



Bray®

CELEBRATING
20
YEARS

SERIES 31H/36H Lug
2"-20" (50mm - 500mm) 250 psi
24" (600mm) 150 psi

MANUAL BUTTERFLY VALVES

HEATING, VENTILATING & AIR CONDITIONING (HVAC)
HIGH PRESSURE RESILIENT SEATED

2"-24" (50mm-600mm)

Bray Controls is proud to offer a line of superior quality, high pressure manual butterfly valves that meet today's Heating, Ventilating & Air Conditioning (HVAC) requirements. The Series 31H lug type is rated for 250 psi bidirectional dead end service, the Series 36H is rated 150 psi bidirectional dead end service.

FEATURES

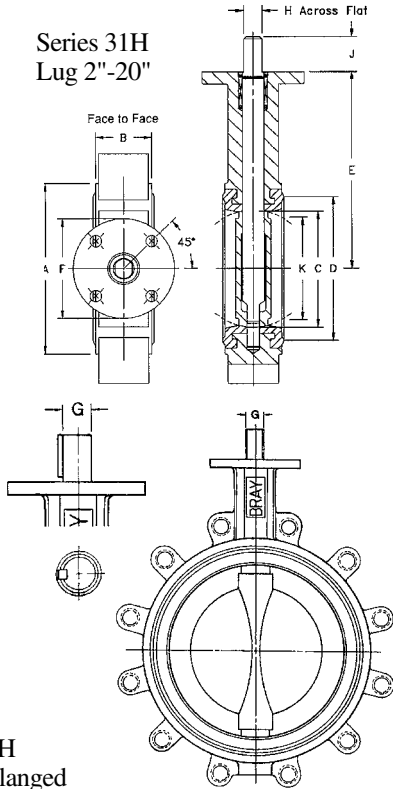
- Lug valves (S31H, 2-20") and flanged (S36H, 24") are drilled and tapped to meet ANSI Class 125/150 flanges.
- Bidirectional and tested to 110% of full pressure rating.
- The unique close tolerance, double "D" connection drives the valve disc on S31H. This design eliminates the need for exposed stem retention components, such as disc screws, to the line media which commonly results in leak paths, corrosion, and vibration failures. Due to wear and corrosion, disc screws often require difficult machining for disassembly. Disassembly of the Bray stem is just a matter of pulling the stem out of the disc.

- Disc casting is spherically machined and hand polished to provide a bubble tight shut-off, with minimum torque and an extended seat cycle life.
- Patented "Spirolox®" retaining ring and stem retaining C-rings provide a blow-out proof stem on S31H.
- Unique "tongue and groove" seat design, bonded to the body by aerospace adhesive, is designed to seal with slip-on or weld-neck flanges. Seat totally encases the valve interior to isolate the line media from the body.
- Molded seat O-ring provides seal between valve and pipe flanges. Flange gaskets should not be used with this valve.
- Primary and secondary seals are interference fits between seat and disc hub, and stem and seat stem hole respectively.
- Non corrosive, heavy duty acetal bushing absorbs side thrusts on S31H, bronze bearing on S36H.
- Stem packing gland on S31H is a self-adjusting double "U" cup design and gives positive sealing in both directions, preventing external substances from entering the stem bore. The S36H has an adjustable packing gland.
- Mounting flange meets ISO 5211 and allows direct mounting of Bray manual operators.

SPECIFICATIONS

PRESSURE RATINGS

For bidirectional or dead end service, bubble-tight shut off, disc in closed position:
 2"-20" (50mm-500mm) 250 psi
 24" (600mm) 150 psi



TEMPERATURE RANGE OF SEATS

Aerospace-Bonded EPDM:
 -40°F (-40°C) to 250°F (+121°C)

VELOCITY LIMITS

For On/Off Services:
 Fluids – 30 ft/sec (9m/sec)
 Gases – 175 ft/sec (54m/sec)

HOW TO ORDER

2"-20": 31-Valve Size-13000-120
 24": 36-2400-13010-120

MATERIALS SELECTION

BODY: Cast Iron, ASTM A126 Class B
DISC: Aluminum Bronze, ASTM B148-954
STEM: Type 416 Stainless Steel, ASTM A 582
SEAT: EPDM

INSTALLATION AND MAINTENANCE

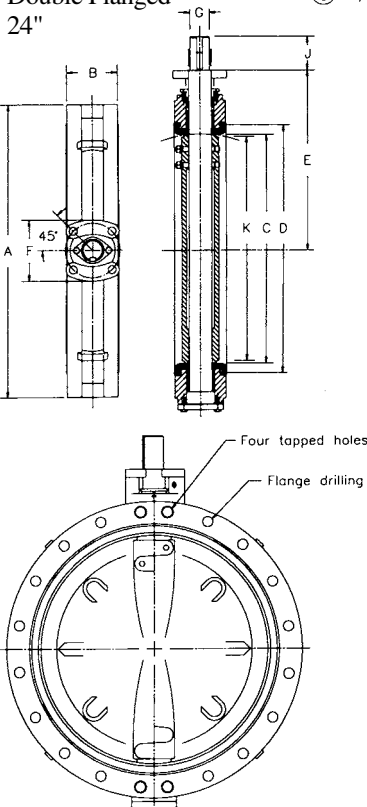
Please refer to Bray Technical Bulletin 1071 for Series 31 valves and Technical Bulletin 1114 for Series 36 valves.

C_v VALUES – VALVE SIZING COEFFICIENT

| Valve Size | | Disc Position (degrees) | | | | | | | | |
|------------|-----|-------------------------|-------|-------|-------|------|------|------|------|-----|
| ins | mm | 90° | 80° | 70° | 60° | 50° | 40° | 30° | 20° | 10° |
| 2 | 50 | 144 | 114 | 84 | 61 | 43 | 27 | 16 | 7 | 1 |
| 2½ | 65 | 282 | 223 | 163 | 107 | 67 | 43 | 24 | 11 | 1.5 |
| 3 | 80 | 461 | 364 | 267 | 154 | 96 | 61 | 35 | 15 | 2 |
| 4 | 100 | 841 | 701 | 496 | 274 | 171 | 109 | 62 | 27 | 3 |
| 5 | 125 | 1376 | 1146 | 775 | 428 | 268 | 170 | 98 | 43 | 5 |
| 6 | 150 | 1850 | 1542 | 1025 | 567 | 354 | 225 | 129 | 56 | 6 |
| 8 | 200 | 3316 | 2842 | 1862 | 1081 | 680 | 421 | 241 | 102 | 12 |
| 10 | 250 | 5430 | 4525 | 2948 | 1710 | 1076 | 667 | 382 | 162 | 19 |
| 12 | 300 | 8077 | 6731 | 4393 | 2563 | 1594 | 1005 | 555 | 235 | 27 |
| 14 | 350 | 10538 | 8874 | 5939 | 3384 | 2149 | 1320 | 756 | 299 | 34 |
| 16 | 400 | 13966 | 11761 | 7867 | 4483 | 2847 | 1749 | 1001 | 397 | 45 |
| 18 | 450 | 17214 | 14496 | 10065 | 5736 | 3643 | 2237 | 1281 | 507 | 58 |
| 20 | 500 | 22339 | 18812 | 12535 | 7144 | 4536 | 2786 | 1595 | 632 | 72 |
| 24 | 600 | 33154 | 27186 | 18235 | 11040 | 6962 | 4244 | 2387 | 1028 | 259 |

C_v is defined as the volume of water in U.S.G.P.M. that will flow through a given restriction or valve opening with a pressure drop of one (1) p.s.i. at room temperature. Recommended control angles are between 25°–70° open. Preferred angle for control valve sizing is 60°–65° open.

Series 36H Double Flanged 24"



DIMENSIONS Series 31H Lug 2"-20", Series 36H Double Flanged 24"

| Valve Size | | A | B | C | D | E | F | Mounting Flange Drig. | | | G | H | J | K |
|------------|-----|-------|------|-------|-------|-------|------|-----------------------|-----------|-----------|------|-----|------|-------|
| ins | mm | | | | | | | BC | No. Holes | Hole Dia. | | | | |
| 2 | 50 | 3.69 | 1.62 | 2.00 | 2.84 | 5.50 | 3.54 | 2.76 | 4 | .38 | .55 | .39 | 1.25 | 1.32 |
| 2½ | 65 | 4.19 | 1.75 | 2.50 | 3.34 | 6.00 | 3.54 | 2.76 | 4 | .38 | .55 | .39 | 1.25 | 1.91 |
| 3 | 80 | 4.88 | 1.75 | 3.00 | 4.03 | 6.25 | 3.54 | 2.76 | 4 | .38 | .63 | .43 | 1.25 | 2.55 |
| 4 | 100 | 6.06 | 2.00 | 4.00 | 5.16 | 7.00 | 3.54 | 2.76 | 4 | .38 | .75 | .51 | 1.25 | 3.57 |
| 5 | 125 | 7.12 | 2.12 | 5.00 | 6.16 | 7.50 | 3.54 | 2.76 | 4 | .38 | .75 | .51 | 1.25 | 4.63 |
| 6 | 150 | 8.12 | 2.12 | 5.75 | 7.02 | 8.00 | 3.54 | 2.76 | 4 | .38 | .75 | .51 | 1.25 | 5.45 |
| 8 | 200 | 10.50 | 2.50 | 7.75 | 9.47 | 9.50 | 5.91 | 4.92 | 4 | .56 | .87 | .63 | 1.25 | 7.45 |
| 10 | 250 | 12.75 | 2.50 | 9.75 | 11.47 | 10.75 | 5.91 | 4.92 | 4 | .56 | 1.18 | .87 | 2.00 | 9.53 |
| 12 | 300 | 14.88 | 3.00 | 11.75 | 13.47 | 12.25 | 5.91 | 4.92 | 4 | .56 | 1.18 | .87 | 2.00 | 11.47 |

| Lug Bolting Data | | |
|------------------|-----------|----------------|
| BC | No. Holes | Threads UNC-2B |
| 4.75 | 4 | 5/8-11 |
| 5.50 | 4 | 5/8-11 |
| 6.00 | 4 | 5/8-11 |
| 7.50 | 8 | 5/8-11 |
| 8.50 | 8 | 3/4-10 |
| 9.50 | 8 | 3/4-10 |
| 11.75 | 8 | 3/4-10 |
| 14.25 | 12 | 7/8-9 |
| 17.00 | 12 | 7/8-9 |

| Valve Size | | A | B | C | D | E | F | Mounting Flange Drig. | | | G | H | KEY SIZE | K |
|------------|-----|-------|------|-------|-------|-------|------|-----------------------|-----------|-----------|------|------|----------|-------|
| ins | mm | | | | | | | BC | No. Holes | Hole Dia. | | | | |
| 14 | 350 | 16.94 | 3.00 | 13.25 | 15.28 | 13.62 | 5.91 | 4.92 | 4 | .56 | 1.38 | 2.00 | .39x.39 | 13.04 |
| 16 | 400 | 19.06 | 4.00 | 15.25 | 17.41 | 14.75 | 5.91 | 4.92 | 4 | .56 | 1.38 | 2.00 | .39x.39 | 14.85 |
| 18 | 450 | 21.12 | 4.25 | 17.25 | 19.47 | 16.00 | 8.27 | 6.50 | 4 | .81 | 1.97 | 2.50 | .39x.47 | 16.85 |
| 20 | 500 | 23.25 | 5.00 | 19.25 | 21.59 | 17.25 | 8.27 | 6.50 | 4 | .81 | 1.97 | 2.50 | .39x.47 | 18.73 |
| 24 | 600 | 33.00 | 5.94 | 23.25 | 25.75 | 19.50 | 8.27 | 6.50 | 4 | .81 | 2.50 | 4.00 | .62x.62 | 22.69 |

| Lug Bolting Data | | |
|------------------|-----------|----------------|
| BC | No. Holes | Threads UNC-2B |
| 18.75 | 12 | 1-8 |
| 21.25 | 16 | 1-8 |
| 22.75 | 16 | 11/8-7 |
| 25.00 | 20 | 11/8-7 |
| 29.50 | 20 | 11/4-7 |



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