 3.50 diameter	1
2	---	BODY, application, 1/2 port	1
3	---	BODY, fluid, 1/2 port	1
6	617659	SEAT, applicator, ball	1
7	---†	GASKET, cap, 3.50 diameter	1
8	C19802	SCREW, shc, 1/4-20 x 0.75	1
9	---	WASHER, lock, ext tooth, 1/4	1
10	---†	O-RING, -338 FKM	1
11	---	PISTON, applicator, 3.50 diameter	1
12	---†	O-RING, -204, FKM	1
13	---†	BEARING, needle, 0.375 inside diameter	1
14	---†	SEAL, needle, 0.375 inside diameter	1
15	---†	NEEDLE BALL ASSEMBLY, 0.375 diameter	1
16	---†	O-RING, seat, 1/2 in. port	1
18	070269*	SEALANT, anaerobic	A/R
19	172479▲*	TAG, warning/instruction	1

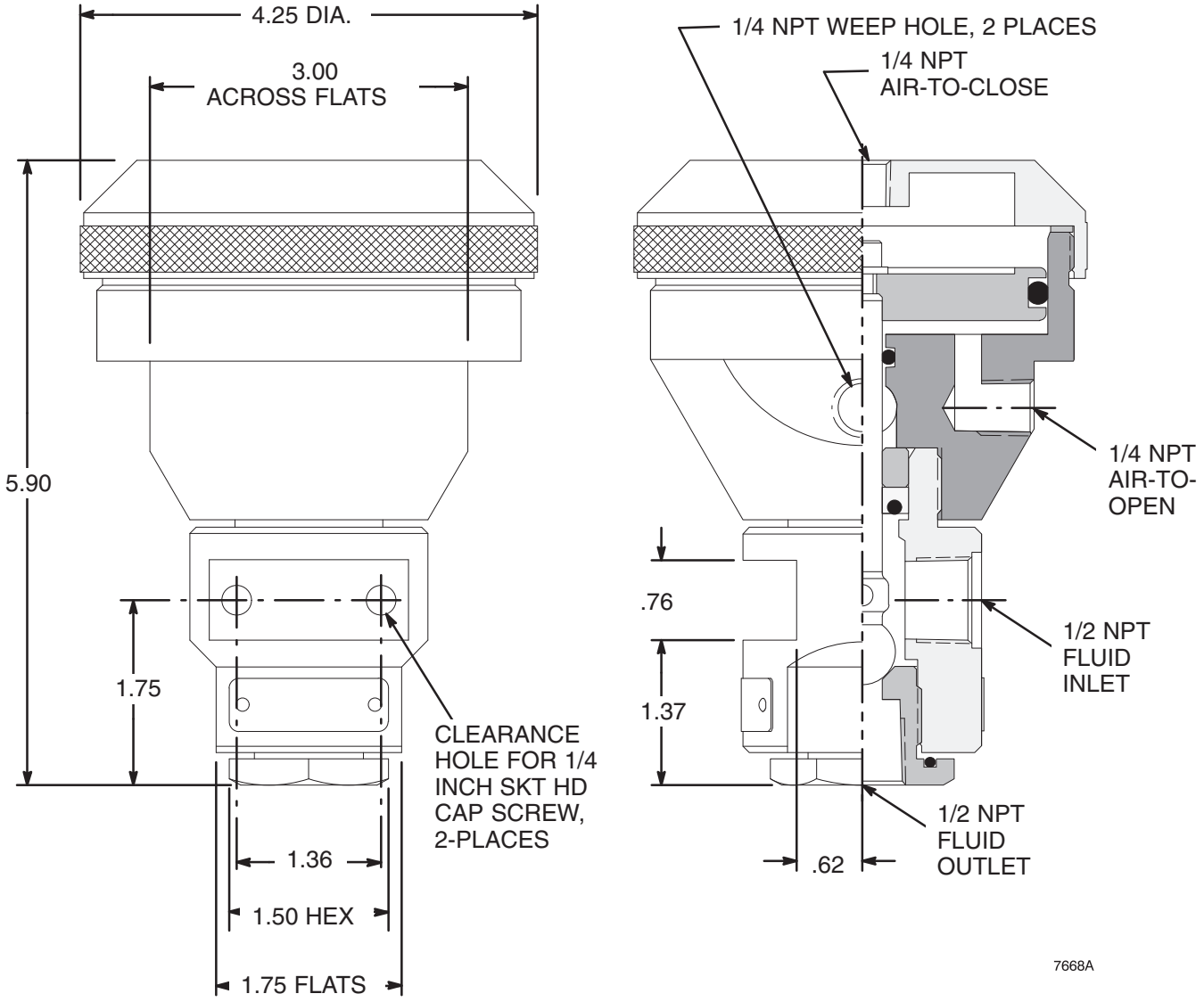
--- *Not available for individual sale.*

† *Parts are available in repair kit 918538, which can be purchased separately.*

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

* *Not shown on the parts illustration.*

Dimensions



Technical Specifications

1/2 in. Port Ball Seat Applicator		
	US	**Metric**
Maximum fluid working pressure	5000 psi	35.5 MPa, 345 bar
Maximum operating air pressure	150 psi	1.03 MPa, 10.3 bar
Maximum operating temperature	275°F	135°C
Applicator weight	6.1 lb.	2.8 kg
Wetted parts	Carbon steel, tungsten carbide, chrome plate, fluoroelastomer rubber, thermoplastic polyester	

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 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.

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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.

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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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For patent information, see www.graco.com/patents.

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

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Original instructions. This manual contains English. MM 310550
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