ISLIP FLOW CONTROLS Inc.

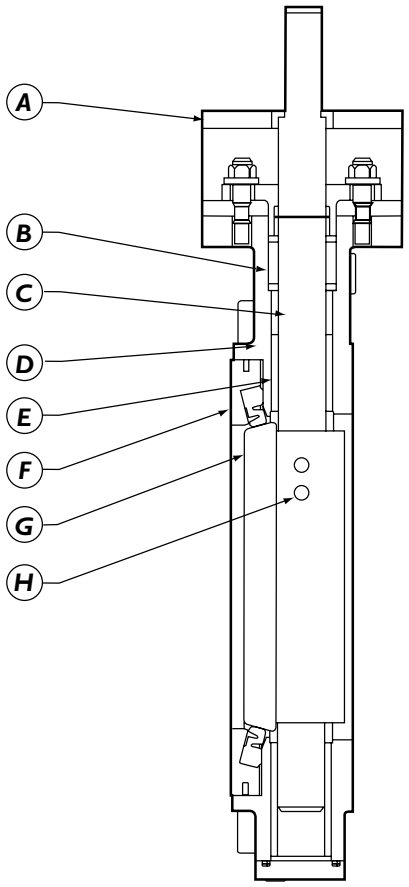
IFC Series BH150W/L
Design Features

A
Mounting Pad
The four-bolt actuator mounting pad readily accepts all types of actuation.

B
Adjustable Vee-Ring
Multiple Vee-Ring PTFE stem packing is adjustable and easily accessible without requiring removal of the actuator.

C
One-Piece Shaft
Constructed from 316 Stainless Steel. The shaft is internally retained meeting API 609 requirements.

D
Body
Available in a one-piece wafer body or lug style for dead-end service. The valves provide bi-directional sealing at full ASME Class 150 ratings.



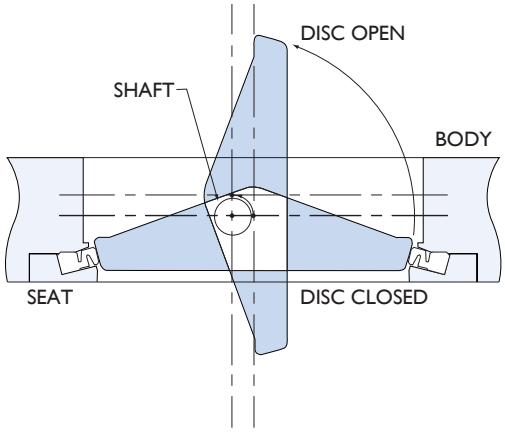
The IFC series BH150W/L high performance butterfly valve is available in sizes $2^{1}/_{2}$" thru 12", wafer or lug body design. Available body materials are A216-WCB Carbon Steel and A351-CF8M Stainless Steel. These valves were designed to meet the stringent requirements for HVAC, Oil and Gas and Industrial applications.

E
Bushings
High temperature fiberglass composite backed RPTFE ensuring maximum shaft support.

F
Seat Retainer
Employs an uninterrupted gasket surface meeting API 609 requirements.

G
Disc Edge
Machined and polished 360° to assure leak-proof positive shut-off. Standard material of construction is type 316 Stainless Steel.

H
Taper Pins
Used to provide a solid mechanical connection between the disc and shaft.



The double offset shaft design assures bi-directional sealing throughout the full pressure range of the valve. The cam-like action produced by the offset disc effectively lifts the disc off the seat during the initial opening of the valve thus reducing seat wear and eliminating seat deformation. When the disc is in the open position no contact exists with the valve seat. This effectively reduces operating torques while extending seat life.

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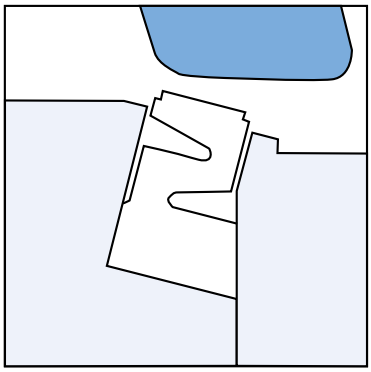
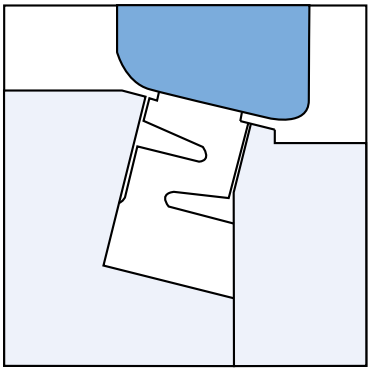
Pressure Assisted Seat Design

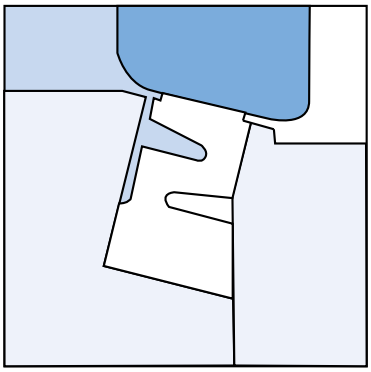
As the seat cross section is bellow shaped, line pressure exerts an upwards force on the seat independent of which side of the seat is under high pressure. This action forces the seat against the disc. Increased line pressure causes tighter sealing, thus ensuring bubble tight sealing at all differential pressures.



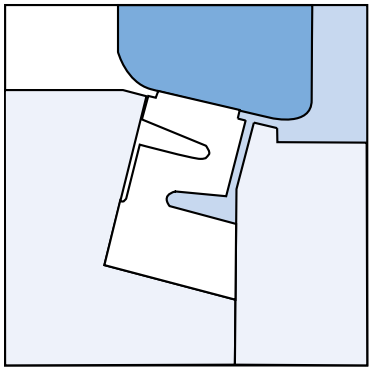
Seat is non-compressed as disc approaches.



Disc is closed with no line pressure.



Disc in closed position; Line pressure applied from left side.



Disc in closed position; Line pressure applied from right side.

Sealing System Advantages

The IFC Series BH150W/L Butterfly Valve incorporates an innovative seat design that ensures bi-directional bubble tight seating at all differential pressures. Advantages of the IFC sealing system include:

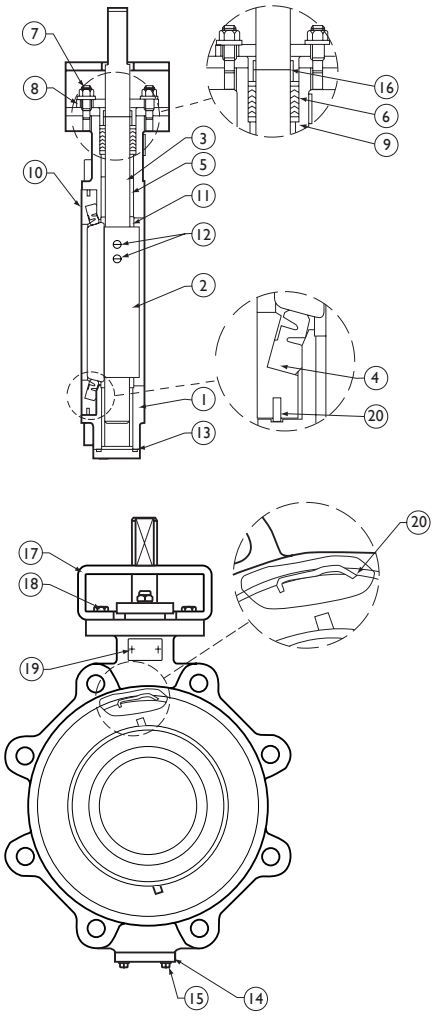
- As system differential pressure increases the seat-disc interface proportionally tightens to maintain an effective seal.
- The seat assembly is locked and slightly compressed in the body recess by a full-faced seat retainer, thus ensuring the seat is secure regardless of the disc position.
- The seat is self adjusting to temperature changes and wear.
- The full face seat retainer is held in place by a circumferential snap spring constructed from Inconel. Unlike competitive designs that use bolts to retain the seat and seat retainer, the IFC design results in "ZERO" interruption across the full gasket seating surface.
- Since no special tools are required for the removal of the seat retainer, seat replacement is extremely easy. Remove the seat retainer by rotating it counter-clockwise, rotate the disc into the closed position and place a new seat into the seat chamber machined into the valve body.

ISLIP FLOW CONTROLS Inc.

IFC Series BH150W/L
Valve Construction Data

Material Specifications

Part No.	Part Name	Material: Carbon Steel	Material: Stainless Steel
1	Body	ASTM A216-WCB	ASTM A351-CF8M (316 SS)
2	Disc	ASTM A351-CF8M (316 SS)	ASTM A351-CF8M (316 SS)
3	Shaft	ASTM A276-316	ASTM A276-316
4	Seat	PTFE/RPTFE	PTFE/RPTFE
5	Bushings x 2	High Temperature Fiberglass Composite Backed RPTFE	High Temperature Fiberglass Composite Backed RPTFE
6	Packing	PTFE - V-Type	PTFE - V-Type
7	Packing Hardware	300 Series Stainless Steel	300 Series Stainless Steel
8	Gland Retainer	ASTM A216-WCB	ASTM A351-CF8M (316 SS)
9	Inner Gland Ring	ASTM A276-316	ASTM A276-316
10	Seat Retainer	ASTM A351-CF8M (316 SS)	ASTM A351-CF8M (316 SS)
11	Thrust Washer	ASTM A276-316	ASTM A276-316
12	Disc Pin	ASTM A276-316	ASTM A276-316
13	O-Ring	Viton	Viton
14	End Cap	ASTM A351-CF8M (316 SS)	ASTM A351-CF8M (316 SS)
15	End Cap Hardware	300 Series Stainless Steel	300 Series Stainless Steel
16	Shaft Retainer Ring	ASTM A276-302	ASTM A276-302
17	Support	ASTM A216-WCB	ASTM A351-CF8M (316 SS)
18	Support Hardware	Plated Carbon Steel	300 Series Stainless Steel
19	Name Plate	300 Series Stainless Steel	300 Series Stainless Steel
20	Spring	Inconel X750	Inconel X750



Standards of Construction

Component	Standard
General Design	API 609, ASME B16.34
Laying Length	MSS-SP-68
Inspection and Testing	API 598

Steam Rating (Saturated)

Seat Material	W.S.P. psig (Bars)
RPTFE	150 (10.34)
PTFE	70 (4.82)

Note: Steam ratings refer to On-Off service only. For throttling applications, consult factory.

Upper Pressure Limits (Non-Shock)

Body Material	M.A.W.P. psig (Bars) [1]
WCB	285 (19.65)
CF8M	275 (18.96)

Notes: 1. Pressures refer to valve body only. Seat ratings may limit M.A.W.P.
2. Standard vacuum rating is 10 mm Hg.

Lower Temperature Limits

Body Material	Lower Limit ¡F (¡C)
WCB	-20 (-28.9)
CF8M	-20 (-28.9)

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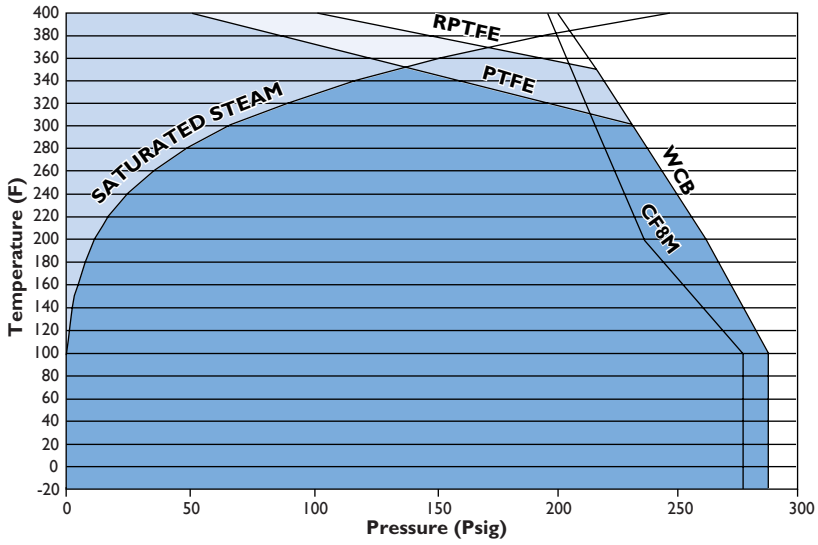
IFC Series B1150W/L Valve Sizing Data

IFC BH150W/L Pressure Temperature Chart



CV Values (US-GPM @ 1 Psid)

Size in.	CV Rating
2 1/2"	90
3"	205
4"	403
6"	1075
8"	2243
10"	3885
12"	5925

Note: CV is defined as the volume of water in USGPM that will flow through a given restriction or valve opening with a pressure drop of one (1) psi at room temperature.

Method Of Calculating Flow

Liquid Flow

$$QL = C_v \sqrt{\frac{\Delta P}{g}}$$

QL = flow rate of liquid (gal./min.)
ΔP = differential pressure across the valve (psi)
g = specific gravity of liquid: water = 1.000

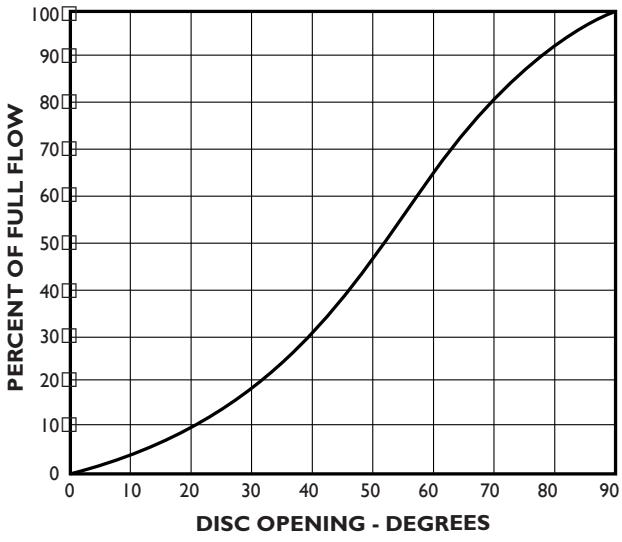
Gas Flow

For non-critical flow ($\frac{\Delta P}{P_2} < 1.0$)

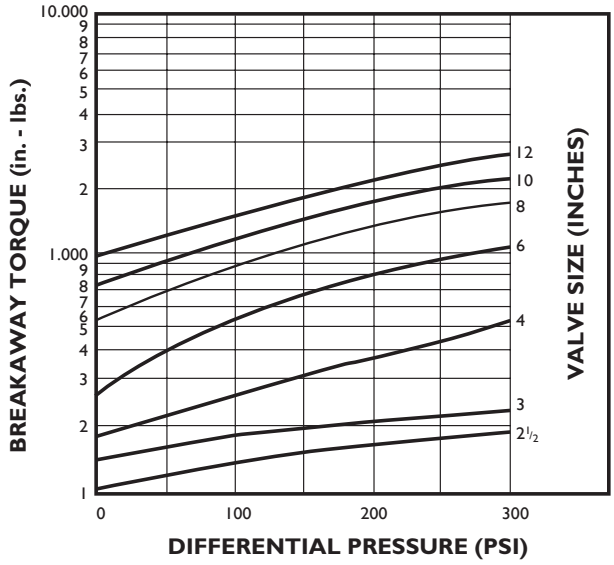
$$Qg = 61\ C_v \sqrt{\frac{P_2\ \Delta P}{g}}$$

Qg = flow rate of gas (CFH at STP)
P_2 = outlet pressure (psia)
g = specific gravity of gas: air = 1.000

Typical Flow Characteristic Curve

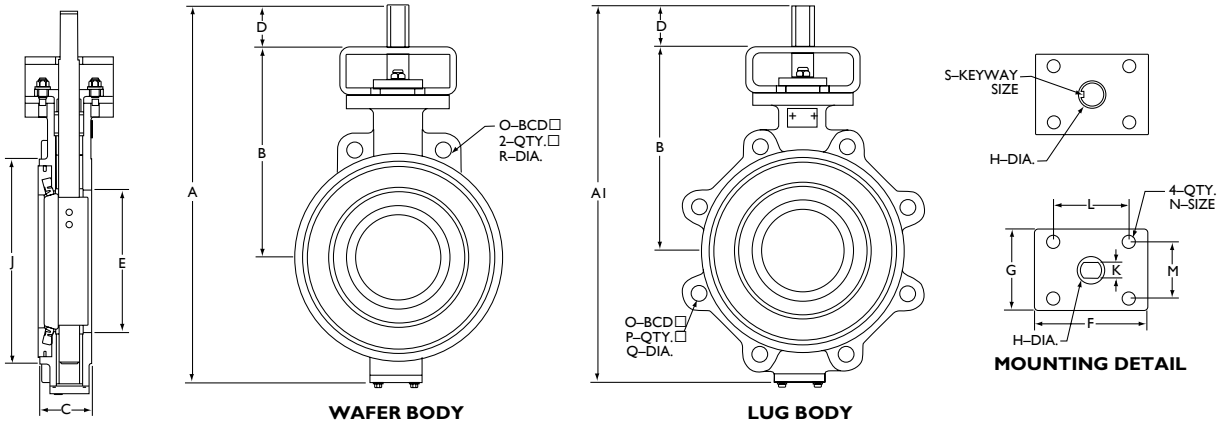


Valve Breakaway Torque (In. Lbs.)



Notes: 1. Selection of actuator torque output must meet or exceed the maximum torque required by the valve.
2. Under certain conditions, hydrodynamic torque can exceed the breakaway torque and must be considered in selection of actuators.

IFC Series BH150W/L
Dimensions - Sizes 2 1/2 to 12

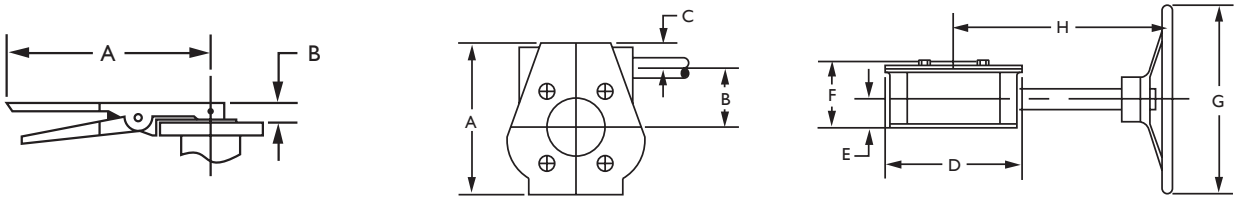


Valve Dimensions

Size in (mm)	A in (mm)	A1 in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)	N in (mm)	O in (mm)	P	Q in	R in (mm)	S in (mm)
2 1/2"	10.91	10.91	6.61	1.88	1	2.75	3.56	2.75	0.5625	4.41	0.375	3.25	1.50	0.35	5.5	4	5/8"-11 UNC	0.69	-
65	277	277	168	48	25	70	90	70	14	112	10	83	38	9	140			18	
3"	11.75	11.75	7.00	1.88	1	3.38	3.56	2.75	0.5625	5.19	0.375	3.25	1.50	0.35	6	4	5/8"-11 UNC	0.69	-
75	298	298	178	48	25	86	90	70	14	132	10	83	38	9	152			18	
4"	13.88	14.38	8.56	2.13	1	4.31	3.56	2.75	0.6250	6.38	0.500	3.50	2.00	0.41	7.5	8	5/8"-11 UNC	0.69	-
100	353	365	217	54	25	109	90	70	16	162	13	89	51	10	191			18	
6"	16.13	16.56	9.75	2.25	1	6.25	5.31	3.75	0.8750	8.56	0.625	3.50	2.00	0.41	9.5	8	3/4"-11 UNC	0.81	-
150	410	421	248	57	25	159	135	95	22	217	16	89	51	10	241			21	
8"	18.75	19.25	10.63	2.5	1.75	8.25	5.31	3.75	1.1250	10.63	0.875	4.00	2.50	0.56	11.75	8	3/4"-11 UNC	0.81	-
200	476	489	270	64	44	210	135	95	29	270	22	102	64	14	298			21	
10"	22.75	23.63	12.25	2.81	2.93	10.31	5.31	3.75	1.1250	12.81	0.875	4.75	3.25	0.56	14.25	12	7/8"-11 UNC	0.94	-
250	578	600	311	71	74	262	135	95	29	325	22	121	83	14	362			24	
12"	26.25	27.38	14.38	3.19	3.03	12.25	4.93	3.75	1.2500	15.25	-	5.00	3.50	0.69	17	12	7/8"-11 UNC	0.94	0.25x1.38
300	667	695	365	81	77	311	125	95	32	387		127	89	18	432			24	

Notes: 1. Quantity P and dimension Q refer to lug style. Dimension R refers to wafer style.
2. Valves are designed for installation between ASME B16.5 Class 150 flanges.
3. Gaskets are required.
4. Dimension H is +/- 0.0008"
5. Dimension K is +/- 0.001"
6. Dimension S is +/- 0.001"

Manual Actuator Dimensions



Lever

Valve Size in (mm)	A in (mm)	B in (mm)	Weight Lb. (Kg)
2 1/2" - 4"	10.50	1.25	2
65-100	267	32	0.9
6" - 12"	14.13	1.97	5
150-300	359	50	2.3

Note: It is recommended that handles be used thru 6" valve size for liquid or rated pressure service. 8" - 12" valves with handles should only be used on gas and low pressure applications.

Gear

Valve Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	Weight Lb. (Kg)
2 1/2" - 6"	5.00	1.75	1.13	4.13	1.31	2.63	6.00	7.63	10.4
65-150	127	44	29	105	33	67	152	194	4.7
8" - 12"	7.00	2.63	1.38	6.00	1.69	3.38	12.00	10.57	26.5
200-300	178	67	35	152	43	86	305	268	12

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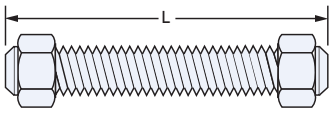
IFC Series BH150W/L
Required Bolt Lengths

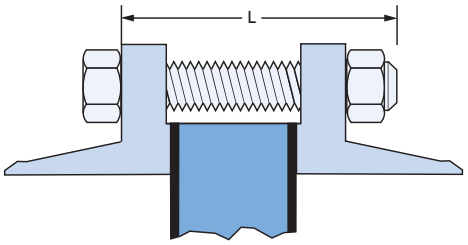
Wafer- Recommended Flange Bolt Lengths

Valve Size	Qty.	Bolt Size	Length Of Fasteners (L) Threaded Studs	Bolts
2 1/2"	4	5/8"-UNC	5 1/8"	4 5/8"
3"	4	5/8"-UNC	5 3/8"	4 5/8"
4"	8	5/8"-UNC	5 3/8"	4 7/8"
6"	8	3/4"-UNC	6 1/8"	5 3/8"
8"	8	3/4"-UNC	6 5/8"	5 7/8"
10"	12	7/8"-UNC	7 3/8"	6 3/8"
12"	12	7/8"-UNC	7 7/8"	7 1/8"

Note: Bolt lengths are based on ANSI class 150 weld neck flanges per ASME B16.5 and a gasket thickness of 0.13".



THREADED STUDS

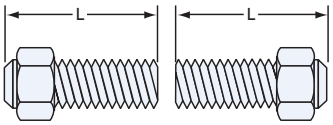


BOLTS

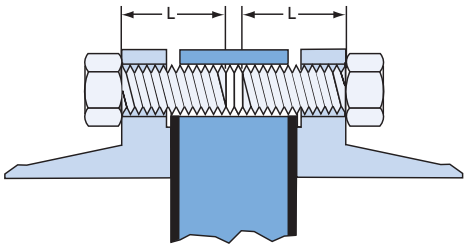
Lug-Recommended Flange Bolt Lengths

Valve Size	Qty.	Bolt Size	Length Of Fasteners (L) Threaded Studs	Bolts
2 1/2"	4	5/8"-UNC	2 5/8"	2 1/4"
3"	4	5/8"-UNC	2 3/4"	2 1/4"
4"	8	5/8"-UNC	2 7/8"	2 5/8"
6"	8	3/4"-UNC	3 1/8"	2 5/8"
8"	8	3/4"-UNC	3 3/8"	2 7/8"
10"	12	7/8"-UNC	3 3/4"	3 1/8"
12"	12	7/8"-UNC	4"	3 1/2"

Note: Bolt lengths are based on ANSI class 150 weld neck flanges per ASME B16.5 and a gasket thickness of 0.13".



THREADED STUDS



BOLTS

IFC Series BH150W/L Valve Weights

Valve Size	2 1/2	3	4	6	8	10	12
Wafer (Lb.)	12	12	16	30	50	80	150
Wafer (Kg.)	5.4	5.4	7.3	13.6	22.7	36.3	68.0
Lug (Lb.)	17	17	23	42	70	112	210
Lug (kg.)	7.7	7.7	10.4	19.1	31.8	50.8	95.3

Note: Valve weights refer to valve only.