

709 Series Three-Way Valves

Fractional Flow Control Valves

CRN Registration Number Available

FRACTIONAL FLOW CONTROL VALVES

The Mark 709 is a lightweight control valve for use as a mixing valve in low flow process applications. Featuring a three-way body design, it is constructed with two inlets to blend two separate flow streams into a common outlet, creating a third fluid.

Features:

- For low flow process applications requiring a three way body for mixing two separate flow sources into one common line
- Compact, lightweight design for precise control in pilot plants, R & D facilities, and low flow process applications
- With multiple spring actuators in a choice of sizes for differential pressures up to 1460 psi (100 bar)

SPECIFICATIONS

Sizes: 1/2" & 3/4" (DN15 & DN20)

End Connections

- Threaded – NPT
- Others upon request

Actuator

- 1/2" (DN15) – standard: 14M (14in²) multi-spring
- 3/4" (DN20) – 1/2" (DN15) – standard: 14M (14in²) multi-spring; optional: 35M (35in²) multi-spring

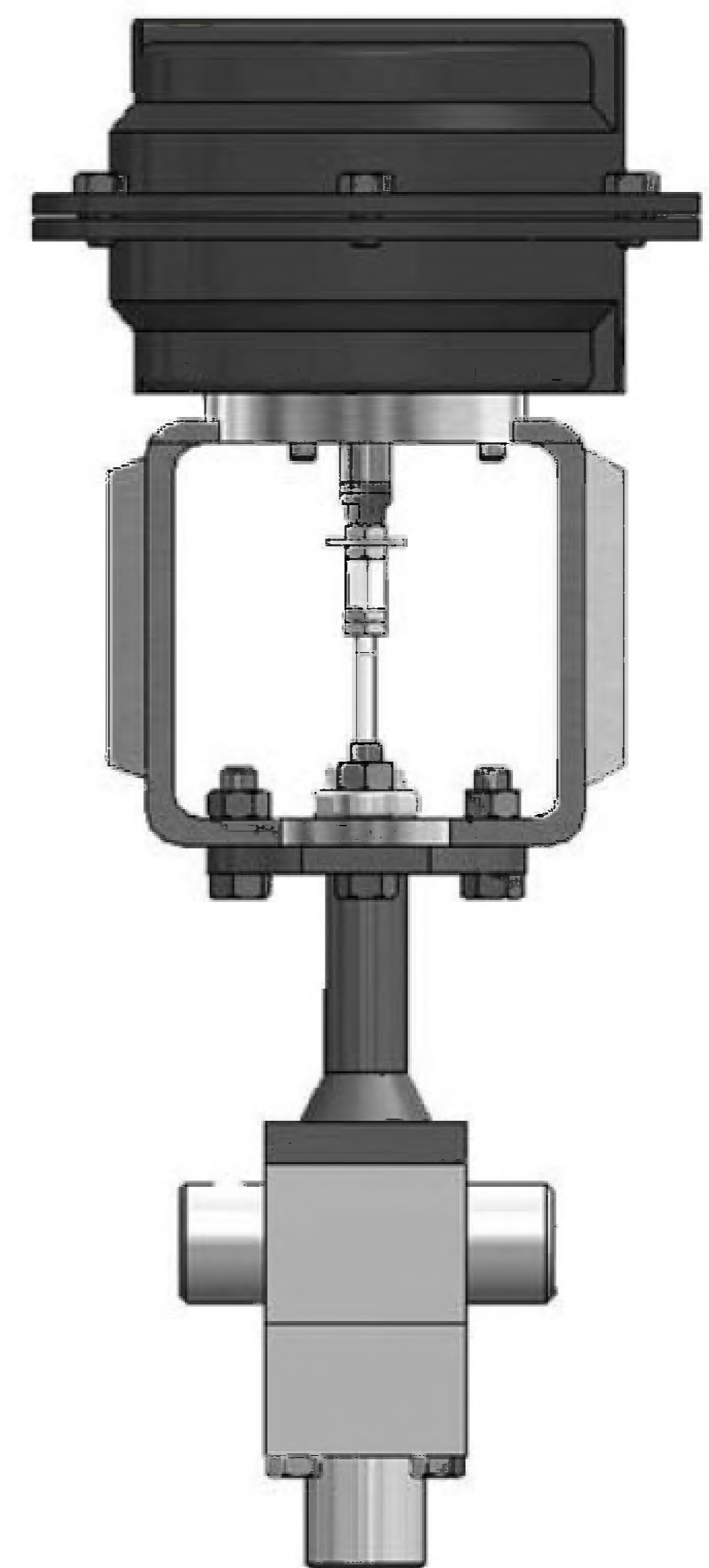
Body/Bonnet Materials

- Carbon Steel
- Stainless Steel
- Hastelloy C
- Hastelloy B
- Alloy 20
- Monel
- Titanium



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MK709 SERIES THREE WAY SPECIFICATIONS (CON'T)

Trim Material

- Standard trim – 316SS stem, plug & seat

Actuator Material: Aluminum

Diaphragm Material:

- 14M Actuator: Nylon/Nitrile
- Optional 35M Actuator: Buna-N fabric reinforced (3/4" only)

Stem Packing Material: PTFE

Bonnet/Body Seal Material: PTFE

Service: Air, gas, chemicals, oil, water

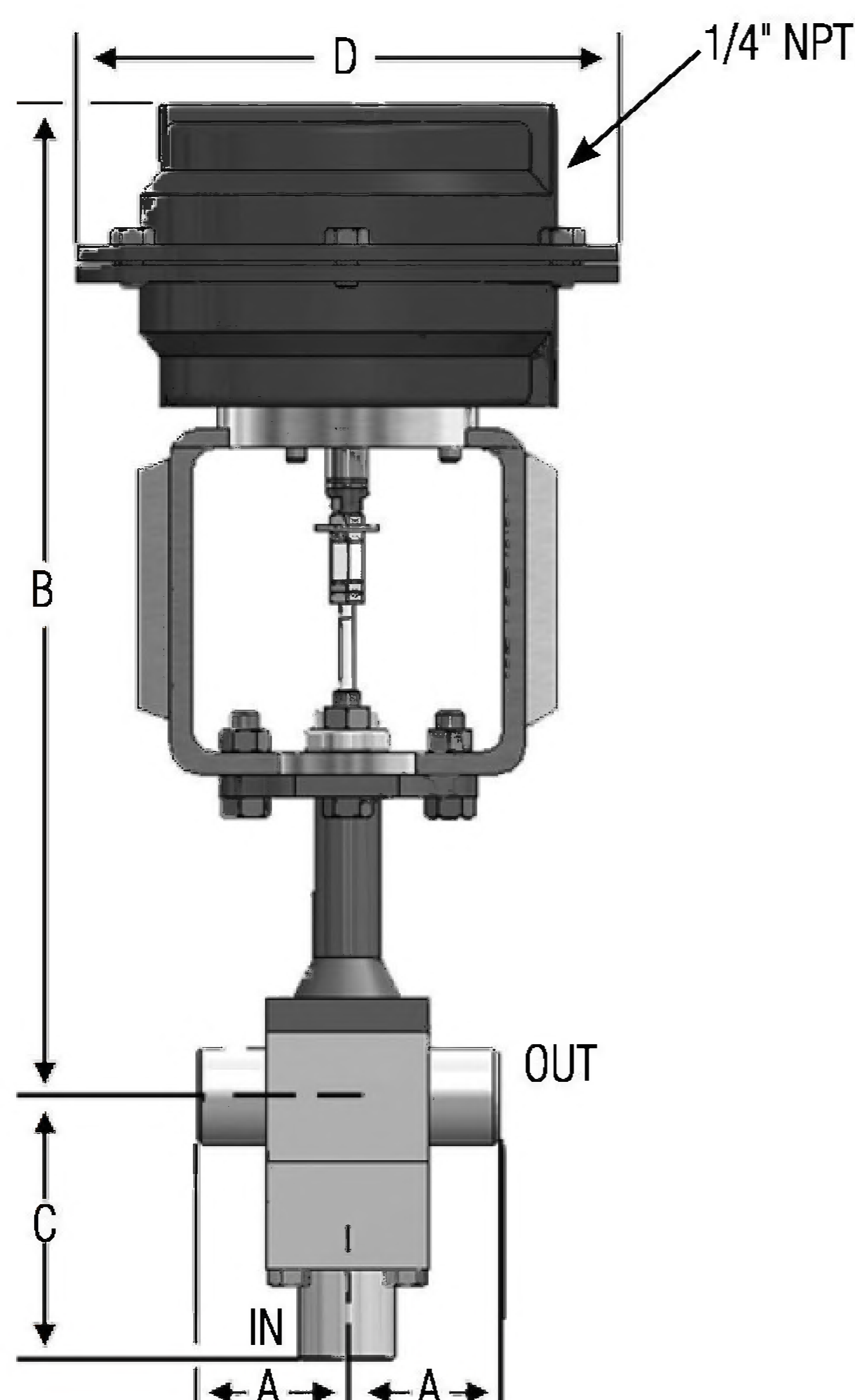
Shutoff

- Standard – ANSI Class IV

Ranges: 3-15 (0,2-1,0) or 6-30 (0,4-2,1) psi (bar)

Valve Action

- Direct (ATC)
- Reverse (ATO)



Flow Characteristics:

- Linear/linear
- Equal percentage/equal percentage
- Others upon request

Cv (Kv) Selection

| | | | | |
|-------------|-----------|-----------|-----------|-----------|
| 1/2" (DN15) | 2.0 (1,7) | 1.5 (1,3) | 1.25(1,1) | |
| 3/4" (DN20) | 4.0 (3,4) | 3.5 (3,0) | 3.0 (2,6) | 2.5 (2,2) |

Maximum Allowable ΔP Ratings

| Cv (Kv) | ATO 3-15 | ATO 6-30 | ATC3-15 @ 20 psi (1,4bar) | ATC 6-30 @ 40 psi (2,8 bar) |
|----------------------|----------|----------|---------------------------|-----------------------------|
| 14M Actuator | | | | |
| 2.5 - 4.0 (2,2-3,4) | 264 (18) | 532 (37) | 432 (30) | 864 (60) |
| 1.25 - 2.0 (1,1-1,7) | 400 (28) | 800 (55) | 650 (45) | 1300 (90) |
| 35M Actuator | | | | |
| 2.5 - 4.0 (2,2-3,4) | 440 (30) | 880 (61) | 707 (49) | 1460 (101) |

Pressure/Temperature Rating (PSI/BAR)

| Temp °F (°C) | 1/2" (DN15) | | 3/4" (DN20) | |
|--------------|-------------|------------|-------------|------------|
| | CS | SS | CS | SS |
| 100 (38) | 5000 (345) | 5000 (345) | 4000 (276) | 4000 (276) |
| 200 (93) | 4299 (296) | 4555 (314) | 3439 (237) | 3644 (251) |
| 300 (149) | 3882 (268) | 4426 (305) | 3106 (214) | 3541 (244) |
| 400 (204) | 3569 (246) | 4278 (295) | 2855 (197) | 3422 (236) |
| 500 (260) | 3319 (229) | 4042 (279) | 2655 (183) | 3234 (223) |

• **Mark 709 Series Three-Way Ends**

| VALVE SIZE | ACTUATOR | DIMENSIONS, INCHES | | | | WEIGHT LBS |
|------------|----------|--------------------|------|-----|-----|------------|
| | | A | B | C | D | |
| 1/2" | 14M | 1.8 | 11.6 | 2.7 | 6.3 | 9.5 |
| 3/4" | 14M | 2.2 | 12.0 | 3.3 | 6.3 | 11.5 |
| | 35M | 2.2 | 13.8 | 3.3 | 9.5 | 20.5 |

• **Mark 709 Series Three-Way Ends, Metric**

| VALVE SIZE | ACTUATOR | DIMENSIONS, MM | | | | WEIGHT KGS |
|------------|----------|----------------|-----|----|-----|------------|
| | | A | B | C | D | |
| DN15 | 14M | 46 | 295 | 69 | 160 | 4,3 |
| DN20 | 14M | 56 | 305 | 84 | 160 | 5,2 |
| DN20 | 35M | 56 | 351 | 84 | 241 | 9,3 |