

# 8000 Series

## Fractional Flow Controls Valves

CRN Registration Number Available

### HEAVY DUTY CONTROL VALVES

The Mark 8000 Series is a group of heavy-duty control valves specifically designed for process applications requiring full flow or fractional flow control. Available in a wide selection of body sizes and styles, this valve can be configured in two-way or three-way designs, for diverting or mixing service, and with globe or angle valve style seats. It can be ordered with a bellows stem seal, or an extended bonnet extension for cryogenic applications down to  $-425^{\circ}\text{F}$  ( $-218^{\circ}\text{C}$ ), or with an electric motor actuator. It has a totally enclosed multi-spring actuator, which minimizes deadband and is field reversible without the use of special tools or extra parts. LowFlow Valve can also install a wide variety of positioners and actuators on the Mark 8000 Series, to provide a valve that meets specific requirements.

The Mark 8000 Series valve subassembly is manufactured completely from barstock, which combined with the standard heavy duty yoke and actuator, gives the valve the ability to handle pressure up to 6000 psi (414 bar), while still being able to offer Cv's ranging from 0.05 - 17 (Kv's 0,04 – 14,6). The barstock body design also allows greater flexibility when specialty materials are required. While the standard body materials are Stainless Steel and Carbon Steel, the Series 8000 can be manufactured in almost any exotic alloy, including Alloy 20, Hastelloy, Inconel, and Monel. This makes the Mark 8000 Series ideal for corrosive or harsh process conditions. The Mark 8000 body material is not limited to alloys. It can also be manufactured in PVC or Kynar for applications where thermoplastics offer a better solution over alloy materials.

#### Features:

- Heavy-duty barstock construction for pressures up to 6000 psi (414 bar)
- Speciality alloys are readily available, making the Mark 8000 Series ideal for corrosive or harsh process environments
- Application flexibility: wide selection of body sizes and types including 2-way and 3-way designs
- Globe design to 2" (DN50); angle pattern to 1" (DN25)
- In-line maintainable for quick, easy trim repairs



**MK8000 SERIES SPECIFICATIONS**

Sizes: 1/2" – 2" (DN15 – DN50)

**End Connections**

- NPT, BSPT
- Raised-face flanges (ANSI, DIN, JIS)
- Ring-type joint flanges
- Socket weld (schedule 40, 80, or 160)
- Bolt-thru flanged (plastic body only)
- Special connections upon request

**Actuator (see maximum allowable  $\Delta P$  charts)**

- Standard – multi-spring (35M, 55M, 85M)
- Optional – pressure balanced (uses air signal on both sides of actuator); manual handwheel

**Body Style**

- 2-way globe
- 2-way angle (to 1"/DN25)
- 3-way globe

**Bonnet Type**

- Standard screwed
- 8" extended (cryogenic)
- Multi-ply bellows seal
- Extended multi-ply bellows seal

**Trim Material**

- 316SST seat & stem / 17-4 pH SS plug
- 316SS seat, stem and plug
- 316SS / Stellite
- Monel
- Hastelloy C
- Alloy 20
- Stellite
- Kynar
- PVC
- Other materials

**Actuator Material:** 35M/55M/85M – steel, epoxy coated

**Diaphragm Material:** Buna-N/Nylon

**Stem Packing**

- Alloy bodies: Teflon V-ring; graphite/graphite (use of positioners recommended)
- Plastic bodies: Teflon V-ring with Viton bonnet gasket; Teflon V-ring with Buna-N bonnet gasket

**Service:** high pressure chemicals, steam, air, gas, oil, water

**Shutoff**

- Standard – ANSI Class III (Cv's < 3.5 / Kv's < 3,0) or ANSI Class IV (Cv's 3.5 and higher / Kv's 3,0)
- Optional – ANSI Class VI with soft RPTFE seats (consult factory for other soft seat material options)

**Ranges:** 3-15 psi or 6-30 psi (0,21-1,03 or 0,41-2,07 bar)

**Action**

- Direct (air signal closes valve)
- Reverse (air signal opens valve)

**Flow Characteristic:** Equal percentage, linear, quick opening

**Positioners:** Pneumatic, electro-pneumatic and digital positioners on all sizes and actuators; contact factory for mounting positioners on PVC or Kynar valves

**Cv (Kv) Selection – 2-Way Valves**

| Valve Size  | Standard Cv (Kv)   |
|-------------|--|
| 1/2"/DN15   | 0.05; 0.1; 0.2; 0.5; 1.0; 1.8<br>(0,04; 0,09; 0,17; 0,43; 0,86; 1,6) |
| 3/4"/DN20   | 1.0; 2.0; 3.0 (0,86; 1,7; 2,6)                                       |
| 1"/DN25     | 2.0; 4.0; 4.3 (1,7; 3,4; 3,7)  |
| 1-1/4"/DN32 | 4.0; 6.5; 7.1 (3,4; 5,6; 6,1)  |
| 1-1/2"/DN40 | 6.5; 9.0; 12.5 (5,6; 7,7; 10,8)                                      |
| 2"/DN50     | 9.0; 16.0; 17.0 (7,7; 13,8; 14,6)                                    |

**Sizing Notes**

- For sizing to your specific application parameters, LowFlow Valve recommends the use of the Sizing & Selection program available free-of-charge from our factory sales office, our representatives or our website.
- Any Cv (Kv) listed as a standard can be provided as optional low flow trim in a larger sized valve

## MK8000 SERIES SPECIFICATIONS

### Maximum Allowable $\Delta P$ Ratings

| Cv (Kv)                  | ATO 3-15      | ATO 6-30*      | ATC 3-15      | ATC 6-30      | ATC w/pos. @ 40 psi (3 bar) |
|--------------------------|---------------|----------------|---------------|---------------|-----------------------------|
| <b>35M Actuator**</b>    |               |                |               |               |                             |
| 0.05-0.2<br>(0,4-0,2)    | 5000<br>(345) | 5000<br>(345)  | 5000<br>(345) | 5000<br>(345) | N/A                         |
| 0.5-1.0<br>(0,4-0,9)     | 3030<br>(209) | 5000<br>(345)  | 5000<br>(345) | 5000<br>(345) | N/A                         |
| 1.25-2.0<br>(1,1-1,7)    | 950<br>(66)   | 1900<br>(1310) | 1580<br>(109) | 3160<br>(218) | N/A                         |
| 3.0-4.0<br>(2,6-3,4)     | 600<br>(41)   | 1300<br>(90)   | 1000<br>(69)  | 2200<br>(152) | N/A                         |
| 4.3-4.5<br>(3,7-3,9)     | 400<br>(28)   | 800<br>(55)    | 650<br>(45)   | 1400<br>(97)  | 3500<br>(241)               |
| 7.1<br>(6,1)             | 270<br>(19)   | 550<br>(38)    | 450<br>(31)   | 950<br>(66)   | 2400<br>(165)               |
| <b>55M Actuator</b>      |               |                |               |               |                             |
| 3.0-4.0<br>(2,6-3,4)     | 950<br>(66)   | 1900<br>(131)  | 1500<br>(103) | 3100<br>(214) | N/A                         |
| 4.3-6.5<br>(3,7-5,6)     | 550<br>(38)   | 1100<br>(76)   | 900<br>(62)   | 1900<br>(131) | N/A                         |
| 7.1-9.0<br>(6,1-7,7)     | 370<br>(26)   | 750<br>(52)    | 600<br>(41)   | 1250<br>(86)  | N/A                         |
| 12.5-16.0<br>(10,8-13,8) | 200<br>(14)   | 400<br>(28)    | 350<br>(24)   | 700<br>(48)   | N/A                         |
| 17.0<br>(14,6)           | 130<br>(9)    | 250<br>(17)    | 225<br>(16)   | 448<br>(31)   | N/A                         |
| <b>85M Actuator</b>      |               |                |               |               |                             |
| 3.0-4.0<br>(2,6-3,4)     | 1400<br>(97)  | 2900<br>(200)  | 2400<br>(165) | 4800<br>(331) | N/A                         |
| 4.3-6.5<br>(3,7-5,6)     | 850<br>(59)   | 1700<br>(117)  | 1400<br>(97)  | 2930<br>(202) | N/A                         |
| 7.1-9.0<br>(6,1-7,7)     | 570<br>(39)   | 1150<br>(79)   | 920<br>(63)   | 1930<br>(133) | N/A                         |
| 12.5-16.0<br>(10,8-13,8) | 300<br>(21)   | 610<br>(42)    | 540<br>(37)   | 1080<br>(74)  | N/A                         |
| 17.0<br>(14,6)           | 200<br>(14)   | 380<br>(26)    | 350<br>(24)   | 690<br>(48)   | N/A                         |

\* ATO with positioner and 40 psi supply has same rating

\*\* 35M actuator available for 1/2" – 1-1/4" only

### Cv Versus Travel Chart (% Cv Versus % Travel)

| Size      | Type             | 5% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|-----------|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 1/2"-3/4" | Linear           | 8  | 12  | 21  | 31  | 40  | 50  | 61  | 72  | 83  | 91  | 100  |
|           | Equal Percentage | 4  | 5   | 7   | 10  | 14  | 19  | 25  | 37  | 57  | 78  | 100  |
| 1"-2"     | Linear           | 8  | 15  | 30  | 42  | 54  | 65  | 78  | 85  | 94  | 99  | 100  |
|           | Equal Percentage | 2  | 3   | 6   | 10  | 16  | 24  | 34  | 49  | 73  | 95  | 100  |

### Pressure/Temperature Ratings

- Stainless Steel Body

| Valve Size                       | Packing Material | Temperature, °F (°C)     | PSIG (Bar) @ 100°F (38°C) |
|----------------------------------|------------------|--------------------------|---------------------------|
| 1/2" to 1"<br>DN15 to DN25)      | Standard         | -20 to 400 (-29 to 204)  | 6000 (414)                |
|                                  | High Temp        | -20 to 1000 (-29 to 538) | 6000 (414)                |
| 1-1/4" & 1-1/2"<br>(DN32 & DN40) | Standard         | -20 to 400 (-29 to 204)  | 4000 (276)                |
|                                  | High Temp        | -20 to 1000 (-29 to 538) | 4000 (276)                |
| 2" (DN50)                        | Standard         | -20 to 400 (-29 to 204)  | 2500 (172)                |
|                                  | High Temp        | -20 to 100 (-29 to 538)  | 2500 (172)                |

- Carbon Steel Body

| Valve Size                       | Packing Material | Temperature, °F (°C)    | PSIG (Bar) @ 100°F (38°C) |
|----------------------------------|------------------|-------------------------|---------------------------|
| 1/2" to 1"<br>DN15 to DN25)      | Standard         | -20 to 400 (-29 to 204) | 6000 (414)                |
|                                  | High Temp        | -20 to 800 (-29 to 429) | 6000 (414)                |
| 1-1/4" & 1-1/2"<br>(DN32 & DN40) | Standard         | -20 to 400 (-29 to 204) | 4000 (276)                |
|                                  | High Temp        | -20 to 800 (-29 to 429) | 4000 (276)                |
| 2" (DN50)                        | Standard         | -20 to 400 (-29 to 204) | 2500 (172)                |
|                                  | High Temp        | -20 to 800 (-29 to 429) | 2500 (172)                |

- PVC or Kynar Body

| Valve Size                  | Packing Material | Temperature, °F (°C)   | PSIG (Bar) @ 100°F (38°C) |
|-----------------------------|------------------|------------------------|---------------------------|
| 1/2" to 2"<br>DN15 to DN50) | Standard         | -20 to 140 (-29 to 60) | **                        |

### Notes:

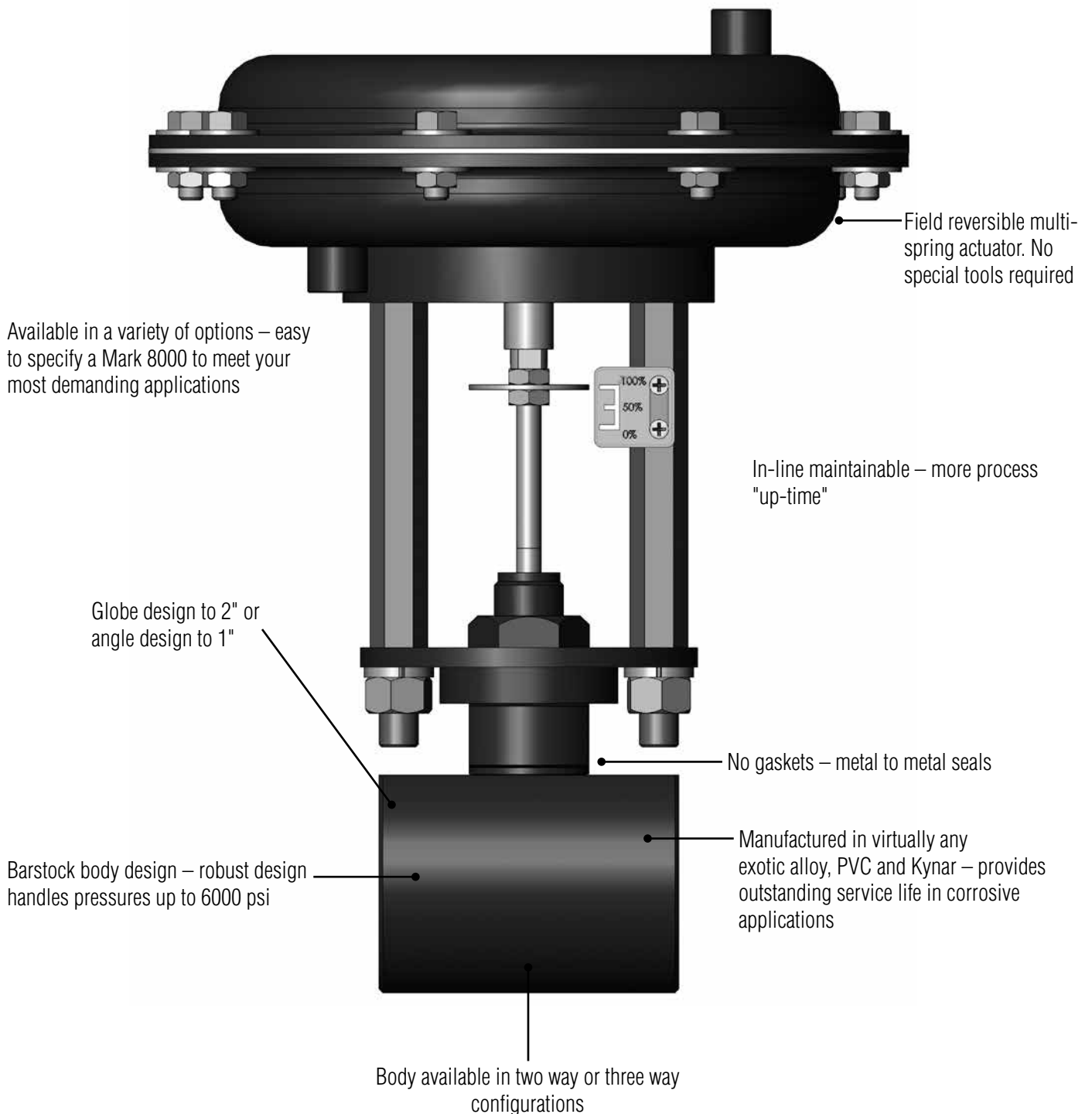
\* Actual pressure rating determined by end connection

\*\* Kynar: rated at 230 psig @ 100°F (16 bar @ 38°C); 185 psig @ 150°F (13 bar @ 66°C)

\*\* PVC: rated at 335 psig @ 100°F (23 bar @ 38°C); 110 psig @ 140°F (8 bar @ 60°C)

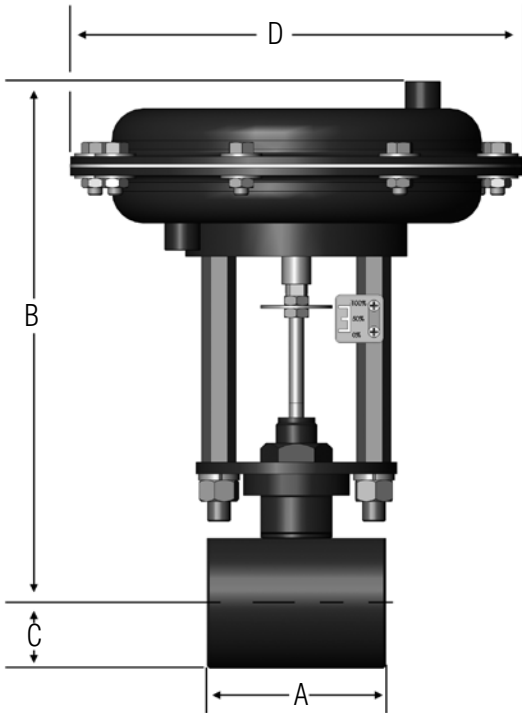
*For other materials, please consult factory*

**MARK 8000 SERIES FEATURES & BENEFITS**



## MARK 8000 SERIES DIMENSIONS

- Globe Design



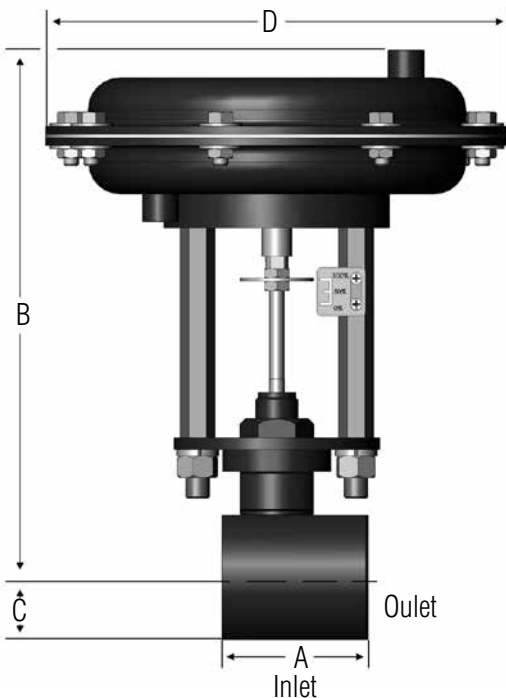
- Mark 8000 Series (with 35M actuator)

| VALVE SIZE | DIMENSIONS |       |      |      | WEIGHT LBS |
|------------|------------|-------|------|------|------------|
|            | A          | B     | C    | D    |            |
| 1/2"       | 3.00       | 11.62 | 1.25 | 9.50 | 19         |
| 3/4"       | 3.00       | 11.62 | 1.25 | 9.50 | 19         |
| 1"         | 3.75       | 11.62 | 1.50 | 9.50 | 21         |
| 1-1/4"     | 5.00       | 12.00 | 1.65 | 9.50 | 25         |
| 1-1/2"     | 4.75       | 13.62 | 2.00 | 9.50 | 29         |
| 2"         | 5.75       | 13.87 | 2.20 | 9.50 | 31         |

- Mark 8000 Series, Metric (with 35M actuator)

| VALVE SIZE | DIMENSIONS |     |    |     | WEIGHT KGS |
|------------|------------|-----|----|-----|------------|
|            | A          | B   | C  | D   |            |
| DN15       | 76         | 295 | 32 | 241 | 9          |
| DN20       | 76         | 295 | 32 | 241 | 9          |
| DN25       | 95         | 295 | 38 | 241 | 10         |
| DN32       | 127        | 305 | 42 | 241 | 11         |
| DN40       | 121        | 346 | 51 | 241 | 13         |
| DN50       | 146        | 352 | 57 | 241 | 14         |

- Angle Design



- Mark 8000 Series Angle Valve

| VALVE SIZE | DIMENSIONS |       |      |      |
|------------|------------|-------|------|------|
|            | A          | B     | C    | D    |
| 1/2"       | 1.38       | 11.62 | 1.00 | 9.50 |
| 3/4"       | 1.88       | 11.62 | 1.50 | 9.50 |
| 1"         | 1.88       | 11.62 | 1.44 | 9.50 |

- Mark 8000 Series Angle Valve, Metric

| VALVE SIZE | DIMENSIONS |     |    |     |
|------------|------------|-----|----|-----|
|            | A          | B   | C  | D   |
| DN15       | 35         | 295 | 25 | 241 |
| DN20       | 35         | 295 | 38 | 241 |
| DN25       | 35         | 295 | 37 | 241 |

**MARK 8000 SERIES ORDERING SCHEMATIC**

| Model No. | Size | Body Mat'l | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|-----------|------|------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
|           |      |            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |

| MODEL   |                              |
|---------|------------------------------|
| 8000G   | Two-Way GLobe Valve          |
| 8000GTP | with Top Mounted Positioner  |
| 8000GSP | with Side Mounted Positioner |
| 8000GMV | with Motor Actuator          |
| 8000A   | Two-Way Angle Valve          |
| 8000ATP | with Top Mounted Positioner  |
| 8000ASP | with Side Mounted Positioner |
| 8000T   | Three-Way Globe Valve        |
| 8000TTP | with Top Mounted Positioner  |
| 8000TSP | with Side Mounted Positioner |

| SIZE |               |
|------|---------------|
| 050  | 1/2" (DN15)   |
| 075  | 3/4" (DN20)   |
| 100  | 1" (DN25)     |
| 125  | 1-1/4" (DN32) |
| 150  | 1-1/2" (DN40) |
| 200  | 2" (DN50)     |

| BODY MATERIAL |              |
|---------------|--------------|
| CB            | Carbon Steel |
| SB            | 316SS        |
| BR            | Brass        |
| MN            | Monel        |
| HC            | Hastelloy C  |
| A2            | Alloy 20     |
| KN            | Kynar        |
| PV            | PVC          |

| 1 & 2 END CONNECTIONS |                     |
|-----------------------|---------------------|
| PT                    | FNPT                |
| BT                    | BSPT                |
| BP                    | BSPP                |
| SW                    | FSW                 |
| R5                    | 150# RF             |
| J5                    | 150# RTJ            |
| R3                    | 300# RF             |
| J3                    | 300# RTJ            |
| R6                    | 600# RF             |
| J6                    | 600# RTJ            |
| R9                    | 900# RF             |
| J9                    | 900# RTJ            |
| R1                    | 1500# RF            |
| J1                    | 1500# RTJ           |
| R2                    | 2500# RF            |
| J2                    | 2500# RTJ           |
| B4                    | BWE Sch 40          |
| B8                    | BWE Sch 80          |
| B6                    | BWE Sch 160         |
| BU                    | Bolt-thru for KN/PV |
| ZZ                    | Non-standard        |

| 3 & 4 BONNET/PACKING |                                     |
|----------------------|-------------------------------------|
| METAL BODIES         |                                     |
| ST                   | Standard/TFE                        |
| SH*                  | Standard/High Temperature           |
| ET                   | 8" Extended/TFE (Cryogenic)         |
| EH*                  | 8" Extended/High Temperature        |
| BT                   | Multi-ply Bellows/TFE               |
| BH*                  | Multi-ply Bellows/High Temperature  |
| ZZ                   | No-standard                         |
| PLASTIC BODIES       |                                     |
| SB                   | Standard/TFE w/Buna-N Bonnet Gasket |
| SV                   | Standard/TFE w/Viton Bonnet Gasket  |
| BB                   | Bolt-thru Body/TFE w/Buna           |
| BV                   | Bolt-thru Body/TFE w/Viton          |
| ZZ                   | Non-standard                        |

\* Positioner required for high temperature packing

# SPECIFICATIONS



## MARK 8000 SERIES ORDERING SCHEMATIC

| 5 PLUG & SEAT                 |   |
|-------------------------------|---|
| Stem/Plug/Seat Material       |   |
| 8000G/GTP/GSP/GMV             |   |
| Metal Bodies                  |   |
| A                             | Standard – Linear Hard                    |
| B                             | Standard – =% Hard                        |
| C                             | Standard – Q.O. Hard                      |
| D                             | Standard – Linear Soft (RPTFE)            |
| E                             | Standard – =% Soft (RPTFE)                |
| F                             | Standard – Q.O. Soft (RPTFE)              |
| G                             | 316/Stellite/Stell – Linear Hard          |
| H                             | 316/Stellite/Stell – =% Hard              |
| I                             | 316/Stellite/Stell – Q.O. Hard            |
| M                             | Alloy 20/AL20/AL20 – Linear Hard          |
| N                             | Alloy 20/AL20/AL20 – % Hard               |
| P                             | Alloy 20/AL20/AL20 – Q.O. Hard            |
| Q                             | Alloy 20/AL20/AL20 – Linear Soft (RPTFE)  |
| R                             | Alloy 20/AL20/AL20 – % Soft (RPTFE)       |
| S                             | Alloy 20/AL20/AL20 – Q.O. Soft (RPTFE)    |
| T                             | Monel/Mon/Mon – Linear Hard               |
| U                             | Monel/Mon/Mon – =% Hard                   |
| V                             | Monel/Mon/Mon – Q.O. Hard                 |
| W                             | Monel/Mon/Mon – Linear Soft (RPTFE)       |
| X                             | Monel/Mon/Mon – =% Soft (RPTFE)           |
| Y                             | Monel/Mon/Mon – Q.O. Soft (RPTFE)         |
| 1                             | Hastelloy C/H-C/H-C – Linear Hard         |
| 2                             | Hastelloy C/H-C/H-C =% Hard               |
| 3                             | Hastelloy C/H-C/H-C – Q.O. Hard           |
| 4                             | Hastelloy C/H-C/H-C – Linear Soft (RPTFE) |
| 5                             | Hastelloy C/H-C/H-C =% Soft (RPTFE)       |
| 6                             | Hastelloy C/H-C/H-C – Q.O. Soft (RPTFE)   |
| Z                             | Non-standard                              |
| PLASTIC BODIES                |   |
| A                             | Standard Body – Linear                    |
| B                             | Standard Body – Equal Percentage          |
| C                             | Standard Body – Quick Opening             |
| D                             | Bolt thru Body – Linear                   |
| E                             | Bolt thru Body – Equal Percentage         |
| F                             | Bolt thru Body – Quick Opening            |
| Z                             | Non-Standard                              |
| 8000A/ATP/ASP & 8000T/TTP/TSP |   |
| Z                             | Non-standard                              |

| 6 CV (KV) |              |
|-----------|--------------|
| A         | 0.05 (0,043) |
| B         | 0.1 (0,086)  |
| C         | 0.2 (0,17)   |
| D         | 0.5 (0,43)   |
| E         | 1.0 (0,86)   |
| F         | 2.0 (1,72)   |
| G         | 4.0 (3,44)   |
| H         | 6.5 (5,63)   |
| I         | 9.0 (7,74)   |
| J         | 16.0 (13,8)  |
| K         | 25 (21,5)    |
| M         | 1.5 (1,3)    |
| N         | 1.8 (1,6)    |
| P         | 3.0 (2,6)    |
| Q         | 3.5 (3,01)   |
| R         | 4.3 (3,7)    |
| S         | 7.1 (6,1)    |
| T         | 12.5 (10,8)  |
| U         | 17 (14,6)    |

| 7 & 8                |              | ACTUATOR |              |
|----------------------|--------------|----------|--------------|
| TYPE                 |              | SIZE     |              |
| ALL VALVES EXCEPT SP |              |          |              |
| D                    | Air-to-Close | 3        | 35M          |
| R                    | Air-to-Open  | 5        | 55M          |
| FOR SP               |              | 8        | 85M          |
| S                    | W/SMP        |          |              |
| Z                    | Non-standard |          |              |
| 8000GMV              |              |          |              |
| N                    | On-Off       | 2        | NEMA 12      |
| M                    | Ma/Voltage   | 4        | NEMA 4 & X-P |
| ZZ                   | Non-standard |          |              |

**MARK 8000 SERIES ORDERING SCHEMATIC**

| 9 & 10         |              | RANGE    |     |
|----------------|--------------|----------|-----|
|                | RANGE        | ACTUATOR |     |
| A              | 3-15 DIR     | 3        | 35M |
| B              | 3-15 REV     | 5        | 55M |
| G              | 6-30 DIR     | 8        | 85M |
| H              | 6-30 REV     |          |     |
| Z              | Non-standard |          |     |
| <b>8000GMV</b> |              |          |     |
| NF             | On-Off       |          |     |
| 42             | 4-20 mA      |          |     |
| 41             | 4-12 mA      |          |     |
| 12             | 12-20 mA     |          |     |
| V5             | 0-5V         |          |     |
| V1             | 0-10V        |          |     |
| ZZ             | Non-standard |          |     |

| 11 & 12 |              | LIMIT SWITCHES (2LS) |                  |
|---------|--------------|----------------------|------------------|
|         | ACTUATOR     | ACTION/TYPE          |                  |
| 3       | 35M          | D                    | Direct/Standard  |
| 5       | 55M          | X                    | Direct/X-P       |
| 8       | 85M          | R                    | Reverse/Standard |
|         |              | P                    | Reverse/X-P      |
| 00      | None         |                      |                  |
| ZZ      | Non-standard |                      |                  |

| 13 & 14 |                      | SOLENOID & HARDWARE |  |
|---------|----------------------|---------------------|--|
| 00      | None                 |                     |  |
| SD      | Standard Solenoid    |                     |  |
| WT      | Water-Tight Solenoid |                     |  |
| XP      | X-Proof Solenoid     |                     |  |
| H3      | Handwheel 35M Dir    |                     |  |
| H5      | Handwheel 55M Dir    |                     |  |
| H8      | Handwheel 85M Dir    |                     |  |
| R3      | Handwheel 35M Rev    |                     |  |
| R5      | Handwheel 55MK Rev   |                     |  |
| R8      | Handwheel 85M Rev    |                     |  |
| ZZ      | Non-standard         |                     |  |

| 15 |                                      | ACCESSORIES |  |
|----|--------------------------------------|-------------|--|
| 0  | None                                 |             |  |
| A  | Air Regulator                        |             |  |
| B  | I/P 35M Act. 4-20Ma/3-15 psi         |             |  |
| C  | I/P 55M Act. 4-20Ma/3-15 psi         |             |  |
| D  | I/P 85M Act. 4-20Ma/3-15 psi         |             |  |
| E  | I/P 35M/55M/85M Act. 4-20Ma/6-30 psi |             |  |
| 1  | 1 Gauge for Tmp.                     |             |  |
| 2  | 2 Gauge for Tmp.                     |             |  |
| 3  | 3 Gauge for Tmp.                     |             |  |
| X  | Oxygen Clean                         |             |  |
| Z  | Non-standard                         |             |  |

| 16 |               | ACTION |  |
|----|---------------|--------|--|
| D  | Direct A-T-C  |        |  |
| R  | Reverse A-T-O |        |  |

| 17 |                            | SMP |  |
|----|----------------------------|-----|--|
| 0  | None                       |     |  |
| A  | SMP Direct/Reverse 3-15    |     |  |
| D  | SMP-IP Direct/Reverse 4-20 |     |  |
| G  | SMP 16IQ-S Direct/Reverse  |     |  |
| H  | SMP 16IQ-B Direct/Reverse  |     |  |
| Z  | Non-standard               |     |  |

| 18 |               | PED COMPLIANCE |  |
|----|---------------|----------------|--|
| 0  | Not Required  |                |  |
| F  | CE Category 1 |                |  |
| Z  | Non-standard  |                |  |