

# Engineering Specification

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

## Series 94 High Performance Double Offset Stainless Steel Butterfly Valves

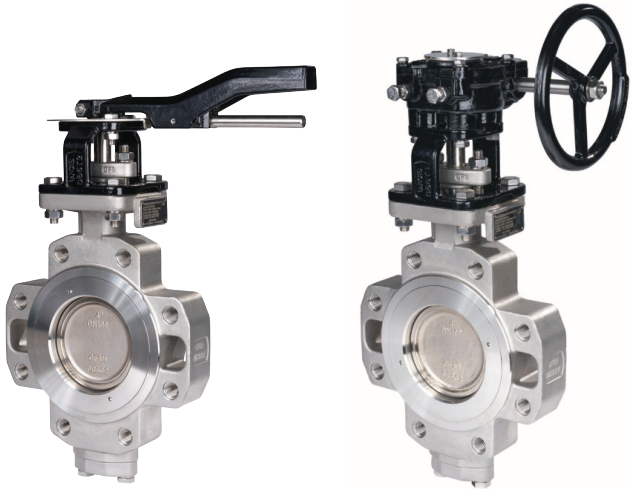
2" – 12"

These high-performance stainless steel butterfly valves are specifically designed for liquid cooling applications in data centers, including chilled water, glycol-based solutions, and dielectric fluids. Typical installations include primary and secondary loops, equipment manifolds, and isolation points within data center cooling systems. These valves are well-suited for both on-off and throttling service, offering reliable operation in demanding environments.

The double-offset design ensures reduced seat wear and bi-directional, bubble-tight shutoff. Lug models are capable of dead-end service at full rated pressure. All valves are 100% factory tested for performance and leak integrity. Constructed from 316 stainless steel with reinforced seats and ISO 5211 mounting flanges, these valves are ideal for indoor or outdoor installations and compatible with electric or pneumatic actuators for remote operation.

### Features

- Double-offset disc design minimizes seat wear and extends service life
- Bi-directional bubble-tight shutoff for reliable isolation performance
- One-piece shaft and disc connection ensures strength and reduces failure risk
- ISO 5211 mounting flange for easy actuator integration
- Blowout-proof shaft design for safety and durability
- Extended neck design allows for pipe insulation without obstructing operation
- Low operating torque supports smaller actuators and energy-efficient control
- Corrosion-resistant materials, including CF8M stainless steel for body and disc
- High Cv values for excellent flow capacity and reduced pressure loss
- Rated for indoor and outdoor applications with IPX8 gear operator for watertight protection



94SHH81 SS HPBFV

94SHH85 SS HPBFV

Call customer service if you need assistance with technical details.

PRESSURE/TEMPERATURE - NON SHOCK			
MODEL	SIZE	MATERIAL	RATING
94	2" - 12"	Stainless Steel	285psi

Max. temp. can be limited by seat material. Consult Factory.

### Approvals

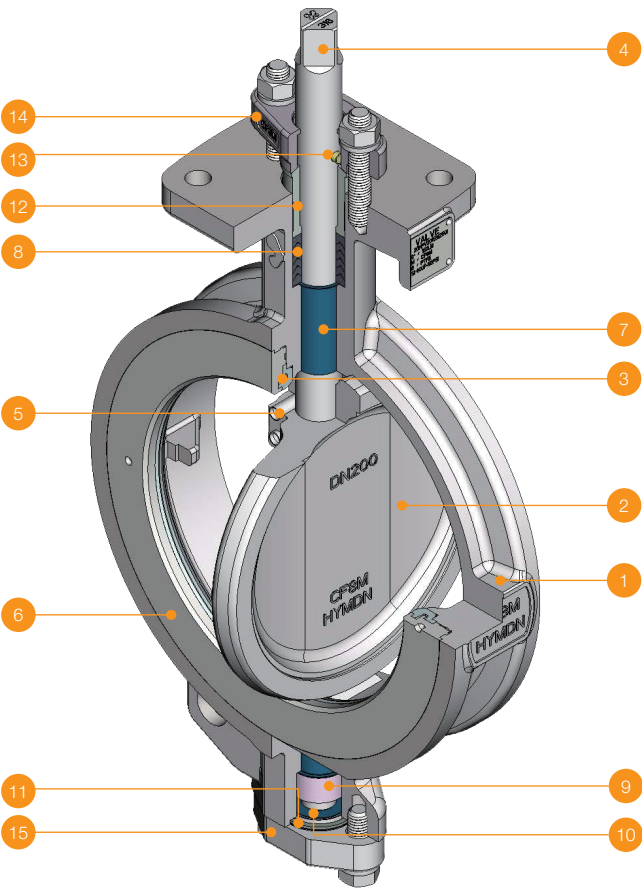
- Designed and tested in accordance with API 609 for high performance butterfly valves
- Tested per API 598
- Pressure-temperature ratings comply with ASME B16.34 Face-to-face dimensions per API 609
- Flange compatibility per ASME B16.5

### NOTICE

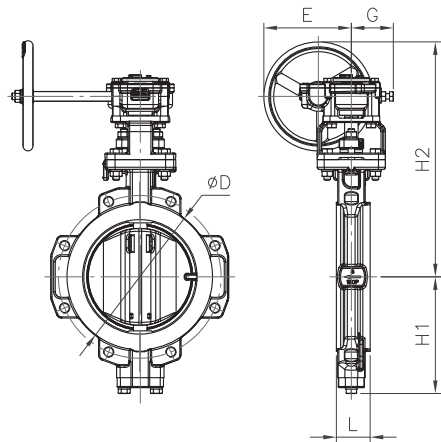
The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

Materials

ITEM	NAME	QTY	MATERIAL
1	Body	1	A351 Gr. CF8M
2	Disc	1	A351 Gr. CF8M
3	Seat	1	RTFE (PTFE +Graphite)
4	Stem	1	A564 TYPE 630
5	Taper Pin	2	A182 Gr. F316L
6	Retainer Ring	1	A351 Gr. CF8M
7	Stem Bush	2	B-Woven Fabric Metal
8	Gland Packing	1	RTFE (PTFE +Graphite)
9	Thrust Ring	1	A351 Gr. CF8M
10	Thrust Plate	1	B-Woven Fabric Metal
11	Gasket	1	PTFE
12	Gland Bush	1	A351 Gr. CF8M
13	Anti-Blow-Out Pin	1	A182 Gr. F316
14	Gland Flange	1	A351 Gr.CF8
15	Bottom Cover	1	A351 Gr. CF8M



Dimensions

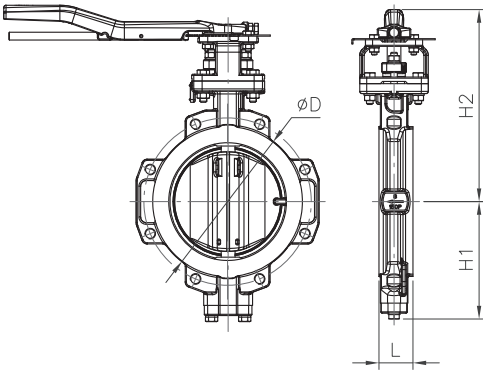


Gear Operator (Sizes 2" - 12")

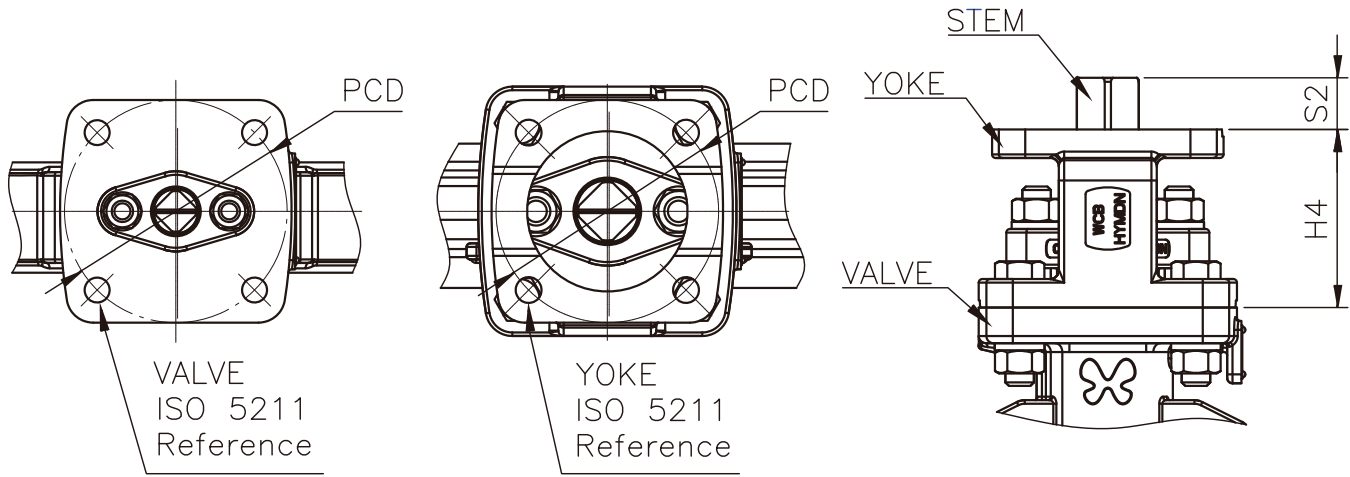
SIZE	DIMENSIONS						WEIGHT (LB)
<i>in</i>	L	D	H1	H2	G	E	Handwheel Diameter
2	1¾"	3¾"	4⅝"	12⅞"	5⅞"	4⅜"	4"
2½	1⅞"	4⅞"	4⅝"	12⅞"	5⅞"	4⅜"	4"
3	1⅞"	4⅝"	5¼"	12⅞"	5⅞"	4⅜"	6"
4	2⅞"	6⅞"	5⅝"	12⅝"	5⅞"	4⅜"	6"
6	2¼"	8⅞"	7½"	14⅞"	5⅞"	4⅜"	6"
8	2⅞"	10⅞"	8⅞"	16⅝"	6⅞"	6⅞"	7⅞"
10	2¾"	12⅝"	10"	18⅞"	6⅞"	6⅞"	7⅞"
12	3⅞"	14⅞"	11¼"	20⅝"	7⅞"	7⅞"	7⅞"

Lever Handles (Sizes 2" - 6")

SIZE	L	D	H1	H2	Lever Handle Length	WEIGHT (LB)
<i>in</i>						
2	1¾"	3¾"	4⅝"	12⅞"	8⅜"	20
2½	1⅞"	4⅞"	4⅝"	12⅞"	8⅜"	22
3	1⅞"	4⅝"	5¼"	12⅞"	8⅜"	24
4	2⅞"	6⅞"	5⅝"	12⅝"	8⅜"	33
6	2¼"	8⅞"	7½"	14⅞"	11⅜"	51



# Yoke



SIZE	H4	S2	YOKE	PCD	VALVE
<i>in</i>			<i>ISO</i>	<i>PCD</i>	<i>ISO</i>
2	2.76	0.63	F07	2.76	F10
2.5	2.76	0.63	F07	2.76	F10
3	2.76	0.63	F07	2.76	F10
4	2.76	0.63	F07	2.76	F10
6	2.76	0.75	F07	2.76	F10
8	3.15	0.83	F10	4.02	F12
10	3.15	0.94	F10	4.02	F12
12	3.94	1.14	F12	4.92	F14

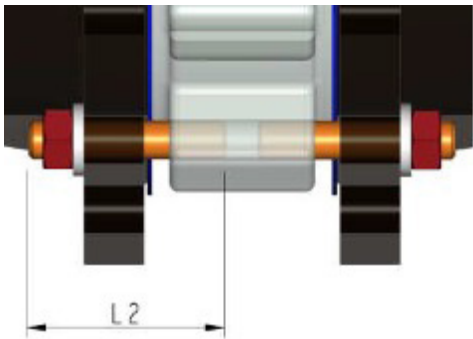
# Cv Flow Coefficient

SIZE		CV VALUE										
mm	in	10°	20°	30°	40°	45°	50°	60°	70°	80°	85°	90°
50	2	0	8	22	36	44	51	60	69	72	70	70
65	2.5	2	16	38	61	71	83	109	135	146	152	150
80	3	6	33	62	94	108	118	143	176	208	230	227
100	4	16	58	106	155	178	213	274	349	433	465	473
150	6	40	147	242	335	382	422	560	729	925	975	1010
200	8	66	237	368	509	606	712	985	1296	1640	1715	2004
250	10	139	390	595	807	963	1168	1606	2134	2814	3180	3199
300	12	204	548	820	1138	1357	1591	2219	3067	4085	4484	4672

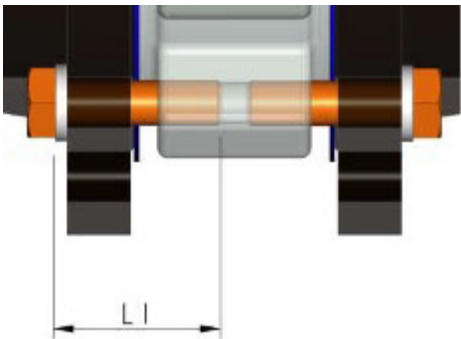
# Torque Chart

SIZE					
mm	in	ΔP 87 psi	ΔP 145 psi	ΔP 232 psi	ΔP 290 psi
50	2	195	239	292	336
65	2.5	212	248	310	354
80	3	248	319	381	425
100	4	310	372	487	655
150	6	540	743	1115	1372
200	8	894	1381	2106	2215
250	10	1407	2195	3372	3531
300	12	2266	3478	5293	6169

Bolt Charts



Stud Bolts



HEX Bolts

Valve Size		Bolts Size	STUD BOLTS			HEX BOLTS	
			Length, L2 inch	Qty. Bolts	Qty. Nuts	Length, L1 inch	Qty. Bolts
50	2"	5/8"-11UNC	2.5	8	8	1.75	8
65	2.5"	5/8"-11UNC	3	8	8	2	8
80	3"	5/8"-11UNC	3	8	8	2	8
100	4"	5/8"-11UNC	3	16	16	2	16
150	6"	3/4"-10UNC	3.5	16	16	2.5	16
200	8"	3/4"-10UNC	3.5	16	16	2.5	16
250	10"	7/8"-9UNC	3.5	24	24	2.5	24
300	12"	7/8"-9UNC	3.5	24	24	2.5	24

How to order Mueller Steam Specialty  
Model 94 Butterfly Valves

Example: 04.0-94SHH81

This is a 4 lugged body valve with a stainless steel body, 316 SS stem,  
316 SS Disc, RTFE Seat and a ten position handle

4.0 - 94- SHH - 8 - 1

SIZE: \_\_\_\_\_

MODEL: \_\_\_\_\_  
94 - Full Lug

BODY: \_\_\_\_\_  
S - Stainless Steel

STEM: \_\_\_\_\_  
H - 316SS

DISC: \_\_\_\_\_  
H - 316SS

SEAT: \_\_\_\_\_  
8 - RTFE (PTFE + Graphite)

OPERATOR: \_\_\_\_\_  
1 - 10-Position Lever handle (Only offered on sizes 2"-6")  
5 - Gear Operator



A WATTS Brand

