

iQ Dispense Valves

333585B

EN

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

Not approved for use in explosive atmospheres or hazardous (classified) locations.

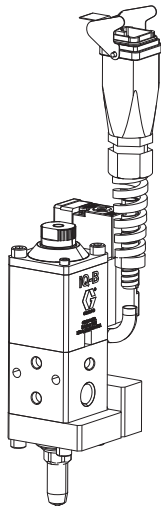
4000 psi (28 MPa, 276 bar) Maximum Working Pressure
120 psi (0.14 MPa, 1.4 bar) Maximum Air Pressure

See page 3 for model information.

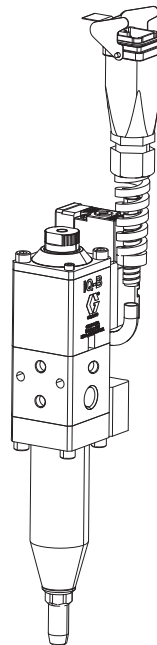


Important Safety Instructions

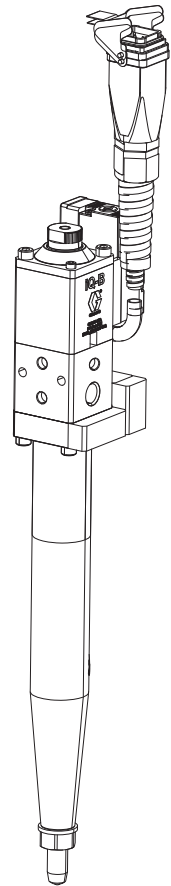
Read all warnings and instructions in this manual before using the equipment.
Save these instructions



V25FB000BB



V25FB060BB



V25FB200BB



Contents

Models	3	Parts	25
4000 psi (28 MPa, 276 bar) Maximum Working Pressure	3	Tip Seal Dispense Valves	25
5000 psi (34.5 MPa, 345 bar) Maximum Working Pressure	3	Ball-Seat Dispense Valves	27
Warnings	4	Snuff-Back Seal Dispense Valves	29
Component Identification	7	Air Section	31
Ball-Seat and Tip Seal Dispense Valves	7	Heater Assembly Parts	33
Snuff-Back Dispense Valve	8	Valve Mounted Solenoid	34
Heater Assembly	9	1/4 in. NPT Valve Repair Kits	34
Theory of Operation	10	Accessories	35
Valve Types	10	Pressure Transducer Adapter, 25R640	35
Installation	11	Heat Block Spacer, 25R642	35
Grounding	11	Vision Adapter Kit, 25R650	35
Flush Before Using Equipment	11	Seal Assembly Tool, 25R643	35
Install Dispense Valve	11	Seal Installation Tool, 25R644	35
Adjust Stroke	12	Swivel Fitting, 130995	35
Pressure Relief Procedure	13	Remote Solenoid Kit, 25R668	36
Maintenance	14	Grease Zerk Fitting, 130883	36
Factors Affecting Valve Life	14	Grease Plug, 136249	36
Recycling and Disposal	15	Solenoid Valve Actuation Cable, 25R781	36
End of Product Life	15	Solenoid Valve Actuation Cable, 25R799	36
Troubleshooting	15	Seal Kit, 26A861	37
Repair	17	Seal Kit, 25B302	37
Disconnect Air Section	17	Pressure Transducer, 15M669	37
Connect Air Section	17	Dimensions and Mounting	38
Fluid Section Repair	17	Tip Seal Dispense Valve	38
Replace U-Cup Cartridge, Fluid Section O-rings, and Tip Assembly	18	Ball-Seat and Snuff-Back Dispense Valves	39
Air Section Repair	20	Heat Assembly	40
Replace RTD Sensor and Heater Cartridges	24	Wiring Diagrams	41
		Electric Housing Wiring Diagram	41
		Technical Specifications	42
		California Proposition 65	43
		Graco Standard Warranty	44

Models

4000 psi (28 MPa, 276 bar) Maximum Working Pressure

NOTE: The Heated option for the iQ Valves is for warm melt applications with a maximum temperature of 70° C (158° F).

Check the identification plate on the valve for the ten-digit part number of the valve. Use the following matrix to define the construction of the valve, based on the ten digits. For example, Part No. **V25AB060BA** represents a valve (**V**) with 1/4 in. NPT inlet ports (**25**), 1/4 in. NPT inlet ports (**A**), ball-seat type (**B**), 60 mm outlet block length (**060**), valve mounted solenoid (**B**), non-heated (**A**).

First Digit	Second and Third Digit		Fourth Digit		Fifth Digit		Sixth, Seventh, and Eighth Digit		Ninth Digit		Tenth Digit	
	Size		Tip Size		Type		Outlet Block Length		Action		Heat	
V	25	1/4 in. NPT	A	1/4 in. NPT	B	Ball-Seat	000	0 mm	B	Valve Mounted Solenoid	A	None
			C	0.6 mm	S	Snuff-Back	060	60 mm	D	*Remote Solenoid Block	B	Heated Maximum 70° C
			D	1.0 mm	T	Tip Seal	200	200 mm				
			F	1.3 mm								
			G	1.7 mm								

* Remote solenoid can be purchased as an accessory or supplied by customer. See **Accessories** on page 36.

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

25R843: 1/4 in. NPT inlet ports, 1/4 in. NPT outlet port, ball-seat, 000 outlet block length, valve mounted solenoid, non-heated.








25R844: 1/4 in. NPT inlet ports, 1/4 in. NPT outlet port, ball-seat, 000 outlet block length, remote solenoid block, non-heated.

***25R843:** Include stainless steel fluid housings.








***25R844:** Include stainless steel fluid housings.

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.

 <h2 style="margin: 0;">WARNING</h2>	
    	<p>SKIN INJECTION HAZARD</p> <p>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.</p> <ul style="list-style-type: none"> • 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.
	<p>BURN HAZARD</p> <p>Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment.

WARNING

   	<p>FIRE AND EXPLOSION HAZARD</p> <p>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:</p> <ul style="list-style-type: none"> • 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.
 	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment. • Connect only to grounded power source. • All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

WARNING

 	<p>EQUIPMENT MISUSE HAZARD Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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 Specifications in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications in all equipment manuals. Read fluid and solvent manufacturer’s warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer. • Do not leave the work area while equipment is energized or under pressure. • 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.
	<p>PERSONAL PROTECTIVE EQUIPMENT Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Component Identification

Ball-Seat and Tip Seal Dispense Valves

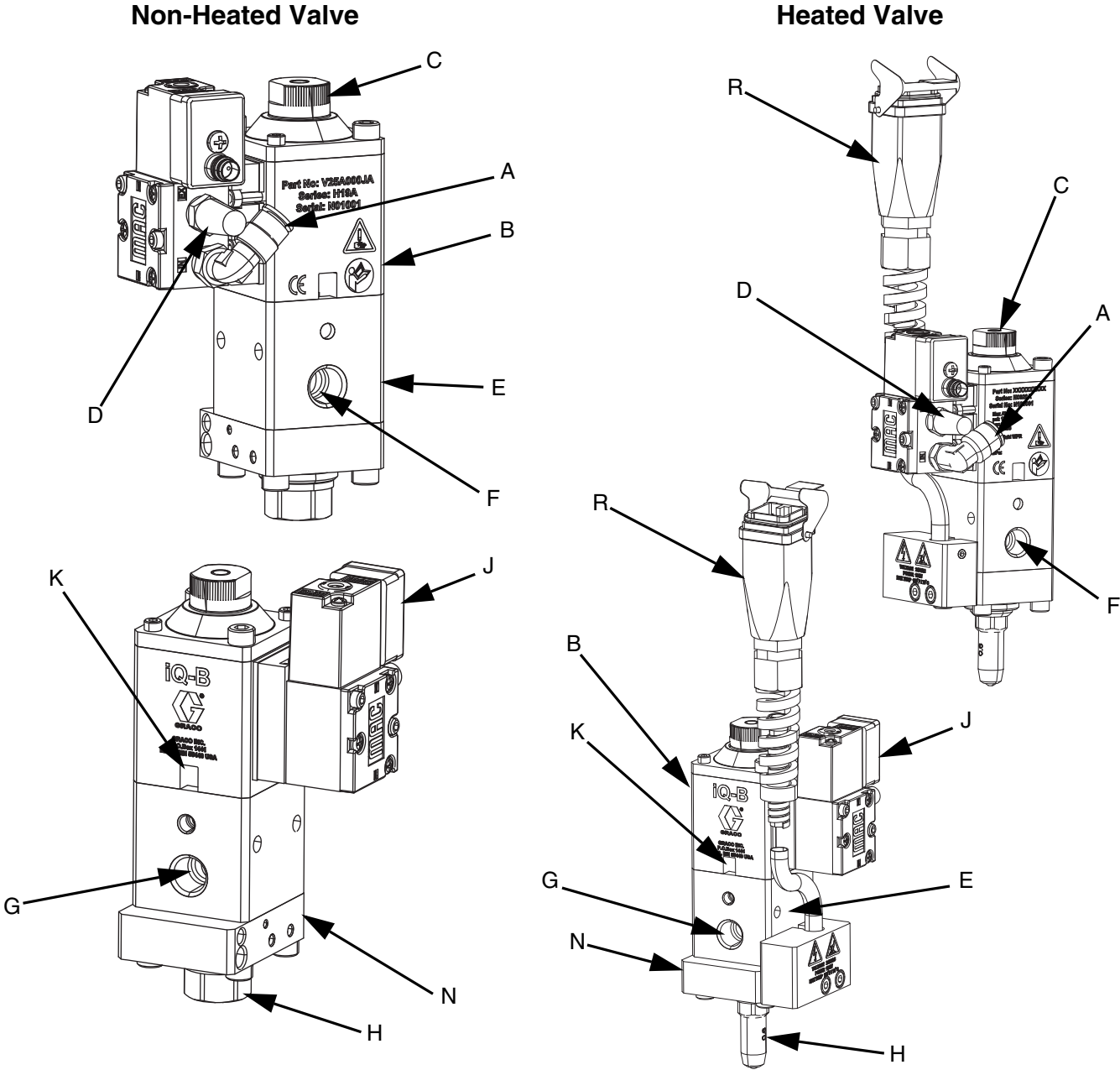


FIG. 1: Ball-Seat and Tip Seal Dispense Valve

Key:

- A Air Fitting, 1/8" NPT male x 5/16" (8 mm) tube
- B Air Section
- C Adjustment Nut
- D Muffler
- E Fluid Housing
- F 1/4" NPT Material Inlet Port
- G Additional 1/4" NPT Inlet Port
- H Valve Tip
- J Solenoid
- K Weep Hole
- N Outlet Block
- R Heater Assembly

Snuff-Back Dispense Valve

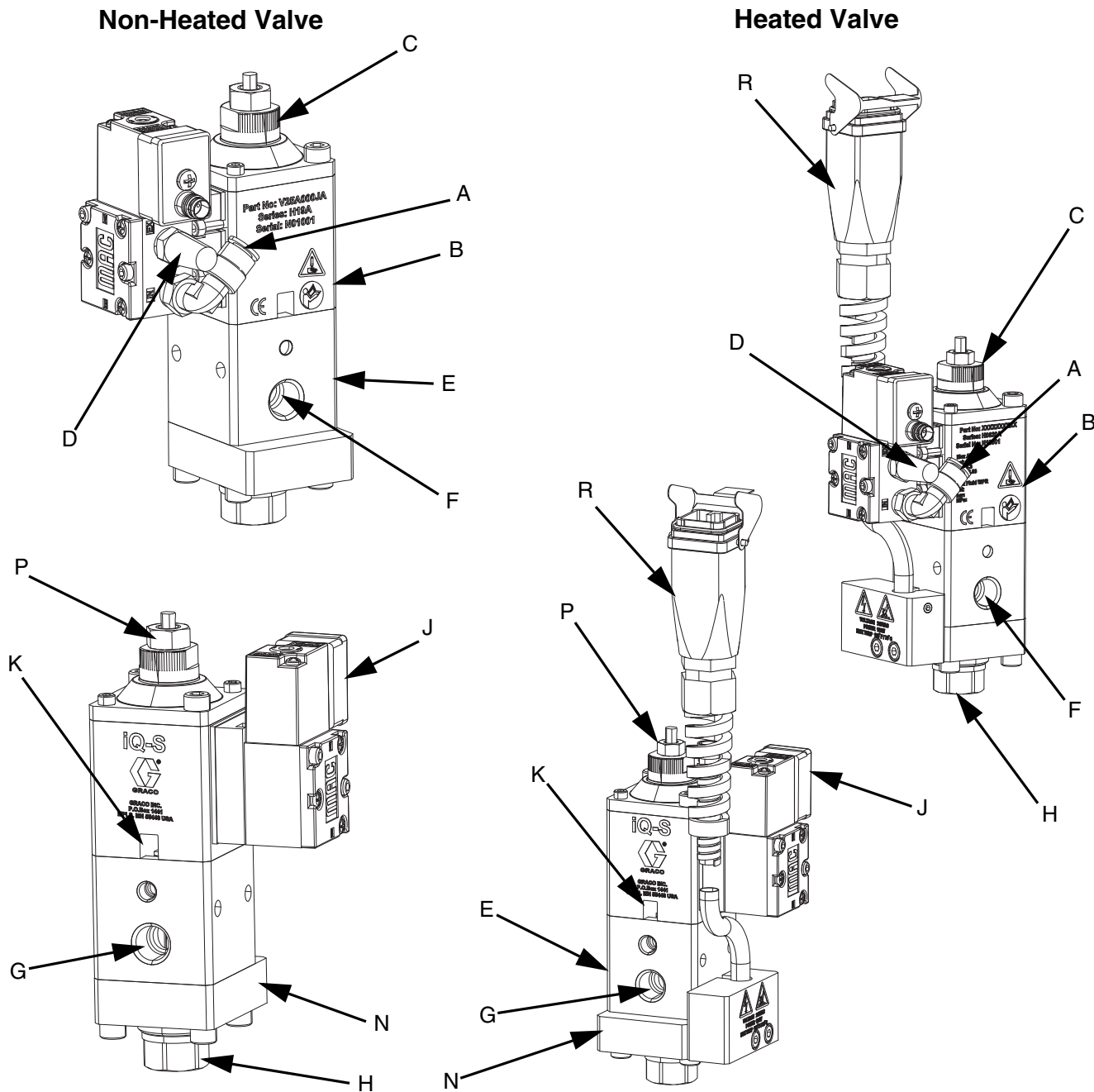


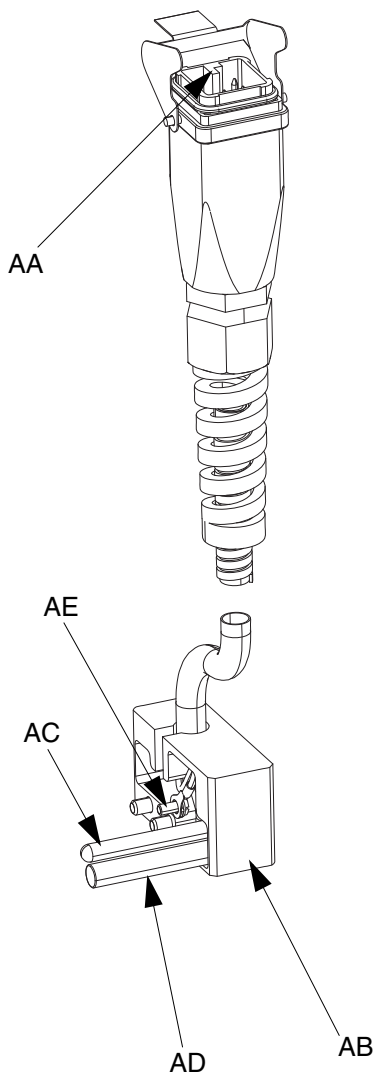
FIG. 2: Snuff-Back Dispense Valve

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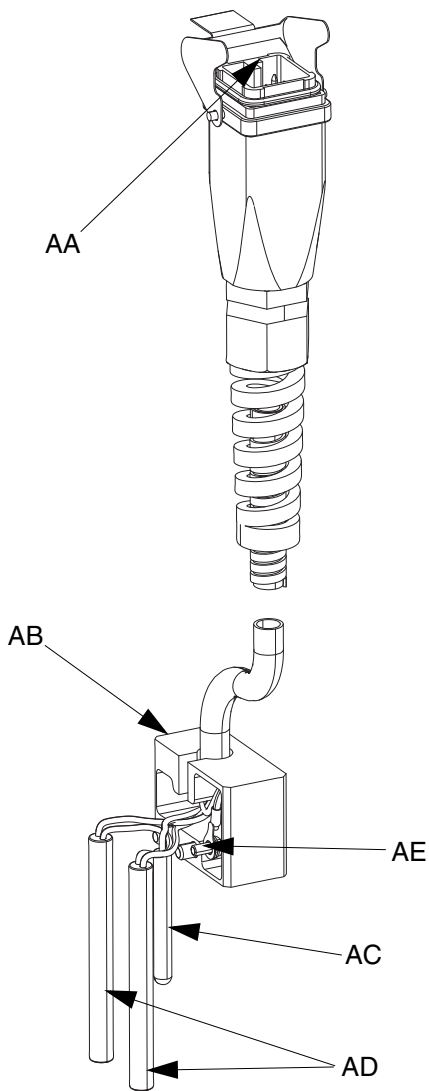
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|--|-------------------|
| A Air Fitting, 1/8" NPT male x 5/16" (8 mm) tube | H Valve Tip |
| B Air Section | J Solenoid |
| C Adjustment Nut | K Weep Hole |
| D Muffler | N Outlet Block |
| E Fluid Housing | P Lock Nut |
| F 1/4" NPT Material Inlet Port | R Heater Assembly |
| G Additional 1/4" NPT Inlet Port | |

Heater Assembly

**Heater Assembly
(for 0 mm Outlet Block)**



**Heater Assembly
(for 60 mm Outlet Block)**



**Heater Assembly
(for 200 mm Outlet Block)**

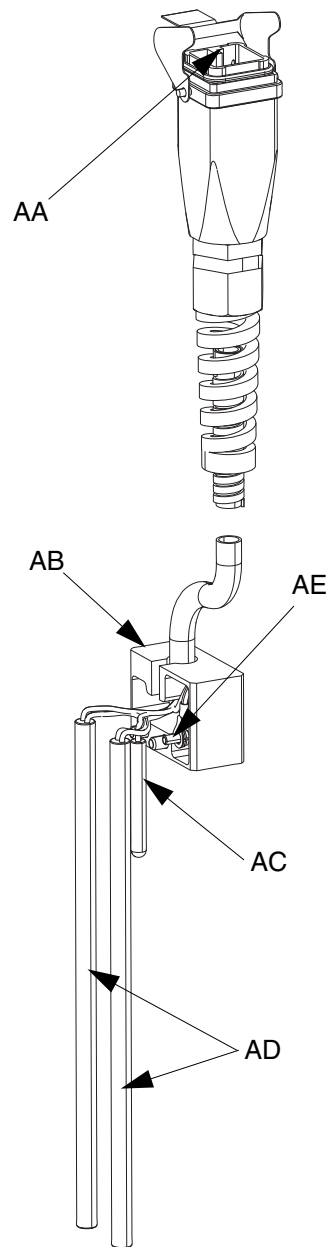


FIG. 3: Heated Housing

- Key:**
 AA Wire Harness Connector
 AB Heater Cover
 AC RTD Sensor
 AD Heater Cartridge(s)
 AE Ground Ring Terminal

Theory of Operation

The iQ Dispense Valve uses a four-way exhausting solenoid to control the piston inside the valve.

Applying air pressure to the locations called out in the images below will either open or close the valves.

Valve Types

Ball-Seat (iQ-B): A forward acting valve with a silicon nitride ball sealing against a tungsten carbide seat.

Snuff-Back (iQ-S): A reverse acting valve with a tungsten carbide tip sealing against a tungsten carbide seat.

Tip Seal (iQ-T): A forward acting valve with a tungsten carbide tip, sealing against a hardened stainless seat.

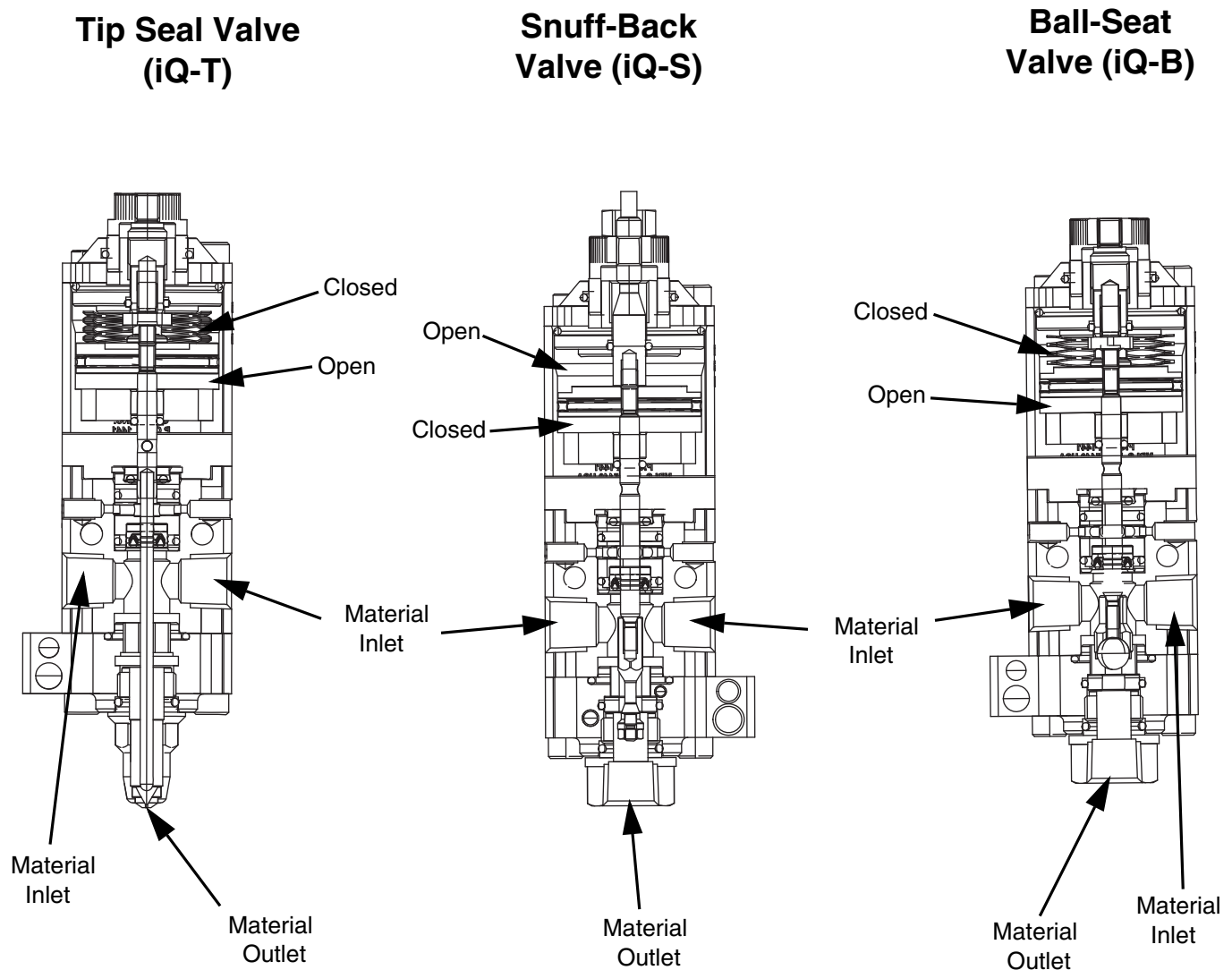
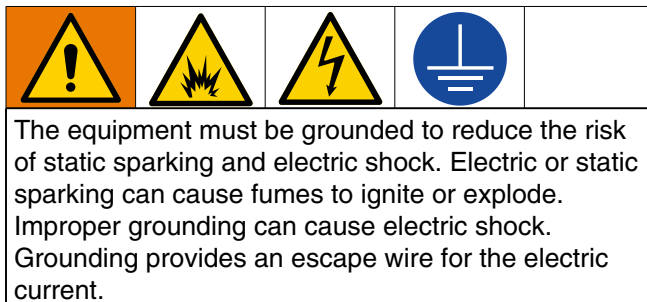


FIG. 4: Theory of Operation

Installation

Grounding



The following grounding instructions are minimum requirements for a basic dispensing system. The specific system being used may include other equipment or objects that must be grounded. Check local electrical codes for detailed grounding instructions.

Dispense valve: ground through a connection to a properly grounded fluid hose and pump. For heated valves, connect the Wire Harness Connector (AA) to the connector on the heated hose. Verify that pin 8 on the heated hose connector is connected to a true earth ground. See **Wiring Diagrams** on page 41.

Pump: see your pump manual.

Fluid hoses: use only electrically conductive hoses with a maximum of 100 ft. (30.5 m) combined hose length to ensure grounding continuity. Check the electrical resistance of the air and fluid hoses at least once a week. If the total resistance to ground exceeds 25 megohms, replace the hose immediately. Use a meter that is capable of measuring resistance at this level.

Fluid supply container: follow local code.

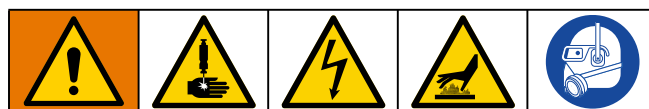
Solvent pails used when flushing: follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.

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

Flush Before Using Equipment

The equipment was tested with lightweight mineral oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment.

Install Dispense Valve



The dispense valves have multiple mounting hole configurations. See **Dimensions and Mounting** on page 38. See **Technical Specifications** on page 42.

1. Inspect the dispense valve for shipping damage. If there is damage, notify the shipping carrier immediately.
2. Install compatible accessories. For a list of accessories and installation instructions, see **Accessories** on page 35.
3. Securely attach the dispense valve to its mounting fixture using socket head cap screws.
4. Connect air lines to the dispense valve:

NOTICE

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

- a. For valves with a Solenoid (J) mounted to the Air Section (B), connect the air supply tube to the Air Fitting (A). See FIG. 1 on page 7.

- b. For valves with a remote mounted Solenoid (J), see the table below. See FIG. 5.

Table 1: Tube Orientation

	Air Open	Air Closed
Tip Seal	Port #2	Port #1
Snuff-Back	Port #1	Port #2
Ball-Seat	Port #2	Port #1

- 5. Connect the fluid line to the NPT Material Inlet (F) in the valve body.
- 6. Connect the Wire Harness Connector (AA) to the heated hose receptacle.
- 7. For heated valves, install the insulator block between the housing and mounting surface.

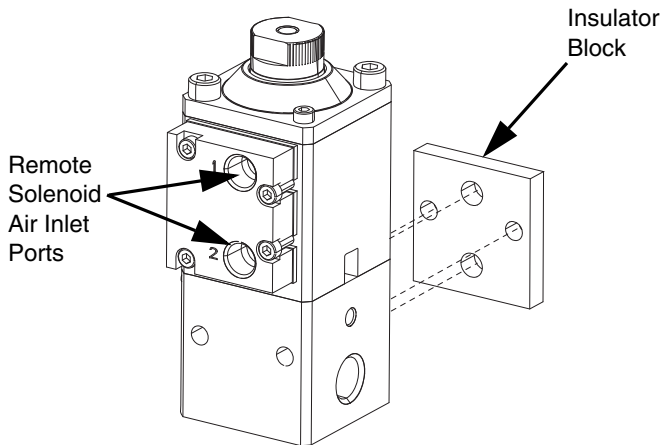


FIG. 5

Adjust Stroke

The Adjustment Nut (C) on the top of the valve can adjust the distance the dispense valve will open. This restricts the flow of material through the tip and seat. See FIG. 6.

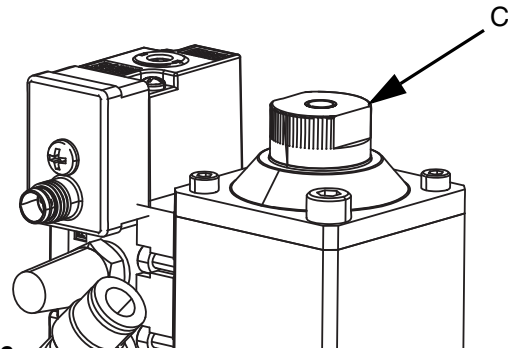


FIG. 6

1. Turn the Adjustment Nut (C) clockwise until the valve is held closed. See FIG. 6. For snuff-back valves, turn the Adjustment Nut (C) counterclockwise to reduce the distance the valve opens. See FIG. 7.
2. Slowly open the Adjustment Nut (C) and then cycle the air pressure until the desired flow is reached.
3. If your valve has a snuff-back tip, tighten the Lock Nut (P) to hold the Adjustment Nut (C) in place. See FIG. 7.

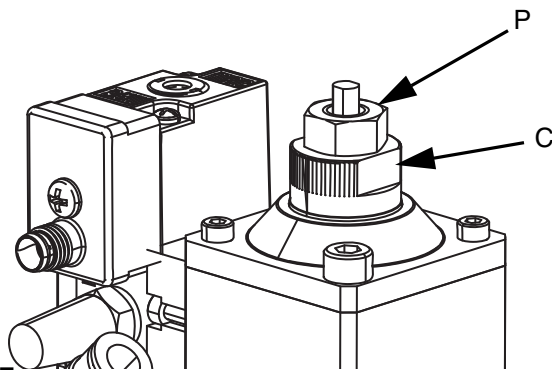


FIG. 7

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection and splashing fluid, 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 dispense valve. See your supply system manual for instructions on relieving pressure from the entire system.

1. Shut off the material supply.
2. Actuate the dispense valve into a grounded metal waste container to relieve the fluid pressure.
3. Relieve all air pressure in the air lines by shutting off the bleed-type air valve.
4. If heated, shut off electrical power to the dispense valve.
5. If the valve tip or fluid hose is clogged or if pressure has not been fully relieved after following the steps above, **VERY SLOWLY** loosen the NPT inlet fitting from the applicator fluid body or hose end coupling to relieve pressure gradually, then loosen completely. Clear the hose or tip obstruction.

Maintenance

Inspect the dispense valve, material, and air lines at least once every two weeks. Inspect for leakage and other visible damage.

The following tables list recommended maintenance procedures and frequencies. The maintenance is divided between mechanical and electrical tasks. A typical application is a valve mounted on a robot dispensing a moderately abrasive sealant.

Table 2: Mechanical

Task	Weekly	Monthly or 100,000 cycles
Inspect for leaks	✓	
*Check hoses for wear	✓	
*Check/tighten fluid connections		✓
*Check/tighten air connections		✓
Check stroke adjustment	✓	
Lubricate packings		✓

* Assumes movement from automation.

Table 3: Electrical

Task	Weekly	Monthly
Check cables for wear	✓	
Verify cable connections	✓	
Verify resistance of electric heaters		✓
Verify resistance of RTD sensors		✓

Factors Affecting Valve Life

The maintenance tables should be used as a guideline for the frequency of maintenance tasks. Additional factors that could affect valve life include the following:

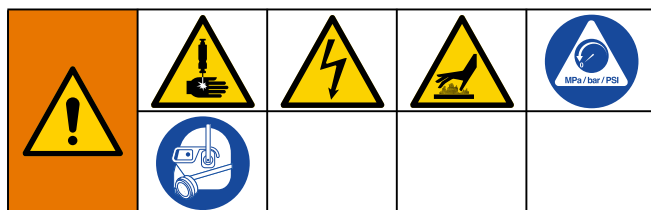
- **Process Fluid** - Abrasive or fiber filled fluids are much harder on seals, shafts, and seats than non-abrasive fluids such as oil.
- **Pressure drop across the valve seat** - As the valve opens or closes, the fluid is accelerated to a high velocity at the needle/seat contact area. The rate of wear at the needle/seat contact area will be much greater at 3000 psi than at 1000 psi. Changing the tip size to reduce fluid velocity can have a substantial affect on wear.
- **Number of cycles** - This has a much greater affect on valve wear than number of gallons. If you can do the same job with fewer on/off cycles, the valve will last longer.
- **Speed of actuation** - Opening and closing the valve quickly will increase needle and seat life. When using a remote mounted solenoid, use short air lines after the Solenoid (J) to improve open and close speed.
- **Air pressure** - This is what provides the force to hold the needle against the seat to seal against fluid pressure.

Recycling and Disposal

End of Product Life

At the end of the product's useful life, dismantle and recycle it in a responsible manner

Troubleshooting

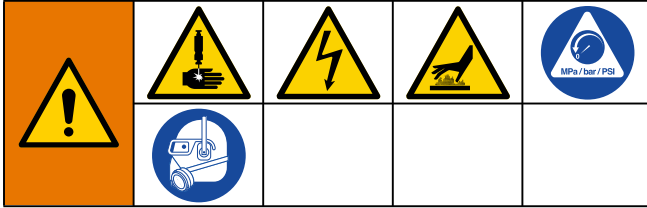


1. Follow the **Pressure Relief Procedure**, page 13, before servicing or repairing the valve.

Problem	Cause	Solution
Air leaks from dispense valve.	Worn gasket.	Replace gasket.
	Loose or worn air connections.	Tighten air connections.
	Worn o-rings.	Replace o-rings in Air Section (B).
	Loose end cap screws.	Tighten screws.
Material leaks from front of dispense valve.	Seal, tip, or seat is worn.	Replace seat seals, tip, and/or seat.
		Check and replace tip, if necessary. If replacing needle, you must reverse or replace seat.
	Check and replace or reverse seat if necessary.	
Obstruction inside dispense valve.	Remove nose piece. Check and replace if necessary, cartridge, tip, and seat.	
Material leaks from dispense valve weep hole.	Seals not installed correctly.	Check cartridge seals and replace cartridge and rod.
	Seals are worn.	
Dispense valve does not shut off.	Loose air connections or air supply turned off.	Tighten air connections.
	Worn needle-seat interface.	Replace cartridge, tip, and seat.
	Broken piston, debris in air cylinder, or debris inside the fluid section (ball-seat and tip seal valves only).	Disassemble dispense valve. Check and replace, if necessary, piston, piston rod, and o-rings.
	Spring broken or not installed correctly.	Disassemble dispense valve. Check spring and replace, if necessary.

Problem	Cause	Solution
Dispense valve does not open or dispense material.	Loose air connections or air supply turned off.	Tighten air connections.
	Broken rod, piston, or tip. Debris or cured material inside fluid section.	Disassemble dispense valve. Check and replace, if necessary, piston, piston rod, and o-rings.
Dispense valve does not heat material.	Loose heater wires.	Check and reconnect wire connections.
	Loose sensor wires.	Check and reconnect wire connections.
	Heater unit failed.	Replace cable assembly.
	Sensor failed.	
	No power to heating circuitry.	Apply power to heating circuitry.

Repair



Perform the following procedure before servicing the dispense valve.

1. Perform the **Pressure Relief Procedure** on page 13.
2. For heated valves, shut off electrical power to the dispense valve and disconnect the Wire Harness Connector (AA).
3. Allow the valve to cool completely before servicing.

Disconnect Air Section

1. Follow steps 1 and 3 above.
2. Shut off electrical power to the dispense valve.
3. Disconnect the air lines from the valve.
4. If your valve has a snuff-back tip (309), you need to remove the snuff-back tip before the Air Section (B) can disconnect from the Fluid Section (E). See FIG. 9.
5. If the Fluid Section (E) is not mounted, place the Fluid Section in a vise.
6. Remove the M5 screws (401) from the top of the air cylinder to disconnect the Air Section (B) from the Fluid Section (E).

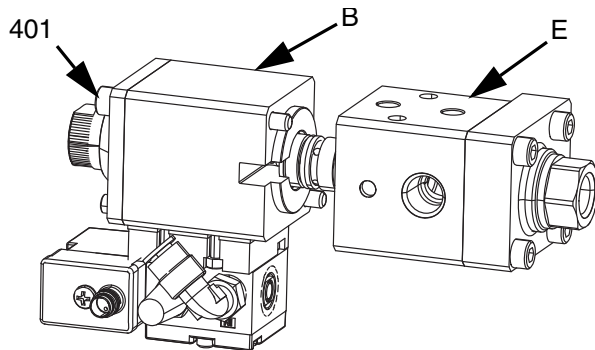


FIG. 8

NOTE: O-rings in the Fluid Section (E) may stick to the u-cup cartridge, requiring more force to separate the Fluid and Air Sections (E, B).

7. If necessary, replace the Air Section (B) with an assembled Air Section with rod, u-cup cartridge, and tip.

Connect Air Section

1. If your valve has a snuff-back tip, complete snuff-back tip assembly step 5 from page 19.
2. Slide the assembled Air Section (B), with piston rod, u-cup cartridge, and tip assembly, into the top of the Fluid Section (E).
3. Torque the M5 screws (401) to 55 in.-lbs (10-13 N•m).
4. Connect the air lines.

NOTE: Ensure the air fittings and fluid inlet are in the desired position relative to one another.

Fluid Section Repair

The u-cup cartridge, fluid section o-rings, and seat seal can be replaced without disconnecting the valve body from the mounting equipment, or material hoses.

Only rebuild the Fluid Section when fluid weeps out the Weep Hole (K). To rebuild the Fluid Section, see **Replace U-Cup Cartridge, Fluid Section O-rings, and Tip Assembly** on page 18 and **Air Section Repair** on page 20.

NOTE: Always replace o-rings after the Fluid Section has been disassembled.

Replace U-Cup Cartridge, Fluid Section O-rings, and Tip Assembly

Disassembly

1. Perform the **Pressure Relief Procedure** on page 13.
2. Follow the steps to **Disconnect Air Section** on page 17.
3. If the Fluid Section (E) is not mounted, place the Fluid Section in a vise.
4. If using a snuff-back valve, go to step 5. If using a ball-seat valve, go to step 6. If using a tip seal valve, go to step 7.
5. If using a snuff-back valve, remove the snuff-back tip (309).
 - a. Remove the tip (308). See FIG. 9.
 - b. Place an Allen key through the piston rod (410) hole located in the Weep Hole (K). Unthread the nut (310) using a 5.5 mm socket or nut driver and remove the tip (309).
 - c. Use a flat head screwdriver to pry out the seal kit (301) from the Fluid Section (E). Be careful not to damage the surfaces of the seal kit.

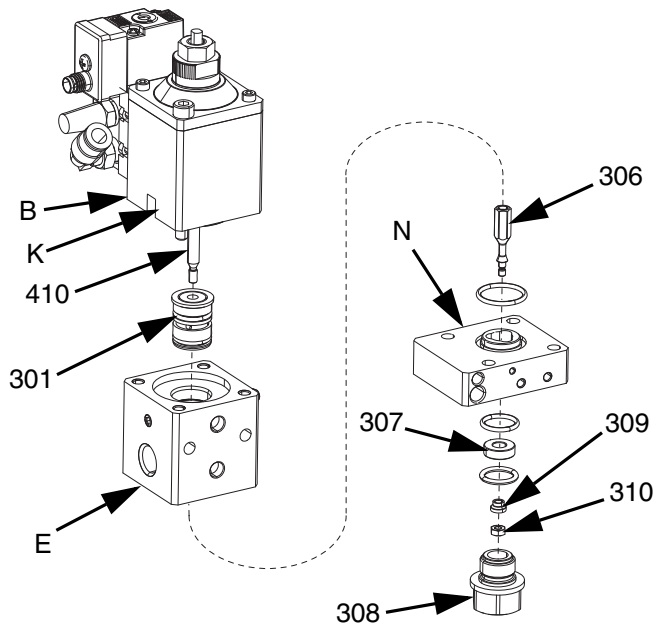
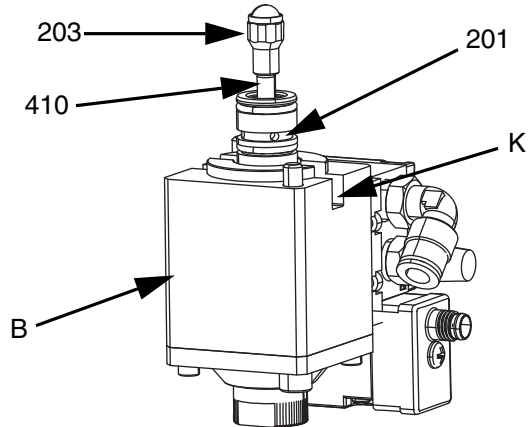


FIG. 9

6. For valves with a ball-seat assembly:
 - a. Place an Allen key or rod into the hole to keep the piston rod (410) from rotating. Remove the ball assembly (203) with a 9 mm wrench.



Ball Seal Valve shown

FIG. 10

- b. Remove the seal kit (201) by sliding the seal kit off of the shaft.
7. Inspect the piston rod (410) and tip/ball assembly (203) for damage to rings, grooves, or pitting. Replace either if worn.

Assembly

NOTICE

To prevent damage to the seals during installation, use the seal assembly tool shown in the **Accessories** section on page 35 to install the seal kit.

1. Use the seal assembly tool (806) to install the new seal kit (101, 201) on the piston rod with the flange against the Air Section (B).

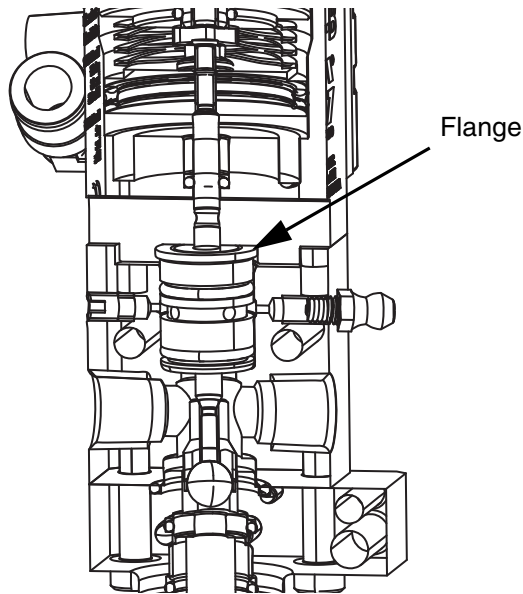


FIG. 11

2. Remove and save the seal assembly tool (806).
3. Apply grease on the outside of the seal kit (101, 201).
4. For valves with ball-seat assemblies:
 - a. Apply a light amount of the supplied blue anaerobic adhesive to the bottom threads of the piston rod (410).
 - b. Screw the ball assembly (203) on the piston rod (410).
 - c. Place the valve in a vertical position in a vise. Place an Allen key through the piston rod (410) located in the Weep Hole (K). See FIG. 10.
 - d. Use a small torque wrench with a 9 mm socket or crowfoot to tighten the ball assembly (203) to the piston rod (410). Torque to 8-10 in-lbs (0.9-1.1 N•m).

- e. Follow the steps to **Connect Air Section** on page 17.

5. For snuff-back valves, place an Allen key through the piston rod (410) located in the Weep Hole (K). See FIG. 14.

NOTICE

To prevent damage to the valve, ensure there is no grease on the piston rod threads.

- a. Apply the supplied blue anaerobic adhesive to the bottom threads of the piston rod (410) threads.
- b. Reinstall the rod adapter (306) and torque to 8-10 in-lbs (0.9-1.1 N•m) using a 6 mm wrench or crowfoot.
- c. Reinstall the Fluid Section (E), and Outlet Block (N).
- d. Slide the seat (307) onto the rod adapter (306).
- e. Slide the tip seat (309) onto the rod adapter (306). Note the orientation of the tip seat and rod adapter in FIG. 12.

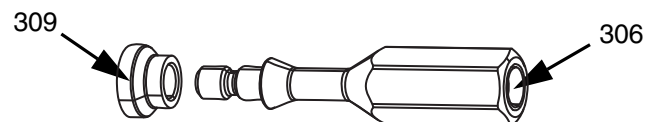


FIG. 12

- f. Apply the supplied blue anaerobic adhesive to the treads of the rod adapter (306). Tighten the nut (310) to 8-10 in-lbs (0.9-1.1 N•m).

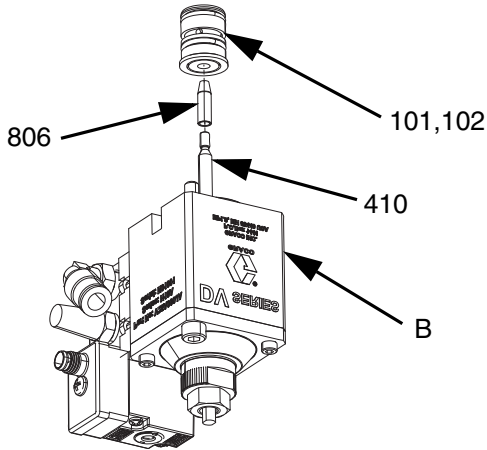


FIG. 13

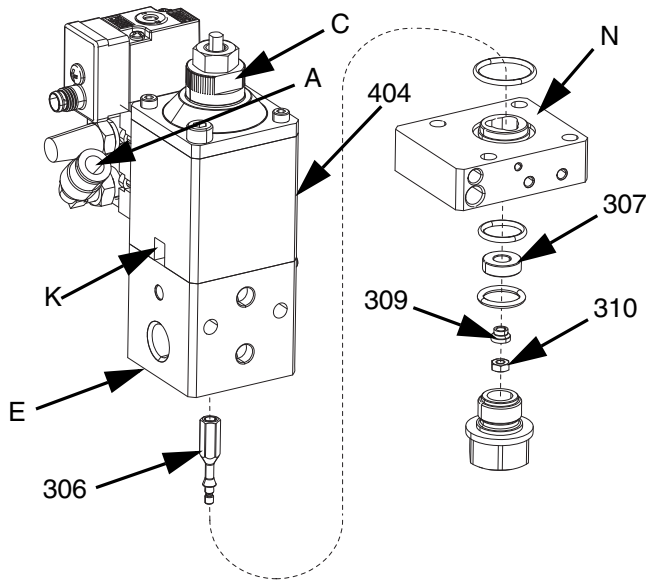


FIG. 14

Air Section Repair

Follow the steps below if a noticeable air leak is detected in the Air Section (B).

Disassembly

1. To repair the Air Section (B), you must remove the tip assembly. Complete the disassembly procedure to **Replace U-Cup Cartridge, Fluid Section O-rings, and Tip Assembly** on page 18.
2. Remove two screws (402).
3. Remove the air end cap (404), piston rod assembly, and spring (407)(ball-seat and tip seal valves only) from the Air Section (B).

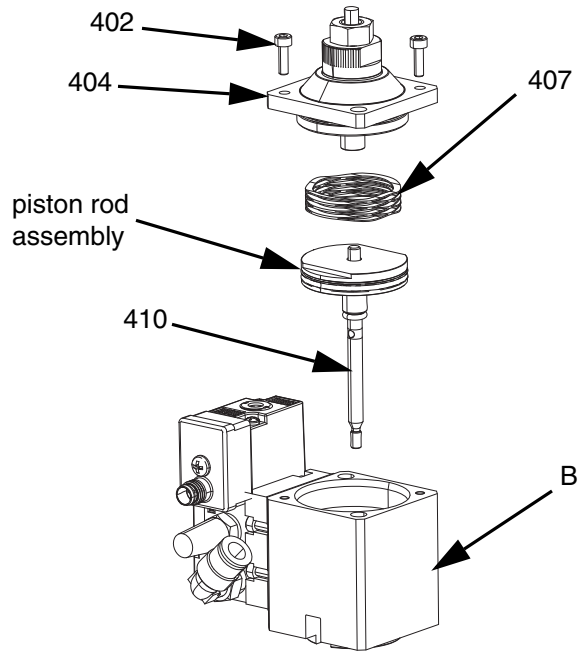


FIG. 15

4. Use a clean cloth to remove all material inside the Air Section (B). Inspect for damage such as scoring marks.
5. For valves with snuff-back tip assemblies (FIG. 16):
 - a. Remove the piston rod assembly (409 and 410) from the rod adapter (416) and the air end cap (404). Hold the piston rod (410) with an Allen key through the piston rod hole and unthread the rod adapter (416).

- b. Place a wrench on the piston (409) flats, and an Allen key through the hole in the piston rod (410).
- c. Unthread the piston (409) from the piston rod (410).

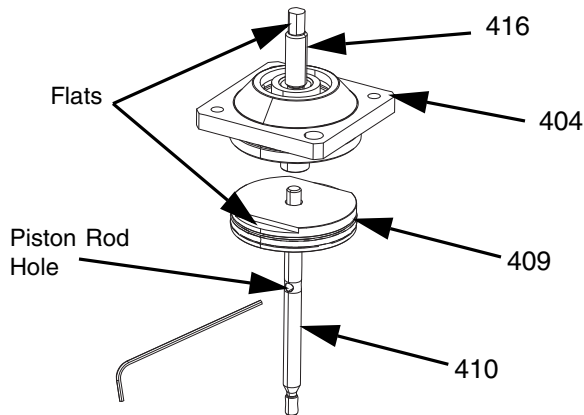


FIG. 16

6. For valves with ball-seat tip assemblies (FIG. 17):

- a. Place an Allen key in the through hole in the piston rod (410) and unthread the nut (417) using a 7 mm socket or wrench.

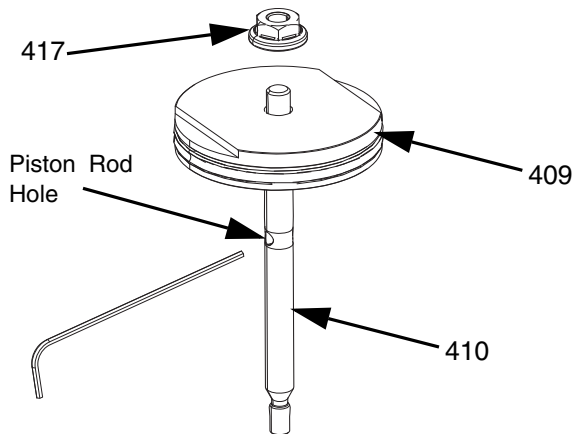


FIG. 17

- b. Place the flats of the piston (409) in a vise with the piston rod facing upward. Un-thread the piston rod (410) from the piston (409).
- c. Inspect the piston (409) and piston rod (410) for damage. Replace if necessary.

7. For valves with tip seal tip assemblies (FIG. 18):

- a. Place an Allen key through the hole in the tip assembly (102) and unthread the nut (417) using a 7 mm socket or wrench.
- b. Place the flats of the piston (409) in a vise with the piston rod facing upward. Un-thread the tip assembly (102) from the piston (409).
- c. Inspect the piston (409) and tip assembly (102) for damage. Replace if necessary.

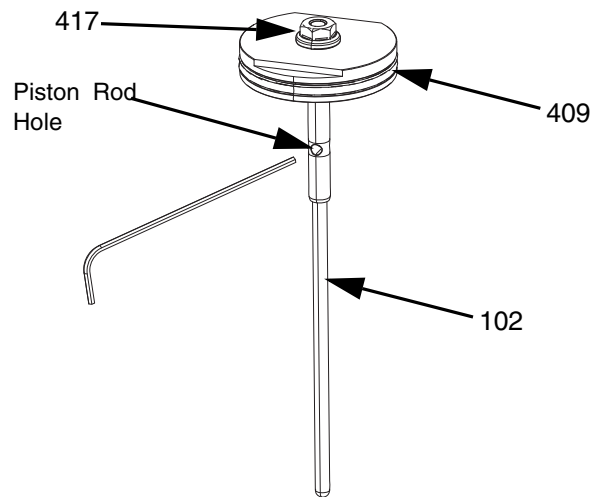


FIG. 18

8. For valves with snuff-back tips, unthread the locknut (414) and the knob assembly (415).

9. For valves with ball-seat or tip seal tips, unthread the adjuster stop (413) and unthread the knob assembly (412).

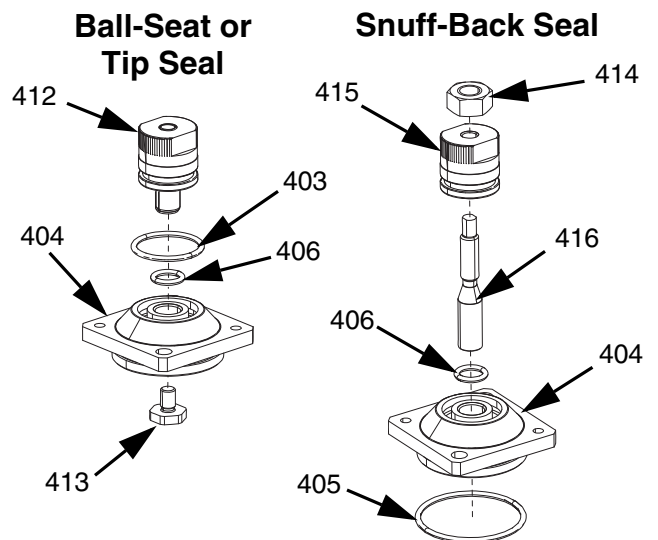


FIG. 19

Assembly

1. To assemble the air cylinder cap (404) on valves with ball-seat or tip seal assemblies:
 - a. Install the o-ring (403) on the knob assembly (412). Place the o-ring (406) in the air cylinder cap (404). See FIG. 19.
 - b. Grease the o-ring (403) on the knob assembly (412) and screw it into the air cylinder cap (404). See FIG. 19.
 - c. Apply the supplied blue anaerobic adhesive to the adjuster stop threads (413) and screw it into the knob assembly (412). Torque to 11-13 in-lbs (1.25-1.5 N•m). See FIG. 19.

2. To assemble the air cylinder cap (404) on valves with snuff-back tip assemblies:
 - a. Install the o-ring (406) into the air cylinder cap (404). Insert the rod adapter (416) into the air cylinder cap (404). See FIG. 19.
 - b. Install the o-ring (405) onto the air cylinder cap (404). See FIG. 19.
 - c. Thread the knob assembly (415) and the locknut (414) onto the rod adapter (416). See FIG. 19.

3. To assemble the Air Section (B) on valves with ball-seat or tip seal assemblies:
 - a. Replace the piston o-ring (408) if it is scratched, cut, or worn. See FIG. 20.
 - b. Apply the assembly tool to the tip of the piston rod (410), then insert it into the Air Section (B). See FIG. 20.
 - c. Remove the assembly tool.
 - d. Place the spring (407) on the top of the piston (409). See FIG. 20.
 - e. Replace the air cylinder cap (404) and insert the screws (402). Press down on the air cylinder

cap (404) to compress the spring (407). Torque to 11-13 in-lbs (1.25-1.5 N•m).

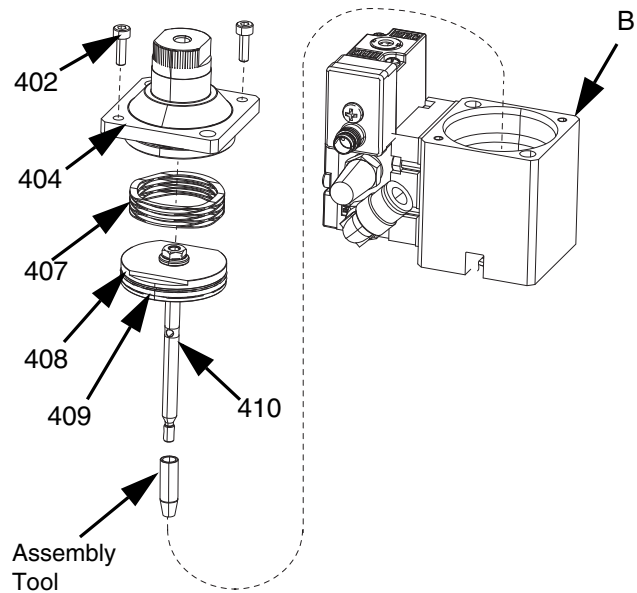


FIG. 20

4. To assemble the Air Section (B) on valves with snuff-back tip assemblies:
 - a. Replace the piston o-ring (408) if it is scratched, cut, or worn.
 - b. Apply the supplied blue anaerobic adhesive on the piston rod threads (410).
 - c. Thread the piston rod (410) into the piston (409).
 - d. Place the piston flats (409) in a vise. Place an Allen key into the hole in the piston rod (410). Torque to 8-10 in-lbs (0.9-1.1 N•m).
 - e. Insert the piston assembly with the assembly tool installed through the o-ring at the bottom of the Air Section (B).
 - f. Remove the assembly tool.

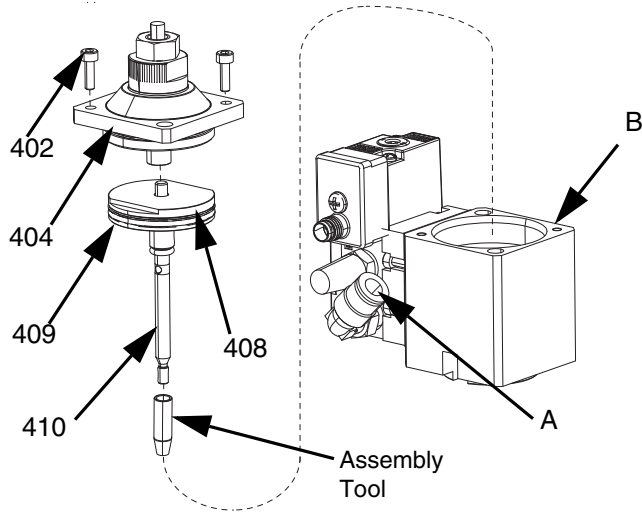


FIG. 21

5. Apply the supplied blue anaerobic adhesive on the threads of two screws (402) and install through top of the air cylinder cap (404).
6. Follow the **Replace U-Cup Cartridge, Fluid Section O-rings, and Tip Assembly** instructions on page 18.

Replace RTD Sensor and Heater Cartridges

			
All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.			

1. Follow the **Pressure Relief Procedure** on page 13.
2. Remove the two socket head screws (607) and loosen the set screw (608).
3. Lift the metal conduit up from the heat cover (604, 606). Remove the heater cover (604, 606).
4. Remove the ground screw (609) and star washer (610).
5. Remove the harness (601, 602, 603) by sliding the heater cartridge and RTD out of the heater block.
6. Replace the harness (601, 602, 603) with a new harness assembly.
7. Coat the heater cartridge and RTD with thermal grease compound.
8. Slide the heater cartridge and RTD into the heater block.
9. Replace the ground wire, heater cover, and mounting screws.

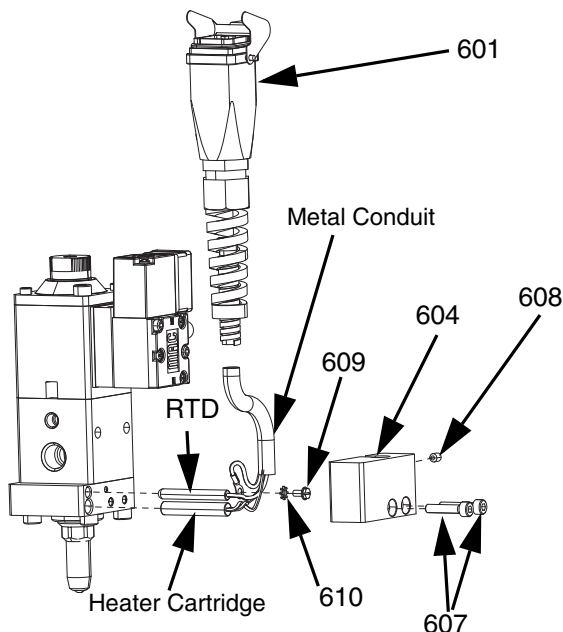


FIG. 22: Heater Assembly for 0 mm Outlet Block

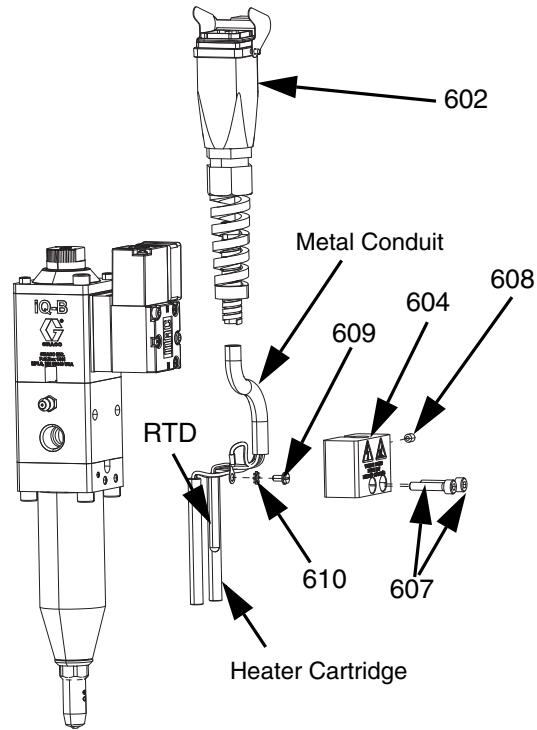


FIG. 23: Heater Assembly for 60 mm Outlet Block

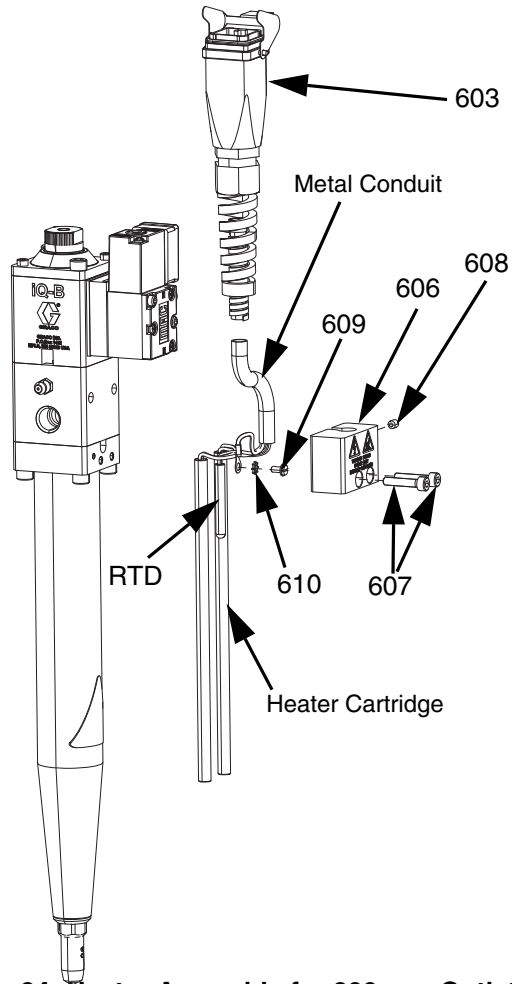


FIG. 24: Heater Assembly for 200 mm Outlet Block

Tip Seal models

Ref.	Part	Description	Qty.
101	25B302	KIT, seal, 1/8" shaft	1
102	◆26A859	ROD ASSY, tip, 1/8"	1
	❖25B304	ROD ASSY, tip, 1/8"	1
	†25B125	ROD ASSY, tip, 1/8"	1
103	26A857	HOUSING, fluid, 1/4", AL	1
104	◆16H934	PACKING, o-ring	1
105	◆25R631	BLOCK, outlet, 1/4"	1
	❖25R632	BLOCK, outlet, 1/4"	1
	†25R639	BLOCK, outlet, 1/4"	1
106	◆113746	PACKING, o-ring	1
	❖†113746	PACKING, o-ring	3
107	❖†25R634	BEARING, 1/8"	1
108	see table	TIP ASSY	1
109	130458	SCREW, shc, M5	4
111	See Air Section on page 31	AIR SECTION, NPT, 1/4 in.	1

◆ *Parts for 00mm outlet block models only.*

❖ *Parts for 60mm outlet block models only.*

† *Parts for 200mm outlet block models only.*

NOTE: See page 37 for kit information.

Table 4: Tip Sizes for Tip Seal Valves

Size	Part
0.6 mm	25B307
1.0 mm	25B308
1.3 mm	25B309
1.7 mm	25B316

Ball-Seat Dispense Valves

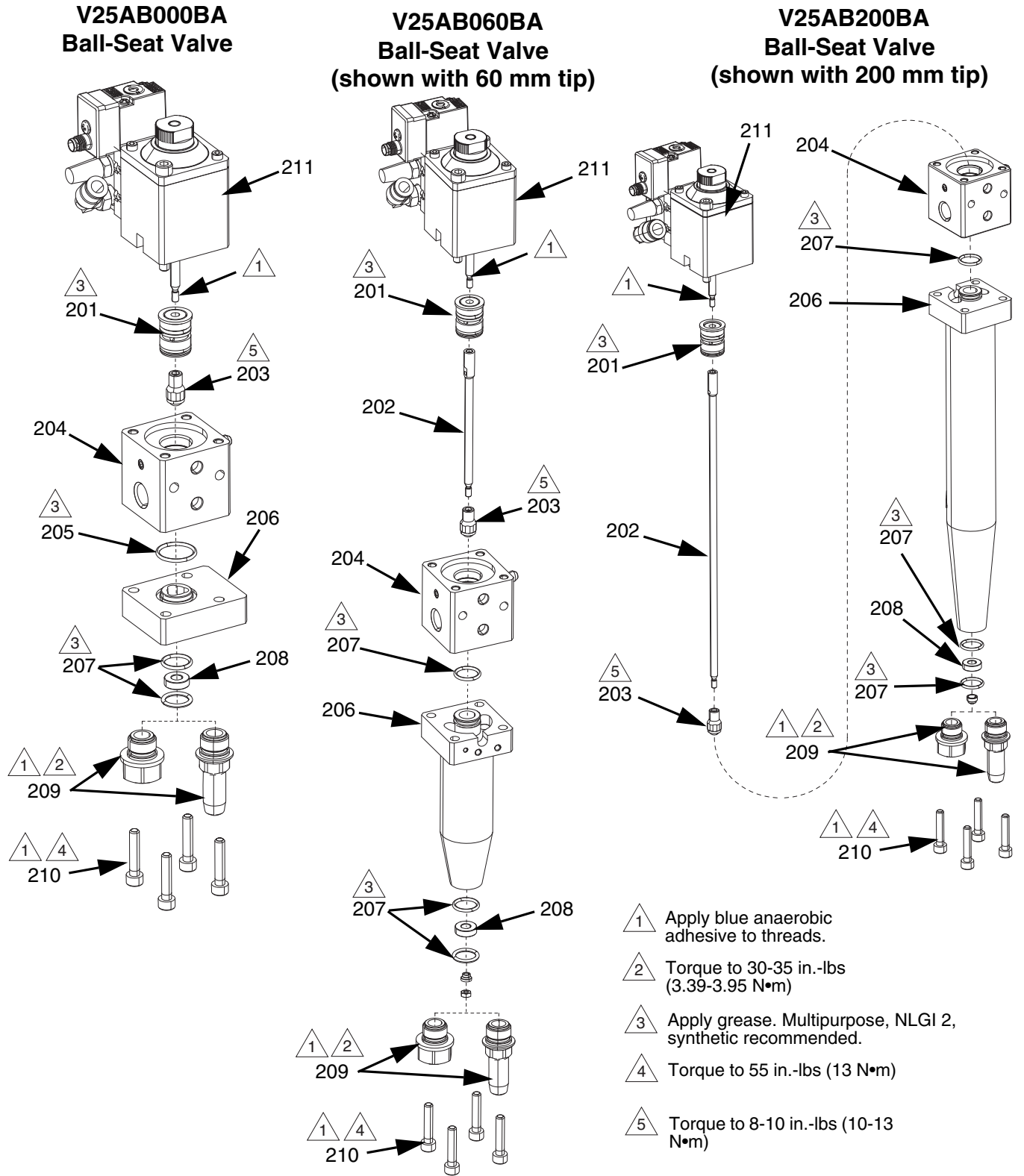


FIG. 26

Ball-Seat models

Ref.	Part	Description	Qty.
201	26A861	KIT, seal, 3/16" shaft	1
202	❖25R637	SHAFT, forward, tip, 1/4"	1
	†25R641	SHAFT, forward, tip, 1/4"	1
203	26A858	BALL ASSY, crimp, 1/4"	1
204	26A857	HOUSING, fluid, 1/4", AL	1
	‡25R896	HOUSING, fluid, 1/4", SST	1
205	◆16H934	PACKING, o-ring	1
206	◆25R631	BLOCK, outlet, 1/4"	1
	❖25R632	BLOCK, outlet, 1/4"	1
	†25R639	BLOCK, outlet, 1/4"	1
207	◆113746	PACKING, o-ring	2
	❖†113746	PACKING, o-ring	3
208	185467	SEAT, valve	1
209	see table	TIP, reverse/forward	1
210	130458	SCREW, shc, M5	4
211	See Air Section on page 31	AIR SECTION, NPT, 1/4 in.	1

◆ *Parts for 00mm outlet block models only.*

❖ *Parts for 60mm outlet block models only.*

† *Parts for 200mm outlet block models only.*

‡ *Parts for 25R843 and 25R844 5000 psi (34.5 MPa, 345 bar) maximum working pressure models only.*

NOTE: See page 37 for kit information.

Table 5: Tip Sizes for Ball-Seat Valves

Size	Part
1/4" NPT	25R633
0.6mm	25B307
1.0mm	25B308
1.3mm	25B309
1.7mm	25B316

Snuff-Back Seal Dispense Valves

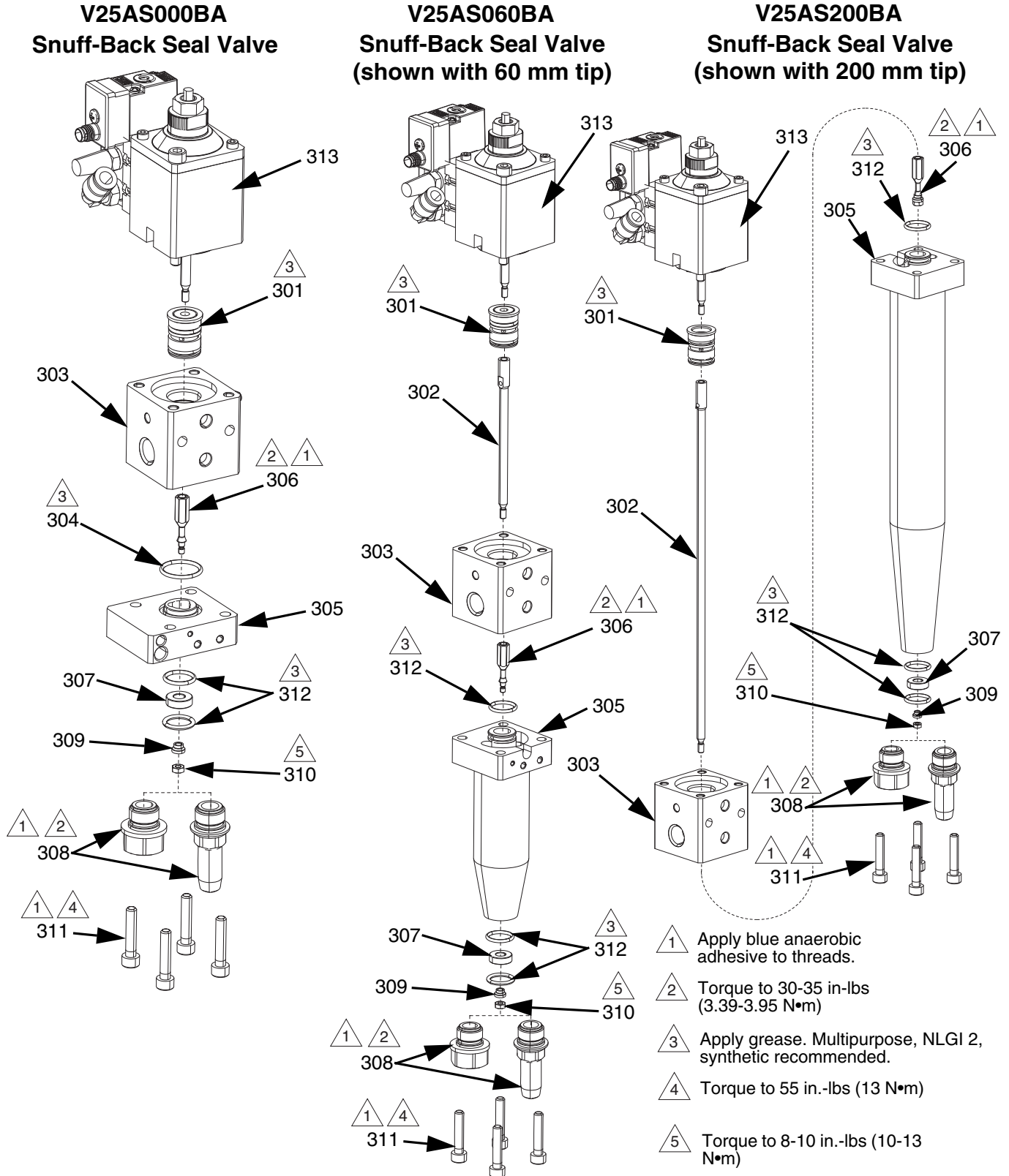


FIG. 27

Snuff-Back Seal models

Ref.	Part	Description	Qty.
301	26A861	KIT, seal, 3/16" shaft	1
302	❖25R637	SHAFT, forward, tip, 1/4"	1
	†25R641	SHAFT, forward, tip, 1/4"	1
303	26A857	HOUSING, fluid, 1/4", AL	1
304	◆16H934	PACKING, o-ring	1
305	◆25R631	BLOCK, outlet, 1/4"	1
	❖25R632	BLOCK, outlet, 1/4"	1
	†25R639	BLOCK, outlet, 1/4"	1
306	25R638	SHAFT, reverse, 1/4"	1
307	185467	SEAT VALVE	1
308	see table	TIP ASSY	1
309	17H991	TIP, reverse, 1/4"	1
310	125104	NUT, hex, M3	1
311	130458	SCREW, shc, M5	4
312	◆113746	PACKING, o-ring	2
	❖†113746	PACKING, o-ring	3
313	See Air Section on page 31	AIR SECTION, NPT, 1/4 in.	1

◆ Parts for 00mm outlet block models only.

❖ Parts for 60mm outlet block models only.

† Parts for 200mm outlet block models only.

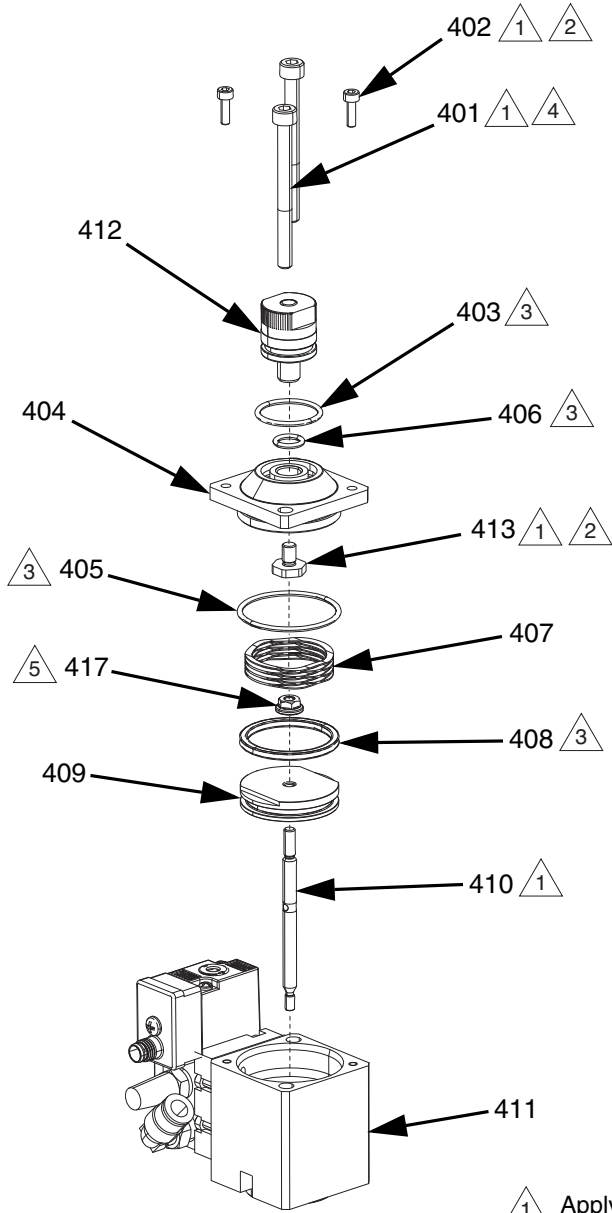
NOTE: See page 37 for kit information.

Table 6: Tip Sizes for Snuff-Back Seal Valves

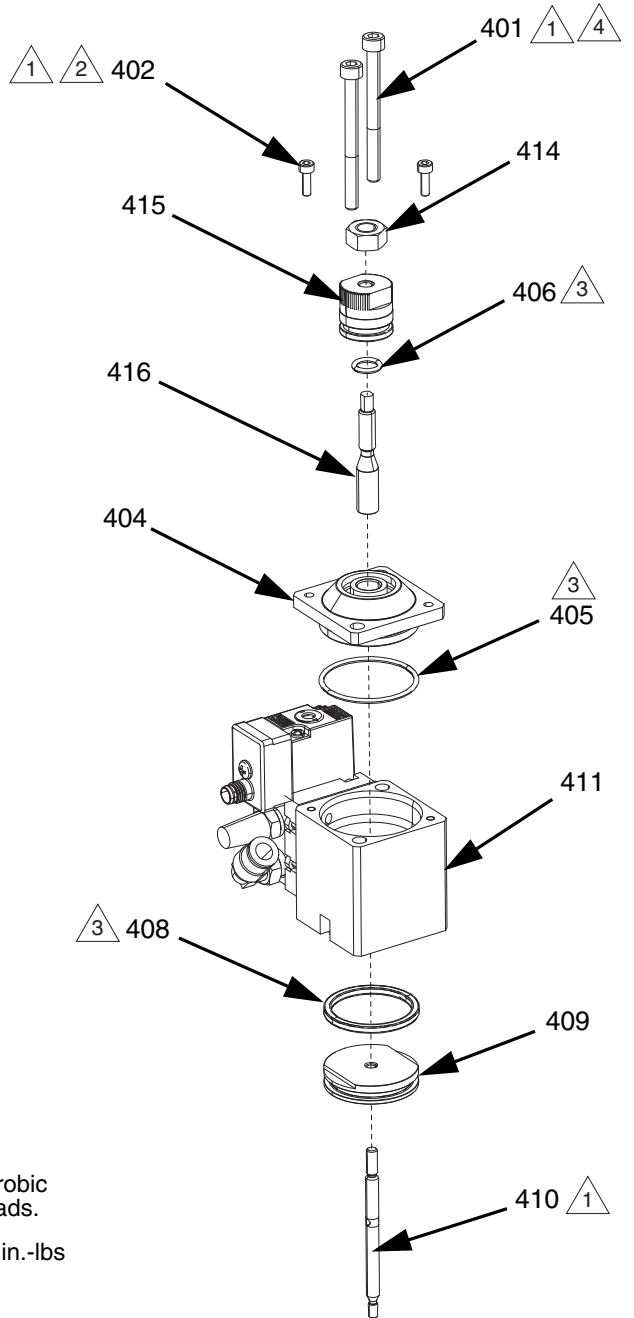
Size	Part
1/4" NPT	25R633
0.6mm	25B307
1.0mm	25B308
1.3mm	25B309
1.7mm	25B316

Air Section

Spring Action with Ball-Seat or Tip Seal



Snuff-Back Seal



- $\triangle 1$ Apply blue anaerobic adhesive to threads.
- $\triangle 2$ Torque to 11-13 in.-lbs (1.25-1.5 N•m)
- $\triangle 3$ Apply grease.
- $\triangle 4$ Torque to 20 in.-lbs (2.25 N•m)
- $\triangle 5$ Torque to 8-10 in.-lbs (0.9-1.13 N•m)

FIG. 28

Air Section

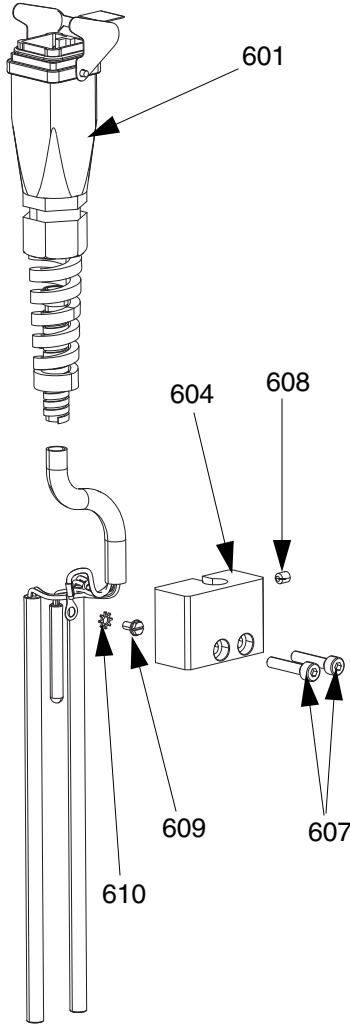
Ref.	Part	Description	Qty.
401	136240	SCREW, shc, M5	2
402	130181	SCREW, shc, M3	2
403◆	108284	PACKING, o-ring	1
404	25R649	CAP, air cylinder, 1/4"	1
405	120818	PACKING, o-ring	1
406	154741	PACKING, o-ring	1
407◆	130186	SPRING, wave	1
408	136246	O-RING, quad	1
409	25R645	PISTON, air cylinder, 1/4"	1
410	25R635	SHAFT, rev/fwd, 1/4"	1
411	26A860	KIT, air cylinder, 1/4"	1
412◆	25B031	KIT, cap, 1/4"	1
413◆	18B389	STOP, adj, 1/4"	1
414❖	112257	NUT, hex	1
415❖	25R646	KNOB, adjust, 1/4"	1
416❖	25R648	ROD, adapter, 1/4"	1
417◆	136242	NUT, flange, M4	1

◆ *Parts for ball-seat or tip seal models only.*

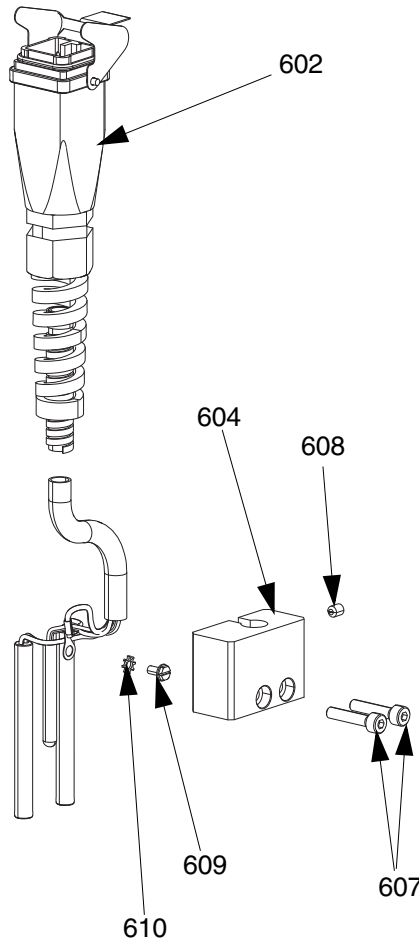
❖ *Parts for snuff-back models only.*

Heater Assembly Parts

**Heater Assembly
(for 200 mm Outlet Block)**



**Heater Assembly
(for 60 mm Outlet Block)**



**Heater Assembly
(for 0 mm Outlet Block)**

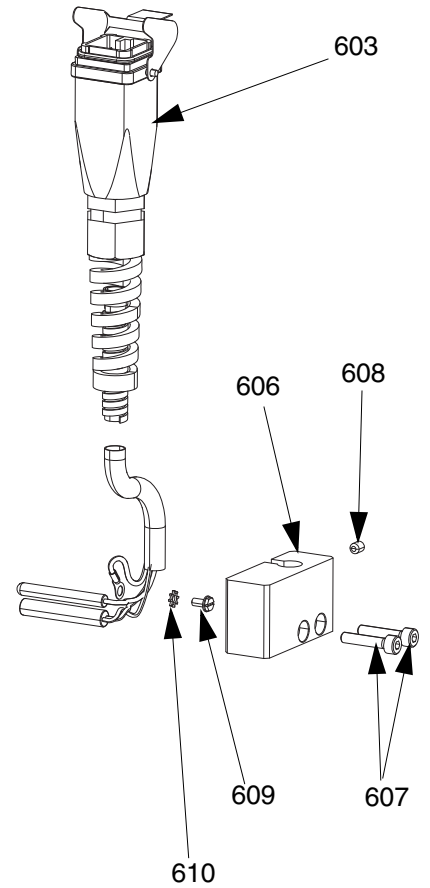


FIG. 29

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
601	15N030	HARNESS, heat, 200 series	1	606	15N017	COVER, heater, 1/4", 0 mm outlet block	1
602	15N029	HARNESS, heat, 060 series	1	607	116474	SCREW, shcs, m4 x 20	2
603	15N028	HARNESS, heat, 000 series	1	608	124736	SCREW, set, cup, m4 x .7 x 4mm	1
604	15N015	COVER, heater, 1/4", 60 mm and 200 mm outlet block	1	609	112506	SCREW, ground	1
				610	112505	WASHER, lock	1

Valve Mounted Solenoid

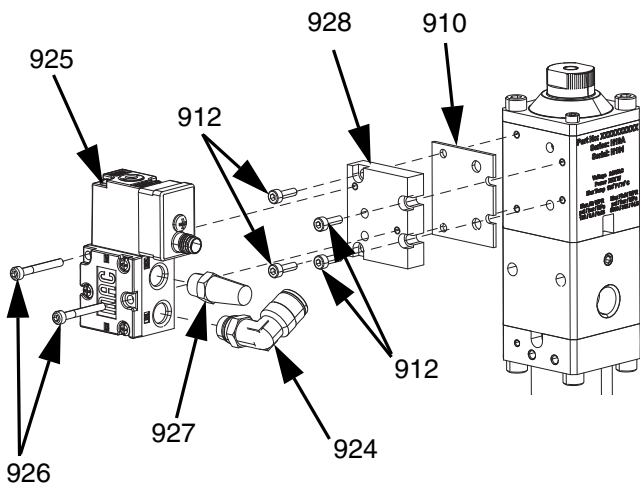


FIG. 30

Ref.	Part	Description	Qty.
910	130866	GASKET, solenoid, 1/4	1
912	130181	SCREW, shcs	4
924	112698	ELBOW, male, swivel	1
925	136243	SOLENOID, face mount, 24VDC, 12W	1
926	130182	SCREW, shcs	2
927	C06061	MUFFLER, sintered, dia 1/8	1
928	---	BLOCK, solenoid	1

1/4 in. NPT Valve Repair Kits

See **Maintenance** on page 14 and **Repair** on page 17 for appropriate kit installation procedures.

Kit Description	Valve Description	Kit No.	Valve Outlet Style
Air Section Repair Kits	KIT, cap, 1/4", direct	25B031	Ball-Seat, Snuff-Back
	KIT, cylinder, air, 1/4"	26A860	All
Fluid Section Repair Kits	KIT, seal, 1/8" shaft, 1/4"	25B302	Tip Seal
	ROD, assy, tip, 1/8" dia x 60mm	25B304	Tip Seal
	ROD, assy, tip, 1/8" dia X 200mm	25B125	Tip Seal
	ROD, assy, tip, 1/8" dia	26A859	Tip Seal
	TIP, assy, 0.6 mm, 1/4"	25B307	All
	TIP, assy, 1.0 mm, 1/4"	25B308	All
	TIP, assy, 1.3 mm, 1/4"	25B309	All
	TIP, assy, 1.7 mm, 1/4"	25B316	All
	KIT, block, fluid, 1/4"	26A857	All
	BALL, assy, crimp, 1/4"	26A858	Ball-Seat
	KIT, seal, 3/16" shaft, 1/4"	26A861	Ball-Seat, Snuff-Back
Carbide Wear Items	SEAT, valve	185467	Ball-Seat, Snuff-Back
	TIP, reverse, 1/4"	17H991	Snuff-Back

Accessories

Before installing any accessories, follow steps 1 through 3 from **Repair** on page 17.

Pressure Transducer Adapter, 25R640

4000 psi (28 MPa, 276 bar) Maximum Working Pressure. 1/4 in. NPT male fitting to thread into additional inlet port. Use with 15M669 Pressure Transducer.

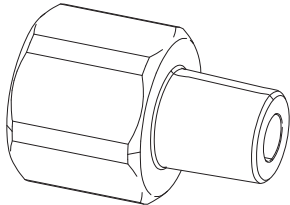


FIG. 31

Heat Block Spacer, 25R642

Use with heated valves to isolate heat.

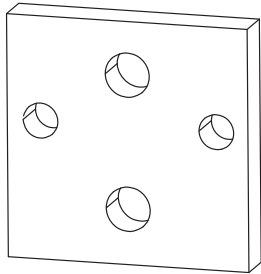
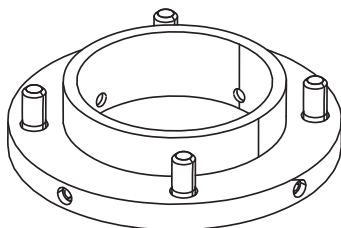


FIG. 32

Vision Adapter Kit, 25R650

Use with a Coherix Predator 3D vision system.



Seal Assembly Tool, 25R643

Use when rebuilding valve seal sections.

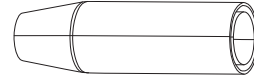


FIG. 33

Seal Installation Tool, 25R644

Use when rebuilding valve seal sections for ball-seat and snuff-back valves.

NOTE: Use mineral oil to lubricate the valve shaft before installing the seal cartridge assembly.

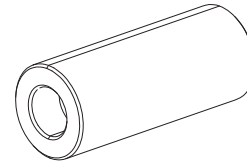


FIG. 34

Swivel Fitting, 130995

5000 psi (34.5 MPa, 345 bar) Maximum Working Pressure. 90° swivel fitting with two 1/2 in. NPT female threads.

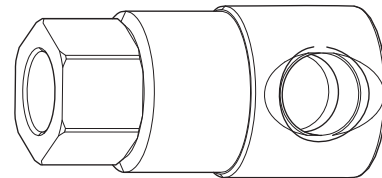


FIG. 35

Remote Solenoid Kit, 25R668

120 psi (0.83 MPa, 8.3 bar) Maximum Working Pressure

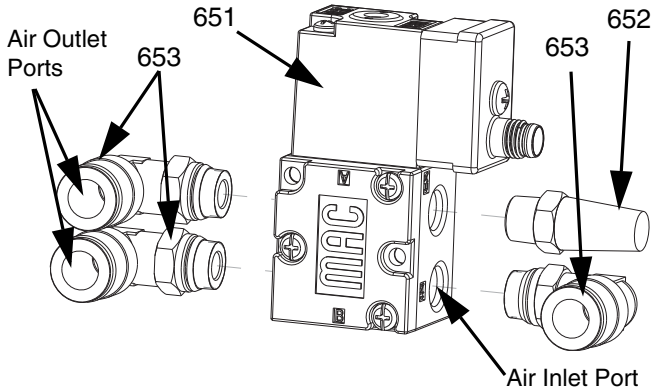


FIG. 36

Ref.	Part	Description	Qty.
651	136244	SOLENOID, 1/8 NPT, 24VDC, 12W	1
652	C06061	MUFFLER, sintered, dia 1/8	1
653	116197	FITTING, elbow, 5/16 OD x 1/8 NPTF (use with 5/16" (8 mm) OD tubing)	3

Inlet Port Size	Outlet Port Size	Electrical Connector Style	Voltage	Solenoid Power
1/8 in. NPT(f)	1/8 in. NPT(f)	M8 2-pin male	24 VDC	12W

Grease Zerk Fitting, 130883 Grease Plug, 136249

For applications dispensing moisture sensitive materials, install the Grease Zerk Fitting (M) into the Fluid Section (E), fill the grease port with grease, and install the Grease Plug (L).

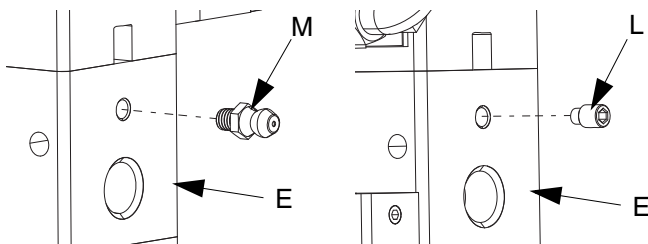


FIG. 37

Solenoid Valve Actuation Cable, 25R781

M8-4 pin male straight connector x M8-4 pin female 90° connector, 15.7 in. (0.4 m) cable length.

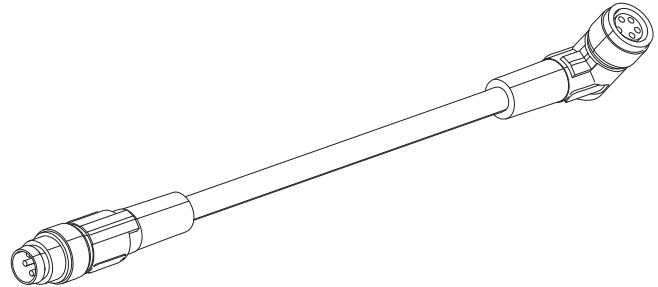


FIG. 38

Solenoid Valve Actuation Cable, 25R799

Accessory cable used to actuate the valve when the valve is connected to customer supplied controls.

M8 - 4 pin female 90° connector x free leads, 393 in. (10.0 m) cable length.

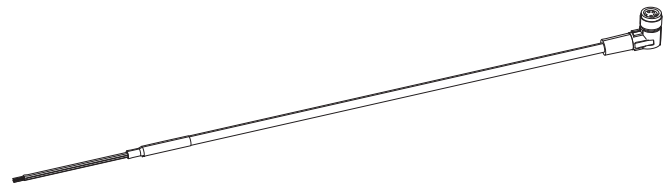


FIG. 39

Seal Kit, 26A861

Use with ball-seat (iQ-B) and snuff-back (iQ-S) valves.

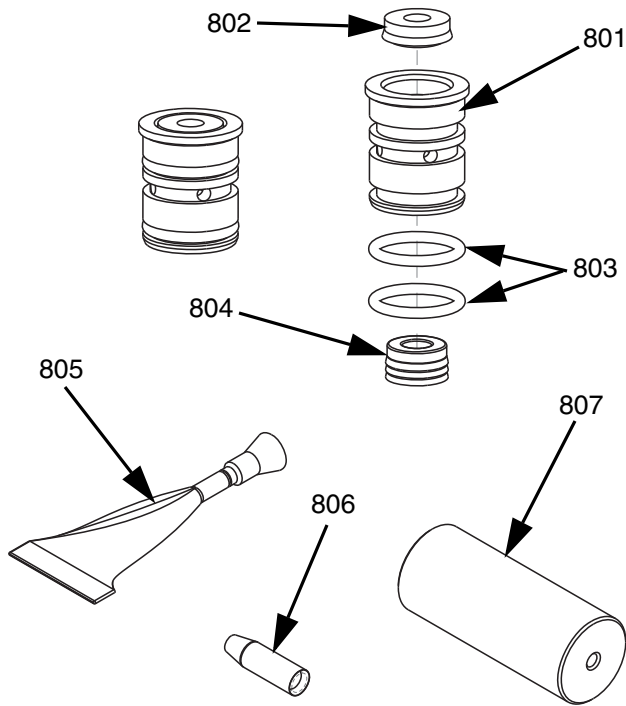


FIG. 40

Ref.	Part	Description	Qty.
801	---	CARTRIDGE, seal, 18" shaft, 1/4"	1
802	95/0884/11	SEAL, pospk	1
803	113746	PACKING, o-ring	2
804	136248	SEAL, u-cup, triple lip	1
805	113500	ADHESIVE, anaerobic	1
806	---	TOOL, assembly, seal	1
807	---	TOOL, installation, seal	1

Seal Kit, 25B302

Use with tip seal (iQ-T) valves.

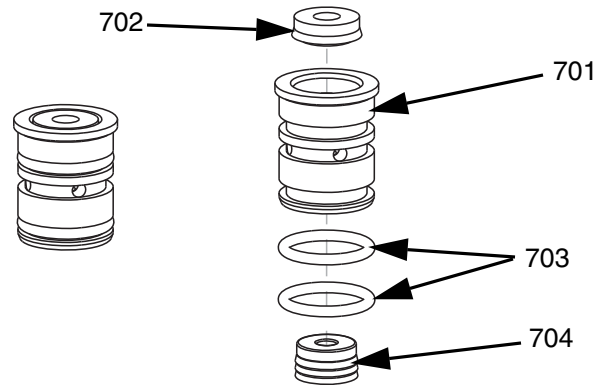


FIG. 41

Ref.	Part	Description	Qty.
701	---	CARTRIDGE, seal, 18" shaft, 1/4"	1
702	95/0884/11	SEAL, pospk	1
703	113746	PACKING, o-ring	2
704	130298	SEAL, u-cup, triple lip	1

Pressure Transducer, 15M669

Use to monitor the fluid outlet pressure in the valve. Requires a pressure transducer adapter for 1/4 in. valves.

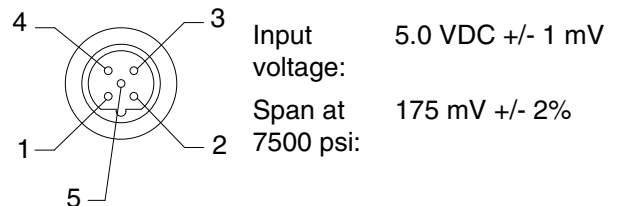
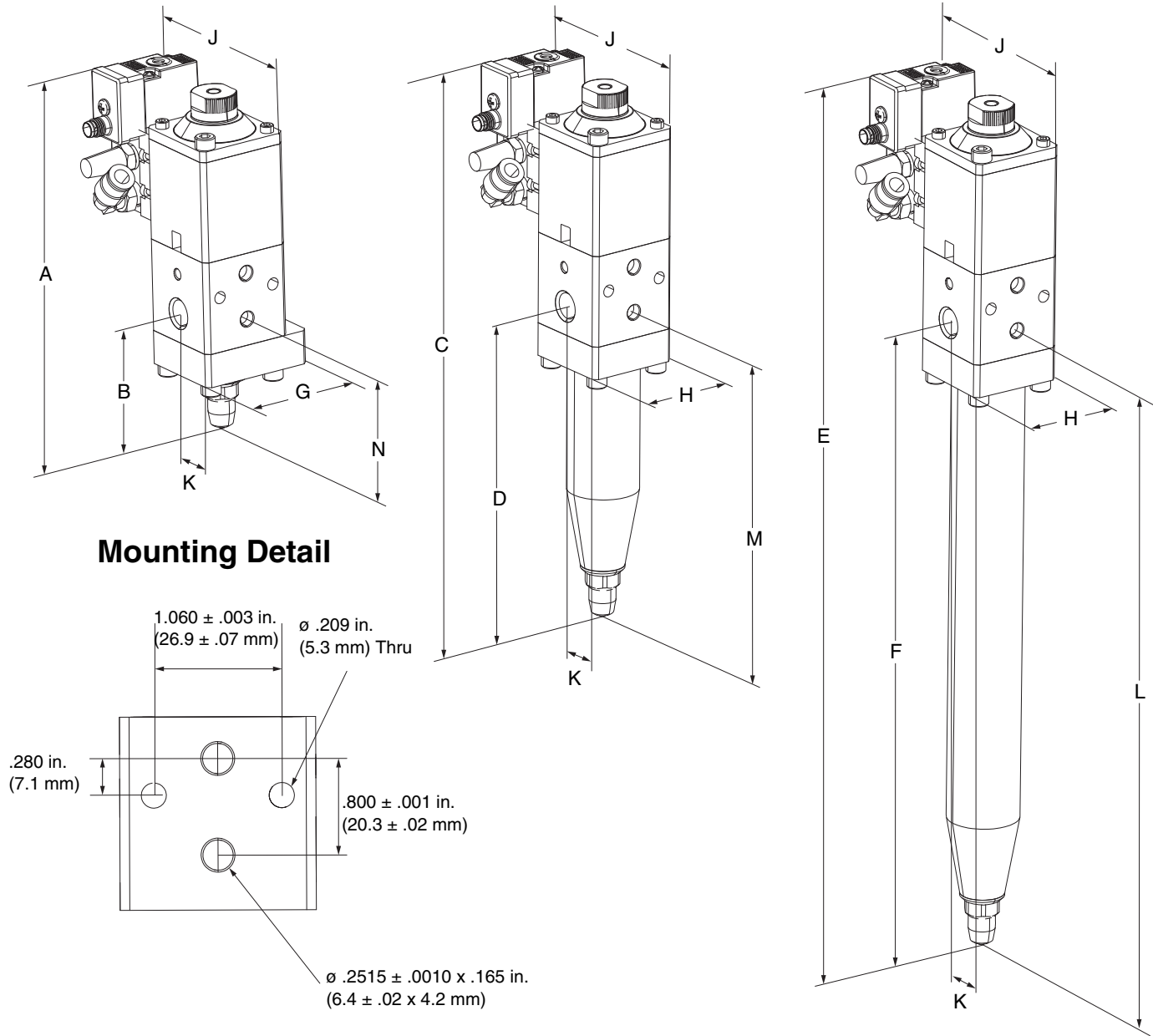


FIG. 42

M12 Pinout Details	
Pin	Description
1	+ Excitation (5 VDC)
2	- Signal
3	- Excitation (COM)
4	+ Signal
5	Shield Drain

Dimensions and Mounting

Tip Seal Dispense Valve



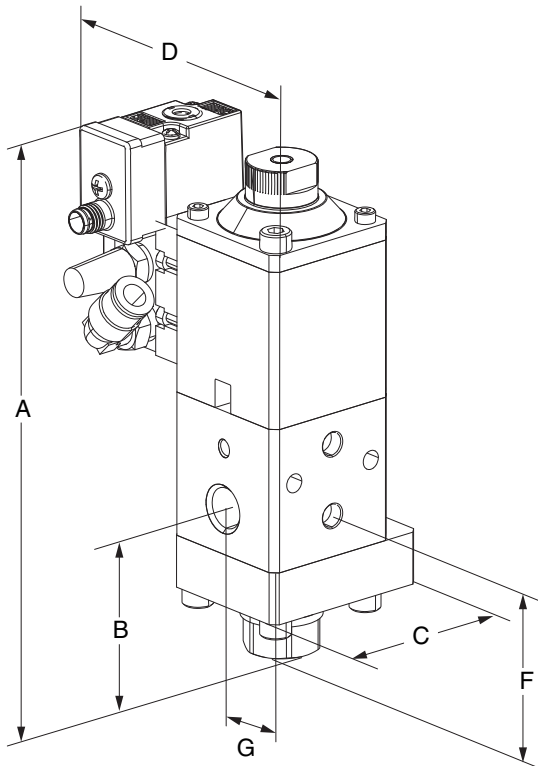
Ref.	Dimension
A	6.4 in. (163 mm)
B	3.1 in. (79 mm)
C	9.6 in. (244 mm)
D	6.3 in. (160 mm)
E	15.3 in. (389 mm)

Ref.	Dimension
F	11.9 in. (302 mm)
G	2.0 in. (51 mm)
H	1.6 in. (41 mm)
J	3.0 in. (76 mm)
K	0.8 in. (20 mm)

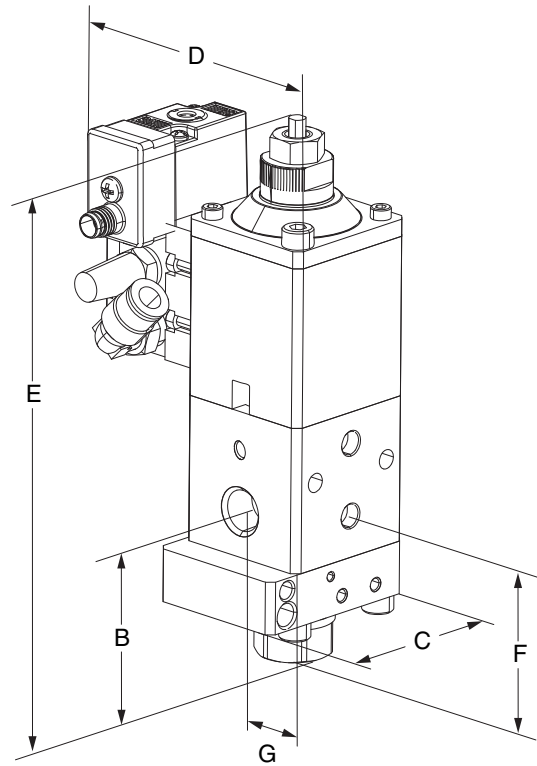
Ref.	Dimension
L	11.5 in. (292 mm)
M	5.8 in. (147 mm)
N	2.6 in. (66 mm)

Ball-Seat and Snuff-Back Dispense Valves

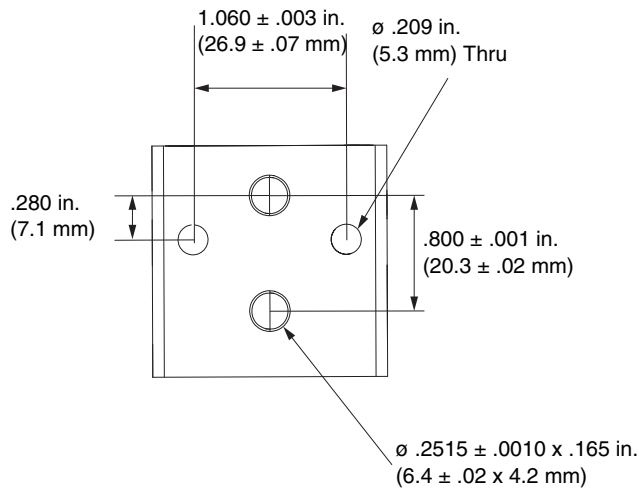
Ball-Seat



Snuff-Back



Mounting Detail

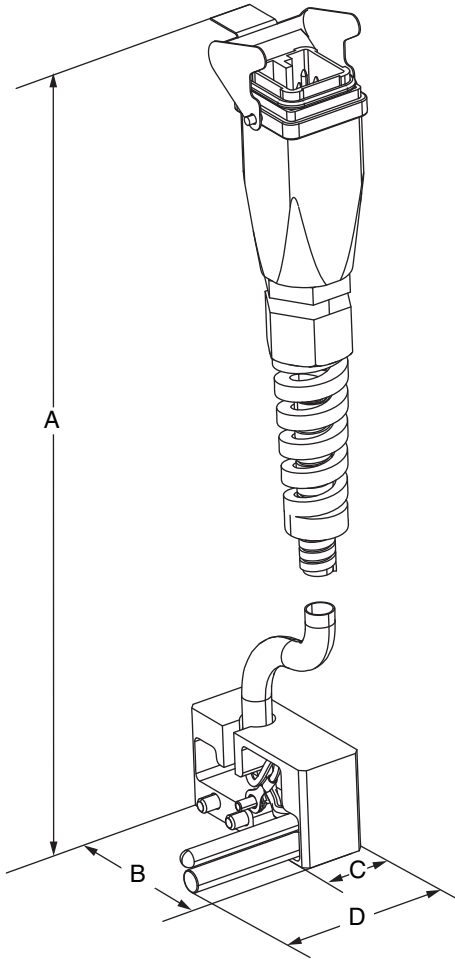


Ref.	Dimension
A	5.5 in. (140 mm)
B	1.7 in. (43 mm)
C	2.0 in. (51 mm)
D	3.0 in. (76 mm)

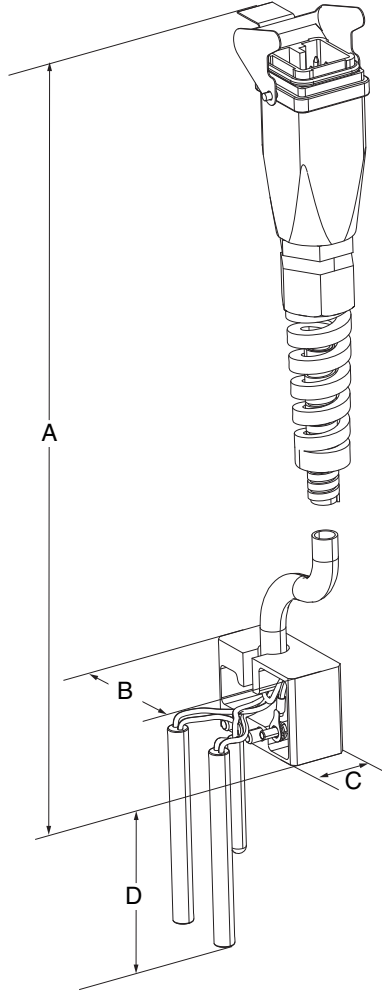
Ref.	Dimension
E	5.9 in. (150 mm)
F	1.7 in. (43 mm)
G	0.8 in. (20 mm)

Heat Assembly

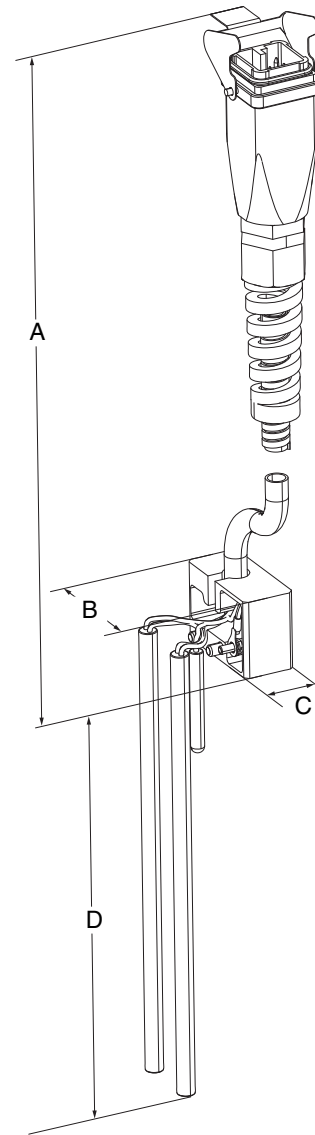
For 0 mm Outlet Block



For 60 mm Outlet Block



For 200 mm Outlet Block

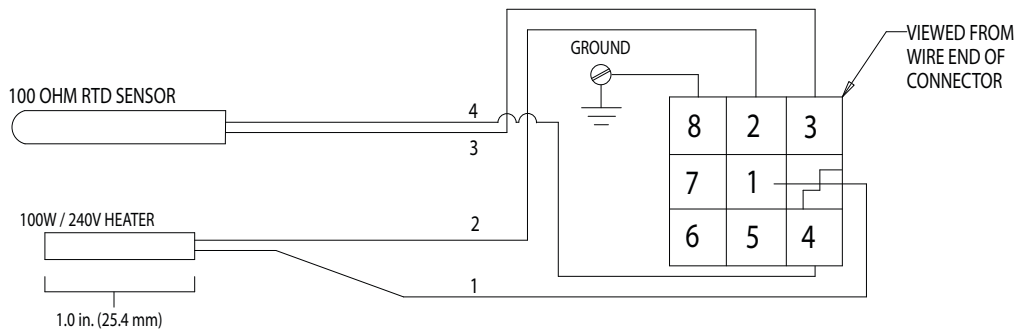


Ref.	Dimension		
	0 mm Outlet Block	60 mm Outlet Block	200 mm Outlet Block
A	21.75 in. (553 mm)	21.75 in. (553 mm)	21.75 in. (553 mm)
B	2.0 in. (51 mm)	1.63 in. (41 mm)	1.63 in. (41 mm)
C	0.75 in. (19 mm)	0.75 in. (19 mm)	0.75 in. (19 mm)
D	2.13 in. (54 mm)	2.21 in. (56 mm)	6.07 in. (154 mm)

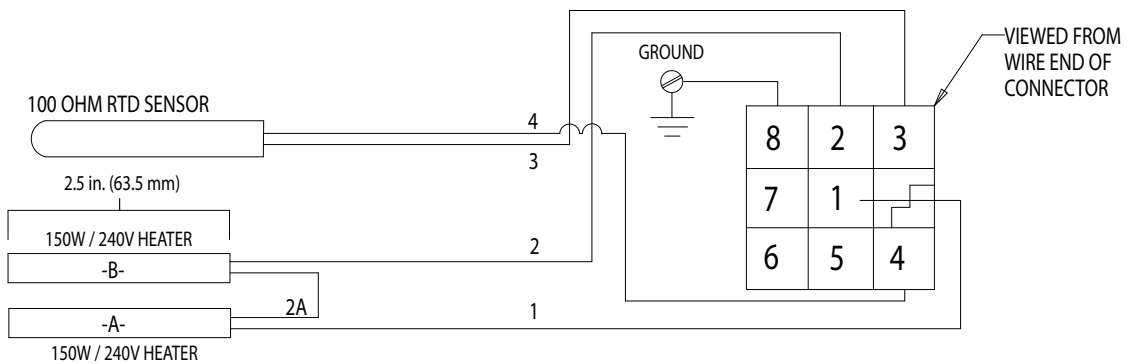
Wiring Diagrams

Electric Housing Wiring Diagram

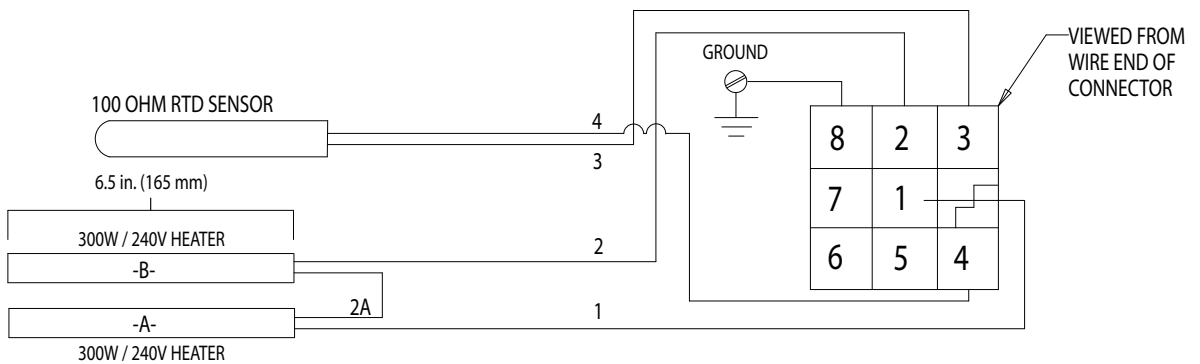
000 Heater (240V, 100W)



060 Heater (240V, 75W)



200 Heater (240V, 150W)



Technical Specifications

iQ-B, iQ-S and iQ-T Valves		
	US	Metric
Maximum fluid working pressure	4000 psi	28 MPa, 276 bar
Maximum cylinder air pressure	120 psi	0.83 MPa, 8.3 bar
Maximum fluid operating temperature	158°F	70°C
Fluid section sealing	Isolation chamber with dual seals	
Divorced air cylinder	Double acting, buna-n o-rings	
Valve Mounted Solenoid		
Inlet and exhaust port size	1/8 in. NPT(f)	
Outlet port size	O-ring seal	
Electrical connector style	M8 2-pin male	
Voltage	24 VDC	
Solenoid power	12W	
Sound Data		
Normal operation (dispensing)	< 70 dBA	
Inlet/Outlet Sizes		
Air inlet size	1/8 in. NPT(f)	
Air exhaust port size	1/8 in. NPT(f)	
Fluid inlet size	1/4 in. NPT(f)	
Fluid outlet size	See Models on page 3 for tip sizes.	
Materials of Construction		
Wetted materials on iQ-B models	Aluminum, UHMWPE, 17-4 SST, PEEK, Chemical Resistant o-rings, Silicon Nitride, CA 360 BRASS, Coated tool steel, and C2 carbide with cobalt binder.	
Wetted materials on iQ-S models	Aluminum, UHMWPE, 316 SST, 17-4 SST, PEEK, Chemical Resistant o-rings, CA 360 BRASS, Coated tool steel, and C2 carbide with cobalt binder.	
Wetted materials on iQ-T models	Aluminum, UHMWPE, 17-4 SST, PEEK, Chemical Resistant o-rings, CA 360 BRASS, Coated Tool Steel, 440C SST, and C2 carbide with cobalt binder.	

Weight				
Outlet Block Length	Ambient, Remote Mount Solenoid	Heated, Remote Mount Solenoid	Ambient, Direct Mount Solenoid	Heated, Direct Mount Solenoid
0 mm	1.8 lb (0.8 kg)	2.1 lb (1.0 kg)	2.1 lb (1.0 kg)	2.5 lb (1.1 kg)
60 mm	2.0 lb (0.9 kg)	2.4 lb (1.1 kg)	2.4 lb (1.1 kg)	2.8 lb (1.3 kg)
200 mm	2.6 lb (1.2 kg)	3.1 lb (1.4 kg)	3.1 lb (1.4 kg)	3.5 lb (1.6 kg)

Electrical Specifications				
Outlet Block Length	Voltage	Wattage	RTD Sensor Resistance (Ohms), Pins 3 & 4	Heater Cartridge Resistance (Ohms), Pins 1 & 2
0 mm	240 V	100W	108.2 Ohms @ 20°C (70°F)	576
60 mm		75W		786
200 mm		150W		384

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

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Original instructions. This manual contains English. MM 333585

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