

A measured step forward™

Operations & Maintenance Manual

**PolyBlend LJPB Series 16, 50, 100 & 200
Chemical Feed System**



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System Overview

READ THIS MANUAL BEFORE YOU INSTALL, OPERATE, OR SERVICE THIS UNIT.

1.1 Safety Precautions

Ensure that the control panel is grounded to avoid possible electrical shock or damage to equipment

Before servicing, turn off all power and assure power "lockout" to avoid possible electric shock.

Disconnect external power to the control panel before removing or replacing fuses.

1.2 Specifications

LJPB PolyBlend 16, 50, 100 & 200					
Specifications		16	50	100	200
Pump	Diaphragm	x	x	x	x
Inlet	1/2" FPT, Water Supply, 5/8" Hose Barb, Polymer Supply	x	x	x	x
Outlet	1/2" FPT, Solution Discharge	x	x	x	
	3/4" FPT, Solution Discharge				x
Water Capacity	16 GPH Primary	x	x		
	100 GPH Primary			x	x
	100 GPH Post Dilution				x
Polymer Capacity	0.4 GPH	x			x
	1.0 GPH		x	x	
Pressure Rating	100 PSI	x	x	x	x
Electrical Supply	120/1/60, 6 Amps	x	x	x	x
Dimensions	24" H x 10" W x 16" D	x			
	23" H x 10" W x 16" D		x	x	
	23" H x 12" W x 16" D				x
Weight	51 lbs	x	x	x	
	65 lbs				x
Motor(s)	(1) 1/6 HP, 120VAC, 3.6 AMPS	x	x	x	x

Installation

2.1 Location

Select a location that provides:

- Electrical Supply
- Potable Water (Clean)
- Proximity to the Point of Use
- Easy Handling and Storage of Polymer
- Access to Unit
- Protection Against Severe Weather

2.2 Unpacking

Examine package contents for damage. Report any to freight forwarder. Check plastic bag(s) for contents against individual packing list(s).

NOTE: Disregard any moisture; this unit was wet tested.

2.3 Connections

- Use Teflon tape on threads. Use joint compound (pipe dope) in small amounts, if necessary.
- Do not over-tighten fittings.
- Insure that supply water pressure is **less than 100 psi**.
- Install water isolation valve with unions.
- Insure that neat polymer feed line has a **flooded suction**.

NOTE: To enhance performance, reduce the number of piping turns and elevation changes.

2.4 Storage

Store in atmosphere controlled environment. Protect from extreme temperature (above 110°F, 52°C, below 32°F, 0°C) and wide ambient temperature fluctuations.

Protect from direct weather exposure, i.e., sun, rain, high wind, etc.

Operation

3.1 General

This PolyBlend® unit will perform the following functions: meter polymer dosage, regulate mixing water, provide uniform dilution and activation, operate on-line continuously, and feed solution to the point of use. Neat polymer from the metering pump and dilution water controlled by the solenoid valve enter the mixing chamber. Dilution and activation occur, yielding prepared solution ready for use. Neat polymer dosage rate is adjusted at pump face. Primary dilution (and post dilution) water are controlled by individual flow control valves.

3.2 Start-Up

Step 1: Switch pump to external mode at pump face.

Step 2: Prime polymer pump, using priming kit provided with unit.

Step 3: Place unit power switch in Off position.

Step 4: Energize power circuit that feeds unit. Solenoid opens. Allow mixing chamber to fill with water by opening primary dilution water control valve.

NOTE: Do not turn mixer motor on until chamber is filled with water, running dry will damage mechanical seal.

Step 5: Place unit power switch in On position. Mixing chamber motor starts.

Step 6: To turn pump On/Off and for polymer output adjustment. Output can also be adjusted at pump face by varying the stroke length.

NOTE: For optimum pump performance, keep stroke frequency as high as possible. This is done by decreasing the stroke length setting. More stroke repetition with a shorter length is better than fewer strokes with a long stroke length. If stroke length is too short, pump prime may be affected.

Step 7: Adjust water flow at mixing chamber by turning control valve. (The other control valve should be turned for post-dilution adjustment, if applicable.)

NOTE: Do not run polymer pump unless water flow is established. Polymer alone can plug discharge plumbing.

3.3 Water Pressure

This unit is equipped with a flow regulator. The inlet water flow rate is maintained as pressure fluctuates. With the low dilution water rate of this unit, the regulator prevents pressure surges that could cause flow increases and affect solution concentrations. This device is factory set and not field-adjustable.

3.4 Solution Output

Unit output is determined by setting pump stroke length and stroke frequency together with setting dilution water flow. Establish desired solution volume and solution concentration, and then proceed.

EXAMPLE: 100 GPH (380 LPH) of .5% polymer solution desired. A 2 GPH (7.6 LPH) diaphragm pump is used.

—Determine neat polymer requirement.

$(100 \text{ GPH}) \times (.005) = 0.5 \text{ GPH neat polymer}$
 $(380 \text{ LPH}) \times (.005) = 1.9 \text{ LPH neat polymer}$

—Determine pump usage.

$(0.5 \text{ GPH}) \div (2 \text{ GPH}) = 25\% \text{ pump capacity}$
 $(1.9 \text{ LPH}) \div (7.6 \text{ LPH}) = 25\% \text{ pump capacity}$

—Set Controls

A 2 GPH (7.6 LPH) pump @ 100% stroke length and 25 strokes per minute will deliver 0.5 GPH (1.9 LPH). However, 2 GPH (7.6 LPH) pump @ 50% stroke length and 50 strokes per minute will also deliver 0.5 GPH (1.9 LPH) with a more homogeneous mix.

NOTE: Do not exceed polymer concentrations of 1% in the PolyBlend®.

Maintenance

4.1 Shutdowns

If out of service more than one week, flush mixing chamber.

Turn pump off.

- Place unit power switch in On position to establish water flow for five minutes.

If out of service for more than two weeks, flush pump and mixing chamber.

- Connect pump suction to a container of mineral oil (not water).
- Place unit power switch in On position to establish water flow.
- Turn pump on and run for three minutes.
- Turn pump off.
- Continue water flow for five additional minutes.
- Drain water from chamber and piping to prevent freezing.

4.2 Maintenance

1. Clean ancillary water and / or polymer strainers weekly.
2. Flush system monthly following one-week procedure.
3. Refer to the appendix for specific information on drawings, part identification, and components.

4.3 Special Tools

No special tools needed for operation, maintenance, and repair of components.

4.4 Lubrication

No lubrication is required. Equipment is self-lubricating.

4.5 Predicted Life Span

There is no predicted life span of wear parts as each application and operation varies.

4.6 Operating Procedures

For normal operation, once settings are adjusted based on operation parameters, the system can simply be turned ON or OFF. Special operating instructions for Seasonal operation do not apply.

4.7 Emergency Operating Instructions

Emergency operating instructions do not apply. In case of an emergency, **TURN OFF POWER TO STOP RUNNING.**

4.8 Disassembly, Repair, & Reassembly

This equipment is an open-frame design. It allows for easy removal of all components. There are no special procedures for removal of parts.

4.9 Recommended Spare Parts

Recommended Spare Parts						
Description	Part #	Qty.	16	50	100	200
Chamber Mechanical Seal	7802910	1	x	x	x	x
Belt, Chamber	1450318	1	x	x	x	x
Bearing, Chamber Base	1414001	1	x	x	x	x
Bearing, Chamber Top	1410002	1	x	x	x	x
Pump Head	26050-1	1	x			
	38569	1		x	x	
	28930-1	1				x

4.10 To Order Parts

You may order parts by calling, faxing or mailing your order.

4.11 Trouble Shooting

Symptom	Possible Causes	Corrective Action
No Water Flow	Closed Valve on Water Supply	Make sure valve is open
	Blocked Solenoid Valve	Dis-assemble and clean valve
	Closed or clogged discharge line	Remove any blockages or open any closed valves
	Rate Control Valve Closed	Make sure valve is open
Pump won't pump Chemical	Pump is turned OFF	Make sure pump is in ON position
	No Water Flow	Make sure all water valves (supply and discharge) are open
	Blocked Pump Discharge Line	Take discharge line apart, check for blockage and clean if necessary
	Back Pressure is too high	Reduce Back pressure on unit
	Not enough water flow	Increase water flow or adjust water monitoring device (flow switch, DP switch, etc.) setpoint lower than the desired flow rate
Clogged Injection Check Valve	Debris or Clumps in Polymer	Check polymer supply for contamination
	Valve is stuck open allowing water into polymer line	Remove valve from chamber and clean it
Pump won't stop	Water flow is still established	Shut off water valve or power to the unit
	Pump is in internal mode	Switch pump to external

4.12 Differential Pressure Switch

4.12.1 Location of Differential Pressure Switch

The high pressure port connects to the inlet manifold between the solenoid valve and the rotameter/rate-adjusting valve. The low pressure port connects to the discharge side of the rotameter.

4.12.2 Function of Differential Pressure Switch

The differential pressure switch ensures sufficient water flow is present before the polymer pump is energized. This integral, automatic safety feature eliminates the problem of overfeeding neat polymer to an application without proper dilution.

In operation, the rate valve is adjusted to produce the desired flow through the system. This causes a pressure drop to occur across the valve which is applied to the differential pressure switch.

If supply pressure decreases enough to affect flow rate or if back pressure between the PolyBlend and the point of solution application increases enough to affect flow rate, the differential pressure across the rotameter and valve decreases. This causes power to be interrupted to the polymer pump and prevents damage to the mixing system caused by extremely high viscosity developing in the mixing chamber.

NOTICE: If system pressure or flow are not adequate, investigate the cause of lack of flow. (For example, inadequately sized piping can produce inadequate flow.) To avoid undesirable water dilution conditions and damage to equipment, do not bypass or adjust the differential pressure switch for a lower pressure/flow setting.

Question: Why doesn't the polymer pump turn off when I turn the water off using the rotameter?

The differential pressure switch senses flow on either side of a pressure drop. Because the rotameter is the sensing point, the rotameter closing is the only

cause of loss of flow that the differential pressure switch cannot see.

Test the differential switch by turning off the source water or the discharge flow. (See step 5 on the next page.)

4.12.3 Adjusting the Differential Pressure Switch

Adjust the PolyBlend differential pressure switch only if pressure and flow to the system are adequate.

The adjustment logic is the opposite of what you might expect. The PolyBlend differential pressure switches have a red light (on the left side) that lights up whenever source water flow is too low and the polymer pump is disabled. The pump stops pumping when the flow is too low. Low flow may be from lack of incoming water or from too much back pressure on the outgoing side.

	Adjustment		System Reaction
1	Turn the PolyBlend rotameter until water flow is at maximum on the flow gauge.		
2	Screw in the differential pressure knob until the red alarm light goes on.		Polymer pump is disabled.
3	Back off the differential pressure knob until the red alarm light goes off.		The pump starts again.....
4	<div>4a. If you want very close control of flow, leave the knob at this setting. At this setting, any loss of flow (as observed by the rotameter) results in the pump being disabled.</div>	<div>4b. If you want to make the system "more forgiving" prior to shutdown, continue to turn the knob another 1-2 turns. The further you turn the knob, the more How can be lost before the pump is disabled.</div>	Step 4 determines how "forgiving" the system is before it shuts down due to inadequate flow.
5	To test sensitivity and operation, turn off the water at the source or the solution at the discharge. The float in the flow meter will fall more for the control knob setting described in step 41) than, for 4a (above).		As the source or discharge is turned off, the float in the flow meter falls and the pump is disabled.
6	Set the rotameter for the desired flow.		Retest (as in step 5).

**BODINE®
ELECTRIC
COMPANY**

MOTOR/GEARMOTOR SAFETY, INSTALLATION, USE, AND MAINTENANCE INFORMATION

Bodine Electric Co., 2500 W. Bradley Pl., Chicago, IL 60618 U.S.A.

Form PIN 074 00045 Printed in U.S.A. (OH)

Congratulations . . . and thanks on your selection of a Bodine Motor/Gearmotor. With your new drive unit you will find yourself enjoying the same high performance and relatively trouble free operation that have been characteristic of Bodine products since 1905. We call it ADE (After Delivery Economics).

The Bodine Electric Company prides itself on the quality of design and manufacture of its products. Great care is taken in an attempt to provide products free of defective design, workmanship, or materials. It will be considered a favor to have cases of unsatisfactory service from Bodine products brought to our attention.

SAFETY

"The use of electric motors and generators, like that of all other utilization of concentrated power, is potentially hazardous. The degree of hazard can be greatly reduced by proper design, selection, installation, and use, but hazards cannot be completely eliminated. The reduction of hazard is the joint responsibility of the user, the manufacturer of the driven or driving equipment, and the manufacturer of the motor or generator."

Bodine products are designed and manufactured to comply to applicable safety standards and in particular to those issued by ANSI (American National Standards Institute), NEMA (National Electrical Manufacturers Association), U.L. (Underwriters Laboratories, Inc.), and CSA (Canadian Standards Association).

Most Bodine products are "third party approved" with respect to construction. Motors and gearmotors having component recognition by U.L. Inc. have a "C" or "UL" symbol in the left-most unlabeled space on the bottom row of their nameplates. Those that are CSA certified have a "CSA" mark in the same location. If you need specific information regarding the "third party approval" of Bodine products, contact your Bodine representative, or the home office.

However, since even well-built apparatus can be installed or operated in a hazardous manner, it is important that safety considerations be observed by the user. With respect to the load and environment, the user must properly select, install, and use the apparatus—for guidance on all three aspects see safety standards publication No. ANSI/NEMA MG-2.

■ Standards Publication No. ANSI/NEMA MG-2. "Safety Standard for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators."

Available from:
National Electrical Manufacturers Assoc.
2101 L Street N.W.
Washington, D.C. 20037, U.S.A.

SELECTION

Before proceeding with the installation, the user should review the application to confirm that the proper drive has been selected. This should be done after reading this notice and all applicable safety standards. If in doubt, contact your Bodine Representative or the Home Office if there is no Representative in your area. Any selection or application suggestions made by Bodine are only to assist the customer—and in all cases, determination of fitness for purpose or use is solely the customer's responsibility.

Unless otherwise agreed to by Bodine, all

nameplate ratings are based on the following normal operating conditions:

1. Duty—8 hours per day; 5 days per week if nameplate continuous duty (CONT), without frequent reversals or starts and stops. Products intended for intermittent duty show a time rating on the nameplate based on keeping the winding temperature within the maximum allowable temperature of the insulation system when the motor is started with windings within 5°C of the ambient temperature.
2. Ambient temperature 0 to 40°C (104°F).
3. Load—Uniform and free from shock or high inertia.
4. Voltage—Within 10% of nameplate rating.
5. Frequency—Within 5% of nameplate rating.
6. Combined variation of voltage and frequency—Within a total of 10% providing frequency variation does not exceed 5%.

Consult Bodine if variations from the above conditions are contemplated.

INSTALLATION

It is the responsibility of the equipment manufacturer or individual installing the apparatus to take diligent care in installing it. The National Electrical Code (NEC), sound local electrical and safety codes, and when applicable, the Occupational Safety and Health Act (OSHA) should be followed when installing the apparatus to reduce hazards to persons and property.

Inspection

Examine for damage from shipment before connecting. Any claim(s) for shipping damage should be made to the freight carrier. Do not attempt to turn the output shaft of a gearmotor with an externally applied torque arm.

Mounting

Any screws, or similar devices, that penetrate the motor frame either for mounting the Bodine product or mounting something to the product should be limited in length so as not to come in contact with, or in close proximity to, intended features that conduct electricity. Spacings as high as .158" may be required based on voltages and circuitry involved. Consult factory if necessary.

Preferred mounting positions for Bodine products are illustrated in selection literature. Gearmotor mountings other than those shown are not recommended on some gearmotors due to (a) the possibility of gearhead lubricant leakage into the motor portion and (b) possible leakage from gearhead breather and oil level holes. Also, for parallel-shaft gearmotors, the proper lubricant quantity provided for horizontal mounting is not sufficient for vertical mounting. By making the proper adjustments (normally done at the factory), mountings other than the preferred positions of gearmotors are possible.

Connection

Follow nameplate for voltage, frequency, and phase of power supply. See accompanying wiring diagram as to connections for rotation (and capacitor, resistor, relay, protector, if required). When connecting, make sure that your motor/gearmotor is securely and adequately grounded—failure to ground properly may cause serious injury to personnel. (If wiring diagram shipped with drive unit becomes lost or missing, contact Bodine, providing serial number (ND) and (TYPE) information shown on the nameplate of the unit).

Wiring

For wire sizes and electrical connections refer to the National Electric Code (NEC)—Article 430—"Motors, Motor Circuits, and Controllers" and/or applicable local area codes. If extension cords are used, they should be kept short for minimum voltage drop. Long or inadequately sized cords can cause motor failure, particularly with hard starting loads when current draw tends to be at its highest.

USE

Additional Safety Considerations

The chance of electric shocks, fires, or explosions can be reduced by giving proper consideration to the use of grounding, thermal and over current protection, type of enclosure, and good maintenance procedures.

The following information supplements the foregoing safety considerations: This information is not purported to be all-inclusive and the aforementioned references should be consulted.

1. Do not insert objects into the ventilation openings of products.
2. Sparking of starting switches in AC motors so equipped, and of brushes in commutator type motors, can be expected during normal operation. In addition, open-type enclosures may eject flame in the event of an insulation failure. Therefore, avoid, protect from, or prevent the presence of flammable or combustible materials in the area of motors/gearmotors.
3. Bodine totally enclosed products are not explosion proof or dust ignition proof nor does Bodine offer such products for hazardous locations (flammable/explosive gas, vapor, dust). When dealing with hazardous locations, an approved explosion proof or dust ignition proof product is the recommended approach. Exceptions are allowed by the National Electrical Code: The NEC and the NEMA safety standard should be studied thoroughly before exercising this option.
4. Open, ventilated motors are suitable for clean, dry locations where cooling air is not restricted. Enclosed motors/gearmotors are suitable for dirty, damp locations. For outdoor use, wash downs, etc., enclosed motors must be protected by a cover while still allowing adequate air flow.
5. Moisture will increase the electrical shock hazard of electrical insulation. Therefore, consideration should be given to the avoidance of (or protection from) liquids in the area of motors. Use of totally enclosed motors/gearmotors will reduce the hazard if all openings are sealed.
6. Products equipped with thermal protectors are labeled "THERMALLY PROTECTED." If severe over-loading, jamming, or other abnormal operating conditions occur, such heat sensitive protectors operate to open the electric power supply circuit. Motors/gearmotors with "automatic" thermal protectors MUST NOT be used where automatic restarting of the drive unit could be hazardous in that clothing or parts of the human body could be in electrical or physical contact with a machine that starts unexpectedly when the thermal protector cools down. MANUAL RESET protectors or suitable electric supply disconnect devices/procedures should be used where such hazards could be created.

Installation & Maintenance Instructions

2-WAY DIRECT-ACTING SOLENOID VALVES

NORMALLY OPEN OR NORMALLY CLOSED OPERATION

BRASS OR STAINLESS STEEL CONSTRUCTION – 1/8", 1/4", OR 3/8" NPT

SERIES

8262

8263

Form No.V5256R9

IMPORTANT: See separate solenoid installation and maintenance instructions for information on: **Wiring, Solenoid Temperature, Causes of Improper Operation, and Coil or Solenoid Replacement.**

DESCRIPTION

Series 8262 and 8263 valves are 2-way direct-acting general service solenoid valves. Valves bodies are of rugged brass or stainless steel. Series 8262 or 8263 valves may be provided with a general purpose or explosionproof solenoid enclosure. Series 8262 and 8263 valves with suffix "P" in the catalog number are designed for dry inert gas and non-lubricated air service.

OPERATION

Normally Open: Valve is open when solenoid is de-energized; closed when is energized.

Normally Closed: Valve is closed when solenoid is de-energized; open when energized.

IMPORTANT: No minimum operating pressure required.

Manual Operation

Manual operator allows manual operation when desired or during an electrical power outage. Depending upon basic valve construction, three types of manual operators are available:

Push Type Manual Operator

To engage push type manual operator, push stem at base of valve body upward as far as possible. Valve will now be in the same position as when the solenoid is energized. To disengage manual operator, release stem. Manual operator will return to original position.

Screw Type Manual Operator

To engage screw type manual operator, rotate stem at base of the valve body clockwise until it hits a stop. Valve will now be in the same position as when the solenoid is energized. To disengage, rotate stem counterclockwise until it hits a stop.

⚠ CAUTION: For valve to operate electrically, manual operator stem must be fully rotated counterclockwise.

Stem/Lever Type Manual Operator

To engage manual operator, turn stem/lever clockwise until it hits a stop. Valve will now be in the same position as when the solenoid is energized. To disengage manual operator, turn stem/lever counterclockwise until it hits a stop.

⚠ CAUTION: For valve to operate electrically, manual operator stem/lever must be fully rotated counterclockwise.

Flow Metering Devices

Valves with suffix "M" in catalog number are provided with a metering device for flow control. Turn stem to right to reduce flow; left to increase flow.

INSTALLATION

Check nameplate for correct catalog number, pressure, voltage, frequency, and service. Never apply incompatible fluids or exceed pressure rating of the valve. Installation and valve maintenance to be performed by qualified personnel.

Note: Inlet port will either be marked "I" or "IN". Outlet port will be marked "2" or "OUT".

Future Service Considerations.

Provision should be made for performing seat leakage, external leakage, and operational tests on the valve with a nonhazardous, noncombustible fluid after disassembly and reassembly.

Temperature Limitations

For maximum valve ambient and fluid temperatures, refer to charts below. Check catalog number, coil prefix, suffix, and watt rating on nameplate to determine the maximum temperatures.

Wattage	Catalog Number Coil Prefix	Coil Class	Max. Ambient Temp. °F	Max. Fluid Temp. °F
6, 10.5, 12.4	none, DA or S	A	77	180
6, 10.5 12.4	DF, FT or SF	F	125	180
6, 10.5, 12.4	HT	H	140	180
9, 10.7	none, DP or SP	F	77	180
9.7	none, FT or HT	A, F or H	77	120
11.2	none, FT or HT	A, F or H	77	150
16.7	none, DP or SP	F	77	200
17.1	none, KP SP or SD	F	125	180
17.1	HB, KB SS or SV	H	140	180

Catalog Nos.8262B200 and 8262 C200 AC construction only and Catalog Nos.8262B214 and 8262 D200 AC and DC construction are limited to 140°F fluid temperature.

Valves with Suffix V or W that are designed for AC service and normally closed operation are for use with No. 2 and 4 fuel oil service. These valves have the same maximum temperatures per the above table except Suffix W valves are limited to a maximum fluid temperature of 140°F.

Listed below are valves with Suffix V in the catalog number that are acceptable for higher temperatures.

Catalog Number Coil Prefix	Max. Ambient Temp. °F	Max. Fluid Temp. °F
FT8262, HB8262 FT8263, HB8263 8262G, 8263G	125	250*
HT or HB 8262G HT or HB 8263G	140	250

*The only exception is the 8262G and 8263G series (Class F coil) at 50 Hertz rated 11.1 and 17.1 watts are limited to 210°F fluid temperature.

Positioning

This valve is designed to perform properly when mounted in any position. However, for optimum life and performance, the solenoid should be mounted vertically and upright to reduce the possibility of foreign matter accumulating in the solenoid base sub-assembly area.

Valves with suffix "P" in the catalog number must be mounted with the solenoid vertical and upright.

Mounting

Refer to Figure 2 for mounting dimensions.

Piping

Connect piping or tubing to valve according to markings on valve body. Inlet port will either be marked "I" or "IN". Outlet port will be marked "2" or "OUT". Wipe the pipe threads clean of cutting oils. Apply pipe compound sparingly to male pipe threads only. If applied to valve threads, the compound may enter the valve and cause operational difficulty. Avoid pipe strain by properly supporting and aligning piping. When tightening the pipe, do not use valve or solenoid as a lever. Locate wrenches applied to valve body or piping as close as possible to connection point.

IMPORTANT: To protect the solenoid valve, install a strainer or filter suitable for the service involved, in the inlet side as close to the valve as possible. Clean periodically depending on service conditions. See ASCO Series 8600, 8601 and 8602 for strainers.

MAINTENANCE

▲ WARNING: To prevent the possibility of death, serious injury or property damage, turn off electrical power, depressurize valve, and vent fluid to a safe area before servicing the valve.

NOTE: It is not necessary to remove the valve from the pipeline for repairs.

Cleaning

All solenoid valves should be cleaned periodically. The time between cleanings will vary depending on the medium and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive noise or leakage will indicate that cleaning is required. In the extreme case, faulty valve operation will occur and the valve may fail to open or close. Clean strainer or filter when cleaning the valve.

Preventive Maintenance

- Keep the medium flowing through the valve as free from dirt and foreign material as possible.
- While in service, the valve should be operated at least once a month to insure proper opening and closing.
- Depending on the medium and service conditions, periodic inspection of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

Causes of Improper Operation

- **Incorrect Pressure:** Check valve pressure. Pressure to valve must be within range specified on nameplate.
- **Excessive Leakage:** Disassemble valve (see Maintenance) and clean all parts. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

Valve Disassembly

1. Disassemble valve using exploded views for identification of parts.
2. Remove solenoid, see separate instructions.
3. Unscrew solenoid base sub-assembly or valve bonnet with special wrench adapter supplied in ASCO Rebuild Kit. For wrench adapter only, order No. K218948. Remove core assembly, core spring, and solenoid base gasket from valve body. For normal maintenance on Series 8263 valves it is not necessary to remove valve seat. See Figure 1 for metering or manual operator constructions.
4. For normally open construction (Figure 3) remove end cap, or manual operator, (not shown) end cap gasket, disc holder spring, and disc holder assembly.
5. All parts are now accessible to clean or replace. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

Valve Reassembly

1. Use exploded views for identification, orientation and placement of parts.
2. Lubricate all gaskets with DOW CORNING® 111 Compound lubricant or an equivalent high-grade silicone grease.
3. For normally open construction (Figure 3), install disc holder assembly, disc holder spring, end cap gasket and end cap or manual operator. For valves with 1/8" NPT, torque end cap or manual operator to 90 ± 10 in-lbs [10.2 ± 1.1 Nm]. For all other valves torque end cap or manual operator to 175 ± 25 in-lbs [19.8 ± 2.8 Nm].
4. For Series 8263 apply a small amount of LOCTITE® PST® pipe sealant to threads of valve seat (if removed). Follow manufacturers instructions for application of pipe sealant. Then install valve seat and torque to 75 ± 10 in-lbs [8.5 ± 1.1 Nm].
5. Replace solenoid base gasket, core assembly with core spring and solenoid base sub-assembly or plugnut/core tube sub-assembly and valve bonnet. Note: For core assemblies with internal type core springs, install wide end of core spring in core assembly first, closed end of core spring protrudes from top of core assembly.
6. For 1/8" NPT valve constructions, Torque valve bonnet to 90 ± 10 in-lbs [10.2 ± 1.1 Nm]. Torque solenoid base sub-assembly to 175 ± 25 in-lbs [19.8 ± 2.8 Nm].
7. Install solenoid, see separate solenoid instructions. Then make electrical hookup to solenoid.

▲ WARNING: To prevent the possibility of death, serious injury or property damage, check valve for proper operation before returning to service. Also perform internal seat and external leakage tests with a nonhazardous, noncombustible fluid.

8. Restore line pressure and electrical power supply to valve.
9. After maintenance is completed, operate the valve a few times to be sure of proper operation. A metallic click signifies the solenoid is operating.

ORDERING INFORMATION FOR ASCO REBUILD KITS

Parts marked with an asterisk (*) in the exploded view are supplied in Rebuild Kits. When Ordering Rebuild Kits for ASCO valves, order the Rebuild Kit number stamped on the valve nameplate. If the number of the kit is not visible, order by indicating the number of kits required, and the Catalog Number and Serial Number of the valve(s) for which they are intended.

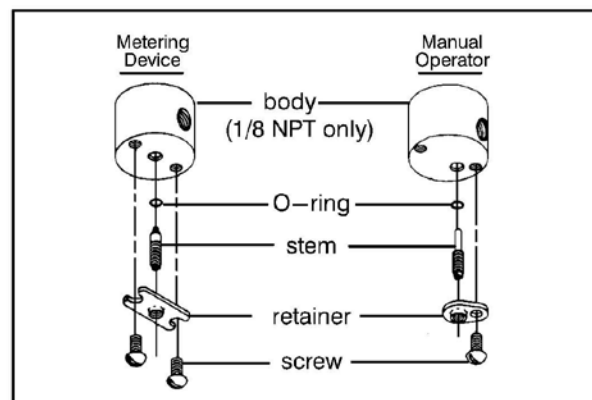


Figure 1. Metering and manual operator constructions.

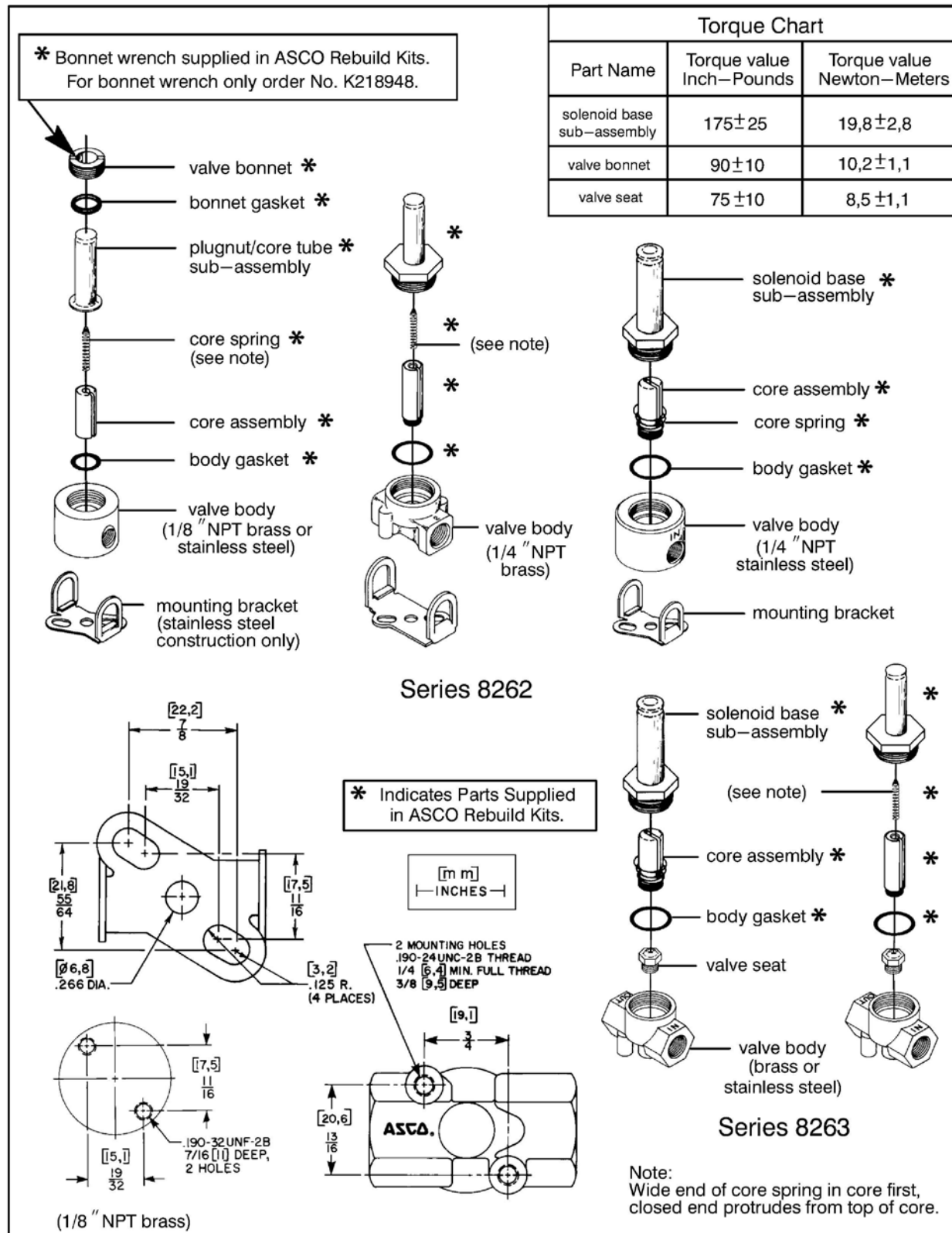


Figure 2. Series 8262 and 8263, normally closed construction.

Disassembly and Reassembly of Stem /Lever Type Manual Operator (Refer to Figure 3)

NOTE: There are two stem/lever manual operator constructions. They are identified by the location of the core spring as *internal* or *external* spring construction.

1. Unscrew solenoid base sub-assembly from manual operator body.
2. Unscrew manual operator body from valve body. Then remove body gasket and stem retainer.
3. Slip stem/spacer sub-assembly with stem gasket from manual operator body. Remove core assembly with core spring from center of manual operator body.
4. All parts are now accessible for cleaning or replacement. Lubricate gaskets per *Valve Reassembly* step 2.

5. Position core assembly with core spring into base of manual operator body. Then install stem/spacer sub-assembly into manual operator body to engage with core assembly.
6. Reinstall stem retainer on body and stem/spacer sub-assembly.

IMPORTANT: The spacer on the stem/spacer sub-assembly must be *inside* of the stem retainer for *internal* spring construction and *outside* the stem retainer for *external* spring construction.

7. Replace body gasket and install manual operator assembly in valve body. Torque manual operator body to 175 ± 25 in-lbs [$19,8 \pm 2,8$ Nm].
8. Replace solenoid base gasket and solenoid base sub-assembly. Torque solenoid base sub-assembly to 175 ± 25 in-lbs [$19,8 \pm 2,8$ Nm].
9. Check manual operator for proper operation. Turn stem clockwise and counterclockwise; stem should turn freely without binding.

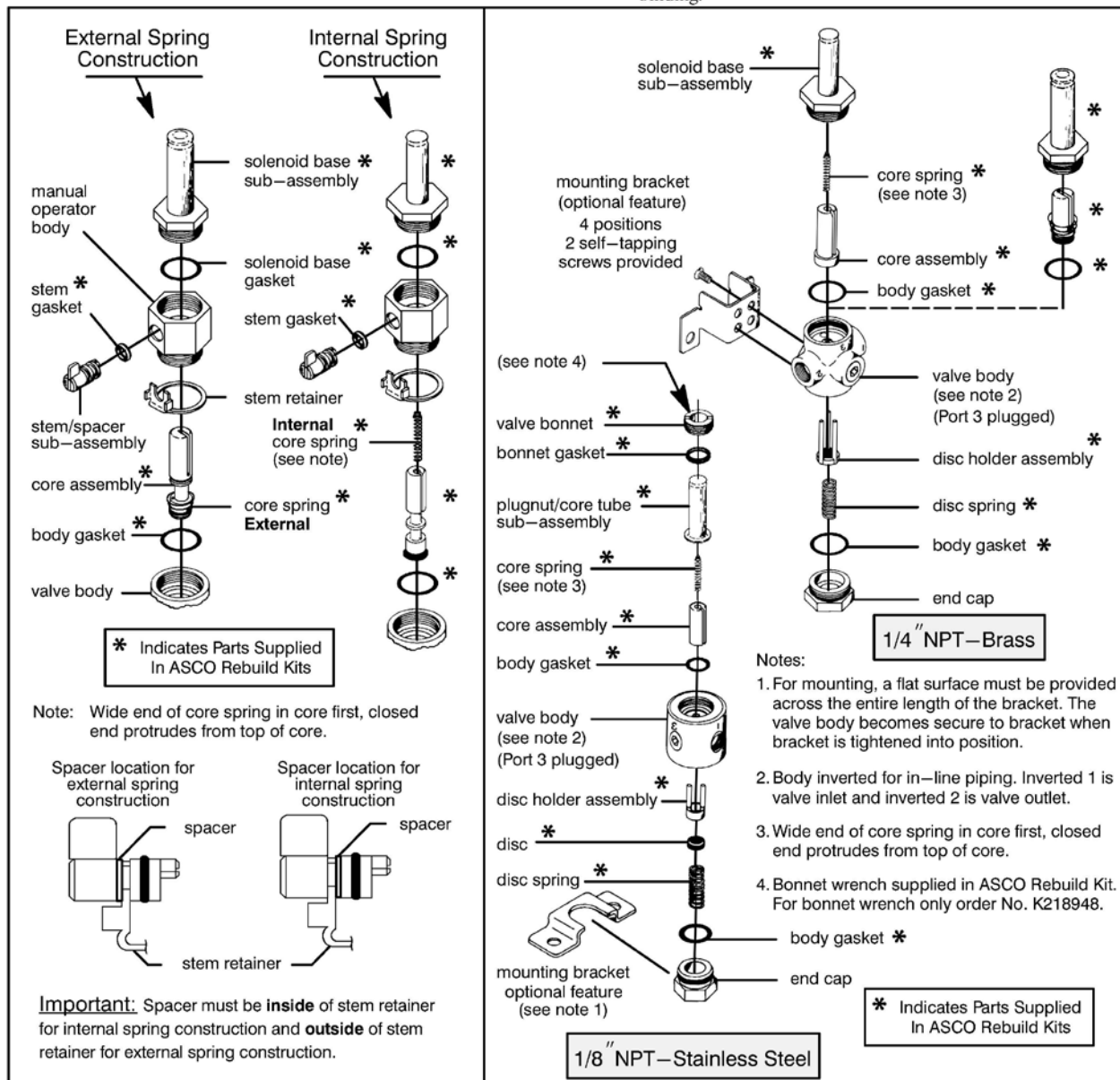


Figure 3. Stem/lever type manual operators

Figure 4. Series 8262, normally open construction.

Installation & Maintenance Instructions



OPEN-FRAME, GENERAL PURPOSE, WATERTIGHT/EXPLOSIONPROOF SOLENOIDS

SERIES

8003G

8202G

Form No.V6584R8

— SERVICE NOTICE —

ASCO® solenoid valves with design change letter "G" or "H" in the catalog number (ex. 8210G 1) have an epoxy encapsulated ASCO® Red Hat II® solenoid. This solenoid replaces some of the solenoids with metal enclosures and open-frame constructions. Follow these installation and maintenance instructions if your valve or operator uses this solenoid.

See separate instructions for basic valve.

DESCRIPTION

Catalog numbers 8003G and 8202G are epoxy encapsulated pull-type solenoids. The green solenoid with lead wires and 1/2" conduit connection is designed to meet Enclosure Type 1—General Purpose, Type 2—Dripproof, Types 3 and 3S—Raintight, and Types 4 and 4X—Watertight. The black solenoid on catalog numbers prefixed "EF" or "EV" is designed to meet Enclosure Types 3 and 3S—Raintight, Types 4 and 4X—Watertight, Types 6 and 6P—Submersible, Type 7 (A, B, C & D) Explosionproof Class I, Division 1 Groups A, B, C, & D and Type 9 (E, F, & G)—Dust—Ignitionproof Class II, Division 1 Groups E, F & G. The Class II, Groups F & G Dust Locations designation is not applicable for solenoids or solenoid valves used for steam service or when a class "H" solenoid is used. See *Temperature Limitations* section for solenoid identification and nameplate/retainer for service. When installed just as a solenoid and not attached to an ASCO valve, the core has a 0.250–28 UNF–2B tapped hole, 0.38 or 0.63 minimum full thread.

NOTE: Catalog number prefix "EV" denotes stainless steel construction.

Catalog numbers 8202G1, 8202G3, 8202G5 and 8202G7 are epoxy encapsulated push-type, reverse-acting solenoids having the same enclosure types as previously stated for Catalog numbers 8003G1 and 8003G2.

Series 8003G and 8202G solenoids are available in:

- **Open-Frame Construction:** The green solenoid may be supplied with 1/4" spade, screw or DIN terminals. (Refer to Figure 4)
- **Panel Mounted Construction:** These solenoids are specifically designed to be panel mounted by the customer through a panel having a .062 to .093 maximum wall thickness. Refer to Figure 1 and section on *Installation of Panel Mounted Solenoid*.

Optional Features For Type 1 – General Purpose Construction Only

- **Junction Box:** This junction box construction meets Enclosure Types 2,3,3S,4, and 4X. Only solenoids with 1/4" spade or screw terminals may have a junction box. The junction box provides a 1/2" conduit connection, grounding and spade or screw terminal connections within the junction box (See Figure 5).
- **DIN Plug Connector Kit No.K236034:** Use this kit only for solenoids with DIN terminals. The DIN plug connector kit provides a two pole with grounding contact DIN Type 43650 construction (See Figure 6).

OPERATION

Series 8003G – When the solenoid is energized, the core is drawn into the solenoid base sub-assembly. **IMPORTANT:** When the solenoid is de-energized, the initial return force for the core, whether developed by spring, pressure, or weight, must exert a minimum force to overcome residual magnetism created by the solenoid. Minimum return force for AC construction is 11 ounces, and 5 ounces for DC construction.

Series 8202G – When the solenoid is energized, the disc holder assembly seats against the orifice. When the solenoid is de-energized, the disc holder assembly returns. **IMPORTANT:** Initial return force for the disc or disc holder assembly, whether developed by spring, pressure, or weight, must exert a minimum force to overcome residual magnetism created by the solenoid. Minimum return force is 1 pound, 5 ounces.

INSTALLATION

Check nameplate for correct catalog number, service, and wattage. Check front of solenoid for voltage and frequency.

▲ WARNING: Electrical hazard from the accessibility of live parts. To prevent the possibility of death, serious injury or property damage, install the open – frame solenoid in an enclosure.

FOR BLACK ENCLOSURE TYPES 7 AND 9 ONLY

▲ CAUTION: To prevent fire or explosion, do not install solenoid and/or valve where ignition temperature of hazardous atmosphere is less than 165° C. On valves used for steam service or when a class "H" solenoid is used, do not install in hazardous atmosphere where ignition temperature is less than 180° C. See nameplate/retainer for service.

NOTE: These solenoids have an internal non–resettable thermal fuse to limit solenoid temperature in the event that extraordinary conditions occur which could cause excessive temperatures. These conditions include high input voltage, a jammed core, excessive ambient temperature or a shorted solenoid, etc. This unique feature is a standard feature only in solenoids with black explosionproof/dust–ignitionproof enclosures (Types 7 & 9).

▲ CAUTION: To protect the solenoid valve or operator, install a strainer or filter, suitable for the service involved in the inlet side as close to the valve or operator as possible. Clean periodically depending on service conditions. See ASCO Series 8600, 8601, and 8602 for strainers.

Temperature Limitations

For maximum valve ambient temperatures, refer to chart. The temperature limitations listed, only indicate maximum application temperatures for field wiring rated at 90°C. Check catalog number prefix and watt rating on nameplate to determine maximum ambient temperature. See valve installation and maintenance instructions for maximum fluid temperature. NOTE: For steam service, refer to *Wiring* section, *Junction Box* for temperature rating of supply wires.

Watt Rating	Catalog Number Coil Prefix	Class of Insulation	Maximum † Ambient Temp.
10.1 & 17.1	None, FB, KF, KP, SC, SD, SF, & SP,	F	125°F (51.7°C)
10.1 & 17.1	HB, HT, KB, KH, SS, ST, SU,	H	140°F (60°C)
11.6 & 22.6	None, FB,KF, KP, SC, SD, SF, & SP.	F	104°F (40°C)
11.6 & 22.6	HP, HT, KB, KH, SS, ST, SU, & SV	H	104°F (40°C)

† Minimum ambient temperature –40° F (–40° C).

Positioning

This solenoid is designed to perform properly when mounted in any position. However, for optimum life and performance, the solenoid should be mounted vertically and upright to reduce the possibility of foreign matter accumulating in the solenoid base sub-assembly area.

Wiring

Wiring must comply with local codes and the National Electrical Code. All solenoids supplied with lead wires are provided with a grounding wire which is green or green with yellow stripes and a 1/2" conduit connection. To

facilitate wiring, the solenoid may be rotated 360°. For the watertight and explosionproof solenoid, electrical fittings must be approved for use in the approved hazardous locations.

▲ **CAUTION: Cryogenic Applications — Solenoid lead wire insulation should not be subjected to cryogenic temperatures. Adequate lead wire protection and routing must be provided.**

Additional Wiring Instructions For Optional Features:

- **Open—Frame solenoid with 1/4" spade terminals.**

For solenoids supplied with screw terminal connections use #12–18 AWG stranded copper wire rated at 90°C or greater. Torque terminal block screws to 10 ± 2 in–lbs [1,0 ± 1,2 Nm]. A tapped hole is provided in the solenoid for grounding, use a #10–32 machine screw. Torque grounding screw to 15 – 20 in–lbs [1,7 – 2,3 Nm]. On solenoids with screw terminals, the socket head screw holding the terminal block to the solenoid is the grounding screw. Torque the screw to 15 – 20 in–lbs [1,7 – 2,3 Nm] with a 5/32" hex key wrench.

- **Junction Box**

The junction box is used with spade or screw terminal solenoids only and is provided with a grounding screw and a 1/2" conduit connection. Connect #12–18 AWG standard copper wire only to the screw terminals. Within the junction box use field wire that is rated 90°C or greater for connections. For steam service use 105°C rated wire up to 50 psi or use 125°C rated wire above 50 psi. After electrical hookup, replace cover gasket, cover, and screws. Tighten screws evenly in a crisscross manner.

- **DIN Plug Connector Kit No.K236034**

1. The open—frame solenoid is provided with DIN terminals to accommodate the plug connector kit.
2. Remove center screw from plug connector. Using a small screwdriver, pry terminal block from connector cover.
3. Use #12–18 AWG stranded copper wire rated at 90°C or greater for connections. Strip wire leads back approximately 1/4" for installation in socket terminals. The use of wire—end sleeves is also recommended for these socket terminals. Maximum length of wire—end sleeves to be approximately 1/4". Tinning of the ends of the lead wires is not recommended.
4. Thread wire through gland nut, gland gasket, washer and connector cover. NOTE: Connector housing may be rotated in 90° increments from position shown for alternate positioning of cable entry.
5. Check DIN connector terminal block for electrical markings. Then make electrical hookup to terminal block according to markings on it. Snap terminal block into connector cover and install center screw.
6. Position connector gasket on solenoid and install plug connector. Torque center screw to 5 ± 1 in–lbs [0,6 ± 1,1 Nm].

NOTE: Alternating current (AC) and direct current (DC) solenoids are built differently. To convert from one to the other, it may be necessary to change the complete solenoid including the core and solenoid base sub—assembly, not just the solenoid. Consult ASCO.

Installation of Solenoid

Solenoids may be assembled as a complete unit. Tightening is accomplished by means of a hex flange at the base of the solenoid.

Installation of Panel Mounted Solenoid (See Figure 1)

1. Disassemble solenoid following instruction under *Solenoid Replacement* then proceed.
2. Install solenoid base sub—assembly through customer panel.
3. Position spring washer on opposite side of panel over solenoid base sub—assembly.
4. Replace solenoid, nameplate/retainer and red cap.
5. Make electrical hookup, see *Wiring* section.

Solenoid Temperature

Standard solenoids are designed for continuous duty service. When the solenoid is energized for a long period, the solenoid becomes hot and can be touched by hand only for an instant. This is a safe operating temperature.

MAINTENANCE

▲ **WARNING: To prevent the possibility of death, serious injury or property damage, turn off electrical power, depressurize solenoid operator and/or valve, and vent fluid to a safe area before servicing.**

Cleaning

All solenoid operators and valves should be cleaned periodically. The time between cleaning will vary depending on medium and service conditions. In general, if the voltage to the solenoid is correct, sluggish valve operation, excessive noise or leakage will indicate that cleaning is required. Clean strainer or filter when cleaning the valve.

Preventive Maintenance

- Keep the medium flowing through the solenoid operator or valve as free from dirt and foreign material as possible.
- While in service, the solenoid operator or valve should be operated at least once a month to insure proper opening and closing.
- Depending on the medium and service conditions, periodic inspection of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. Replace any worn or damaged parts.

Causes of Improper Operation

- **Faulty Control Circuit:** Check the electrical system by energizing the solenoid. A metallic *click* signifies that the solenoid is operating. Absence of the *click* indicates loss of power supply. Check for loose or blown fuses, open—circuited or grounded solenoid, broken lead wires or splice connections.
- **Burned—Out Solenoid:** Check for open—circuited solenoid. Replace if necessary. Check supply voltage; it must be the same as specified on nameplate/retainer and marked on the solenoid. Check ambient temperature and check that the core is not jammed.
- **Low Voltage:** Check voltage across the solenoid leads. Voltage must be at least 85% of rated voltage.

Solenoid Replacement

1. Disconnect conduit, coil leads, and grounding wire.

NOTE: Any optional parts attached to the old solenoid must be reinstalled on the new solenoid. For 3—way construction, piping or tubing must be removed from pipe adapter.

2. Disassemble solenoids with optional features as follows:

- **Spade or Screw Terminals**

Remove terminal connections, grounding screw, grounding wire, and terminal block (screw terminal type only).

NOTE: For screw terminals, the socket head screw holding the terminal block serves as a grounding screw.

- **Junction Box**

Remove conduit and socket head screw (use 5/32" hex key wrench) from center of junction box. Disconnect junction box from solenoid.

- **DIN Plug Connector**

Remove center screw from DIN plug connector. Disconnect DIN plug connector from adapter. Remove socket head screw (use 5/32" hex key wrench), DIN terminal adapter, and gasket from solenoid.

3. Snap off red cap from top of solenoid base sub—assembly. For 3—way construction with pipe adapter (Figure 3), remove pipe adapter, nameplate and solenoid. Omit steps 4 and 5.
4. Push down on solenoid. Then using a suitable screwdriver, insert blade between solenoid and nameplate/retainer. Pry up slightly and push to remove.

NOTE: Series 8202G solenoids have a spacer between the nameplate/retainer and solenoid.

5. Remove solenoid from solenoid base sub—assembly.
6. Reassemble in reverse order of disassembly. Use exploded views for identification and placement of parts.
7. Torque pipe adapter to 90 inch—pounds maximum [10,2 Nm maximum]. Then make up piping or tubing to pipe adapter on solenoid.

Disassembly and Reassembly of Solenoids

1. Remove solenoid, see *Solenoid Replacement*.
2. Remove spring washer from solenoid base sub—assembly. For 3—way construction, remove plugnut gasket.
3. Unscrew solenoid base sub—assembly from valve body.
4. Remove internal solenoid parts for cleaning or replacement. Use exploded views for identification and placement of parts.
5. If the solenoid is part of a valve, refer to basic valve installation and maintenance instructions for further disassembly.
6. Torque solenoid base sub—assembly and adapter to 175±25 in–lbs [19,8±2,8 Nm].

ORDERING INFORMATION FOR ASCO SOLENOIDS

When Ordering Solenoids for ASCO Solenoid Operators or Valves, order the number stamped on the solenoid. Also specify voltage and frequency.

Torque Chart

Part Name	Torque Value Inch—Pounds	Torque Value Newton—Meters
solenoid base sub-assembly & adapter	175 ± 25	19,8 ± 2,8
pipe adapter	90 maximum	10,2 maximum

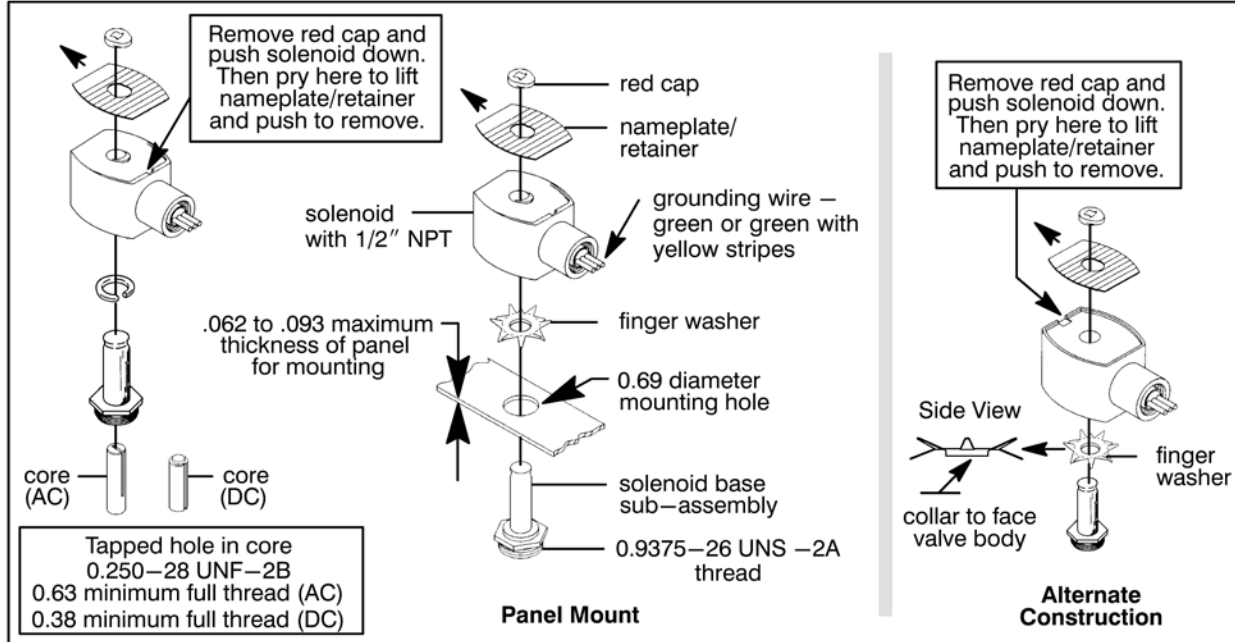


Figure 1. Series 8003G solenoids

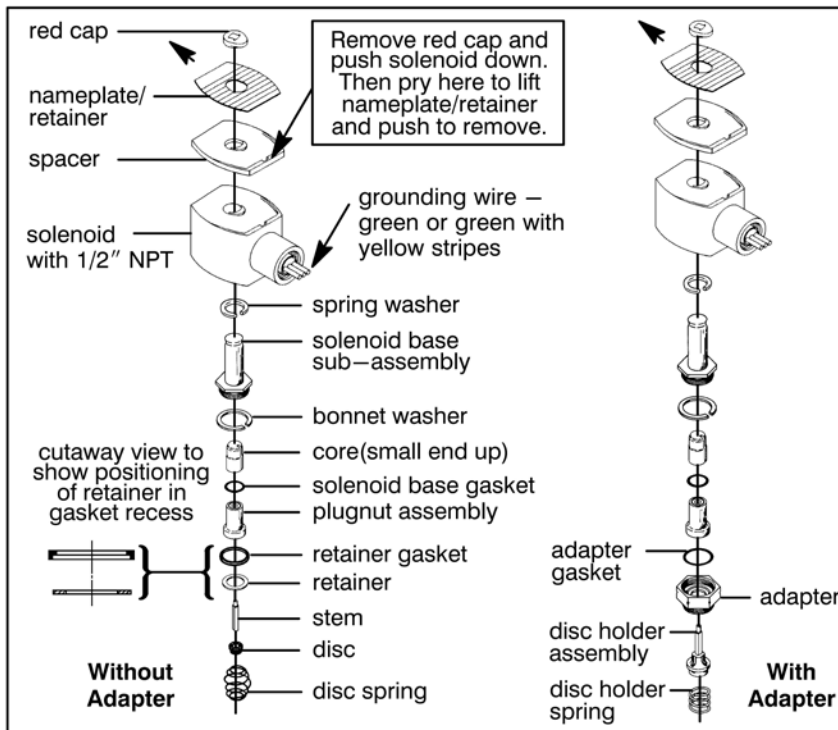


Figure 2. Series 8202G solenoids

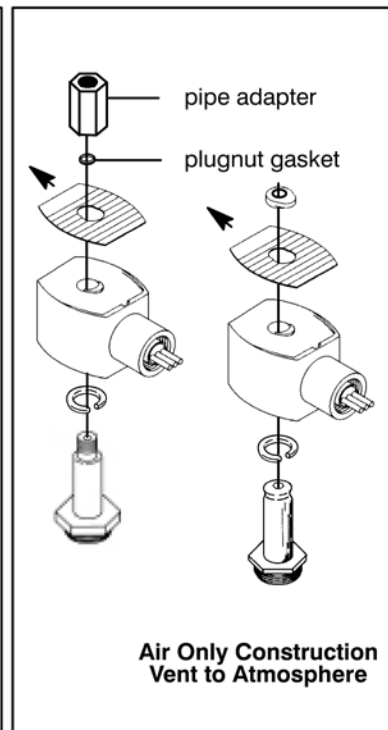


Figure 3. 3-Way Construction

Torque Chart

Part Name	Torque Value in Inch-Pounds	Torque Value in Newton-Meters
terminal block screws	10 ± 2	1,1 ± 0,2
socket head screw	15 – 20	1,7 – 2,3
center screw	5 ± 1	0,6 ± 0,1

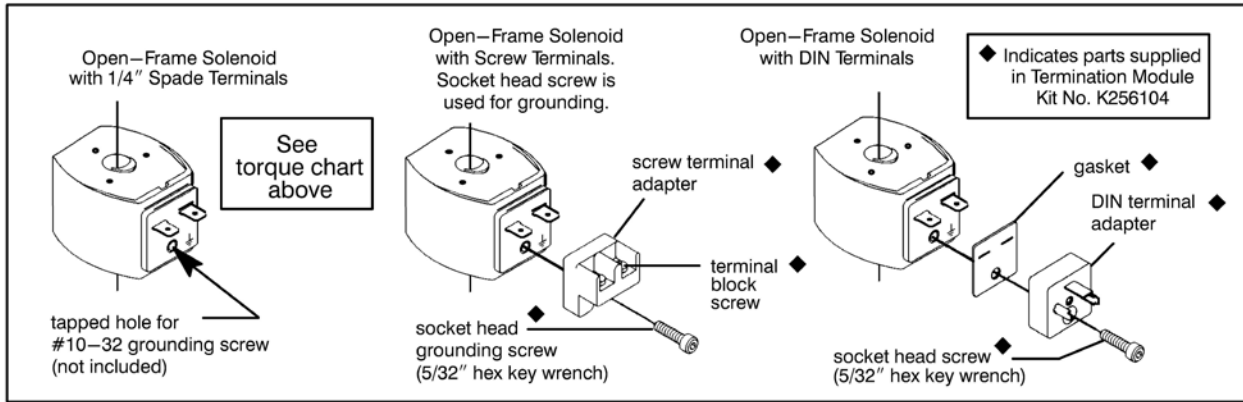


Figure 4. Open-frame solenoids

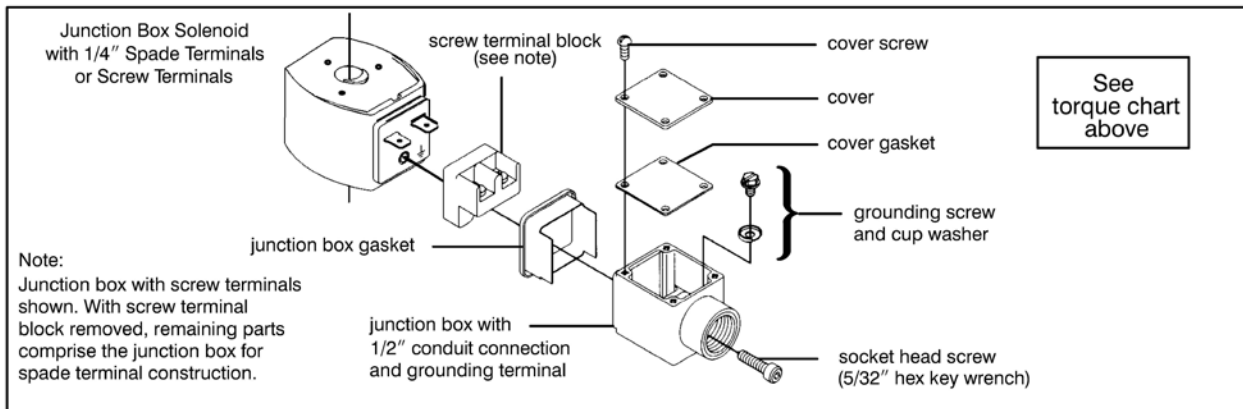


Figure 5. Junction box (optional feature)

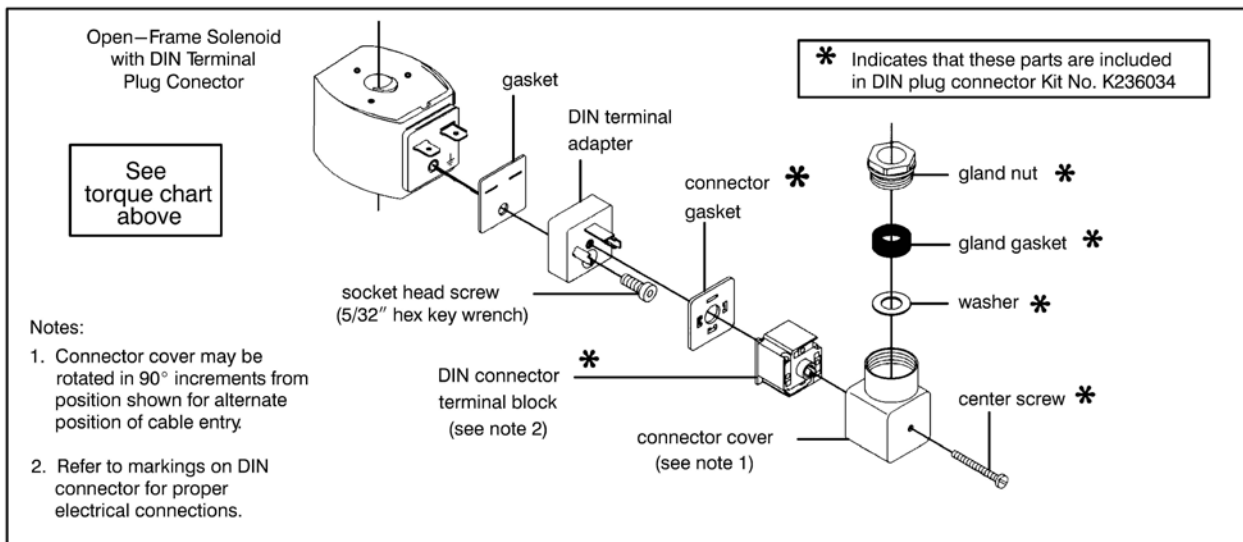
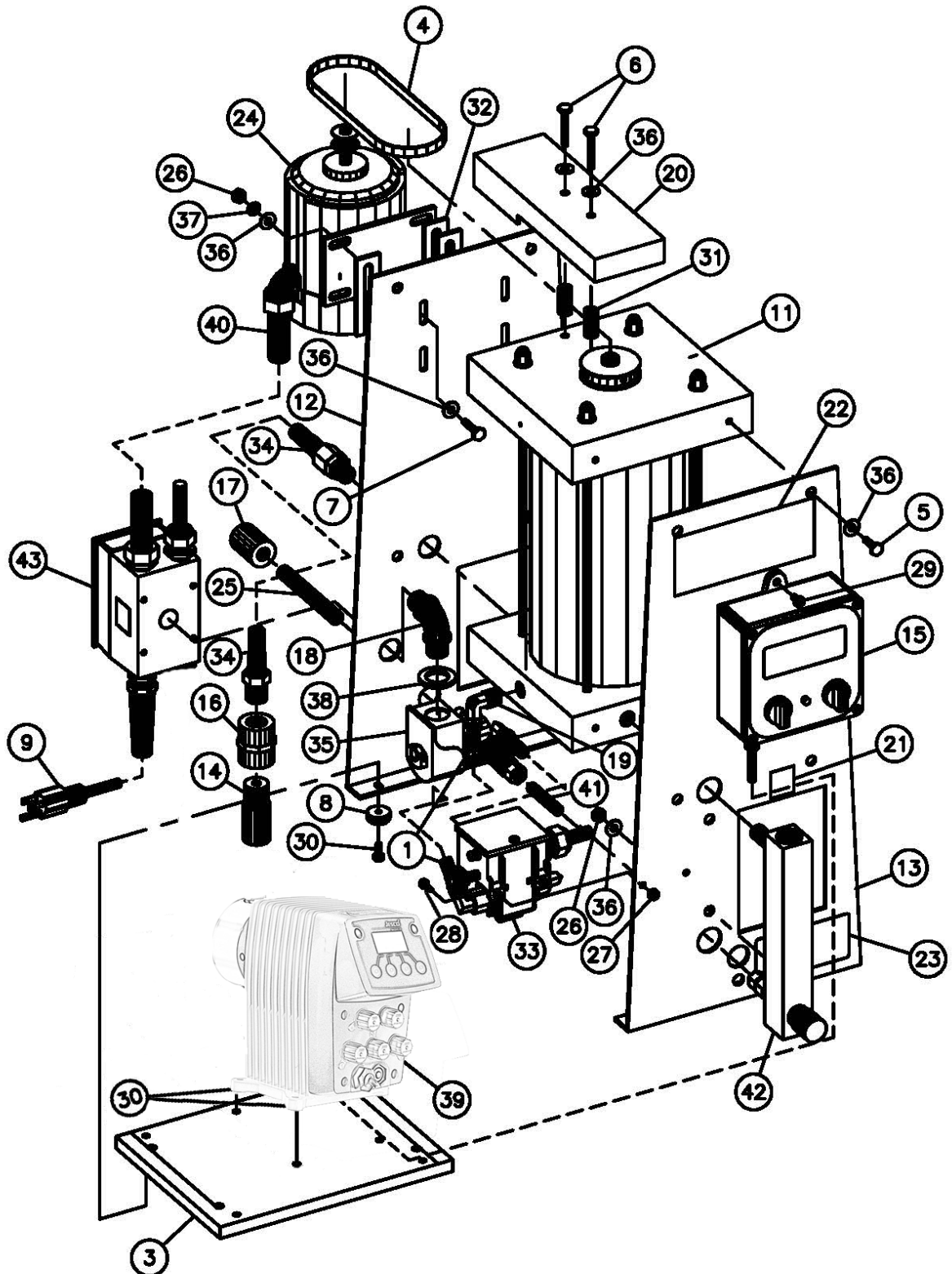


Figure 6. DIN plug connector kit No. K236034 (optional feature)

OVERALL

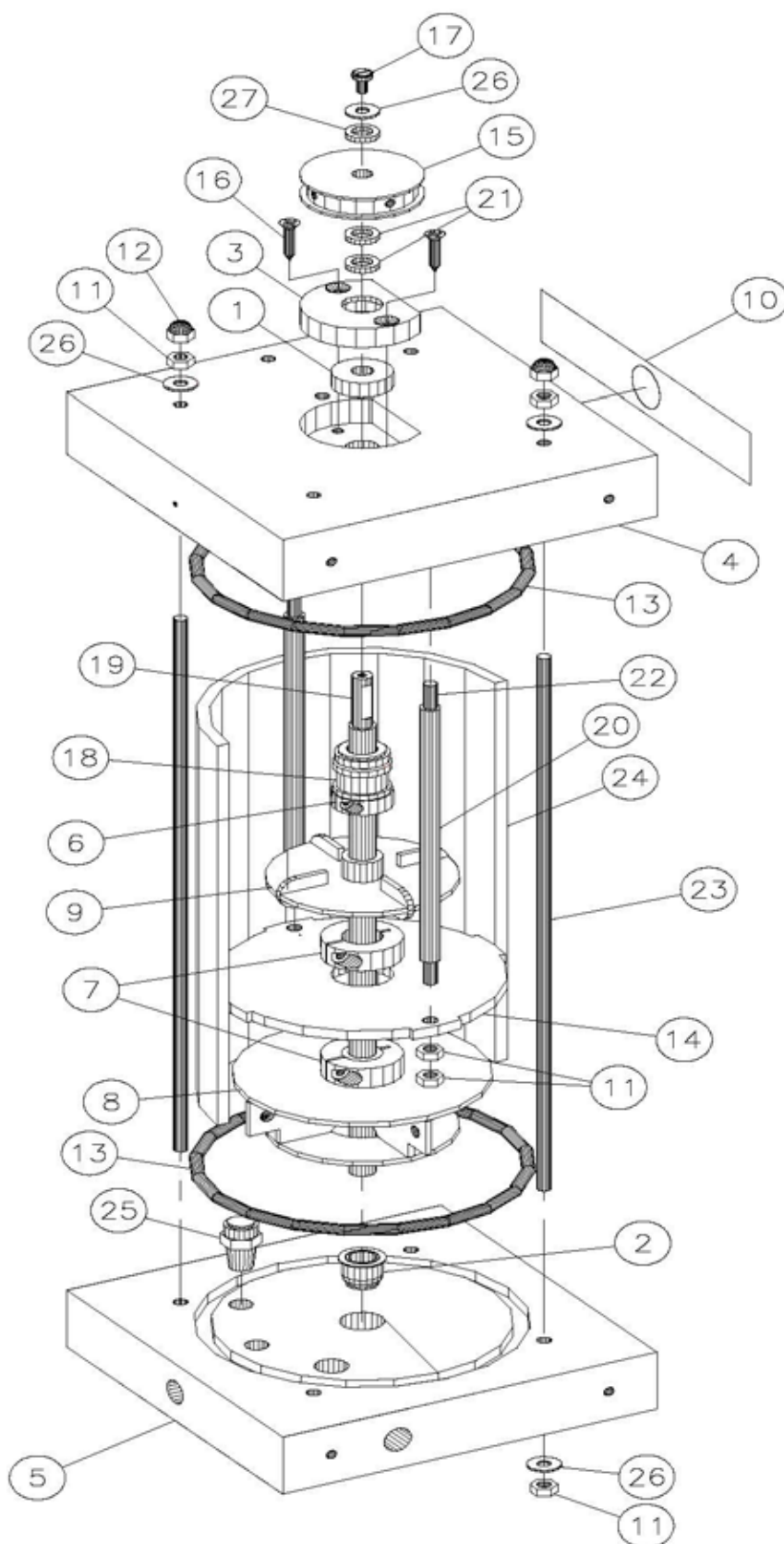
ITEM	P/N	DESCRIPTION	QTY	UM
1	10342	TUBING, 3/8" OD X 1/4" ID, POLYETHYLENE	1.00	FT
2	10746	BRACKET, PUMP	2.00	EA
3	1364001	BASE SUB-ASSY. PB100-0	1.00	EA
4	1450318	BELT	1.00	EA
5	1600312	BOLT, HH, 1/4-20 X 3/4 SS	8.00	EA
6	1600324	BOLT, HH, 1/4-20 X 1-1/2 SS (CAP SCREW)	2.00	EA
7	1600366	BOLT, HH, 1/4-20 X 1 SS	4.00	EA
8	1890001	BUMPER, RUBBER	4.00	EA
9	1983001	CABLE, ASSY, 110V, 8FT, GROUNDED, MALE PLG, 16/3	1.00	EA
10	1984005	CABLE ASSY.	1.00	EA
11	*****	CHAMBER ASSY, MIXING SML FRM (SEE SECTION)	1.00	EA
12	2383001	CHASSIS, BACK	1.00	EA
13	2383002	CHASSIS, FRONT	1.00	EA
14	26033	VALVE	1.00	EA
15	2846006	CONTROLLER, REM-1D	1.00	EA
16	2930004	CPLG, PVC, SCH 80 1/2 FPT	1.00	EA
17	2930420	CPLG, RED, SS 1/2 X 1/4 FT X T	1.00	EA
18	3579864	ELBOW, CONDUIT	1.00	EA
19	3581604	ELBOW, 90, BRASS 3/8 OD X 3/8 MPT	1.00	EA
20	4681310	BELT GUARD	1.00	EA
21	5551209	LABEL, WATER FLOW	2.00	EA
22	5551210	LABEL, POLYBLEND	1.00	EA
23	5554000	LABEL, SERIAL PLATE	1.00	EA
24	5902001	MOTOR	1.00	EA
25	5963028	NIPPLE, SS 1/4 X 4"	1.00	EA
26	6020031	NUT, 1/4-20, HEX SS	6.00	EA
27	6020962	NUT, 8-32, HEX	2.00	EA
28	7771558	SCREW, MACH, SS PAN HD, PHIL, 8-32 X 1/2	2.00	EA
29	7772506	SCREW, MACH, 304SS PAN HD, SLTD, 10-32 X 3/8	2.00	EA
30	7772508	SCREW, MACH, 10-32 X 1/2, SLTD PS, SS	8.00	EA
31	8140001	SPACER	2.00	EA
32	8141001	SPACER, MOTOR SHIM	3.00	EA
33	8724903	SWITCH, DIFF. PRESSURE	1.00	EA
34	9414002	TUBE BRAIDED SS, 1/2" MPT X 3/8" MPT X 14" LG*	1.00	EA
35	9571301	VALVE SOLENOID	1.00	EA
36	9740300	WASHER, SS, FLAT 1/4"	9.00	EA
37	9740330	WASHER, SS, INT TOOTH, 1/4"	4.00	EA
38	9748300	WASHER, SS, FLAT 1/8"	1.00	EA
39	*****	PUMP (SEE SECTION)	1.00	EA
40	RM2702060	CONDUIT, SEALTITE 3/8"	1.00	FT
41	RM9414061	TUBE, RIGID 304 SS 3/8" OD X 1/4" ID	1.00	FT
42	*****	FLOWMETER (SEE SECTION)	1.00	EA
43	1672002	BOX JUNCTION SUB-ASSY.	1.00	EA



MIXING CHAMBER 2340101

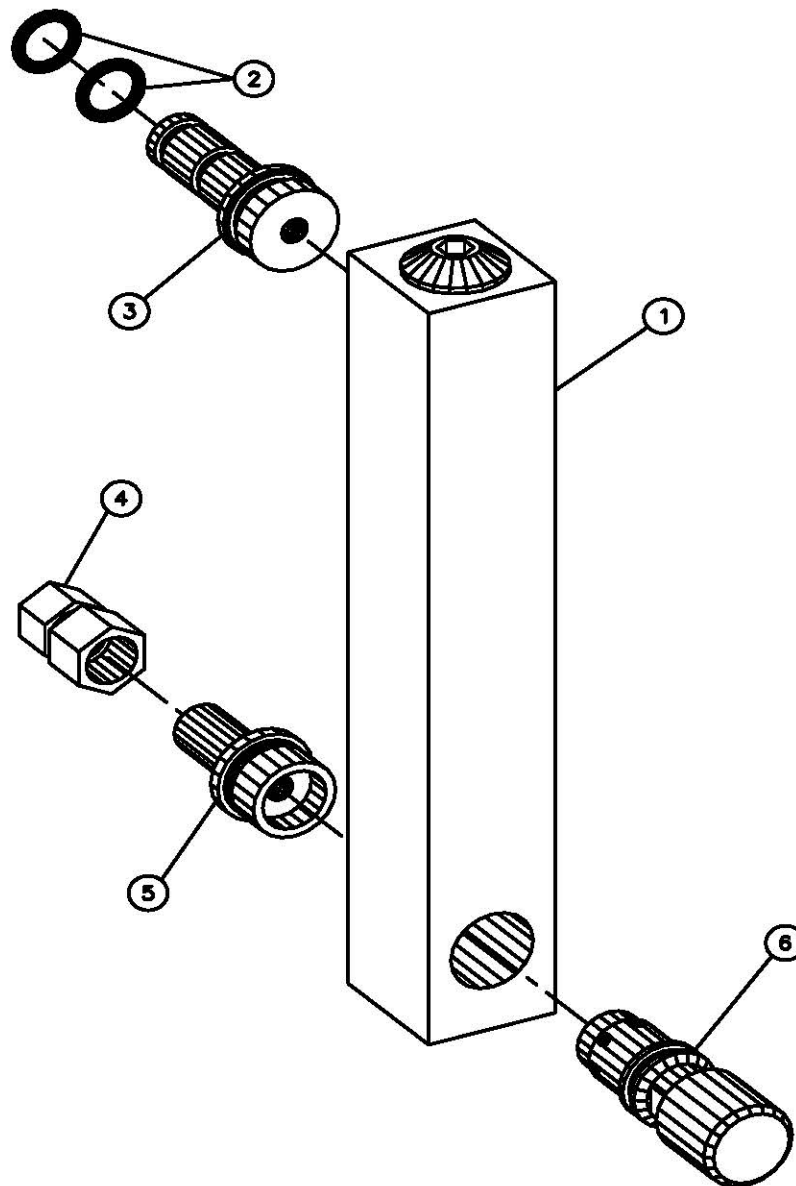
ITEM	PART NO.	DESCRIPTION	QTY.
1	1410002	BEARING	1
2	1414001	BEARING, THRUST	1
3	1419001	BEARING, FLANGE CARRIER	1
4	2124002	CAP, TOP, MIXING CHAMBER	1
5	2124003	CAP, BOTTOM, MIXING CHAMBER	1
6	2650001	COLLAR, 1/2" I.D.	1
7	2650002	COLLAR, 3/4" I.D.	2
8	5173304	IMPELLER	1
9	5173305	IMPELLER, SECONDARY	1
10	5551002	LABEL - DISCHARGE	1
11	6020031	NUT, HEX HD., 1/4"-20	12
12	6023031	NUT, ACORN, 1/4"-20, S.S.	4
13	6091801	O-RING	2
14	6676002	PLATE, BAFFLE	1
15	7071201	PULLEY	1
16	7772216	SCREW, 10-32 X 1"	2
17	7772506	SCREW, 10-32 X 3/8"	1
18	7802910	SEAL, MECHANICAL	1
19	7854303	SHAFT, IMPELLER	1
20*	8140005	SPACER ROD	2
21	8143011	SPACER	2
22	8603002	STUD	2
23	8603004	ROD	4
24	9412606	TUBE, ACRYLIC	1
25	9572304	VALVE, INJ. CHECK	1
26	9740300	WASHER, FLAT, 1/4"	9
27	8143010	SPACER	1

*Factory personnel identify item #20 as part RM6600021, which must be cut to a length of 6-3/4 inches. For replacements, request P/N 8140005 to receive spacer rods, which are pre-cut to the appropriate length.

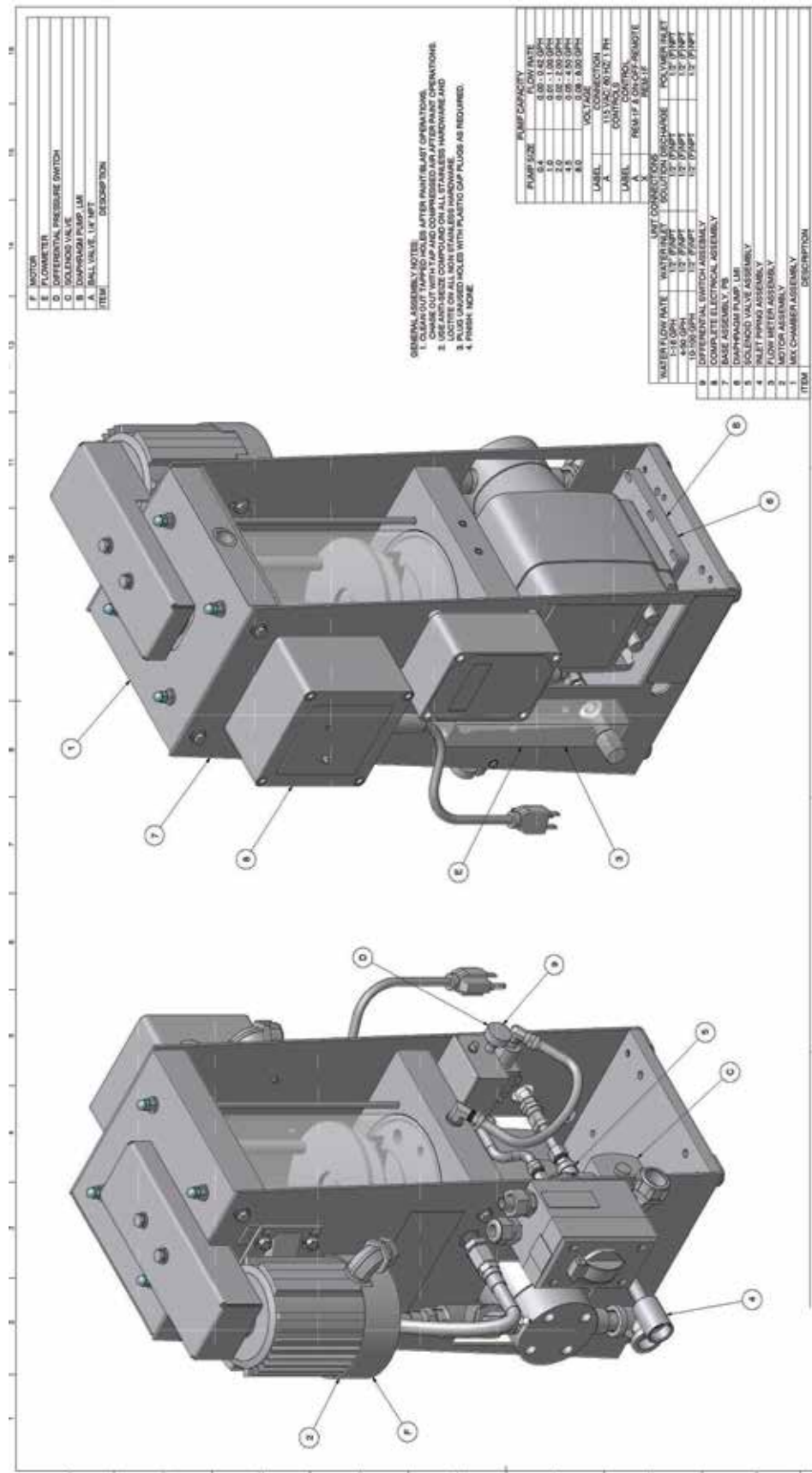


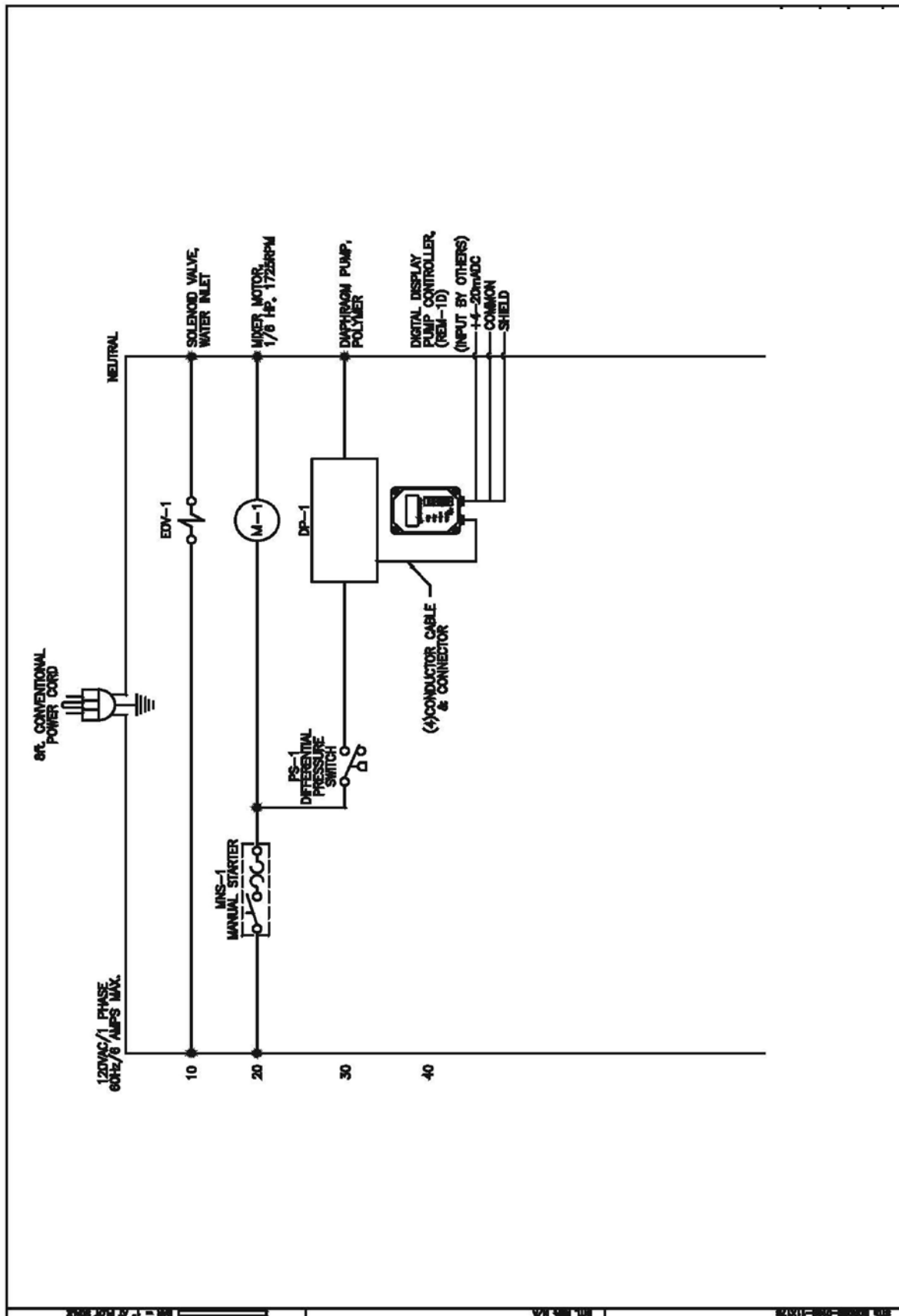
FLOWMETER ASSEMBLY - P/N 4309104

ITEM	PART NO.	DESCRIPTION	QTY.	UM
1	4299104	FLOWMETER, KING, 60LPH	1	EA
2	6091301	O-RING, BUNA N	2	EA
3	1040093	ADAPTER, SPUD	1	EA
4	2735634	CONNECTOR, TUBE, 1/4" FPT X 3/8" OD COMP.	1	EA
5	1048401	ADAPTER, FLOWMETER	1	EA
6	9579301	VALVE, KING	1	EA



Operation & Maintenance Instructions ■ PolyBlend LJPB Series 16, 50, 100 & 200







Accessories



Chemical Feed Systems



Measuring and Control Technology



Transfer Pumps



Metering Pumps



March 2014