

215 / 230 SERIES

DOUBLE OFFSET HIGH PERFORMANCE

Apollo International™ 215 and 230 Series double offset high performance butterfly valves are available in wafer or lug body design. Stainless steel models are certified lead-free with stainless steel disc and 17-4PH stainless steel stem.

FEATURES

- 215 Series Class 150# Carbon Steel (CWP 285) and 316 SS (CWP 275) 2" to 36"
- 230 Series Class 300# Carbon Steel (CWP 740) and 316 SS (CWP 720) 2" - 24"
- ISO 5211 mounting flange allows choice of Apollo actuators and manual operators
- Multi-bolt retainer holds and supports the seat. Standard valves are suitable for bi-directional dead-end service at the full pressure-temperature rating of the valve. Same material as the body
- Well-suited for a wide range of liquid and steam applications, defined in the high performance butterfly valve pressure-temperature charts
- Vacuum service to 29" Hg
- Soft seats made from TFM 1700

APPROVALS AND CERTIFICATIONS

- NSF/ANSI/CAN 61 - Water Quality and NSF/ANSI 372 - Lead Free 2"- 24", 215 & 230 Series with 316/CF8M Stainless Steel Body and Trim
- Registered under Canadian Registration Number CRN# OC17459.CL
- CE marking and documented valves that conform to the European Pressure Equipment Directive (PED) 2014/68/EU are available in ANSI Class 150/300 including soft seat configurations (sizes 2"-24" only)

STANDARDS COMPLIANCE

- | | |
|-------------------|---|
| • ASME B16.10 | "Face to Face and End to End Dimensions of Valves" |
| • ASME B16.34 | "Valves - Flanged, Threaded, and Welding End" |
| • ASME B16.5 | "Pipe Flanges and Flanged Fittings" |
| • ANSI/FCI 70-2 | "For Control Valve Seat Leakage" |
| • MSS SP-25 | "Standard Marking System for Valves" |
| • MSS SP-44 | "Steel Pipe Line Flanges" |
| • MSS SP-55 | "Quality Standards for Steel Castings" |
| • MSS SP-61 | "Pressure Testing of Steel Valves" |
| • MSS SP-68 | "High Pressure Butterfly Valves with Offset Design" |
| • API 598 | American Petroleum Institute - "Valve Inspection and Testing" |
| • API 609 | American Petroleum Institute - "Butterfly Valves: Double Flanged, Lug and Wafer Type" |
| • NSF/ANSI/CAN 61 | "Drinking Water System Components - Health Effects" (2" - 24", Stainless 215 & 230) |
| • NSF/ANSI 372 | "Drinking Water System Components - Lead Content" (2" - 24", Stainless 215 & 230) |

SERVICES

BIDIRECTIONAL

- Valves are suitable for flow in either direction.

DEAD-END/END-OF-PIPE

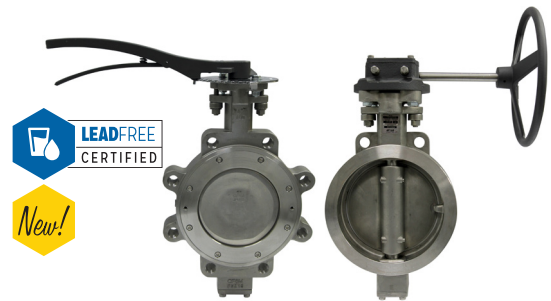
- Valves are suitable for service at the end of a pipe, also known as "dead-end" service. Valve can be oriented in either direction.

VACUUM

- Standard valves are rated for 29" Hg vacuum.

STEAM

- Valves are well-suited for a wide range of steam applications. The following steam working pressure (SWP) ratings apply to 215/230 models with standard TFM 1700 soft seats.
 - 215 Series class 150# rated at 200 SWP
 - 230 Series class 300# rated at 250 SWP



215 / 230 SERIES ADVANTAGES

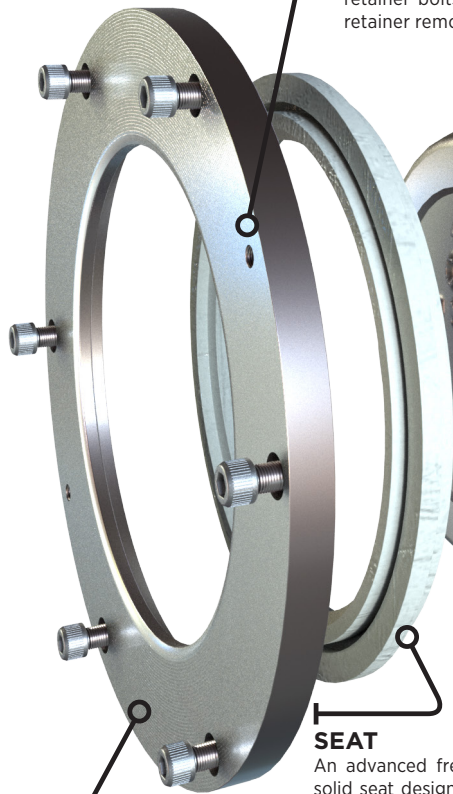
SHAFT (BLOWOUT PROOF)
17-4 PH stainless steel shaft with high strength and good corrosion resistance. Designed per API 609 standard.

ISO 5211 MOUNTING FLANGE
Universal mounting dimensions simplify valve actuation. Allows for direct mounting of a variety of actuators.

EXTENDED NECK
Allows for 2" of pipe insulation.

BODY
Robust one-piece casting in WCB carbon steel or CF8M stainless steel. Available in wafer & lug style.

JACKING TAPS
Allows the use of seat retainer bolts to aid in retainer removal.



DISC
Standard material is 316 SS.

SEAT
An advanced free floating, pressure assisted, solid seat design provides an interference and pressure assisted seal. This creates a positive seal under both low and high pressure requirements. The seat does not rely on any secondary components to hold it in place, assuring longer service life with less maintenance.

SEAT RETAINER
Reliable multi-bolt retainer holds and supports the seat. Standard valves are suitable for bi-directional dead-end service at the full pressure-temperature rating of the valve. Same material as body material.

SHAFT PACKING
V-ring PTFE, UHMWPE or flat graphite provides positive sealing.

ROCKER PACKING GLAND
Shaped packing gland compensates for uneven adjustment of gland nuts.

ANTI-EXTRUSION RING
Prevents the extrusion of shaft seals, maintaining optimum seal.

WASHERS
Belleville washers with live loading technology featured on valves with graphite packing.

BEARING (UPPER)
Full length provides maximum shaft support. Made of 316 SS/PTFE.

CORROSION PROTECTION
Polyamide epoxy primer with high performance polyurethane topcoat is the standard finish for carbon steel valve bodies.

POSITIVE CAST DISC STOP
Prevents seat damage from over-travel of the disc beyond the closed position.

TANGENTIAL DISC PINS
17-4 PH stainless steel disc pins are tangentially positioned, placing them in compression rather than shear. This robust joint design eliminates potential failure of the disc-stem connection.

BEARING (LOWER)
Full length provides maximum stem support. Made of 316 SS/PTFE.

THRUST RING
Centers the disc. Ensures tight shutoff and long service life. Made of 316 SS.

END CAP SEAL
Made of PTFE, UHMWPE or graphite.

BUTTERFLY VALVES

215 / 230 SERIES HOW TO SPECIFY

2	15	L	06	C	S	P	8T	A	0
VALVE TYPE	CLASS	VALVE STYLE	SIZE	BODY MATERIAL	DISC MATERIAL	STEM & PIN MATERIAL	SEAT MATERIAL	SPECIAL SERVICE	OPERATOR
2 - DOUBLE OFFSET	15 (150) 30 (300)	L - LUG W - WAFER	02 (2")	CARBON STEEL	STAINLESS STEEL	P - 17-4 PH SS	8T - RTFM (TFM 1700 W/GLASS)	A - STANDARD APOLLO	0 - BARE STEM
			25 (2.5")	C - A216 WCB	S - A351 CF8M (316 SS)				1 - LEVER OPERATOR ²
	03 (3")				2 - WORM GEAR OPERATOR				
	04 (4")	STAINLESS STEEL							
	05 (5")	B - 316 SS				5 - WORM GEAR OPERATOR W/ CHAIN WHEEL			
	06 (6")								
	08 (8")								
	10 (10")						7 - LOCKING WORM GEAR OPERATOR		
	12 (12")								
	14 (14")								
	16 (16")							8 - LOCKING WORM GEAR OPERATOR W/ CHAIN WHEEL	
	18 (18")								
	20 (20")								
24 (24")									
30 (30")									
36 (36")									

EXAMPLE:
215L06CSP8TA0 = 6" Class 150 Lug, Carbon Steel Body, SS Disc, 17-4 PH Stem, TFM 1700 Seats, Standard Service, Bare Stem

() Represents close wrought equivalent

¹ 215L Only

² Standard handle can be locked in the full open or fully closed position.

Lever operators are available with 2"-12" class 150 valves (215), and 2"-10" class 300 valves (230)

See table for Lever Handle Availability & Maximum Differential Pressure

Safety Warning:

Gear operators are normally specified for larger high performance butterfly valves because the force of the pipeline flow on the disc can be too great to safely use a handle.

LEVER HANDLE AVAILABILITY & MAXIMUM DIFFERENTIAL PRESSURE

		SOFT SEAT (CODES: 8T & 21)	
		PSI	BAR
Class 150	215	2"-6"	Full Rating
		8"	150 10.3
		10"-12"	50 3.4
Class 300	230	2"-4"	Full Rating
		6"-8"	150 10.3
		10"	50 3.4

215 / 230 SERIES

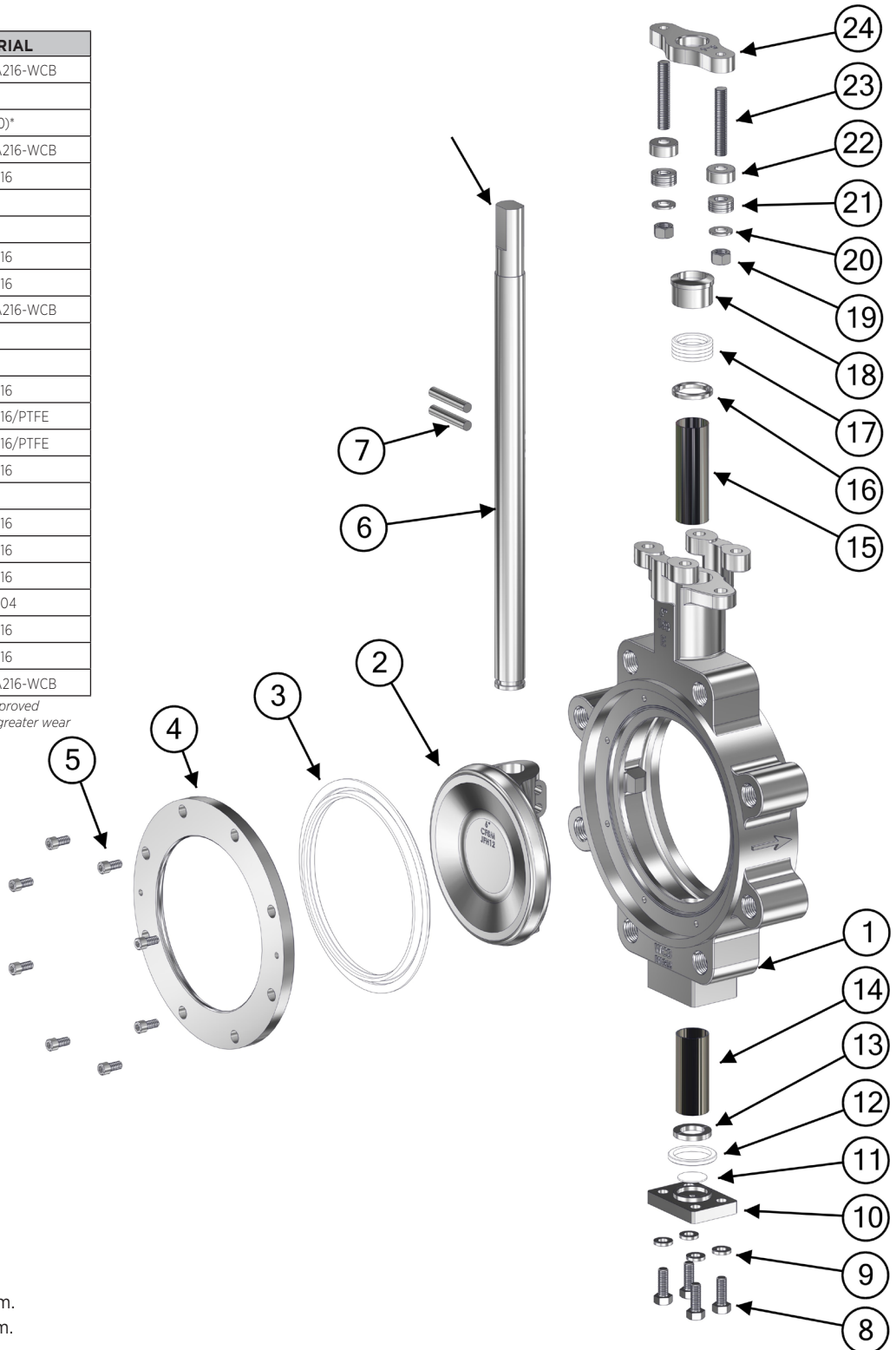
RESILIENT SEAT

CLASS 150 - 2" THRU 24", 30", 36" | CLASS 300 - 2" THRU 24"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	A351-CF8M or A216-WCB
2	Disc	A351-CF8M
3	Seat	RTFM (TFM 1700)*
4	Seat Retainer	A351-CF8M or A216-WCB
5	Seat Retainer Bolt	Stainless Steel 316
6	Stem	17-4PH
7	Disc Pin	17-4PH
8	End Cap Bolt	Stainless Steel 316
9	Washer	Stainless Steel 316
10	End Cap	A351-CF8M or A216-WCB
11	Spacer	PTFE
12	End Cap Seal	PTFE
13	Thrust Ring	Stainless Steel 316
14	Lower Bearing	Stainless Steel 316/PTFE
15	Upper Bearing	Stainless Steel 316/PTFE
16	Anti-Extrusion Ring	Stainless Steel 316
17	Stem Packing	PTFE
18	Packing Gland	Stainless Steel 316
19	Gland Nut	Stainless Steel 316
20	Washer	Stainless Steel 316
21	Disc Spring	Stainless Steel 304
22	Disc Spring Retainer	Stainless Steel 316
23	Gland Studs	Stainless Steel 316
24	Gland Plate	A351-CF8M or A216-WCB

* TFM 1700 modified PTFE is a next-generation PTFE with improved properties. Added glass further improves the seat providing greater wear resistance and a higher modulus.



BUTTERFLY VALVES

EXPLODED VIEW
LUG DESIGN SHOWN

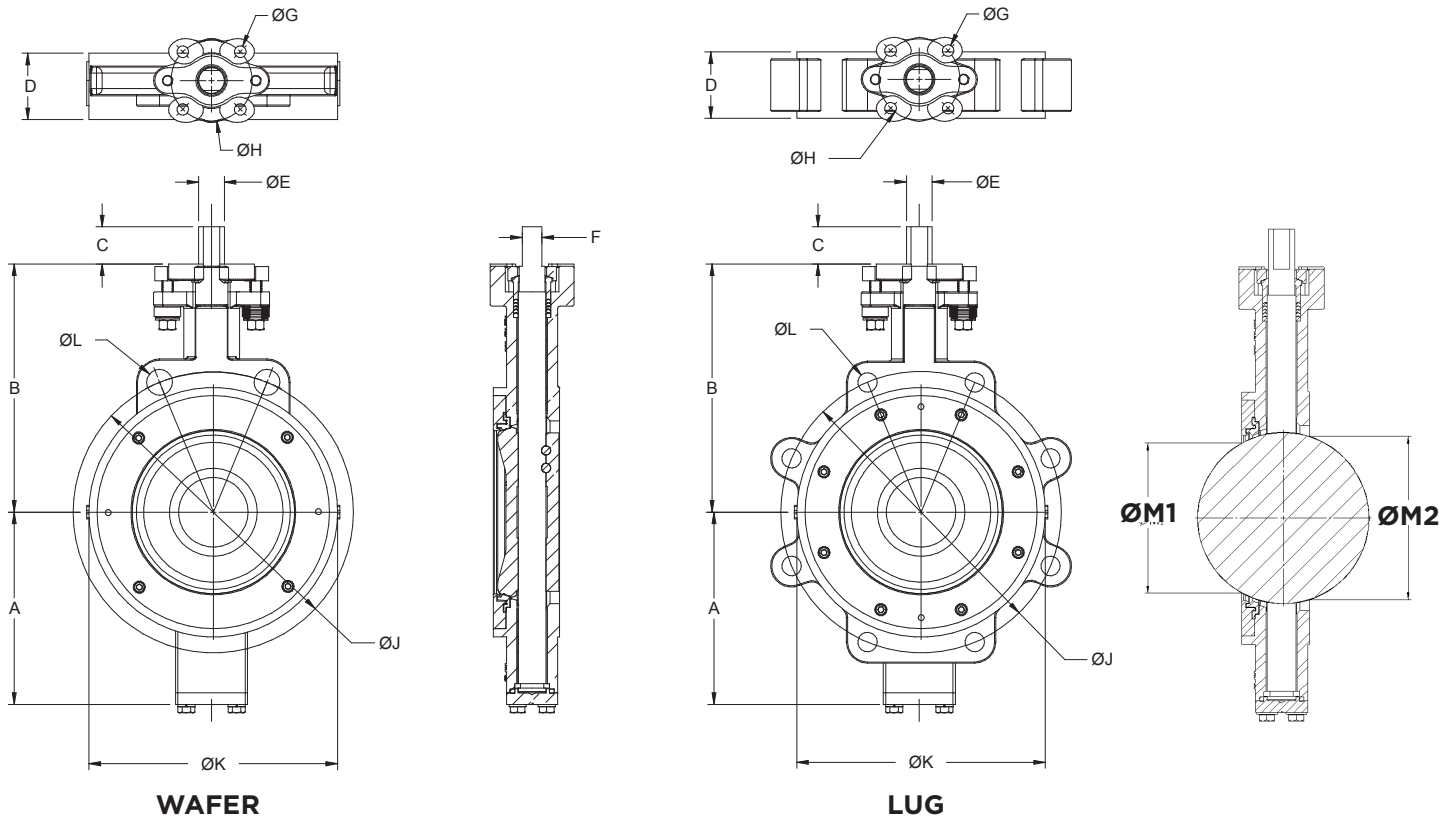
NOTE

- Class 150 Size 10" & larger have keyed stem.
- Class 300 Size 8" & larger have keyed stem.

215L/215W SERIES
CLASS 150 - 2" THRU 36"

Four hole mounting pattern shown.
See table column "G" for number of mounting holes.

BUTTERFLY VALVES



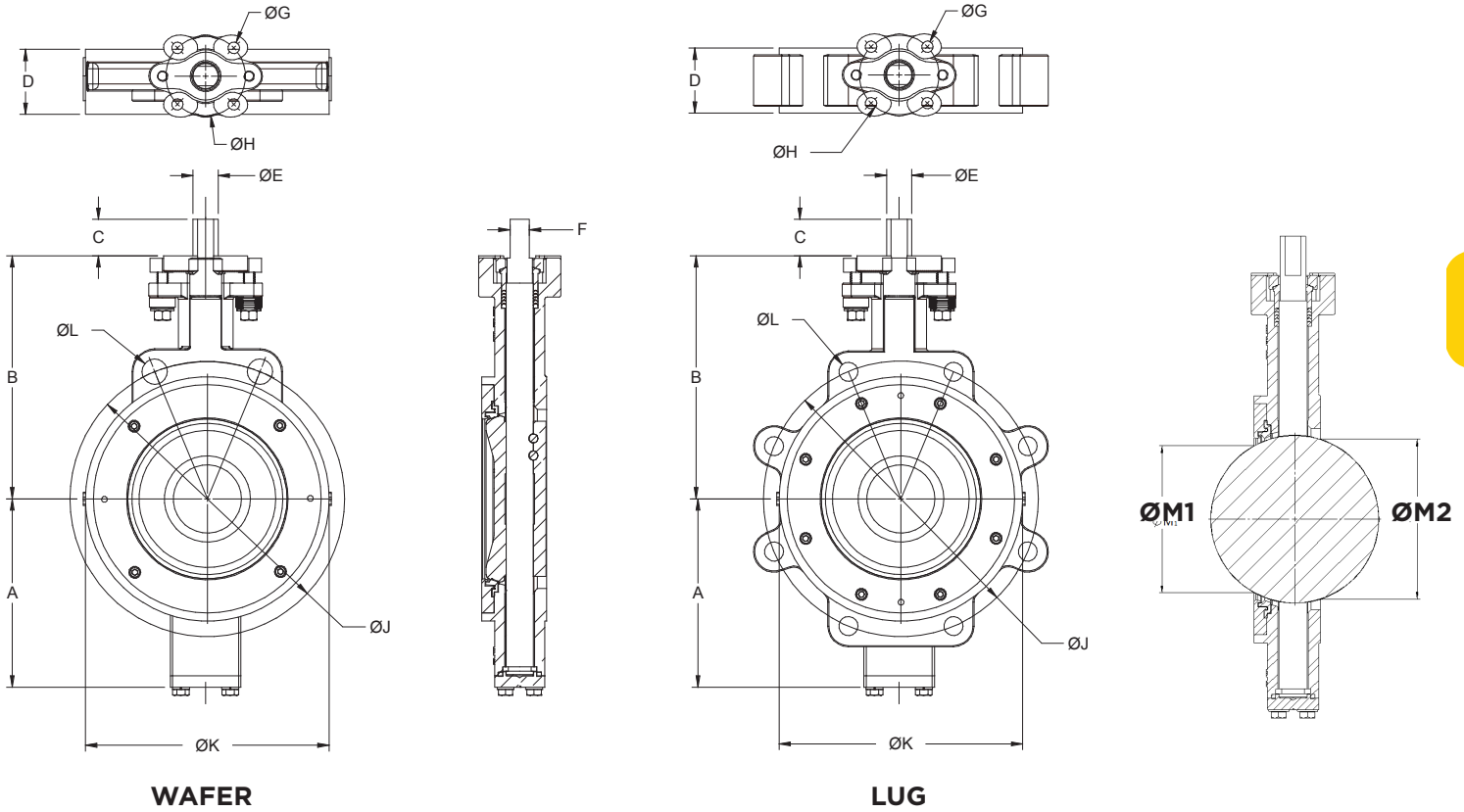
150 CLASS
DOUBLE-D AND KEYED STEM

SIZE (IN.)	SIZE DN	DIMENSIONS (IN.)														
		A	B	C	D	ØE	F	KEY	ØG	ØH**	ØJ	ØK	ØL WAFER	ØL LUG	ØM1	ØM2
2	50	3.622	5.276	1.102	1.693	0.476	0.354	--	4 x 0.394	2.756 (F07)	4.75	4.09	2 x 0.669	4 x 5/8"-11UNC-2B	0.50	1.64
2.5	65	4.016	5.787	1.102	1.850	0.555	0.433	--	4 x 0.394	2.756 (F07)	5.50	4.72	2 x 0.748	4 x 5/8"-11UNC-2B	1.48	2.06
3	80	4.331	6.142	1.102	1.890	0.555	0.433	--	4 x 0.394	2.756 (F07)	6.00	4.92	2 x 0.748	4 x 5/8"-11UNC-2B	1.67	2.58
4	100	4.764	7.008	1.260	2.126	0.713	0.551	--	4 x 0.394	2.756 (F07)	7.50	6.10	2 x 0.748	8 x 5/8"-11UNC-2B	2.76	3.46
5	125	5.591	7.598	1.260	2.244	0.874	0.669	--	4 x 0.394	2.756 (F07)	8.50	7.24	2 x 0.874	8 x 3/4"-10UNC-2B	3.94	4.49
6	150	6.496	8.386	1.259	2.244	0.874	0.669	--	4 x 0.394	2.756 (F07)	9.50	8.43	2 x 0.874	8 x 3/4"-10UNC-2B	5.02	5.46
8	200	7.165	9.449	1.260	2.520	0.992	0.748	--	4 x 0.551	4.921 (F12)	11.75	10.55	2 x 0.874	8 x 3/4"-10UNC-2B	6.95	7.26
10	250	8.386	10.827	2.165	2.795	1.102	--	0.313	4 x 0.551	4.921 (F12)	14.25	12.68	2 x 0.984	12 x 7/8"-9UNC-2B	8.85	9.15
12	300	10.236	12.283	2.165	3.189	1.417	--	0.375	4 x 0.551	4.921 (F12)	17.00	14.92	2 x 0.984	12 x 7/8"-9UNC-2B	10.37	10.70
14	350	11.811	13.307	2.559	3.622	1.654	--	0.437	4 x 0.709	5.512 (F14)	18.75	16.14	2 x 1.118	12 x 1"-8UNC-2B	11.89	12.25
16	400	13.307	15.354	3.150	4.016	1.969	--	0.500	4 x 0.866	6.496 (F16)	21.25	18.43	2 x 1.118	16 x 1"-8UNC-2B	13.59	13.94
18	450	14.803	16.732	3.149	4.488	1.969	--	0.500	4 x 0.866	6.496 (F16)	22.75	20.94	4 x 1.240	16 x 1-1/8"-8UNC-2B	15.65	15.91
20	500	15.748	17.717	4.331	5.000	2.362	--	0.625	4 x 0.866	6.496 (F16)	25.00	22.99	4 x 1-1/8"-8UNC-2B	20 x 1-1/8"-8UNC-2B	17.50	17.72
24	600	18.622	20.787	4.331	6.063	2.559	--	0.750	8 x 0.748	10.000 (F25)	29.50	27.24	4 x 1-1/4"-8UNC-2B	20 x 1-1/4"-8UNC-2B	20.94	21.01
*30	750	23.228	25.315	4.331	7.480	3.150	--	0.875	8 x 0.748	10.000 (F25)	36.00	36.42	--	28 x 1-1/4"-8UNC-2B	26.22	26.28
*36	850	26.575	28.740	4.331	7.992	3.150	--	0.875	8 x 0.906	11.732 (F30)	42.75	45.28	--	32 x 1-1/2"-8UNC-2B	32.29	32.35

*30" & 36" are Class 150 Lug Style only.
** ISO 5211 mounting/drilling pattern (F size) shown in parentheses.

230L/230W SERIES
CLASS 300 - 2" THRU 24"

Four hole mounting pattern shown.
See table column "G" for number of mounting holes.



BUTTERFLY VALVES

300 CLASS
DOUBLE-D AND KEYED STEM

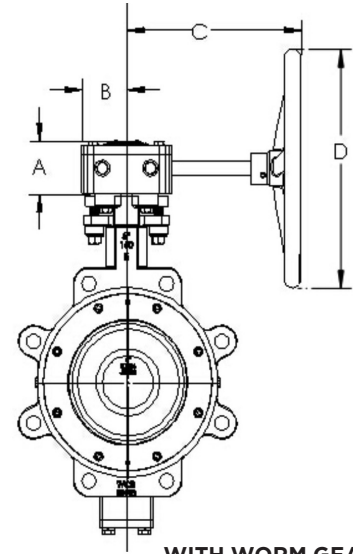
SIZE (IN.)	SIZE DN	DIMENSIONS (IN.)														
		A	B	C	D	ØE	F	KEY	ØG	ØH**	ØJ	ØK	ØL WAFER	ØL LUG	ØM1	ØM2
2	50	3.622	5.276	1.102	1.693	0.476	0.354	--	4 x 0.394	2.756 (F07)	5.00	4.17	2 x 0.709	8 x 5/8"-11 UNC-2B	0.50	1.64
2.5	65	4.016	5.787	1.102	1.850	0.555	0.433	--	4 x 0.394	2.756 (F07)	5.88	4.72	2 x 0.874	8 x 3/4"-10 UNC-2B	1.48	2.06
3	80	4.331	6.142	1.102	1.890	0.555	0.433	--	4 x 0.394	2.756 (F07)	6.62	4.92	2 x 0.874	8 x 3/4"-10 UNC-2B	1.67	2.58
4	100	4.764	7.008	1.260	2.126	0.713	0.551	--	4 x 0.394	2.756 (F07)	7.88	6.10	2 x 0.874	8 x 3/4"-10 UNC-2B	2.76	3.46
5	125	5.591	7.598	1.260	2.244	0.874	0.669	--	4 x 0.472	4.016 (F10)	9.25	7.24	2 x 0.874	8 x 3/4"-10 UNC-2B	3.94	4.49
6	150	6.496	8.386	1.259	2.323	0.874	0.669	--	4 x 0.472	4.016 (F10)	10.62	8.43	2 x 0.874	12 x 3/4"-10 UNC-2B	4.93	5.46
8	200	8.268	10.157	2.165	2.874	1.102	--	0.313	4 x 0.551	4.921 (F12)	13.00	10.55	2 x 0.984	12 x 7/8"-9 UNC-2B	6.73	7.19
10	250	9.449	11.417	2.165	3.268	1.417	--	0.375	4 x 0.551	4.921 (F12)	15.25	12.72	4 x 1"-8UNC-2B	16 x 1"-8 UNC-2B	8.44	8.85
12	300	10.63	12.795	2.559	3.662	1.654	--	0.437	4 x 0.709	5.512 (F14)	17.75	15.04	4 x 1-1/8"-8UN-2B	16 x 1-1/8"-8 UN-2B	10.17	10.62
14	350	12.756	14.764	3.150	4.606	1.969	--	0.500	4 x 0.866	6.496 (F16)	20.25	16.14	4 x 1-1/8"-8UN-2B	20 x 1-1/8"-8 UN-2B	11.55	11.89
16	400	14.37	16.732	3.149	5.236	1.969	--	0.500	4 x 0.866	6.496 (F16)	22.50	18.43	4 x 1-1/4"-8UN-2B	20 x 1-1/4"-8 UN-2B	13.21	13.55
18	450	16.043	18.209	4.331	5.866	2.362	--	0.625	8 x 0.748	10.000 (F25)	24.75	20.94	4 x 1-1/4"-8UN-2B	24 x 1-1/4"-8 UN-2B	15.36	15.54
20	500	17.795	19.882	4.331	6.260	2.835	--	0.750	8 x 0.748	10.000 (F25)	27.00	22.99	4 x 1-1/4"-8UN-2B	24 x 1-1/4"-8 UN-2B	16.93	17.27
24	600	20.315	22.835	4.331	7.126	3.150	--	0.875	8 x 0.748	10.000 (F25)	32.00	27.24	4 x 1-1/2"-8UN-2B	24 x 1-1/2"-8 UN-2B	20.57	20.57

** ISO 5211 mounting/drilling pattern (F size) shown in parentheses.

RTFM & UHMWPE SEAT
HANDLE & GEAR DIMENSIONS

CLASS 150
RTFM SEAT

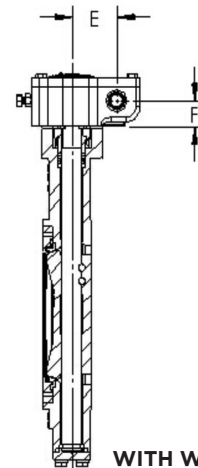
VALVE SIZE		GEAR RATIO	DIMENSIONS IN INCHES						
INCHES	DN		A	B	C	D	E	F	G
2"	50	37:1	2.24	2.11	7.87	5.9	2.09	1.14	8.82
2.5"	65	37:1	2.24	2.11	7.87	5.9	2.09	1.14	8.82
3"	80	37:1	2.24	2.11	7.87	5.9	2.09	1.14	8.82
4"	100	37:1	2.24	2.11	7.87	5.9	2.09	1.14	12.82
5"	125	37:1	2.24	2.11	7.87	5.9	2.09	1.14	12.82
6"	150	37:1	2.24	2.11	7.87	5.9	2.09	1.14	12.82
8"	200	37:1	2.76	2.11	10.94	11.81	2.09	1.50	22.00
10"	250	37:1	2.76	2.11	10.94	11.81	2.09	1.50	22.00
12"	300	34:1	3.43	2.50	12.87	11.81	2.80	1.59	22.00
14"	350	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
16"	400	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
18"	450	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
20"	500	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
24"	600	52:1	4.96	4.92	13.11	15.75	5.12	2.40	—
30"	750	280:1	6.65	7.48	18.90	24.00	7.00	3.54	—
36"	850	360:1	8.15	9.06	20.90	24.00	8.26	4.29	—



WITH WORM GEAR

CLASS 300
RTFM SEAT

VALVE SIZE		GEAR RATIO	DIMENSIONS (IN.)						
INCHES	DN		A	B	C	D	E	F	G
2"	50	37:1	2.24	2.11	7.87	11.81	2.09	1.14	8.82
2.5"	65	37:1	2.24	2.11	7.87	11.81	2.09	1.14	8.82
3"	80	37:1	2.24	2.11	7.87	11.81	2.09	1.14	8.82
4"	100	37:1	2.24	2.11	7.87	11.81	2.09	1.14	12.82
5"	125	37:1	2.76	2.11	10.94	11.81	2.09	1.50	12.82
6"	150	37:1	2.76	2.11	10.94	11.81	2.09	1.50	12.82
8"	200	34:1	3.43	2.50	12.87	11.81	2.80	1.59	22.00
10"	250	34:1	3.43	2.50	12.87	11.81	2.80	1.59	22.00
12"	300	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
14"	350	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
16"	400	55:1	4.06	4.39	13.07	15.75	4.11	1.93	—
18"	450	52:1	4.96	4.92	13.11	15.75	5.12	2.40	—
20"	500	280:1	6.65	7.48	18.90	24.00	7.00	3.54	—
24"	600	280:1	6.65	7.48	18.90	24.00	7.00	3.54	—



WITH WORM GEAR