

### Features

- Increase in DC pressure ratings to AC levels on all products (up to a 500% improvement)
- Lower power operation
- Voltage ranging
- Built-in surge suppression
- Elimination of AC hum
- Increase in AC and DC operating temperatures
- Low solenoid temperature rise
- Longer coil life due to lower operating temperatures and electrical surge suppression
- Solenoid approvals to UL, CSA, and CE directives
- Available with Class I, Division 2 coils (EE prefix)
- RoHS 2 Compliant

### Nominal Ambient Temp. Ranges

14°F to 140°F (-10°C to 60°C)

For 8262/8263/8314 Series: -13°F to 140°F (-25°C to 60°C)

### How to order

Find the valve that you are looking for in the provided specifications tables.

The tables contain the following information designed to help you in making your selection:

| Pipe Size (in) | Orifice Dia. (in) | Cv Flow | Operating Pressure Differential (psi) |               |       |                     | Max Fluid Temp. °F | Brass ①  | Const. Ref. | Agency |                 |             | Wattage |     | Approx. Shipping Weight (lbs.) |      |
|----------------|-------------------|---------|---------------------------------------|---------------|-------|---------------------|--------------------|----------|-------------|--------|-----------------|-------------|---------|-----|--------------------------------|------|
|                |                   |         | Min.                                  | Max.          |       |                     |                    |          |             | UL     | Stainless Steel | Const. Ref. | UL      | DC  |                                | AC/D |
|                |                   |         |                                       | Air-Inert Gas | Water | Light Oil @ 300 SSU |                    |          |             |        |                 |             |         |     |                                |      |
| 1/2            | 5/8               | 4       | 0                                     | 150           | 150   | -                   | 180                | 8210P094 | 4           | ○      | -               | -           | -       | 1.0 | 1.5                            | 3.2  |

① When ordering a valve product, specify the ASCO base catalog number (Ex. **8210P094**). This number will always be 8 digits long.

Choose one of the three operating voltage ranges (100-240V/50-60Hz/DC, 24-120V/50-60Hz/DC or 12-24/DC) and add it to the base catalog number (Ex. 8210P094 **24-120V/50-60Hz/DC**).

If you want to enhance the product with one or more of the options allowed in the Optional Features Chart for that catalog number, please add the appropriate prefix or suffix (as shown):

| Pipe Size (in) | Orifice Dia. (in) | Solenoid Options ②       | Base Catalog Number |                 | Resilient Materials ③ |     |      |    |                |      |          |        | Other ③         |                  | Standard Rebuild Kit ④ |                 |
|----------------|-------------------|--------------------------|---------------------|-----------------|-----------------------|-----|------|----|----------------|------|----------|--------|-----------------|------------------|------------------------|-----------------|
|                |                   | Class I, Division 2 Coil | Brass               | Stainless Steel | NBR                   | FKM | EPDM | CR | Oxygen Service | PTFE | Urethane | Vacuum | Manual Operator | Mounting Bracket | Brass                  | Stainless Steel |
| 1/2            | 5/8               | EE                       | 8210P094            | -               | ●                     | V   | E    | J  | N              | -    | -        | VH     | MO              | MB               | 322670                 | -               |

② Optional Class I, Division 2 solenoid (Ex. **EE8210P094** 24-120V/50-60Hz/DC)

③ If an FKM elastomer and manual operator are required, add VMO to the back of the base catalog number. (Ex. 8210P094**VMO** 24-120V/50-60Hz/DC)

④ When ordering a rebuild kit for a valve, supply the rebuild kit number as shown in the table. (Ex. 322670) When ordering a rebuild kit for a valve with a suffix, add the suffix to the appropriate standard rebuild kit. (Ex. The rebuild kit for the above valve with FKM is 322670-V)

All constructions are available with prefix EE for Class I, Division 2 requirements.

When ordering a replacement coil, select from the following:

| Voltage Range       | Valve Prefix | Replacement Coil Part Number |
|---------------------|--------------|------------------------------|
| 100-240V/50-60Hz/DC | -            | 250404-605-*                 |
| 24-120V/50-60Hz/DC  | -            | 250404-606-*                 |
| 12-24/DC            | -            | 250404-607-*                 |
| 100-240V/50-60Hz/DC | EE           | 250504-605-*                 |
| 24-120V/50-60Hz/DC  | EE           | 250504-606-*                 |
| 12-24/DC            | EE           | 250504-607-*                 |

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Class I, Division 2 for Hazardous Locations and Watertight, Types 3, 3S, 4, 4X. (To order, add prefix "EE" to catalog number.)

### Note

See Engineering Section for valve parts in contact with fluids and additional information.



ELECTRONICALLY ENHANCED

### 2-Way Features

- Two-way (2/2) Next Generation solenoid valves have one inlet port and one outlet port
- Control of air, water, light oil, and non-corrosive media
- Normally closed (opens when energized) and normally open (closed when energized) operation
- Pipe sizes – 1/8 to 2 inch

**ELECTRONICALLY  
ENHANCED**

| Pipe Size (in)                           | Orifice Dia. (in) | Cv Flow | Operating Pressure Differential (psi) |               |       |                     | Max Fluid Temp. °F | Brass      | Const. Ref. | Agency |                 | Const. Ref. | Agency |       | Wattage |  |
|--|-------------------|---------|---------------------------------------|---------------|-------|---------------------|--------------------|------------|-------------|--------|-----------------|-------------|--------|-------|---------|--|
|  |                   |         | Min.                                  | Max.          |       |                     |                    |            |             | UL     | Stainless Steel |             | UL     | DC    | AC/DC   |  |
|  |                   |         |                                       | Air-Inert Gas | Water | Light Oil @ 300 SSU |                    |            |             |        |                 |             |        |       |         |  |
| <b>General Service - Normally Closed</b> |                   |         |                                       |               |       |                     |                    |            |             |        |                 |             |        |       |         |  |
| 1/8                                      | 3/64              | 0.06    | 0                                     | 2200          | 2200  | 1700                | 140                | -          | -           | -      | 8262R175 ⑤      | 1           | ●      | -     | -       |  |
| 1/8                                      | 3/64              | 0.06    | 0                                     | 1500          | 1500  | 1500                | 140                | 8262R099 ⑤ | 1           | ●      | -               | -           | -      | -     | -       |  |
| 1/8                                      | 3/32              | 0.21    | 0                                     | 720           | 410   | 410                 | 180                | 8262R277   | 1           | ○      | 8262R178        | 1           | ○      | -     | -       |  |
| 1/8                                      | 1/8               | 0.35    | 0                                     | 540           | 395   | 360                 | 180                | 8262R105   | 1           | ○      | 8262R174        | 1           | ○      | -     | -       |  |
| 1/8                                      | 1/8               | 0.35    | 0                                     | 200           | -     | -                   | 167                | 8262R077 ⑥ | 1           | ○      | -               | -           | -      | -     | -       |  |
| 1/4                                      | 3/64              | 0.06    | 0                                     | 1500          | 1500  | 1500                | 140                | 8262R107 ⑤ | 2           | ●      | -               | -           | -      | -     | -       |  |
| 1/4                                      | 3/64              | 0.06    | 0                                     | 2200          | 2200  | 1700                | 140                | -          | -           | -      | 8262R181 ⑤      | 2           | ●      | -     | -       |  |
| 1/4                                      | 3/32              | 0.21    | 0                                     | 720           | 410   | 410                 | 180                | 8262R109   | 2           | ○      | 8262R183        | 2           | ○      | -     | -       |  |
| 1/4                                      | 1/8               | 0.35    | 0                                     | 540           | 395   | 360                 | 180                | 8262R232   | 2           | ○      | 8262R185        | 2           | ○      | -     | -       |  |
| 1/4                                      | 5/32              | 0.52    | 0                                     | 300           | 225   | 225                 | 180                | 8262R202   | 2           | ○      | 8262R220        | 2           | ○      | -     | -       |  |
| 1/4                                      | 7/32              | 0.73    | 0                                     | 125           | 125   | 125                 | 180                | 8262R208   | 2           | ○      | 8262R226        | 2           | ○      | -     | -       |  |
| 1/4                                      | 9/32              | 0.88    | 0                                     | 105           | 105   | 105                 | 180                | 8262R212   | 2           | ○      | 8262R230        | 2           | ○      | -     | -       |  |
| 1/4                                      | 9/32              | 1.0     | 0                                     | 50            | -     | -                   | 167                | 8262R078 ⑥ | 2           | ○      | -               | -           | -      | -     | -       |  |
| 1/4                                      | 5/16              | 1.5     | 10                                    | 1500          | 1500  | 1500                | 180                | 8223P025   | 18          | -      | -               | -           | -      | -     | -       |  |
| 3/8                                      | 1/8               | 0.35    | 0                                     | 540           | 395   | 360                 | 180                | 8263R115   | 3           | ○      | 8263R191        | 3           | ○      | -     | -       |  |
| 3/8                                      | 5/32              | 0.52    | 0                                     | 300           | 225   | 225                 | 180                | 8263R200   | 3           | ○      | 8263R193        | 3           | ○      | -     | -       |  |
| 3/8                                      | 7/32              | 0.73    | 0                                     | 125           | 125   | 125                 | 180                | 8263R124   | 3           | ○      | 8263R332        | 3           | ○      | 1.0 ⑧ | 1.5 ⑨   |  |
| 3/8                                      | 9/32              | 0.88    | 0                                     | 105           | 85    | 85                  | 180                | 8263R210   | 3           | ○      | 8263R333        | 3           | ○      | -     | -       |  |
| 3/8                                      | 5/16              | 1.5     | 10                                    | 1500          | 1500  | 1500                | 180                | 8223P027   | 18          | -      | -               | -           | -      | -     | -       |  |
| 3/8                                      | 5/8               | 3       | 0                                     | 150           | 150   | -                   | 180                | 8210P093   | 4           | ○      | -               | -           | -      | -     | -       |  |
| 3/8                                      | 5/8               | 3       | 5                                     | 300           | 300   | 300                 | 180                | 8210P006   | 4           | ●      | -               | -           | -      | -     | -       |  |
| 1/2                                      | 3/8               | 3.2     | 25                                    | 1500          | 1500  | 1500                | 180                | 8223P003   | 5           | -      | 8223P010        | 6           | -      | -     | -       |  |
| 1/2                                      | 5/8               | 4       | 0                                     | 150           | 150   | -                   | 180                | 8210P094   | 4           | ○      | -               | -           | -      | -     | -       |  |
| 1/2                                      | 5/8               | 4       | 0                                     | 150           | 150   | 125                 | 180                | -          | -           | -      | 8210P087        | 7           | ●      | -     | -       |  |
| 1/2                                      | 5/8               | 4       | 5                                     | 300           | 300   | 300                 | 180                | 8210P007   | 4           | ○      | -               | -           | -      | -     | -       |  |
| 3/4                                      | 5/8               | 4.5     | 0                                     | 150           | 150   | 125                 | 180                | -          | -           | -      | 8210P088        | 7           | ●      | -     | -       |  |
| 3/4                                      | 3/4               | 5       | 0                                     | 150           | 150   | -                   | 180                | 8210P095   | 7           | ○      | -               | -           | -      | -     | -       |  |
| 3/4                                      | 3/4               | 5       | 0                                     | 3             | 3     | -                   | 180                | 8030P003   | 8           | ○      | -               | -           | -      | -     | -       |  |
| 3/4                                      | 3/4               | 7.8     | 25                                    | 750           | 750   | 750                 | 180                | 8223P005   | 9           | -      | -               | -           | -      | -     | -       |  |
| 1  | 1                 | 13      | 5                                     | 150           | 150   | 100                 | 180                | 8210P004   | 10          | ○      | -               | -           | -      | -     | -       |  |
| 1 1/4                                    | 1 1/8             | 15      | 5                                     | 150           | 150   | 100                 | 180                | 8210P008   | 10          | ○      | -               | -           | -      | -     | -       |  |
| 1 1/2                                    | 1 1/4             | 22.5    | 5                                     | 150           | 150   | 100                 | 180                | 8210P022   | 11          | ○      | -               | -           | -      | -     | -       |  |
| 2  | 1 3/4             | 43      | 5                                     | 150           | 125   | 90                  | 180                | 8210P100   | 12          | ●      | -               | -           | -      | -     | -       |  |
| <b>General Service - Normally Open</b>   |                   |         |                                       |               |       |                     |                    |            |             |        |                 |             |        |       |         |  |
| 1/8                                      | 3/64              | 0.06    | 0                                     | 1150          | 900   | 800                 | 140                | 8262R155 ⑤ | 1           | ●      | 8262R168 ⑤      | 1           | ●      | -     | -       |  |
| 1/8                                      | 3/64              | 0.06    | 0                                     | 750           | 750   | 750                 | 180                | 8262R156   | 1           | ●      | 8262R169        | 1           | ●      | -     | -       |  |
| 1/8                                      | 3/32              | 0.21    | 0                                     | 275           | 230   | 180                 | 180                | 8262R128   | 1           | ●      | 8262R236        | 1           | ●      | -     | -       |  |
| 1/8                                      | 1/8               | 0.35    | 0                                     | 160           | 145   | 125                 | 180                | 8262R129   | 1           | ●      | 8262R237        | 1           | ●      | -     | -       |  |
| 1/4                                      | 3/64              | 0.06    | 0                                     | 1150          | 900   | 800                 | 140                | 8262R161 ⑤ | 2           | ●      | 8262R199 ⑤      | 2           | ●      | -     | -       |  |
| 1/4                                      | 3/64              | 0.06    | 0                                     | 750           | 750   | 750                 | 180                | 8262R260   | 2           | ●      | 8262R130        | 2           | ●      | -     | -       |  |
| 1/4                                      | 3/32              | 0.21    | 0                                     | 275           | 230   | 180                 | 180                | 8262R261   | 2           | ●      | 8262R134        | 2           | ●      | -     | -       |  |
| 1/4                                      | 1/8               | 0.35    | 0                                     | 160           | 145   | 125                 | 180                | 8262R262   | 2           | ●      | 8262R138        | 2           | ●      | -     | -       |  |
| 1/4                                      | 5/32              | 0.54    | 0                                     | 90            | 90    | 70                  | 180                | 8262R263   | 2           | ●      | 8262R142        | 2           | ●      | 1.0 ⑧ | 1.5 ⑨   |  |
| 1/4                                      | 7/32              | 0.83    | 0                                     | 45            | 45    | 40                  | 180                | 8262R264   | 2           | ●      | 8262R148        | 2           | ●      | -     | -       |  |
| 1/4                                      | 9/32              | 0.96    | 0                                     | 30            | 30    | 30                  | 180                | 8262R265   | 2           | ●      | 8262R152        | 2           | ●      | -     | -       |  |
| 3/8                                      | 1/8               | 0.35    | 0                                     | 160           | 145   | 125                 | 180                | 8263R070   | 3           | ●      | 8263R080        | 3           | ●      | -     | -       |  |
| 3/8                                      | 5/32              | 0.54    | 0                                     | 90            | 90    | 70                  | 180                | 8263R071   | 3           | ●      | 8263R081        | 3           | ●      | -     | -       |  |
| 3/8                                      | 7/32              | 0.83    | 0                                     | 45            | 45    | 40                  | 180                | 8263R072   | 3           | ●      | 8263R082        | 3           | ●      | -     | -       |  |
| 3/8                                      | 9/32              | 0.96    | 0                                     | 30            | 30    | 30                  | 180                | 8263R073   | 3           | ●      | 8263R083        | 3           | ●      | -     | -       |  |
| 3/8                                      | 5/8               | 3       | 0                                     | 150           | 150   | 125                 | 180                | 8210P033   | 15          | ●      | -               | -           | -      | -     | -       |  |
| 1/2                                      | 5/8               | 4       | 0                                     | 150           | 150   | 125                 | 180                | 8210P034   | 15          | ●      | -               | -           | -      | -     | -       |  |
| 3/4                                      | 3/4               | 5.5     | 0                                     | 150           | 150   | 125                 | 180                | 8210P035   | 16          | ●      | -               | -           | -      | -     | -       |  |
| 3/4                                      | 3/4               | 5.5     | 0                                     | 2             | 2     | -                   | 180                | 8030P083   | 17          | ●      | -               | -           | -      | -     | -       |  |

○ = Safety Shut-off Valve. ● = General Purpose Valve.

## 2-Way Specifications (Metric units)

| Pipe Size (in)                           | Orifice Dia. (mm) | Kv Flow Factor (m³/h) | Operating Pressure Differential (bar) |               |       |                     | Max Fluid Temp. °C | Brass      | Const. Ref. | Agency | Stainless Steel | Const. Ref. | Agency |       | Wattage |       |
|--|-------------------|-----------------------|---------------------------------------|---------------|-------|---------------------|--------------------|------------|-------------|--------|-----------------|-------------|--------|-------|---------|-------|
|  |                   |                       | Min.                                  | Max.          |       |                     |                    |            |             |        |                 |             | UL     | DC    | AC/DC   |       |
|  |                   |                       |                                       | Air-Inert Gas | Water | Light Oil @ 300 SSU |                    |            |             |        |                 |             |        |       |         |       |
| <b>General Service - Normally Closed</b> |                   |                       |                                       |               |       |                     |                    |            |             |        |                 |             |        |       |         |       |
| 1/8                                      | 1.2               | 0.05                  | 0                                     | 152           | 152   | 117                 | 60                 | -          | -           | -      | 8262R175 ⑤      | 1           | ●      |       |         |       |
| 1/8                                      | 1.2               | 0.05                  | 0                                     | 103           | 103   | 103                 | 60                 | 8262R099 ⑤ | 1           | ●      | -               | -           | -      |       |         |       |
| 1/8                                      | 2.4               | 0.18                  | 0                                     | 50            | 28    | 28                  | 82                 | 8262R277   | 1           | ○      | 8262R178        | 1           | ○      |       |         |       |
| 1/8                                      | 3.2               | 0.30                  | 0                                     | 37            | 27    | 25                  | 82                 | 8262R105   | 1           | ○      | 8262R174        | 1           | ○      |       |         |       |
| 1/8                                      | 3.2               | 0.30                  | 0                                     | 14            | -     | -                   | 75                 | 8262R077 ⑥ | 1           | ○      | -               | -           | -      |       |         |       |
| 1/4                                      | 1.2               | 0.05                  | 0                                     | 103           | 103   | 103                 | 60                 | 8262R107 ⑤ | 2           | ●      | -               | -           | -      |       |         |       |
| 1/4                                      | 1.2               | 0.05                  | 0                                     | 152           | 152   | 117                 | 60                 | -          | -           | -      | 8262R181 ⑤      | 2           | ●      |       |         |       |
| 1/4                                      | 2.4               | 0.18                  | 0                                     | 50            | 28    | 28                  | 82                 | 8262R109   | 2           | ○      | 8262R183        | 2           | ○      |       |         |       |
| 1/4                                      | 3.2               | 0.30                  | 0                                     | 37            | 27    | 25                  | 82                 | 8262R232   | 2           | ○      | 8262R185        | 2           | ○      |       |         |       |
| 1/4                                      | 4.0               | 0.45                  | 0                                     | 21            | 16    | 16                  | 82                 | 8262R202   | 2           | ○      | 8262R220        | 2           | ○      |       |         |       |
| 1/4                                      | 5.6               | 0.63                  | 0                                     | 9             | 9     | 9                   | 82                 | 8262R208   | 2           | ○      | 8262R226        | 2           | ○      |       |         |       |
| 1/4                                      | 7.1               | 0.76                  | 0                                     | 7             | 7     | 7                   | 82                 | 8262R212   | 2           | ○      | 8262R230        | 2           | ○      |       |         |       |
| 1/4                                      | 7.1               | 0.74                  | 0                                     | 3             | -     | -                   | 75                 | 8262R078 ⑥ | 2           | ○      | -               | -           | -      |       |         |       |
| 1/4                                      | 7.9               | 1.3                   | .7                                    | 103           | 103   | 103                 | 82                 | 8223P025   | 18          | -      | -               | -           | -      |       |         |       |
| 3/8                                      | 3.2               | 0.30                  | 0                                     | 37            | 27    | 25                  | 82                 | 8263R115   | 3           | ○      | 8263R191        | 3           | ○      |       |         |       |
| 3/8                                      | 4.0               | 0.45                  | 0                                     | 21            | 16    | 16                  | 82                 | 8263R200   | 3           | ○      | 8263R193        | 3           | ○      |       |         |       |
| 3/8                                      | 5.6               | 0.63                  | 0                                     | 9             | 9     | 9                   | 82                 | 8263R124   | 3           | ○      | 8263R332        | 3           | ○      | 1.0 ⑧ |         | 1.5 ⑨ |
| 3/8                                      | 7.1               | 0.76                  | 0                                     | 7             | 6     | 6                   | 82                 | 8263R210   | 3           | ○      | 8263R333        | 3           | ○      |       |         |       |
| 3/8                                      | 7.9               | 1.3                   | .7                                    | 103           | 103   | 103                 | 82                 | 8223P027   | 18          | -      | -               | -           | -      |       |         |       |
| 3/8                                      | 16                | 2.6                   | 0                                     | 10            | 10    | -                   | 82                 | 8210P093   | 4           | ○      | -               | -           | -      |       |         |       |
| 3/8                                      | 16                | 2.6                   | 0.3                                   | 21            | 21    | 21                  | 82                 | 8210P006   | 4           | ●      | -               | -           | -      |       |         |       |
| 1/2                                      | 9.5               | 2.7                   | 1.7                                   | 103           | 103   | 103                 | 82                 | 8223P003   | 5           | -      | 8223P010        | 6           | -      |       |         |       |
| 1/2                                      | 16                | 3.4                   | 0                                     | 10            | 10    | -                   | 82                 | 8210P094   | 4           | ○      | -               | -           | -      |       |         |       |
| 1/2                                      | 16                | 3.4                   | 0                                     | 10            | 10    | 9                   | 82                 | -          | -           | -      | 8210P087        | 7           | ●      |       |         |       |
| 1/2                                      | 16                | 3.4                   | 0.3                                   | 21            | 21    | 21                  | 82                 | 8210P007   | 4           | ○      | -               | -           | -      |       |         |       |
| 3/4                                      | 16                | 3.9                   | 0                                     | 10            | 10    | 9                   | 82                 | -          | -           | -      | 8210P088        | 7           | ●      |       |         |       |
| 3/4                                      | 19                | 4.3                   | 0                                     | 10            | 10    | -                   | 82                 | 8210P095   | 7           | ○      | -               | -           | -      |       |         |       |
| 3/4                                      | 19                | 4.3                   | 0                                     | 0.2           | 0.2   | -                   | 82                 | 8030P003   | 8           | ○      | -               | -           | -      |       |         |       |
| 3/4                                      | 19                | 6.7                   | 1.7                                   | 52            | 52    | 52                  | 82                 | 8223P005   | 9           | -      | -               | -           | -      |       |         |       |
| 1  | 25                | 11                    | 0.3                                   | 10            | 10    | 7                   | 82                 | 8210P004   | 10          | ○      | -               | -           | -      |       |         |       |
| 1 1/4                                    | 29                | 13                    | 0.3                                   | 10            | 10    | 7                   | 82                 | 8210P008   | 10          | ○      | -               | -           | -      |       |         |       |
| 1 1/2                                    | 32                | 19                    | 0.3                                   | 10            | 10    | 7                   | 82                 | 8210P022   | 11          | ○      | -               | -           | -      |       |         |       |
| 2  | 44                | 37                    | 0.3                                   | 10            | 9     | 6                   | 82                 | 8210P100   | 12          | ●      | -               | -           | -      |       |         |       |
| <b>General Service - Normally Open</b>   |                   |                       |                                       |               |       |                     |                    |            |             |        |                 |             |        |       |         |       |
| 1/8                                      | 1.20              | 0.05                  | 0                                     | 79            | 62    | 55                  | 60                 | 8262R155 ⑤ | 1           | ●      | 8262R168 ⑤      | 1           | ●      |       |         |       |
| 1/8                                      | 1.20              | 0.05                  | 0                                     | 52            | 52    | 52                  | 82                 | 8262R156   | 1           | ●      | 8262R169        | 1           | ●      |       |         |       |
| 1/8                                      | 2.40              | 0.18                  | 0                                     | 19            | 16    | 12                  | 82                 | 8262R128   | 1           | ●      | 8262R236        | 1           | ●      |       |         |       |
| 1/8                                      | 3.20              | 0.30                  | 0                                     | 11            | 10    | 9                   | 82                 | 8262R129   | 1           | ●      | 8262R237        | 1           | ●      |       |         |       |
| 1/4                                      | 1.20              | 0.05                  | 0                                     | 79            | 62    | 55                  | 60                 | 8262R161 ⑤ | 2           | ●      | 8262R199 ⑤      | 2           | ●      |       |         |       |
| 1/4                                      | 1.20              | 0.05                  | 0                                     | 52            | 52    | 52                  | 82                 | 8262R260   | 2           | ●      | 8262R130        | 2           | ●      |       |         |       |
| 1/4                                      | 2.40              | 0.18                  | 0                                     | 19            | 16    | 12                  | 82                 | 8262R261   | 2           | ●      | 8262R134        | 2           | ●      |       |         |       |
| 1/4                                      | 3.20              | 0.30                  | 0                                     | 11            | 10    | 9                   | 82                 | 8262R262   | 2           | ●      | 8262R138        | 2           | ●      |       |         |       |
| 1/4                                      | 3.90              | 0.47                  | 0                                     | 6             | 6     | 5                   | 82                 | 8262R263   | 2           | ●      | 8262R142        | 2           | ●      |       |         |       |
| 1/4                                      | 5.60              | 0.72                  | 0                                     | 3             | 3     | 3                   | 82                 | 8262R264   | 2           | ●      | 8262R148        | 2           | ●      | 1.0 ⑧ |         | 1.5 ⑨ |
| 1/4                                      | 7.10              | 0.83                  | 0                                     | 2             | 2     | 2                   | 82                 | 8262R265   | 2           | ●      | 8262R152        | 2           | ●      |       |         |       |
| 3/8                                      | 3.20              | 0.30                  | 0                                     | 11            | 10    | 9                   | 82                 | 8263R070   | 3           | ●      | 8263R080        | 3           | ●      |       |         |       |
| 3/8                                      | 3.90              | 0.47                  | 0                                     | 6             | 6     | 5                   | 82                 | 8263R071   | 3           | ●      | 8263R081        | 3           | ●      |       |         |       |
| 3/8                                      | 5.60              | 0.72                  | 0                                     | 3             | 3     | 3                   | 82                 | 8263R072   | 3           | ●      | 8263R082        | 3           | ●      |       |         |       |
| 3/8                                      | 7.10              | 0.83                  | 0                                     | 2             | 2     | 2                   | 82                 | 8263R073   | 3           | ●      | 8263R083        | 3           | ●      |       |         |       |
| 3/8                                      | 16                | 2.6                   | 0                                     | 10            | 10    | 9                   | 82                 | 8210P033   | 15          | ●      | -               | -           | -      |       |         |       |
| 1/2                                      | 16                | 3.5                   | 0                                     | 10            | 10    | 9                   | 82                 | 8210P034   | 15          | ●      | -               | -           | -      |       |         |       |
| 3/4                                      | 19                | 4.8                   | 0                                     | 10            | 10    | 9                   | 82                 | 8210P035   | 16          | ●      | -               | -           | -      |       |         |       |
| 3/4                                      | 19                | 4.8                   | 0                                     | .14           | .14   | -                   | 82                 | 8030P083   | 17          | ●      | -               | -           | -      |       |         |       |

○ = Safety Shut-off Valve. ● = General Purpose Valve

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## 2-Way Optional Features Chart

| Pipe Size (in) | Orifice Dia. (in) | Base Catalog Number |                 | Resilient Materials and Suffix Options |               |         |     |        |     |      |    |                |        |          |        | Other           |                  | Standard Rebuild Kit |                 |
|----------------|-------------------|---------------------|-----------------|--|---------------|---------|-----|--------|-----|------|----|----------------|--------|----------|--------|-----------------|------------------|----------------------|-----------------|
|                |                   | Brass               | Stainless Steel | Ammonia ⑦                              | Silicone Free | Dry Air | NBR | LT NBR | FKM | EPDM | CR | Oxygen Service | PTFE ② | Urethane | Vacuum | Manual Operator | Mounting Bracket | Brass                | Stainless Steel |
| 1/8            | 3/64              | 8262R099 ⑤          | 8262R175 ⑤      | -                                      | SF            | -       | -   | -      | -   | -    | -  | -              | ●      | -        | -      | MB              | 323593-W         | 323595-W             |                 |
| 1/8            | 3/64              | 8262R155 ⑤          | 8262R168 ⑤      | -                                      | SF            | -       | -   | -      | -   | -    | -  | -              | ●      | -        | -      | MB              | 323986-W         | 323988-W             |                 |
| 1/8            | 3/64              | 8262R156            | 8262R169        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323986           | 323988               |                 |
| 1/8            | 3/32              | 8262R277            | 8262R178        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 1/8            | 3/32              | 8262R128            | 8262R236        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 1/8            | 1/8               | 8262R105            | 8262R174        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | VH     | MS              | MB               | 323593               | 323595          |
| 1/8            | 1/8               | 8262R077 ⑥          | -               | -                                      | SF            | -       | -   | ●      | -   | -    | -  | -              | -      | -        | -      | MB              | 325039           | -                    |                 |
| 1/8            | 1/8               | 8262R129            | 8262R237        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | VH     | MB              | 323987           | 323989               |                 |
| 1/4            | 3/64              | 8262R107 ⑤          | 8262R181 ⑤      | -                                      | SF            | -       | -   | -      | -   | -    | -  | -              | ●      | -        | -      | MB              | 323593-W         | 323595-W             |                 |
| 1/4            | 3/64              | 8262R161 ⑤          | 8262R199 ⑤      | -                                      | SF            | -       | -   | -      | -   | -    | -  | -              | ●      | -        | -      | MB              | 323986-W         | 323988-W             |                 |
| 1/4            | 3/64              | 8262R260            | 8262R130        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323986           | 323988               |                 |
| 1/4            | 3/32              | 8262R109            | 8262R183        | NH                                     | SF            | P       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 1/4            | 3/32              | 8262R261            | 8262R134        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 1/4            | 1/8               | 8262R232            | 8262R184        | NH                                     | SF            | P       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 1/4            | 1/8               | 8262R262            | 8262R138        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 1/4            | 5/32              | 8262R202            | 8262R220        | NH                                     | SF            | P       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 1/4            | 5/32              | 8262R263            | 8262R142        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 1/4            | 7/32              | 8262R208            | 8262R226        | NH                                     | SF            | P       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 1/4            | 7/32              | 8262R264            | 8262R148        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 1/4            | 9/32              | 8262R212            | 8262R230        | NH                                     | SF            | P       | ●   | A      | V   | E    | J  | N              | T      | -        | VH     | MS              | MB               | 323593               | 323595          |
| 1/4            | 9/32              | 8262R265            | 8262R152        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | VH     | MB              | 323987           | 323989               |                 |
| 1/4            | 9/32              | 8262R078 ⑥          | -               | -                                      | SF            | -       | -   | ●      | -   | -    | -  | -              | -      | -        | -      | MB              | 325039           | -                    |                 |
| 1/4            | 5/16              | 8223P025 ④          | -               | -                                      | -             | -       | ●   | A      | -   | -    | -  | -              | -      | -        | -      | -               | 322815           | -                    |                 |
| 3/8            | 1/8               | 8263R115            | 8263R191        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 3/8            | 1/8               | 8263R070            | 8263R080        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 3/8            | 5/32              | 8263R200            | 8263R193        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 3/8            | 5/32              | 8263R071            | 8263R081        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 3/8            | 7/32              | 8263R124            | 8263R332        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 3/8            | 7/32              | 8263R072            | 8263R082        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 3/8            | 9/32              | 8263R210            | 8263R333        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MS              | MB               | 323593               | 323595          |
| 3/8            | 9/32              | 8263R073            | 8263R083        | NH                                     | SF            | -       | ●   | A      | V   | E    | J  | N              | T      | -        | -      | MB              | 323987           | 323989               |                 |
| 3/8            | 5/16              | 8223P027 ④          | -               | -                                      | -             | -       | ●   | -      | -   | -    | -  | -              | -      | -        | -      | -               | 322815           | -                    |                 |
| 3/8            | 5/8               | 8210P093            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | VH     | MO              | MB               | 322670               | -               |
| 3/8            | 5/8               | 8210P033            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | VH     | MB              | 322770           | -                    |                 |
| 3/8            | 5/8               | 8210P006            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | MB              | 322654           | -                    |                 |
| 1/2            | 3/8               | 8223P003 ④          | 8223P010 ①      | -                                      | -             | -       | ●   | -      | -   | -    | -  | -              | -      | -        | -      | -               | 322816           | 322817               |                 |
| 1/2            | 5/8               | 8210P094            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | VH     | MO              | MB               | 322670               | -               |
| 1/2            | 5/8               | 8210P034            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | VH     | MB              | 322770           | -                    |                 |
| 1/2            | 5/8               | -                   | 8210P087        | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | MB              | -                | 322676               |                 |
| 1/2            | 5/8               | 8210P007            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO ③   | MB              | 322654           | -                    |                 |
| 3/4            | 5/8               | -                   | 8210P088        | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | MB              | -                | 322676               |                 |
| 3/4            | 3/4               | 8210P095            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | VH     | MO              | MB               | 322673               | -               |
| 3/4            | 3/4               | 8030P003            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | MB              | 322758           | -                    |                 |
| 3/4            | 3/4               | 8210P035            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | VH     | MB              | 322771           | -                    |                 |
| 3/4            | 3/4               | 8030P083            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MB     | 322763          | -                |                      |                 |
| 3/4            | 3/4               | 8223P005 ④          | -               | -                                      | -             | -       | ●   | -      | -   | -    | -  | -              | -      | -        | -      | -               | 322818           | -                    |                 |
| 1              | 1                 | 8210P004            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | -               | 322677           | -                    |                 |
| 1 1/4          | 1 1/8             | 8210P008            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | -               | 322680           | -                    |                 |
| 1 1/2          | 1 1/4             | 8210P022            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | -               | 322680           | -                    |                 |
| 2              | 1 3/4             | 8210P100            | -               | -                                      | -             | -       | ●   | -      | V   | E    | J  | N              | -      | -        | MO     | -               | 322682           | -                    |                 |

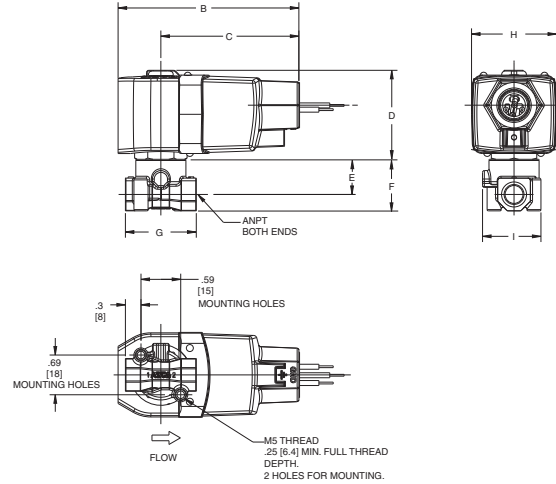
● = Standard. Other options may be available. All option combinations may not be available. Please consult your local ASCO contact.  
 ① Valve contains PTFE main disc; ② Pressure rating reduced by 25%; ③ Pressure rating limited to 250 psi; ④ Valve contains Nylon 11 piston.  
 ⑤ Cast UR disc supplied as standard, limits min. ambient temp. to 32°F (0°C). ⑥ Fuel gas service only; Ambient Temp. -40°F to 140°F, Fluid Temp. -40°F to 167°F; Gas capacity for 8262R077 is 18,700 Btu/hr, for 8262R078 53,500 Btu/hr based on 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.  
 ⑦ NH suffix only available for Stainless Steel constructions. ⑧ 12-24V DC. ⑨ 24-120V AC/DC, 100-240V AC/DC.

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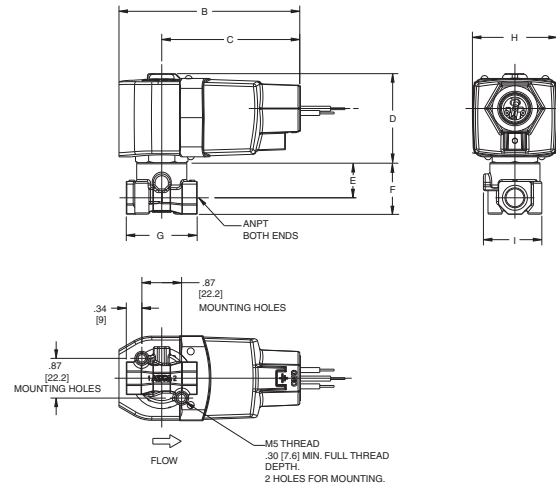
## Dimensions: inches (mm)

| Const. Ref. |    | B    | C    | D    | E    | F    | G    | H    | I    |
|-------------|----|------|------|------|------|------|------|------|------|
| 1           | in | 3.98 | 3.04 | 2.00 | 0.69 | 1.00 | 1.19 | 1.87 | 1.24 |
|             | mm | 101  | 77   | 51   | 18   | 25   | 30   | 48   | 32   |
| 2           | in | 3.98 | 3.04 | 2.00 | 0.78 | 1.11 | 1.56 | 1.87 | 1.29 |
|             | mm | 101  | 77   | 51   | 20   | 29   | 40   | 48   | 33   |
| 3           | in | 3.98 | 3.04 | 2.00 | 0.77 | 1.20 | 1.88 | 1.87 | 1.25 |
|             | mm | 101  | 77   | 51   | 20   | 30   | 48   | 48   | 32   |
| 4           | in | 3.98 | 3.04 | 2.00 | 1.28 | 1.84 | 2.75 | 1.87 | 2.28 |
|             | mm | 101  | 77   | 51   | 33   | 47   | 70   | 48   | 58   |
| 5           | in | 3.98 | 3.04 | 2.00 | 1.05 | 2.31 | -    | 1.87 | 3.03 |
|             | mm | 101  | 77   | 51   | 27   | 59   | -    | 48   | 77   |
| 6           | in | 3.98 | 3.04 | 2.00 | 1.13 | 2.31 | -    | 1.87 | 3.13 |
|             | mm | 101  | 77   | 51   | 29   | 59   | -    | 48   | 80   |
| 7           | in | 3.98 | 3.04 | 2.00 | 1.46 | 2.19 | 2.81 | 1.87 | 2.28 |
|             | mm | 101  | 77   | 51   | 37   | 56   | 71   | 48   | 58   |
| 8           | in | 3.98 | 3.04 | 2.00 | 1.44 | 2.13 | 2.81 | 1.87 | 2.28 |
|             | mm | 101  | 77   | 51   | 37   | 54   | 71   | 48   | 58   |
| 9           | in | 3.98 | 3.04 | 2.00 | 1.61 | 3.03 | -    | 1.87 | 3.6  |
|             | mm | 101  | 77   | 51   | 41   | 77   | -    | 48   | 91   |
| 10          | in | 3.98 | 3.04 | 2.00 | 2.21 | 3.67 | 3.75 | 1.87 | -    |
|             | mm | 101  | 77   | 51   | 56   | 93   | 95   | 48   | -    |
| 11          | in | 3.98 | 3.04 | 2.00 | 2.36 | 4.14 | 4.38 | 1.87 | 3.92 |
|             | mm | 101  | 77   | 51   | 60   | 105  | 111  | 48   | 100  |
| 12          | in | 3.98 | 3.04 | 2.00 | 2.75 | 5.52 | 5.06 | 1.87 | 4.72 |
|             | mm | 101  | 77   | 51   | 70   | 140  | 129  | 48   | 120  |
| 15          | in | 3.98 | 3.04 | 2.00 | 1.72 | 2.18 | 2.75 | 1.87 | 2.28 |
|             | mm | 101  | 77   | 51   | 44   | 55   | 70   | 48   | 58   |
| 16          | in | 3.98 | 3.04 | 2.00 | 1.88 | 2.57 | 2.81 | 1.87 | 2.28 |
|             | mm | 101  | 77   | 51   | 48   | 65   | 71   | 48   | 58   |
| 17          | in | 3.98 | 3.04 | 2.00 | 0.85 | 1.81 | 2.81 | 1.87 | 2.28 |
|             | mm | 101  | 77   | 51   | 22   | 46   | 71   | 48   | 58   |
| 18          | in | 3.98 | 3.04 | 2.00 | 0.77 | 1.20 | 1.88 | 1.87 | 1.25 |
|             | mm | 101  | 77   | 51   | 20   | 30   | 48   | 48   | 32   |

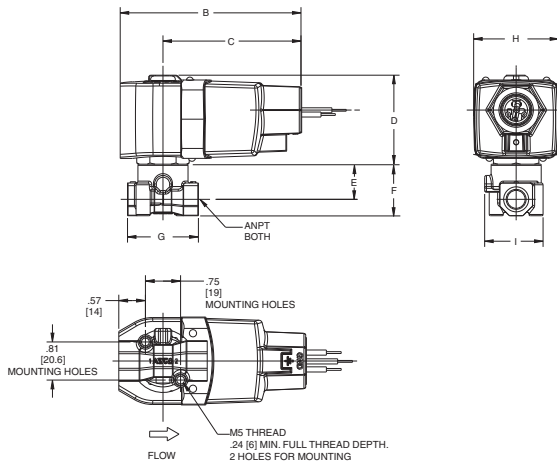
**Const. Ref. 1**



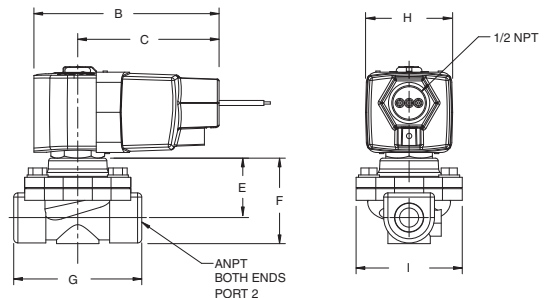
**Const. Ref. 2**



**Const. Ref. 3**



**Const. Ref. 4, 7, 15, 16, 17**

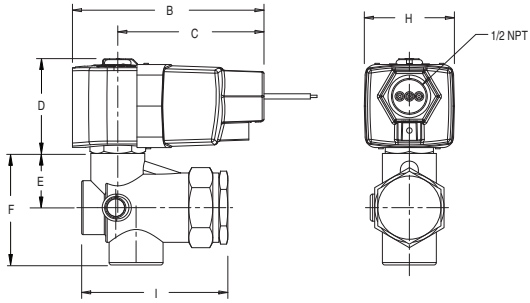


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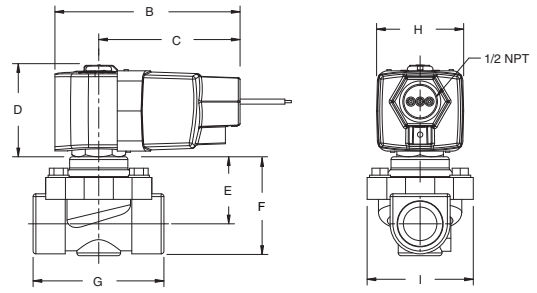
Dimensions: inches (mm)

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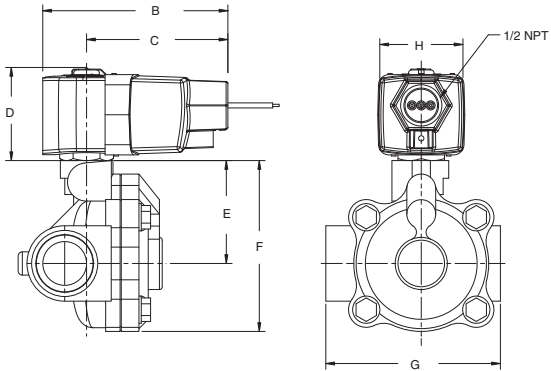
Const. Ref. 5, 6, 9



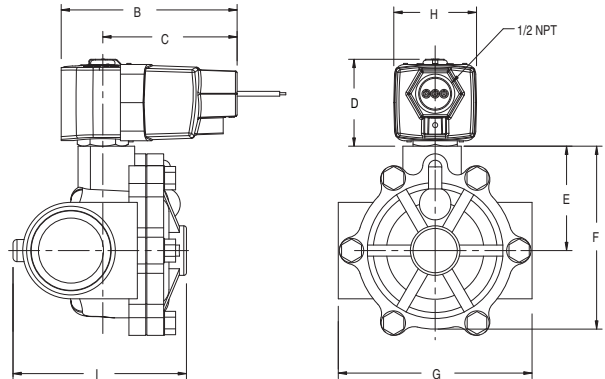
Const. Ref. 8



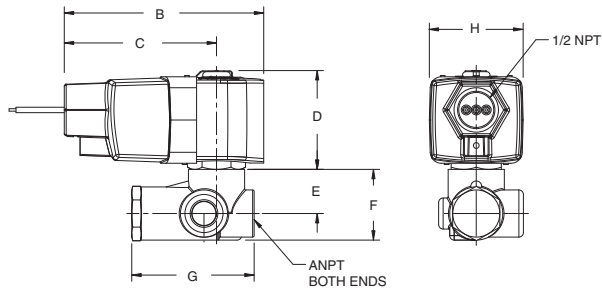
Const. Ref. 10



Const. Ref. 11, 12



Const. Ref. 18



### Electronically Enhanced Solenoids (Next Generation)

All RedHat Next Generation solenoid valves are rated for continuous duty under the operating conditions outlined within this section.

#### Coil Operating Voltage Ranges

All coils are designed for industrial operating voltages and can be used on the following voltage ranges:

| Voltage Range          | Minimum Voltage | Maximum Voltage |
|------------------------|-----------------|-----------------|
| 100-240V/50 or 60Hz/DC | 85              | 264             |
| 24-120V/50 or 60Hz/DC  | 20.4            | 132             |
| 12-24/DC only          | 10.4            | 26.4            |

The coils with voltage ranges of 100-240 and 24-99 have three lead wires, 24 inches long (2 red for power input, and one green lead for grounding where necessary). These two versions are not polarity sensitive.

The coil with a voltage range of 12-24/DC has 3 lead wires, one red, one black, and one green. This coil is polarity sensitive. The red lead is the positive, black is the negative, and green is the ground wire. This solenoid is also polarity protected. Reversing the polarity will not damage the coil, but the coil will not function until the correct polarity is applied.

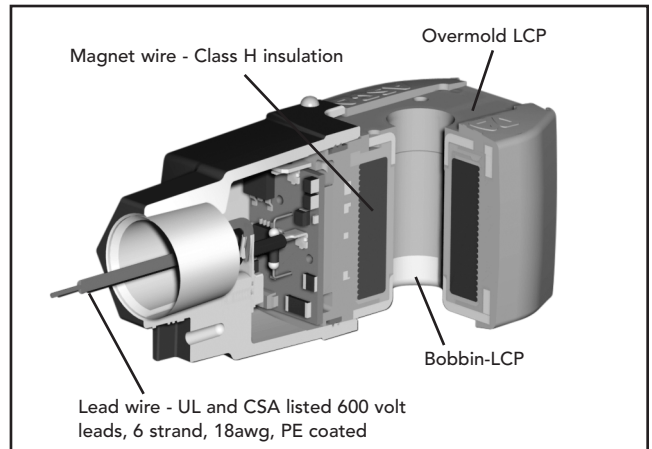
**Note:** The 100-240 voltage range is also suitable for battery charging circuits designed around a 125/DC nominal voltage range.

### Electrical Specifications

| 2 Watt Electronic Coils           | Type                |
|-----------------------------------|---------------------|
| Maximum Ambient Temperature       | 140°F               |
| Maximum Cycle Rate                | 1 Operation/ Second |
| Standard Coil Class of Insulation | H                   |

### Power Consumption

The Next Generation solenoid power rating is 1.0 watt of power for 12-24V DC and 1.5 watts for 24-120V AC/DC, and 100-240V AC/DC.



The advanced technology used in the Next Generation coil includes electronic circuitry which may limit the compatibility with certain control system components. The following issues need to be considered when specifying an output card or device to operate the Next Generation coil. An initial inrush current spike is drawn by the Next Generation coil. This inrush spike is 72 msec in duration, which is sufficient time for the core to reach the plugnut. The electrical requirement then drops to the holding value.

**Inrush Current:** The power source, wiring, and output device used need to have surge ratings equal to or greater than the inrush current value (appropriate to the voltage range) specified in the table below.

| Inrush Current Rating    |                            |
|--------------------------|----------------------------|
| Coil Version             | Peak Inrush Current (Amps) |
| 12-24/DC                 | 3.2                        |
| 24-99/50-60Hz/DC         | 1.4                        |
| 100-240/50-60Hz/DC       | 0.32                       |
| Maximum Duration = 72 ms |                            |

**Holding Current:** The power source, wiring, and output device used need to have continuous current ratings equal to or greater than the holding current value (appropriate to the voltage range) specified in the table below.

| Holding Current Rating |               |                                |                                |
|------------------------|---------------|--------------------------------|--------------------------------|
| Coil Version           | Input Voltage | Average Holding Current (Amps) | Average Holding Volt-Amps (VA) |
| 12-24/DC               | 12            | 0.230                          | 2.8                            |
|                        | 24            | 0.190                          | 4.5                            |
| 24-120/50-60Hz/DC      | 24            | 0.140                          | 3.4                            |
|                        | 120           | 0.070                          | 8.8                            |
| 100-240/50-60Hz/DC     | 100           | 0.044                          | 4.4                            |
|                        | 240           | 0.032                          | 7.8                            |

**Supervisory/Leakage Currents:**

The leakage current is defined as a current that is supplied from an output device when the device is in its off or de-activated state.

The Next Generation coil is suitable for systems using supervisory currents that do not exceed the drop-out currents noted in the table below.

| Supervisory/Leakage Current Rating  |                       |
|---|-----------------------|
| Coil Version  | Drop-out Current (mA) |
| 12-24/DC  | 20                    |
| 24-120/50-60Hz/DC   | 15                    |
| 100-240/50-60Hz/DC  | 7                     |
| <b>Important: Supervisory and leakage currents above the drop-out current listed with cause improper operation. Consult your local ASCO Sales office for additional assistance.</b> |                       |

**Solenoid Enclosures**

The Next Generation solenoid coil is fully encapsulated using Dupont™ Zenite® Liquid Crystal Polymer resin (LCP). Zenite (LCP) is a thermoplastic polyester resin which exhibits several advantages over other thermoplastics. The advantages include excellent resistance to a wide range of organic solvents and automotive fluids\*, resistance to impact, and long term retention of properties at continuous-use temperatures.

\*Chemical resistance of Zenite LCP may not be suitable for all applications. Zenite LCP is not suitable for caustic solution. *Please consult ASCO for appropriate product solutions.*

Zenite is a registered Trademark of Dupont Co.



**RedHat Next Generation Solenoids are available as:**

General Purpose/Watertight – Intended for indoor and outdoor use and provides protection classifications from NEMA Types 1 through 4X.

Class I, Division 2 for Hazardous Locations/Watertight – Meets Types 1 through 4X and is UL listed and CSA certified for Class I, Division 2, Groups A, B, C, and D and Class II, Division 2, Groups F and G. Operating temperature code T4A (120°C).



### Valve Specifications

#### Maximum Ambient Temperature

The maximum ambient temperature is 140°F (60°C). This limit is based on continuous energization with the maximum fluid temperatures as shown on each catalog page.

#### Response Time

Response time from fully closed to fully open or vice versa depends on valve size, operating mode, fluids, temperature, inlet pressure, and pressure drop. The response times for Next Generation are defined as:

- Small direct acting valves – 10 to 60 msec
- Large direct acting valves – 25 to 90 msec

#### Internally pilot operated valves:

- Small diaphragm types – 20 to 100 msec
- Large diaphragm types – 80 to 150 msec
- Small piston types – 80 to 150 msec
- Large piston types – 105 to 200 msec

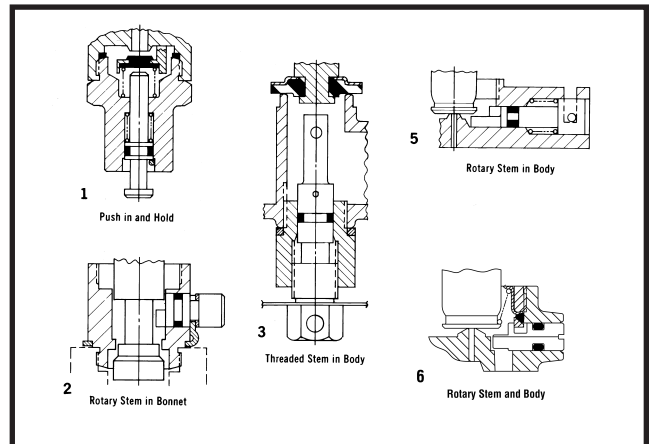
### Manual Operators

Manual operators are provided to operate the valves manually when electric actuation is not provided. There are two basic types of manual operators, momentary and maintained. To determine which type of manual operator is available for your valves, please see the Optional Features Chart on the relevant valve catalog page. Once it is determined that the subject valve can accommodate a manual operator, the chart below will tell you the type of manual operator. The chart also references the relevant cutaway illustration.

| Series Number | Const. Ref.      | Manual Operator Suffix | Manual Operator Type | Illustration Number |
|---------------|------------------|------------------------|----------------------|---------------------|
| 8030          | 8                | MO                     | Maintained           | 3                   |
| 8210          | 4, 7, 10, 11, 12 | MO                     | Maintained           | 2                   |
| 8262          | 1                | MS                     | Maintained           | 6                   |
| 8263          | 1                | MS                     | Maintained           | 6                   |
| 8314          | 1                | MS                     | Maintained           | 6                   |
| 8316          | 5, 6             | MO                     | Maintained           | 2                   |
| 8320          | 2                | MO                     | Momentary            | 1                   |
| 8320          | 2                | MS                     | Maintained           | 6                   |
| 8321          | 4                | MO                     | Momentary            | 1                   |
| 8321          | 4                | MS                     | Maintained           | 3                   |
| 8344          | 1, 3, 4          | MO                     | Maintained           | 2                   |
| 8345          | 2                | MO                     | Maintained           | 5                   |

Operation on liquids has relatively little effect on small direct acting valves, however, response times of large direct acting and internally piloted valves may be lengthened by 50% to 100%.

### Cutaway Illustrations



| Valve Parts in Contact with Fluids |                     |                 |             |            |                              |              |
|------------------------------------|---------------------|-----------------|-------------|------------|------------------------------|--------------|
| Series                             | Body                | Seals and Discs | Disc Holder | Core Guide | Springs                      | Shading Coil |
| 8030                               | Brass               | NBR             | -           | -          | 302 Stainless Steel          | Copper       |
| 8210                               | 304 Stainless Steel | NBR             | -           | -          | 302 Stainless Steel          | Silver       |
|                                    | Brass               | NBR             | ①           | -          | 302 Stainless Steel          | Copper       |
| 8223                               | 304 Stainless Steel | PTFE, NBR       | -           | -          | 302 Stainless Steel          | Silver       |
|                                    | Brass               | NBR, PA, PTFE   | -           | -          | 302 Stainless Steel          | Copper       |
| 8262                               | 304 Stainless Steel | NBR             | -           | -          | 302 Stainless Steel          | Silver       |
| 8262P261                           | 304 Stainless Steel | UR              | -           | -          | 302 Stainless Steel          | Silver       |
| 8262R099                           | 304 Stainless Steel | UR              | -           | -          | 302 Stainless Steel          | Silver       |
| 8262R107                           | 304 Stainless Steel | UR              | -           | -          | 302 Stainless Steel          | Silver       |
| 8262R175                           | 304 Stainless Steel | UR              | -           | -          | 302 Stainless Steel          | Silver       |
| 8262R178                           | 304 Stainless Steel | UR              | -           | -          | 302 Stainless Steel          | Silver       |
| 8262                               | Brass               | NBR             | -           | -          | 302 Stainless Steel          | Copper       |
| 8262R077                           | Brass               | LT NBR          | -           | -          | Inconel                      | Copper       |
| 8262R078                           | Brass               | LT NBR          | -           | POM        | Inconel                      | Copper       |
| 8263                               | 304 Stainless Steel | NBR             | -           | -          | 302 Stainless Steel          | Silver       |
| 8263                               | Brass               | NBR             | -           | -          | 302 Stainless Steel          | Copper       |
| 8314                               | 304 Stainless Steel | NBR, FKM        | -           | POM        | 302 Stainless Steel          | Silver       |
| 8314                               | Brass               | NBR, FKM        | -           | POM        | 302 Stainless Steel          | Copper       |
| 8316                               | Brass               | NBR             | POM         | POM        | 302, 17-7PH Stainless Steels | Copper       |
| 8317                               | Brass               | NBR, FKM, CR    | -           | POM        | 302, 17-7PH Stainless Steels | Copper       |
| 8320                               | 303 Stainless Steel | NBR             | POM         | POM        | 302 Stainless Steel          | Silver       |
| 8320                               | Brass               | NBR             | POM         | POM        | 302 Stainless Steel          | Copper       |
| 8321                               | Brass               | NBR             | POM         | POM        | 302 Stainless Steel          | Copper       |
| 8344                               | Brass               | NBR             | POM         | POM        | 302, 17-7PH Stainless Steels | Copper       |
| 8345                               | Brass               | NBR, PA         | -           | POM        | 302 Stainless Steel          | Copper       |
| 8551                               | 316 Stainless Steel | NBR, PA         | -           | POM        | 302 Stainless Steel          | Copper       |
| 8551                               | Anodized Aluminum   | NBR, PA         | -           | POM        | 302 Stainless Steel          | Copper       |

Note: All core tubes are 305 stainless steel and all cores and plugnuts are 430F stainless steel. ① 8210P033, 8210P034, and 8210P035 with PA Disc Holder