

PRATT[®]
INDUSTRIAL

OS Series Wafer/Lug Butterfly Valves



Engineering Creative Solutions
for Fluid Systems Since 1901

ABOUT PRATT INDUSTRIAL

Pratt Industrial specializes in the design, engineering, and worldwide distribution of technologically advanced, industrial-use valves and actuators. Henry Pratt Company's investment in Pratt Industrial combines the innovative resources of a century old company with the know-how of experts in industrial valve markets.

Pratt Industrial offers solutions that optimize manufacturing processes by engineering high-performance valves for all industrial applications.

Centrally located in Emporia, Kansas, Pratt Industrial has over 65,000 sq. feet of manufacturing and warehouse space, including a full-service machine shop for custom assemblies. Based on customers' specific needs, Pratt Industrial's knowledgeable and experienced staff of engineers and representatives can help to increase manufacturing productivity and efficiency by providing the right valve for the application.

Pratt Industrial serves the following markets:

- Mining
- Food/Beverage
- Power
- OEM's
- Chemical/Pharmaceutical
- Desalination
- Petroleum/Oilfield
- Ultra Pure Water
- Transportation
- Marine
- Irrigation
- HVAC

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Through experience, commitment and creative engineering, Pratt Industrial is uniquely suited to provide superior products for our customers' special needs. For more information, contact our corporate headquarters in Emporia, Kansas.

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CONSTRUCTION SPECIFICATION

Pratt OS Series Butterfly Valves



Valve with Lever Operator



Valve with Gear Operator

Sizes: 1" through 48"

Body: Ductile Iron (65-45-12)

Disc: Ductile Iron Nickel Plated, Ductile Iron Nylon, 304 Stainless Steel, Aluminum Bronze

Stem: 410 S.S. Heat Treated

Resilient Seat: EPDM, Buna-N, Viton

Actuation Options: Worm Gear, Lever, Pneumatic, Electric

Pressure Ratings: 1"-12" 200 psi
14"-48" 150 psi

NOTE:

For installation between ANSI 125/150.

Substitute material may result in pressure rating change.

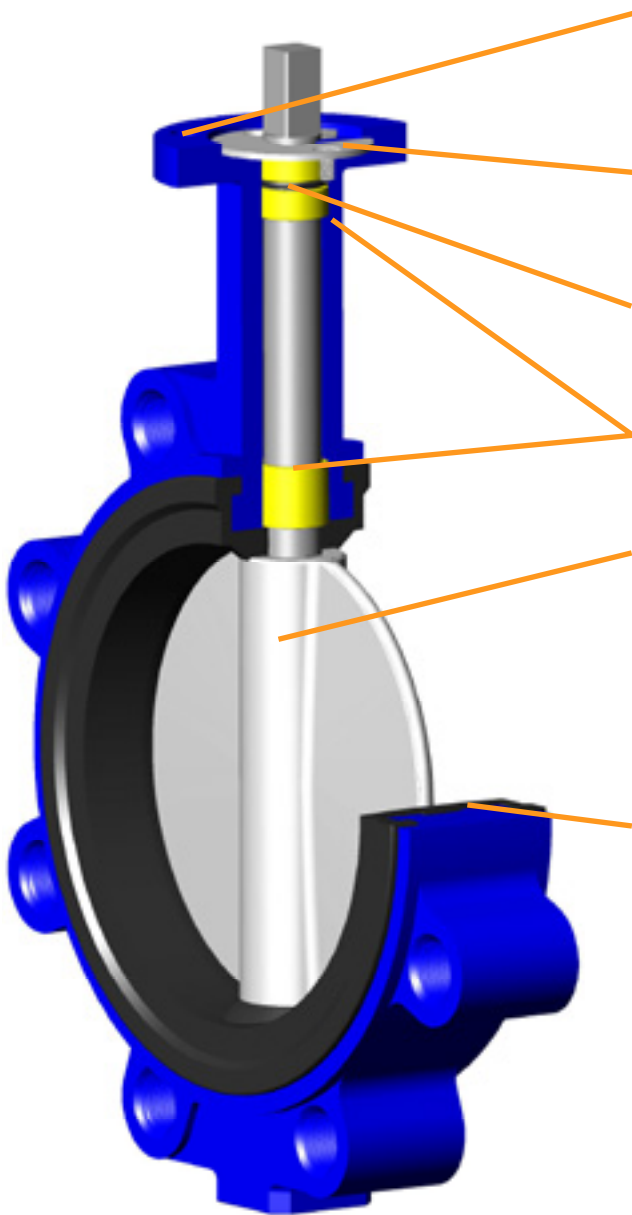
Contact factory for details. Viton is rated at 165 psi.

Features:

- Innovative 3 point connection, tongue and groove seat allows for higher pressure rating and full Vacuum service.
- Our two piece shaft design provides maximum strength and a high flow characteristic disc.

PRATT OS SERIES BUTTERFLY VALVE DESIGN DETAILS

Butterfly Valve, Sizes 1" through 48", 1"12" 200 psi, 14"-48" 150 psi



Top flange conforms to ISO 5211 industrial standard allowing a universal mounting pad for automation requirements which is suitable for most actuators in the market.

Blowout proof stem meets all API 609 requirements. Our unique design also creates a secondary stem journal seal preventing leakage to atmosphere.

Shaft seal: upper shaft seal shall be a self adjusting O-ring compressed between the top (2) upper bushings creating a positive seal between the body and shaft.

Bushing: Pratt uses three upper and one lower RTFE bushings, this reduces stem journal friction and reduces torques.

Pratt utilizes 2 internally driven shafts creating a strong drive connection and allowing for less disc movement under high pressure.

Pratt's unique seat design utilizes 3 tongue and groove connection points to the valve body. Seats remain secure and stable even under high dead-end pressure and full vacuum services. The center tongue not only locks the seat in place, but allows rubber material to flow into the center body groove when cycling the valve, drastically reducing the operating torque.

SUGGESTED SPECIFICATIONS

Pratt OS Series Wafer/Lug Butterfly Valve, Sizes 1" through 48" 1"-12" 200psi, 14"-48" 150psi

General:

Lug valves shall be design for installation between ANSI 125/150 flanges. Wafer valves shall be design for installation between ANSI 125 / 150 flanges. All valves shall be capable of bi-directional, end of line, bubble tight service to rated pressure. Valves are also rated to full vacuum service. Design Standards: API 609 category A.

Pressure Rating:

1" – 12" – 200psi to fit between ANSI 125/150 flanges

14" – 48" – 150psi to fit between ANSI 125/250 flanges

Body:

Valve body shall be a 1 piece Ductile Iron ASTM A-536 (65-45-12) construction with a laying length conforming to the latest revision of ISO 5752 and a flange connection B16.1/B16.5.

Disc:

Valve disc shall be Ductile iron ASTM A-536 Grade 65-45-12 with ENP plating, 304 Stainless Steel, or Aluminum Bronze. Disc shall be designed to accommodate an upper and lower shaft.

Shaft:

Valve shaft shall be constructed of Heat Treated 410 Stainless Steel. Valve shall be designed to accommodate (2) shafts (1 upper and 1 lower). The upper shaft shall have a positive engagement in the disc utilizing an internal square drive and shall be retained by the body Top Cap.

Seat:

Seat shall be EPDM, Buna-N or Viton. Seat design shall consist of 3 Tongues (2 located on the side walls and 1 located in the center bore) that engage into 3 groves in the body. These 3 tongue and groove connection points prevent seat movement in a radial and axial direction. Seats shall be field replaceable.

Shaft Seals:

Upper Shaft Seal shall be self-adjusting O-Ring and shall be suitable for Pressure or Vacuum service.

Bushings:

Valve shall consist of (3) upper and (1) lower RTFE bushings. Pratt's unique bushing design provides protection against shaft side loading.

Testing:

All valves shall be leak tested in the factory at their rated pressure per API 598.

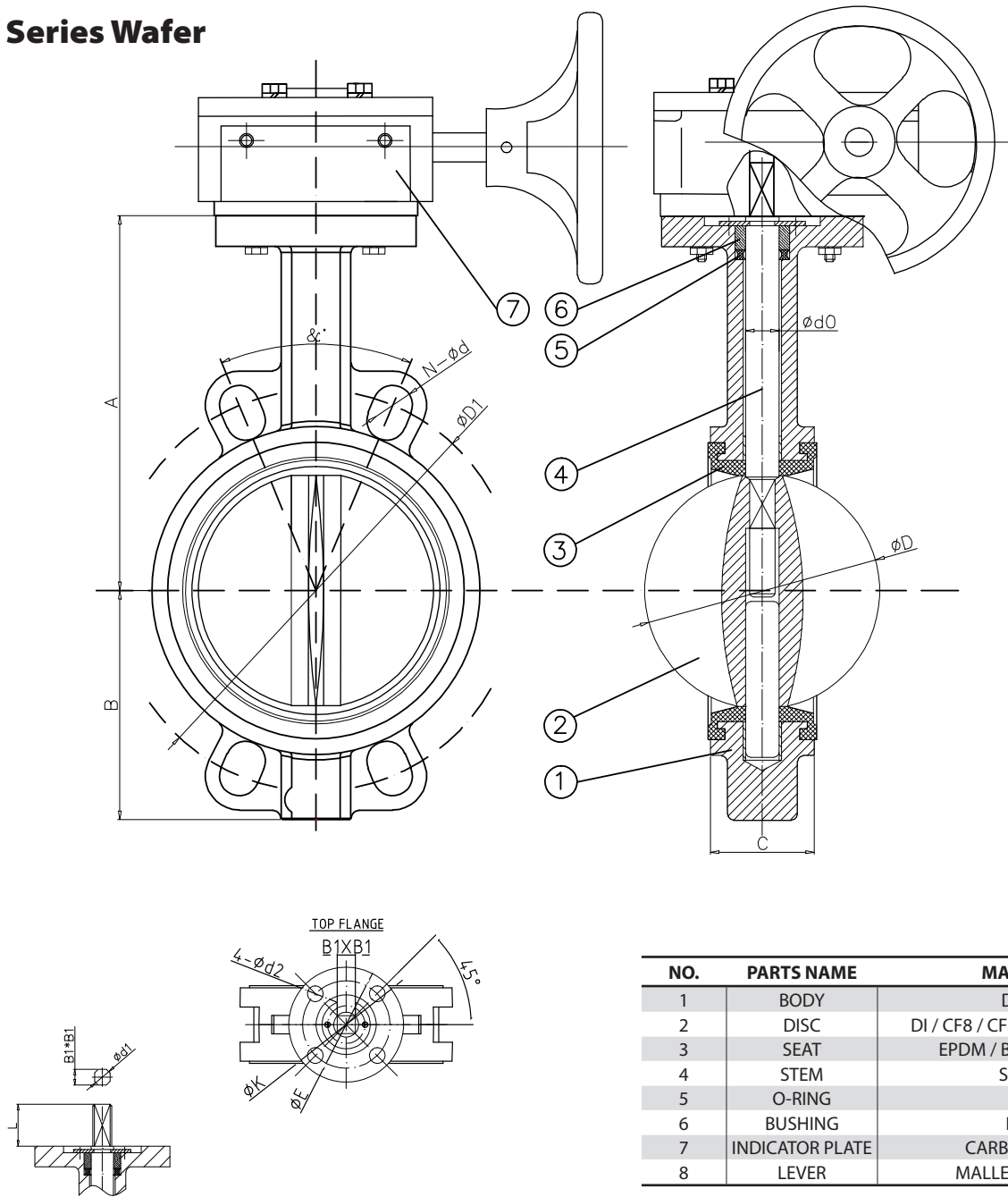
CV FLOW DATA: OS SERIES

During its product development phase, the OS Series Wafer/Lug Butterfly Valve was tested to ensure that it met our own rigorous standards for flow capacity. Throughout testing, the OS Series valve has consistently produced high Cv values which translates to lower flow resistance, and in turn, lowering system operating costs to the user over the life of the valve. The following Cv chart represents the flow characteristics for all sizes available.

CV	OS SERIES BUTTERFLY VALVE								
Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
1.5"	–	–	–	5	12	25	58	35	40
2"	–	–	0.8	10	27	44	70	105	115
2.5"	0.1	0.9	10	25	45	75	119	178	196
3"	0.2	9	18	39	70	116	183	275	302
4"	0.3	17	36	78	139	230	364	546	600
5"	0.5	29	61	133	237	392	620	930	1022
6"	0.8	45	95	205	366	605	958	1437	1579
8"	2	89	188	408	727	1202	1903	2854	3136
10"	3	151	320	694	1237	2047	3240	4859	5340
12"	4	234	495	1072	1911	3162	5005	7507	8250
14"	6	338	715	1549	2761	4568	7230	10844	11917
16"	8	464	983	2130	3797	6282	9942	14913	16388
18"	11	615	1302	2822	5028	8320	13168	19752	21705
20"	14	791	1647	3628	6465	10698	16931	25396	27908
24"	22	1222	2587	5605	9989	16528	26157	39236	43116
28"	36	1663	3522	7630	12599	20036	30482	46899	58696
30"	37	1912	4050	8142	13152	20411	31226	47562	63328
32"	45	2387	4791	8736	13788	20613	31395	48117	68250
36"	60	3021	6063	11055	17449	26086	39731	60895	86375
40"	84	4183	8395	15307	24159	36166	55084	84425	119750
42"	93	4601	9235	16838	26575	39783	60592	92868	131725
48"	121	5981	12001	21890	34548	51718	78770	120728	171243

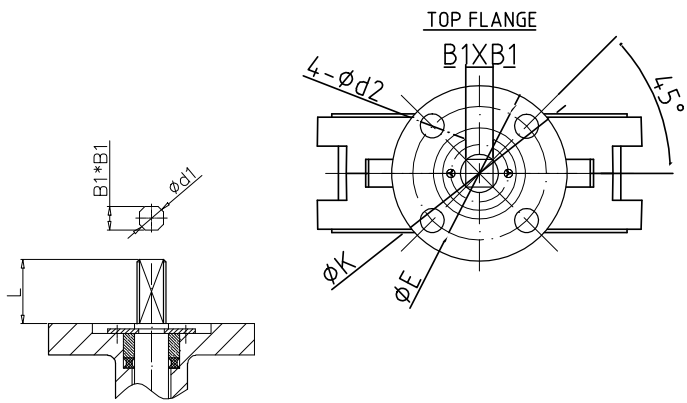
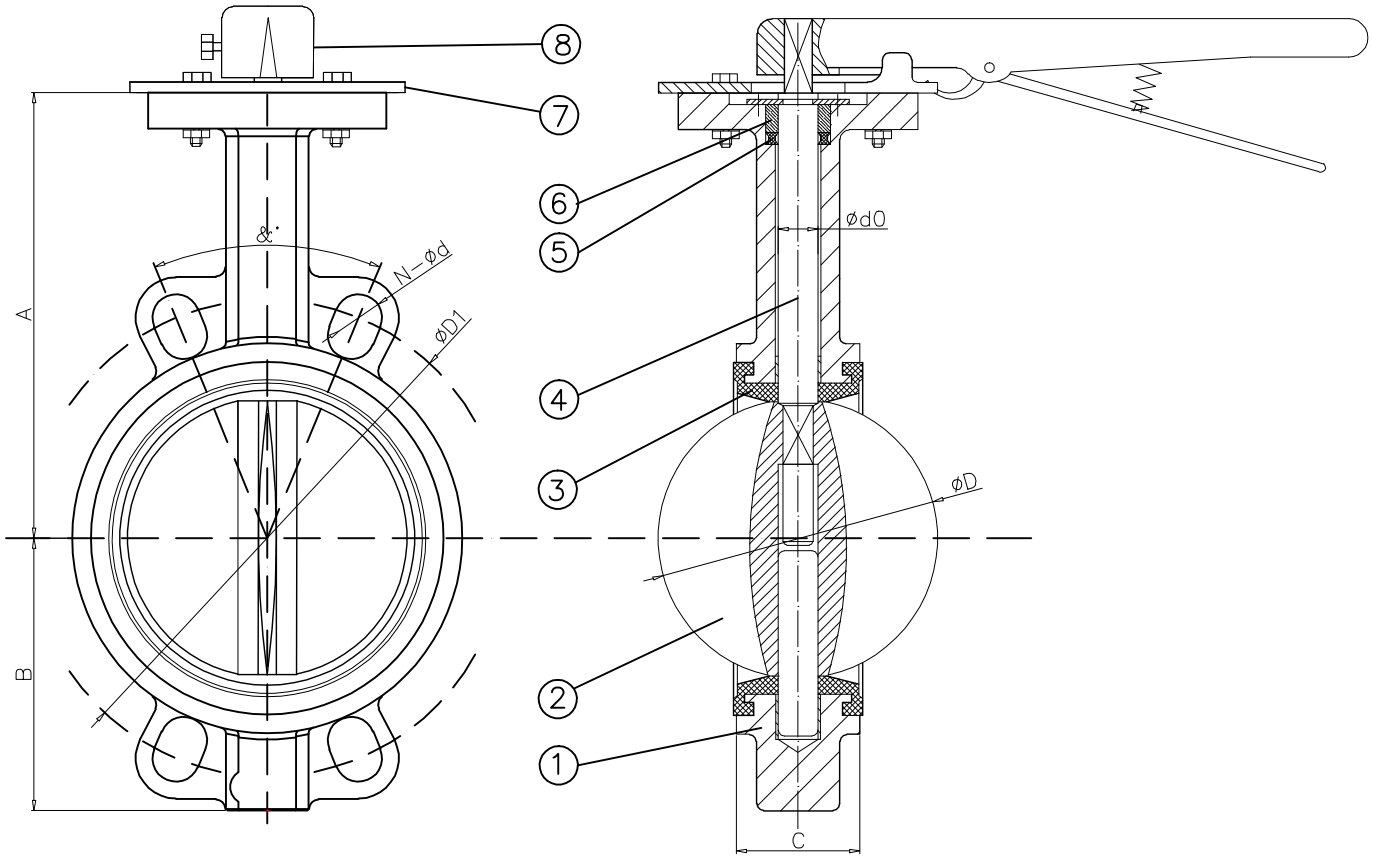
DIMENSIONAL DATA

OS Series Wafer



NO.	PARTS NAME	MATERIAL
1	BODY	DI / CI
2	DISC	DI / CF8 / CF8M / AL-BRONZE
3	SEAT	EPDM / BUNA / VITON
4	STEM	SS 410
5	O-RING	NBR
6	BUSHING	PTFE
7	INDICATOR PLATE	CARBON STEEL
8	LEVER	MALLEABLE IRON

Size	A	B	C	D	d0	d1	ISO 5211	K	E	4-d2	L	D1	N-M	B1
1.5"	4.72	2.24	1.30	1.65	0.50	0.50	F05	2.56	1.97	0.28	1.02	3.88	4-1/2"-13 UNC	0.43
2"	5.51	2.60	1.69	2.08	0.50	0.50	F05	2.56	1.99	0.28	1.02	4.75	4-5/8"-11 UNC	0.43
2.5"	5.91	2.95	1.81	2.54	0.50	0.50	F05	2.56	1.97	0.28	1.02	5.50	4-5/8"-11 UNC	0.43
3"	6.22	3.66	1.81	3.10	0.50	0.50	F05	2.56	1.97	0.28	1.02	6.00	4-5/8"-11 UNC	0.43
4"	6.93	4.25	2.05	4.09	0.62	0.61	F07	3.54	2.76	0.39	1.10	7.50	8-5/8"-11 UNC	0.43
5"	7.48	4.92	2.20	4.85	0.74	0.74	F07	3.54	2.76	0.39	1.18	8.50	8-3/4"-10 UNC	0.50
6"	8.31	5.32	2.20	6.11	0.74	0.74	F07	3.54	2.76	0.39	1.18	9.50	8-3/4"-10 UNC	0.55
8"	9.25	6.69	2.36	7.97	0.87	0.87	F10	4.92	4.02	0.47	1.50	11.75	8-3/4"-10 UNC	0.67
10"	10.43	8.07	2.68	9.86	1.12	1.10	F10	4.92	4.02	0.47	1.50	14.25	12-7/8"-9 UNC	0.87
12"	12.00	9.37	3.07	11.87	1.24	1.10	F10	4.92	4.02	0.47	1.50	17.00	12-7/8"-9UNC	0.87

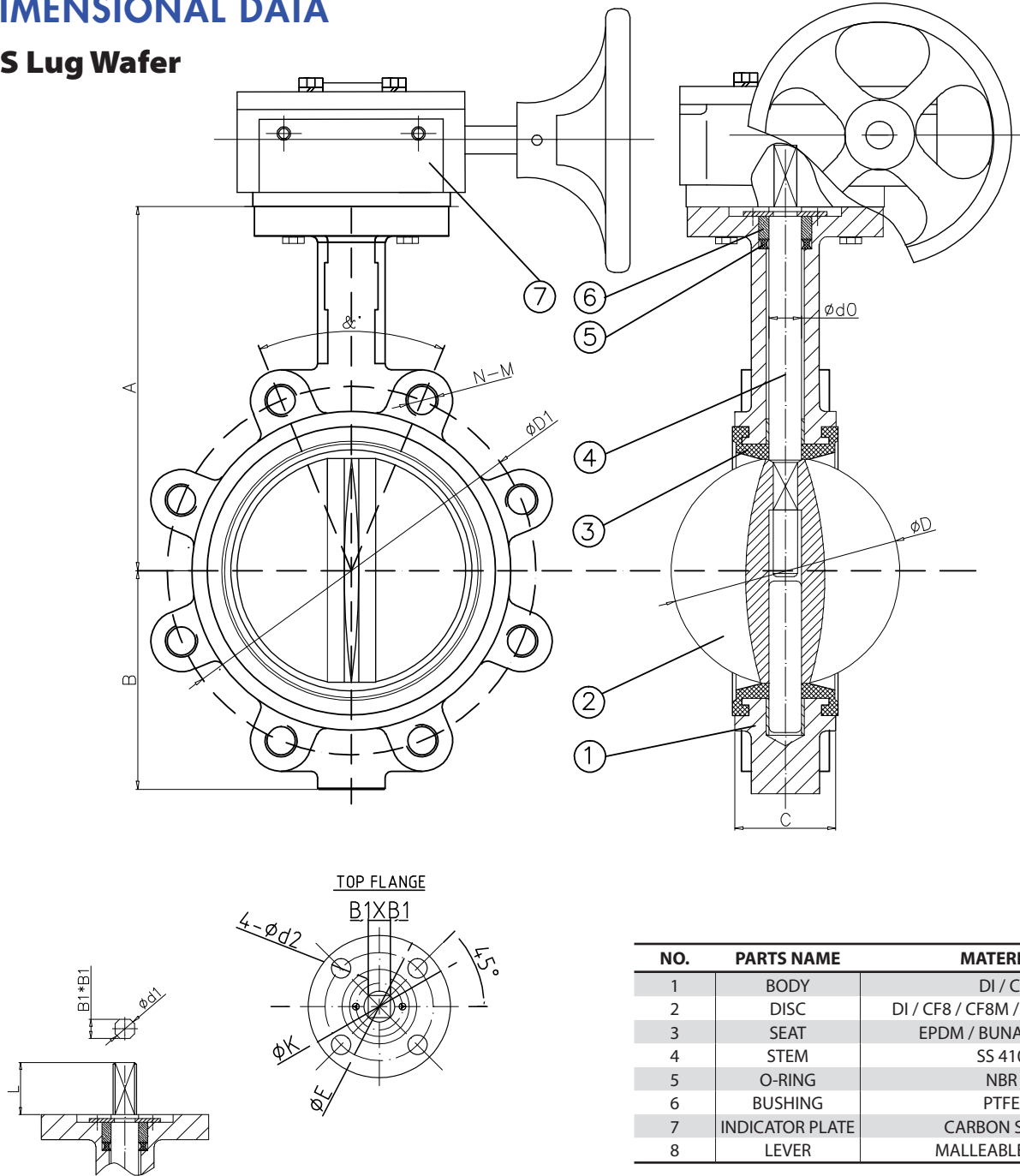


NO.	PARTS NAME	MATERIAL
1	BODY	DI / CI
2	DISC	DI / CF8 / CF8M / AL-BRONZE
3	SEAT	EPDM / BUNA / VITON
4	STEM	SS 410
5	O-RING	NBR
6	BUSHING	PTFE

Size	A	B	C	D	d0	d1	ISO 5211	K	E	4-d2	L	D1	N-M	B1
14"	14.49	10.51	3.07	13.14	1.24		F10	4.92	4.02	0.47	1.57	18.75	12-1"-8 UNC	0.87
16"	15.75	13.19	4.02	14.96	1.49		F12	6.89	5.51	0.71	1.97	21.25	16-1"-8 UNC	1.06
18"	16.61	13.62	4.49	17.06	1.69		F12	6.89	5.51	0.71	1.97	22.75	16-1 1/8"-7 UNC	1.06
20"	18.90	15.67	5.00	19.36	1.80		F12	6.89	5.51	0.71	2.36	25.00	20-1 1/8"-7 UNC	1.06
24"	22.24	18.03	6.06	22.50	2.13		F16	8.27	6.50	0.91	2.56	29.50	20-1 1/4"-7 UNC	1.42
30"	25.98	21.53	7.48	28.94	2.49	.71 KEY	F25	11.81	10.00	0.71	3.15	36.00	28-1 1/4"-7 UNC	
36"	28.35	25.59	7.99	34.82	2.50	.79 KEY	F25	11.81	10.00	0.71	4.65	42.75	32-1 1/2"-6 UNC	
48"	37.05	32.28	10.08	46.38	4.13	1.10 KEY	F30	13.78	11.73	0.87	6.06	56.00	44-1 1/2"-6 UNC	

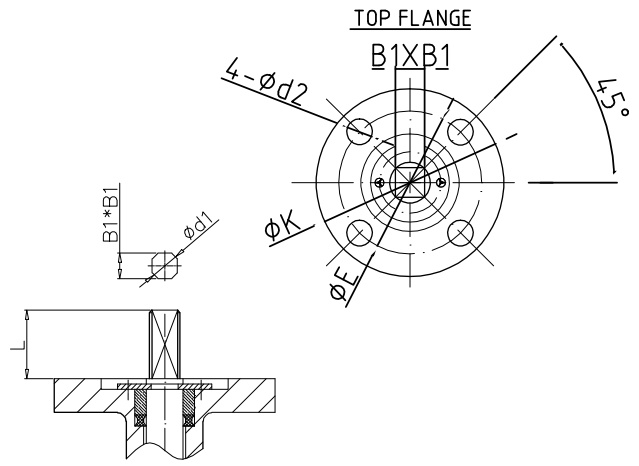
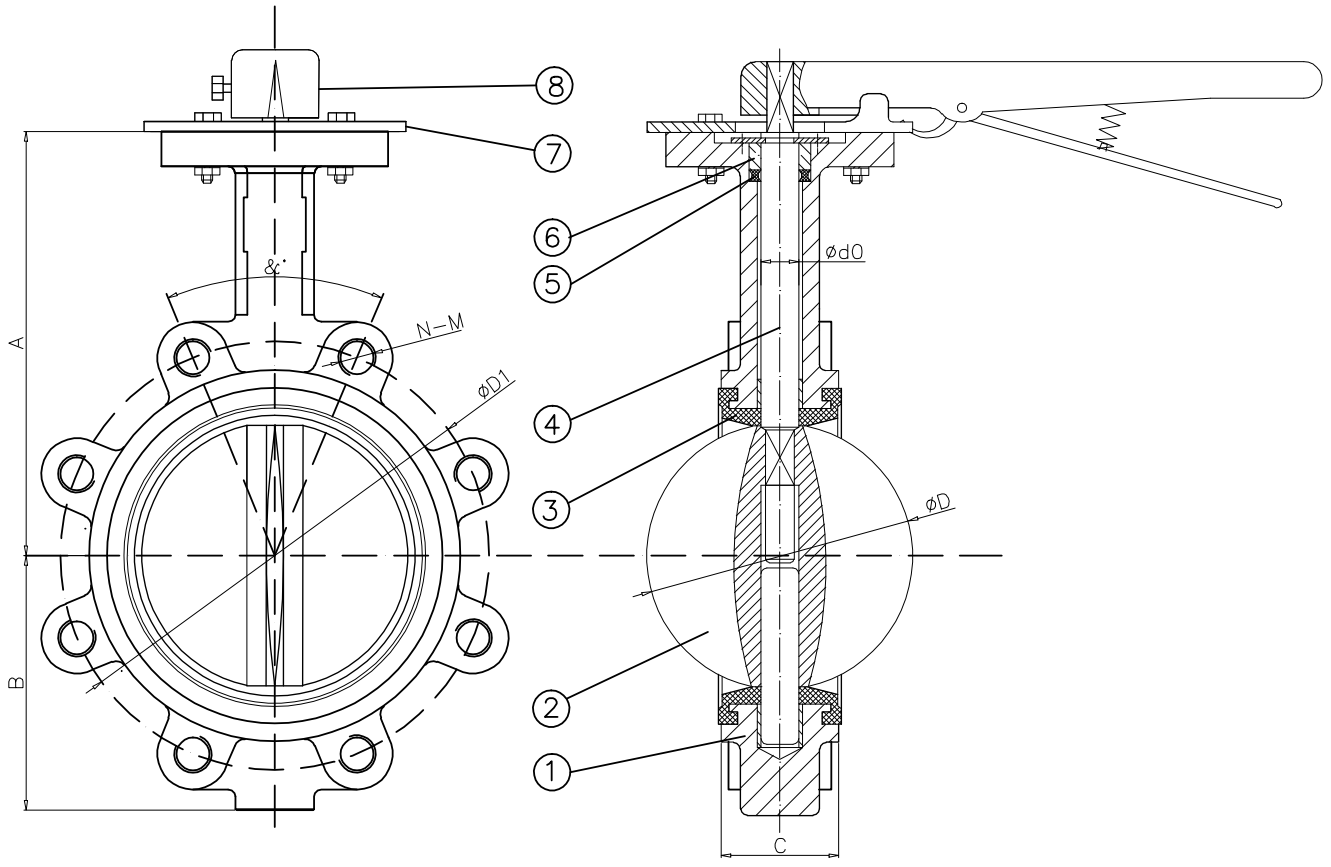
DIMENSIONAL DATA

OS Lug Wafer



NO.	PARTS NAME	MATERIAL
1	BODY	DI / CI
2	DISC	DI / CF8 / CF8M / AL-BRONZE
3	SEAT	EPDM / BUNA / VITON
4	STEM	SS 410
5	O-RING	NBR
6	BUSHING	PTFE
7	INDICATOR PLATE	CARBON STEEL
8	LEVER	MALLEABLE IRON

Size	A	B	C	D	d0	d1	ISO 5211	K	E	4-d2	L	D1	N-M	B1
1.5"	4.72	2.24	1.30	1.65	0.50	0.50	F05	2.56	1.97	0.28	1.02	3.88	4-1/2"-13 UNC	0.43
2"	5.51	2.60	1.69	2.08	0.50	0.50	F05	2.56	1.99	0.28	1.02	4.75	4-5/8"-11 UNC	0.43
2.5"	5.91	2.95	1.81	2.54	0.50	0.50	F05	2.56	1.97	0.28	1.02	5.50	4-5/8"-11 UNC	0.43
3"	6.22	3.66	1.81	3.10	0.50	0.50	F05	2.56	1.97	0.28	1.02	6.00	4-5/8"-11 UNC	0.43
4"	6.93	4.25	2.05	4.09	0.62	0.61	F07	3.54	2.76	0.39	1.10	7.50	8-5/8"-11 UNC	0.43
5"	7.48	4.92	2.20	4.85	0.74	0.74	F07	3.54	2.76	0.39	1.18	8.50	8-3/4"-10 UNC	0.50
6"	8.31	5.32	2.20	6.11	0.74	0.74	F07	3.54	2.76	0.39	1.18	9.50	8-3/4"-10 UNC	0.55
8"	9.25	6.69	2.36	7.97	0.87	0.87	F10	4.92	4.02	0.47	1.50	11.75	8-3/4"-10 UNC	0.67
10"	10.43	8.07	2.68	9.86	1.12	1.10	F10	4.92	4.02	0.47	1.50	14.25	12-7/8"-9 UNC	0.87
12"	12.00	9.37	3.07	11.87	1.24	1.10	F10	4.92	4.02	0.47	1.50	17.00	12-7/8"-9UNC	0.87



NO.	PARTS NAME	MATERIAL
1	BODY	DI / CI
2	DISC	DI / CF8 / CF8M / AL-BRONZE
3	SEAT	EPDM / BUNA / VITON
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5	O-RING	NBR
6	BUSHING	PTFE


Size	A	B	C	D	d0	d1	ISO 5211	K	E	4-d2	L	D1	N-M	B1
14"	14.49	10.51	3.07	13.14	1.24		F10	4.92	4.02	0.47	1.57	18.75	12-1"-8 UNC	0.87
16"	15.75	13.19	4.02	14.96	1.49		F12	6.89	5.51	0.71	1.97	21.25	16-1"-8 UNC	1.06
18"	16.61	13.62	4.49	17.06	1.69		F12	6.89	5.51	0.71	1.97	22.75	16-1 1/8"-7 UNC	1.06
20"	18.90	15.67	5.00	19.36	1.80		F12	6.89	5.51	0.71	2.36	25.00	20-1 1/8"-7 UNC	1.06
24"	22.24	18.03	6.06	22.50	2.13		F16	8.27	6.50	0.91	2.56	29.50	20-1 1/4"-7 UNC	1.42
30"	25.98	21.53	7.48	28.94	2.49	.71 KEY	F25	11.81	10.00	0.71	3.15	36.00	28-1 1/4"-7 UNC	
36"	28.35	25.59	7.99	34.82	2.50	.79 KEY	F25	11.81	10.00	0.71	4.65	42.75	32-1 1/2"-6 UNC	
48"	37.05	32.28	10.08	46.38	4.13	1.10 KEY	F30	13.78	11.73	0.87	6.06	56.00	44-1 1/2"-6 UNC	


OS SERIES PART NUMBER ORDERING INFORMATION

Valve Model		Size		Body	Disc	Stem	Seat				
XXX		XXX		X	X	X	X				
OS1	WAFER	020	2"	9	DI/ENP	8	416	9	BUNA		
OS2	LUG	025	2 1/2"	8	DI/Nylon-11	7	DUPLEX (F51)	8	EPDM		
OS3	Flanged	030	3"	6	WCB	7	AB (B148-95400)	5	MONEL (K500)	7	Viton
		040	4"	B	304SS / CF8	6	CF8M	3	17/4 SS	2	NAT. RUBBER
		050	5"			4	MONEL (K5)	D	K500 MONEL	1	NEOPRENE
		060	6"			0	DUPLEX	F	410		
		080	8"			C	304SS / CF8				
		100	10"			S	Incoloy (926)				

OS Series Valve Ordering Example

Example Part #: OS1-020-8CF8

 Standard Product

 Special Order Product

* Other material and options available upon request

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