

UNI-CHEK[®]

brands you trust.



UNI-CHEK[®] - High Performance Check Valves

CRANE[®]

Energy Flow Solutions

www.craneenergy.com

High Performance

Valves for Backflow Prevention

In almost every piping system, there is a need for backflow prevention. Most piping systems utilize pumps or compressors to generate needed pressure for movement of line fluids or gases. When rotating equipment stops, flow reversal or backflow occurs. Check valves are used to stop backflow and protect rotating equipment or other mechanical devices from the sudden backflow surges that may occur.

To satisfy your needs, specify Crane Valves—the worldwide leader of valves manufactured for the prevention of backflow.

Why Wafer Check Valves?

Wafer check valves are preferred because of their compactness, ease of installation and lower initial costs when compared to traditional flanged swing checks. These key reasons make Uni-Chek® a popular choice for systems designers. There are additional benefits, such as lower costs for shipping, storage and maintenance.

Temperature Ratings

| Seal | Max. Temperature | |
|-----------------------|------------------|----------|
| Metal/Stainless Steel | 450°F | (230°C)* |
| Viton | 400°F | (204°C) |
| Nitrile | 250°F | (121°C) |
| EPDM | 300°F | (150°C) |
| Neoprene | 210°F | (100°C) |
| PTFE | 450°F | (230°C) |
| Aflas | 400°F | (204°C) |

*Max temperature due to internal components.

CV and Opening Pressure

| Valve Size | | CV | Opening Pressure Differential | | | |
|------------|-------|-------|-------------------------------|--------|-------|---------|
| in | (mm) | | in WC | (mmWC) | psi | Bars |
| 2 | (50) | 62 | 5.95 | (151) | 0.215 | (0.015) |
| 2½ | (65) | 109 | 4.50 | (114) | 0.163 | (0.011) |
| 3 | (80) | 166 | 3.76 | (95) | 0.136 | (0.009) |
| 4 | (100) | 318 | 3.18 | (81) | 0.115 | (0.008) |
| 5 | (125) | 471 | 2.58 | (65) | 0.093 | (0.006) |
| 6 | (150) | 720 | 2.12 | (54) | 0.077 | (0.005) |
| 8 | (200) | 1384 | 2.34 | (59) | 0.085 | (0.006) |
| 10 | (250) | 2298 | 2.25 | (57) | 0.081 | (0.006) |
| 12 | (300) | 4153 | 2.00 | (51) | 0.072 | (0.005) |
| 14 | (350) | 4984 | 1.60 | (41) | 0.058 | (0.004) |
| 16 | (400) | 8307 | 1.00 | (25) | 0.036 | (0.002) |
| 18 | (450) | 11906 | 0.95 | (24) | 0.034 | (0.002) |
| 20 | (500) | 16059 | 0.90 | (23) | 0.032 | (0.002) |
| 24 | (600) | 22705 | 0.82 | (21) | 0.030 | (0.002) |
| 30 | (750) | 47071 | 0.65 | (17) | 0.023 | (0.002) |
| 36 | (900) | 53993 | 0.60 | (15) | 0.020 | (0.001) |

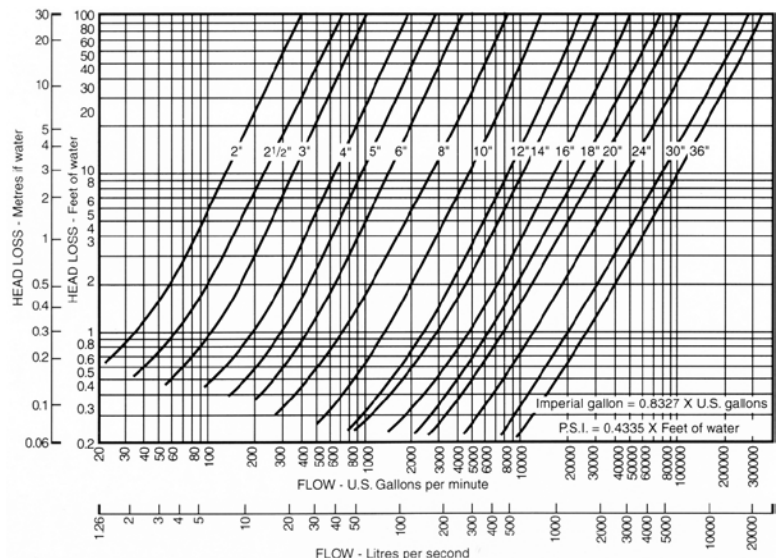
Features and Benefits

Users find the single disc Uni-Chek® valves attractive because they provide unobstructed flow paths, are spring-assisted and less expensive than the traditional bolted cap swing check valves. In addition, they have pressure drop comparable to swing check valves. The Crane Uni-Chek® offers these features and benefits:

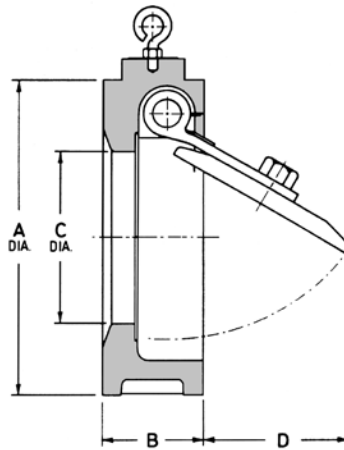
- Market Needs—available in sizes 2" (50mm) through 36" (900mm), and pressure classes to meet ASME, BS, DIN, AS, JIS and ISO standards.
- Compactness—enabling installation in restricted spaces not possible with conventional swing check valves.
- Lightweight—making them easier to handle and install, with less weight to support, eliminating expensive support systems.
- Variety of Materials—versatility for many services satisfies more application needs.
- Installation—wafer design bolts between flanges using one set of studs. Saves time and installation cost.
- Lower Cost—10% to 20% the weight of conventional swing checks saves money in initial cost, with minimum maintenance design.
- Single Disc-Spring Closure—provides unobstructed flow, bubble-tight O-ring seal, with good dynamic response to reduce damaging water hammer.
- Versatility—providing optional features, including external shaft with counterweight or backflush lever, position indicator, limit switches and external springs.

Note: Uni-Chek® valves are not intended for use in reciprocating compressor service.

Pressure Loss (Horizontal Flow)



Dimensional Information



ASME Class 125

| size | | A | | B | | C | | D | | Weight | |
|---------------------------------|-----|--------------------------------|------|-------------------------------|-----|---------------------------------|-----|---------------------------------|-----|--------|------|
| in | mm | in | mm | in | mm | in | mm | in | mm | lbs. | kg. |
| 2" | 50 | 4 ¹ / ₈ | 105 | 1 ³ / ₄ | 45 | 1 ⁵ / ₁₆ | 33 | 1 ¹ / ₈ | 29 | 3.7 | 1.7 |
| 2 ¹ / ₂ " | 65 | 4 ⁷ / ₈ | 124 | 1 ⁷ / ₈ | 48 | 1 ¹¹ / ₁₆ | 43 | 1 ³ / ₁₆ | 30 | 5 | 2.3 |
| 3" | 80 | 5 ³ / ₈ | 137 | 2 | 51 | 2 ¹ / ₁₆ | 52 | 2 ³ / ₁₆ | 56 | 6.6 | 3 |
| 4" | 100 | 6 ⁷ / ₈ | 175 | 2 ¹ / ₄ | 57 | 3 | 76 | 2 ¹⁵ / ₁₆ | 75 | 11 | 5 |
| 5" | 125 | 7 ³ / ₄ | 197 | 2 ¹ / ₂ | 64 | 3 ³ / ₄ | 95 | 3 ³ / ₄ | 95 | 16 | 7.3 |
| 6" | 150 | 8 ³ / ₄ | 222 | 2 ³ / ₄ | 70 | 4 ³ / ₄ | 121 | 4 ¹ / ₂ | 114 | 20 | 9 |
| 8" | 200 | 11 | 279 | 2 ⁷ / ₈ | 73 | 6 ⁷ / ₁₆ | 164 | 6 ¹ / ₈ | 156 | 32 | 14.4 |
| 10" | 250 | 13 ³ / ₈ | 340 | 3 ¹ / ₈ | 79 | 7 ⁵ / ₈ | 194 | 7 ⁵ / ₈ | 187 | 52 | 23.4 |
| 12" | 300 | 16 ¹ / ₈ | 410 | 3 ³ / ₈ | 86 | 9 ¹ / ₂ | 241 | 8 ³ / ₄ | 222 | 77 | 35 |
| 14" | 350 | 17 ³ / ₄ | 451 | 4 ¹ / ₄ | 108 | 10 ¹ / ₂ | 267 | 9 | 229 | 154 | 70 |
| 16" | 400 | 20 ¹ / ₄ | 514 | 4 ¹ / ₄ | 108 | 12 ¹ / ₂ | 318 | 9 ³ / ₄ | 248 | 170 | 77 |
| 18" | 450 | 21 ⁵ / ₈ | 549 | 4 ¹ / ₄ | 108 | 14 | 356 | 11 ³ / ₄ | 299 | 203 | 92 |
| 20" | 500 | 23 ³ / ₈ | 606 | 5 ¹ / ₂ | 140 | 15 ¹ / ₄ | 387 | 12 ³ / ₄ | 324 | 298 | 135 |
| 24" | 600 | 28 ³ / ₄ | 718 | 6 | 152 | 19 | 483 | 15 ¹ / ₄ | 387 | 452 | 205 |
| 30" | 750 | 34 ¹ / ₄ | 883 | 6 | 152 | 23 | 584 | 20 ³ / ₄ | 527 | — | — |
| 36" | 900 | 41 ¹ / ₄ | 1048 | 6 | 152 | 29 | 737 | 25 | 635 | — | — |

ASME Class 150

| size | | A | | B | | B* | | C | | D | | Weight | |
|---------------------------------|-----|--------------------------------|------|-------------------------------|-----|-------------------------------|-----|---------------------------------|-----|--------------------------------|-----|--------|-----|
| in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs. | kg. |
| 2" | 50 | 4 ¹ / ₈ | 105 | 2 ⁵ / ₈ | 60 | 1 ³ / ₄ | 45 | 1 ⁵ / ₁₆ | 33 | 1 ¹ / ₂ | 13 | 5.5 | 2.5 |
| 2 ¹ / ₂ " | 65 | 4 ⁷ / ₈ | 124 | — | — | 1 ⁷ / ₈ | 48 | 1 ¹¹ / ₁₆ | 43 | — | — | — | — |
| 3" | 80 | 5 ³ / ₈ | 137 | 2 ⁷ / ₈ | 73 | 2 | 51 | 2 ¹ / ₁₆ | 52 | 1 ⁵ / ₁₆ | 34 | 10 | 4.5 |
| 4" | 100 | 6 ⁷ / ₈ | 175 | 2 ⁷ / ₈ | 73 | 2 ¹ / ₄ | 57 | 3 | 76 | 2 ⁵ / ₁₆ | 59 | 16 | 7 |
| 5" | 125 | 7 ³ / ₄ | 197 | — | — | 2 ¹ / ₂ | 64 | 3 ³ / ₄ | 95 | — | — | — | — |
| 6" | 150 | 8 ³ / ₄ | 222 | 3 ⁷ / ₈ | 98 | 2 ³ / ₄ | 70 | 4 ¹ / ₄ | 121 | 3 ³ / ₈ | 86 | 31 | 14 |
| 8" | 200 | 11 | 279 | 5 | 127 | 2 ⁷ / ₈ | 73 | 6 ⁷ / ₁₆ | 164 | 4 | 102 | 49 | 22 |
| 10" | 250 | 13 ³ / ₈ | 340 | 5 ³ / ₄ | 146 | 3 ¹ / ₈ | 79 | 7 ⁵ / ₈ | 194 | 4 ³ / ₄ | 121 | 82 | 37 |
| 12" | 300 | 16 ¹ / ₈ | 410 | 7 ¹ / ₈ | 181 | 3 ³ / ₈ | 86 | 9 ¹ / ₂ | 241 | 5 | 127 | 124 | 56 |
| 14" | 350 | 17 ³ / ₄ | 451 | 7 ¹ / ₄ | 184 | 4 ¹ / ₄ | 108 | 10 ¹ / ₂ | 267 | 6 | 152 | 176 | 80 |
| 16" | 400 | 20 ¹ / ₄ | 514 | 7 ¹ / ₂ | 191 | 4 ¹ / ₄ | 108 | 12 ¹ / ₂ | 318 | 6 ¹ / ₂ | 165 | 220 | 100 |
| 18" | 450 | 21 ⁵ / ₈ | 549 | 8 | 203 | 4 ¹ / ₄ | 108 | 14 | 356 | 8 | 203 | 242 | 110 |
| 20" | 500 | 23 ³ / ₈ | 606 | 8 ⁵ / ₈ | 219 | 5 ¹ / ₂ | 140 | 15 ¹ / ₄ | 387 | 9 ⁵ / ₈ | 245 | 372 | 169 |
| 24" | 600 | 28 ³ / ₄ | 718 | 8 ³ / ₄ | 222 | 6 | 152 | 19 | 483 | 12 ¹ / ₂ | 318 | 584 | 265 |
| 30" | 750 | 34 ¹ / ₄ | 883 | — | — | 6 | 152 | 23 | 584 | — | — | — | — |
| 36" | 900 | 41 ¹ / ₄ | 1048 | — | — | 6 | 152 | 29 | 737 | — | — | — | — |

* Optional for short pattern valve, S

AS Table E (BS Table E)

| size | | A | | B | | C | | D | | Weight | |
|---------------------------------|-----|--------------------------------|------|-------------------------------|-----|---------------------------------|-----|---------------------------------|-----|--------|------|
| in | mm | in | mm | in | mm | in | mm | in | mm | lbs. | kg. |
| 2" | 50 | 3 ⁷ / ₈ | 98 | 1 ³ / ₄ | 45 | 1 ⁵ / ₁₆ | 33 | 1 ¹ / ₈ | 29 | 3.7 | 1.7 |
| 2 ¹ / ₂ " | 65 | 4 ³ / ₈ | 111 | 1 ⁷ / ₈ | 48 | 1 ¹¹ / ₁₆ | 43 | 1 ¹ / ₈ | 29 | 5 | 2.3 |
| 3" | 80 | 5 ¹ / ₈ | 130 | 2 | 51 | 2 ¹ / ₁₆ | 52 | 2 ³ / ₁₆ | 56 | 6.6 | 3 |
| 4" | 100 | 6 ³ / ₈ | 162 | 2 ¹ / ₄ | 57 | 3 | 76 | 2 ¹⁵ / ₁₆ | 75 | 11 | 5 |
| 5" | 125 | 7 ⁵ / ₈ | 194 | 2 ¹ / ₂ | 64 | 3 ³ / ₄ | 95 | 3 ³ / ₄ | 95 | 16 | 7.3 |
| 6" | 150 | 8 ¹ / ₂ | 216 | 2 ³ / ₄ | 70 | 4 ³ / ₄ | 121 | 4 ¹ / ₂ | 114 | 20 | 9 |
| 8" | 200 | 10 ³ / ₄ | 273 | 2 ⁷ / ₈ | 73 | 6 ⁷ / ₁₆ | 164 | 6 ¹ / ₈ | 156 | 32 | 14.4 |
| 10" | 250 | 13 ¹ / ₄ | 337 | 3 ¹ / ₈ | 79 | 7 ⁵ / ₈ | 194 | 7 ⁵ / ₈ | 188 | 52 | 23.4 |
| 12" | 300 | 15 ¹ / ₈ | 384 | 3 ³ / ₈ | 86 | 9 ¹ / ₂ | 241 | 8 ³ / ₄ | 222 | 77 | 35 |
| 14" | 350 | 17 ⁵ / ₈ | 448 | 4 ¹ / ₄ | 108 | 10 ¹ / ₂ | 267 | 9 | 229 | 154 | 70 |
| 16" | 400 | 19 ⁵ / ₈ | 498 | 4 ¹ / ₄ | 108 | 12 ¹ / ₂ | 318 | 9 ³ / ₄ | 248 | 170 | 77 |
| 18" | 450 | 22 ¹ / ₈ | 562 | 4 ¹ / ₄ | 108 | 14 | 356 | 11 ³ / ₄ | 299 | 203 | 92 |
| 20" | 500 | 24 ³ / ₈ | 619 | 5 ¹ / ₂ | 140 | 15 ¹ / ₄ | 387 | 12 ³ / ₄ | 324 | 298 | 135 |
| 24" | 600 | 28 ⁵ / ₈ | 727 | 6 | 152 | 19 | 483 | 15 ¹ / ₄ | 387 | 452 | 205 |
| 30" | 750 | 32 ¹ / ₄ | 895 | 6 | 152 | 23 | 584 | 20 ³ / ₄ | 527 | — | — |
| 36" | 900 | 41 ³ / ₄ | 1060 | 6 | 152 | 29 | 737 | 25 | 635 | — | — |

ASME Class 300

| size | | A | | B | | B* | | C | | D | | Weight | |
|---------------------------------|-----|--------------------------------|-----|--------------------------------|-----|-------------------------------|-----|---------------------------------|-----|---------------------------------|-----|--------|------|
| in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs. | kg. |
| 2" | 50 | 4 ³ / ₈ | 111 | 2 ⁵ / ₈ | 60 | 1 ³ / ₄ | 45 | 1 ⁵ / ₁₆ | 33 | 1 ¹ / ₂ | 13 | 6.7 | 3 |
| 2 ¹ / ₂ " | 65 | — | — | — | — | 1 ⁷ / ₈ | 48 | 1 ¹¹ / ₁₆ | 43 | — | — | — | — |
| 3" | 80 | 5 ⁵ / ₈ | 149 | 2 ⁷ / ₈ | 73 | 2 | 51 | 2 ¹ / ₁₆ | 52 | 1 ⁵ / ₁₆ | 34 | 13 | 5.8 |
| 4" | 100 | 7 ¹ / ₈ | 181 | 2 ⁷ / ₈ | 73 | 2 ¹ / ₄ | 57 | 3 | 76 | 2 ⁵ / ₁₆ | 59 | 17 | 7.5 |
| 5" | 125 | — | — | — | — | 2 ¹ / ₂ | 64 | 3 ³ / ₄ | 95 | — | — | — | — |
| 6" | 150 | 9 ⁵ / ₈ | 251 | 3 ⁷ / ₈ | 98 | 2 ³ / ₄ | 70 | 4 ¹ / ₄ | 121 | 3 ³ / ₈ | 86 | 36 | 16.2 |
| 8" | 200 | 12 ¹ / ₈ | 308 | 5 | 127 | 2 ⁷ / ₈ | 73 | 6 ⁷ / ₁₆ | 164 | 4 | 102 | 53 | 24 |
| 10" | 250 | 14 ¹ / ₄ | 362 | 5 ³ / ₄ | 146 | 3 ¹ / ₈ | 79 | 7 ⁵ / ₈ | 194 | 4 ³ / ₄ | 121 | 88 | 40 |
| 12" | 300 | 16 ⁵ / ₈ | 422 | 7 ¹ / ₈ | 181 | 3 ³ / ₈ | 86 | 9 ¹ / ₂ | 241 | 5 | 127 | 143 | 65 |
| 14" | 350 | 19 ¹ / ₈ | 486 | 8 ³ / ₄ | 222 | 4 ¹ / ₄ | 108 | 10 ¹ / ₂ | 267 | 4 ¹ / ₂ | 114 | 210 | 95 |
| 16" | 400 | 21 ¹ / ₄ | 540 | 9 ¹ / ₈ | 232 | 4 ¹ / ₄ | 108 | 12 ¹ / ₂ | 318 | 4 ¹¹ / ₁₆ | 124 | 275 | 125 |
| 18" | 450 | 23 ¹ / ₂ | 597 | 10 ³ / ₈ | 264 | 4 ¹ / ₄ | 108 | 14 | 356 | 5 ⁵ / ₈ | 143 | 304 | 138 |
| 20" | 500 | 25 ³ / ₄ | 654 | 11 ¹ / ₂ | 292 | 5 ¹ / ₂ | 140 | 15 ¹ / ₄ | 387 | 6 ³ / ₄ | 171 | 462 | 210 |
| 24" | 600 | 30 ¹ / ₂ | 775 | 12 ¹ / ₂ | 318 | 6 | 152 | 19 | 483 | 8 ³ / ₄ | 222 | 754 | 342 |

* Optional for short pattern valve, S

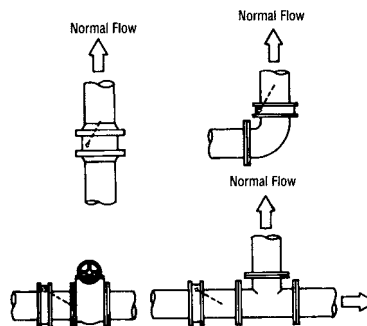
Installation

The Uni-Chek® valve installs between two pipe flanges. The body is flangeless and is centered in line by the surrounding flange bolts. Correct selection of materials and installation will ensure trouble free operation.

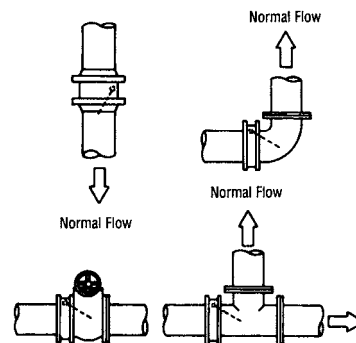
Consider the following:

- Check that the pipe flange drilling complies with the valve tag specification.
- Flow direction is indicated by an arrow on the valve body or name plate.
- On horizontal installations, the valve tag should always be at the top.
- Flow should always be upward on vertical installations. (Consult factory)
- The valve reaches the fully open position when the disc contacts the inside diameter of the pipe. Care should be taken when non-standard or lined pipe is used.
- Allow a downstream length of straight pipe equal to one pipe diameter before installing other valves or pipe bends, tees etc.
- Each piping system has a unique geometry which should be evaluated whenever the liquid media velocity exceeds 8 feet/second (2.4 m/sec) through a swage or expansion (15° or greater included angle) directly upstream of the valve. A minimum of five (5) pipe diameters distance should be maintained between the valve and the pump discharge and pipe fittings (swages or expansion).
- Avoid manifolds where a pump discharges directly into another pump discharge.

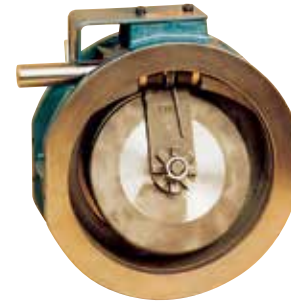
Acceptable



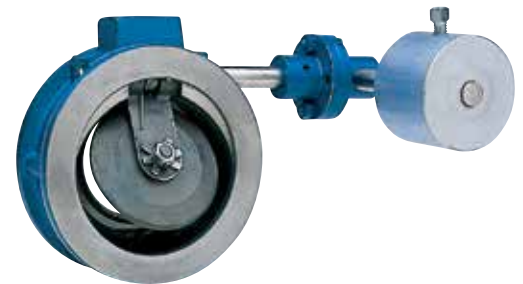
Avoid These



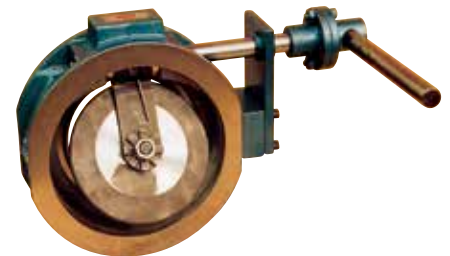
Check Valve Shaft Options



with open/shut indicator



counterweight



with backflush lever
(left hand option shown)



microswitch

Maintenance Precautions

Due to the low wearing of working parts and simple robust construction, the valve should not require attention for several years in normal service. However, if the valve is installed on critical applications such as sanitary isolation, it is considered prudent to make more frequent inspections. Valves subject to high frequency of operation may require spring replacement at earlier intervals. This becomes apparent when valve closure is noisy.

Ordering Information

| | | | | | | | | |
|------------|----------------|--------|---------------|-------------------------|------------------------|----------------|--------------|----------------|
| 24" | 12 | A | 1 | 3 | 2 | 0 | 2 | 0 |
| Valve Size | Pressure Class | Flange | Body Material | Disc Arm & Pin Material | Seal & Spring Material | End Connection | Shaft Option | Coating Option |

Description: 24" Pressure Class 125, ASME Flange, Cast Iron Body, 316S.S. Disc Arm & Pin, Nitrile Seal, 316S.S. Spring, Flat Smooth Face, External Lever and Counterweight, Manufacturing Standard Coating.

Valve Size

Nominal valve sizes are expressed in inches or millimeters.

In inches: For use with ASME, API and BS flange standards.

In millimeters: For use with AS, DIN or JIS flange standards. (size preceded by "M" for DIN, "J" for JIS and "A" for AS with PN number shown as pressure class).

Pressure Class

| Code | Class |
|-------|------------|
| 12 | 125 |
| 15 | 150 |
| 30 | 300 |
| 10-16 | DIN or JIS |

S-Optional prefix for class 150 and 300 short pattern (S15, S30). Refer to Table B* dimensions.

Flange

| Code | Flange |
|------|---------------------------|
| A | ASME |
| E | AS 2129 / BS 10 – Table E |

Body Material

| Code | Material |
|------|--|
| 0 | Carbon Steel to ASTM A216 Gr. WCB |
| 1 | Cast Iron to ASTM A126 Class B |
| 2 | 316 Stainless Steel to ASTM A351 Gr. CF-8M |
| 3 | Low Temperature Steel to ASTM A352 Gr. LCB |

Disc, Arm and Pin

| Code | Material |
|------|---------------------|
| 3 | 316 Stainless Steel |

Seal and Spring Material

| Code | Material |
|------|---|
| 0 | Same as body material, Inconel X Spring |
| 1 | 316S.S Weld Overlay, Inconel X Spring |
| 2 | Nitrile, 316S.S. Spring |
| 3 | Viton, 316S.S. Spring |
| 4 | EPDM, 316S.S. Spring |
| 5 | Neoprene, 316S.S. Spring |
| 6 | PTFE, 316S.S. Spring |
| 7 | Aflas, 316S.S. Spring |

End Connection

| Code | Description |
|------|-------------------------|
| 0 | Flat-Smooth 125 AARH |
| 1 | Serrated Per ASME B16.5 |

Shaft Option

| Code | Description |
|------|----------------------------------|
| 0 | No Option |
| 1 | External Lever |
| 2 | External Lever and Counterweight |
| 3 | Visual Open/Closed Indicator |
| 4 | Microswitch |
| 5 | External Spring |

L-Suffix for left hand option (1L, 2L, 3L, 4L, 5L), consult factory.

CAUTION: external options may interfere with installation on some sizes, consult factory.

Coating Option

| Code | Description |
|------|---|
| 0 | Manufacturers Standard |
| 1 | Internal Solventless Epoxy |
| 2 | External Solventless Epoxy |
| 3 | Internal and External Solventless Epoxy |

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STOCKHAM



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