

Gold Ring™ Solenoid Valve

Installation and Maintenance Instructions



2-W Direct Acting
Normally Closed

NEMA1
Series20
NPT 3/8 - 1/2 - 3/4
Orifice: 5/16 Through 3/4

Bulletin 7208 Effective 15Feb90
Revision D Revised 11-2024

Parker Hannifin Corporation
Fluid Control Division

WARNING:

WARNING: Failure or improper selection or improper use of Parker Fluid Control Division Products, including valves, assemblies or related accessories ("Products") can cause death, personal injury and property damage. Possible consequences of failure or improper selection or improper use of these Products include but are not limited to:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work piece or component parts being thrown off at high speeds.
- Failure of a device to function properly, for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Sudden moving or falling objects
- Release of toxic or otherwise injurious liquids or gasses
- Electrical shorts or burn out of equipment

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

This document and other information from Parker Hannifin Corp., its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of the application, follow applicable industry standards and follow the information concerning the product in the current product catalog and any other materials provided from Parker or its subsidiaries or authorized distributors. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met.

To the extent that Parker or its subsidiaries and authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

The product described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Warnings

1. If you purchase a Unit Valve and a Unit Solenoid, be sure the last two digits of the Unit Valve number match the first two digits of the Unit Solenoid number. If they do not match, do not install.

06F20C2120ACF Unit Valve
CFG05 Unit Solenoid
2. Check data label for correct catalog number, pressure, voltage and service. Do not install if unsuitable.
3. For protection and proper operation of the solenoid valve, install a strainer or filter suitable for the service involved as close to the valve inlet as possible.
4. Solenoid valve requires periodic cleaning and inspection depending on the service. This should be done at least once every 12 months or every 500,000 cycles, whichever occurs first.
5. Turn off electrical power supply and line pressure to the valve. Bleed trapped pressure from the lines before inspecting, cleaning, servicing, or repairing the valve.

Description:

Series 20 solenoid valves are direct acting and have integral seats. Valves with watertight NEMA Type 4 or explosion proof NEMA Type 7 enclosures are covered by I & M Instructions, Bulletin 7220.

Operation:

NORMALLY CLOSED

Closed when de-energized; open when energized.

Installation:

1. Application

Refer to Parker Gold Ring™ catalog for application information.

2. Positioning

Unit valves may be mounted in any position. It is recommended that unit valves be mounted vertical and upright to prevent accumulation of debris in plunger tube.

3. Piping

Connect piping to valve according to markings on valve body. Apply pipe compound or sealing material sparingly to male pipe threads only. If applied to valve thread, it may enter valve and cause operational difficulties. Pipe strain should be avoided by proper support and alignment of piping. Do not use valve as a lever when tightening pipe.

4. Wiring

Wiring must comply with local and national electrical codes. Housings for all solenoids are made with connections for 1/2-inch electrical connections. Unit Solenoid cover may be removed by inserting a screwdriver under the black cover at the curved end opposite the electrical connection and gently twisting. The enclosures may be rotated to facilitate wiring.

5. Unit Solenoid Installation

Turn off electrical power supply. Slide unit solenoid over plunger tube. Place data label on top. Squeeze gold ring firmly together, while pressing it against the data label. This compresses the anti-vibration fingers.

6. Solenoid Temperature

Standard catalog valves are supplied with coils designed for continuous duty service. When the solenoid is energized for a long period, the solenoid enclosure becomes hot and can be touched with the bare hand for only an instant. This is a safe operating temperature. Excessive heating will be indicated by the smoke and odor of burning coil insulation. Ambient and fluid temperature limitations for a solenoid valve depend on unit solenoid and unit valve materials.

Maintenance:

1. Cleaning

Periodic cleaning of solenoid valves is recommended. Frequency will depend on fluid and service, but should never be less than every 12 months or 500,000 cycles whichever occurs first. In general, if the voltage to the coil is correct, sluggish operation, excessive leakage or noise will indicate cleaning or repair is required. Clean valve filter or strainer when cleaning valve. See valve disassembly and reassembly instructions below.

2. Preventive Maintenance

- a. Keep media flowing through valve as free from dirt and foreign matter as possible.
- b. While not in service, operate valve at least once a month to insure proper opening and closing.
- c. Periodic inspection (depending on media and service conditions) of internal valve parts for damage or excessive wear is recommended. Inspect at least every 12 months or 500,000 cycles, whichever occurs first. Thoroughly clean all parts. Replace worn or damaged parts with Gold Ring™ Rebuild Kit. Use all parts for best results. Clean valve filter or strainer when cleaning valve.

3. Troubleshooting Guide

a. Faulty Controls Circuit

Check the electrical system by energizing the solenoid. A metallic click signifies solenoid is operating. Absence of click indicates loss of power supply. Check for loose or blown out fuses, open-circuit or grounded coil, broken lead wires or splices.

b. Burned-Out Coil

Check for open-circuited coil. Replace Unit Solenoid if necessary.

c. Low Voltage

Check voltage across the coil lead. Voltage must be at least 85% of data label rating.

d. Incorrect Pressure

Check valve pressure. Pressure to valve must be within range specified on data label.

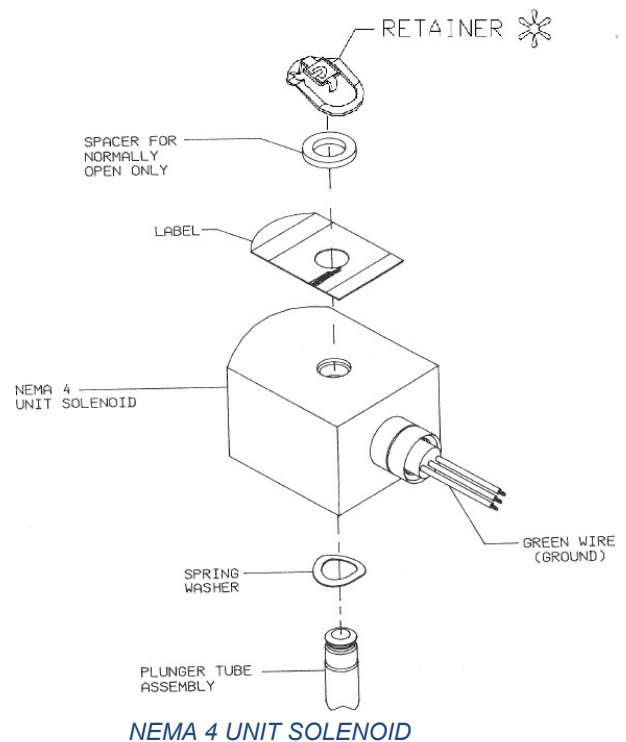
e. Excessive Leakage

Disassemble valve and clean all parts. Replace worn or damaged parts with a Gold Ring™ Rebuild Kit. Use all parts for best results. Install filtration if indicated. See valve disassembly and reassembly instructions.

4. Unit Solenoid Replacement

Turn off electrical power supply and disconnect coil lead wires. Refer to exploded view.

- a. Remove gold ring by inserting a 3/16" wide screwdriver in the curved slot. While holding the gold ring firmly against the unit solenoid gently twist screwdriver counterclockwise. Gold ring will open. Lift off data label and unit solenoid.
- b. Reassemble by sliding unit solenoid over plunger tube. Place data label on top. Press gold ring against data label to compress anti-vibration fingers. Squeeze the gold ring firmly together.



5. Valve Disassembly and Reassembly (Refer to Exploded Views)

Turn off electrical power supply and line pressure. Bleed trapped pressure from lines.

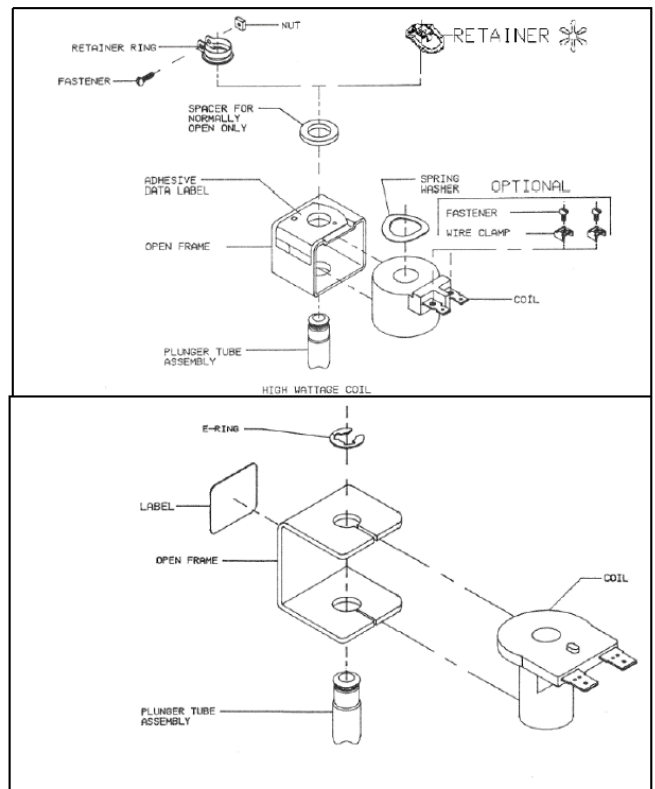
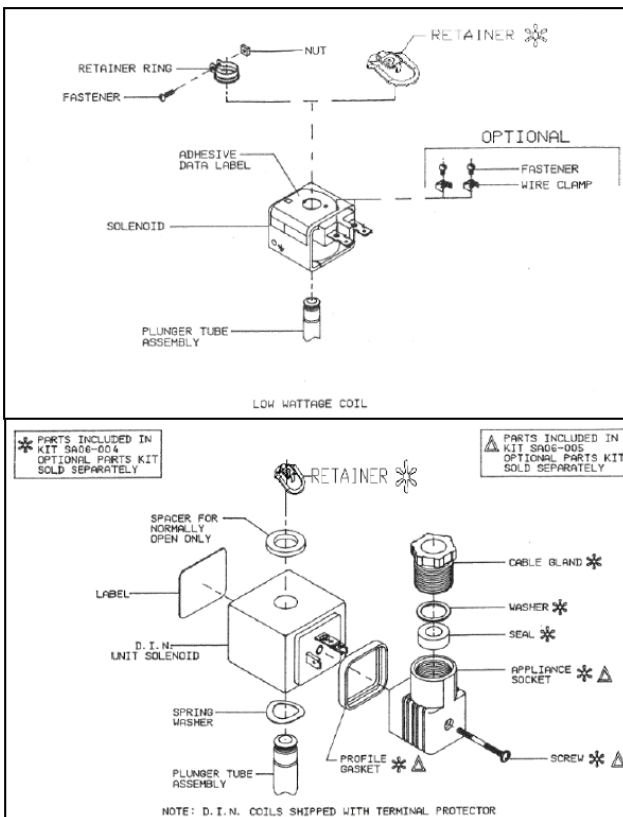
- Remove gold ring by inserting a 3/16" wide screwdriver in the curved slot. While holding the gold ring firmly against the unit solenoid gently twist screwdriver counterclockwise. Gold ring will open. Lift off data label and unit solenoid.
- On 3/8" NPT units, unscrew and remove plunger tube assembly, operator gasket and plunger & spring.
- For 1/2" and 3/4" NPT valves with small solenoids, unscrew the four (4) cover screws, remove the plunger tube/cover

assembly, plunger assembly, plunger spring, and body gasket.

For 1/2" and 3/4" NPT valves with large solenoids, unscrew the plunger tube assembly and remove operator gasket. On 1/2" NPT valves the plunger assembly & spring can now be removed; on 3/4" NPT valves the spring can now be removed.

Unscrew the four (4) cover screws and remove cover and body gasket. Plunger assembly for 3/4" NPT valves can now be removed.

- All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with Gold Ring™ Rebuild Kit. Use all parts for best results.



- e. Inspect valve body seat for scratches, nicks, dents or other blemishes. Replace if damaged.
- f. Reassemble in reverse order of disassembly, paying careful attention to Exploded Views provided. Apply 175 ± 25 inch pounds of torque when tightening the plunger tube assembly on 3/8", 1/2" and 3/4" NPT models. 1/2" and 3/4" NPT require 110 ± 10 inch pounds of torque to the cover screws in a criss cross pattern. Lubricate all gaskets with DOW CORNING® 111 Compound or an equivalent high grade silicone grease.
- g. DO NOT alter, modify, or use parts not obtained in Rebuild Kit from original manufacturer.

Parker Gold Ring™ Rebuild Kits

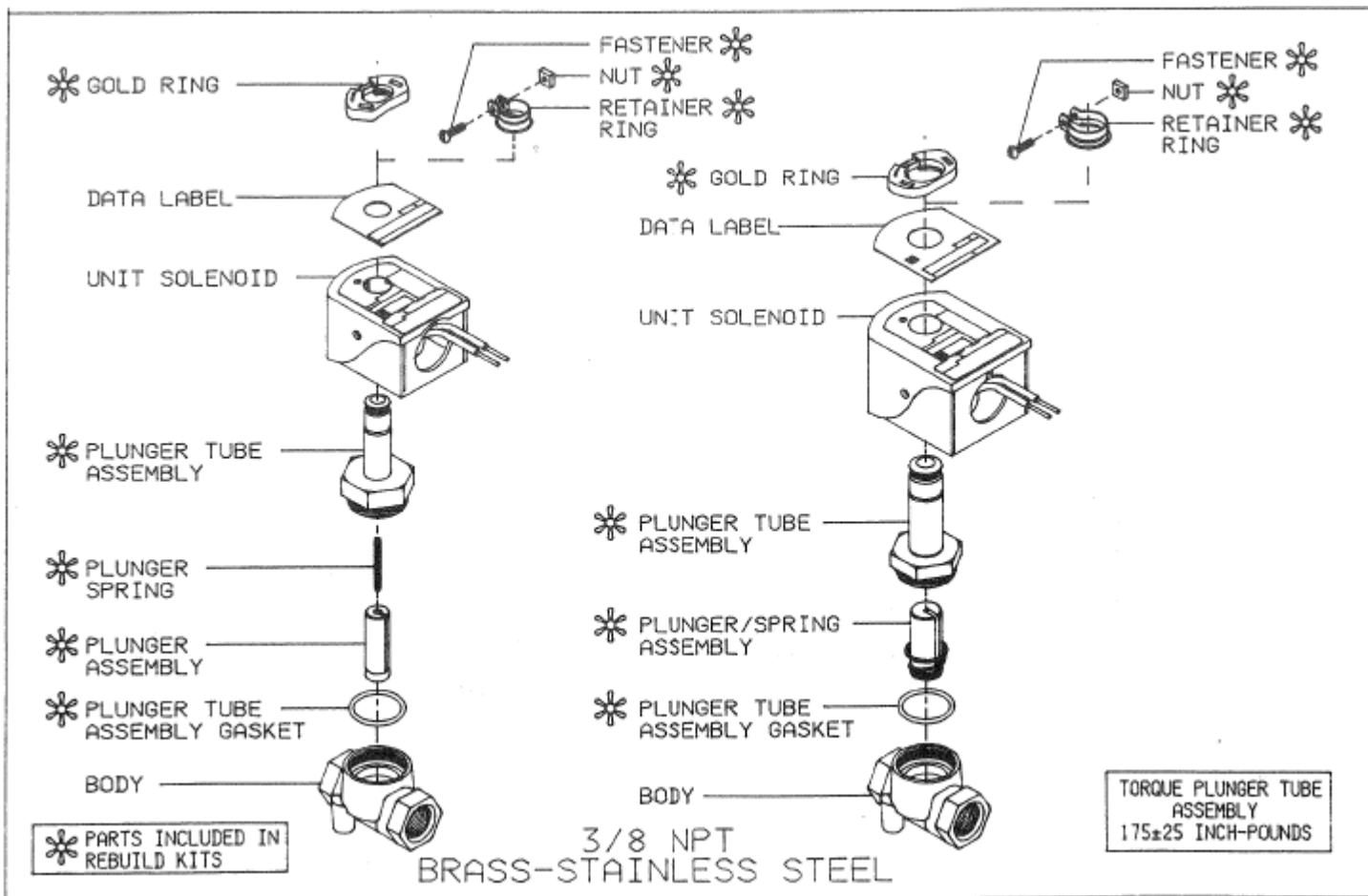
Rebuild Kits and Unit Solenoids are available for Gold Ring™ Valves. Parts marked with an asterisk (*) are included in Rebuild Kits (See Exploded Views).

Ordering Information For Rebuild Kits

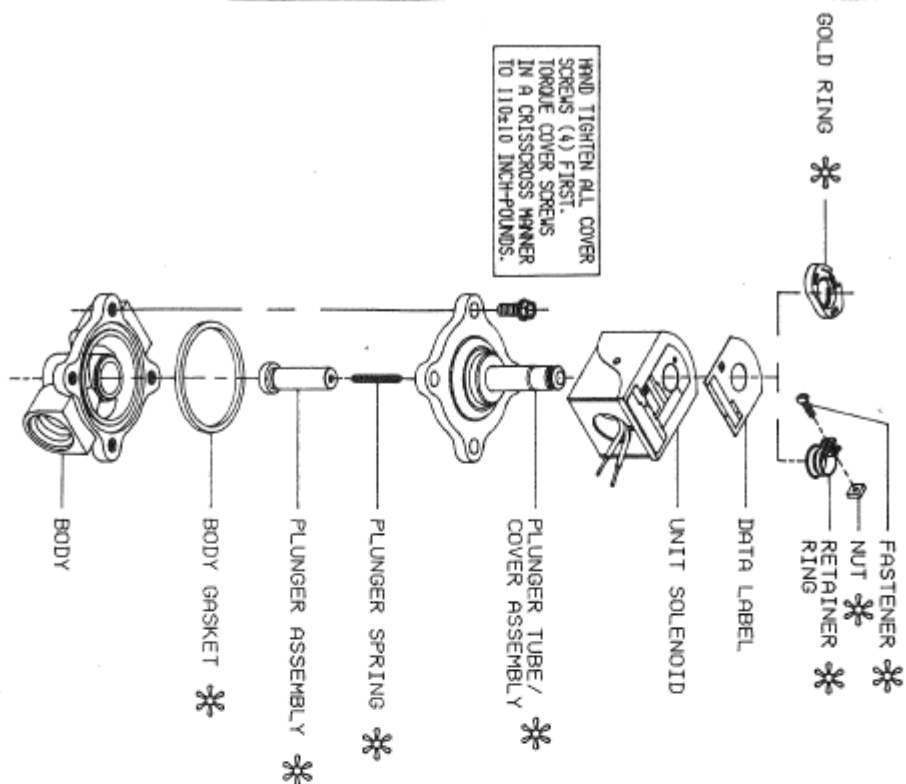
When ordering Parker Gold Ring™ Rebuild Kits or Unit Solenoids specify Valve Catalog Number, Serial Number and Voltage.

Note: This product may contain chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.

This warning is given compliance with California Proposition 65, as detectable amounts of chemicals subject to Proposition 65 may be contained in this product."

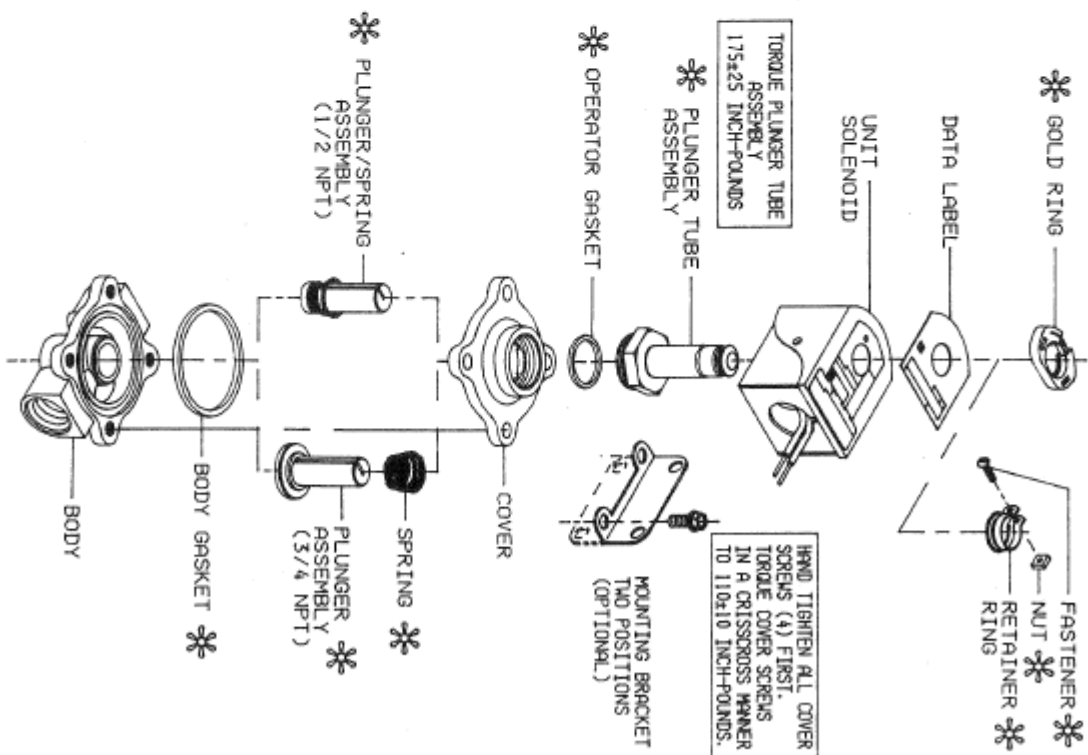


1/2 NPT BRASS-STAINLESS STEEL



* PARTS INCLUDED IN REBUILD KITS

1/2 & 3/4 NPT BRASS-STAINLESS STEEL



* PARTS INCLUDED IN REBUILD KITS

Parker Gold Ring™ Solenoid Valve Temperature Limitations

The following table provides fluid and ambient temperature data for Parker Gold Ring™ solenoid valves.

Series or Catalog Number	Watt Rating	Coil Insulation Class (see note 2)	Maximum ambient temperature °F	Maximum fluid temperature °F
Series 20	9.5	130	77	200
Series P,20,22,24,25,26,30,34,38	6, 6.8, 6.9, 7.5, 8.1	155	130	180
Series 20,23,24,25,26,28,34,35,38,48	11,11.6,12.6,13.9	155	130	180
Series 20,22,23,24,25,26,28,30,34,35,38,48	6,6.8,6.9,7.5,8.1,11,11.6,12.6,13.9	180	167	216
Series 20,30	10.2,10.4,10.8,12.3,12.7	155	77	180
Series 20,30,34	16,16.7,17.4	155	77	200
Series 22	16,16.7,17.4	155	77	175
Series 20,22,30,34	10.2,10.4,10.8,12.3,12.7,16.7,17.4	180	113	236
Series 30	11,11.6	155	130	200
Exception 12F25	6,6.8,6.9,8.1,11	155	77	175
Exception 12F25	6,6.8,6.9,8.1,11	180	113	236
Series S3,S4,S5	6,6.8,6.9,8.1,9,11	155	77	300
Series S5	11	155	131	320
Series S5	11	180	131	353
Exceptions				
04F20C2410ACH	11,11.6,12.6,13.9	180	130	344
06F20C2410ACH	11,11.6,12.6,13.9	180	130	344
04F20C6414ACH	11,11.6,12.6,13.9	180	130	316
06F20C6414ACH	11,11.6,12.6,13.9	180	130	316
04F20C6418ADF	16,16.7,17.4	155	77	307
06F20C6418ADF	16,16.7,17.4	155	77	307
04F20C6408ACH	11,11.6,17.4	180	130	353
06F20C6408ACH	11,11.6,17.4	180	130	353
Seven digit may also be 3				
ALL	9.5	155	77	120
All	11.5	155	77	150
Exceptions				
With "5" in 8th Digit	11.5	155	77	140
With "20" before A3F	11.5	155	77	180
With "28" before A3F	11.5	155	77	180
04F20O1103	11.5	155	77	140
04F20O1106	11.5	155	77	140
Series 48	11.5	155	77	104
04F25	11.5	155	77	160

Note 1 – Valves with case Urethane discs (8th digit is 5) have a maximum 140°F maximum fluid

temperature. Note 2 – Insulation class is maximum allowable insulation material temperature, °C

CAUTION (Rectified Coil Only)

This solenoid coil contains solid state components that can be damaged by voltage spikes, transient voltage, over temperature, over voltage or improper assembly. To protect against premature coil failure, please read and adhere to the following:

1. If this coil is used in an inductive circuit with other inductive loads either in series or in parallel, this coil should be protected by a voltage suppression device with a minimum rating of 1.4 times the input voltage and sufficient capacity to dissipate the inductive load.
2. This coil is designed to operate in a maximum of 77°F (25°C) ambient which should not be exceeded for an extended period of time.
3. If solenoid is disassembled, all components must be reassembled correctly. Do not energize the solenoid unless it is assembled to a valve.
4. Operating voltage is 85-100% of rated voltage. These limits should not be exceeded.