

# 708HPA Series

## Fractional Flow Control Valves

### FRACTIONAL FLOW CONTROL VALVES

The Mark 708HPA is a 12,000 psi maximum inlet fractional flow control valve. This rugged, compact angle body control valve is suitable for a variety of high pressure industrial and research applications. The extended pressure capability makes it the ideal valve for offshore well system chemical injection. Linear and equal percentage flow characteristics are available with Cv's ranging from 0.05 (0,04 Kv) to 1.25 (1,1 Kv). In addition, the Mark 708HPA is available in a variety of end connections and optional materials of construction making it a versatile solution to your most demanding valve requirements.

#### Features:

- Union style body / bonnet connection – provides solid construction and secure connection. The metal 'C' ring gasket provides excellent sealing without exposing the bonnet threads to the media. Adds ease to maintenance, as bonnet and actuator assembly may be removed with the body in-line.
- Mechanically loaded PTFE Chevron heavy duty V ring packing – the adjustable packing arrangement maintains a proper compression, while minimizing excessive friction. The PTFE packing is suitable for temperature to 450°F (232°C), while mechanically loaded Graphoil may be used for higher temperature requirements.
- Rolling diaphragm – the rolling diaphragm design ensures that the effective diaphragm area remains relatively constant, regardless of valve stem position. This increases accuracy of the actuator while positioning the valve by ensuring a linear response to input signal changes.
- Guided trim – extended orifice and plug guiding are standard and offers improved shutoff and accuracy.
- Standard with side mount positioner



**MK708HPA SERIES SPECIFICATIONS**

Sizes: 1/2" (DN15)

**End Connections**

- Threaded – FNPT
- Socket weld
- Autoclave AE

**Actuator**

- 35M (35 in<sup>2</sup>)

**Diaphragm Material**

- Buna-N fabric reinforced

**Body/Bonnet Materials**

- 316/316L Stainless Steel barstock
- Monel barstock
- Alloy 20 barstock

**Trim Materials**

- Match body material with stellite plug/seat

**Actuator Materials**

- Steel – 35M

For other options/materials, consult factory

**Stem Packing**

- PTFE Chevron Heavy duty V ring - mechanically loaded
- Optional: Graphite/Graphoil - mechanically loaded

**Body/Bonnet Gasket:** Parker Seals Metal 'C' Ring Inconel X-750

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

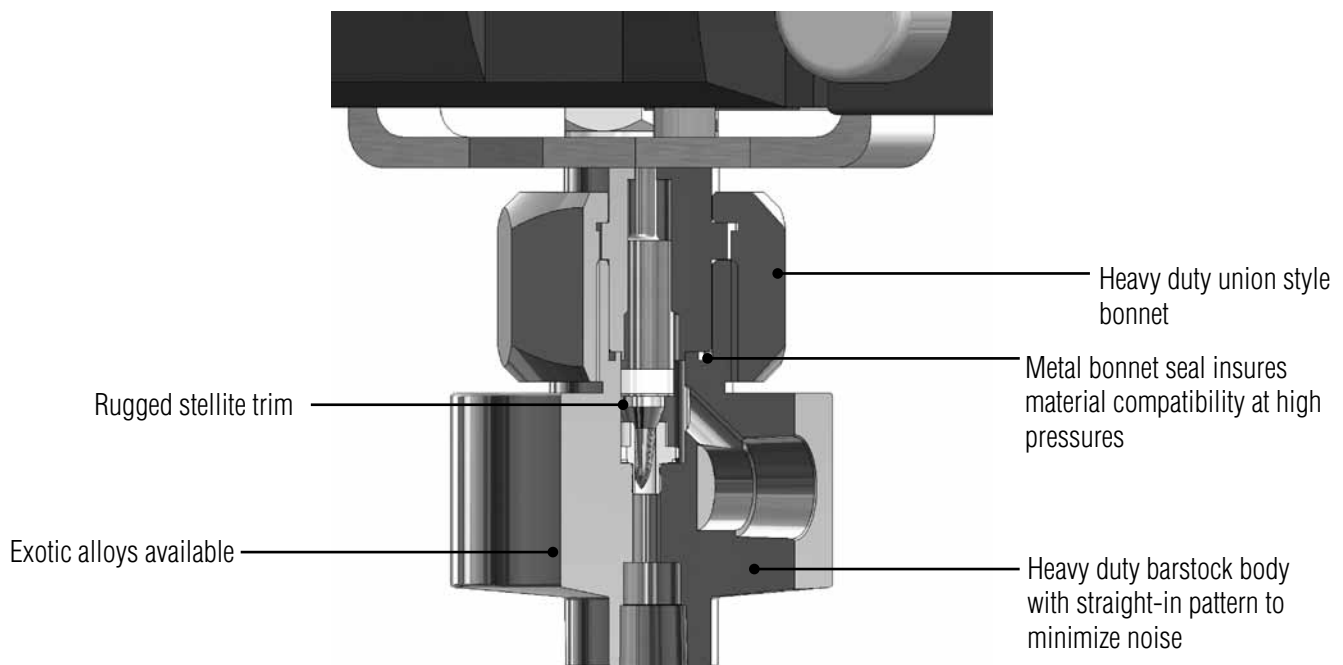
**Maximum Operating Pressure:**

- 12000 psi max inlet @ 100°F (827 bar max inlet @ 38°C)
- 7530 psi (519 bar) max ΔP ATC with positioner and 45 psig (3,1 bar) supply
- 5875 psi (405 bar) max ΔP ATO with positioner and 45 psig (3,1 bar) supply

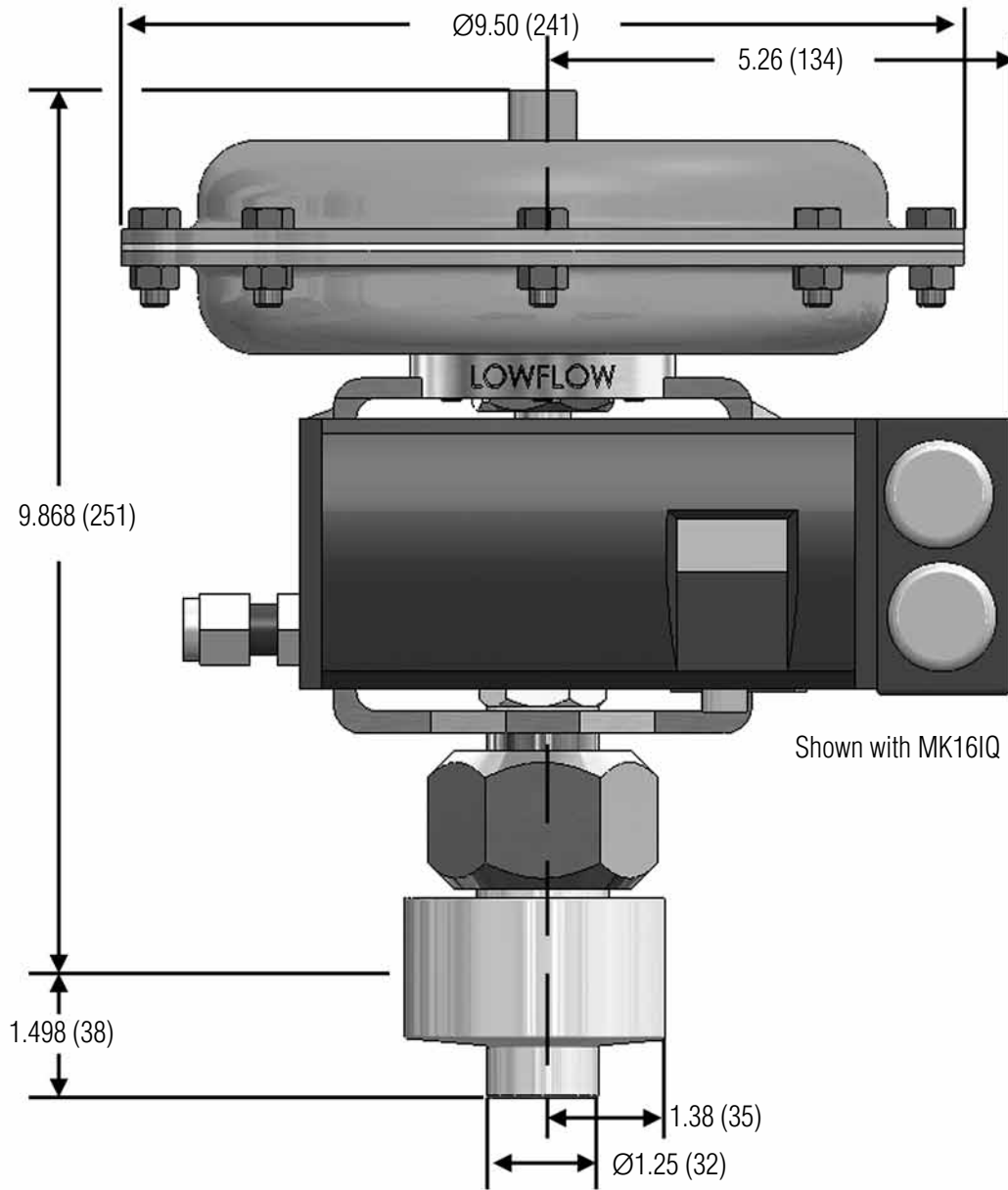
**Maximum Operating Temperature:**

- 2680 psi (185 bar) max inlet @ 850°F (454°C) with Graphite/Graphoil packing
- 6580 psig (454 bar) max inlet @ 450°F (232°C) with TFE packing
- Standard – Cv's 0.05 and greater: ANSI Class III (Class IV optional); Cv's 0.02 and lower: ANSI Class VI
- Optional – Cv's 0.05 and greater: ANSI Class VI (with PEEK seats)

**MK708HPA SERIES BODY/BONNET CONNECTION**



**MK708HPA SERIES DIMENSIONS**



## MK708HPA 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 |
|-----------|------|------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|
|           |      |            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |

| MODEL  |          |
|--------|----------|
| 708HPA | Standard |

| SIZE |             |
|------|-------------|
| 050  | 1/2" (DN15) |

| BODY MATERIAL |                                |
|---------------|--------------------------------|
| SB            | Stainless Steel (316/316L) Bar |
| MN            | Monel Bar                      |
| A2            | Alloy 20 Bar                   |

| 1 & 2 END CONNECTIONS |                    |
|-----------------------|--------------------|
| PT                    | NPT                |
| SW                    | Socket Weld        |
| AC                    | Autoclave AE       |
| TN                    | Integral Tube Nuts |
| ZZ                    | Non-standard       |

| 3 & 4 TRIM |                   |
|------------|-------------------|
| T6         | Teflon Packing    |
| G6         | Graphite/Graphoil |
| ZZ         | Non-standard      |

| 5 & 6 PLUG SEAT |                              |   |      |
|-----------------|------------------------------|---|------|
|                 | Material of Stem/Plug/Seat   |   | Cv   |
| M               | 316/Stellite/Stell-Lin. Hard | L | 0.05 |
| N               | 316/Stellite/Stell =% Hard   | M | 0.10 |
|                 |                              | N | 0.20 |
|                 |                              | P | 0.50 |
|                 |                              | Q | 1.0  |
|                 |                              | W | 1.25 |
| ZZ              | Non-standard                 |   |      |

| 7 & 8 RANGE |              |          |     |
|-------------|--------------|----------|-----|
|             | Range        | Actuator |     |
| A           | Direct       | 3        | 35M |
| B           | Reverse      |          |     |
| ZZ          | Non-standard |          |     |

| 9 & 10 DIAPHRAGM |              |      |     |
|------------------|--------------|------|-----|
|                  | Material     | Size |     |
| B                | Buna-N       | 3    | 35M |
| ZZ               | Non-standard |      |     |

| 11 & 12 ACTUATOR |              |      |     |
|------------------|--------------|------|-----|
|                  | Type         | Size |     |
| S                | With SMP     | 3    | 35M |
| ZZ               | Non-standard |      |     |

| 13 & 14 ACCESSORIES |                                  |
|---------------------|----------------------------------|
| 00                  | None                             |
| AR                  | Air Regulator                    |
| S2                  | 3-way Solenoid Energize to Open  |
| S3                  | 3-way Solenoid Energize to Close |
| ZZ                  | Non-standard                     |

| 15 ACTION |              |
|-----------|--------------|
| D         | Air-to-close |
| R         | Air-to-open  |

| 16 I/P |      |
|--------|------|
| 0      | None |

| 17 SMP |                           |
|--------|---------------------------|
| 0      | None                      |
| A      | MK16 SMP Dir/Rev 3-15     |
| B      | MK16 SMP Dir/Rev 3-9      |
| C      | MK16 SMP Dir/Rev 9-15     |
| D      | MK16 SMP/IP Dir/Rev 4-20  |
| E      | MK16 SMP/IP Dir/Rev 4-12  |
| F      | MK16 SMP/IP Dir/Rev 12-20 |
| G      | MK 16IQ-S Dir/Rev 4-20    |
| H      | MK16IQ-B Dir/Rev 4-20     |
| J      | MK16IQ-FF Dir/Rev 4-20    |
| Z      | Non-standard              |