202CB and 204CD Solenoid Valves

SAFETY INSTRUCTIONS

Attention: Read carefully before attempting to install, operate or service your Emerson solenoid valve. Retain for future reference.

1. Read safety and installation instructions thoroughly. Failure to comply can result in valve failure, system damage or personal injury.
2. **Notice:** Installer, leave this instruction sheet for owners. Notice to owners: **Warning — This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.** Notice to California owners: Under California ballot measure proposition 65, California residents must be notified if a product contains more than 1/1000 of the safe lifetime exposure level of a carcinogen or birth defect causing agent. More than 300 chemicals are on the list. This valve contains brass parts. Lead is present in all forms of brass. To minimize exposure to lead in all water systems, don't drink hot water and don't drink the first glass of water from a system. Direct any questions to the Emerson Climate Technologies Flow Controls Division Applications Engineering Department.
3. Do not use solenoid valves on applications or fluid media not specifically cataloged without prior approval of the Emerson Climate Technologies Flow Controls Division Applications Engineering Department. **Warning:** Do not use with flammable or explosive fluids or gases. Do not use in explosive atmospheres. Use on these elements can result in product damage, system damage, or personal injury.
4. Use of solenoid valves on applications not specifically cataloged can result in valve failure, system damage or personal injury. Do not utilize a solenoid valve on any system where the system pressure can exceed the safe working pressure of the valve.
5. **Caution:** Do not utilize a solenoid valve as a safety shut-off valve.
6. Do not exceed MOPD (Maximum Operating Pressure Differential) or valve may fail to open when energized.
7. **Caution:** Always disconnect power source and depressurize the system before working on the solenoid valve or system. If the power disconnect is our-of-sight, lock it in the open position and tag to prevent unexpected application of power.
8. Direction of system flow must correspond to the flow arrow on the side of the solenoid valve body.
9. Before energizing valve, be sure source voltage and frequency matches that on the solenoid coil. Do not energize coil unless coil is securely attached to the valve. See coil installation instructions.
10. Prolonged use in excessive ambient temperature or humidity may damage coils
11. Do not dent or bend or use an enclosing tube as a lever. A damaged enclosing tube may result in a coil burnout or an inoperative valve.
12. Foreign matter in the valve may result in seat leakage, sticking open or closed, or a coil burnout. To prolong valve life and ensure system cleanliness, use a strainer.

INSTALLATION INSTRUCTIONS

1. For ease of installation, an Emerson solenoid valve can be installed in any position … gravity does not affect its operation. **Note:** Although these valves can be operated in any position, by mounting the valve upright there is less chance of malfunction caused by the collection of foreign material.
2. The solenoid coil can be rotated 360° for ease of wiring. If possible, do not reduce the length of the solenoid coil wire leads, so that if it becomes necessary to remove the coil at a later date (for valve cleanout, etc.) the wire leads will not have to be disconnected.
3. To allow for removal of the solenoid coil without removing the valve from its piping, allow at least 2 inches of clearance above the solenoid.
4. Be sure the valve is installed so that its flow arrow on the valve body corresponds to the direction of flow thru piping.

COIL INSTALLATION INSTRUCTIONS

1. Before removing coil from valve, disconnect the electrical power source. Failure to do so will cause the coil to burnout.
2. Verify the coil type, voltage and frequency. This information appears on the coil name tag.
3. Place the coil over the enclosing tube. Coil may be rotated 360° for easy wiring. It is recommended that coil lead connections be soldered on 24V - 50/60 Hz applications.
4. Install valve name tag. Peel paper backing off valve name and press down firmly (do not cover other labels). If installing replacement coil and old style valve nameplate is in place. If possible retain nameplate, but do not install over enclosing tube with new coil assembly.
5. Press coil housing down firmly to secure coil retainer around the enclosing tube.

FLUID TEMPERATURE RATING °F

Elastomer Code	Coil Types AMG, AMC
B	180°
P	250°
N	180°
F	180°
Elastomer Code	Coil Type AHG, AHC
T	365°

Identify the valve elastomer code and coil code from valve model number and reference temperature rating above. Valves are rated for use on air or other non-hazardous, non-toxic fluids, water and other aqueous, non-hazardous fluids and steam.

WIRING

1. Be sure your wiring conforms to all local and national electrical codes.
2. For dual voltage coils, refer to the wiring schematic label on the side of the coil.
3. The coil circuit of each solenoid valve should be protected by adequate fuses.

Warning: If not properly grounded, a hazard of electrical shock may exist. Install and ground the unit in compliance with national, state, and local electrical codes.

DISASSEMBLY

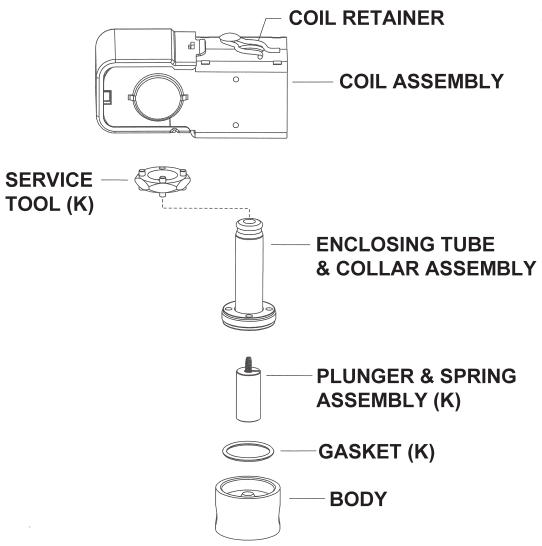
Disassemble in the same general order as indicated in the exploded view illustrations, except as noted in the following steps:

1. Depressurize valve and disconnect electrical power source.
2. Remove coil housing by lifting coil assembly from the enclosing tube.

CLEANING

As with all valves, it may become necessary to clean them periodically to keep them in peak operating condition. Any cleaning methods or fluids used should be compatible with valve materials.

202CB & 204CD Exploded View



"K" indicates the part is supplied in the valve repair kit.

INSPECTION

1. All moving parts and elastomers should be clean in appearance without permanent set. Springs should be free of corrosion. If any parts appear damaged, replace them with a parts kit which contains all moving parts necessary to rebuild the valve to an “as new” condition.
2. Inspect enclosing tube assembly for wear, exterior dents or other conditions which would impair free movement of the poppet and/or plunger assembly. Its interior should be clean and free of any obstructions, be especially critical of the valve seat area.

ASSEMBLY

1. Assemble in the reverse general order of disassembly.
2. Lubricate gasket and/or O-ring sparingly with compatible lubricant.
3. All moving parts must move freely over the full length of their intended travel.
4. Torque enclosing tube assembly to body 150 ± 10 in lbs.

TESTING

1. Apply correct voltage to the valve solenoid and cycle the solenoid several times. A distinct click should be heard each time the solenoid is energized.
2. Pressurize the valve and check for leaks. **Note:** Emerson solenoid valves are equipped with a continuous duty solenoid coil, which when energized for an extended period of time becomes hot to the touch…this is normal.

COILS

1. Junction box (AMG) is supplied as standard on all valves.
2. The following coil housings are available:
   a. Conduit connection (AMC)
   b. NEMA 1 - 18" leads (AML)
   c. Open frame (AMF)
   d. Spade connection (AMS)

TROUBLESHOOTING

1. Check system fuses, electrical wiring, and system source voltage as specified.
2. Is flow direction arrow on valve the same as the system flow direction?
3. Are all system relays operating?
4. Is system source pressure as specified?
5. Are all system components free from obstructions?

REPAIR KITS

Valve	Seat Material	Kit #	
202CB	Buna N	–	
202CB	Rulon	–	
202CB	Ethylene Propylene	K-1064	
Valve	Seat Material	Kit #	1/4" Orifice Only
204CD	Buna N	K-1072	K-1162
204CD	Rulon	K-1077	–
204CD	Ethylene Propylene	K-1076	–