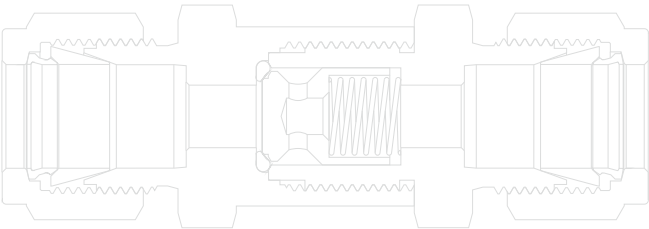
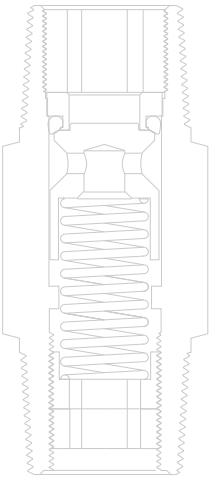


Check Valves



Climate Control
Electromechanical
Filtration
Fluid & Gas Handling
Hydraulics
Process Control
Sealing & Shielding



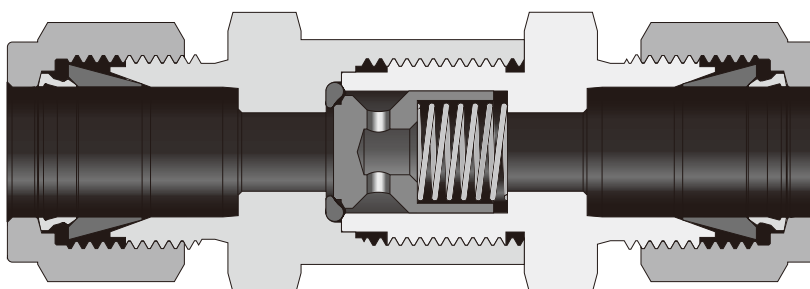
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Check Valves

| | |
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| CV Series | 1 |
| CH Series | 6 |
| CO and COA Series | 11 |

Check Valves

51 Series



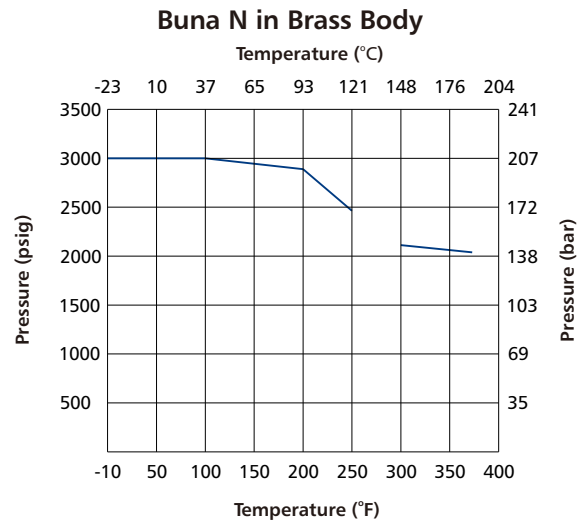
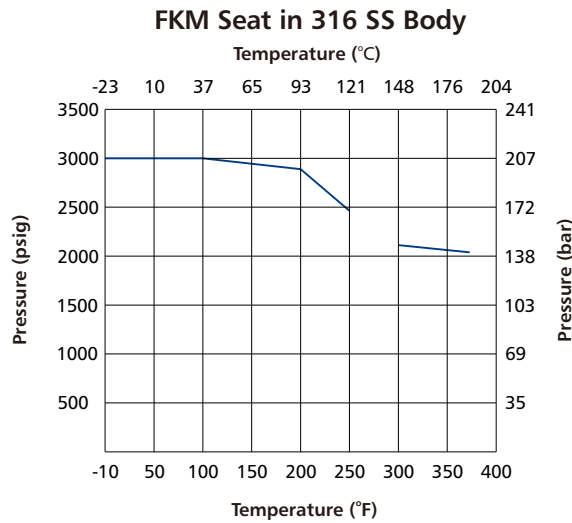
Features

- Resilient O-ring seat design for noise-free closing leakage-free
- Maximum working pressure: 3000 psig (207 bar)
- Working temperature: -10°F to 375°F (-23°C to 190°C)
- Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- Variety of end connections and materials available
- Suitable for sour gas service; materials are selected in accordance with NACE MR0175/ISO 15156.
- Every valve is 100% factory tested with nitrogen for leak-tight performance at its maximum working pressure.

Cracking Pressure and Resealing Pressure

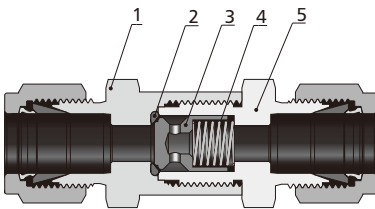
| Series | Nominal Cracking Pressure psig (bar) | Cracking Pressure Range psig (bar) | Resealing Pressure Range psig (bar) |
|--------|---|--|--|
| 51 | 1/3 (0.02) 1 (0.06) 10 (0.68) 25 (1.7) | 0 to 3 (0 to 0.21) 0 to 4 (0 to 0.28) 7 to 15 (0.49 to 1.1) 20 to 30 (1.4 to 2.1) | Up to 6 (0.42) downstream pressure Up to 6 (0.42) downstream pressure 3 (0.21) or higher upstream pressure 17 (1.2) or higher upstream pressure |

Pressure vs. Temperature



Standard Materials of Construction

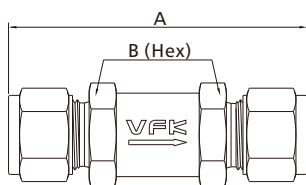
51 Series



| Component | Valve Material Grade/ASTM Specification | |
|---------------|---|---------------|
| | 316 SS | Brass |
| 1 Inlet Body | 316 SS/A479 | Brass 360/B16 |
| 2 O-ring | Fluorocarbon FKM | Buna N |
| 3 Poppet | 316 SS/A479 | Brass 360/B16 |
| 4 Spring | 302 SS/A313 | 302 SS/A313 |
| 5 Outlet Body | 316 SS/A479 | Brass 360/B16 |

Dimensions

51 Series



| Basic Ordering Number | Connection Type and Size | | CV | Dimension, in. (mm) | |
|-----------------------|--------------------------|----------------|------|---------------------|----------------|
| | Inlet | Outlet | | A | B |
| □□51-FX2 | 1/8" VFK | 1/8" VFK | 0.16 | 2.14 (54.3) | 5/8 (15.88) |
| □□51-FX4 | 1/4" VFK | 1/4" VFK | 0.47 | 2.35 (59.7) | |
| □□51-FX6 | 3/8" VFK | 3/8" VFK | 1.47 | 3.17 (80.5) | 7/8 (22.23) |
| □□51-FX8 | 1/2" VFK | 1/2" VFK | 1.68 | 3.42 (86.9) | |
| □□51-FX12 | 3/4" VFK | 3/4" VFK | 4.48 | 4.32 (110) | 1 1/4 (31.75) |
| □□51-FX16 | 1" VFK | 1" VFK | | 4.74 (120) | 1 3/8 (34.93) |
| □□51-MX6 | 6 mm VFK | 6 mm VFK | 0.47 | 2.36 (59.9) | 5/8 (15.88) |
| □□51-MX10 | 10 mm VFK | 10 mm VFK | 1.68 | 3.32 (84.3) | 7/8 (22.23) |
| □□51-MX12 | 12 mm VFK | 12 mm VFK | | 3.42 (86.9) | |
| □□51-FN2 | 1/8 Female NPT | 1/8 Female NPT | 0.16 | 1.89 (48.0) | 5/8 (15.88) |
| □□51-FN4 | 1/4 Female NPT | 1/4 Female NPT | 0.47 | 2.15 (54.6) | 3/4 (19.05) |
| □□51-FN6 | 3/8 Female NPT | 3/8 Female NPT | 1.47 | 2.98 (75.7) | 7/8 (22.23) |
| □□51-FN8 | 1/2 Female NPT | 1/2 Female NPT | 1.68 | 3.58 (90.9) | 1 1/16 (26.99) |
| □□51-FN12 | 3/4 Female NPT | 3/4 Female NPT | 4.48 | 4.08 (104) | 1 1/4 (31.75) |
| □□51-FN16 | 1 Female NPT | 1 Female NPT | | 4.84 (123) | 1 5/8 (41.28) |
| □□51-N2 | 1/8 Male NPT | 1/8 Male NPT | 0.16 | 1.71 (43.4) | 5/8 (15.88) |
| □□51-N4 | 1/4 Male NPT | 1/4 Male NPT | 0.47 | 2.09 (53.1) | |
| □□51-N6 | 3/8 Male NPT | 3/8 Male NPT | 1.47 | 2.78 (70.6) | 7/8 (22.23) |
| □□51-N8 | 1/2 Male NPT | 1/2 Male NPT | 1.68 | 3.16 (80.3) | |
| □□51-N12 | 3/4 Male NPT | 3/4 Male NPT | 4.48 | 4.08 (104) | 1 1/4 (31.75) |
| □□51-N16 | 1 Male NPT | 1 Male NPT | | 4.52 (115) | 1 5/8 (41.28) |

Flow Data at 70°F (20°C)

51 Series

| Air Flow (std L/min) | Cracking Pressure (psig) | | | | | |
|-------------------------|--------------------------|----|-----|-----------|-----|-----|
| | 1 | 10 | 25 | 1 | 10 | 25 |
| | Cv = 0.16 | | | Cv = 0.16 | | |
| Inlet Pressure (psig) | | | | | | |
| 5 | 10 | -- | -- | 114 | -- | -- |
| 10 | 29 | -- | -- | 157 | 36 | -- |
| 12.5 | 38 | 11 | -- | 176 | 150 | -- |
| 15 | 48 | 23 | -- | 196 | 170 | -- |
| 25 | 72 | 62 | 2 | 253 | -- | 18 |
| 30 | 78 | -- | 17 | 279 | -- | 146 |
| 35 | 85 | -- | 34 | 309 | -- | 330 |
| 50 | 103 | -- | 77 | 402 | -- | -- |
| 80 | 144 | -- | 136 | 580 | -- | -- |
| 100 | 171 | -- | 160 | 700 | -- | -- |

| Water Flow (L/min) | Cracking Pressure (psig) | | | | | |
|-----------------------|--------------------------|-----|-----|-----------|-----|-----|
| | 1 | 10 | 25 | 1 | 10 | 25 |
| | Cv = 0.16 | | | Cv = 0.16 | | |
| Pressure Drop (psig) | | | | | | |
| 5 | 0.3 | -- | -- | 2.1 | -- | -- |
| 10 | 1.2 | -- | -- | 6.1 | -- | -- |
| 12.5 | 1.4 | 0.3 | -- | 6.5 | 6.5 | -- |
| 15 | 1.6 | 0.7 | -- | 6.9 | 6.9 | -- |
| 20 | 1.9 | 1.2 | -- | 7.8 | 7.8 | -- |
| 27.5 | 2.3 | 1.7 | 0.2 | -- | -- | 1.2 |
| 35 | 2.6 | 2.3 | 0.9 | -- | -- | 5.0 |
| 40 | 2.8 | 2.4 | 1.3 | -- | -- | 7.5 |
| 70 | 3.6 | 3.5 | 3.3 | -- | -- | -- |
| 80 | 3.8 | 3.8 | 3.8 | -- | -- | -- |

| Air Flow (std L/min) | Cracking Pressure (psig) | | | | | |
|-------------------------|--------------------------|------|------|-----------|------|------|
| | 1 | 10 | 25 | 1 | 10 | 25 |
| | Cv = 1.47 | | | Cv = 1.68 | | |
| Inlet Pressure (psig) | | | | | | |
| 5 | 325 | -- | -- | 460 | -- | -- |
| 10 | 623 | -- | -- | 747 | -- | -- |
| 15 | 832 | 377 | -- | 916 | 475 | -- |
| 25 | 1146 | 800 | 32 | 1255 | 939 | 40 |
| 35 | 1440 | 1150 | 509 | 1594 | 1347 | 654 |
| 50 | 1879 | 1686 | 1072 | 2101 | 1960 | 1230 |
| 80 | 2761 | 2756 | 2087 | -- | -- | 2400 |
| 100 | -- | -- | 2763 | -- | -- | -- |

| Water Flow (L/min) | Cracking Pressure (psig) | | | | | |
|-----------------------|--------------------------|------|-----|-----------|------|------|
| | 1 | 10 | 25 | 1 | 10 | 25 |
| | Cv = 1.47 | | | Cv = 1.68 | | |
| Pressure Drop (psig) | | | | | | |
| 2.5 | 4.6 | -- | -- | 7.4 | -- | -- |
| 5 | 8.3 | -- | -- | 13.5 | -- | -- |
| 10 | 17.5 | -- | -- | 22.6 | -- | -- |
| 11 | -- | 3.3 | -- | -- | 6.8 | -- |
| 12.5 | -- | 7.7 | -- | -- | 12.9 | -- |
| 15 | -- | 13.1 | -- | -- | 20.0 | -- |
| 20 | -- | 20.0 | -- | -- | -- | -- |
| 27.5 | -- | -- | 2.2 | -- | -- | 7.3 |
| 30 | -- | -- | 4.4 | -- | -- | 12 |
| 35 | -- | -- | 8.8 | -- | -- | 19.5 |

| Air Flow (std L/min) | Cracking Pressure (psig) | | |
|-------------------------|--------------------------|------|------|
| | 1 | 10 | 25 |
| | Cv = 4.48 | | |
| Inlet Pressure (psig) | | | |
| 5 | 468 | -- | -- |
| 10 | 975 | -- | -- |
| 15 | 1208 | 491 | -- |
| 20 | 1435 | 945 | -- |
| 25 | 1658 | 1232 | -- |
| 35 | 2122 | 1826 | 1059 |
| 50 | 2800 | 2678 | 1905 |
| 60 | -- | -- | 2454 |

| Water Flow (L/min) | Cracking Pressure (psig) | | |
|-----------------------|--------------------------|------|----|
| | 1 | 10 | 25 |
| | Cv = 4.48 | | |
| Pressure Drop (psig) | | | |
| 2.5 | 29.5 | -- | -- |
| 5 | 45.0 | -- | -- |
| 10 | 59.3 | -- | -- |
| 12.5 | 65.8 | 65.8 | -- |
| 15 | 72.3 | 72.3 | -- |
| 20 | 85.4 | 85.4 | -- |
| 25.5 | -- | -- | 22 |
| 26 | -- | -- | 48 |
| 27 | -- | -- | 90 |

51 Series How to Order

| A | B | C | D | E | F | G | H |
|---------------|--------------|------------|------------|-------------|-------------|---------------|-------------|
| Body Material | Valve Series | Inlet Type | Inlet Size | Outlet Type | Outlet Size | Seal Material | NACE MR0175 |
| SS | 5103 | FN | 8 | MTS | 10 | B | SG |

| A | Body Material |
|------|---------------|
| SS: | 316 SS |
| 6L: | 316L SS |
| S4: | 304 SS |
| 4L: | 304L SS |
| TI: | Titanium |
| A20: | Alloy 20 |
| M: | Alloy 400 |
| INC: | Alloy 600 |
| HC: | Alloy C-276 |
| B: | Brass |

| B | Valve Series |
|-------|----------------------------|
| 5113: | 1/3 psig cracking pressure |
| 5101: | 1 psig cracking pressure |
| 5103: | 3 psig cracking pressure |
| 5110: | 10 psig cracking pressure |
| 5125: | 25 psig cracking pressure |

| CE | Inlet/Outlet Type |
|----|-------------------------|
| FN | Female NPT |
| N | Male NPT |
| FR | Female BSPT |
| RT | Male BSPT |
| FM | Female ISO (for MRP) |
| MS | Male ISO (for MRG) |
| FP | Female BSPP (for RP) |
| BP | Male BSPP (for RG) |
| FX | Fractional Tube Fitting |
| MX | Metric Tube Fitting |

| DF | Inlet/Outlet Size |
|----|------------------------------|
| 2 | 1/8" |
| 4 | 1/4" |
| 6 | 3/8" or 6 mm |
| 8 | 1/2" or 8 mm |
| 10 | 10 mm |
| 12 | 3/4" or 12 mm |
| 14 | 14 mm or M14 x 1.5 |
| 16 | 1" or 16 mm |
| 18 | 18 mm |
| 20 | 1 1/4" or 20 mm or M20 x 1.5 |
| 22 | 22 mm or M22 x 1.5 |
| 24 | M24 x 1.5 |
| 25 | 25 mm |

| G | Seal Material |
|-------------------------------------|--------------------|
| Standard with FKM Fluorocarb | |
| B | Buna N |
| N | Neoprene |
| E | Ethylene Propylene |
| Z | Kalrez |

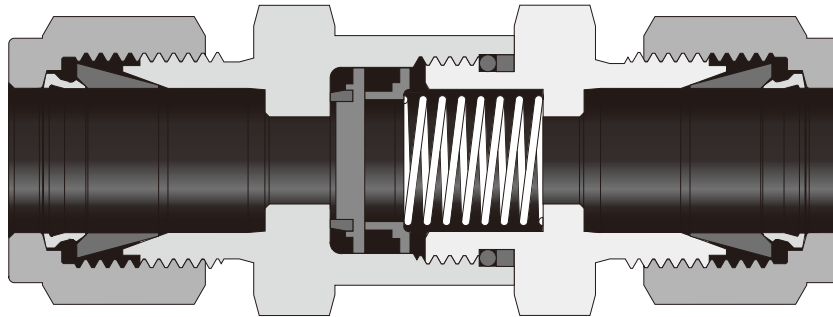
| H | NACE MR0175 |
|---|------------------|
| Standard with no NACE applicable | |
| SG | With NACE MR0175 |

Remark:

- Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M24: 1.5 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.

Check Valves

52 Series



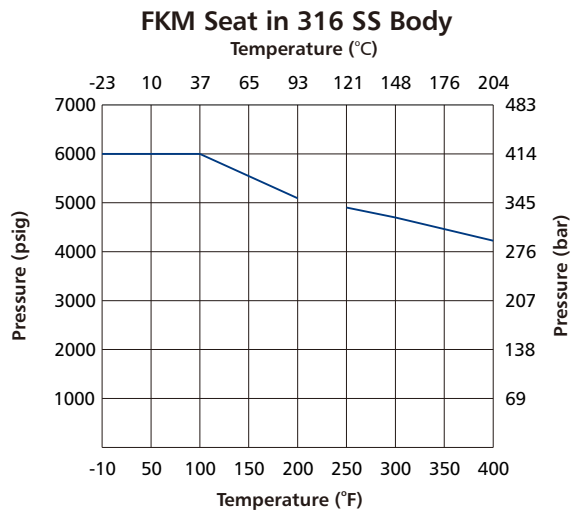
Features

- Seat ring continuously cleaned by media, avoiding secondary pollution
- Maximum working pressure: 6000 psig (414 bar)
- Working temperature: -10°F to 400°F (-23°C to 204°C)
- Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- Variety of end connections and materials available
- Suitable for sour gas service; materials are selected in accordance with NACE MR0175/ISO 15156.
- Every valve is 100% factory tested with nitrogen for leak-tight performance at its maximum working pressure.

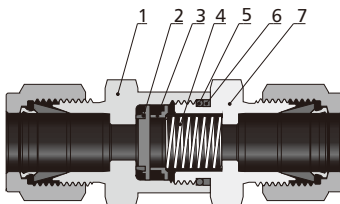
Cracking Pressure and Resealing Pressure

| Series | Nominal Cracking Pressure psig (bar) | Cracking Pressure Range psig (bar) | Resealing Pressure Range psig (bar) |
|--------|---|---------------------------------------|--|
| 52 | 1/3 (0.02) | 0 to 3 (0 to 0.21) | Up to 6 (0.42) back pressure |
| | 1 (0.06) | 0 to 4 (0 to 0.28) | Up to 5 (0.35) back pressure |
| | 5 (0.35) | 3 to 9 (0.21 to 0.63) | Up to 2 (0.14) back pressure |
| | 10 (0.68) | 7 to 15 (0.49 to 1.1) | 3 (0.21) or higher upstream pressure |
| | 25 (1.7) | 20 to 30 (1.4 to 2.1) | 17 (1.2) or higher upstream pressure |

Pressure vs. Temperature



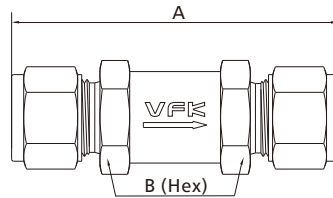
52 Series



| Component | Valve Material Grade/ASTM Specification |
|---------------|---|
| 1 Inlet Body | 316 SS/A479 |
| 2 Poppet | Fluorocarbon FKM - bonded 316 SS/A479 |
| 3 Poppet Stop | 316 SS/A240 |
| 4 Spring | 302 SS/A313 |
| 5 O-ring | Fluorocarbon FKM |
| 6 Backup Ring | PTFE/D1710 |
| 7 Outlet Body | 316 SS/A479 |

Dimensions

CH Series



| Basic Ordering Number | Connection Type and Size | | Pressure Rating at 100° F (37° C) psig (bar) | Cv | Dimension, in. (mm) | |
|-----------------------|--------------------------|-----------------|---|------|---------------------|----------------|
| | Inlet | Outlet | | | A | B |
| □□52-FX2 | 1/8" VFK | 1/8" VFK | 6000 (414) | 0.67 | 2.27 (57.7) | 11/16 (17.46) |
| □□52-FX4 | 1/4" VFK | 1/4" VFK | | | 2.43 (61.7) | |
| □□52-FX6 | 3/8" VFK | 3/8" VFK | | 1.8 | 2.75 (69.9) | 1 (25.4) |
| □□52-FX8 | 1/2" VFK | 1/2" VFK | | | 2.96 (75.2) | |
| □□52-FX12 | 3/4" VFK | 3/4" VFK | 5000 (344) | 4.7 | 3.52 (89.4) | 1 5/8 (41.28) |
| □□52-FX16 | 1" VFK | 1" VFK | 4700 (323) | | 3.88 (98.6) | |
| □□52-MX6 | 6 mm VFK | 6 mm VFK | 6000 (414) | 0.67 | 2.43 (61.7) | 11/16 (17.46) |
| □□52-MX8 | 8 mm VFK | 8 mm VFK | | | 2.70 (68.6) | |
| □□52-MX10 | 10 mm VFK | 10 mm VFK | | 1.8 | 2.80 (71.1) | 1 (25.4) |
| □□52-MX12 | 12 mm VFK | 12 mm VFK | | | 2.96 (75.2) | |
| □□52-MX22 | 22 mm VFK | 22 mm VFK | 5000 (344) | 4.7 | 3.48 (88.4) | 1 5/8 (41.28) |
| □□52-MX25 | 25 mm VFK | 25 mm VFK | | | 3.88 (98.6) | |
| □□52-FN4 | 1/4 Female NPT | 1/4 Female NPT | 6000 (414) | 0.67 | 2.13 (54.1) | 11/16 (17.46) |
| □□52-FN6 | 3/8 Female NPT | 3/8 Female NPT | 5000 (344) | 1.8 | 2.55 (64.8) | 1 (25.4) |
| □□52-FN8 | 1/2 Female NPT | 1/2 Female NPT | 4600 (316) | | 3.03 (77.0) | 1 1/16 (26.99) |
| □□52-FN12 | 3/4 Female NPT | 3/4 Female NPT | 4300 (296) | 4.7 | 3.23 (82.0) | 1 5/8 (41.28) |
| □□52-FN16 | 1 Female NPT | 1 Female NPT | 4100 (282) | | 3.83 (97.3) | |
| □□52-N2 | 1/8 Male NPT | 1/8 Male NPT | 6000 (414) | 0.67 | 1.79 (45.4) | 11/16 (17.46) |
| □□52-N4 | 1/4 Male NPT | 1/4 Male NPT | | | 2.17 (55.1) | |
| □□52-N6 | 3/8 Male NPT | 3/8 Male NPT | | 1.8 | 2.36 (59.9) | 1 (25.4) |
| □□52-N8 | 1/2 Male NPT | 1/2 Male NPT | | | 2.73 (69.3) | |
| □□52-N12 | 3/4 Male NPT | 3/4 Male NPT | 5000 (344) | 4.7 | 3.29 (83.6) | 1 5/8 (41.28) |
| □□52-N16 | 1 Male NPT | 1 Male NPT | | | 3.67 (93.2) | |
| □□52-FR4 | 1/4 Female BSPT | 1/4 Female BSPT | 6000 (414) | 0.67 | 2.28 (57.9) | 11/16 (17.46) |
| □□52-FR8 | 1/2 Female BSPT | 1/2 Female BSPT | 4600 (316) | 1.8 | 3.29 (83.6) | 1 1/16 (26.99) |
| □□52-FR12 | 3/4 Female BSPT | 3/4 Female BSPT | 4300 (296) | 4.7 | 3.55 (90.2) | 1 5/8 (41.28) |
| □□52-R16 | 1 Female BSPT | 1 Female BSPT | 4100 (282) | | 3.83 (97.3) | |
| □□52-R4 | 1/4 Male BSPT | 1/4 Male BSPT | 6000 (414) | 0.67 | 2.17 (55.1) | 11/16 (17.46) |
| □□52-R8 | 1/2 Male BSPT | 1/2 Male BSPT | | 1.8 | 2.73 (69.3) | 1 (25.4) |
| □□52-R12 | 3/4 Male BSPT | 3/4 Male BSPT | 5000 (344) | 4.7 | 3.35 (85.1) | 1 5/8 (41.28) |
| □□52-R16 | 1 Male BSPT | 1 Male BSPT | | | 3.67 (93.2) | |

Flow Data at 70°F (20°C)

| Air Flow (std L/min) Inlet Pressure (psig) | Cracking Pressure (psig) | | |
|--|--------------------------|------|------|
| | 1 | 10 | 25 |
| | Cv = 0.67 | | |
| 5 | 8 | -- | -- |
| 10 | 80 | -- | -- |
| 25 | 160 | 200 | -- |
| 40 | 180 | 200 | -- |
| 60 | 600 | 390 | 180 |
| 80 | 900 | 880 | 640 |
| 95 | 1200 | 1060 | 830 |
| 110 | -- | 1240 | 1020 |
| 128 | -- | 1400 | 1200 |
| 140 | -- | -- | 1340 |

| Water Flow (L/min) Pressure Drop (psig) | Cracking Pressure (psig) | | |
|---|--------------------------|-----|-----|
| | 1 | 10 | 25 |
| | Cv = 0.67 | | |
| 1 | 0.2 | -- | -- |
| 6 | 1.9 | -- | -- |
| 10 | 5.7 | -- | -- |
| 12 | 7.5 | 0.2 | -- |
| 20 | -- | 1.4 | -- |
| 26 | -- | 2.9 | -- |
| 36 | -- | 7.5 | 0.9 |
| 50 | -- | -- | 3.4 |
| 60 | -- | -- | 5.6 |
| 68 | -- | -- | 7.5 |

| Air Flow (std L/min) Inlet Pressure (psig) | Cracking Pressure (psig) | | |
|--|--------------------------|------|------|
| | 1 | 10 | 25 |
| | Cv = 1.8 | | |
| 2 | -- | -- | -- |
| 10 | 620 | -- | -- |
| 25 | 1140 | 520 | -- |
| 30 | 1320 | 720 | 190 |
| 40 | 1620 | 1130 | 590 |
| 50 | 1940 | 1520 | 1000 |
| 60 | 2250 | 1900 | 1400 |
| 78 | 2800 | 2520 | 2080 |
| 86 | -- | 2800 | 2430 |
| 97 | -- | -- | 2800 |

| Water Flow (L/min) Pressure Drop (psig) | Cracking Pressure (psig) | | |
|---|--------------------------|------|------|
| | 1 | 10 | 25 |
| | Cv = 1.8 | | |
| 1.5 | -- | -- | -- |
| 5.0 | 14.4 | -- | -- |
| 7.5 | 20.4 | -- | -- |
| 10.0 | 22.5 | -- | -- |
| 15 | -- | 2.0 | -- |
| 20 | -- | 7.0 | -- |
| 22 | -- | 22.5 | -- |
| 30 | -- | -- | 0.7 |
| 40 | -- | -- | 2.6 |
| 45 | -- | -- | 22.5 |

| Air Flow (std L/min) Inlet Pressure (psig) | Cracking Pressure (psig) | | |
|--|--------------------------|------|------|
| | 1 | 10 | 25 |
| | Cv = 1.8 | | |
| 5 | 520 | -- | -- |
| 10 | 940 | -- | -- |
| 15 | 1240 | 540 | -- |
| 20 | 1560 | 880 | -- |
| 25 | 1620 | 1100 | -- |
| 30 | 1800 | 1325 | 420 |
| 35 | 2080 | 1520 | 720 |
| 40 | 2800 | 1760 | 980 |
| 50 | 2280 | 2240 | 1800 |
| 60 | 2560 | 2650 | 2280 |

| Water Flow (L/min) Pressure Drop (psig) | Cracking Pressure (psig) | | |
|---|--------------------------|----|----|
| | 1 | 10 | 25 |
| | Cv = 1.8 | | |
| 2.5 | 32 | -- | -- |
| 5.0 | 48 | -- | -- |
| 7.5 | 58 | -- | -- |
| 10.0 | 68 | -- | -- |
| 11.0 | 75 | 10 | -- |
| 12.0 | 86 | 75 | -- |
| 30.0 | -- | -- | 8 |
| 32.5 | -- | -- | 13 |
| 35.0 | -- | -- | 21 |
| 38.0 | -- | -- | 86 |

52 Series How to Order

| A | B | C | D | E | F | G | H |
|---------------|--------------|------------|------------|-------------|-------------|---------------|-------------|
| Body Material | Valve Series | Inlet Type | Inlet Size | Outlet Type | Outlet Size | Seal Material | NACE MR0175 |
| SS | 5203 | FN | 8 | MTS | 10 | B | SG |

| A | Body Material |
|------|---------------|
| SS: | 316 SS |
| 6L: | 316L SS |
| S4: | 304 SS |
| 4L: | 304L SS |
| TI: | Titanium |
| A20: | Alloy 20 |
| M: | Alloy 400 |
| INC: | Alloy 600 |
| HC: | Alloy C-276 |
| B: | Brass |

| B | Valve Series |
|-------|----------------------------|
| 5213: | 1/3 psig cracking pressure |
| 5201: | 1 psig cracking pressure |
| 5203: | 3 psig cracking pressure |
| 5210: | 10 psig cracking pressure |
| 5225: | 25 psig cracking pressure |

| CE | Inlet/Outlet Type |
|----|-------------------------|
| FN | Female NPT |
| N | Male NPT |
| FR | Female BSPT |
| RT | Male BSPT |
| FM | Female ISO (for MRP) |
| MS | Male ISO (for MRG) |
| FP | Female BSPP (for RP) |
| BP | Male BSPP (for RG) |
| FX | Fractional Tube Fitting |
| MX | Metric Tube Fitting |

| DF | Inlet/Outlet Size |
|----|------------------------------|
| 2 | 1/8" |
| 4 | 1/4" |
| 6 | 3/8" or 6 mm |
| 8 | 1/2" or 8 mm |
| 10 | 10 mm |
| 12 | 3/4" or 12 mm |
| 14 | 14 mm or M14 x 1.5 |
| 16 | 1" or 16 mm |
| 18 | 18 mm |
| 20 | 1 1/4" or 20 mm or M20 x 1.5 |
| 22 | 22 mm or M22 x 1.5 |
| 24 | M24 x 1.5 |
| 25 | 25 mm |

| G | Seal Material |
|-------------------------------------|--------------------|
| Standard with FKM Fluorocarb | |
| B | Buna N |
| N | Neoprene |
| E | Ethylene Propylene |
| Z | Kalrez |

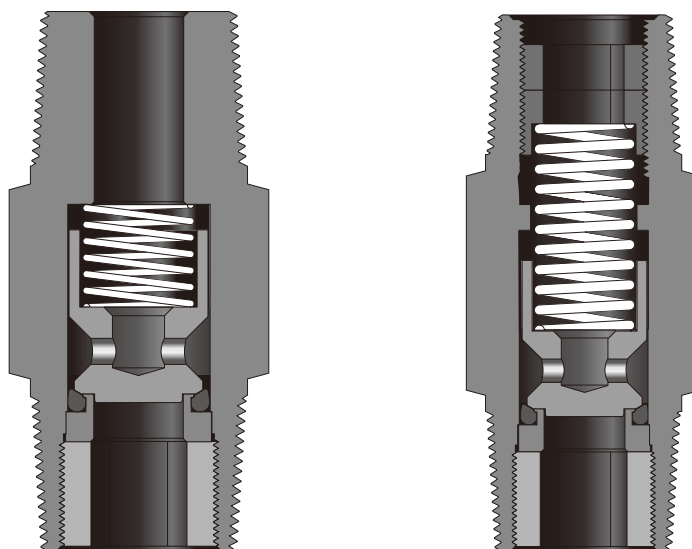
| H | NACE MR0175 |
|---|------------------|
| Standard with no NACE applicable | |
| SG | With NACE MR0175 |

Remark:

- Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M20: 1.5 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.

Check Valves

53 and 53A Series



Features

53 Series

- Compact, one piece body
- Maximum working pressure: 3000 psig (207 bar)
- Working temperature: -10°F to 375°F (-23°C to 190°C)
- Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- Variety of end connections and materials available
- Suitable for sour gas service; materials are selected in accordance with NACE MR0175/ISO 15156.
- Every valve is 100% factory tested with nitrogen for leak-tight performance at its maximum working pressure.

53A Series

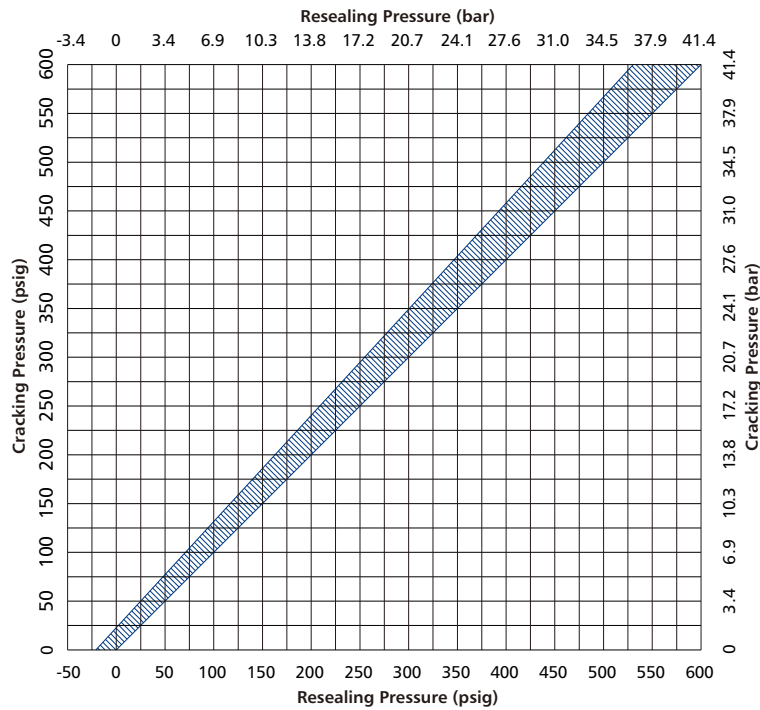
- Maximum working pressure: 3000 psig (207 bar)
- Working temperature: -10°F to 375°F (-23°C to 190°C)
- Cracking pressure: 3 to 600 psig (0.2 to 41.4 bar)
- Variety of end connections and materials available
- Suitable for sour gas service; materials are selected in accordance with NACE MR0175/ISO 15156.
- Every valve is 100% factory tested with nitrogen for leak-tight performance at its maximum working pressure.

Cracking Pressure and Resealing Pressure

| Series | Nominal Cracking Pressure psig (bar) | Cracking Pressure Range psig (bar) | Resealing Pressure Range psig (bar) |
|--------|--|--|--|
| 53 | 1/3 (0.02) 1 (0.06) 10 (0.68) 25 (1.7) | 0 to 3 (0 to 0.21) 0 to 4 (0 to 0.28) 7 to 15 (0.49 to 1.1) 20 to 30 (1.4 to 2.1) | 6 to 20 (0.42 to 1.4) downstream pressure 5 to 20 (0.35 to 1.4) downstream pressure 3 to 10 (0.21 to 0.68) downstream pressure 5 (0.35) or higher upstream pressure |
| 53A | 3 to 50 (0.21 to 3.4) 50 to 150 (3.4 to 10.3) 150 to 350 (10.3 to 24.1) 350 to 600 (24.1 to 41.3) | ————— | Refer to the chart below |

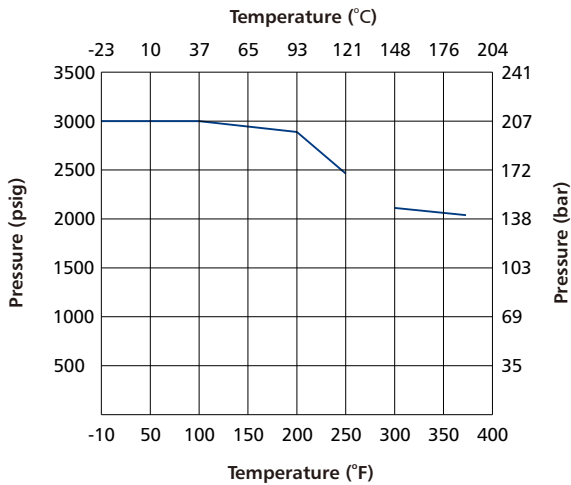
Cracking Pressure and Resealing Pressure

53 and 53A Series

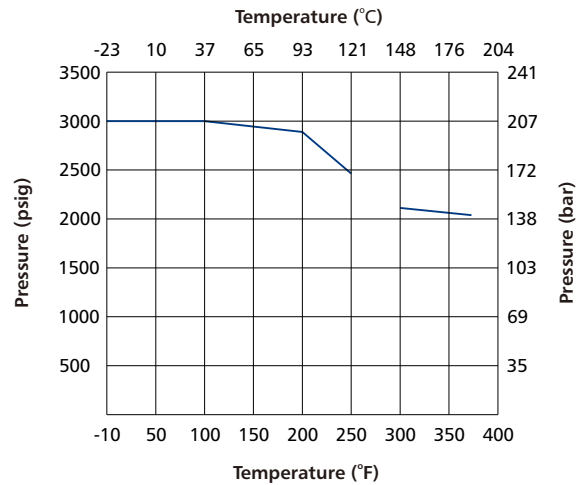


Pressure vs. Temperature

FKM Seat in 316 SS Body

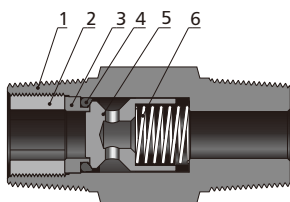


Buna N in Brass Body



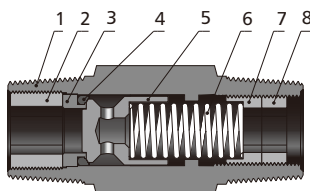
Standard Materials of Construction

53 Series



| Component | Valve Material Grade/ASTM Specification | |
|------------------------|---|---------------|
| | 316 SS | Brass |
| 1 Body | 316 SS/A479 | Brass 360/B16 |
| 2 Insert Locking Screw | 316 SS/A276 or A479 | Brass 360/B16 |
| 3 Insert | 316 SS/A479 | Brass 360/B16 |
| 4 O-ring | Fluorocarbon FKM | Buna N |
| 5 Poppet | 316 SS/A479 | Brass 360/B16 |
| 6 Spring | 302 SS/A313 | 302 SS/A313 |

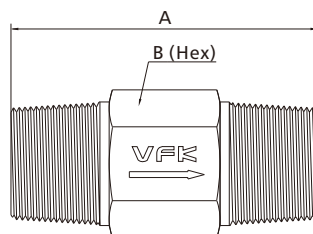
53A Series



| Component | Valve Material Grade/ASTM Specification | |
|------------------------|---|---------------|
| | 316 SS | Brass |
| 1 Body | 316 SS/A479 | Brass 360/B16 |
| 2 Insert Locking Screw | 316 SS/A479 | Brass 360/B16 |
| 3 Insert | 316 SS/A479 | Brass 360/B16 |
| 4 O-ring | Fluorocarbon FKM | Buna N |
| 5 Poppet | 316 SS/A479 | Brass 360/B16 |
| 6 Spring | 302 SS/A313 | 302 SS/A313 |
| 7 Adjusting Screw | 316 SS/A276 | 316 SS/A276 |
| 8 Locking Screw | 316 SS/A276 | 316 SS/A276 |

Dimensions

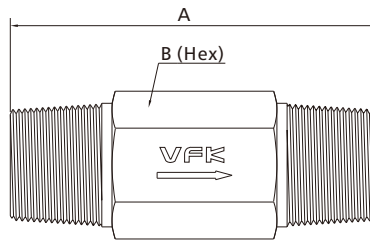
53 Series



| Basic Ordering Number | Connection Type and Size | | Cv | Dimension, in. (mm) | |
|-----------------------|--------------------------|-----------------|------|---------------------|----------------|
| | Inlet | Outlet | | A | B |
| □□ 53 -FN4 | 1/4 Female NPT | 1/4 Female NPT | 0.35 | 2.41 (61.2) | 3/4 (19.05) |
| □□ 53 -FN8 | 1/2 Female NPT | 1/2 Female NPT | 1.20 | 3.71 (94.2) | 1 1/16 (26.99) |
| □□ 53 -N4 | 1/4 Male NPT | 1/4 Male NPT | 0.35 | 1.62 (41.1) | 9/16 (14.29) |
| □□ 53 -N8 | 1/2 Male NPT | 1/2 Male NPT | 1.20 | 2.28 (57.9) | 7/8 (22.23) |
| □□ 53 -FR4 | 1/4 Female BSPT | 1/4 Female BSPT | 0.35 | 2.54 (64.5) | 3/4 (19.05) |
| □□ 53 -R4 | 1/4 Male BSPT | 1/4 Male BSPT | | 1.62 (41.1) | 9/16 (14.29) |

Dimensions

53A Series



| Basic Ordering Number | Connection Type and Size | | Cv | Dimension, in. (mm) | |
|-----------------------|--------------------------|----------------|------|---------------------|--------------|
| | Inlet | Outlet | | A | B |
| □□ 53A-FN4 | 1/4 Female NPT | 1/4 Female NPT | 0.35 | 2.98 (75.7) | 3/4 (19.05) |
| □□ 53A-N4 | 1/4 Male NPT | 1/4 Male NPT | 0.35 | 1.62 (41.1) | 9/16 (14.29) |
| □□ 53A-N8 | 1/2 Male NPT | 1/2 Male NPT | 1.20 | 2.56 (65.0) | 7/8 (22.23) |
| □□ 53A-R4 | 1/4 Male BSPT | 1/4 Male BSPT | 0.35 | 1.62 (41.1) | 9/16 (14.29) |
| □□ 53A-R8 | 1/2 Male BSPT | 1/2 Male BSPT | 1.20 | 2.56 (65.0) | 7/8 (22.23) |

Flow Data at 70°F (20°C)

53 Series

| Air Flow (std L/min) | Cracking Pressure (psig) | | |
|-------------------------|--------------------------|-----|-----|
| | 1 | 10 | 25 |
| | Cv = 0.35 | | |
| Inlet Pressure (psig) | | | |
| 12.5 | 85 | -- | -- |
| 25 | 201 | 121 | -- |
| 50 | 400 | 327 | 212 |
| 75 | 600 | 539 | 431 |
| 100 | 800 | 750 | 653 |
| 112.5 | -- | -- | 750 |

| Water Flow (L/min) | Cracking Pressure (psig) | | |
|-----------------------|--------------------------|-----|-----|
| | 1 | 10 | 25 |
| | Cv = 0.35 | | |
| Pressure Drop (psig) | | | |
| 7.5 | 2.6 | -- | -- |
| 15 | 5.3 | 0.9 | -- |
| 22.5 | 7.7 | 2.9 | -- |
| 30 | -- | 5 | 0.6 |
| 60 | -- | -- | 3.7 |
| 90 | -- | -- | 6.7 |

| Air Flow (std L/min) | Cracking Pressure (psig) | | |
|-------------------------|--------------------------|------|------|
| | 1 | 10 | 25 |
| | Cv = 0.12 | | |
| Inlet Pressure (psig) | | | |
| 10 | 366 | -- | -- |
| 20 | 679 | 325 | -- |
| 30 | 1027 | 706 | 237 |
| 40 | 1351 | 1064 | 664 |
| 50 | 1692 | 1433 | 1122 |
| 60 | 2924 | 1814 | 1561 |

| Water Flow (L/min) | Cracking Pressure (psig) | | |
|-----------------------|--------------------------|------|-----|
| | 1 | 10 | 25 |
| | Cv = 0.12 | | |
| Pressure Drop (psig) | | | |
| 5 | 10.3 | -- | -- |
| 7.5 | 14.1 | -- | -- |
| 10 | 17.3 | -- | -- |
| 15 | -- | 2.3 | -- |
| 30 | -- | 13.2 | 1.0 |
| 37.5 | -- | 17.8 | 2.6 |
| 75 | -- | -- | 9.8 |

53A Series

| Air Flow (std L/min) Inlet Pressure (psig) | Cracking Pressure (psig) | | | |
|--|--------------------------|------|------|------|
| | 3 | 50 | 150 | 350 |
| | Cv = 0.35 | | | |
| 50 | 323 | -- | -- | -- |
| 150 | 1165 | 841 | -- | -- |
| 250 | 2039 | 1769 | 615 | -- |
| 300 | 2425 | 2800 | 890 | -- |
| 400 | -- | -- | 1502 | 246 |
| 500 | -- | -- | 2098 | 726 |
| 600 | -- | -- | 2692 | 1207 |
| 700 | -- | -- | -- | 1700 |

| Water Flow (L/min) Pressure Drop (psig) | Cracking Pressure (psig) | | | |
|---|--------------------------|-----|-----|-----|
| | 3 | 50 | 150 | 350 |
| | Cv = 0.35 | | | |
| 12.5 | 1.5 | -- | -- | -- |
| 25 | 4.1 | -- | -- | -- |
| 37.5 | 6.4 | -- | -- | -- |
| 75 | -- | 1.8 | -- | -- |
| 150 | -- | 6.3 | -- | -- |
| 175 | -- | 7.5 | 1.1 | -- |
| 250 | -- | -- | 4.5 | -- |
| 350 | -- | -- | 8.6 | -- |
| 400 | -- | -- | -- | 1.8 |
| 500 | -- | -- | -- | 5.1 |
| 550 | -- | -- | -- | 6.7 |

| Air Flow (std L/min) Inlet Pressure (psig) | Cracking Pressure (psig) | | | |
|--|--------------------------|------|------|------|
| | 3 | 50 | 150 | 350 |
| | Cv = 0.12 | | | |
| 25 | 498 | -- | -- | -- |
| 50 | 1553 | -- | -- | -- |
| 75 | 2162 | 615 | -- | -- |
| 125 | -- | 1682 | -- | -- |
| 175 | -- | 2758 | 763 | -- |
| 250 | -- | -- | 1859 | -- |
| 300 | -- | -- | 2634 | -- |
| 350 | -- | -- | -- | 155 |
| 400 | -- | -- | -- | 1665 |
| 450 | -- | -- | -- | 2382 |

| Water Flow (L/min) Pressure Drop (psig) | Cracking Pressure (psig) | | | |
|---|--------------------------|------|------|------|
| | 3 | 50 | 150 | 350 |
| | Cv = 0.12 | | | |
| 12.5 | 3.0 | -- | -- | -- |
| 25 | 9.3 | -- | -- | -- |
| 37.5 | 15.2 | -- | -- | -- |
| 75 | -- | 5.3 | -- | -- |
| 150 | -- | 17.6 | -- | -- |
| 175 | -- | 21.4 | 2.5 | -- |
| 250 | -- | -- | 10.3 | -- |
| 350 | -- | -- | 20.2 | -- |
| 400 | -- | -- | -- | 4.4 |
| 500 | -- | -- | -- | 13.3 |
| 550 | -- | -- | -- | 21.5 |

53 and 53A Series How to Order

| A | B | C | D | E | F | G | H |
|---------------|--------------|------------|------------|-------------|-------------|---------------|-------------|
| Body Material | Valve Series | Inlet Type | Inlet Size | Outlet Type | Outlet Size | Seal Material | NACE MR0175 |
| SS | 5303 | FN | 8 | MX | 10 | B | SG |

| A | Body Material |
|------|---------------|
| SS: | 316 SS |
| 6L: | 316L SS |
| S4: | 304 SS |
| 4L: | 304L SS |
| TI: | Titanium |
| A20: | Alloy 20 |
| M: | Alloy 400 |
| INC: | Alloy 600 |
| HC: | Alloy C-276 |
| B: | Brass |

| B | Valve Series |
|--------|-----------------------------------|
| 5313: | 1/3 psig cracking pressure |
| 5301: | 1 psig cracking pressure |
| 5303: | 3 psig cracking pressure |
| 5310: | 10 psig cracking pressure |
| 5325: | 25 psig cracking pressure |
| 53A03: | 3 to 50 psig cracking pressure |
| 53A50: | 50 to 150 psig cracking pressure |
| 53A15: | 150 to 350 psig cracking pressure |
| 53A35: | 350 to 600 psig cracking pressure |

| CE | Inlet/Outlet Type |
|----|-------------------------|
| FN | Female NPT |
| N | Male NPT |
| FR | Female BSPT |
| RT | Male BSPT |
| FM | Female ISO (for MRP) |
| MS | Male ISO (for MRG) |
| FP | Female BSPP (for RP) |
| BP | Male BSPP (for RG) |
| FX | Fractional Tube Fitting |
| MX | Metric Tube Fitting |

| DF | Inlet/Outlet Size |
|----|------------------------------|
| 2 | 1/8" |
| 4 | 1/4" |
| 6 | 3/8" or 6 mm |
| 8 | 1/2" or 8 mm |
| 10 | 10 mm |
| 12 | 3/4" or 12 mm |
| 14 | 14 mm or M14 x 1.5 |
| 16 | 1" or 16 mm |
| 18 | 18 mm |
| 20 | 1 1/4" or 20 mm or M20 x 1.5 |
| 22 | 22 mm or M22 x 1.5 |
| 24 | M24 x 1.5 |
| 25 | 25 mm |

| G | Seal Material |
|-------------------------------------|--------------------|
| Standard with FKM Fluorocarb | |
| B | Buna N |
| N | Neoprene |
| E | Ethylene Propylene |
| Z | Kalrez |

| H | NACE MR0175 |
|---|------------------|
| Standard with no NACE applicable | |
| SG | With NACE MR0175 |

Remark:

- Standard thread pitch for metric threads are as follows:
 M10 and below: 1 mm
 M12 to M20: 1.5 mm
 Standard thread pitch should be ignored in the ordering number, others should be specified.



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