SERIES 31H/36H Lug



### 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 shutoff, 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 selfadjusting 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.



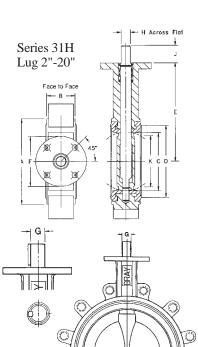
MANUAL BI

# 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:  $-40^{\circ}$ F ( $-40^{\circ}$ C) to  $250^{\circ}$ F ( $+121^{\circ}$ 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<sub>1</sub> VALUES-VALVE SIZING COEFFICIENT

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

C<sub>V</sub> 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.

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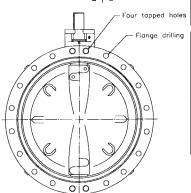
Series 36H

24"

Double Flanged

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

Valve	Valve Size		,   _				_		_	1	Mountii	ng Flang	ge Drig.					Lug E	3oltin	g Data
ins	mm	Α	В	C	D	E	F	ВС	No. Holes	Hole Dia.	G	Н	J	K	ВС	No. Holes	Threads UNC-2B			
2	50	3.69	1.62	2.00	2.84	5.50	3.54	2.76	4	.38	.55	.39	1.25	1.32	4.75	4	5/8-11			
21/2	65	4.19	1.75	2.50	3.34	6.00	3.54	2.76	4	.38	.55	.39	1.25	1.91	5.50	4	5/8-11			
3	80	4.88	1.75	3.00	4.03	6.25	3.54	2.76	4	.38	.55	.39	1.25	2.55	6.00	4	5/8-11			
4	100	6.06	2.00	4.00	5.16	7.00	3.54	2.76	4	.38	.63	.43	1.25	3.57	7.50	8	5/8-11			
5	125	7.12	2.12	5.00	6.16	7.50	3.54	2.76	4	.38	.75	.51	1.25	4.63	8.50	8	3/4-10			
6	150	8.12	2.12	5.75	7.02	8.00	3.54	2.76	4	.38	.75	.51	1.25	5.45	9.50	8	3/4-10			
8	200	10.50	2.50	7.75	9.47	9.50	5.91	4.92	4	.56	.87	.63	1.25	7.45	11.75	8	3/4-10			
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	14.25	12	7/8-9			
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	17.00	12	7/8-9			



to change or modify product design or product without

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Valve Size					_	_	Mounting Flange Drig.					KEY	
mm	А	В	C	ט	Ш		ВС	No. Holes	Hole Dia.	G	J	SIZE	K
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
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
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
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
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
	mm 350 400 450 500	mm A 350 16.94 400 19.06 450 21.12 500 23.25	mm         A         B           350         16.94         3.00           400         19.06         4.00           450         21.12         4.25           500         23.25         5.00	mm         A         B         C           350         16.94         3.00         13.25           400         19.06         4.00         15.25           450         21.12         4.25         17.25           500         23.25         5.00         19.25	mm         A         B         C         D           350         16.94         3.00         13.25         15.28           400         19.06         4.00         15.25         17.41           450         21.12         4.25         17.25         19.47           500         23.25         5.00         19.25         21.59	mm         A         B         C         D         E           350         16.94         3.00         13.25         15.28         13.62           400         19.06         4.00         15.25         17.41         14.75           450         21.12         4.25         17.25         19.47         16.00           500         23.25         5.00         19.25         21.59         17.25	mm         A         B         C         D         E         F           350         16.94         3.00         13.25         15.28         13.62         5.91           400         19.06         4.00         15.25         17.41         14.75         5.91           450         21.12         4.25         17.25         19.47         16.00         8.27           500         23.25         5.00         19.25         21.59         17.25         8.27	mm         A         B         C         D         E         F         BC           350         16.94         3.00         13.25         15.28         13.62         5.91         4.92           400         19.06         4.00         15.25         17.41         14.75         5.91         4.92           450         21.12         4.25         17.25         19.47         16.00         8.27         6.50           500         23.25         5.00         19.25         21.59         17.25         8.27         6.50	mm         A         B         C         D         E         F         BC         No. Holes           350         16.94         3.00         13.25         15.28         13.62         5.91         4.92         4           400         19.06         4.00         15.25         17.41         14.75         5.91         4.92         4           450         21.12         4.25         17.25         19.47         16.00         8.27         6.50         4           500         23.25         5.00         19.25         21.59         17.25         8.27         6.50         4	mm         A         B         C         D         E         F         BC         No. Hole Dia.           350         16.94         3.00         13.25         15.28         13.62         5.91         4.92         4         .56           400         19.06         4.00         15.25         17.41         14.75         5.91         4.92         4         .56           450         21.12         4.25         17.25         19.47         16.00         8.27         6.50         4         .81           500         23.25         5.00         19.25         21.59         17.25         8.27         6.50         4         .81	mm         A         B         C         D         E         F         BC         No. Hole Dia.         G           350         16.94         3.00         13.25         15.28         13.62         5.91         4.92         4         .56         1.38           400         19.06         4.00         15.25         17.41         14.75         5.91         4.92         4         .56         1.38           450         21.12         4.25         17.25         19.47         16.00         8.27         6.50         4         .81         1.97           500         23.25         5.00         19.25         21.59         17.25         8.27         6.50         4         .81         1.97	mm         A         B         C         D         E         F         BC         No. Hole Holes Dia.         G         J           350         16.94         3.00         13.25         15.28         13.62         5.91         4.92         4         .56         1.38         2.00           400         19.06         4.00         15.25         17.41         14.75         5.91         4.92         4         .56         1.38         2.00           450         21.12         4.25         17.25         19.47         16.00         8.27         6.50         4         .81         1.97         2.50           500         23.25         5.00         19.25         21.59         17.25         8.27         6.50         4         .81         1.97         2.50	mm         A         B         C         D         E         F         BC         No. Hole Holes         G         J         SIZE           350         16.94         3.00         13.25         15.28         13.62         5.91         4.92         4         .56         1.38         2.00         39x.39           400         19.06         4.00         15.25         17.41         14.75         5.91         4.92         4         .56         1.38         2.00         .39x.39           450         21.12         4.25         17.25         19.47         16.00         8.27         6.50         4         .81         1.97         2.50         .39x.47           500         23.25         5.00         19.25         21.59         17.25         8.27         6.50         4         .81         1.97         2.50         .39x.47

	Lug Bolting Data									
	ВС	No. Holes	Threads UNC-2B							
ļ	18.75	12	1-8							
5	21.25	16	1-8							
5	22.75	16	1 1/8-7							
3	25.00	20	1 1/8-7							
9	29.50	20	1 1/4-7							

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