

# PRATT INDUSTRIAL<sup>®</sup>

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## OS-ISO SERIES WAFER/LUG BUTTERFLY VALVES

Engineering Creative Solutions for Fluid Systems Since 1901



**MUELLER**

# PRATT INDUSTRIAL®

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# CONSTRUCTION SPECIFICATION

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

**SIZES 1.5" THROUGH 24", 1.5" - 12" 200 PSI, 14" - 24" 150 PSI**



Barestem Valve

**Sizes:** 1.5" through 24"

**Body:** Ductile Iron (65-45-12)/ Stainless Steel A3511

**Disc:** Ductile Iron Nickel Plated, 304 Stainless Steel, 316 Stainless Steel, WCB+PFA

**Stem:** 416 SS Heat Treated

**Resilient Seat:** EPDM, Buna-N, Viton, Teflon

**Actuation Options:** Worm Gear, Lever, Pneumatic, Electric

**Pressure Ratings:** 1" - 12" 200psi  
14" - 24" 150psi

**NOTE:**

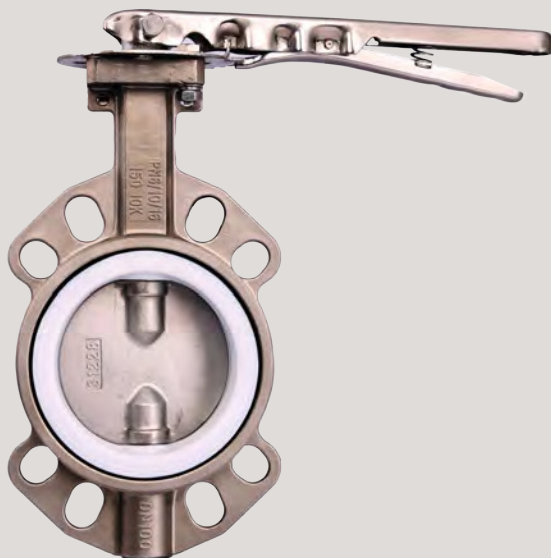
For installation between ANSI 125/150

Substitute material may result in pressure rating change

Contact factory for details. Viton is rated at 165psi

**Features:**

- Our two piece shaft design provides maximum strength and a high flow characteristic disc



Valve with Lever Operator

# DESIGN DETAILS

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

**SIZES 1.5" THROUGH 24", 1.5" - 12" 200 PSI, 14" - 24" 150 PSI**

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

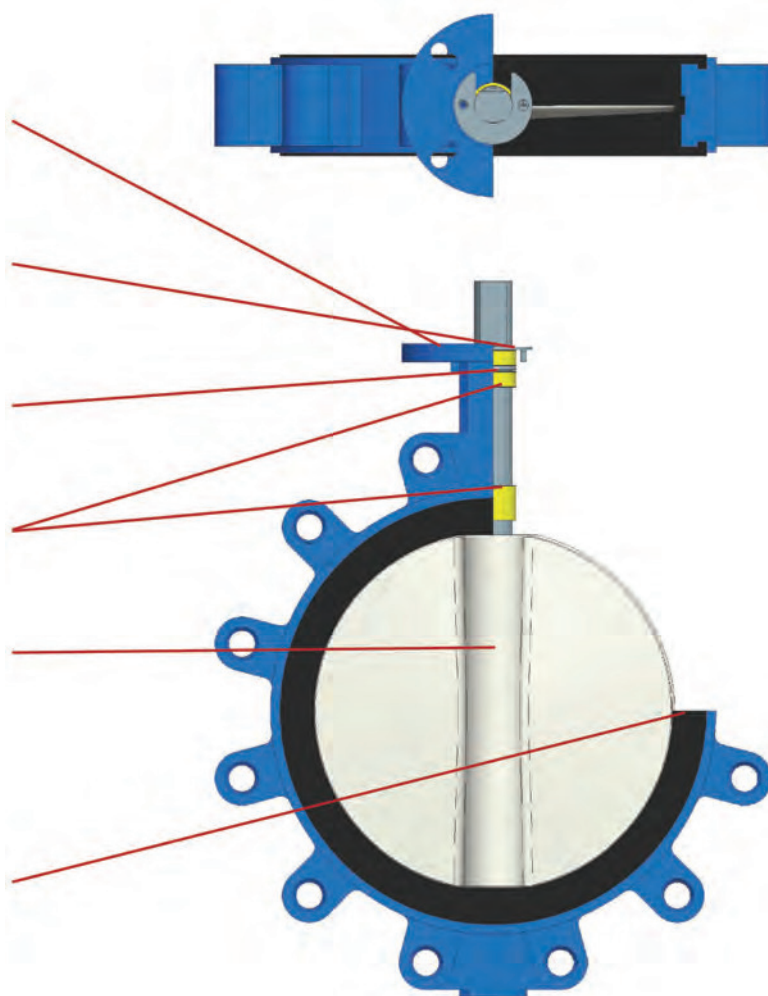
**Blowout proof stem** meets all API 609 requirements. Our unique design also creates a secondary stem journal seal preventing leakage to atmosphere.

**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** remains secure and stable even under high dead-end pressure and full vacuum services.



# SUGGESTED SPECIFICATIONS

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

### SIZES 1.5" THROUGH 24", 1.5" - 12" 200 PSI, 14" - 24" 150 PSI

#### 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:

1.5" – 12" – 200psi to fit between ANSI 125/150 flanges

14" – 24" – 150psi to fit between ANSI 125/250 flanges

#### Body:

Valve body shall be a 1 piece Ductile Iron ASTM A-351 (65-45-12)/ stainless steel 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 316 Stainless Steel WCB + PFA, Disc shall be designed to accommodate an upper and lower shaft.

#### Shaft:

Valve shaft shall be constructed of Heat Treated 416 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, Viton or Teflon. Rubber seat design shall consist of 3 Tongues (2 located on the side walls and 1 located in the center bore) that engage into 3 grooves in the body. These 3 tongue and groove connection points prevent seat movement in a radial and axial direction. Seats shall be field replaceable. The teflon seat is pressed in phenolic backed, and is not 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

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

### SIZES 1.5" THROUGH 24", 1.5" - 12" 200 PSI, 14" - 24" 150 PSI

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.

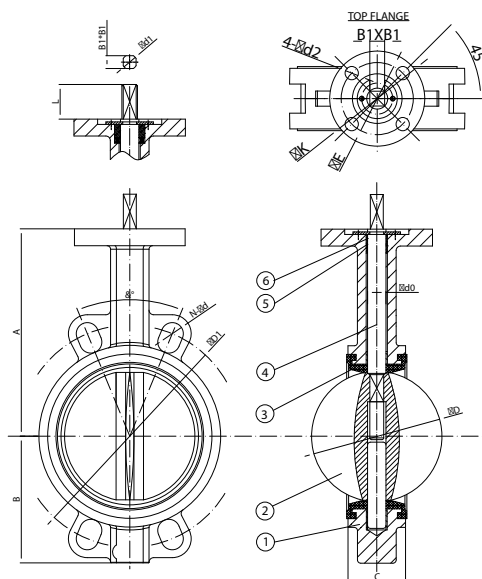
CV	OS SERIES BUTTERFLY VALVE								
SIZE	10°	20°	30°	40°	50°	60°	70°	80°	90°
1.5"	–	–	–	5	12	25	58	35	40
2"	–	–	0.8	10	27	44	70	105	115
2.5"	0.1	0.9	10	25	45	75	119	178	196
3"	0.2	9	18	39	70	116	183	275	302
4"	0.3	17	36	78	139	230	364	546	600
5"	0.5	29	61	133	237	392	620	930	1022
6"	0.8	45	95	205	366	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

# DIMENSIONAL DATA

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

### OS-ISO SERIES WAFER

NO.	PARTS NAME	MATERIAL
1	Body	Ductile Iron / Stainless Steel
2	Bushing	RTFE
3	Lower Stem	SS 416
4	Disc	DI / CF8 / CF8M / WCB+PFA
5	Seat	EPDM / Buna / Viton / Teflon
6	Bushing	RTFE
7	Upper Stem	SS 416
8	Bushing with O-ring	RTFE - Buna
9	V-Packing	Buna
10	Retainer Cap	Steel



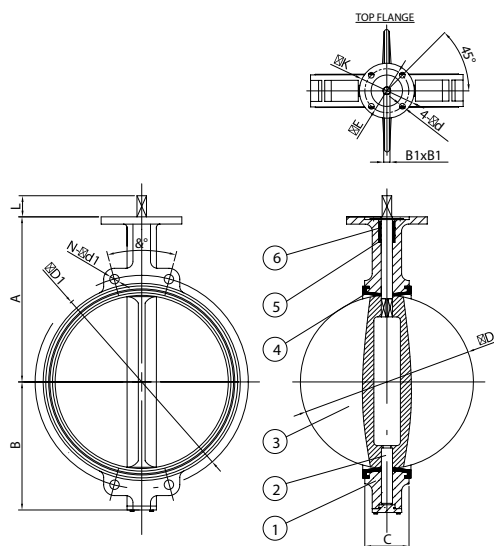
SIZE	A	B	C	D	d0	d1	ISO 5211				L	D1	4-0	8°	B1
								K	E	4-d2					
1.5"	4.72	2.24	1.30	1.65	0.50	0.50	F05	2.56	1.97	0.28	1.02	3.88	4-0.63	90°	0.43
2"	5.51	2.56	1.69	2.08	0.50	0.50	F05	2.56	1.97	0.28	1.02	4.75	4-0.75	90°	0.43
2.5"	5.91	2.95	1.81	2.54	0.50	0.50	F05	2.56	1.97	0.28	1.02	5.50	4-0.75	90°	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	4-0.75	90°	0.43
4"	6.93	4.25	2.05	4.09	0.62	0.61	F07	3.54	2.76	0.39	1.18	7.50	4-0.75	45°	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	4-0.88	45°	0.55
6"	8.31	5.32	2.20	6.11	0.74	0.74	F07	3.54	2.76	0.39	1.18	9.50	4-0.88	45°	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	4-0.88	45°	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	4-1.00	30°	0.87
12"	12.00	9.37	3.07	11.87	1.24	1.10	F10	4.92	4.02	0.47	1.57	17.00	4-1.00	30°	0.87

# DIMENSIONAL DATA

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

### OS-ISO SERIES WAFER

NO.	PARTS NAME	MATERIAL
1	Body	Ductile Iron / Stainless Steel
2	Bushing	RTFE
3	Lower Stem	SS 416
4	Disc	DI / CF8 / CF8M / WCB+PFA
5	Seat	EPDM / Buna / Viton / Teflon
6	Bushing	RTFE
7	Upper Stem	SS 416
8	Bushing with O-ring	RTFE - Buna
9	V-Packing	Buna
10	Retainer Cap	Steel



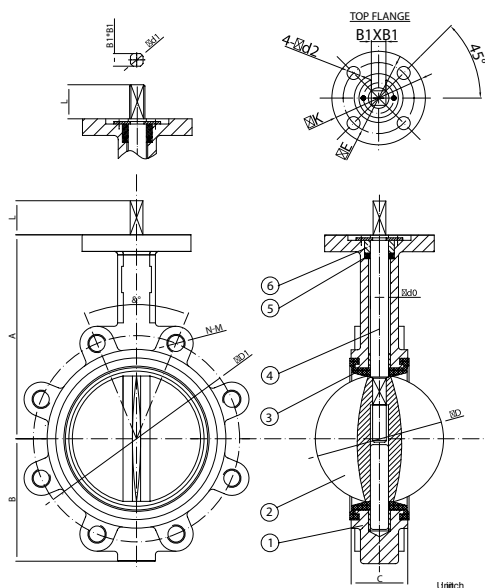
SIZE	A	B	C	D	d0	d1	ISO 5211			L	D1	4-0	8°	B1	
								K	E						4-d2
14"	14.49	10.51	3.07	13.12	1.24	?	F10	4.92	4.02	0.47	1.57	18.75	12-1.12	?	0.866
16"	15.75	12.17	4.02	15.34	1.49	?	F14	6.89	5.51	0.71	2.05	21.25	16-1.12	?	1.06
18"	16.61	12.91	4.49	17.34	1.69	?	F14	6.89	5.51	0.71	2.05	22.75	16-1.25	?	1.06
20"	18.90	14.21	5.01	19.35	1.80	?	F14	6.89	5.51	0.71	2.56	25.00	20-1.25	?	1.42
24"	18.90	18.07	6.06	23.32	2.13	?	F16	8.27	6.50	0.91	2.56	29.50	20-1.38	?	1.42

# DIMENSIONAL DATA

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

### OS-ISO SERIES LUG

NO.	PARTS NAME	MATERIAL
1	Body	Ductile Iron / Stainless Steel
2	Bushing	RTFE
3	Lower Stem	SS 416
4	Disc	DI / CF8 / CF8M / WCB+PFA
5	Seat	EPDM / Buna / Viton / Teflon
6	Bushing	RTFE
7	Upper Stem	SS 416
8	Bushing with O-ring	RTFE - Buna
9	V-Packing	Buna
10	Retainer Cap	Steel



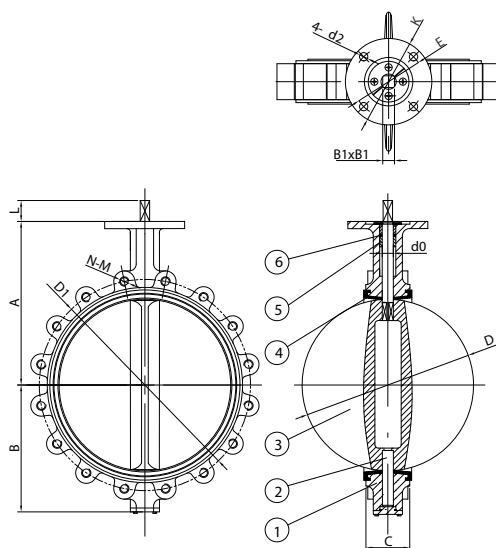
SIZE	A	B	C	D	d0	d1	ISO 5211				L	D1	4-O	8°	B1
								K	E	4-d2					
1.5"	4.72	2.24	1.30	1.65	0.50	0.50	F05	2.56	1.97	0.28	1.02	3.88	4-1/2	90°	0.43
2"	5.51	2.56	1.69	2.08	0.50	0.50	F05	2.56	1.97	0.28	1.02	4.75	4-5/8	90°	0.43
2.5"	5.91	2.95	1.81	2.54	0.50	0.50	F05	2.56	1.97	0.28	1.02	5.50	4-5/8	90°	0.43
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	90°	0.43
4"	6.93	4.25	2.05	4.09	0.62	0.61	F07	3.54	2.76	0.39	1.18	7.50	8-5/8	45°	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	45°	0.55
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	45°	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	45°	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	30°	0.87
12"	12.00	9.37	3.07	11.87	1.24	1.10	F10	4.92	4.02	0.47	1.57	17.00	12-7/8	30°	0.87

# DIMENSIONAL DATA

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

### OS-ISO SERIES LUG

NO.	PARTS NAME	MATERIAL
1	Body	Ductile Iron / Stainless Steel
2	Bushing	RTFE
3	Lower Stem	SS 416
4	Disc	DI / CF8 / CF8M / WCB+PFA
5	Seat	EPDM / Buna / Viton / Teflon
6	Bushing	RTFE
7	Upper Stem	SS 416
8	Bushing with O-ring	RTFE - Buna
9	V-Packing	Buna
10	Retainer Cap	Steel



SIZE	A	B	C	D	d0	d1	ISO 5211			L	D1	4-0	8°	B1	
								K	E						4-d2
14"	14.49	10.51	3.07	13.12	1.24	?	F10	4.92	4.02	0.47	1.57	18.75	12-1"	?	0.866
16"	15.75	12.17	4.02	15.34	1.49	?	F14	6.89	5.51	0.71	2.05	21.25	16-1"	?	1.06
18"	16.61	12.91	4.49	17.34	1.69	?	F14	6.89	5.51	0.71	2.05	22.75	16-1.1/8"	?	1.06
20"	18.90	14.21	5.01	19.35	1.80	?	F14	6.89	5.51	0.71	2.56	25.00	20-1.1/8"	?	1.42
24"	18.90	18.07	6.06	23.32	2.13	?	F16	8.27	6.50	0.91	2.56	29.50	20-1.1/4"	?	1.42

# ORDERING INFORMATION

## Pratt Industrial® OS-ISO Series Wafer/Lug Butterfly Valves

Valve Model		Size		Body		Disc		Stem		Seat	
XX		XXX		X		X		X		X	
OS1	WAFER	015	1.5"	9	CAST IRON	9	DI/ENP	8	416 SS*	9	BUNA
OS2	LUG	020	2"	8	DUCTILE IRON	6	CF8M	7	410 SS**	8	EPDM
		025	2.5"	7	316SS / CF8M	C	304SS / CF8			7	VITON
		030	3"	6	WCB	X	WCB + PFA			0	TEFLON / EPDM
		040	4"	B	304SS / CF8						
		050	5"								
		060	6"								
		080	8"								
		100	10"								
		120	12"								
		140	14"								
		160	16"								
		180	18"								
		200	20"								
		240	24"								

Standard Product

Special Order Product

\*416 SS is standard stem

\*\*410 SS is standard stem for EPDM

### OS Series Valve Ordering Example

Example Part #: OS1-020-86F8-ISO

## About Pratt Industrial®

Pratt Industrial specializes in the design, engineering, and worldwide distribution of technologically advanced, industrial-use valves and actuators. Pratt Industrial offers solutions that optimize manufacturing processes by creating truly high-performance valves for all industrial applications.

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:

- Chemical / Pharmaceutical
- Desalination
- Food and Beverage
- HVAC
- Irrigation
- Mining
- Marine
- OEMs
- Petroleum / Oilfield
- Power
- Transportation
- Ultra Pure Water

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Valves and Actuators for your  
Market Needs.  
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