



aerospace  
 climate control  
 electromechanical  
 filtration  
 fluid & gas handling  
 hydraulics  
 pneumatics  
 process control  
 sealing & shielding



# Fluid Control Express

Modular Solenoid Valves Shipped Next Day



ENGINEERING YOUR SUCCESS.

# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 1 800 C-Parker (1 800 272 7537).



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sup>2</sup> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



ENGINEERING YOUR SUCCESS.



# PARKER FLUID CONTROL DIVISION

## Who We Are

We are the Fluid Control Division and are part of the Climate and Industrial Control Group of Parker Hannifin Corporation. Our primary product offerings are solenoid valves and systems used for the control of liquid and gas medias.

With both the Skinner® and Gold Ring™ product lines, we are able to tackle a wide variety of tough applications demanding high performance and long life, while also providing the flexibility to service your MRO and OEM replacements.

## Where We Are

The Fluid Control Division of North America (FCD) is headquartered in New Britain, CT. Along with Customer Service, Product Engineering, Research and Development, Marketing, Application Support, and Product Management, we manufacture the Skinner® Valve product line at this location.

In our Madison, MS, Facility, we manufacture our core Gold Ring™ valve offering and support a full line of specialty valves, value added assemblies, and manifolds.

The Fluid Control Division of Parker Hannifin Corporation has a global manufacturing and sales presence through our European Headquarters and manufacturing in Geneva, Switzerland, and Gessate, Italy, and also through manufacturing locations in Korea, China, and Brazil.

## Our History

For over 60 years, Parker Hannifin, as a global leader in motion and control technologies, has been a lead innovator and supplier in the solenoid valve industry for a variety of installations and applications. Our valves are supplied by Parker under the Jackes Evans, Skinner® and Gold Ring™ trade names and are capable of on/off control for a wide variety of liquids and gases.

## Markets

Our products and solutions are typically designed for Process Control, Transportation, Commercial Equipment, Cooling & Climate Control, Food & Beverage and Industrial & Automation markets.

## Features and Benefits

With our modular concept of valves, coils and electrical components, we can help you achieve greater flexibility for your inventory and work in process with limited stock.



Fluid Control Division Headquarters, New Britain, CT.



Fluid Control Division Facility, Madison, MS.

# HOW TO USE THE CATALOG

## Navigation: 5 Easy Steps

2-Way

2-Way Direct Acting - Normally Closed - Brass

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal  | Pressure Vessel Number <b>1</b> | Coil Chart <b>2</b> |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|-------|---------------------------------|---------------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |       |                                 |                     |
| <b>AC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |       |                                 |                     |
| 1/8               | 1/8                 | .31               | 0  | 365            | 365   | 365       | 10   | 165                    | PCTFE | 7121KBN1NF00                    | 7                   |
| 1/4               | 1/8                 | .31               | 0  | 365            | 365   | 365       | 10   | 165                    | PCTFE | 7121KBN2NF00                    | 7                   |
| 1/4               | 1/8                 | .31               | 0  | 145            | 145   | 145       | 10   | 185                    | FKM   | 7121KBN2NV00                    | 7                   |
| 1/4               | 5/32                | .52               | 0  | 120            | 120   | 120       | 10   | 185                    | FKM   | 7121KBN2QV00                    | 7                   |
| 1/4               | 13/64               | .76               | 0  | 80             | 80    | 80        | 10   | 185                    | FKM   | 7121KBN2SV00                    | 7                   |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |       |                                 |                     |
| 1/8               | 1/8                 | .31               | 0  | 125            | 125   | 125       | 10   | 165                    | PCTFE | 7121KBN1NF00                    | 7                   |
| 1/4               | 1/8                 | .31               | 0  | 125            | 125   | 125       | 10   | 165                    | PCTFE | 7121KBN2NF00                    | 7                   |
| 1/4               | 1/8                 | .31               | 0  | 125            | 125   | 125       | 10   | 185                    | FKM   | 7121KBN2NV00                    | 7                   |
| 1/4               | 5/32                | .52               | 0  | 60             | 60    | 60        | 10   | 185                    | FKM   | 7121KBN2QV00                    | 7                   |
| 1/4               | 13/64               | .76               | 0  | 30             | 30    | 30        | 10   | 185                    | FKM   | 7121KBN2SV00                    | 7                   |
| 1/2               | 7/16                | 2.5               | 0  | 17.5           | 17.5  | 17.5      | 10   | 185                    | FKM   | 7121KBN44V00                    | 7                   |

### COILS 3

Please refer to the coil chart number within the catalog to find the correct coil in the chart below.

| Gold Ring™   | Voltage   | 1/2" NPT Conduit*                         | DIN 43650A/ISO4403                             |                                      |
|--|---|---|--|--------------------------------------|
| CHART 1<br>6 watts, Class F                        | 24/60<br>120/60-110/50<br>240/60-220/50                   | AFAC01<br>AFAC05<br>AFAC15                | -<br>-<br>-                                    | AFPH05<br>AFPH15                     |
| CHART 4<br>11 watts, Class F                       | 24/60<br>120/60-110/50<br>240/60-220/50                   | CFAC01<br>CFAC05<br>CFAC15                | -<br>-<br>-                                    | CFPH05<br>CFPH15                     |
| CHART 5<br>16 watts, Class F                       | 24/60<br>120/60-110/50<br>240/60-220/50                   | DFAC01<br>DFAC05<br>DFAC15                | -<br>-<br>-                                    | DFPH05<br>DFPH15                     |
| CHART 6<br>11.5 watts, Class F                     | 12VDC<br>24VDC  | 3FAC75<br>3FAC80                          | -<br>-   | 3FPH75<br>3FPH80                     |
| Skinner®   | Voltage   | 1/2" NPT Conduit*                         | DIN 43650A/ISO4403                             | Hazardous**                          |
| CHART 7<br>10 watts, Class F                       | 24/60<br>120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC | C11B2<br>C11P3<br>C11Q3<br>C11C1<br>C11C2 | D100B2<br>D100P3<br>D100Q3<br>D100C1<br>D100C2 | H111P3<br>H111Q3<br>H111C1<br>H111C2 |
| CHART 7<br>10 watts, Class H                       | 120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC          | C22P3<br>C22Q3<br>C22C1<br>C22C2          | -<br>-<br>-<br>-                               | H22P3<br>H22Q3<br>-<br>H22C2         |
| CHART 8<br>22 watts, Class H                       | 120/60-110/50<br>12VDC<br>24VDC                           | C32P3<br>C32C1<br>C32C2                   | -<br>-<br>-                                    | H32P3<br>H32C1<br>H32C2              |
| Skinner®   | Voltage   | 1/2" NPT Conduit*                         | DIN 43650A/ISO4403                             | 18" Leads                            |
| CHART 9<br>AC 10 watts***<br>DC 8 watts<br>Class F | 24/60<br>120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC | CAE<br>CAF<br>CAG<br>CAB                  | -<br>-<br>-<br>-                               | BAE<br>BAF<br>BAG<br>BAB             |
| CHART 9<br>AC 10 watts***<br>DC 8 watts<br>Class H | 24/60<br>120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC | -<br>-<br>-<br>-                          | DAE<br>DAF<br>DAG<br>DAB                       | -<br>-<br>-<br>-                     |

\* 1/2" Lead Wires, Norma 1, 2, 3, 4, 6X  
\*\* Hazardous location use dependent. Class I, Div I & II, Groups A, B, C, D; Class II, Div I, Groups E, F, G; Class III, Div I  
\*\*\* 8.5 Watt For 2-Way Normally Closed AC

1. Choose your pressure vessel
2. Choose your coil reference number
3. Find your coil reference number on the Coil Chart
4. **Place order for pressure vessel and coil as separate items.**
5. Request distributor to place order via PHConnect.

### Flip out the tab attached to the back cover to reveal Coil Chart.

The stated wattage represents a nominal value. The actual wattage may vary depending on coil/pressure vessel selection.

The pressure vessel and solenoid coil are boxed and shipped separately.

Quantities of 10 pieces or less will ship next day.

Quantities of 11-50 pieces will ship in 5 working days.

★ Quantities greater than 51 pieces may be scheduled.

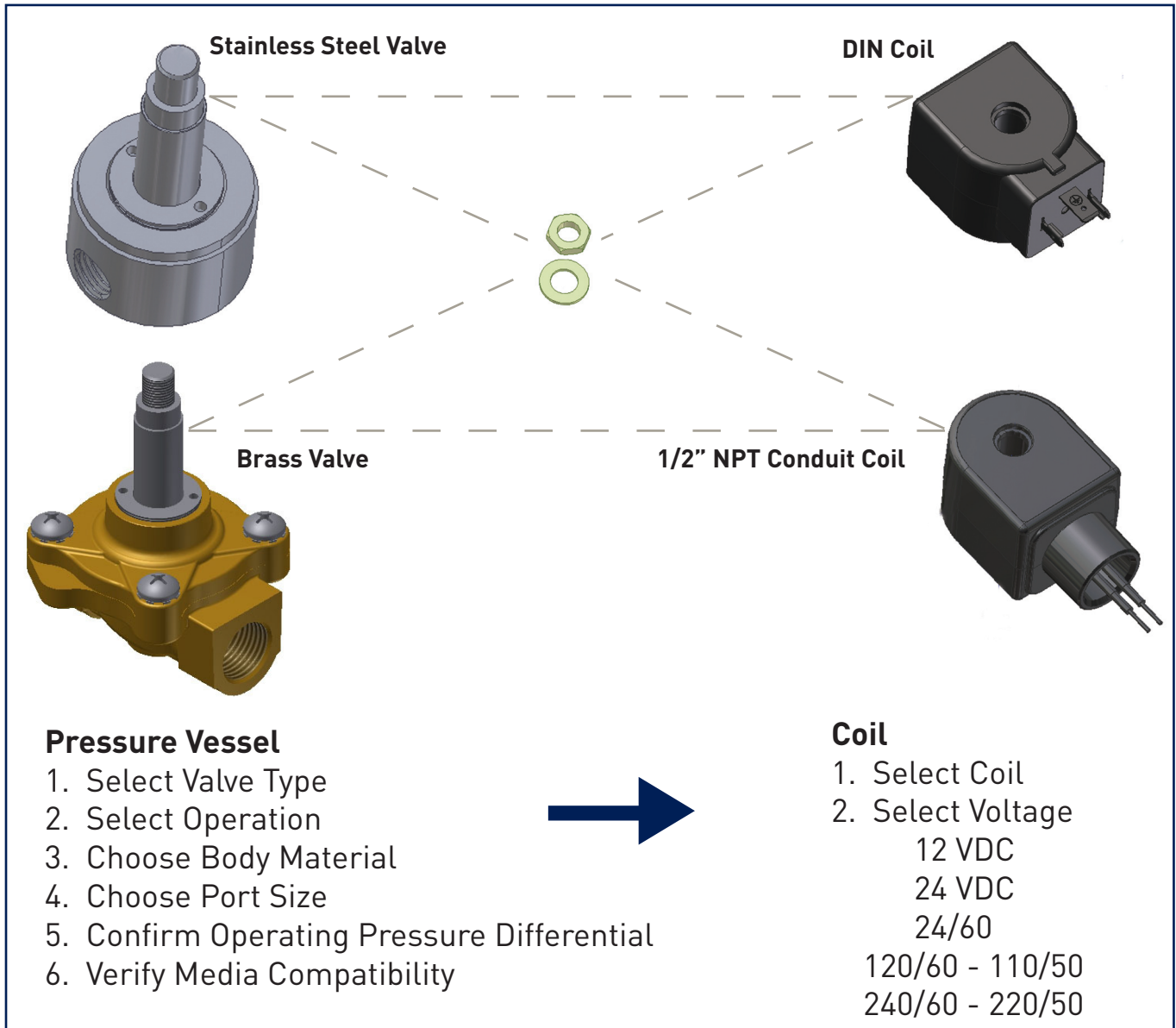
Images shown in this catalog are representative only.





# HOW TO DESIGN YOUR SOLUTION

**Modularity:** Order a pressure vessel and mix and match the coils to make endless product capabilities.

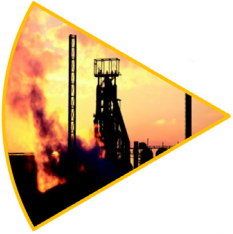


## Result:

Solenoid valves and coils that ship next day meet your application needs and have a two year warranty.

Coils assembled to pressure vessels in the field will carry  recognized approval.

**Together, we can**  
 control virtually  
 any media, in  
 any application,  
 under any  
 condition.



**Process Control**

- Valve Actuation
- Oil & Gas
- Chemical Processing
- Pharmaceutical

**Transportation**

- Trucks
- Trains
- Bus & Coach
- Marine
- Agriculture



**Commercial Equipment**

- Medical Equipment
- Water Purification
- Sterilizers
- Welding

**Cooling & Climate Control**

- Water Dispensing
- Cooling Systems
- Irrigation

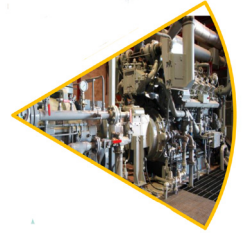


**Food & Beverage**

- Coffee Machines
- Sparkling Water
- Beverage Dispensing
- Water Dispensing

**Industrial & Automation**

- Compressors
- Blow Molding
- Textile



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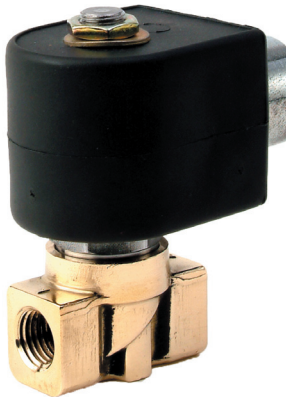
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For complete valve specifications including materials of construction, consult the General Purpose Solenoid Valves Catalog FCDFL0911, available for download at [www.parker.com/fcd](http://www.parker.com/fcd), under Literature.



## 2-Way Direct Acting - Normally Closed - Brass

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure<br>Differential (MOPD) PSI |                      |       |              | Watt | Max. Media<br>Temp.<br>°F | Seal  | Pressure Vessel<br>Number | Coil<br>Chart |
|-------------------|---------------------|-------------------|---|----------------------|-------|--------------|------|---------------------------|-------|---------------------------|---------------|
|                   |                     |                   | Min.  | Air,<br>Inert<br>Gas | Water | Light<br>Oil |      |                           |       |                           |               |
| <b>AC VOLTAGE</b> |                     |                   |   |                      |       |              |      |                           |       |                           |               |
| 1/8               | 1/8                 | .31               | 0   | 365                  | 365   | 365          | 10   | 165                       | PCTFE | 7121KBN1NF00              | 7             |
| 1/4               | 1/8                 | .31               | 0   | 365                  | 365   | 365          | 10   | 165                       | PCTFE | 7121KBN2NF00              | 7             |
| 1/4               | 1/8                 | .31               | 0   | 145                  | 145   | 145          | 10   | 185                       | FKM   | 7121KBN2NV00              | 7             |
| 1/4               | 5/32                | .52               | 0   | 120                  | 120   | 120          | 10   | 185                       | FKM   | 7121KBN2QV00              | 7             |
| 1/4               | 13/64               | .76               | 0   | 80                   | 80    | 80           | 10   | 185                       | FKM   | 7121KBN2SV00              | 7             |
| 1/2               | 7/16                | 2.5               | 0   | 17.5                 | 17.5  | 17.5         | 10   | 185                       | FKM   | 7121KBN44V00              | 7             |
| <b>DC VOLTAGE</b> |                     |                   |   |                      |       |              |      |                           |       |                           |               |
| 1/8               | 1/8                 | .31               | 0   | 125                  | 125   | 125          | 10   | 165                       | PCTFE | 7121KBN1NF00              | 7             |
| 1/4               | 1/8                 | .31               | 0   | 125                  | 125   | 125          | 10   | 165                       | PCTFE | 7121KBN2NF00              | 7             |
| 1/4               | 1/8                 | .31               | 0   | 125                  | 125   | 125          | 10   | 185                       | FKM   | 7121KBN2NV00              | 7             |
| 1/4               | 5/32                | .52               | 0   | 60                   | 60    | 60           | 10   | 185                       | FKM   | 7121KBN2QV00              | 7             |
| 1/4               | 13/64               | .76               | 0   | 30                   | 30    | 30           | 10   | 185                       | FKM   | 7121KBN2SV00              | 7             |
| 1/2               | 7/16                | 2.5               | 0   | 5                    | 5     | 5            | 10   | 185                       | FKM   | 7121KBN44V00              | 7             |



## 2-Way Direct Acting - Normally Closed - Stainless Steel

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal  | Pressure Vessel Number | Coil Chart |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|-------|------------------------|------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |       |                        |            |
| <b>AC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |       |                        |            |
| 1/8               | 1/8                 | .28               | 0  | 200            | 200   | 200       | 10   | 185                    | NBR   | 71215SN1MN00           | 7          |
| 1/8               | 3/64                | .06               | 0  | 950            | 950   | 950       | 8.5  | 240                    | FKM   | 20CC02EV4              | 9          |
| 1/8               | 1/16                | .10               | 0  | 625            | 625   | 625       | 8.5  | 240                    | FKM   | 20CC02GV4              | 9          |
| 1/8               | 3/32                | .22               | 0  | 320            | 320   | 320       | 8.5  | 240                    | FKM   | 20CC02LV4              | 9          |
| 1/8               | 7/64                | .28               | 0  | 245            | 245   | 245       | 8.5  | 240                    | FKM   | 20CC02MV4              | 9          |
| 1/8               | 1/8                 | .32               | 0  | 175            | 175   | 175       | 8.5  | 240                    | FKM   | 20CC02PV4              | 9          |
| 1/8               | 5/32                | .38               | 0  | 100            | 100   | 100       | 8.5  | 240                    | FKM   | 20CC02QV4              | 9          |
| 1/4               | 1/32                | .02               | 0  | 3000           | 3000  | 3000      | 10   | 185                    | Nylon | 71216SN2BL00           | 7          |
| 1/4               | 3/64                | .037              | 0  | 1500           | 1500  | 1500      | 10   | 185                    | PTFE  | 71216SN2FU00           | 7          |
| 1/4               | 3/64                | .06               | 0  | 450            | 450   | 450       | 10   | 185                    | NBR   | 71215SN2EN00           | 7          |
| 1/4               | 1/16                | .10               | 0  | 350            | 350   | 350       | 10   | 185                    | NBR   | 71215SN2GN00           | 7          |
| 1/4               | 3/32                | .18               | 0  | 275            | 275   | 275       | 10   | 185                    | NBR   | 71215SN2KN00           | 7          |
| 1/4               | 1/8                 | .28               | 0  | 200            | 200   | 200       | 10   | 185                    | NBR   | 71215SN2MN00           | 7          |
| 1/4               | 5/32                | .40               | 0  | 110            | 110   | 110       | 10   | 185                    | NBR   | 71215SN2QN00           | 7          |
| 1/4               | 3/16                | .50               | 0  | 80             | 80    | 80        | 10   | 185                    | NBR   | 71215SN2SN00           | 7          |
| 1/4               | 1/4                 | .75               | 0  | 40             | 40    | 40        | 10   | 185                    | NBR   | 71215SN2VN00           | 7          |
| 1/4               | 5/16                | 1.1               | 0  | 20             | 20    | 20        | 10   | 185                    | NBR   | 71215SN21N00           | 7          |
| 3/8               | 3/8                 | 2.0               | 0  | 6              | 6     | 6         | 10   | 185                    | NBR   | 71215SN33N00           | 7          |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |       |                        |            |
| 1/8               | 1/8                 | .28               | 0  | 150            | 150   | 150       | 10   | 185                    | NBR   | 71215SN1MN00           | 7          |
| 1/8               | 3/64                | .06               | 0  | 390            | 390   | 390       | 8    | 240                    | FKM   | 20CC02EV4              | 9          |
| 1/8               | 1/16                | .10               | 0  | 255            | 255   | 255       | 8    | 240                    | FKM   | 20CC02GV4              | 9          |
| 1/8               | 3/32                | .22               | 0  | 130            | 130   | 130       | 8    | 240                    | FKM   | 20CC02LV4              | 9          |
| 1/8               | 7/64                | .28               | 0  | 100            | 100   | 100       | 8    | 240                    | FKM   | 20CC02MV4              | 9          |
| 1/8               | 1/8                 | .32               | 0  | 60             | 60    | 60        | 8    | 240                    | FKM   | 20CC02PV4              | 9          |
| 1/8               | 5/32                | .38               | 0  | 30             | 30    | 30        | 8    | 240                    | FKM   | 20CC02QV4              | 9          |
| 1/4               | 3/64                | .06               | 0  | 450            | 450   | 450       | 10   | 185                    | NBR   | 71215SN2EN00           | 7          |
| 1/4               | 1/32                | .02               | 0  | 2500           | 2500  | 2500      | 10   | 185                    | Nylon | 71216SN2BL00           | 7          |
| 1/4               | 1/32                | .02               | 0  | 3000           | 3000  | 3000      | 22   | 185                    | Nylon | 71216SN2BL00           | 8          |
| 1/4               | 3/64                | .037              | 0  | 1000           | 1000  | 1000      | 10   | 185                    | PTFE  | 71216SN2FU00           | 7          |
| 1/4               | 3/64                | .037              | 0  | 1500           | 1500  | 1500      | 22   | 185                    | PTFE  | 71216SN2FU00           | 8          |
| 1/4               | 1/16                | .10               | 0  | 350            | 350   | 350       | 10   | 185                    | NBR   | 71215SN2GN00           | 7          |
| 1/4               | 3/32                | .18               | 0  | 275            | 275   | 275       | 10   | 185                    | NBR   | 71215SN2KN00           | 7          |
| 1/4               | 1/8                 | .28               | 0  | 150            | 150   | 150       | 10   | 185                    | NBR   | 71215SN2MN00           | 7          |



## 2-Way Direct Acting - Normally Open - Brass

| Port Size<br>NPT | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                  |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |

### AC VOLTAGE

|     |      |     |   |     |     |     |    |     |       |               |   |
|-----|------|-----|---|-----|-----|-----|----|-----|-------|---------------|---|
| 1/4 | 3/32 | .17 | 0 | 300 | 250 | 230 | 11 | 180 | NBR   | 04F20O1106ACF | 4 |
| 1/4 | 3/32 | .21 | 0 | 175 | 175 | 175 | 10 | 165 | PCTFE | 7122KBN2LF00  | 7 |
| 1/4 | 9/32 | .96 | 0 | 30  | 25  | 20  | 11 | 180 | NBR   | 04F20O2118ACF | 4 |

### DC VOLTAGE

|     |      |     |   |     |     |     |    |     |       |              |   |
|-----|------|-----|---|-----|-----|-----|----|-----|-------|--------------|---|
| 1/4 | 3/32 | .21 | 0 | 175 | 175 | 175 | 10 | 165 | PCTFE | 7122KBN2LF00 | 7 |
|-----|------|-----|---|-----|-----|-----|----|-----|-------|--------------|---|

## 2-Way Direct Acting - Normally Open - Stainless Steel

| Port Size<br>NPT | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                  |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |

### AC VOLTAGE

|     |      |     |   |     |     |     |    |     |     |              |   |
|-----|------|-----|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/8 | 3/64 | .06 | 0 | 230 | 230 | 230 | 10 | 240 | FKM | 20CF02EV4    | 9 |
| 1/8 | 3/32 | .20 | 0 | 80  | 80  | 80  | 10 | 240 | FKM | 20CF02LV4    | 9 |
| 1/4 | 3/32 | .15 | 0 | 250 | 250 | 250 | 10 | 185 | NBR | 71295SN2KNJ1 | 7 |

### DC VOLTAGE

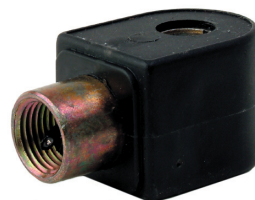
|     |      |     |   |     |     |     |    |     |     |              |   |
|-----|------|-----|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/8 | 3/64 | .06 | 0 | 230 | 230 | 230 | 8  | 240 | FKM | 20CF02EV4    | 9 |
| 1/8 | 3/32 | .20 | 0 | 80  | 80  | 80  | 8  | 240 | FKM | 20CF02LV4    | 9 |
| 1/4 | 3/32 | .15 | 0 | 250 | 250 | 250 | 10 | 185 | NBR | 71295SN2KNJ1 | 7 |





## 2-Way Normally Closed Steam and Hot Water - Brass

| Port Size NPT     | Orifice Size in. | Flow Factor Cv | Operating Pressure Differential (MOPD) PSI |                 |             |                       | Watt | Max. Media Temp. °F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|------------------|----------------|--|-----------------|-------------|-----------------------|------|---------------------|------|------------------------|------------|
|                   |                  |                | Min.                                       | Hot Water (PSI) | Steam (PSI) | Lt. Oil 300 SSU (PSI) |      |                     |      |                        |            |
| <b>AC VOLTAGE</b> |                  |                |  |                 |             |                       |      |                     |      |                        |            |
| 1/2               | 5/8              | 4.0            | 0  | 150             | 50          | -                     | 11   | 300                 | EPDM | 08FS3C2340ACF          | 4          |
| 1/2               | 1/2              | 3.6            | 1  | -               | 125         | -                     | 11   | 353                 | PTFE | 08FS5C2432ACH          | Below      |
| 3/4               | 3/4              | 5.0            | 0  | 150             | 50          | -                     | 11   | 300                 | EPDM | 12FS3C2348ACF          | 4          |
| 3/4               | 5/8              | 5.0            | 0  | 100             | -           | -                     | 10   | 210                 | EPDM | 72218BN5VE00           | 7          |
| 3/4               | 3/4              | 7.4            | 1  | -               | 125         | -                     | 11   | 353                 | PTFE | 12FS5C2448ACH          | Below      |
| 1                 | 1                | 8.8            | 1  | -               | 125         | -                     | 11   | 353                 | PTFE | 16FS5C2464ACH          | Below      |
| 1                 | 1                | 11.7           | 0  | 150             | -           | -                     | 10   | 210                 | EPDM | 7221GBN64E00           | 7          |
| 1 1/2             | 1 1/2            | 22.5           | 5  | 150             | 50          | -                     | 6    | 300                 | EPDM | 24FS4C2380AAF          | 1          |



| Gold Ring™          | Voltage | 1/2" NPT Conduit* |
|---------------------|---------|-------------------|
| 11 Watts<br>Class H | 24/60   | CH4C01            |
|                     | 120/60  | CH4C05            |
|                     | 240/60  | CH4C15            |

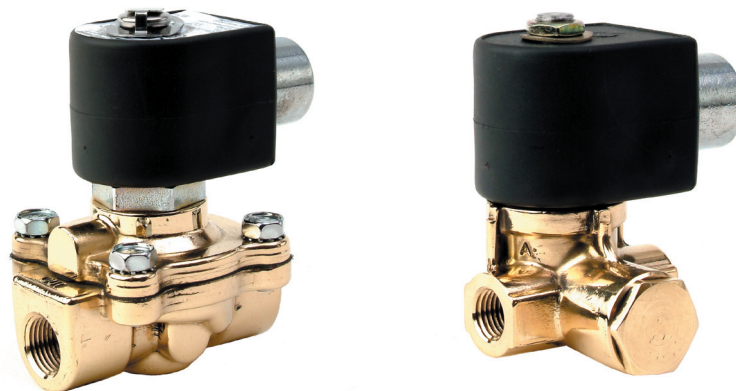
\* 18" Lead Wires, Nema 1, 2, 3, 4, 4X

## 2-Way Internally Pilot Operated & Direct Lift - Normally Closed - Brass

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure<br>Differential (MOPD) PSI |                      |       |              | Watt | Max. Media<br>Temp.<br>°F | Seal | Pressure Vessel<br>Number | Coil<br>Chart |
|-------------------|---------------------|-------------------|---|----------------------|-------|--------------|------|---------------------------|------|---------------------------|---------------|
|                   |                     |                   | Min.  | Air,<br>Inert<br>Gas | Water | Light<br>Oil |      |                           |      |                           |               |
| <b>AC VOLTAGE</b> |                     |                   |   |                      |       |              |      |                           |      |                           |               |
| 1/4               | 7/16                | 2.0               | 3   | 150                  | 150   | 150          | 10   | 180                       | NBR  | 7321KBN2RN00              | 7             |
| 1/4               | 1/4                 | .76               | 5   | 1500                 | 1500  | 1500         | 10   | 210                       | PTFE | 73216BN2MT00              | 7             |
| 1/4               | 1/4                 | .76               | 5   | 300                  | 300   | 300          | 10   | 185                       | NBR  | 73212BN2MN00              | 7             |
| 1/4               | 11/32               | 1.2               | 5   | 300                  | 300   | 300          | 6    | 180                       | NBR  | 04F25C2122CAF             | 1             |
| 3/8               | 7/16                | 2.5               | 3   | 150                  | 150   | 150          | 10   | 185                       | NBR  | 7321KBN3SN00              | 7             |
| 3/8               | 5/8                 | 3.0               | 5   | 200                  | 135   | 135          | 6    | 180                       | NBR  | 06F22C2140AAF             | 1             |
| 3/8               | 5/8                 | 4.0               | 0   | 150                  | 150   | 150          | 11   | 180                       | NBR  | 06F23C2140ACF             | 4             |
| 1/2               | 1/2                 | 2.8               | 5   | 300                  | 300   | 300          | 10   | 185                       | NBR  | 73212BN4TN00              | 7             |
| 1/2               | 5/8                 | 4.0               | 5   | 200                  | 135   | 135          | 6    | 180                       | NBR  | 08F22C2140AAF             | 1             |
| 1/2               | 19/32               | 4.4               | 0   | 230                  | 230   | 230          | 10   | 185                       | NBR  | 7221GBN4VN00              | 7             |
| 1/2               | 5/8                 | 4.0               | 5   | 150                  | 150   | 150          | 10   | 185                       | NBR  | 73218BN4UN00              | 7             |
| 1/2               | 5/8                 | 4.0               | 0   | 150                  | 150   | 150          | 11   | 180                       | NBR  | 08F23C2140ACF             | 4             |
| 3/4               | 3/4                 | 5.0               | 5   | 125                  | 125   | 125          | 6    | 180                       | NBR  | 12F22C2148AAF             | 1             |
| 3/4               | 3/4                 | 5.0               | 5   | 150                  | 150   | 150          | 10   | 185                       | NBR  | 73218BN5VN00              | 7             |
| 3/4               | 3/4                 | 5.0               | 0   | 150                  | 150   | 150          | 11   | 180                       | NBR  | 12F23C2148ACF             | 4             |
| 3/4               | 19/32               | 5.5               | 0   | 230                  | 230   | 230          | 10   | 185                       | NBR  | 7221GBN51N00              | 7             |
| 1                 | 1                   | 13                | 5   | 150                  | 150   | 100          | 6    | 180                       | NBR  | 16F24C2164AAF             | 1             |
| 1                 | 1                   | 11.7              | 0   | 230                  | 230   | 230          | 10   | 185                       | NBR  | 7221GBN64N00              | 7             |
| 1                 | 1                   | 11.7              | 0   | 230                  | 230   | 230          | 10   | 185                       | FKM  | 7221GBN64V00              | 7             |
| 1                 | 1                   | 12.5              | 5   | 230                  | 230   | 230          | 10   | 185                       | NBR  | 7321GBN64N00              | 7             |
| 1 1/4             | 1 1/8               | 15                | 5   | 150                  | 125   | 100          | 6    | 180                       | NBR  | 20F24C2172AAF             | 1             |
| 1 1/2             | 1 1/4               | 22.5              | 5   | 150                  | 125   | 100          | 6    | 180                       | NBR  | 24F24C2180AAF             | 1             |
| 2                 | 1 9/16              | 38.6              | 5   | 230                  | 230   | 230          | 10   | 185                       | NBR  | 7321GBN99N00              | 7             |

## 2-Way Internally Pilot Operated & Direct Lift - Normally Closed - Brass

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/4               | 7/16                | 2.0               | 3  | 60             | 60    | 60        | 10   | 185                    | NBR  | 7321KBN2RN00           | 7          |
| 1/4               | 1/4                 | .76               | 5  | 800            | 800   | 800       | 10   | 210                    | PTFE | 73216BN2MT00           | 7          |
| 1/4               | 1/4                 | .76               | 5  | 300            | 300   | 300       | 10   | 185                    | NBR  | 73212BN2MN00           | 7          |
| 1/4               | 11/32               | 1.2               | 5  | 275            | 275   | 275       | 11.5 | 150                    | NBR  | 04F25C2122C3F          | 6          |
| 3/8               | 7/16                | 2.5               | 3  | 60             | 60    | 60        | 10   | 185                    | NBR  | 7321KBN3SN00           | 7          |
| 3/8               | 5/6                 | 3.0               | 5  | 125            | 100   | 100       | 11.5 | 150                    | NBR  | 06F22C2140A3F          | 6          |
| 1/2               | 19/32               | 4.4               | 0  | 100            | 100   | 100       | 22   | 185                    | NBR  | 7221GBN4VN00           | 8          |
| 1/2               | 5/8                 | 4.0               | 5  | 150            | 150   | 150       | 10   | 185                    | NBR  | 73218BN4UN00           | 7          |
| 1/2               | 1/2                 | 2.8               | 5  | 300            | 300   | 300       | 10   | 185                    | NBR  | 73212BN4TN00           | 7          |
| 1/2               | 5/8                 | 4.0               | 5  | 125            | 100   | 100       | 11.5 | 150                    | NBR  | 08F22C2140A3F          | 6          |
| 3/4               | 3/4                 | 5.0               | 5  | 100            | 90    | 75        | 11.5 | 150                    | NBR  | 12F22C2148A3F          | 6          |
| 3/4               | 3/4                 | 5.0               | 5  | 150            | 150   | 150       | 10   | 185                    | NBR  | 73218BN5VN00           | 7          |
| 3/4               | 19/32               | 5.5               | 0  | 100            | 100   | 100       | 22   | 185                    | NBR  | 7221GBN51N00           | 8          |
| 1                 | 1                   | 13.0              | 5  | 125            | 125   | 125       | 11.5 | 150                    | NBR  | 16F24C2164A3F          | 6          |
| 1                 | 1                   | 11.7              | 0  | 85             | 85    | 85        | 22   | 185                    | NBR  | 7221GBN64N00           | 8          |
| 1                 | 1                   | 11.7              | 0  | 85             | 85    | 85        | 22   | 185                    | FKM  | 7221GBN64V00           | 8          |
| 1                 | 1                   | 12.5              | 5  | 230            | 230   | 230       | 10   | 185                    | NBR  | 7321GBN64N00           | 7          |
| 1 1/4             | 1 1/8               | 15.0              | 5  | 125            | 125   | 125       | 11.5 | 150                    | NBR  | 20F24C2172A3F          | 6          |
| 1 1/2             | 1 1/4               | 22.5              | 5  | 125            | 125   | 125       | 11.5 | 150                    | NBR  | 24F24C2180A3F          | 6          |
| 2                 | 19/16               | 38.6              | 5  | 200            | 200   | 200       | 10   | 185                    | NBR  | 7321GBN99N00           | 7          |





## 2-Way Direct Lift - Normally Closed - Stainless Steel

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure<br>Differential (MOPD) PSI |                      |       |              | Watt | Max.<br>Media<br>Temp.<br>°F | Seal | Pressure Vessel<br>Number | Coil<br>Chart |
|-------------------|---------------------|-------------------|---|----------------------|-------|--------------|------|------------------------------|------|---------------------------|---------------|
|                   |                     |                   | Min.  | Air,<br>Inert<br>Gas | Water | Light<br>Oil |      |                              |      |                           |               |
| <b>AC VOLTAGE</b> |                     |                   |   |                      |       |              |      |                              |      |                           |               |
| 1/2               | 5/8                 | 4.0               | 0   | 150                  | 150   | 150          | 11   | 180                          | NBR  | 08F23C6140ACF             | 4             |
| 1/2               | 5/8                 | 4.0               | 0   | 100                  | 100   | 100          | 10   | 185                          | FKM  | 72218RN4UV00              | 7             |
| 3/4               | 3/4                 | 5.0               | 0   | 150                  | 150   | 150          | 11   | 180                          | NBR  | 12F23C6148ACF             | 4             |
| <b>DC VOLTAGE</b> |                     |                   |   |                      |       |              |      |                              |      |                           |               |
| 1/2               | 5/8                 | 4.0               | 0   | 40                   | 40    | 40           | 22   | 185                          | FKM  | 72218RN4UV00              | 8             |



## 2-Way Direct Lift - Normally Open - Brass

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |
| <b>AC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/2               | 5/8                 | 4.0               | 0  | 150            | 150   | 150       | 11   | 180                    | NBR  | 08F23O2140ACF          | 4          |
| 3/4               | 3/4                 | 5.5               | 0  | 150            | 150   | 150       | 11   | 180                    | NBR  | 12F23O2148ACF          | 4          |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/2               | 5/8                 | 4.0               | 0  | 125            | 125   | 80        | 11.5 | 150                    | NBR  | 08F23O2140A3F          | 6          |

## 2-Way Direct Lift - Normally Open - Stainless Steel

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |
| <b>AC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/2               | 5/8                 | 4.0               | 0  | 125            | 125   | 125       | 22   | 185                    | FKM  | 72228RN4UV00           | 8          |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/2               | 5/8                 | 4.0               | 0  | 125            | 125   | 125       | 22   | 185                    | FKM  | 72228RN4UV00           | 8          |

### 3-Way Direct Acting - Normally Closed - Brass

| Port Size<br>NPT | Orifice Size in. |      | Flow Factor Cv |      | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp. °F | Seal | Pressure Vessel Number | Coil Chart |
|------------------|------------------|------|----------------|------|--|----------------|-------|-----------|------|---------------------|------|------------------------|------------|
|                  | In               | Exh. | In             | Exh. | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                     |      |                        |            |

#### AC VOLTAGE

|     |      |      |     |     |   |     |     |     |    |     |     |              |   |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 5/64 | 3/32 | .17 | .24 | 0 | 150 | 150 | 150 | 10 | 185 | FKM | 7131KBN2JV00 | 7 |
| 1/4 | 5/64 | 1/8  | .17 | .31 | 0 | 150 | 150 | 150 | 10 | 185 | FKM | 7131TBN2JV00 | 7 |
| 1/4 | 3/32 | 9/64 | .24 | .38 | 0 | 110 | 110 | 110 | 10 | 185 | FKM | 7131TBN2LV00 | 7 |

#### DC VOLTAGE

|     |      |      |     |     |   |     |     |     |    |     |     |              |   |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 5/64 | 3/32 | .17 | .24 | 0 | 150 | 150 | 150 | 10 | 185 | FKM | 7131KBN2JV00 | 7 |
| 1/4 | 5/64 | 1/8  | .17 | .31 | 0 | 150 | 150 | 150 | 10 | 185 | FKM | 7131TBN2JV00 | 7 |
| 1/4 | 3/32 | 9/64 | .24 | .38 | 0 | 110 | 110 | 110 | 10 | 185 | FKM | 7131TBN2LV00 | 7 |

### 3-Way Direct Acting - Normally Closed - Stainless Steel

| Port Size<br>NPT | Orifice Size in. |      | Flow Factor Cv |      | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp. °F | Seal | Pressure Vessel Number | Coil Chart |
|------------------|------------------|------|----------------|------|--|----------------|-------|-----------|------|---------------------|------|------------------------|------------|
|                  | In               | Exh. | In             | Exh. | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                     |      |                        |            |

#### AC VOLTAGE

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/8 | 1/16 | 1/16 | .11  | .095 | 0 | 200 | 200 | 200 | 10 | 185 | NBR | 71315SN1GNJ1 | 7 |
| 1/8 | 3/64 | 3/64 | .05  | .05  | 0 | 200 | 200 | 200 | 10 | 240 | FKM | 30CC02EV4    | 9 |
| 1/8 | 1/16 | 1/16 | .09  | .10  | 0 | 130 | 130 | 130 | 10 | 240 | FKM | 30CC02GV4    | 9 |
| 1/8 | 7/64 | 3/32 | .25  | .20  | 0 | 50  | 50  | 50  | 10 | 240 | FKM | 30CC02MV4    | 9 |
| 1/4 | 3/64 | 1/16 | .062 | .095 | 0 | 250 | 250 | 250 | 10 | 185 | NBR | 71315SN2ENJ1 | 7 |
| 1/4 | 1/16 | 1/16 | .11  | .095 | 0 | 200 | 200 | 200 | 10 | 185 | NBR | 71315SN2GNJ1 | 7 |
| 1/4 | 3/32 | 3/32 | .17  | .17  | 0 | 125 | 125 | 125 | 10 | 185 | NBR | 71315SN2KNJ1 | 7 |
| 1/4 | 1/8  | 3/32 | .23  | .17  | 0 | 90  | 90  | 90  | 10 | 185 | NBR | 71315SN2MNJ1 | 7 |

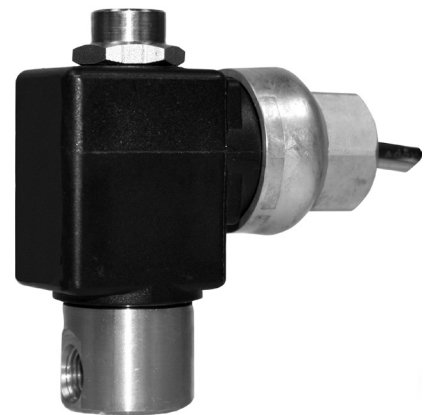
#### DC VOLTAGE

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/8 | 1/16 | 1/16 | .11  | .095 | 0 | 200 | 200 | 200 | 10 | 185 | NBR | 71315SN1GNJ1 | 7 |
| 1/8 | 3/64 | 3/64 | .05  | .05  | 0 | 200 | 200 | 200 | 8  | 240 | FKM | 30CC02EV4    | 9 |
| 1/8 | 1/16 | 1/16 | .09  | .10  | 0 | 130 | 130 | 130 | 8  | 240 | FKM | 30CC02GV4    | 9 |
| 1/8 | 7/64 | 3/32 | .25  | .20  | 0 | 50  | 50  | 50  | 8  | 240 | FKM | 30CC02MV4    | 9 |
| 1/4 | 3/64 | 1/16 | .062 | .095 | 0 | 250 | 250 | 250 | 10 | 185 | NBR | 71315SN2ENJ1 | 7 |
| 1/4 | 1/16 | 1/16 | .11  | .095 | 0 | 200 | 200 | 200 | 10 | 185 | NBR | 71315SN2GNJ1 | 7 |
| 1/4 | 3/32 | 3/32 | .17  | .17  | 0 | 125 | 125 | 125 | 10 | 185 | NBR | 71315SN2KNJ1 | 7 |
| 1/4 | 1/8  | 3/32 | .23  | .17  | 0 | 90  | 90  | 90  | 10 | 185 | NBR | 71315SN2MNJ1 | 7 |



## 3-Way Direct Acting - Normally Open - Stainless Steel

| Port Size<br>NPT  | Orifice Size in. |      | Flow Factor Cv |      | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp. °F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|------------------|------|----------------|------|--|----------------|-------|-----------|------|---------------------|------|------------------------|------------|
|                   | In               | Exh. | In             | Exh. | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                     |      |                        |            |
| <b>AC VOLTAGE</b> |                  |      |                |      |  |                |       |           |      |                     |      |                        |            |
| 1/8               | 3/64             | 3/64 | .05            | .05  | 0  | 230            | 230   | 230       | 10   | 185                 | FKM  | 30CF02EV4              | 9          |
| 1/4               | 3/64             | 1/16 | .05            | .10  | 0  | 250            | 250   | 250       | 10   | 185                 | NBR  | 71395SN2ENJ1           | 7          |
| 1/4               | 1/16             | 1/8  | .10            | .28  | 0  | 150            | 150   | 150       | 10   | 185                 | NBR  | 71395SN2GNJ1           | 7          |
| <b>DC VOLTAGE</b> |                  |      |                |      |  |                |       |           |      |                     |      |                        |            |
| 1/8               | 3/64             | 3/64 | .05            | .05  | 0  | 230            | 230   | 230       | 8    | 185                 | FKM  | 30CF02EV4              | 9          |
| 1/4               | 3/64             | 1/16 | .05            | .10  | 0  | 250            | 250   | 250       | 10   | 185                 | NBR  | 71395SN2ENJ1           | 7          |
| 1/4               | 1/16             | 1/8  | .10            | .28  | 0  | 150            | 150   | 150       | 10   | 185                 | NBR  | 71395SN2GNJ1           | 7          |



3-Way

### 3-Way Direct Acting - Multipurpose - Brass

| Port Size<br>NPT | Orifice Size in. |      | Flow Factor Cv |      | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp. °F | Seal | Pressure Vessel Number | Coil Chart |
|------------------|------------------|------|----------------|------|--|----------------|-------|-----------|------|---------------------|------|------------------------|------------|
|                  | N.C.             | N.O. | N.C.           | N.O. | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                     |      |                        |            |

#### AC VOLTAGE

|     |      |      |     |     |   |     |     |     |    |     |     |              |   |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 5/64 | 5/64 | .17 | .17 | 0 | 100 | 100 | 100 | 10 | 185 | FKM | 7133TBN2JV00 | 7 |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|--------------|---|

#### DC VOLTAGE

|     |      |      |     |     |   |     |     |     |    |     |     |              |   |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 5/64 | 5/64 | .17 | .17 | 0 | 100 | 100 | 100 | 10 | 185 | FKM | 7133TBN2JV00 | 7 |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|--------------|---|

### 3-Way Direct Acting - Multipurpose - Stainless Steel

| Port Size<br>NPT | Orifice Size in. |      | Flow Factor Cv |      | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp. °F | Seal | Pressure Vessel Number | Coil Chart |
|------------------|------------------|------|----------------|------|--|----------------|-------|-----------|------|---------------------|------|------------------------|------------|
|                  | N.C.             | N.O. | N.C.           | N.O. | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                     |      |                        |            |

#### AC VOLTAGE

|     |      |      |     |     |   |     |     |     |    |     |     |           |   |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|-----------|---|
| 1/8 | 3/64 | 3/64 | .05 | .05 | 0 | 150 | 150 | 150 | 10 | 185 | FKM | 30CU02EV4 | 9 |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|-----------|---|

|     |      |      |     |     |   |     |     |     |    |     |     |           |   |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|-----------|---|
| 1/8 | 1/16 | 1/16 | .09 | .10 | 0 | 100 | 100 | 100 | 10 | 185 | FKM | 30CU02GV4 | 9 |
|-----|------|------|-----|-----|---|-----|-----|-----|----|-----|-----|-----------|---|

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 1/32 | 1/32 | .024 | .024 | 0 | 400 | 400 | 400 | 10 | 185 | NBR | 71335SN2ANJ1 | 7 |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 3/64 | 3/64 | .052 | .052 | 0 | 180 | 180 | 180 | 10 | 185 | NBR | 71335SN2ENJ1 | 7 |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 1/16 | 1/16 | .095 | .095 | 0 | 115 | 115 | 115 | 10 | 185 | NBR | 71335SN2GNJ1 | 7 |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|

|     |      |      |     |     |   |    |    |    |    |     |     |              |   |
|-----|------|------|-----|-----|---|----|----|----|----|-----|-----|--------------|---|
| 1/4 | 3/32 | 3/32 | .17 | .17 | 0 | 80 | 80 | 80 | 10 | 185 | NBR | 71335SN2KNJ1 | 7 |
|-----|------|------|-----|-----|---|----|----|----|----|-----|-----|--------------|---|

#### DC VOLTAGE

|     |      |      |     |     |   |     |     |     |   |     |     |           |   |
|-----|------|------|-----|-----|---|-----|-----|-----|---|-----|-----|-----------|---|
| 1/8 | 3/64 | 3/64 | .05 | .05 | 0 | 150 | 150 | 150 | 8 | 185 | FKM | 30CU02EV4 | 9 |
|-----|------|------|-----|-----|---|-----|-----|-----|---|-----|-----|-----------|---|

|     |      |      |     |     |   |     |     |     |   |     |     |           |   |
|-----|------|------|-----|-----|---|-----|-----|-----|---|-----|-----|-----------|---|
| 1/8 | 1/16 | 1/16 | .09 | .10 | 0 | 100 | 100 | 100 | 8 | 185 | FKM | 30CU02GV4 | 9 |
|-----|------|------|-----|-----|---|-----|-----|-----|---|-----|-----|-----------|---|

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 1/32 | 1/32 | .024 | .024 | 0 | 400 | 400 | 400 | 10 | 185 | NBR | 71335SN2ANJ1 | 7 |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 3/64 | 3/64 | .052 | .052 | 0 | 180 | 180 | 180 | 10 | 185 | NBR | 71335SN2ENJ1 | 7 |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|

|     |      |      |      |      |   |     |     |     |    |     |     |              |   |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|
| 1/4 | 1/16 | 1/16 | .095 | .095 | 0 | 115 | 115 | 115 | 10 | 185 | NBR | 71335SN2GNJ1 | 7 |
|-----|------|------|------|------|---|-----|-----|-----|----|-----|-----|--------------|---|

|     |      |      |     |     |   |    |    |    |    |     |     |              |   |
|-----|------|------|-----|-----|---|----|----|----|----|-----|-----|--------------|---|
| 1/4 | 3/32 | 3/32 | .17 | .17 | 0 | 80 | 80 | 80 | 10 | 185 | NBR | 71335SN2KNJ1 | 7 |
|-----|------|------|-----|-----|---|----|----|----|----|-----|-----|--------------|---|





### 3-Way Internally Pilot Operated - Normally Closed - Brass

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |
| <b>AC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/4               | 1/4                 | 1.20              | 30   | 150            | -     | -         | 10   | 167                    | NBR  | 73317BN2PN00           | 7          |
| 3/8               | 3/8                 | 2.1               | 10   | 180            | 180   | 180       | 10   | 185                    | NBR  | 73312BN3RNJ0           | 7          |
| 1/2               | 1/2                 | 3.6               | 10   | 180            | 180   | 180       | 10   | 185                    | NBR  | 73312BN4UNJ0           | 7          |
| 3/4               | 3/4                 | 7.3               | 10   | 180            | 180   | 180       | 10   | 185                    | NBR  | 73312BN52NJ0           | 7          |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| 1/4               | 1/4                 | 1.20              | 30   | 150            | -     | -         | 10   | 167                    | NBR  | 73317BN2PN00           | 7          |
| 3/8               | 3/8                 | 2.1               | 10   | 180            | 180   | 180       | 10   | 185                    | NBR  | 73312BN3RNJ0           | 7          |
| 1/2               | 1/2                 | 3.6               | 10   | 180            | 180   | 180       | 10   | 185                    | NBR  | 73312BN4UNJ0           | 7          |
| 3/4               | 3/4                 | 7.3               | 10   | 180            | 180   | 180       | 10   | 185                    | NBR  | 73312BN52NJ0           | 7          |

### 3-Way Internally Pilot Operated - Normally Closed - Aluminum

| Port Size<br>NPT  | Orifice Size<br>in. | Flow Factor<br>Cv | Operating Pressure Differential (MOPD) PSI |                |       |           | Watt | Max. Media Temp.<br>°F | Seal | Pressure Vessel Number | Coil Chart |
|-------------------|---------------------|-------------------|--|----------------|-------|-----------|------|------------------------|------|------------------------|------------|
|                   |                     |                   | Min.                                       | Air, Inert Gas | Water | Light Oil |      |                        |      |                        |            |
| <b>AC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| NAMUR             | .27                 | 1.2               | 37   | 150            | -     | -         | 5    | 122                    | FKM  | U341N05*               | Below      |
| <b>DC VOLTAGE</b> |                     |                   |  |                |       |           |      |                        |      |                        |            |
| NAMUR             | .27                 | 1.2               | 37   | 150            | -     | -         | 5    | 122                    | FKM  | U341N05*               | Below      |

| Voltage     | DIN 43650B | Hazardous |
|-------------|------------|-----------|
| 12 VDC      | ND1A       | NH1A      |
| 24 VDC      | ND1B       | NH1B      |
| 24/60       | ND1E       | -         |
| 120/60      | -          | NH1C      |
| 240/60      | -          | NH1D      |
| 120/50 - 60 | ND1F       | -         |
| 240/50 - 60 | ND1G       | -         |

\* Function of valve is dependent on the position of the conversion plate.

## 4-Way 2 Position Single Solenoid - Aluminum

| Port Size<br>NPT  | Orifice Size<br>in. |  | Flow Factor<br>Cv |  | Operating Pressure<br>Differential (MOPD) PSI |                      |       |              | Watt | Max. Media<br>Temp.<br>°F | Seal | Pressure Vessel<br>Number | Coil<br>Chart |
|-------------------|---------------------|--|-------------------|--|---|----------------------|-------|--------------|------|---------------------------|------|---------------------------|---------------|
|                   |                     |  |                   |  | Min.  | Air,<br>Inert<br>Gas | Water | Light<br>Oil |      |                           |      |                           |               |
| <b>AC VOLTAGE</b> |                     |  |                   |  |   |                      |       |              |      |                           |      |                           |               |
| NAMUR             | .27                 |  | 1.2               |  | 37  | 150                  | -     | -            | 5    | 122                       | FKM  | U341N05*                  | Below         |
| NAMUR             | .27                 |  | 1.2               |  | 37  | 150                  | -     | -            | 5    | 122                       | FKM  | U341N03                   | Below         |
| 1/4               | 1/4                 |  | 1.0               |  | 30  | 150                  | -     | -            | 10   | 165                       | NBR  | 73419AN2NNM0              | 7             |
| 1/4               | 1/4                 |  | 1.0               |  | 30  | 150                  | -     | -            | 10   | 165                       | NBR  | 73419AN2NN00              | 7             |
| <b>DC VOLTAGE</b> |                     |  |                   |  |   |                      |       |              |      |                           |      |                           |               |
| NAMUR             | .27                 |  | 1.2               |  | 37  | 150                  | -     | -            | 5    | 122                       | FKM  | U341N05*                  | Below         |
| NAMUR             | .27                 |  | 1.2               |  | 37  | 150                  | -     | -            | 5    | 122                       | FKM  | U341N03                   | Below         |
| 1/4               | 1/4                 |  | 1.0               |  | 30  | 150                  | -     | -            | 10   | 165                       | NBR  | 73419AN2NNM0              | 7             |
| 1/4               | 1/4                 |  | 1.0               |  | 30  | 150                  | -     | -            | 10   | 165                       | NBR  | 73419AN2NN00              | 7             |

| Voltage     | DIN<br>43650B | Hazardous |
|-------------|---------------|-----------|
| 12 VDC      | ND1A          | NH1A      |
| 24 VDC      | ND1B          | NH1B      |
| 24/60       | ND1E          | -         |
| 120/60      | -             | NH1C      |
| 240/60      | -             | NH1D      |
| 120/50 - 60 | ND1F          | -         |
| 240/50 - 60 | ND1G          | -         |

\* Function of valve is dependent on the position of the conversion plate.

## 4-Way 2 Position Single Solenoid - Brass

| Port Size<br>NPT  | Orifice Size<br>in. |      | Flow Factor<br>Cv |     | Operating Pressure<br>Differential (MOPD) PSI |                      |       |              | Watt | Max. Media<br>Temp.<br>°F | Seal | Pressure Vessel<br>Number | Coil<br>Chart |
|-------------------|---------------------|------|-------------------|-----|---|----------------------|-------|--------------|------|---------------------------|------|---------------------------|---------------|
|                   |                     |      |                   |     | Min.  | Air,<br>Inert<br>Gas | Water | Light<br>Oil |      |                           |      |                           |               |
| <b>AC VOLTAGE</b> |                     |      |                   |     |   |                      |       |              |      |                           |      |                           |               |
| 1/4               | 1/16                | 3/32 | .09               | .09 | 10  | 150                  | 150   | 150          | 11.5 | 104                       | NBR  | 04F48S2106ACF             | 4             |
| 1/4               | 1/4                 | 1/14 | 1.2               | 1.2 | 30  | 150                  | -     | -            | 10   | 167                       | NBR  | 73417BN2PN00              | 7             |
| <b>DC VOLTAGE</b> |                     |      |                   |     |   |                      |       |              |      |                           |      |                           |               |
| 1/4               | 1/4                 | 1/4  | 1.2               | 1.2 | 30  | 150                  | -     | -            | 10   | 167                       | NBR  | 73417BN2PN00              | 7             |



# REPAIR KITS

| Pressure Vessel | Kit   |
|-----------------|-------|
| 71215SN1MN00    | 7K502 |
| 71215SN21N00    | 7K538 |
| 71215SN2EN00    | 7K502 |
| 71215SN2GN00    | 7K502 |
| 71215SN2KN00    | 7K502 |
| 71215SN2MN00    | 7K502 |
| 71215SN2QN00    | 7K538 |
| 71215SN2SN00    | 7K538 |
| 71215SN2VN00    | 7K538 |
| 71215SN33N00    | 7K510 |
| 71216SN2BL00    | None  |
| 71216SN2FU00    | None  |
| 7121KBN1NF00    | 7KK01 |
| 7121KBN2NF00    | 7KK01 |
| 7121KBN2NV00    | 7KK03 |
| 7121KBN2QV00    | 7KK04 |
| 7121KBN2SV00    | 7KK04 |
| 7121KBN44V00    | 7KK05 |
| 7122KBN2LF00    | 7KK06 |
| 71295SN2KNJ1    | 7K514 |

| Pressure Vessel | Kit   |
|-----------------|-------|
| 71315SN1GNJ1    | 7K516 |
| 71315SN2ENJ1    | 7K516 |
| 71315SN2GNJ1    | 7K516 |
| 71315SN2KNJ1    | 7K516 |
| 71315SN2MNJ1    | 7K518 |
| 7131KBN2JV00    | 7KK08 |
| 7131TBN2JV00    | 7KT05 |
| 7131TBN2LV00    | 7KT05 |
| 71335SN2ANJ1    | 7K522 |
| 71335SN2ENJ1    | 7K522 |
| 71335SN2GNJ1    | 7K523 |
| 71335SN2KNJ1    | 7K523 |
| 7133TBN2JV00    | 7KT06 |
| 71395SN2ENJ1    | 7K525 |
| 71395SN2GNJ1    | 7K525 |
| 72218BN5VE00    | 7K804 |
| 72218RN4UV00    | 7K803 |
| 7221GBN4VN00    | 7KG03 |
| 7221GBN51N00    | 7KG03 |
| 7221GBN64E00    | 7KG02 |

| Pressure Vessel | Kit   |
|-----------------|-------|
| 7221GBN64N00    | 7KG05 |
| 7221GBN64V00    | 7KG18 |
| 72228RN4UV00    | 7K808 |
| 73212BN2MN00    | 7K201 |
| 73212BN4TN00    | 7K209 |
| 73216BN2MT00    | 7K601 |
| 73218BN4UN00    | 7K815 |
| 73218BN5VN00    | 7K816 |
| 7321GBN64N00    | 7KG08 |
| 7321GBN99N00    | 7KG10 |
| 7321KBN2RN00    | 7KK12 |
| 7321KBN3SN00    | 7KK12 |
| 73312BN3RNJ0    | 7K215 |
| 73312BN4UNJ0    | 7K216 |
| 73312BN52NJ0    | 7K217 |
| 73317BN2PN00    | 7K701 |
| 73417BN2PN00    | 7K701 |
| 73419AN2NN00    | 7K901 |
| 73419AN2NNM0    | 7K901 |

| Pressure Vessel | Kit   |
|-----------------|-------|
| 20CC02EV4       | 4R001 |
| 20CC02GV4       | 4R001 |
| 20CC02LV4       | 4R001 |
| 20CC02MV4       | 4R001 |
| 20CC02PV4       | 4R001 |

| Pressure Vessel | Kit   |
|-----------------|-------|
| 20CC02QV4       | 4R001 |
| 20CF02EV4       | 4R002 |
| 20CF02LV4       | 4R002 |
| 30CC02EV4       | 4R002 |
| 30CC02GV4       | 4R002 |

| Pressure Vessel | Kit   |
|-----------------|-------|
| 30CC02MV4       | 4R002 |
| 30CF02EV4       | 4R003 |
| 30CU02EV4       | 4R004 |
| 30CU02GV4       | 4R004 |

| Pressure Vessel | Kit            |
|-----------------|----------------|
| 04F20O1106ACF   | 04F20O1106ACFR |
| 04F20O2118ACF   | 04F20O2118ACFR |
| 04F25C2122C3F   | 04F25C2122C3FR |
| 04F25C2122CAF   | 04F25C2122CAFR |
| 04F48S2106ACF   | 04F48S2106ACFR |
| 06F22C2140A3F   | 06F22C2140A3FR |
| 06F22C2140AAF   | 06F22C2140AAFR |
| 06F23C2140ACF   | 06F23C2140ACFR |
| 08F22C2140A3F   | 08F22C2140A3FR |
| 08F22C2140AAF   | 08F22C2140AAFR |
| 08F23C2140ACF   | 08F23C2140ACFR |
| 08F23C6140ACF   | 08F23C6140ACFR |
| 08F23O2140A3F   | 08F23O2140A3FR |
| 08F23O2140ACF   | 08F23O2140ACFR |
| 08FS3C2340ACF   | 08FS3C2340ACFR |
| 08FS5C2432ACH   | 08FS5C2432ACHR |

| Pressure Vessel | Kit            |
|-----------------|----------------|
| 12F22C2148A3F   | 12F22C2148A3FR |
| 12F22C2148AAF   | 12F22C2148AAFR |
| 12F23C2148ACF   | 12F23C2148ACFR |
| 12F23C6148ACF   | 12F23C6148ACFR |
| 12F23O2148ACF   | 12F23O2148ACFR |
| 12FS3C2348ACF   | 12FS3C2348ACFR |
| 12FS5C2448ACH   | 12FS5C2448ACHR |
| 16F24C2164A3F   | 16F24C2164A3FR |
| 16F24C2164AAF   | 16F24C2164AAFR |
| 16FS5C2464ACH   | 16FS5C2464ACHR |
| 20F24C2172A3F   | 20F24C2172A3FR |
| 20F24C2172AAF   | 20F24C2172AAFR |
| 24F24C2180A3F   | 24F24C2180A3FR |
| 24F24C2180AAF   | 24F24C2180AAFR |
| 24FS4C2380AAF   | 24FS4C2380AAFR |



## Parker Safety Guide for Selecting and Using Fluid Control Division Products including Valves, Assemblies and Related Accessories

**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:**

- Gas leakage leading to explosion or rupture of a pressure vessel.
- Leakage or other release of toxic or otherwise hazardous liquids or gases.
- Unintended or mistimed cycling or motion of machine members. Or failure of machine members to cycle.
- Sudden moving or falling objects.
- 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.
- Electrical shorts, burns, burn out of equipment or fires.

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

### 1.0 GENERAL INSTRUCTIONS

**1.1. Scope:** This safety guide is designed to cover general guidelines on the selection, installation, operation, and maintenance of these Products. This safety guide is a supplement to and is to be used with the specific Parker publication for the valve, assembly or related accessory being considered for use. Parker publications are available at [www.parker.com](http://www.parker.com) or by calling 1-800-CPARKER.

**1.2. Fail-Safe:** All Products can and do fail without warning for many reasons. Design all systems in a fail-safe mode so that failure of the Products will not endanger persons or property.

**1.3 Distribution:** Provide a copy of this safety guide to each person that is responsible for installation, operation, and maintenance of these Products. Do not select or use these Products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the Products considered or selected.

**1.4 User Responsibility:** Due to the wide variety of operating conditions and applications for these Products, Parker and its distributors do not represent or warrant that any particular Parker Fluid Control Product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a Product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the Product;
- Assuring that the user’s requirements are met and that the application presents no health or safety hazards;
- Providing all appropriate health and safety warnings on the equipment on which the Products are used; and
- Assuring compliance with all applicable government and industry standards.

**1.5 Additional Questions:** Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the Product being considered or used, or call 1-800-CPARKER, or go to [www.parker.com](http://www.parker.com) for telephone numbers of the appropriate technical service department.

### 2.0 PRODUCT SELECTION INSTRUCTIONS

**2.1 Selection:** Consult the specific Parker Fluid Control publication for the Product being considered for use. Confirm the choice of Product with Parker Fluid Control’s technical consultants prior to placing orders for the Product or installing and using the Product.

**2.2 Chemical Compatibility:** Elastomer seal material used in the Products must be properly selected based on compatibility with the gases, liquids or additives being conveyed in the Product. Any exposure to non-compatible gases, liquids or additives may result in failure or degradation of the seals and leakage from the Product. Such failure or degradation could happen immediately or at anytime over the life of the Product.

### 3.0 PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

**3.1 Inspection:** Prior to assembly, all components must be checked for correct style, part number, and physical properties such as size or the presence of physical damage. Do NOT use any component that displays any signs of nonconformance.

**3.1.1** A careful examination of the Unit Valve and Unit Solenoid must be performed. If you purchase a Unit Valve and a Unit Solenoid, be sure that the last two digits of the Unit Valve match the first two digits of the Unit Solenoid. If they do not match then do not install.

**3.1.2** Check nameplate for correct catalog number, pressure, voltage and service. Do not install if unsuitable.

**3.1.3** Valves to be installed in Hazardous Locations must be outfitted with Hazardous Location coils only. Verify nameplate data and coil part number before installing the valve.

**3.2 Product Assembly:** Do not assemble, install or use a Parker Fluid Control Division Product in any end use or application that exceeds the specified operating parameters as listed by Parker such as but not limited to, pressure, voltage and frequency, and medium. Do not mix components or solenoids from a Parker valve with valves or solenoids from another manufacturer. Do not mix components or solenoids from one Parker valve with components or solenoids from another Parker valve.

**3.2.1 Threaded Connections:** Proper procedures for the application of tape or liquid pipe sealant or thread compound must be followed so these contaminants do not enter the Product.

**3.2.2 Sweating or Brazing:** Products requiring the sweating or brazing of pipe connections must have precautions taken to protect the internal product components from excessive heat during the sweating or brazing operation. Follow the directions in the specific Parker Fluid Control Division publication for the Product in question.

**3.2.3 Mounting:** Check the specific Parker Fluid Control Division publication for the Product in question for limitations on mounting prior to mounting the Product.

**3.2.4 Electrical Connection:** Turn off electrical power before connecting or disconnecting the Product to the power source. Wiring must comply with local and national electrical codes.

**3.2.5 Voltage:** Some coils contain solid state components that can be damaged by voltage spikes, transient voltage, over temperature, over voltage, or improper assembly. To protect against premature failure, please read the instructions in the specific Parker Fluid Control Division publication for the Product in question.

**3.2.6 Port Connection:** Parker Product operating parameters assume that the user connects the fluid to the proper inlet, outlet and exhaust ports. Connecting to the wrong ports may result in a complete failure or degraded performance. Use caution when applying and activating the fluid connection. Take the necessary precautions to protect personnel and property from injury and damage when turning on the fluid to the Product. Make sure the voltage is in the correct state (on or off) to control the applied pressure as required for the application in question.

**3.2.7 Screw Terminal Coil and Terminal Box Assembly:** When the DIN or screw terminal coils are used with the terminal box assembly, be sure to apply a wrench to the wrench flats on the conduit hub when installing electrical conduit.

**3.2.8 Pressure:** Turn off line pressure and bleed off trapped pressure from the lines before installing, removing or disassembling the Product.

#### **4.0 PRODUCT AND SYSTEM OPERATION INSTRUCTIONS**

**4.1 Pressure Differential:** Pressure differential dependent Products require a minimum pressure differential to operate properly. Make sure the chosen Product is sized properly for the application to maintain the required pressure differential across the Product.

**4.2 System Check-out:** Once installed, the Product installation must be tested to insure proper operation and that no external leakage exists. All safety equipment must be in place including but not limited to safety glasses, helmets, ear protection, splash guards, coveralls and any shields on the equipment. All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Product maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potentially hazardous areas while testing and using.

#### **5.0 PRODUCT MAINTENANCE AND REPLACEMENT INSTRUCTIONS**

**5.1 Maintenance:** Even with proper selection and installation, Product life or performance may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a possible Product failure, and experience with any Product failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 5.1.1 through 5.1.3.

**5.1.1 Product Lubrication and Filtration:** Almost all products require filtration. Consult the specific Parker Fluid Control Division publication for the Product in question. Note, too, that some Products require lubrication or filtration or both as a regular maintenance item due to the nature of the application's environment. Consult the specific Fluid Control Division publication for the Product in question to determine this. Other Products, such as proportional valves, do not require any maintenance if the fluid is properly filtered. If a failure should occur, then these proportional valves should not be repaired but replaced.

**5.1.2 Cleaning:** Do not expose plastic or elastomeric materials to any type of commercial cleaning fluid. Parts should be cleaned with a mild soap and water solution.

**5.1.3 Fluid Spills:** Necessary precautions should be taken during maintenance to avoid exposing personnel or the surrounding area to any spilled fluid if the fluid is regulated, harmful, or damaging when exposed to or in contact with personnel or the surrounding environment.

#### **5.2 Service and Repair:**

**5.2.1 General:** Do not repair Products unless the specific Fluid Control Division publication for the Product in question allows this procedure. Not all Products can be safely repaired in the field. Repair and replacement must be in accordance with the specific Parker Fluid Control Division publication for the Product in question and any Parker replacement kit instructions.

**5.2.2 Replacement Parts:** If you purchase any replacement parts they must be original equipment manufactured by Parker Fluid Control Division.

**5.2.3 Lock-Out / Tag-Out:** Follow all lock-out and tag-out procedures before undertaking service or repairs. This includes de-energizing all electrical, fluid and mechanical energy sources.

**5.2.4 Hazardous Location Coils** - When replacing coils, Products equipped with Hazardous Location coils must use Hazardous Location replacement coils only. Verify nameplate data and coil part number before installing the replacement coil.



## OFFER OF SALE – FLUID CONTROL DIVISION

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any item described in its document, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer. All goods, services or work described will be referred to as "Products".

- 1. Terms and Conditions.** Seller's willingness to offer Products, or accept an order for Products, to or from Buyer is subject to these Terms and Conditions or any newer version of the terms and conditions found on-line at [www.parker.com/saleterms/](http://www.parker.com/saleterms/). Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document issued by Buyer.
- 2. Price Adjustments; Payments.** Prices stated on Seller's quote or other documentation offered by Seller are valid for 30 days, and do not include any sales, use, or other taxes unless specifically stated. Unless otherwise specified by Seller, all prices are F.O.B. Seller's facility payment is subject to credit approval and is due 30 days from the date of invoice or such other term as required by Seller's Credit Department, after which Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.
- 3. Delivery Dates; Title and Risk; Shipment.** All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon placement of the products with the shipment carrier at Seller's facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.
- 4. Warranty.** Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of 2 years from the date of delivery to Buyer or 2,000 hours of normal use, whichever occurs first. Exception to this is the Angle Body Valve line has a 1 year warranty. The prices charged for Seller's products are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **DISCLAIMER OF WARRANTY: THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**
- 5. Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 30 days after delivery. Buyer shall notify Seller of any alleged breach of warranty within 30 days after the date the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for an amount due on any invoice) must be commenced within 12 months from the date of the breach without regard to the date breach is discovered.
- 6. LIMITATION OF LIABILITY.** UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. **IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.**
- 7. User Responsibility.** The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.
- 8. Loss to Buyer's Property.** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, will be considered obsolete and may be destroyed by Seller after two consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.
- 9. Special Tooling.** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.
- 10. Buyer's Obligation; Rights of Seller.** To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement shall be deemed a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.
- 11. Improper use and Indemnity.** Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees),

whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, improper application or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

**12. Cancellations and Changes.** Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer.

**13. Limitation on Assignment.** Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

**14. Force Majeure.** Seller does not assume the risk and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

**15. Waiver and Severability.** Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

**16. Termination.** Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days written notice of termination. Seller may immediately terminate this agreement, in writing, if Buyer: (a) commits a breach of any provision of this agreement (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or by a third party (d) makes an assignment for the benefit of creditors, or (e) dissolves or liquidates all or a majority of its assets.

**17. Governing Law.** This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement.

**18. Indemnity for Infringement of Intellectual Property Rights.** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this Agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

**19. Entire Agreement.** This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.

**20. Compliance with Law, U. K. Bribery Act and U.S. Foreign Corrupt Practices Act.** Buyer agrees to comply with all applicable laws and regulations, including both those of the United Kingdom and the United States of America, and of the country or countries of the Territory in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA") and the U.S. Anti-Kickback Act (the "Anti-Kickback Act"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that they are familiar with the provisions of the U. K. Bribery Act, the FCPA and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer shall not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase products or otherwise benefit the business of Seller.

05/12









# COILS

Please refer to the coil chart number within the catalog to find the correct coil in the chart below.

| Gold Ring™                  | Voltage                                 | 1/2" NPT Conduit*          | DIN<br>43650A/ISO4400 |
|-----------------------------|---|----------------------------|-----------------------|
| CHART 1<br>6 watts, Class F | 24/60<br>120/60-110/50<br>240/60-220/50 | AF4C01<br>AF4C05<br>AF4C15 | -<br>AFPH05<br>AFPH15 |

| Gold Ring™                     | Voltage                                 | 1/2" NPT Conduit*          | DIN<br>43650A/ISO4400 |
|--------------------------------|---|----------------------------|-----------------------|
| CHART 4<br>11 watts, Class F   | 24/60<br>120/60-110/50<br>240/60-220/50 | CF4C01<br>CF4C05<br>CF4C15 | -<br>CFPH05<br>CFPH15 |
| CHART 5<br>16 watts, Class F   | 24/60<br>120/60-110/50<br>240/60-220/50 | DF4C01<br>DF4C05<br>DF4C15 | -<br>DFPH05<br>DFPH15 |
| CHART 6<br>11.5 watts, Class F | 12VDC<br>24VDC                          | 3F4C75<br>3F4C80           | 3FPH75<br>3FPH80      |

| Skinner®                     | Voltage   | 1/2" NPT Conduit*                              | DIN<br>43650A/ISO4400                          | Hazardous**                               |
|------------------------------|---|--|--|---|
| CHART 7<br>10 watts, Class F | 24/60<br>120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC | C111B2<br>C111P3<br>C111Q3<br>C111C1<br>C111C2 | D100B2<br>D100P3<br>D100Q3<br>D100C1<br>D100C2 | -<br>H111P3<br>H111Q3<br>H111C1<br>H111C2 |
| CHART 7<br>10 watts, Class H | 120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC          | C222P3<br>C222Q3<br>C222C1<br>C222C2           | -<br>-<br>-<br>-                               | H222P3<br>H222Q3<br>-<br>H222C2           |
| CHART 8<br>22 watts, Class H | 120/60-110/50<br>12VDC<br>24 VDC                          | C322P3<br>C322C1<br>C322C2                     | -<br>-<br>-                                    | H322P3<br>H322C1<br>H322C2                |

| Skinner®   | Voltage   | 1/2" NPT Conduit*               | DIN<br>43650A/ISO4400           | 18" Leads                       |
|--|---|---------------------------------|---------------------------------|---------------------------------|
| CHART 9<br>AC 10 watts***<br>DC 8 watts<br>Class F | 24/60<br>120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC | C4E<br>C4F<br>C4G<br>C4A<br>C4B | -<br>-<br>-<br>-<br>-           | B4E<br>B4F<br>B4G<br>B4A<br>B4B |
| CHART 9<br>AC 10 watts***<br>DC 8 watts<br>Class H | 24/60<br>120/60-110/50<br>240/60-220/50<br>12VDC<br>24VDC | -<br>-<br>-<br>-<br>-           | D6E<br>D6F<br>D6G<br>D6A<br>D6B | -<br>-<br>-<br>-<br>-           |

\* 18" Lead Wires, Nema 1, 2, 3, 4, 4X

\*\* Hazardous location coil approval: Class I, Div I & II, Groups A, B, C, D; Class II, Div I & II, Groups E, F, G; Class III, Div I.

\*\*\* 8.5 Watt For 2 - Way Normally Closed AC

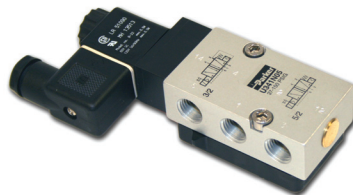




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**Flip Out To Reveal Coil Chart**



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