



MARIPOSA HP LUG
FVS
MODELO LBH



HIGH PERFORMANCE BUTTERFLY VALVE

Wafer-Sphere high-performance butterfly valves provide long-lasting tight shutoff capability, excellent flow characteristics, and long service life. The following standard sizes are available:

815W (Class 150 Wafer-boby Design)	2-1/2"-30"(DN6S-750)
815L(Class 150 Single-Flange Design)	2-1/2"-60"(DN65-1500)
F815(Class 150 Fire-Tested Version)	3"-60"(DN80-1500)
818W(CE Marked Class 150 Wafer-boby Design)	2-1/2"-30"(DN6S-750)
818L(CE Marked Class 150 Single-Flange Design)	2-1/2"-30"(DN65-750)
F815(CE Marked Class 150 Fire-Tested Version)	3"-30"(DN80-750)
818W(Class 300Wafer-boby Design)	3"-30"(DN80-750)
815L(Class 300 Single-Flange Design)	2-1/2"-36"(DN6S-900)
F815(Class 300 Fire-Tested Version)	3"-36"(DN80-900)
818W(CE Marked Class 300 Wafer-boby Design)	3"-24"(DN6S-600)
818L(CE Marked Class 300 Single-Flange Design)	2-1/2"-24"(DN65-600)
F813(CE Marked Class 300 Fire-Tested Version)	3"-24"(DN80-600)

The Wafer-Sphere high-performance butterfly valve is available in a range of materials and seat combinations suitable for service in a wide variety of applications Including NACE Mr0103, and abrasive services, Also available are valves specifically prepared for chlorine, oxygen, and high-vacuum applications.

Features

NgW Nsv seat provides longer life, expanded performance boundaries, and greater value.

Field-proner Single-piese Flexible PTFE Seat Design

Lip-seal design compensates for temperature to maintain tightness No additional o-rings or metal parts required to maintain tightness Tight shut-off in either direction Longer service life with less maintenance.

Offset Shaft And Eccentric Disc

No seat/disc contact in the open or intermediate position Eliminates wer points an top and bottom of seats for higher cycle life. Reduces torque requirements, allowing for smaller operators.

Fire-tested Version Available

Fire-Tite Wafer-Sphere valves have been tested to API 607 4th edition and BS 6755 part 2.



CE Marked Versions Available

CE marked and documented valves that conform to the European Pressure Equipment Directive (PED) 97/23/EC are available in ANSI Class 150/300, both standard and Fire-Tite construction, Operating Torques, Instruction options and valve dimensions are exactly the same as the standard ANSI 150/300 offering. The applicable sizes for CE marked valves are shown in table to left.

Positive Shaft Retention

2-1/2-24 (DN65-600) valves are equipped with a retaining ring at the top of the shaft to prevent movement of the top portion of the shaft past the compression ring if for any reason the shaft should break within the valve.

Easy Seat maintenance

Simply remove body insert and replace seat-disas-sembly of disc and shaft is not required..

Excellent for both On-Off and Control Applications

Superior control characteristics Inherent flow characteristic is modified equal percentage
Wide range ability Tight shut-off even in control applications Standard style valves are suitable for bi- directional dead-end service at the full pressure- temperature rating of the valve.

Single-Source Responsibility

Purchase valves, actuators, and accessories, completely mounted from one source
Available with electric, manual gear, and pneumatic double acting or spring return actuators and a variety of accessories including limit switches, solenoids, and positioners.

Available in a Wide Choice of Materials for a Broad Range of Applications

Standard body materials include ductile iron, carbon steel, stainless steel, Alloy 20, and Monel R. Other materials, such as Avesta R 254SMO are available on application.



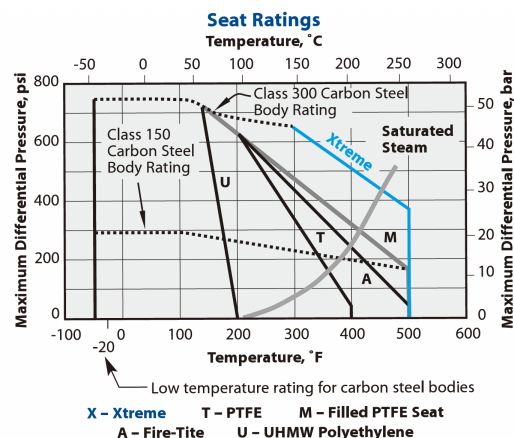
SPECIFICATIONS

Velvet Seat Ratings

Seat ratings, shown by the graph at right, are based on differential pressure with the disc in the fully closed position and refer to seats only. Maximum body working pressures are shown in the Valve Body Ratings tables below.

Valve Body Ratings

The tables below are maximum working pressure ratings of the valve body only. The seat ratings determine the practical pressure limitations according to actual service conditions. Test pressures are for hydrostatic test with disc open.



NOTE:

14" – 60" (Dhl 350 – 1500) Class 150 valves equipped with 316 stainless or Alloy 20 shafts are rated for maximum differential pressure of 150 psi (10.35 bar). 3" – 36" (DN 80 – 900) Class 300 valves equipped with 316 stainless or Alloy 20 shaft are rated for maximum differential pressure of 300 psi (20.7 bar). These ratings are a conservative guide for general service. Previous experience in a process or new developments and alternative seat materials may permit applications at ratings above those shown. Please consult the factory for specific recommendations.

Flow Data

The tables below provide flow coefficients for Series 8J 5 and 830 butterfly valves covered in this bulletin. The Cv values represent the number of gallons per minute of +60°F water that flows through a fully open valve at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm². To convert Cv to Kv, multiply by 0.8569. Cv values for fully open valves are given below.

Series 815, Class J 50 Valve Body Ratings – psi

Temp °F	Carbon Steel*	Ductile Iron*	316 Stainless Steel*	Alloy 20*	Monel
-20 to 100	285	250	275	230	230
200	260	235	235	200	200
300	230	215	215	180	190
400	200	200	195	160	185
500	170	170	170	150	170
Test Pressure	450	400	425	350	350

Series 815, Class 150 Valve Body Ratings – bar

Temp °F	Carbon Steel*	Ductile Iron*	316 Stainless Steel*	Alloy 20*	Monel
-29 to 38	19.6	17.2	19.0	15.9	15.9
100	17.7	16.0	16.2	13.5	13.7
150	15.8	14.8	14.8	12.3	13.1
200	13.8	13.8	13.7	11.3	12.8
250	12.1	12.1	12.1	10.4	11.9
Test Pressure	30	26	29	24	24

Series 815, Class 300 Valve Body Ratings – psi

Temp °F	Carbon Steel*	316 Stainless Steel*	Alloy 20*	Monel
-20 to 100	740	720	600	600
200	680	620	520	530
350	655	560	465	495
400	635	515	420	480
500	605	480	390	475
Test Pressure	1125	1100	900	900

Series 830, Class 300 Valve Body Ratings – bar

Temp °F	Carbon Steel*	316 Stainless Steel*	Alloy 20*	Monel
-29 to 38	51.1	49.6	41.4	43.1
100	46.6	42.2	35.3	36.2
150	45.1	38.5	32.0	34.1
200	43.8	35.7	29.4	33.1
250	41.9	33.4	27.2	32.8
Test Pressure	77	75	63	63

Series 815

Valve Size		Cv
Inches	DN	
2-1/2	65	78
3	80	165
4	100	400
5	125	650
6	150	1,050
8	200	2,200
10	250	3,300
12	300	5,100
14	350	5,800
16	400	8,000
18	450	10,500
20	500	14,000
24	600	21,600
30	750	34,000
36	900	55,500
42	1050	82,650
48	1200	108,300
S4	1350	133,500
60	1500	J 59,000

Series 830

Valve Size		Cv
Inches	DN	
2-1/2	65	78
3	80	165
4	100	400
5	125	650
6	150	1,050
8	200	1,800
10	250	3,150
12	300	4,750
14	350	5,200
16	400	6,900
18	450	9,300
20	500	11,300
24	600	18,500
30	750	29,100
36	900	47,500

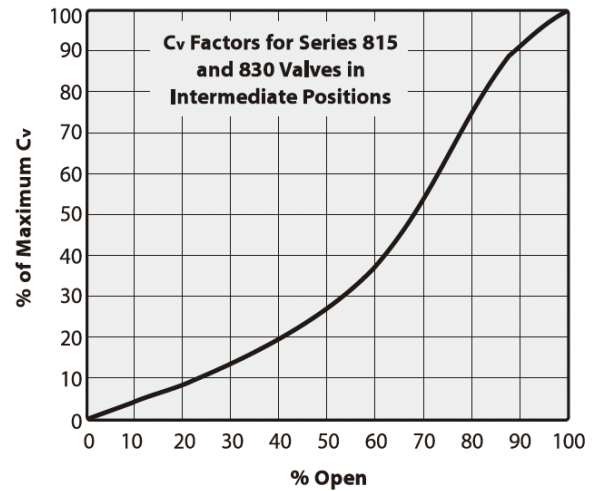
*Ratings correspond to ASME/ANSI B16.34-2004 for material grades shown in bills of material herein. Ductile iron ratings conform to ASME/ANSI B16.42

FLOW DATA (CONTINUED)

To determine Cv values for a valve in an intermediate 10 position: (1) determine the percent of maximum Cv from the graph at right (2) multiply the percent of maximum Cv shown on the graph by the Cv value from the appropriate Flow Data table on the previous page.

EXAMPLE: The Cv for a 6" (DN 150) 815 that is 70% open is:

- 1) From the graph, a 6" (DN 150) 815 that is 70% open has a Cv value that is 53% of the maximum Cv.
- (2) 53% of the maximum Cv = $0.53 \times 1050 = 560$.



SEAT TIGHTNESS

ANSI/FCI 70-2 establishes a series of six leakage classes for control valves and defines the test procedure. Class VI allows the least leakage. WAFER-SPHERE High Performance Butterfly Valves are bubble-tight, MSS-SP61, which would exceed Class VI requirements.

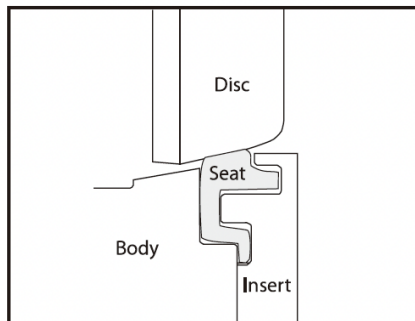
SEAT DESIGNS

XTREME Performance and Value

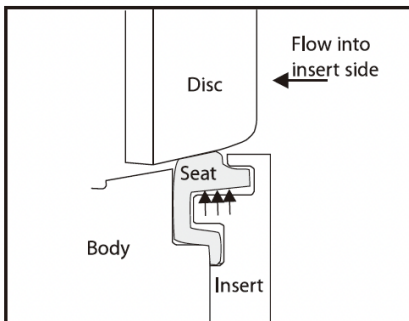
XTREME seats provide longer life, expanded performance boundaries, and the greatest possible value. XTREME is a unique material that resulted from a technological breakthrough in our polymer research lab. The material is a fluoropolymer- based blend proprietary to JAMESBURY that provides superior quarter-turn performance.

Standard Seats

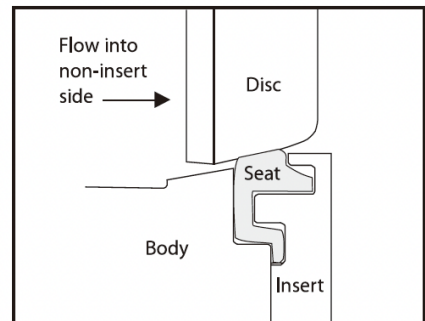
WAFER-SPHERE standard seat design, constructed of PTFE, Filled PTFE, or UHMW Polyethylene, utilizes a flexible lip, which, when distorted, will always attempt to return to its original shape and maintain a seal against the disc regardless of flow direction.



When the valve is shut, the disc slightly deflects the seat. This slight deflection "energizes" the seat. While energized, the sealing surface of the seat is constantly pushing against the edge of the disc.



When pressure is on the insert side, pressure is applied under the seat lip. This further amplifies the sealing force between the disc and the seat.



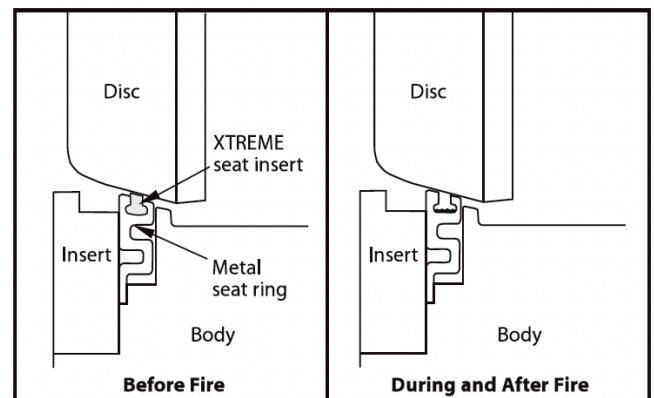
When pressure is on the non-insert side, the disc moves into the seat. Due to the spherical profile of the disc, the more the disc moves into the seat, the tighter the shut-off. Excessive movement of the seat is limited by the flexible lip which contacts the bottom of the groove in the insert ring.

FIRE-TITE Seats

The FIRE-TITE seat was developed for applications where effective shut-off during a fire is a concern.

The primary sealing element is XTREME with a back-up metal seat ring. In the event that the XTREME is destroyed, the secondary metal seat provides effective shut-off.

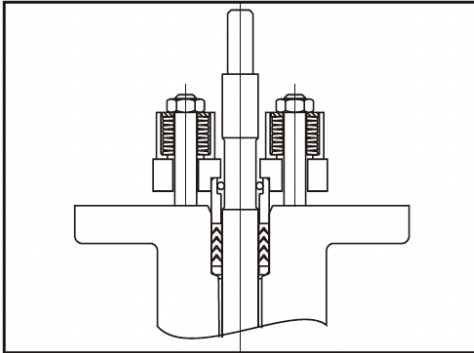
The FIRE-TITE seat is also ideal for critical or severe service applications. WAFER-SPHERE butterfly valves with FIRE-TITE seats have been tested and approved to API 607 Edition 5 and to ISO-10497-5:2004..



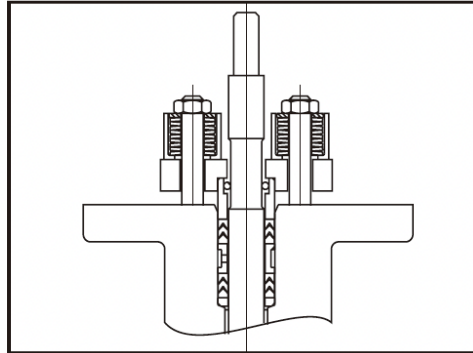
FLOW DATA (CONTINUED)

When enhanced emissions control is needed to comply with evolving emissions standards, Emission-Pak live loaded packing is available. The Emission-Pak live-loaded packing assembly includes PTFE V-ring packing live loaded with disc spring washers for standard construction valves and graphite packing with Inconel disc springs for Fire-lite® valves to maintain a constant packing force without overcompression. It is available with new valves or as a retrofit kit for existing valves.

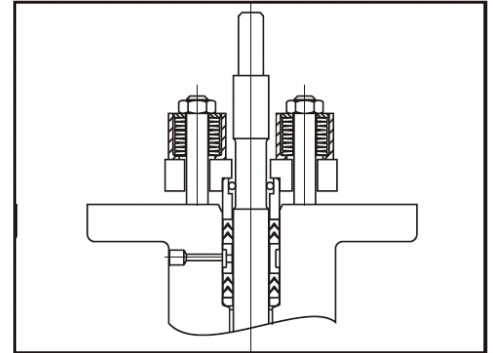
Additional options, available with or without the Emission-Pak live loaded packing, include double packing or double packing with monitoring port to facilitate testing of the primary seal and allow detection of a potential leak problem. Refer to the How to Order section at the end of this bulletin for specific ordering instructions. The operating torque of valves with Emission-Pak live-loaded packing will increase. (Refer to the torque equation in the Valve Torque Data section).



Emission-pak Live-loaded Packing



Emission-pak Live-loaded Packing With Double Packing



Emission-pak Live-loaded Packing With Double Packing And Monitoring Port

Note: *All Emission-Pak illustrations depict a standard valve with PTFE V-ring packing.

STEAM SERVICE

Wafer-Sphere butterfly valves are well-suited for a wide range of steam applications. These range from PTFE-seated valves capable of handling lower pressure to valves with Xtreme seats. Ratings of Wafer-Sphere valves in this bulletin for on-off steam service areas follows: Valves may be derated based on shaft material selection.

Valve Type	Seat Material	Maximum Pressure Differential	
		psi	bar
815W,815L	Xtreme	200*	14*
830W,830L	Xtreme	450	31

* Max. rating of carbon steel body per ASME/ANSI B16.34 at corresponding saturated steam temperature.

CRYOGENIC SERVICE

Using Wafer-Sphere with unique polymeric and polymeric/metal composite seats, cryogenic Wafer-Sphere valves are rated to give tight, reliable shutoff on service extending from -420°F (-251°C) to ambient condition at pressures up to 1440 psi (99 bar). Cryogenic seats for valve sizes 3" - 12" (DN 80 - 300) are composite. Seats for sizes 14" - 48" (DN 350 - 1200) are Kel-F® material.

CHLORINE SERVICE

Wafer-Sphere valves reliably control the flow of both liquid and gaseous chlorine. The patented seat design insures positive, leaktight shutoff of this lethal substance. A range of key materials permits selection of the Wafer-Sphere valve best suited for the moisture content of the chlorine that is to be handled. Valves for chlorine service are specially cleaned to preclude possible reaction of the chlorine to foreign substances..

OXYGEN SERVICE

Wafer-Sphere valves are available specially prepared for oxygen service, capable of filling a wide range of applications that include both on-off operation and proportional control. A rigid procedure is followed in preparing components, assembling, testing, and packaging these valves to assure cleanliness and to avoid the inherent danger of oxygen's reaction with grease, oil, or other foreign matter.

NACE SERVICE

ANSI Class 150 and 300 Wafer-Sphere valves are available to comply with the NACE MR0103 standard. These valves are well suited for oil and gas industry applications requiring sulfide stress cracking resistant metallic materials.

ABRASIVE SERVICE

For applications involving slurries or gas-borne solid particles, Wafer-Sphere valves are available with the disc hard-coated with tungsten titanium carbide (TTC). Service life of the valve is increased significantly with the assurance of extended sealing capability. This hard coating is also available on application on other valve components that may be subject to wear in other unusual process conditions.

VACUUM SERVICE

Standard Wafer-Sphere valves are rated for tight shut-off of vacuum to 2x10⁻² torr. Special high vacuum Wafer-Sphere valves can be provided for vacuums to 1x10⁻⁵ torr. Additionally, high vacuum valves can be certified to have a leakage rate not to exceed 1x10⁻⁵ cc/sec. of helium at 1x10⁻⁵ torr vacuum.

HIGH-CYCLE OPTION

Testing in the Jamesbury R&D laboratories indicates that a combination of components, including Xtreme(X) seat, filled super PTFE shaft seals, 316 SS/Woven PTFE shaft bearings, PEEK®-filled PTFE thrust bearings and excluder rings, yields significantly longer life than a standard configuration valve. Actual cycle performance is subject to media, pressure, and temperature conditions. Applications such as oxygen, nitrogen, hydrogen, water, and other clean media are ideally suited for this option. Warning: Avoid any media containing acids or chemicals such as chlorine, bromine, sulfur dioxide, or steam, or temperatures that exceed 325°F (163°C).

OPERATING HANDLES AND ACTUATORS

As an option, handles are available for smaller sizes of the Wafer-Sphere high-performance butterfly valve. We recommend that manual-gear, pneumatic, or electric actuators be used at differential pressures higher than values listed below. All handles have locking capability.

Serie 815

Valve Size		Valve Type	Maximum Differential Pressure				Handle Length		Handle Weight	
			T, M or U Seats		Fire-Tite Seat					
Inches	DN		psi	bar	psi	bar	Inches	DN	lb.	kg.
2-1/2	65	815W/815L	285	19.7	285	19.7	11	279	3	1.3
3	80	815W/815L	285	19.7	285	19.7	11	279	3	1.3
4	100	815W/815L	285	19.7	285	19.7	11	279	3	1.3
5	125	815W/815L	150	10.3	—	—	11	279	3	1.3
6	150	815W/815L	150	10.3	—	—	11	279	3	1.3
8	200	815W/815L	150	10.3	—	—	22	559	15	6.8
10	250	815W/815L	50	3.4	—	—	22	559	15	6.8
12	300	815W/815L	50	3.4	—	—	22	559	15	6.8

Serie 830

Valve Size		Valve Type	Maximum Differential Pressure				Handle Length		Handle Weight	
			T, M or U Seats		Fire-Tite Seat					
Inches	DN		psi	bar	psi	bar	Inches	mm	lb.	kg.
2-1/2	65	830L	300	20.7	—	—	11	279	3	1.3
3	80	830W/830L	300	20.7	300	20.7	11	279	3	1.3
4	100	830W/830L	300	20.7	300	20.7	11	279	3	1.3
5	125	830L	300	20.3	—	—	11	279	3	1.3
6	150	830W/830L	150	10.3	—	—	22	559	15	6.8
8	200	830W/830L	150	10.3	—	—	22	559	15	6.8
10	250	830W/830L	50	3.4	—	—	22	559	15	6.8



VALVE TORQUE DATA

The torque required to open or close the Series 815 and Series 830 can easily be calculated using the equation on the following page. However, for your convenience, the following tables can be used as a quick guide for actuator selection. If the valve's torque is not listed in the tables,

use the equation on next page to calculate the torque. Select an actuator that provides the same or greater torque output than the valve's torque. If in doubt, select the next larger actuator.

Valve Size		Torque - Series 815 Shaft Downstream; T, M, U & U Seats					
		Shut - off Differential Pressure					
Inches	DN	FT°LBS @ 100 psi	N°m@ 6.9 bar	FT°LBS @ 200 psi	N°m@ 13.8 bar	FT°LBS @ 285 psi	N°m@ 19.7 bar
2-1/2	65	21	29	23	31	24	33
3	80	25	34	27	37	29	39
4	100	35	47	39	53	43	58
5	125	48	65	56	76	63	86
6	150	72	97	83	113	93	126
8	200	121	164	142	193	160	217
10	250	163	222	202	274	234	318
12	300	214	290	287	390	350	475
14	350	362	491	505	684	626	849
16	400	463	628	646	876	802	1087
18	450	602	816	844	1144	1050	1423
20	500	810	1098	1140	1546	1421	1926
24	600	1234	1673	1758	2384	2200	2983
30	750	2170	2942	2940	3986	3595	4873
36	900	3530	4786	4860	6589	5990	8121
42	1050	5780	7837	8060	10928	10000	13558
48	1200	9170	12433	12840	17409	15960	21638
54	1350	12950	17558	17900	24269	22110	29977
60	1500	19020	25790	26040	35310	32000	43397

Valve Size		Torque - Series 815 Shaft Downstream or Upstream; All Fire - Tite Seats					
		Shut - off Differential Pressure					
Inches	DN	FT°LBS @ 100 psi	N°m@ 6.9 bar	FT°LBS @ 200 psi	N°m@ 13.8 bar	FT°LBS @ 285 psi	N°m@ 19.7 bar
2-1/2	65	42	57	45	61	47	64
3	80	53	72	57	77	59	81
4	100	67	91	74	100	80	108
5	125	97	132	114	155	128	174
6	150	131	178	152	206	170	230
8	200	218	296	256	347	288	391
10	250	333	452	406	550	468	635
12	300	508	689	636	862	745	1010
14	350	604	819	758	1028	889	1205
16	400	710	963	920	1247	1099	1489
18	450	970	1315	1370	1857	1710	2318
20	500	1390	1885	1980	2685	2482	3364
24	600	2050	2779	2700	3661	3353	4410
30	750	2920	3959	3940	5342	4807	6517
36	900	3530	4786	4960	6725	6176	8373
42	1050	5620	7620	7440	10087	8987	12185
48	1200	8800	11931	12100	16405	14905	20208



Torque - Series 830
Shaft Downstream; T, M, U, & X Seats

Valve Size		Shut - off Differential Pressure											
Inches	DN	FT°LBS @ 300 psi	N°m@ 20.7 bar	FT°LBS @ 400 psi	N°m@ 27.6 bar	FT°LBS @ 500 psi	N°m@ 34.5 bar	FT°LBS @ 600 psi	N°m@ 41.4 bar	FT°LBS @ 700 psi	N°m@ 48.3 bar	FT°LBS @ 740 psi	N°m@ 51 bar
2 1/2	65	25	34	27	36	30	41	33	45	35	47	36	49
3	80	31	42	34	46	38	51	41	55	44	60	45	62
4	100	52	70	58	79	65	88	72	97	78	106	81	110
5	125	85	115	98	132	112	151	125	169	138	186	143	193
6	150	119	161	138	188	158	214	178	241	197	267	205	278
8	200	231	313	271	368	312	422	352	477	392	532	408	554
10	250	354	480	422	572	490	664	557	756	625	848	652	885
12	300	492	667	582	790	673	913	764	1035	854	1158	890	1207
14	350	824	1117	1012	1372	1200	1627	1388	1882	1576	2137	1651	2239
16	400	989	1340	1212	1643	1435	1946	1658	2248	1881	2550	1970	2671
18	450	1279	1734	1562	2118	1845	2502	2128	2885	2411	3269	2524	3422
20	500	1707	2314	2096	2842	2485	3369	2874	3897	3263	4424	3419	4635
24	600	2309	3131	2832	3840	3355	4549	3878	5258	4401	5967	4610	6251
30	750	4210	5708	5080	6888	5950	8067	6820	9247	7690	10426	8038	10898
36	900	7220	9789	8760	11877	10300	13965	11840	16053	13380	18141	13996	18976



VALVE TORQUE DATA (CONTINUED)

Valve Size		Torque – Series F830 Shaft Upstream or Downstream; All Fire – Tite Seats											
		Shut – off Differential Pressure											
		FT°LBS @ 300 psi	N°m@ 20.7 bar	FT°LBS @ 400 psi	N°m@ 27.6 bar	FT°LBS @ 500 psi	N°m@ 34.5 bar	FT°LBS @ 600 psi	N°m@ 41.4 bar	FT°LBS @ 700 psi	N°m@ 48.3 bar	FT°LBS @ 740 psi	N°m@ 51 bar
3	80	57	77	58	79	60	81	61	83	63	85	63	86
4	100	86	117	94	127	102	138	110	149	118	160	121	164
6	150	189	256	212	287	235	319	258	350	281	381	290	394
8	200	313	424	354	480	395	536	436	591	477	647	493	669
10	250	464	629	522	708	580	786	638	865	696	944	719	975
12	300	825	1119	960	1302	1095	1485	1230	1668	1365	1851	1419	1924
14	350	922	1250	1076	1459	1230	1668	1384	1877	1538	2085	1600	2169
16	400	1170	1586	1390	1885	1610	2183	1830	2481	2050	2779	2138	2899
18	450	1980	2685	2440	3308	2900	3932	3360	4556	3820	5179	4004	5429
20	500	2800	3796	3460	4691	4120	5586	4780	6481	5440	7376	5704	7734
24	600	4400	5966	5400	7321	6400	8677	7400	10033	8400	11389	8800	11931

TORQUE EQUATION

Use the following equation to calculate the torque required to open and close the Series 815 and Series 830 valves.

Torque required (FT•LBS) = (Kt multiplied by the shut-off differential pressure in psi) + Ts

EXAMPLE: 6" (DN 150) 815W-11-36HBMT at 230 psi (15.9 bar) differential pressure, installed shaft downstream = (0.116 X 230) + 60 = 87 FT•LBS.

To convert FT•LBS to N•m, multiply by 1.356.

		Class 150					Class 300				
		Series 815 T,M, U & X Seats			Series 815 Fire – Tite		Series 830 T, M, U & X Seats			Series 830 Fire – Tite	
Valve Size		Kt Shaft Upstream	Kt Shaft Downstream	Ts	Kt Shaft Upstream or Downstream	Ts	Kt Shaft Upstream	Kt Shaft Downstream	Ts	Kt Shaft Upstream or Downstream	Ts
Inches	DN										
2-1/2	65	0.017	0.014	20	0.024	40	0.027	0.026	17	—	-
3	80	0.021	0.021	23	0.033	50	0.034	0.033	21	0.015	52
4	100	0.046	0.046	30	0.07	60	0.068	0.066	32	0.08	62
5	125	0.105	0.081	40	0.13	65	0.130	0.125	47	—	—
6	150	0.156	0.116	60	0.21	110	0.203	0.196	60	0.23	120
8	200	0.301	0.211	100	0.38	180	0.423	0.403	110	0.41	190
10	250	0.584	0.384	125	0.73	260	0.689	0.679	150	0.58	290
12	300	0.847	0.737	140	1.28	380	1.106	0.906	220	1.35	420
14	350	2034	1.424	220	1.54	450	2.28	1.88	260	1.54	460
16	400	2.88	1.83	280	2.1	500	3.21	2.23	320	2.2	510
18	450	3.65	2.42	360	4.0	570	3.94	2.83	430	4.6	600
20	500	4.72	3.30	480	5.9	800	5.01	3.89	540	6.6	820
24	600	7.34	5.24	710	6.5	1400	6.88	5.23	740	10	1400
30	750	11.2	7.7	1400	10.2	1900	9.4	8.7	1600	-	-
36	900	20.4	13.3	2200	14.3	2100	16.1	15.4	2600	-	-
42	1050	29.9	22.8	3500	18.2	3800	-	-	-	-	-
48	1200	43.7	36.7	5500	33	5500	-	-	-	-	-
54	1350	59.5	49.5	8000	-	-	-	-	-	-	-
60	1500	80.7	70.2	12000	-	-	-	-	-	-	-

Note: The Ts value for a valve with Emission-Pak Live-Loaded Packing will increase. For valves with Live-Loaded PTFE shaft packing, use (Ts x 1.06). For valves with Live-Loaded Graphite shaft packing, use (Ts x 1.26).

BILLS OF MATERIALS AND PARTS LISTS

Series 815

Part No.	Part Name	815W - WCB		815L - WCB	815W / 815L - CF8M	815W / 815L - CF8
1	Body	Carbon steel ASTM A216 WCB			ASTM A351 CF8M	ASTM A351 CF8M
2	Insert	Carbon steel			Stainless steel ASTM A182 316	Stainless steel ASTM A182 304
3	Disc	ASTM A351 CF8M	ASTM A351 CF8M		ASTM A351 CF8M	ASTM A351 CF8M
4	Shaft	17-4PH				
5	Seat	See page 19 for seat codes				
6	Shaft Bearing	PTFE composite backed with 316 Stainless steel				
7	Spacer	316 Stainless steel				
8	Shaft Seal	See page 19 for seat codes				
9	Compression Ring	316 Stainless steel				
10	Compression Plate	ASTM A351 CF8				
13	Disc Pin	SS316				
14	Stud	Carbon steel			Stainless steel	
15	Nut	Carbon steel			Stainless steel	
16	Lock Washer (16" [DN 400] and larger only)	Carbon steel or Stainless steel				
17	Name Plate	Stainless steel				
18	Drive Screw	Stainless steel				
21	Cap Screw (8 15L&14" - 30" [DN 350 -750] 815W)	Stainless steel				
29	Indicator Pointer (16"-30" [DN 400-750]only)	Carbon steel				
40	Body Seal	PTFE (2-1/2"-4" L65-1001 standard 815 L only) or graphite (3"-12" 80-3001]				
41	Top Bearing Spacer (2-1/2 -10" [DN65-250])	PTFE				
47	Retaining Ring 2-1/2 36" [DN 65-900]only)	Stainless steel				
53	Cover Plate (14"-30" [DN 350-750])	Carbon steel			ASTM A351 CF8M	ASTM A351 CF8
54	Gasket (14"-30" [DN 350-750]only)	PTFE or graphite (Fire-Tite)				
55	Cap Screw (14"-60" [DN 350-1500]only)	Carbon steel or Stainless steel				
56	Lock Washer (14"-60" [DN 350-1500] only)	Carbon steel or Stainless steel				
64	Thrust Bearing	Stainless steel				
77	O-Ring	VITON				

Recommended spare part



BILLS OF MATERIALS AND PARTS LISTS

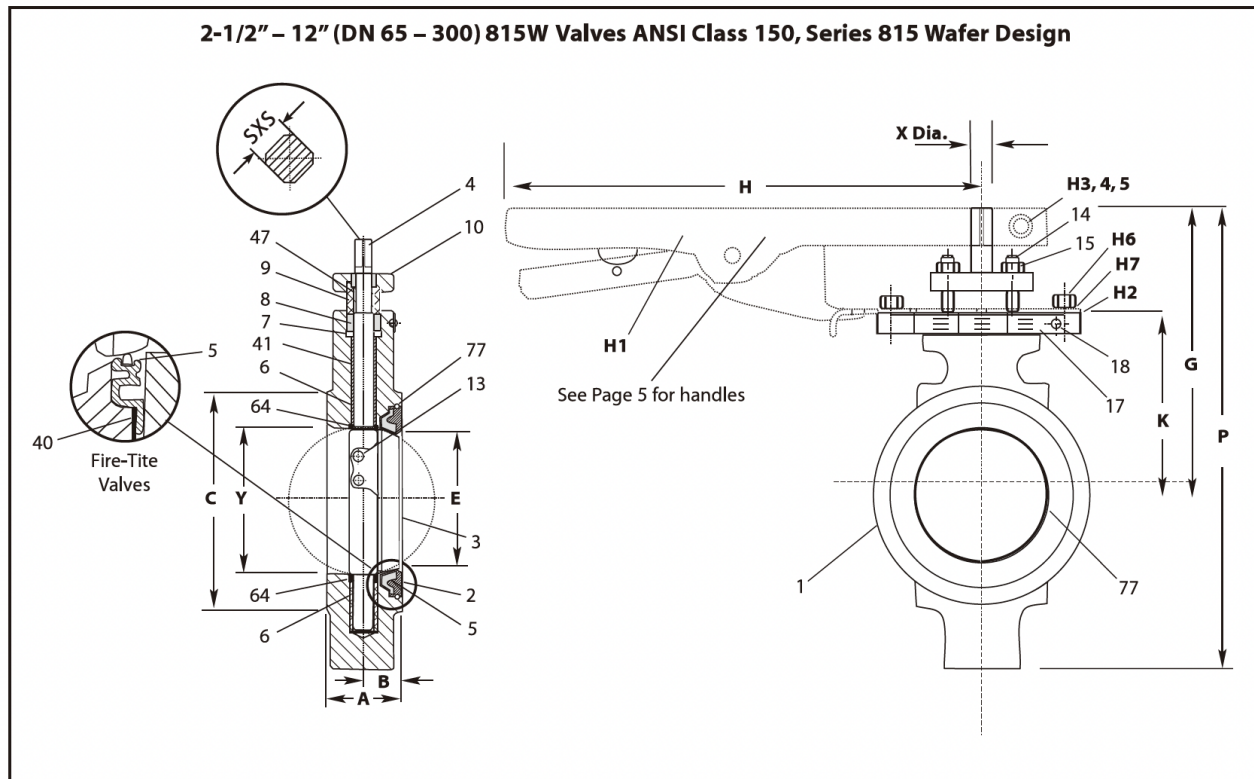
Series 815

Part No.	Part Name	830W - WCB	830L - WCB	830W / 830L - CF8M	830W / 30L - CF8
1	Body	Carbon steel ASTM A216 WCB		ASTM A351 CF8M	ASTM A351 CF8M
2	Insert	Carbon steel		Stainless steel ASTM A182 316	Stainless steel ASTM A182 304
3	Disc	ASTM A351 CF8M	ASTM A351 CF8M	ASTM A351 CF8M	ASTM A351 CF8M
4	Shaft	17-4PH			
5	Seat	See page 19 for seat codes			
6	Shaft Bearing	PTFE composite backed with 316 Stainless steel			
7	Spacer	316 Stainless steel			
8	Shaft Seal	See page 19 for seat codes			
9	Compression Ring	316 Stainless steel			
10	Compression Plate	Stainless steel ASTM A351 CF8			
13	Disc Pin	SS316			
14	Stud	Carbon steel		Stainless steel	
15	Nut	Carbon steel		Stainless steel	
16	Lock Washer (14"-24" [DN 350-600] only)	Carbon steel or Stainless steel			
17	Name Plate	Stainless steel			
18	Drive Screw	Stainless steel			
21	Cap Screw (830L&14" - 24" [DN 350 -600] 830W)	Stainless steel			
29	Indicator Pointer (14"-24" [DN 350-600])	Carbon steel			
40	Body Seal	PTFE (3"-4" L80-100a standard 830L only) or graphite (3"-1 2" L80-1 00s Fire-Tite)			
41	Top Bearing Spacer (except 12" [DN300])	PTFE			
47	Retaining Ring (3"-24" [DN80-600]only)	Stainless steel			
53	Cover Plate	Carbon steel		ASTM A351 CF8M	ASTM A351 CF8
54	Gasket	PTFE or graphite (Fire-Tite)			
55	Cap Screw	Carbon steel or Stainless steel			
56	Lock Washer	Carbon steel or Stainless steel			
64	Thrust Bearing	Stainless steel			
77	O-Ring	VITON			

Recommended spare part



Wafer Butterfly Valve-150LB DIMENSIONS



Valve Size inches	Approximate Dimensions - inches											Approx. Weight lbs.**
	A	B	C	E	G	H	K	P	S	X	Y*	
2-1/2	1.89	1.06	4.13	2.31	7.63	11.00	4.38	10.81	0.55	0.63	1.88	11
3	1.89	1.06	5.00	2.88	8.00	11.00	4.75	12.44	0.67	0.79	2.90	13
4	2.13	1.19	6.19	3.75	8.50	11.00	5.25	13.44	0.67	0.79	3.83	18
5	2.50	1.19	7.31	4.38	8.56	11.00	5.31	14.25	0.67	1.02	4.38	27
6	2.25	1.31	8.50	5.59	9.25	11.00	6.00	15.13	0.87	1.02	5.76	28
8	2.50	1.41	10.63	7.41	10.63	22.00	7.38	18.25	0.87	1.10	7.63	45
10	2.81	1.63	12.75	9.28	12.81	22.00	9.13	22.06	1.02	1.26	9.56	78
12	3.19	1.88	15.00	11.09	14.13	22.00	10.25	24.88	1.02	1.26	11.37	112

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe in side diameters for Schedule pipe

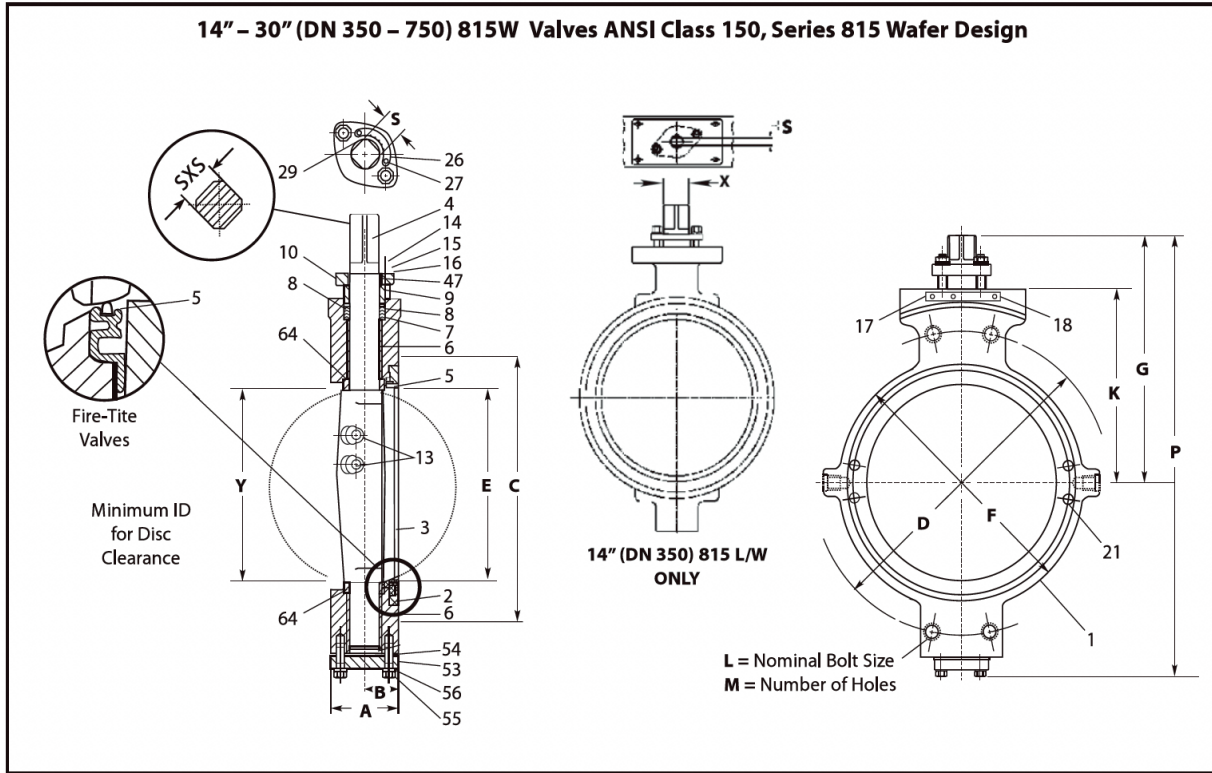
** Weights do not include handles. See page 5 for handle weights

Valve Size inches	Approximate Dimensions - inches											Approx. Weight lbs.**
	A	B	C	E	G	H	K	P	S	X	Y*	
65	48	27	105	59	194	279	111	275	14	16	48	5
80	48	27	127	73	203	279	121	316	17	20	74	6
100	54	30	157	95	216	279	133	341	17	20	97	8
125	56	30	186	111	217	279	135	362	17	26	111	12
150	57	33	216	142	235	279	152	384	22	26	146	13
200	64	36	270	188	270	559	187	464	22	28	194	20
250	71	41	324	236	325	559	232	560	26	32	243	35
300	81	48	381	282	359	559	260	632	26	32	289	51

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe in side diameters for Schedule pipe

** Weights do not include handles. See page 5 for handle weights

Wafer Butterfly Valve-150LB DIMENSIONS



Valve Size inches	Approximate Dimensions - inches														Approx. Weight lbs.*
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
14*	3.63	2.06	16.25	18.75	12.38	16.25	15.53	12.16	1-1/8"	0	27.75	1.26	1.50	12.50	181
16	4.00	2.22	18.50	21.25	14.28	18.50	16.56	13.06	1-1/16*	4	29.22	1.26	1.77	14.38	253
18	4.50	2.63	21.00	22.75	16.28	21.00	17.66	14.03	1-3/16*	4	31.56	1.50	1.97	16.38	345
20	5.00	2.63	23.00	25.00	17.94	23.00	18.38	14.88	1-1/8-8!	4	33.13	1.50	1.97	17.88	438
24	6.06	3.00	27.25	29.50	21.63	27.25	23.91	19.28	1-1/4-8!	4	45.69	2.13	2.56	21.34	735
30	6.56	3.44	33.75	36.00	27.63	33.75	27.44	22.44	1-1/4-8!	4	51.44	2.13	3.15	28.00	1309

* Clearance instead of tapped holes

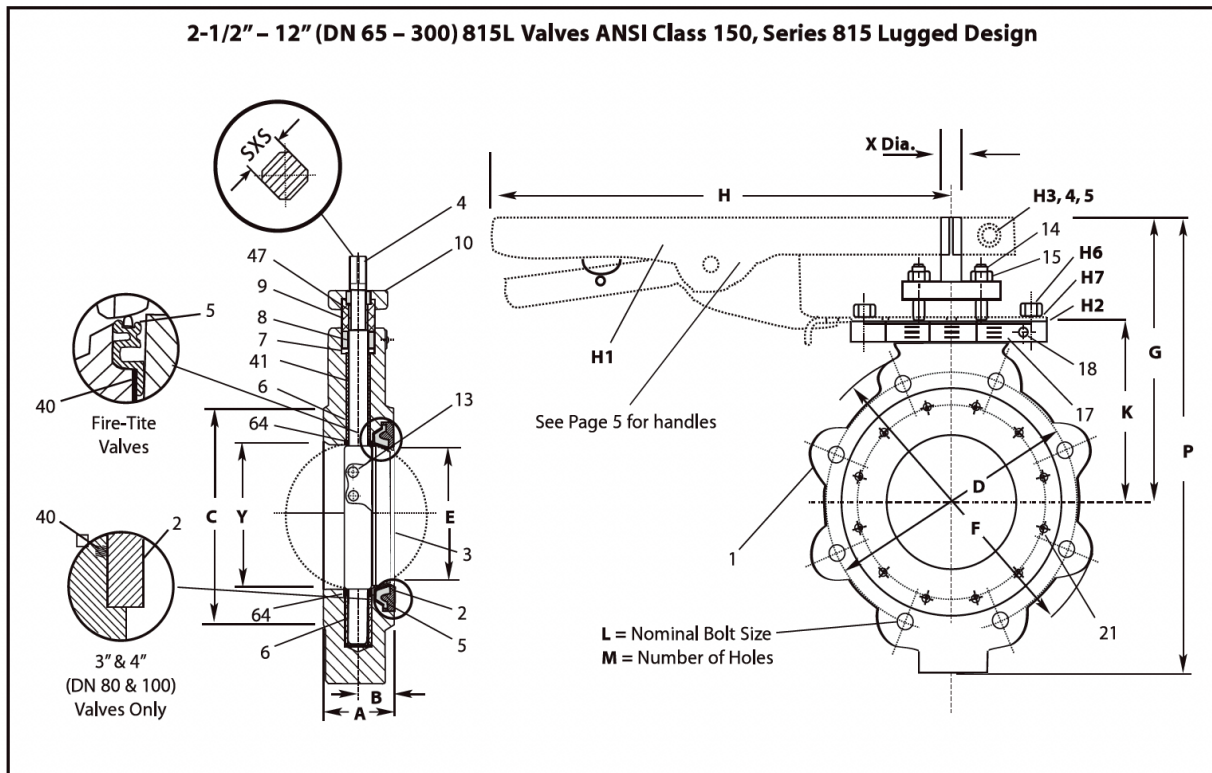
† ANSI B16.5 requires all bolts 1-1/8" (28.6 mm) and larger have an 8-UN thread

Valve Size inches	Approximate Dimensions - inches														Approx. Weight kg.*
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
350‡	92	52	413	476	314	413	394	309		0	705	32	38	318	81
400	102	56	470	540	363	470	421	332	Ø27	4	742	32	45	365	115
450	114	67	533	578	414	533	449	356	Ø30	4	802	38	50	416	156
500	127	67	584	635	456	584	467	378	M30	4	842	38	50	454	199
600	154	76	692	749	549	692	607	490	M33	4	1161	54	65	542	333
750	167	87	857	914	702	857	697	570	M33	4	1307	54	80	711	594

* Clearance instead of tapped holes

‡ ANSI B16.5 requires all bolts 1-1/8" (28.6 mm) and larger have an 8-UN thread series.

LUG Butterfly Valve—150LB DIMENSIONS



Valve Size inches	Approximate Dimensions - inches															Approx. Weight lbs.**
	A	B	C	D	E	F	G	H	K	L	M	P	S	X	Y	
2-1/2	1.94	1.06	4.13	5.50	2.31	7.00	7.63	11.00	4.38	5/8-11	4	10.81	0.55	0.63	1.88	15
3	1.94	1.06	5.19	6.00	2.88	7.50	8.00	11.00	4.75	5/8-11	4	12.44	0.67	0.79	2.90	17
4	2.13	1.19	6.19	7.50	3.75	9.00	8.50	11.00	5.25	5/8-11	8	13.44	0.67	0.79	3.83	26
5	2.50	1.19	7.31	8.50	4.38	10.38	8.56	11.00	5.31	3/4-10	8	13.44	0.67	1.02	4.38	40
6	2.25	1.31	8.50	9.50	5.59	11.00	9.25	11.00	6.00	3/4-10	8	15.13	0.87	1.02	5.76	43
8	2.50	1.41	10.63	11.75	7.41	13.50	10.63	22.00	7.38	3/4-10	8	18.25	0.87	1.10	7.63	69
10	2.81	1.63	12.75	14.25	9.28	16.00	12.81	22.00	9.13	7/8-9	12	22.06	1.02	1.26	9.56	92
12	3.19	1.88	15.00	17.00	11.09	19.00	14.13	22.00	10.25	7/8-9	12	24.88	1.02	1.26	11.37	140

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe inside diameters for Schedule 80 pipe.

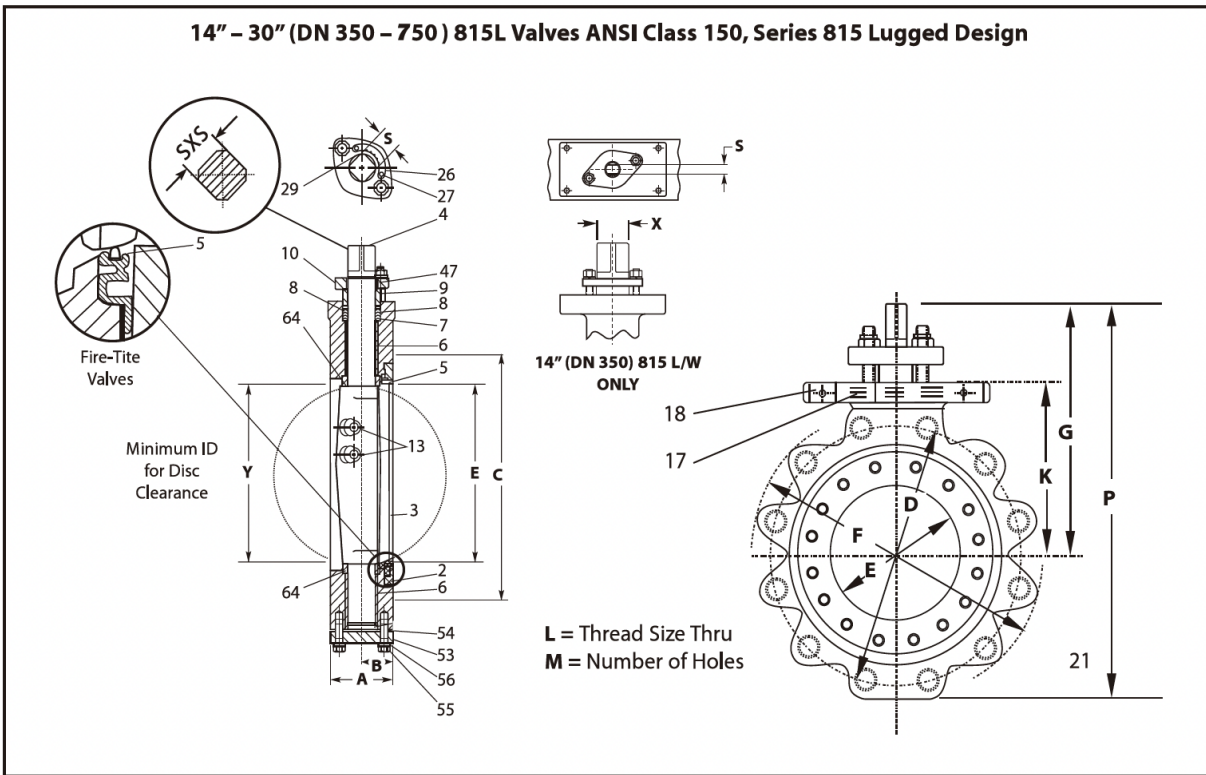
**Weights do not include handles. See page 5 for handle weights

Valve Size inches	Approximate Dimensions - inches															Approx. Weight lbs.**
	A	B	C	D	E	F	G	H	K	L	M	P	S	X	Y*	
65	49	27	105	140	59	178	194	279	111	M16	4	275	14	16	48	7
80	49	27	132	152	73	191	203	279	121	M16	4	316	17	20	74	8
100	54	30	157	191	95	229	216	279	133	M16	8	341	17	20	97	12
125	64	30	186	216	111	264	217	279	135	M20	8	341	17	26	111	18
150	57	33	216	241	142	279	235	279	152	M20	8	384	22	26	146	20
200	64	36	270	298	188	343	270	559	187	M20	8	464	22	28	194	31
250	71	41	324	362	236	406	325	559	232	M22	12	560	26	32	243	42
300	81	48	381	432	282	483	359	559	260	M22	12	632	26	32	289	64

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe inside diameters for Schedule 80 pipe.

**Weights do not include handles. See page 5 for handle weights

LUG Butterfly Valve—150LB DIMENSIONS



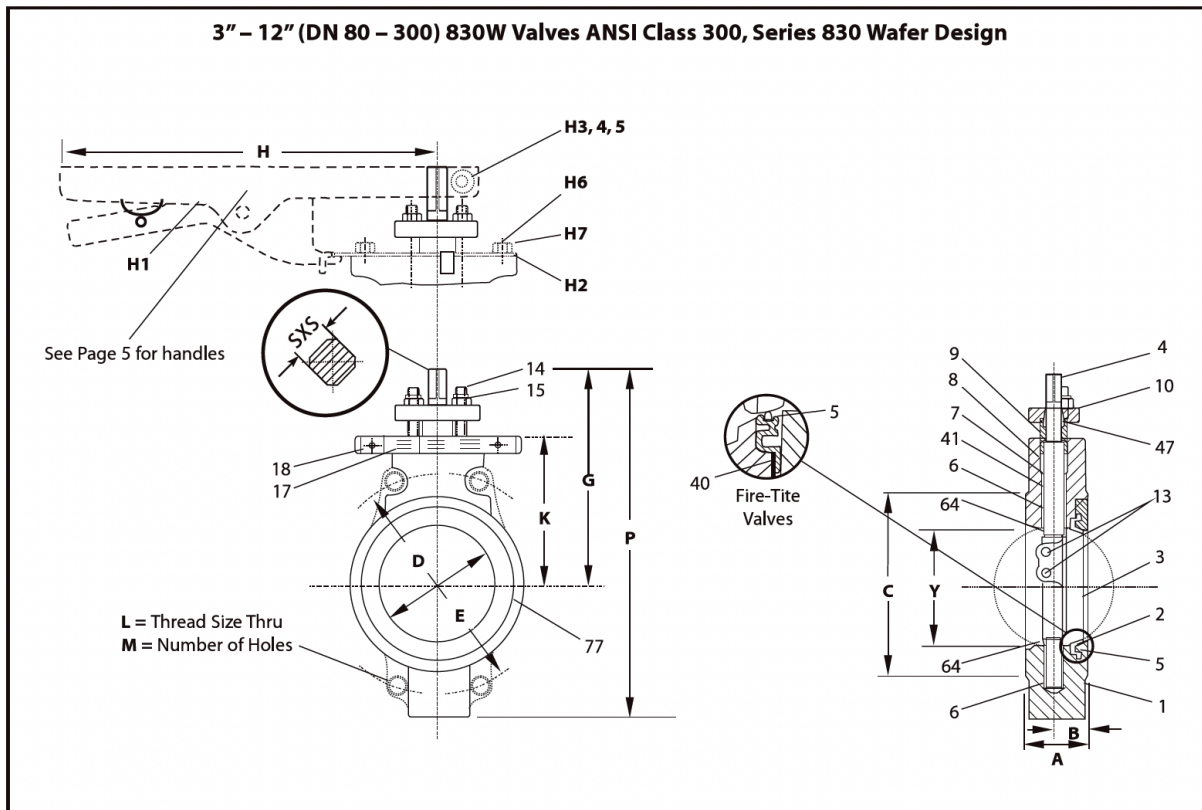
Valve Size inches	Approximate Dimensions - inches														Approx. Weight lbs.**
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
14#	3.63	2.06	16.25	18.75	12.38	21.00	15.53	12.16	1-8	12	27.75	1.26	1.50	12.50	231
16	4.00	2.22	18.50	21.25	14.28	23.50	16.5	13.06	1-8	16	29.22	1.26	1.77	14.38	360
18	4.50	2.63	21.00	22.75	16.28	25.00	17.66	14.03	1-1/8-8*	16	31.56	1.45	1.97	16.38	453
20	5.00	2.63	23.00	25.00	17.94	27.50	18.38	14.88	1-1/8-8!	20	33.13	1.45	1.97	17.88	596
24	6.06	3.00	27.25	29.50	21.63	32.00	23.91	19.28	1-1/4-8*	20	45.69	2.13	2.56	21.34	964
30	6.56	3.44	33.75	36.00	27.63	38.75	27.44	22.44	1-1/4-8+	28	51.44	2.13	3.15	28.00	1634

! ANSI B16.5 requires all bolts 1-1/8" (28.6 mm) and larger have 8-UN thread ser

Valve Size inches	Approximate Dimensions - inches														Approx. Weight lbs.**
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
350#	92	52	413	476	314	533	394	309	M27	12	705	32	38	318	105
400	102	56	470	540	363	597	421	332	M27	16	742	32	45	365	163
450	114	67	533	578	414	635	449	356	M30	16	802	38	50	416	205
500	127	67	584	635	456	699	467	378	M30	20	842	38	50	454	270
600	154	76	692	749	549	813	607	490	M33	20	1161	54	65	542	437
750	167	87	857	91	702	984	697	570	M33	28	1307	54	80	711	741

! ANSI B16.5 requires all bolts 1-1/8" (28.6 mm) and larger have 8-UN thread ser

Wafer Butterfly Valve—300LB DIMENSIONS



Valve Size inches	Approximate Dimensions - inches														Approx. Weight lbs.**
	A	B	C	D	E	G	H	K	L	M	P	S	X	Y*	
3	1.89	1.06	5.0	-	2.88	8.00	11.00	4.75	-	-	12.44	0.67	0.87	2.90	13
4	2.13	1.19	6.19	-	3.75	8.50	11.00	5.25	-	-	13.44	0.67	1.02	3.83	18
6	2.31	1.34	8.50	-	5.59	10.13	22.00	6.88	-	-	16.25	0.87	1.10	5.76	32
8	2.88	1.56	10.63	-	7.41	12.06	22.00	8.38	-	-	19.50	1.02	1.26	7.63	60
10	3.25	1.75	12.75	15.25	9.28	13.88	22.00	10.00	1-8	4	23.31	1.26	1.50	9.56	106
12	3.63	1.97	15.00	17.75	11.09	15.31	-	11.13	1-1/8-8+	4	26.56	1.26	1.77	11.37	145

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe inside diameters for Schedule 80 pipe

**Weights do not include handles. See page 5 for handle weights.

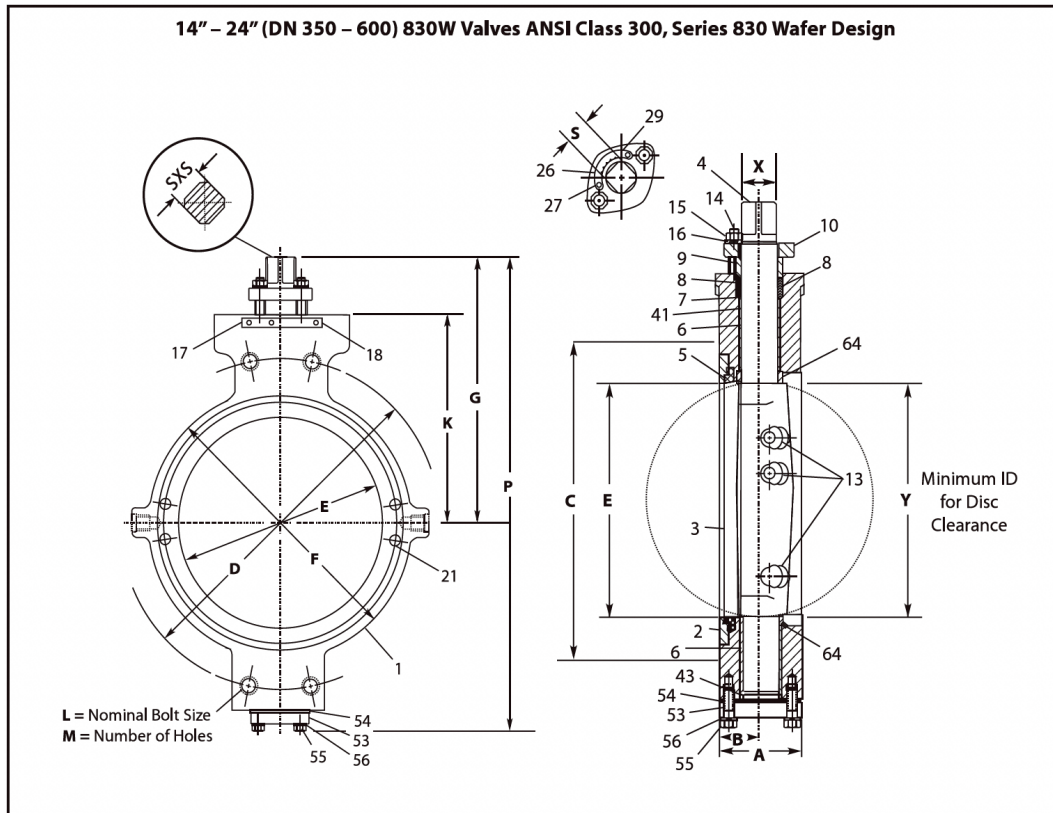
+ANSI B16.5 requires all bolts 1-1/8" (28.6 mm) and larger have 8-UN thread series.

Valve Size inches	Approximate Dimensions - inches															Approx. Weight lbs.**
	A	B	C	D	E	G	H	K	L	M	P	S	X	Y*		
80	48	27	127	-	73	203	279	121	-	-	316	17	22	74	6	
100	54	30	157	-	95	216	279	133	-	-	341	17	26	97	8	
150	59	34	216	-	142	257	559	175	-	-	413	22	28	146	15	
200	73	40	270	-	188	306	559	213	-	-	495	26	32	194	27	
250	83	44	324	387	236	353	559	254	M27	4	592	32	38	243	48	
300	92	50	381	451	282	389	-	283	M30	4	675	32	45	289	66	

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe inside diameters for Schedule 80 pipe.

**Weights do not include handles. See page 5 for handle weights

Wafer Butterfly Valve-300LB DIMENSIONS

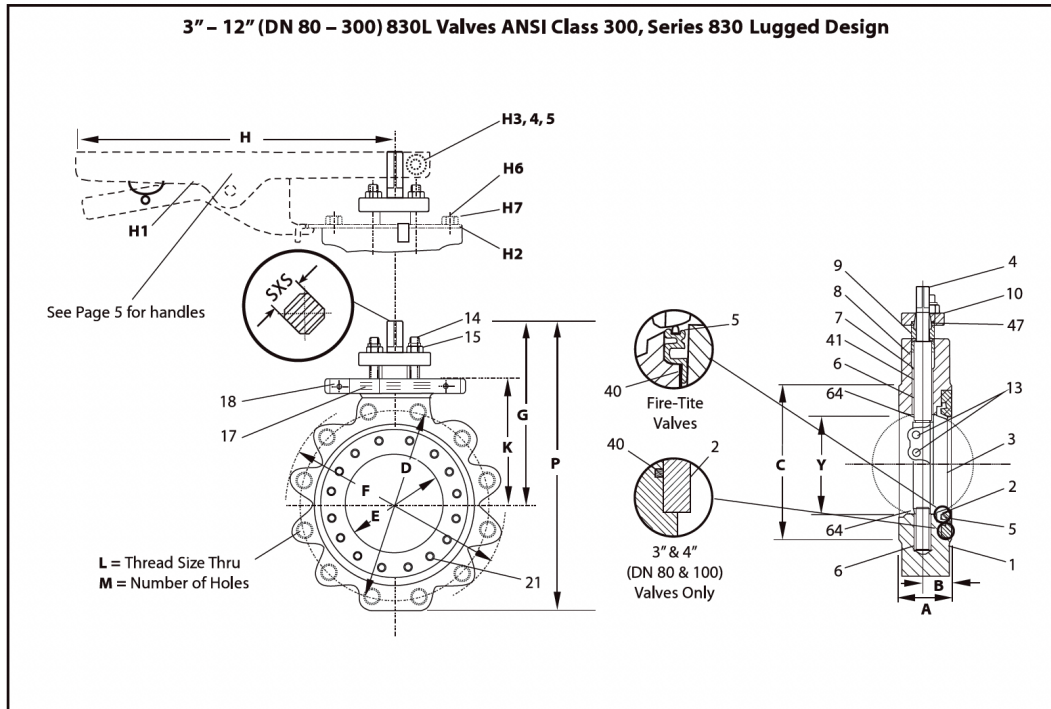


Valve Size inches	Approximate Dimensions - inches														Approx. Weight lbs.**
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
14	4.61	2.31	16.25	20.25	12.38	16.25	16.43	12.80	1-1/8-8+	4	28.75	1.50	2.16	11.75	368
16	5.25	2.44	18.50	22.50	14.31	18.50	17.31	13.80	1-1/4-8+	4	30.75	2.05	2.36	13.63	429
18	5.88	2.94	21.00	24.75	16.28	21.00	21.34	16.71	1-1/4-8+	4	37.80	2.05	2.56	15.44	715
20	6.25	3.19	23.00	27.00	17.91	23.00	22.58	17.58	1-1/4-8+	4	39.95	2.13	2.76	17.06	896
24	7.13	3.63	27.25	32.00	21.63	27.25	24.96	19.71	1-1/2-8+	4	44.93	2.36	3.35	20.63	1,390

+ANSI B16.5 requires all bolts 1 -1/8" (28.6 mm) and larger have 8-UN thread series.

Valve Size inches	Approximate Dimensions - inches														Approx. Weight kg.**
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
350	117	59	413	514	314	413	417	325	M30	4	730	38	55	298	167
400	133	62	470	572	363	470	440	351	M33	4	781	52	60	346	195
450	149	75	533	629	414	533	542	424	M33	4	960	52	63	392	324
500	159	81	584	686	455	584	574	447	M33	4	1015	54	70	433	406
600	181	92	692	813	549	692	634	501	M39	4	1141	60	85	524	631

Wafer Butterfly Valve-300LB DIMENSIONS



Valve Size inches	Approximate Dimensions - inches															Approx. Weight lbs.**
	A	B	C	D	E	F	G	H	K	L	M	P	S	X	Y*	
3	1.89	1.06	5.00	6.63	2.88	8.13	8.00	11.00	4.75	3/4-10	8	12.44	0.67	0.87	2.90	20
4	2.13	1.19	6.19	7.88	3.75	9.38	8.50	11.00	5.25	3/4-10	8	13.44	0.67	1.02	3.83	29
6	2.31	1.34	8.50	10.63	5.59	12.13	10.13	22.00	6.88	3/4-10	12	16.25	0.87	1.10	5.76	52
8	2.88	1.56	10.63	13.00	7.41	15.00	12.06	22.00	8.38	7/8-9	12	19.50	1.02	1.26	7.63	92
10	3.25	1.75	12.75	15.25	9.28	17.50	13.88	22.00	10.00	1-8	16	23.31	1.26	1.50	9.56	160
12	3.63	1.97	15.00	17.75	11.09	20.25	15.31	—	11.13	1-1/8-8*	16	26.56	1.26	1.77	11.37	220

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe inside diameter for Schedule 80 pipes.

**Weights do not include handles. See page 5 for handle weights

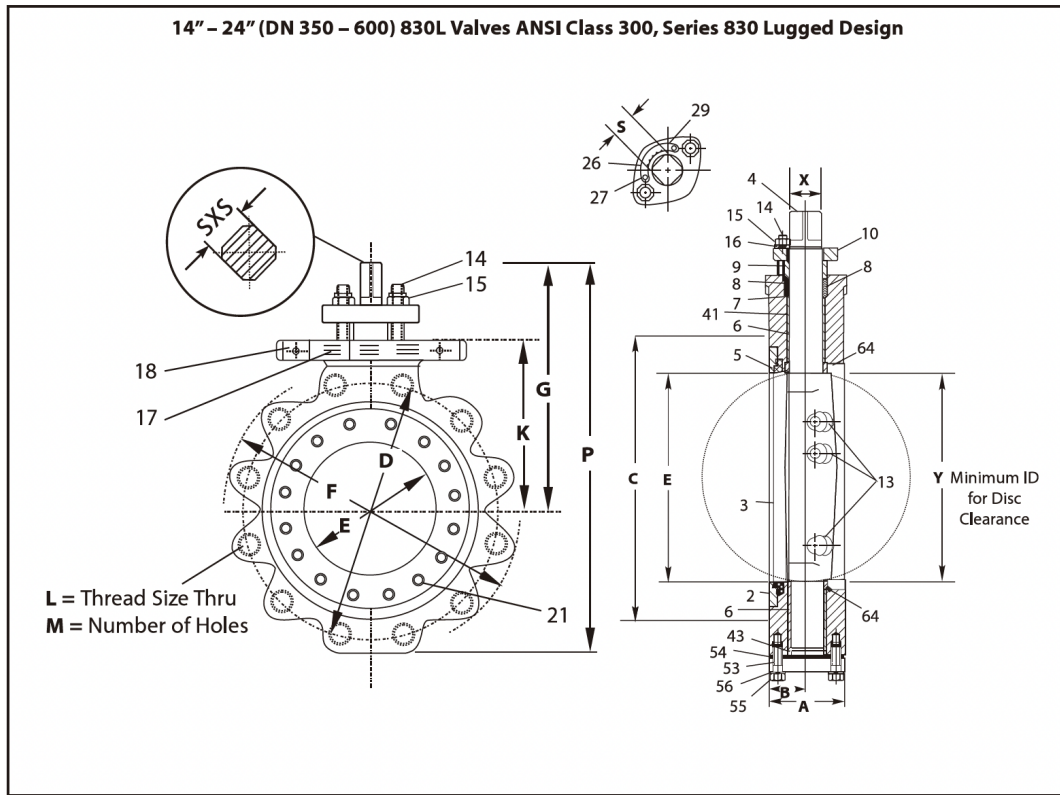
+ ANSI B16.5 requires all bolts 1-1/8" (28.6 mm) and larger have 8-UN thread series

Valve Size inches	Approximate Dimensions - inches															Approx. Weight lbs.**
	A	B	C	D	E	F	G	H	K	L	M	P	S	X	Y*	
80	48	27	127	168	73	207	203	279	121	M20	8	316	17	22	74	74
100	54	30	157	200	95	238	216	279	133	M20	8	341	17	26	97	13
150	59	34	216	270	142	308	257	559	175	M20	12	413	22	28	146	24
200	73	40	270	330	188	381	306	559	213	M22	12	495	26	32	194	42
250	83	44	324	387	236	445	353	559	254	M27	16	592	32	38	243	73
300	92	50	381	451	282	514	389	—	283	M30	16	675	32	45	289	100

*Conforms to API 609 and MSS-SP 68 requirements for minimum clearances of pipe inside diameter for Schedule 80 pipes.

**Weights do not include handles. See page 5 for handle weights

Wafer Butterfly Valve-300LB DIMENSIONS



Valve
Size

Approximate Dimensions - inches

Approx.
Weight

Valve Size DN	Approximate Dimensions - mm														Approx. Weight kg
	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	
350	117	59	413	514	314	584	417	325	M30	20	730	38	55	298	253
400	133	62	470	572	363	648	440	351	M33	20	781	52	60	346	328
450	149	75	533	629	414	711	542	424	M33	24	960	52	65	392	503
500	159	81	584	686	455	775	574	447	M33	24	1015	54	70	433	648
600	181	92	692	813	549	914	634	501	M39	24	1141	60	85	524	984

Valve
Size
DN

Approximate Dimensions - inches

Approx.
Weight
lbs.**

Size DN	A	B	C	D	E	F	G	K	L	M	P	S	X	Y	Weight lbs.**		
	350	117	59	413	514	314	584	417	325	M30	20	730	38	55		298	253
	400	133	62	470	572	363	648	440	351	M33	20	781	52	60		346	328
	450	149	75	533	629	414	711	542	424	M33	24	960	52	65		392	503
	500	159	81	584	686	455	775	574	447	M33	24	1015	54	70		433	648
	600	181	92	692	813	549	914	634	501	M39	24	1141	60	85		524	984



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