Petro Valves

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Triple Offset

Butterfly Valve



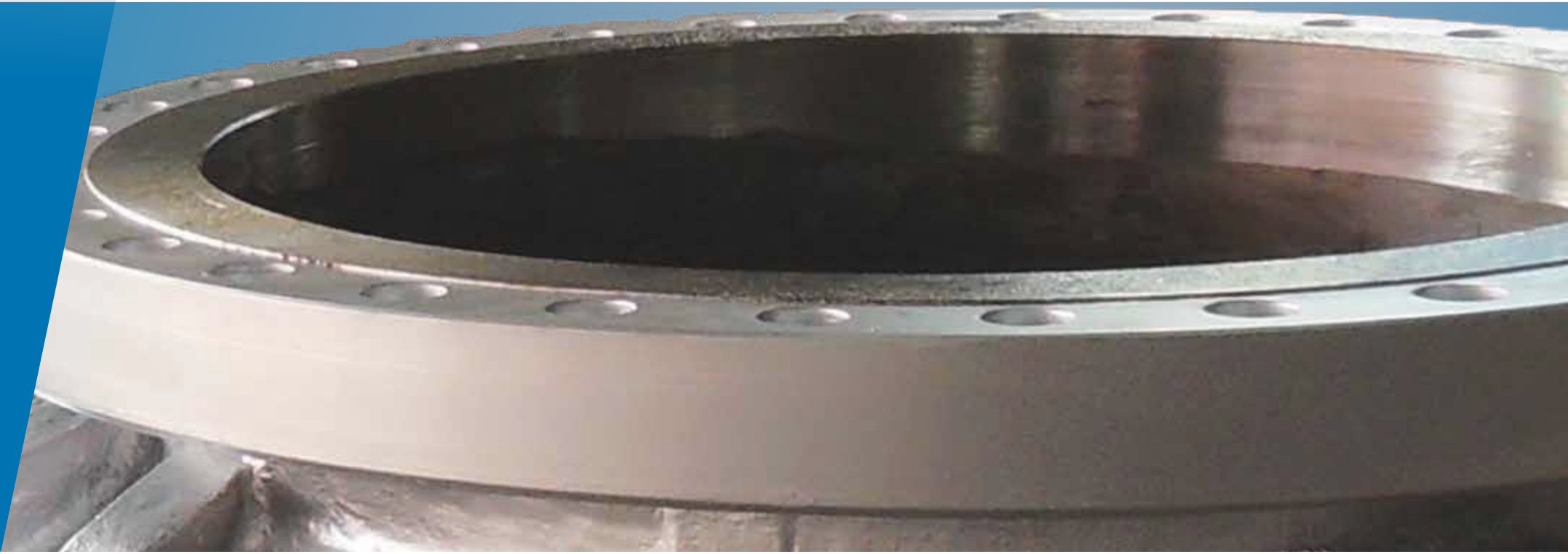
Metal Seated
Zero Leakage
ANSI 150~600

Catalog TBV-3001

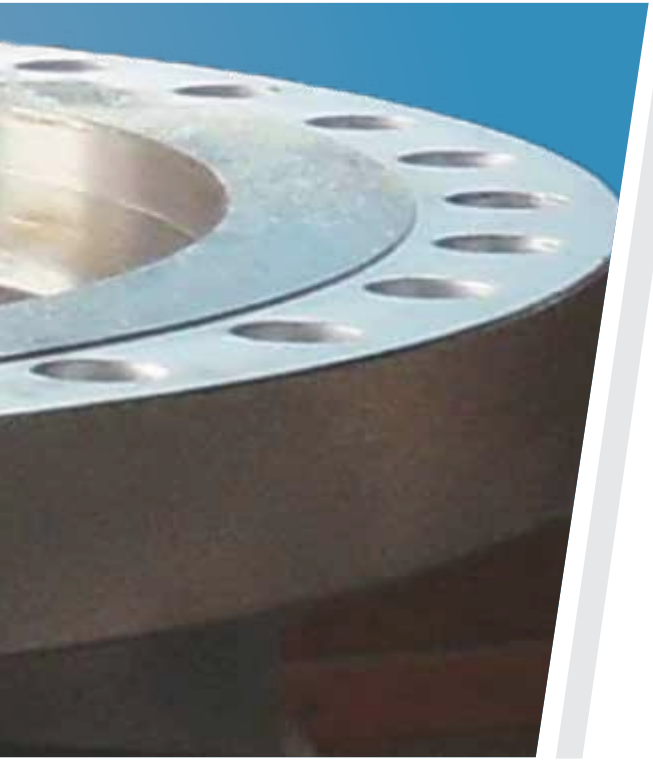
Petro Valves

Welcome
to our catalog

Petro's industrial valves are characterized by outstanding operational performance, exceptional reliability and durability. The line is also known for its standard features which are normally optional in otherbrands. Our valves are designed, engineered and manufactured in strict conformance to API,ASTM, AS-ME,ANSI and other recognized codes and requirements.



Content



Triple Offset Flange Butterfly Valve

Category Butterfly Valve - API 609-Flange Specification 02
Category Butterfly Valve - API 609 - Flange 3D Draw And Materials 04
Category Butterfly Valve - API 609 - Flange Butterfly Valve Picture 06
Category Butterfly Valve - API 609 - Flange Table Of Available Dimensions 07

Triple offset Lug Butterfly Valve

Category Butterfly Valve - API 609-Lug Specification 08
Category Butterfly Valve - API 609 - Lug 3D Draw And Materials 10
Category Butterfly Valve - API 609 - Lug Butterfly Valve Picture 12
Category Butterfly Valve - API 609 - Lug Table Of Available Dimensions 13

Triple Offset Wafer Butterfly Valve

Category Butterfly Valve - API 609-Wafer Specification 14
Category Butterfly Valve - API 609 - Wafer 3D Draw And Materials 16
Category Butterfly Valve - API 609 - Wafer Butterfly Valve Picture 18
Category Butterfly Valve - API 609 - Wafer Table Of Available Dimensions 19

Triple Offset Butt Welded Butterfly Valve

Category Butterfly Valve - API 609-Butt Welded Specification 20
Category Butterfly Valve - API 609 - Butt Welded 3D Draw And Materials 22
Category Butterfly Valve - API 609 - Butt Welded Butterfly Valve Picture 24
Category Butterfly Valve - API 609 - Butt Welded Table Of Available Dimensions 25

Triple Offset Top Entry Butterfly Valve

Category Butterfly Valve - API 609-Top Entry Specification 26
Category Butterfly Valve - API 609 - Top Entry 3D Draw And Materials 28
Category Butterfly Valve - API 609 - Top Entry Butterfly Valve Picture 30
Category Butterfly Valve - API 609 - Top Entry Table Of Available Dimensions 31

Engineering Data:

Flanges ASME B 16.5 32
Flanges ASME B 16.47 34
Butt Weld ASME B 16.25 35
Pressure Temperature Ratings 36

Category Butterfly Valve - API 609-Flange Specification



Triple Offset Flange Butterfly Valve

Figure:PETROTOFBV

Petro Valves Triple Offset Flange Butterfly Valves are manufactured to the latest editionof API Standard 609 and tested to API Standard 598.

Application & Function:

Petro Valves Triple Offset Flange Butterfly valve is used to prevent galling and scratches between the metal seat and the metal disc due to its unique design. The only time where the seal comes into contact with the seat is at the point of complete closure. Triple offset valves are generally used in applications which require bi-directional tight shut-off in oil and gas, LNG/NPG terminal and tanks, chemical factories, and shipbuilding. They are also used for dirty/heavy oil to prevent extrusion.

Accessories:

Accessories such as gear operators, actuators, locking devices, chain wheels, extended stems and bonnets for cryogenic service and many others are available to meet the customer's requirements.

Applicable Standards:

- Butterfly valve design according to API 609, ASME B16.34
- Face to face ASME B16.10/API 609
- End Flanges ASME B16.5/ASME B16.47
  - Butt welding ends ASME B16.25
- Inspection and test API 598

Rating:

- ASME CL,150,300,600

Temperature Range:

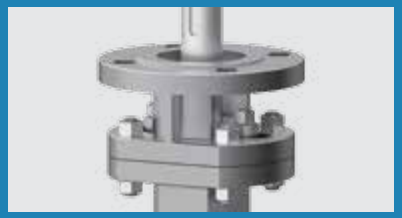
- -50°C~650°C

Size Range:

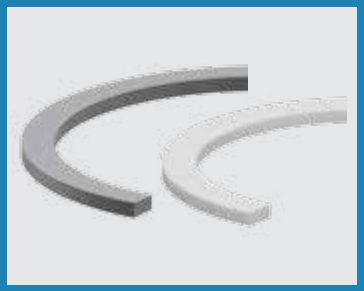
- 2''~60''



Graphite Packings are intended to offer high temperature capability, good chemical resistance and markedly reduced spindle wear. By selecting or combining the many versions of Graphite Packings available.



Petro Valves Triple Offset Butterfly Valve top flanges are manufactured in compliance with ISO 5211 and will accept standard mounting yoke designs accordingly.



Laminated metal+graphite seat enables smooth mating, which makes Petro valves not only in general application but also in LNG/LPG gas applications. Each individual layer services a unique and independent sealing purpose. Along with Triple offset design, laminated seat ring shows excellent performance and help provide lower operation torque during opening and closing. Different types of materials are selected for laminated metal plate depending on applications.



Design Description:

- Low friction between seat and disc of valve
- "Zero Leakage" Sealing Design
- Standard Laminated Resilient Disc Seal to 800°F (427°C)
- One Piece Shaft
- Low torque enables the compact actuator and a long cycle life
- Blow-out proof shaft
- Optional stem extension
- Optional locking device

Category Butterfly Valve - API 609 - Flange 3D Draw And Materials

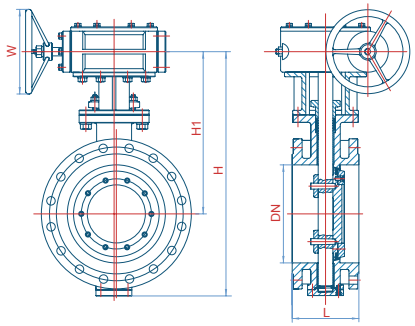
Parts name	Part Name	Carbon Steel to ASTM	Alloy Steel to ASTM				Stainless Steel to ASTM					Parts name
1	Body	A216 WCB+13Cr	A352 LCB+304	A217 WC1+STL	A217 WC6+STL	A217 WC9+STL	A217 C5+STL	A351 CF8	A351 CF8M	A351CF3	A351CF3M	1
2	Stem	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	2
3	Pin	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	3
4	Disc	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	4
5	Multi-layer sealring	SS304+Graphite/SS316+Graphite/PTFE										5
6	Seat Protection ring	AISI 1025	A352 LCB	F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	6
7	Hex.Socket Screw	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	7
8	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	8
9	Bottom Cap	ASTM A105		A182 F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	9
10	Gasket	SS304+Graphite/SS316+Graphite/PTFE										10
11	Split collar	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	11
12	Lining	A182 F304						A182 F304	A182 F316	A182 F304L	A182 F316L	12
13	Packing	Braided graphite,or Die-formed graphite ring or PTFE										13
14	Packing Gland	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	14
15	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	15
16	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	16
17	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	17
18	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	18
19	Yoke	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	19

Petro Valves

Category Butterfly Valve - API 609 - Flange Butterfly Valve Picture

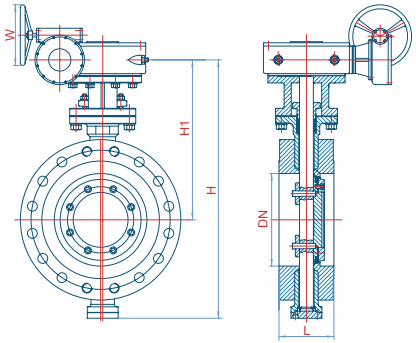


Category Butterfly Valve - API 609 - Flange Table Of Available Dimensions



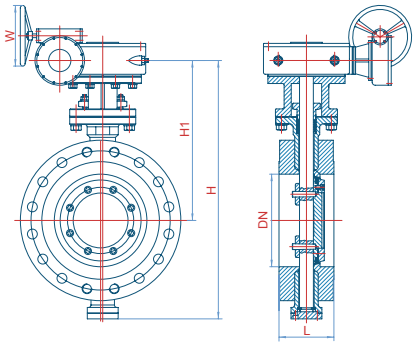
150LB

Valve Size	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24	28"	30"	32"	36"	40"	48"	52"	56"	60"
	50 mm	80 mm	100 mm	125 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	450 mm	500 mm	600 mm	700 mm	750 mm	800 mm	900 mm	1000 mm	1200 mm	1300 mm	1400 mm	1500 mm
Face to Face L:RF	108	114	127	140	140	152	165	178	190	216	222	229	267	292	318	318	330	410	470	470	530	530
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	1200	1300	1400	1500
Valve Height(H)	310	340	400	480	530	620	680	800	880	950	1000	1110	1230	1380	1450	1550	1660	1720	2080	2300	2440	2594
Valve Height(H1)	210	230	265	325	345	395	425	495	555	590	630	700	750	830	870	950	1000	1080	1250	1405	1475	1559
Handwheel Diameter(W)	203	203	203	250	305	460	460	610	350	457	610	762	762	315	400	400	400	400	640	640	640	785
Weight(Kg) Worm Gear	11	15.4	23	29	33	50	73	108	143	186	234	277	408	653	816	914	1157	1610	2359	2720	3353	3629



300LB

Valve Size	2"	3"	4"	5"	6"	8"	10	12"	14"	16"	18"	20"	24	28	30	32	36"	40"	42"	44"	48"
	50 mm	80 mm	100 mm	125 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	450 mm	500 mm	600 mm	700 mm	750 mm	800 mm	900 mm	1000 mm	1050 mm	1100 mm	1200 mm
Face to Face L:RF	108	114	127	140	140	152	165	178	191	216	222	229	267	430	450	470	510	550	570	590	630
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	1050	1100	1200
Valve Height(H)	385	420	490	530	590	650	750	860	940	990	1100	1200	1360	1410	1495	1535	1585	1605	1766	2100	2270
Valve Height(H1)	250	270	305	345	380	410	470	545	590	640	690	740	850	980	1010	1080	1110	1150	1235	1380	1410
Handwheel Diameter(W)	152	152	305	305	305	305	610	610	610	356	356	356	686	686	686	686	686	686	903	903	903
Weight(Kg) Worm Gear	19	29	39	48	54	84	118	170	231	299	390	499	726	1360	1429	1757	2223	2531	2781	2978	3602



600LB

Valve Size	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	50mm	80mm	100mm	125mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm
Face to Face L:RF	150	180	190	200	210	230	250	270	290	310	330	350	390
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600
Valve Height(H)	410	541	607	680	686	757	897	1034	1087	1216	1240	1330	1583
Valve Height(H1)	270	414	447	395	490	536	641	727	757	825	840	978	1070
Handwheel Diameter(W)	250	250	250	250	315	315	315	400	400	400	400	400	400
Weight(Kg) Worm Gear	40	100	125	165	191	247	413	576	664	971	1117	1639	2082

Category Butterfly Valve - API 609-Lug Specification



Triple offset Lug Butterfly Valve

Figure:PETROTOLBV

Petro Valves Triple Offset Lug Butterfly Valves are manufactured to the latest editionof API Standard 609 and tested to API Standard 598.

Application & Function:

Petro Valves Triple Offset Lug Butterfly valve is used to prevent galling and scratches between the metal seat and the metal disc due to its unique design. The only time where the seal comes into contact with the seat is at the point of complete closure. Triple offset valves are generally used in applications which require bi-directional tight shut-off in oil and gas, LNG/NPG terminal and tanks, chemical factories, and shipbuilding. They are also used for dirty/heavy oil to prevent extrusion.

Accessories:

Accessories such as gear operators, actuators, locking devices, chain wheels, extended stems and bonnets for cryogenic service and many others are available to meet the customer's requirements.

Applicable Standards:

- Butterfly valve design according to API 609, ASME B16.34
- Face to face ASME B16.10/API 609
- End Flanges ASME B16.5/ASME B16.47
- Butt welding ends ASME B16.25
- Inspection and testing API 598

Rating:

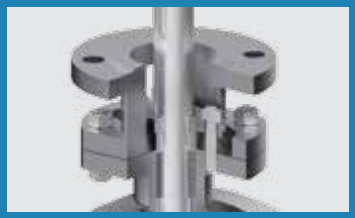
- ASME CL,150,300,600

Temperature Range:

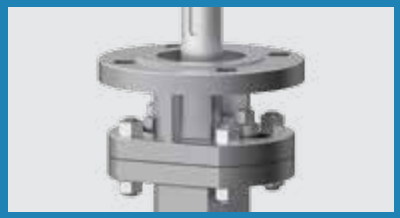
- -50°C~650°C

Size Range:

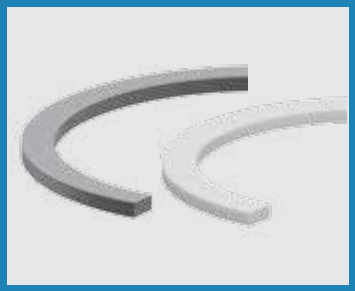
- 2''~60''



Graphite Packings are intended to offer high temperature capability, good chemical resistance and markedly reduced spindle wear. By selecting or combining the many versions of Graphite Packings available.



Petro Valves Triple Offset Butterfly Valve top flanges are manufactured in compliance with ISO 5211 and will accept standard mounting yoke designs accordingly.



Laminated metal+graphite seat enables smooth mating, which makes Petro valves not only in general application but also in LNG/LPG gas applications. Each individual layer services a unique and independent sealing purpose. Along with Triple offset design, laminated seat ring shows excellent performance and help provide lower operation torque during opening and closing. Different types of materials are selected for laminated metal plate depending on applications.



Design Description:

- Low friction between seat and disc of valve
- "Zero Leakage" Sealing Design
- Standard Laminated Resilient Disc Seal to 800°F (427°C)
- One Piece Shaft
- Low torque enables the compact actuator and a long cycle life
- Blow-out proof shaft
- Optional stem extension
- Optional locking device

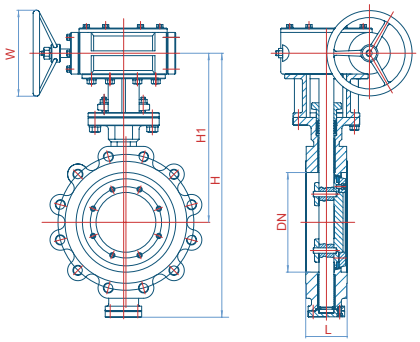
Category Butterfly Valve - API 609 - Lug 3D Draw And Materials

Parts name	Part Name	Carbon Steel to ASTM	Alloy Steel to ASTM				Stainless Steel to ASTM					Parts name
1	Body	A216 WCB+13Cr	A352 LCB+304	A217 WC1+STL	A217 WC6+STL	A217 WC9+STL	A217 C5+STL	A351 CF8	A351 CF8M	A351CF3	A351CF3M	1
2	Stem	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	2
3	Pin	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	3
4	Disc	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	4
5	Multi-layer sealring	SS304+Graphite/SS316+Graphite/PTFE										5
6	Seat Protection ring	AISI 1025	A352 LCB	F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	6
7	Hex.Socket Screw	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	7
8	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	8
9	Bottom Cap	ASTM A105		A182 F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	9
10	Gasket	SS304+Graphite/SS316+Graphite/PTFE										10
11	Split collar	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	11
12	Lining	A182 F304						A182 F304	A182 F316	A182 F304L	A182 F316L	12
13	Packing	Braided graphite,or Die-formed graphite ring or PTFE										13
14	Packing Gland	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	14
15	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	15
16	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	16
17	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	17
18	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	18
19	Yoke	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	19

Category Butterfly Valve - API 609 - Lug Butterfly Valve Picture

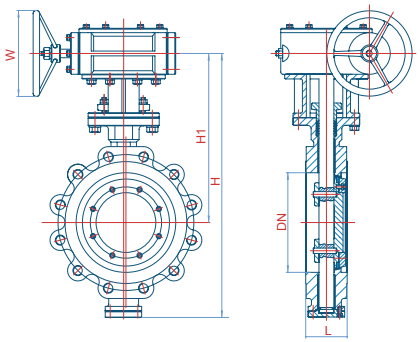


Category Butterfly Valve - API 609 - Lug Table Of Available Dimensions



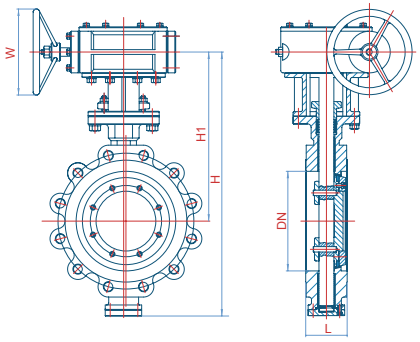
150LB

Valve Size	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	40"	48"	56"	60"
	50 mm	80 mm	100 mm	125 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	450 mm	500 mm	600 mm	750 mm	900 mm	1000 mm	1200 mm	1400 mm	1500 mm
Face to Face L:Lug	44	49	54	57	58	64	71	81	92	102	114	127	154	167	203	217	254	279	318
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600	750	900	1000	1200	1400	1500
Valve Height(H)	310	340	400	480	530	620	680	800	880	950	1000	1110	1230	1450	1660	1720	2080	2440	2594
Valve Height(H1)	210	230	265	325	345	395	425	495	555	590	630	700	750	870	1000	1080	1250	1475	1559
Handwheel Diameter(W)	203	203	203	250	305	460	460	610	350	457	610	762	762	400	400	400	400	400	630
Weight(Kg) Worm Gear	7	9	14	18	20	31	49	79	107	150	182	253	398	490	771	1179	1928	2631	3447



300LB

Valve Size	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
	50mm	80mm	100mm	125mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	750mm	900mm	1050mm
Face to Face L:Lug	44	49	54	57	59	73	83	92	117	133	149	159	181	254	305	324
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600	750	900	1050
Valve Height(H)	360	420	490	530	590	650	750	860	940	990	1100	1200	1360	1495	1585	1766
Valve Height(H1)	230	270	305	345	380	410	470	545	590	640	690	740	850	1010	1110	1235
Handwheel Diameter(W)	152	152	305	305	305	305	610	610	610	356	356	356	686	686	686	903
Weight(Kg) Worm Gear	11	15.5	21	28	34	60	88	117	207	308	408	468	748	1338	2154	2427



600LB

Valve Size	6"	8"	10"	12"	14"	16"	18"	20"	24"
	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm
Face to Face L:Lug	78	102	117	140	155	178	200	216	232
Valve Bore（DN）	150	200	250	300	350	400	450	500	600
Valve Height(H)	686	757	897	1034	1087	1216	1240	1330	1583
Valve Height(H1)	490	536	641	727	757	825	840	978	1070
Handwheel Diameter(W)	315	315	315	400	400	400	400	400	400
Weight(Kg) Worm Gear	56	94	141	201	333	401	575	708	1061

Category Butterfly Valve - API 609-Wafer Specification



Triple Offset Wafer Butterfly Valve

Figure:PETROTOWBV

Petro Valves Triple Offset Wafer Butterfly Valves are manufactured to the latest editionof API Standard 609 and tested to API Standard 598.

Application & Function:

The Petro Triple Offset Wafer Butterfly valve is used to prevent galling and scratches between the metal seat and the metal disc due to its unique design. The only time where the seal comes into contact with the seat is at the point of complete closure. Triple offset valves are generally used in applications which require bi-directional tight shut-off in oil and gas, LNG/NPG terminal and tanks, chemical factories, and shipbuilding. They are also used for dirty/heavy oil to prevent extrusion.

Accessories:

Accessories such as gear operators, actuators, locking devices, chain wheels, extended stems and bonnets for cryogenic service and many others are available to meet the customer's requirements.

Applicable Standards:

- Butterfly valve design according to API 609, ASME B16.34
- Face to face ASME B16.10/API 609
- End Flanges ASME B16.5/ASME B16.47
- Butt welding ends ASME B16.25
- Inspection and testing API 598

Rating:

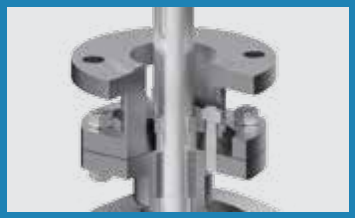
- ASME CL,150,300,600

Temperature Range:

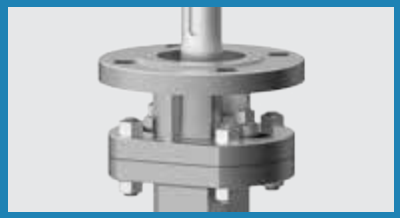
- -50°C~650°C

Size Range:

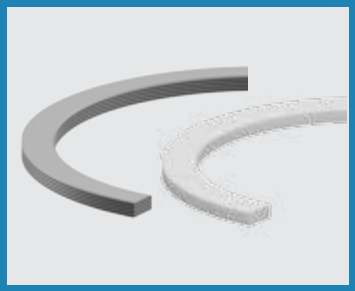
- 2''~60''



Graphite Packings are intended to offer high temperature capability, good chemical resistance and markedly reduced spindle wear. By selecting or combining the many versions of Graphite Packings available.



Petro Triple Offset Butterfly Valve top flanges are manufactured in compliance with ISO 5211 and will accept standard mounting yoke designs accordingly.



Laminated metal+graphite seat enables smooth mating, which makes Petro valves not only in general application but also in LNG/LPG gas applications. Each individual layer services a unique and independent sealing purpose. Along with Triple offset design, laminated seat ring shows excellent performance and help provide lower operation torque during opening and closing. Different types of materials are selected for laminated metal plate depending on applications.



Design Description:

- Low friction between seat and disc of valve
- "Zero Leakage" Sealing Design
- Standard Laminated Resilient Disc Seal to 800°F (427°C)
- One Piece Shaft
- Low torque enables the compact actuator and a long cycle life
- Blow-out proof shaft
- Optional stem extension
- Optional locking device

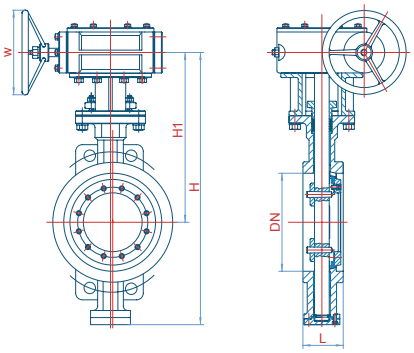
Category Butterfly Valve - API 609 - Wafer 3D Draw And Materials

Parts name	Part Name	Carbon Steel to ASTM	Alloy Steel to ASTM				Stainless Steel to ASTM					Parts name
1	Body	A216 WCB+13Cr	A352 LCB+304	A217 WC1+STL	A217 WC6+STL	A217 WC9+STL	A217 C5+STL	A351 CF8	A351 CF8M	A351CF3	A351CF3M	1
2	Stem	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	2
3	Pin	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	3
4	Disc	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	4
5	Multi-layer sealring	SS304+Graphite/SS316+Graphite/PTFE										5
6	Seat Protection ring	AISI 1025	A352 LCB	F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	6
7	Hex.Socket Screw	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	7
8	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	8
9	Bottom Cap	ASTM A105		A182 F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	9
10	Gasket	SS304+Graphite/SS316+Graphite/PTFE										10
11	Split collar	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	11
12	Lining	A182 F304						A182 F304	A182 F316	A182 F304L	A182 F316L	12
13	Packing	Braided graphite,or Die-formed graphite ring or PTFE										13
14	Packing Gland	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	14
15	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	15
16	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	16
17	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	17
18	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	18
19	Yoke	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	19

Category Butterfly Valve - API 609 - Wafer Butterfly Valve Picture

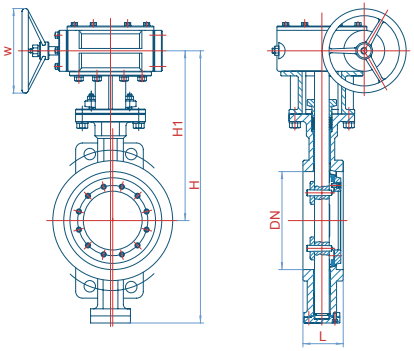


Category Butterfly Valve - API 609 - Wafer Table Of Available Dimensions



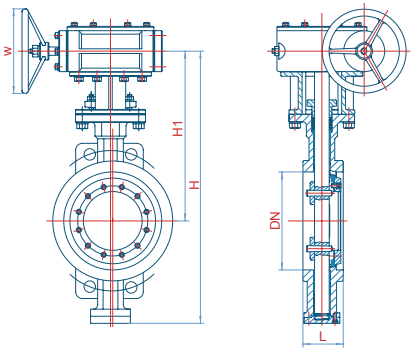
150LB

Valve Size	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	40"	48"	56"	60"
	50mm	80mm	100mm	125mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	750mm	900mm	1000mm	1200mm	1400mm	1500mm
Face to Face L:Wafer	44	49	54	57	58	64	71	81	92	102	114	127	154	167	203	217	254	279	318
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600	750	900	1000	1200	1400	1500
Valve Height(H)	310	340	400	480	530	620	680	800	880	950	1000	1110	1230	1450	1660	1720	2080	2440	2594
Valve Height(H1)	210	230	265	325	345	395	425	495	555	590	630	700	750	870	1000	1080	1250	1475	1559
Handwheel Diameter(W)	203	203	203	250	305	460	460	610	350	457	610	762	762	400	400	400	400	400	630
Weight(Kg) Worm Gear	7	9	11	15	17	25	40	61	82	123	150	204	300	454	762	975	1678	2223	2903



300LB

Valve Size	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
	50mm	80mm	100mm	125mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	750mm	900mm	1050mm
Face to Face L:Wafer	44	49	54	57	59	73	83	92	117	133	149	159	181	254	305	324
Valve Bore（DN）	50	80	100	125	150	200	250	300	350	400	450	500	600	750	900	1050
Valve Height(H)	360	420	490	530	590	650	750	860	940	990	1100	1200	1360	1495	1585	1766
Valve Height(H1)	230	270	305	345	380	410	470	545	590	640	690	740	850	1010	1110	1235
Handwheel Diameter(W)	152	152	305	305	305	305	610	610	610	356	356	356	686	686	686	903
Weight(Kg) Worm Gear	11	13.5	18	24	28	49	68	109	186	264	297	363	454	816	1429	2155



600LB

Valve Size	6"	8"	10"	12"	14"	16"	18"	20"	24"
	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm
Face to Face L:Wafer	78	102	117	140	155	178	200	216	232
Valve Bore（DN）	150	200	250	300	350	400	450	500	600
Valve Height(H)	686	757	897	1034	1087	1216	1240	1330	1583
Valve Height(H1)	490	536	641	727	757	825	840	978	1070
Handwheel Diameter(W)	315	315	315	400	400	400	400	400	400
Weight(Kg) Worm Gear	45	70	103	149	243	318	431	472	826

Category Butterfly Valve - API 609-Butt Welded Specification



Triple Offset Butt Welded Butterfly Valve

Figure:PETROTOBWBV

Petro Triple Offset Butt Welded Butterfly Valves are manufactured to the latest editionof API Standard 609 and tested to API Standard 598.

Application & Function:

Petro Triple Offset Butt Welded Butterfly valve is used to prevent galling and scratches between the metal seat and the metal disc due to its unique design. The only time where the seal comes into contact with the seat is at the point of complete closure. Triple offset valves are generally used in applications which require bi-directional tight shut-off in oil and gas, LNG/NPG terminal and tanks, chemical factories, and shipbuilding. They are also used for dirty/heavy oil to prevent extrusion.

Accessories:

Accessories such as gear operators, actuators, locking devices, chain wheels, extended stems and bonnets for cryogenic service and many others are available to meet the customer's requirements.

Applicable Standards:

- Butterfly valve design according to API 609, ASME B16.34
- Face to face ASME B16.10/API 609
- End Flanges ASME B16.5/ASME B16.47
- Butt welding ends ASME B16.25
- Inspection and testing API 598

Rating:

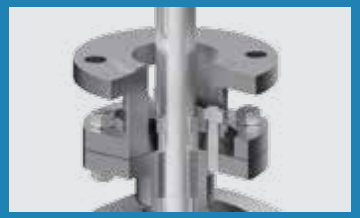
- ASME CL,150,300,600

Temperature Range:

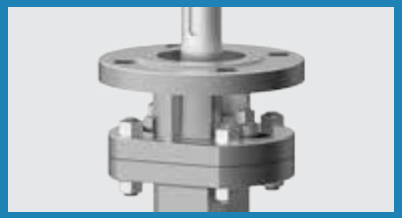
- -50°C~650°C

Size Range:

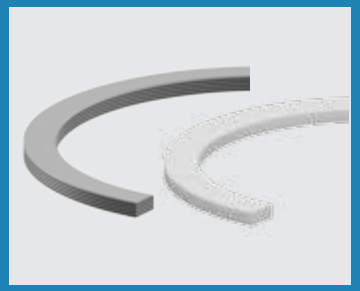
- 2''~60''



Graphite Packings are intended to offer high temperature capability, good chemical resistance and markedly reduced spindle wear. By selecting or combining the many versions of Graphite Packings available.



Petro Triple Offset Butterfly Valve top flanges are manufactured in compliance with ISO 5211 and will accept standard mounting yoke designs accordingly.



Laminated metal+graphite seat enables smooth mating, which makes Petro valves not only in general application but also in LNG/LPG gas applications. Each individual layer services a unique and independent sealing purpose. Along with Triple offset design, laminated seat ring shows excellent performance and help provide lower operation torque during opening and closing. Different types of materials are selected for laminated metal plate depending on applications.



Design Description:

- Low friction between seat and disc of valve
- "Zero Leakage" Sealing Design
- Standard Laminated Resilient Disc Seal to 800°F (427°C)
- One Piece Shaft
- Low torque enables the compact actuator and a long cycle life
- Blow-out proof shaft
- Optional stem extension
- Optional locking device

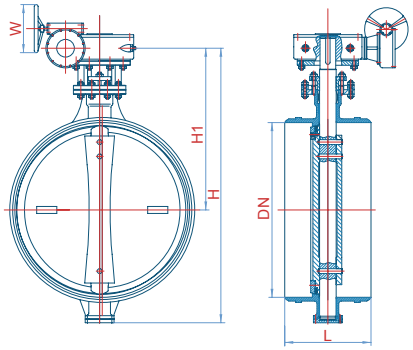
Category Butterfly Valve - API 609 - Butt Welded 3D Draw And Materials

Parts name	Part Name	Carbon Steel to ASTM	Alloy Steel to ASTM				Stainless Steel to ASTM					Parts name
1	Body	A216 WCB+13Cr	A352 LCB+304	A217 WC1+STL	A217 WC6+STL	A217 WC9+STL	A217 C5+STL	A351 CF8	A351 CF8M	A351CF3	A351CF3M	1
2	Stem	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	2
3	Pin	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	3
4	Disc	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	4
5	Multi-layer sealring	SS304+Graphite/SS316+Graphite/PTFE										5
6	Seat Protection ring	AISI 1025	A352 LCB	F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	6
7	Hex.Socket Screw	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	7
8	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	8
9	Bottom Cap	ASTM A105		A182 F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	9
10	Gasket	SS304+Graphite/SS316+Graphite/PTFE										10
11	Split collar	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	11
12	Lining	A182 F304						A182 F304	A182 F316	A182 F304L	A182 F316L	12
13	Packing	Braided graphite,or Die-formed graphite ring or PTFE										13
14	Packing Gland	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	14
15	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	15
16	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	16
17	Washer	65Mn	65Mn	65Mn	65Mn	65Mn	65Mn	SS304	SS304	SS304	SS304	17
18	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	18
19	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	19
20	Washer	65Mn	65Mn	65Mn	65Mn	65Mn	65Mn	SS304	SS304	SS304	SS304	20
21	Yoke	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	21

Category Butterfly Valve - API 609 - Butt Welded Butterfly Valve Picture

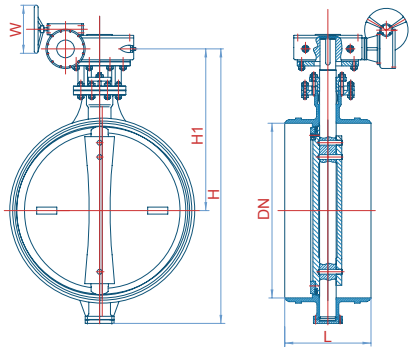


Category Butterfly Valve - API 609 - Butt Welded Table Of Available Dimensions



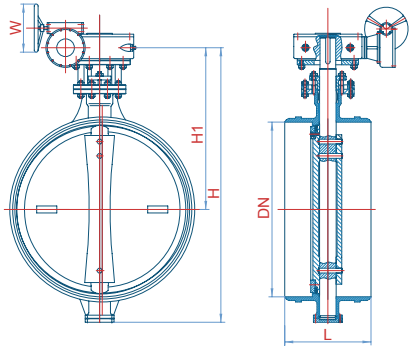
150LB

Valve Size	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	36"	40"	48"	52"	56"	60"
	80 mm	100 mm	125 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	450 mm	500 mm	600 mm	700 mm	750 mm	800 mm	900 mm	1000 mm	1200 mm	1300 mm	1400 mm	1500 mm
Face to Face L:BW	114	127	140	140	152	165	178	190	216	222	229	267	292	308	318	330	410	470	490	530	570
Valve Bore（DN）	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	1200	1300	1400	1500
Valve Height(H)	430	460	489	536	594	660	752	795	912	996	1049	1196	1301	1351	1451	1500	1760	2070	2164	2279	2529
Valve Height(H1)	295	305	322	366	396	429	483	498	579	630	655	744	790	815	874	899	1064	1270	1314	1384	1504
Handwheel Diameter(W)	200	200	200	250	250	315	315	315	315	315	400	400	400	400	400	400	400	400	500	500	500
Weight(Kg) Worm Gear	32	35	39	43	60	90	107	153	207	267	327	473	653	760	1033	1200	1487	2007	2720	2980	3387



300LB

Valve Size	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	36"	40"	42"	44"	48"
	80 mm	100 mm	125 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	450 mm	500 mm	600 mm	700 mm	750 mm	800 mm	900 mm	1000 mm	1050 mm	1100 mm	1200 mm
Face to Face L:BW	114	127	140	140	152	165	178	191	216	222	229	267	292	292	318	330	410	430	450	470
Valve Bore（DN）	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	1050	1100	1200
Valve Height(H)	427	508	532	577	638	717	836	897	1010	1069	1123	1270	1463	1557	1671	1837	1961	2024	2074	2207
Valve Height(H1)	295	358	365	389	417	465	546	579	642	673	701	775	904	963	1054	1161	1242	1285	1310	1374
Handwheel Diameter(W)	200	200	250	315	315	315	315	400	400	400	400	400	400	400	400	630	630	630	630	630
Weight(Kg) Worm Gear	34	44	58	73	132	151	257	286	416	497	571	881	1320	1478	1688	2379	2427	2685	2932	3545



600LB

Valve Size	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	80mm	100mm	125mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm
Face to Face L:BW	180	190	200	210	230	250	270	290	310	330	350	390
Valve Bore（DN）	80	100	125	150	200	250	300	350	400	450	500	600
Valve Height(H)	470	531	566	597	668	834	917	970	1092	1122	1280	1433
Valve Height(H1)	343	371	388	401	447	544	610	640	701	716	828	920
Handwheel Diameter(W)	250	250	315	315	315	315	400	400	400	400	400	400
Weight(Kg) Worm Gear	75	117	154	186	235	398	554	654	935	1085	1610	1998

Category Butterfly Valve - API 609-Top Entry Specification



Triple Offset Top Entry Butterfly Valve

Figure:PETROKTOTEBV

Triple Offset Top Entry Butterfly Valves are manufactured to the latest editionof API Standard 609 and tested to API Standard 598.

Application & Function:

Petro Valves Triple Offset Top Entry Butterfly valve is used to prevent galling and scratches between the metal seat and the metal disc due to its unique design. The only time where the seal comes into contact with the seat is at the point of complete closure. Triple offset valves are generally used in applications which require bi-directional tight shut-off in oil and gas, LNG/NPG terminal and tanks, chemical factories, and shipbuilding. They are also used for dirty/heavy oil to prevent extrusion.

Maintenance

The maintenance of the valve could be realized by opening the bonnet and operating it in the line directly, therefore, achieving easy maintenance as well as time-saving.

Accessories:

Accessories such as gear operators, actuators, locking devices, chain wheels, extended stems and bonnets for cryogenic service and many others are available to meet the customer's requirements.

Applicable Standards:

- Butterfly valve design according to API 609, ASME B16.34
- Face to face ASME B16.10/API 609
- End Flanges ASME B16.5/ASME B16.47
- Butt welding ends ASME B16.25
- Inspection and test API 598

Rating:

- ASME CL,150,300

Temperature Range:

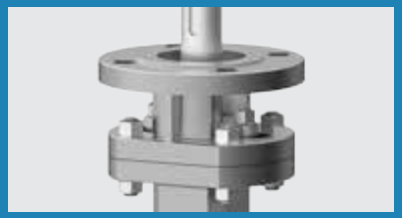
- -50°C~650°C

Size Range:

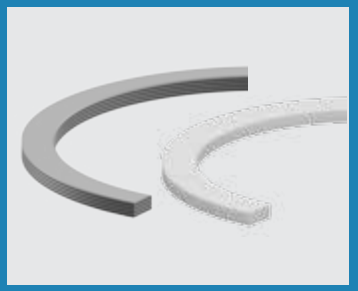
- 6''~64''



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Petro Triple Offset Butterfly Valve top flanges are manufactured in compliance with ISO 5211 and will accept standard mounting yoke designs accordingly.



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Design Description:

- Low friction between seat and disc of valve
- "Zero Leakage" Sealing Design
- Standard Laminated Resilient Disc Seal to 800°F (427°C)
- One Piece Shaft
- Low torque enables the compact actuator and a long cycle life
- Blow-out proof shaft
- Optional stem extension
- Optional locking device

Category Butterfly Valve - API 609 - Top Entry 3D Draw And Materials

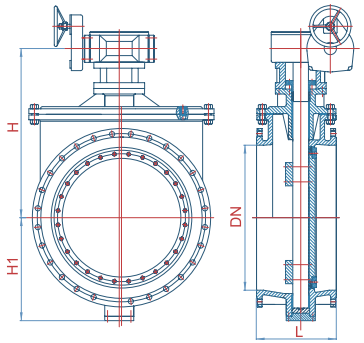
Parts name	Part Name	Carbon Steel to ASTM	Alloy Steel to ASTM				Stainless Steel to ASTM					Parts name
1	Body	A216 WCB+13Cr	A352 LCB+304	A217 WC1+STL	A217 WC6+STL	A217 WC9+STL	A217 C5+STL	A351 CF8	A351 CF8M	A351CF3	A351CF3M	1
2	Stem	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	2
3	Pin	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	3
4	Disc	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	4
5	Multi-layer sealring	SS304+Graphite/SS316+Graphite/PTFE										5
6	Seat Protection ring	AISI 1025	A352 LCB	F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	6
7	Hex.Socket Screw	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	7
8	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	8
9	Bottom Cap	ASTM A105		A182 F11/F22				A182 F304	A182 F316	A182 F304L	A182 F316L	9
10	Gasket	SS304+Graphite/SS316+Graphite/PTFE										10
11	Split collar	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	11
12	Lining	A182 F304						A182 F304	A182 F316	A182 F304L	A182 F316L	12
13	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	13
14	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	14
15	Pin	A276 420	A276 420	A276 420	A276 420	A276 420	A276 420	A182 F304	A182 F316	A182 F304L	A182 F316L	15
16	Gasket	SS304+Graphite/SS316+Graphite/PTFE										16
17	Packing	Braided graphite,or Die-formed graphite ring or PTFE										17
18	Bonnet	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	18
19	Ring	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8	A193 B8	A193 B8	19
20	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	20
21	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	21
22	Yoke	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB	22
23	Bolts	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M	23
24	Nuts	A194 2H	A194 4	A194 4	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 8	A194 8M	24
25	Packing Gland	A216 WCB	A352 LCB	A217 WC1	A217 WC6	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	25
26	Gasket	65Mn	65Mn	65Mn	65Mn	65Mn	65Mn	SS304	SS304	SS304	SS304	

Petro Valves

Category Butterfly Valve - API 609 - Top Entry Butterfly Valve Picture

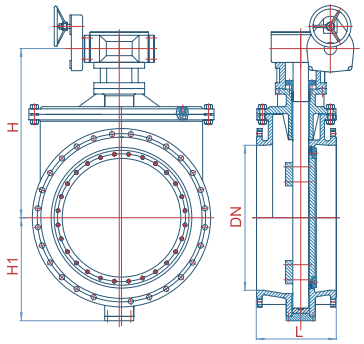


Category Butterfly Valve - API 609 - Top Entry Table Of Available Dimensions



150LB

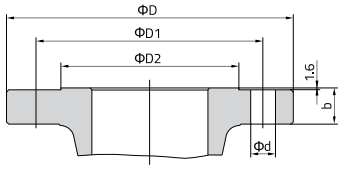
Valve Size	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"	56"	64"
	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	700mm	800mm	900mm	1000mm	1200mm	1400mm	1600mm
Face to Face L:RF	267	292	330	356	381	406	432	457	508	616	660	711	811	960	1080	1200
Valve Bore（DN）	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600
Valve Height(H)	360	410	470	550	580	630	660	740	810	880	990	1050	1110	1280	1420	1570
Valve Height(H1)	160	200	230	280	300	340	360	410	470	530	600	650	710	820	940	1060
Handwheel Diameter(W)	250	250	315	315	315	315	315	400	400	400	400	400	400	400	500	500
Weight(Kg) Worm Gear	80	130	200	230	300	360	520	635	830	1250	1600	1900	2400	4900	/	/



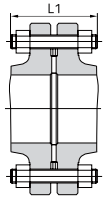
300LB

Valve Size	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"	56"	64"
	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	700mm	800mm	900mm	1000mm	1200mm	1400mm	1600mm
Face to Face L:RF	267	292	330	356	381	406	432	457	508	616	660	711	811	960	1080	1200
Valve Bore（DN）	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600
Valve Height(H)	360	410	470	550	580	630	660	740	810	880	990	1050	1110	1280	1420	1570
Valve Height(H1)	160	200	230	280	300	340	360	410	470	530	600	650	710	820	940	1060
Handwheel Diameter(W)	250	250	315	315	315	315	315	400	400	400	400	400	400	400	500	500
Weight(Kg) Worm Gear	96	156	240	276	360	432	624	762	996	1560	1995	2375	2985	6125	/	/

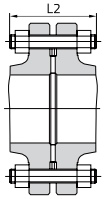
Flanges ASME B 16.5 RF



Class150 & Class300 RF Flanges



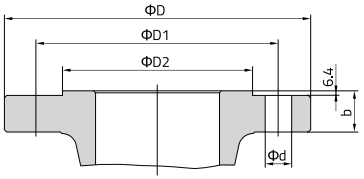
Length of Stud Bolt



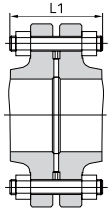
Length of Machine Bolt

Class	Size		Dimensions(mm)					Bolt		L1	L2
	DN	NPS	D	D1	D2	b	d	Number	Diam(in)		
Class150	15	1/2	90	60.3	35	10	16	4	1/2	55	50
	20	3/4	100	69.9	43	10.5	16	4	1/2	65	50
	25	1	110	79.4	51	11.5	16	4	1/2	65	55
	32	1 1/4	115	88.9	64	13	16	4	1/2	70	55
	40	1 1/2	125	98.4	73	14.5	16	4	1/2	70	65
	50	2	150	120.7	92	16	19	4	5/8	85	70
	65	2 1/2	180	139.7	105	18	19	4	5/8	90	75
	80	3	190	152.4	127	19.5	19	4	5/8	90	75
	100	4	230	190.5	157	24	19	8	5/8	90	75
	125	5	255	215.9	186	24	22	8	3/4	95	85
	150	6	280	241.3	216	25.5	22	8	3/4	100	85
	200	8	345	298.5	270	29	22	8	3/4	110	90
	250	10	405	362	324	30.5	25	12	7/8	115	100
	300	12	485	431.8	381	32	25	12	7/8	120	100
	350	14	535	476.3	413	35	29	12	1	135	115
	400	16	595	539.8	470	37	29	16	1	135	115
	450	18	635	577.9	533	40	32	16	1 1/8	145	125
	500	20	700	635	584	43	32	20	1 1/8	160	140
	600	24	815	749.3	692	48	35	20	1 1/4	170	150
Class300	15	1/2	95	66.7	35	15	16	4	1/2	65	55
	20	3/4	115	82.6	43	16	19	4	5/8	75	65
	25	1	125	88.9	51	18	19	4	5/8	75	65
	32	1 1/4	135	98.4	64	19.5	19	4	5/8	85	70
	40	1 1/2	155	114.3	73	21	22	4	3/4	90	75
	50	2	165	127	92	22.5	19	8	5/8	90	75
	65	2 1/2	190	149.2	105	25.5	22	8	3/4	100	85
	80	3	210	168.3	127	29	22	8	3/4	110	90
	100	4	255	200	157	32	22	8	3/4	115	95
	125	5	280	235	186	35	22	8	3/4	120	110
	150	6	320	269.9	216	37	22	12	3/4	120	110
	200	8	380	330.2	270	41.5	25	12	7/8	140	120
	250	10	445	387.4	324	48	29	16	1	160	140
	300	12	520	450.9	381	51	32	16	1 1/8	170	145
	350	14	585	514.4	413	54	32	20	1 1/8	180	160
	400	16	650	571.5	470	57.5	35	20	1 1/4	190	165
	450	18	710	628.6	533	60.5	35	24	1 1/4	195	170
	500	20	775	685.8	584	63.5	35	24	1 1/4	205	185
	600	24	915	812.8	692	70	41	24	1 1/2	230	205

Flanges ASME B 16.5 RF



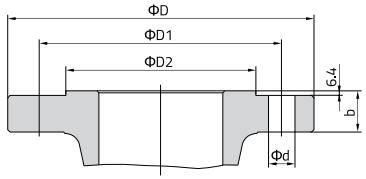
Class 600-Class 2500 RF Flanges



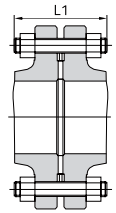
Length of Stud Bolt

Class	Size		Dimensions(mm)					Bolt		L1
	DN	NPS	D	D1	D2	b	d	Number	Diam(in)	
Class600	15	1/2	95	66.7	35	14.5	15	4	1/2	75
	20	3/4	115	82.6	43	16	19	4	5/8	90
	25	1	125	88.9	51	18	19	4	5/8	90
	32	1 1/4	135	98.4	64	21	19	4	5/8	95
	40	1 1/2	155	114.3	73	22.5	22	4	3/4	110
	50	2	165	127	92	22.5	19	8	5/8	110
	65	2 1/2	190	149.2	105	29	22	8	3/4	120
	80	3	210	168.3	127	32	22	8	3/4	125
	100	4	275	215.9	157	38.5	25	8	7/8	145
	125	5	330	266.7	186	44.5	29	8	1	165
	150	6	155	292.1	216	48	29	12	1	170
	200	8	420	349.2	270	56	32	12	1 1/8	190
	250	10	510	431.8	324	63.5	35	16	1 1/4	215
	300	12	560	489	381	67	35	20	1 1/4	220
	350	14	605	527	413	70	38	20	1 1/4	235
	400	16	685	603.2	470	76.5	41	20	1 1/2	255
	450	18	745	654	533	83	44	20	1 5/8	275
	500	20	815	723.9	584	89	44	24	1 5/8	285
	600	24	940	838.2	692	102	51	24	1 7/8	330
Class900	15	1/2	120	82.6	35	22.5	22	4	3/4	110
	20	3/4	130	88.9	43	26	22	4	3/4	115
	25	1	150	101.6	51	29	25	4	7/8	125
	32	1 1/4	160	111.1	64	29	25	4	7/8	125
	40	1 1/2	180	123.8	73	32	29	4	1	140
	50	2	215	165.1	92	39	25	8	7/8	145
	65	2 1/2	245	190.5	105	42	29	8	1	160
	80	3	240	190.5	127	39	25	8	7/8	145
	100	4	290	235	157	45	32	8	1 1/8	170
	125	5	350	279.4	186	51	35	8	1 1/4	190
	150	6	380	317.5	216	56	32	12	1 1/8	190
	200	8	470	393.7	270	64	38	12	1 3/8	220
	250	10	545	469.9	324	70	38	16	1 3/8	235
	300	12	610	533.4	381	80	38	20	1 3/8	255
	350	14	640	558.8	413	86	41	20	1 1/2	275
	400	16	705	616	470	89	44	20	1 5/8	285
	450	18	785	685.8	533	102	51	20	1 7/8	325
	500	20	855	749.3	584	108	54	20	2	350
	600	24	1040	901.7	692	140	67	20	2 1/2	440

Flanges ASME B 16.5 RF



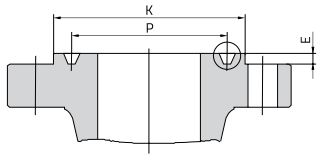
Class 600-Class 2500 RF Flanges

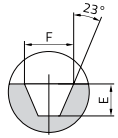


Length of Stud Bolt

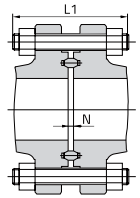
Class	Size		Dimensions(mm)					Bolt		L1
	DN	NPS	D	D1	D2	b	d	Number	Diam(in)	
Class1500	15	1/2	120	82.6	35	23	22	4	3/4	110
	20	3/4	130	88.9	43	26	22	4	3/4	115
	25	1	150	101.6	51	29	25	4	7/8	125
	32	1 1/4	160	111.1	64	29	25	4	7/8	125
	40	1 1/2	180	123.8	73	32	29	4	1	140
	50	2	215	165.1	92	39	25	8	7/8	145
	65	2 1/2	245	190.5	105	42	29	8	1	160
	80	3	265	203.2	127	48	32	8	1 1/8	180
	100	4	310	241.3	157	54	35	8	1 1/4	195
	125	5	375	292.1	186	74	41	8	1 1/2	250
	150	6	395	317.5	216	83	38	12	1 3/8	260
	200	8	485	393.7	270	92	44	12	1 5/8	290
	250	10	585	482.6	324	108	51	12	1 7/8	335
	300	12	675	571.5	381	124	54	16	2	375
	350	14	750	635	413	134	60	16	2 1/4	405
	400	16	825	704.8	470	147	67	16	2 1/2	445
	450	18	915	774.7	533	162	73	16	2 3/4	495
	500	20	985	831.8	584	178	79	16	3	540
	600	24	1170	990.6	692	204	92	16	3 1/2	615
Class2500	15	1/2	135	88.9	35	30.5	22	4	3/4	120
	20	3/4	140	95.2	43	32	22	4	3/4	125
	25	1	160	108	51	35	25	4	7/8	140
	32	1 1/4	185	130.2	64	38.5	29	4	1	150
	40	1 1/2	205	146	73	44.5	32	4	1 1/8	170
	50	2	235	171.4	92	51	29	8	1	180
	65	2 1/2	265	196.8	105	57.5	32	8	1 1/8	195
	80	3	305	228.6	127	67	35	8	1 1/4	220
	100	4	355	273	157	76.5	41	8	1 1/2	255
	125	5	420	323.8	186	92.5	48	8	1 3/4	300
	150	6	485	368.3	216	108	54	8	2	345
	200	8	550	438.2	270	127	54	12	2	380
	250	10	675	539.8	324	165.5	67	12	2 1/2	490
	300	12	760	619.1	381	184.5	74	12	2 3/4	540

Flanges ASME B 16.5 RTJ





Class 150-Class2500 RTJ Flanges



Length of Stud Bolt

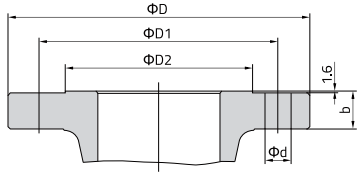
Class	Size		Ring		Dimensions(mm)				L1
	DN	NPS	Number	P	E	F	K	N	
Class150	25	1	R15	47.63	6.35	8.74	63.5	4	75
	32	1 1/4	R17	57.15	6.35	8.74	73	4	85
	40	1 1/2	R19	65.07	6.35	8.74	82.5	4	85
	50	2	R22	82.55	6.35	8.74	102	4	95
	65	2 1/2	R25	101.6	6.35	8.74	121	4	100
	80	3	R29	114.3	6.35	8.74	133	4	100
	100	4	R36	149.23	6.35	8.74	171	4	100
	125	5	R40	171.45	6.35	8.74	194	4	110
	150	6	R43	193.68	6.35	8.74	219	4	115
	200	8	R48	247.65	6.35	8.74	273	4	120
	250	10	R52	304.8	6.35	8.74	330	4	125
	300	12	R56	381	6.35	8.74	406	4	135
	350	14	R59	396.88	6.35	8.74	425	3	145
	400	16	R64	454.03	6.35	8.74	483	3	145
	450	18	R68	517.53	6.35	8.74	546	3	160
	500	20	R72	558.8	6.35	8.74	597	3	170
	600	24	R76	673.1	6.35	8.74	711	3	185
Class300	15	1/2	R11	34.14	5.54	7.14	51	3	75
	20	3/4	R13	42.88	6.35	8.74	63.5	4	90
	25	1	R16	50.8	6.35	8.74	70	4	90
	32	1 1/4	R18	60.33	6.35	8.74	79.5	4	95
	40	1 1/2	R20	68.27	6.35	8.74	90.5	4	100
	50	2	R23	82.55	7.92	11.91	108	6	100
	65	2 1/2	R26	101.6	7.92	11.91	127	6	115
	80	3	R31	123.83	7.92	11.91	146	6	120
	100	4	R37	149.23	7.92	11.91	175	6	125
	125	5	R41	180.98	7.92	11.91	210	6	135
	150	6	R45	211.12	7.92	11.91	241	6	140
	200	8	R49	269.88	7.92	11.91	302	6	150
	250	10	R53	323.85	7.92	11.91	356	6	170
	300	12	R57	381	7.92	11.91	413	6	185
	350	14	R61	419.1	7.92	11.91	457	6	190
	400	16	R65	469.9	7.92	11.91	508	6	205
	450	18	R69	533.4	7.92	11.91	575	6	210
	500	20	R73	584.2	9.53	13.49	635	6	220
	600	24	R77	692.15	11.13	16.66	749	6	255

Petro Valves

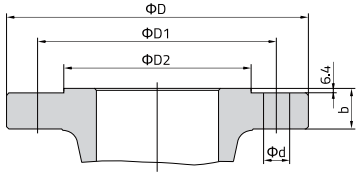
Flanges ASME B 16.5 RTJ

Class	Size		Ring	Dimensions(mm)					L1
	DN	NPS	Number	P	E	F	K	N	
Class600	15	1/2	R11	34.14	5.54	7.14	51	3	75
	20	3/4	R13	42.88	6.35	8.74	63.5	4	90
	25	1	R16	50.8	6.35	8.74	70	4	90
	32	1 1/4	R18	60.33	6.35	8.74	79.5	4	95
	40	1 1/2	R20	68.27	6.35	8.74	90.5	4	110
	50	2	R23	82.55	7.92	11.91	108	5	110
	65	2 1/2	R26	101.6	7.92	11.91	127	5	120
	80	3	R31	123.83	7.92	11.91	146	5	125
	100	4	R37	149.23	7.92	11.91	175	5	145
	125	5	R41	180.98	7.92	11.91	210	5	165
	150	6	R45	211.12	7.92	11.91	241	5	170
	200	8	R49	269.88	7.92	11.91	302	5	195
	250	10	R53	323.85	7.92	11.91	356	5	215
	300	12	R57	381	7.92	11.91	413	5	220
	350	14	R61	419.1	7.92	11.91	457	5	235
	400	16	R65	469.9	7.92	11.91	508	5	255
	450	18	R69	533.4	7.92	11.91	575	5	275
	500	20	R73	584.2	9.53	13.49	635	5	290
	600	24	R77	692.15	11.13	16.66	749	6	335
Class900 Class1500	15	1/2	R12	39.67	6.35	8.74	60.5	4	110
	20	3/4	R14	44.45	6.35	8.74	66.5	4	115
	25	1	R16	50.8	6.35	8.74	71.5	4	125
	32	1 1/4	R18	60.33	6.35	8.74	81	4	125
	40	1 1/2	R20	68.27	6.35	8.74	92	4	140
	50	2	R24	95.25	7.92	11.91	124	3	145
	65	2 1/2	R27	107.95	7.92	11.91	137	3	160
Class900	80	3	R31	123.83	7.92	11.91	156	4	145
	100	4	R37	149.23	7.92	11.91	181	4	170
	125	5	R41	180.98	7.92	11.91	216	4	190
	150	6	R45	211.12	7.92	11.91	241	4	195
	200	8	R49	269.88	7.92	11.91	308	4	220
	250	10	R53	323.85	7.92	11.91	362	4	235
	300	12	R57	381	7.92	11.91	419	4	255
	350	14	R62	419.1	11.13	16.66	467	4	280
	400	16	R66	469.9	11.13	16.66	524	4	290
	450	18	R70	533.4	12.7	19.84	594	5	335
	500	20	R74	584.2	12.7	19.84	648	5	360
	600	24	R78	692.15	15.88	26.97	772	6	455
Class1500	80	3	R35	136.53	7.92	11.91	168	3	180
	100	4	R39	161.93	7.92	11.91	194	3	195
	125	5	R44	193.68	7.92	11.91	229	3	250
	150	6	R46	211.14	9.53	13.94	248	3	265
	200	8	R50	269.88	11.13	16.66	318	4	300
	250	10	R54	323.85	11.13	16.66	371	4	345
	300	12	R58	381	14.27	23.01	438	5	385
	350	14	R63	419.1	15.88	26.97	489	6	425
	400	16	R67	469.9	17.48	30.18	546	8	470
	450	18	R71	533.4	17.48	30.18	613	8	525
	500	20	R75	584.2	17.48	33.32	673	10	565
	600	24	R79	692.15	20.62	36.53	794	11	650
Class2500	15	1/2	R13	42.88	6.35	8.74	65	4	120
	20	3/4	R16	50.8	6.35	8.74	73	4	125
	25	1	R18	60.33	6.35	8.74	82.5	4	140
	32	1 1/4	R21	72.23	7.92	11.94	102	3	150
	40	1 1/2	R23	82.55	7.92	11.94	114	3	170
	50	2	R26	101.6	7.92	11.94	133	3	180
	65	2 1/2	R28	111.13	9.53	13.49	149	3	205
	80	3	R32	127	9.53	13.49	168	3	230
	100	4	R38	157.18	11.13	16.66	203	4	260
	125	5	R42	190.5	12.7	19.84	241	4	310
	150	6	R47	228.6	12.7	19.84	279	4	355
	200	8	R51	279.4	14.27	23.01	340	5	395
	250	10	R55	342.9	17.48	30.18	425	6	510
	300	12	R60	406.4	17.48	33.32	495	8	560

Flanges ASME B 16.47 Series A & MSS SP 44 RF



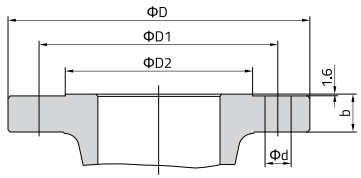
Class 150 & Class 300 RF Flanges



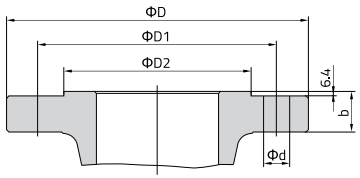
Class 600-Class 2500 RF Flanges

Class	Size		Dimensions(mm)					Bolt	
	DN	NPS	D	D1	D2	b	d	Number	Diam(in)
Class150	650	26	870	806.5	749	68.5	35	24	1 1/4
	700	28	927	863.6	800	71.5	35	28	1 1/4
	750	30	984	914.4	857	75	35	28	1 1/4
	800	32	1060	977.9	914	81	41	28	1 1/2
	850	34	1111	1028.7	965	82.5	41	32	1 1/2
	900	36	1168	1085.9	1022	90.5	41	32	1 1/2
	950	38	1238	1149.4	1073	87.5	41	32	1 1/2
	1000	40	1289	1200.2	1124	90.5	41	36	1 1/2
	1050	42	1346	1257.3	1194	96.8	41	36	1 1/2
	1200	48	1511	1422.4	1359	108	41	44	1 1/2
	1350	54	1683	1593.9	1511	120.5	48	44	1 3/4
	1400	56	1746	1651	1575	124	48	48	1 3/4
	1500	60	1854	1759	1676	132	48	52	1 3/4
Class300	650	26	972	876.3	749	79.2	44	28	1 5/8
	700	28	1035	939.8	800	86	44	28	1 5/8
	750	30	1092	997	857	92	48	28	1 3/4
	800	32	1149	1054.1	914	99	51	28	1 7/8
	850	34	1207	1104.9	965	101.6	51	28	1 7/8
	900	36	1270	1168.4	1022	104.6	54	32	2
	950	38	1168	1092.2	1029	108	41	32	1 1/2
	1000	40	1238	1155.7	1086	114.3	44	32	1 5/8
	1050	42	1289	1206.5	1137	119.1	44	32	1 5/8
	1200	48	1467	1371.6	1302	133.5	51	32	1 7/8
Class600	650	26	1016	914.4	749	108	51	28	1 7/8
	700	28	1073	965.2	800	111.5	54	28	2
	750	30	1130	1022.4	857	114.3	54	28	2
	800	32	1194	1079.5	914	117.3	60	28	2 1/4
	850	34	1245	1130.3	965	121	60	28	2 1/4
	900	36	1314	1193.8	1022	124	67	28	2 1/2
Class900	650	26	1086	952.5	749	140	73	20	2 3/4
	700	28	1168	1022.4	800	143	79	20	3

Flanges ASME B 16.47 Series B & API 605 RF



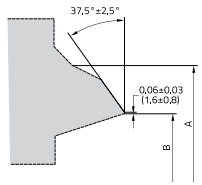
Class 150 & Class 300 RF Flanges



Class 600-Class 2500 RF Flanges

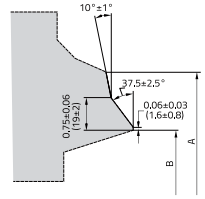
Class	Size		Dimensions(mm)					Bolt	
	DN	NPS	D	D1	D2	b	d	Number	Diam(in)
Class150	650	26	786	744.5	711	41	22	36	3/4
	700	28	837	795.3	762	44.5	22	40	3/4
	750	30	887	846.1	813	44.5	22	44	3/4
	800	32	941	900.2	864	46	22	48	3/4
	850	34	1005	957.3	921	49.5	25	40	7/8
	900	36	1057	1009.7	972	52.5	25	44	7/8
	950	38	1124	1069.8	1022	54	28	40	1
	1000	40	1175	1120.6	1080	55.6	28	44	1
	1050	42	1226	1171.4	1130	58.6	28	48	1
	1200	48	1392	1335	1289	65	32	44	1 1/8
	1350	54	1549	1492.3	1441	71.5	32	56	1 1/8
	1400	56	1600	1543.1	1492	73	32	60	1 1/8
	1500	60	1726	1662.2	1600	76.2	35	52	1 1/4
Class300	650	26	867	803.1	737	89	35	32	1 1/4
	700	28	921	857.3	787	89	35	36	1 1/4
	750	30	991	920.8	845	93.7	38	36	1 3/8
	800	32	1054	977.9	902	103	41	32	1 1/2
	850	34	1108	1031.7	953	103	41	36	1 1/2
	900	36	1171	1089.2	1010	103	44	32	1 5/8
	950	38	1222	1140	1060	111.2	44	36	1 5/8
	1000	40	1273	1190.8	1115	116	44	40	1 5/8
	1050	42	1334	1244.6	1168	119	48	36	1 3/4
	1200	48	1511	1416.1	1327	128.5	51	40	1 7/8
Class600	650	26	889	806.5	727	111.2	44	28	1 5/8
	700	28	953	863.6	784	116	48	28	1 3/4
	750	30	1022	927.1	841	125.5	51	28	1 5/8
	800	32	1086	984.3	895	130	54	28	2
	850	34	1162	1054.1	953	141.2	60	24	2 1/4
	900	36	1213	1104.9	1010	146	60	28	2 1/4
Class900	650	26	1022	901.7	762	135	67	20	2 1/2
	700	28	1105	971.6	819	147.5	73	20	2 3/4

Butt Weld ASME B 16.25



Welding end detail for joint without backing ring

Welding end detail intended for use on 0.88in(22mm) and thinner nominal wall thicknesses



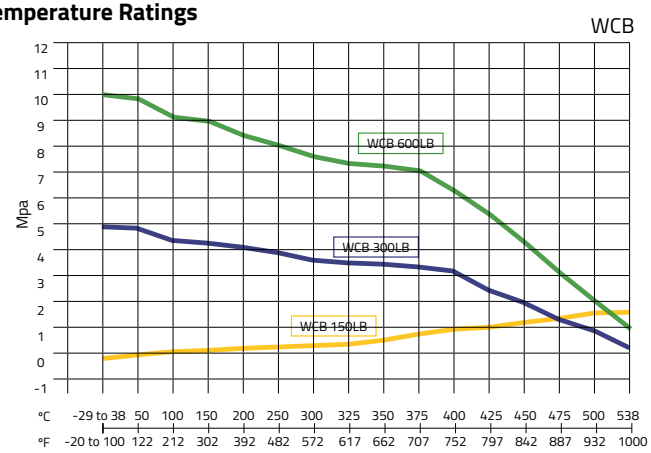
Welding end detail for joint without backing ring

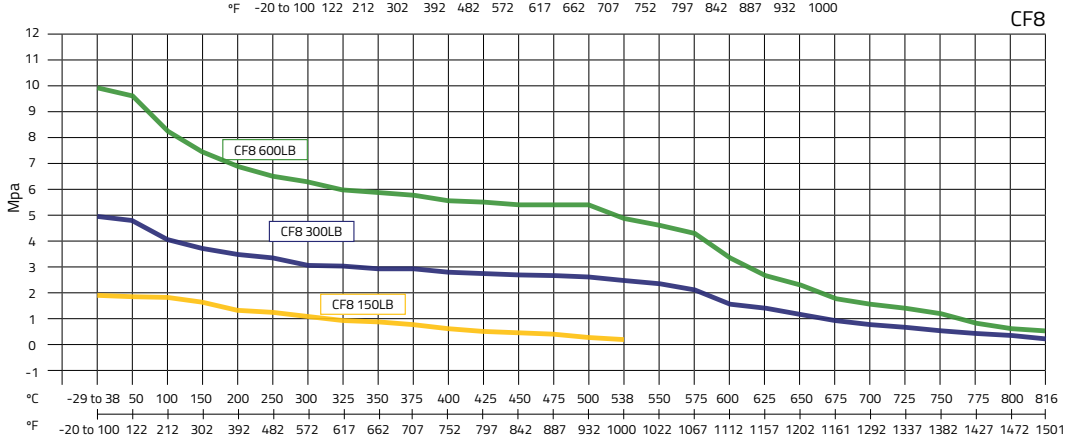
Note 1 Internal surface may be as formed or machined for dimension b at root face contour within the envelope shall be in accordance with section

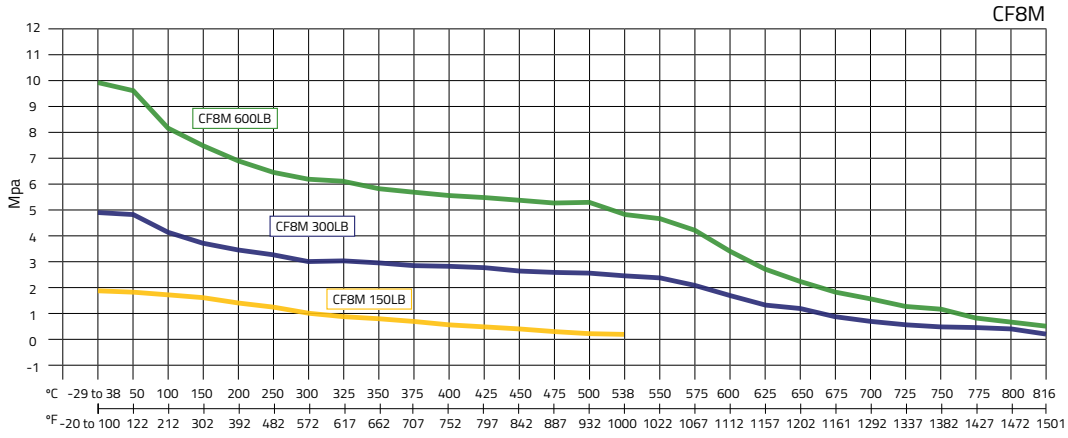
Nominal Pipe Size		Schedule Number or Wall	Outside Diameter		Nominal Inside Diameter	Machined Inside Diameter	Nominal Wall Thickness
DN	NPS		Forging or Process module,A	Moulded Steel Valve,A	B	C	t
65	2 1/2	40	73	75	62.5	62.93	5.16
		80			59	59.69	7.01
		160			54	55.28	9.53
		XXS			45	47.43	14.02
80	3	40	88.9	91	78	78.25	5.49
		80			73.5	74.53	7.62
		160			66.5	68.38	11.13
		XXS			58.5	61.19	15.24
100	4	40	114.3	117	102	102.73	6.02
		80			97	98.28	8.56
		120			92	93.78	11.13
		160			87.5	89.65	13.49
		XXS			80	83.3	17.12
125	5	40	141.3	144	128	128.8	6.55
		80			122	123.58	9.53
		120			116	118.04	12.7
		160			109.5	112.47	15.88
		XXS			103	106.92	19.05
150	6	40	168.3	172	154	154.82	7.11
		80			146.5	148.06	10.97
		120			140	142.29	14.27
		160			132	135.31	18.26
		XXS			124.5	128.85	21.95
200	8	40	219.1	223	203	203.75	8.18
		60			198.5	200.02	10.31
		80			193.5	195.84	12.7
		100			189	191.65	15.09
		120			182.5	186.11	18.26
		140			178	181.98	20.62
		XXS			174.5	179.16	22.23
		160			173	177.79	23.01
250	10	40	273	278	254.5	255.74	9.27
		60			247.5	249.74	12.7
		80			243	245.55	15.09
		100			236.5	240.01	18.26
		120			230	234.44	21.44
		140			222	227.51	25.4
		160			216	221.95	28.58
		STD			305	306.08	9.53
300	12	40	323.8	329	303	304.72	10.31
		XS			298.5	300.54	12.7
		60			295	297.79	14.27
		80			289	292.17	17.48
		100			281	285.24	21.44
		120			273	278.31	25.4
		140			266.5	272.75	28.58
		160			257	264.45	33.32

Nominal Pipe Size		Schedule Number or Wall	Outside Diameter		Nominal Inside Diameter	Machined Inside Diameter	Nominal Wall Thickness
DN	NPS		Forging or Process module,A	Moulded Steel Valve,A	B	C	t
350	14	STD	355.6	362	336.5	337.88	9.53
		40			333.5	335.08	11.13
		XS			330	332.34	12.7
		60			325.5	328.15	15.09
		80			317.5	321.22	19.05
		100			308	312.86	23.83
		120			300	305.93	27.79
		140			292	299	21.75
		160			284	292.07	35.71
400	16	STD	406.4	413	387.5	388.68	9.53
		40			381	383.14	12.7
		60			373	376.21	16.66
		80			363.5	367.84	21.44
		100			354	359.53	26.19
		120			344.5	351.18	30.69
		140			333.5	341.43	36.53
		160			325.5	334.5	40.49
450	18	STD	457.2	464	438	439.48	9.53
		XS			432	433.94	12.7
		40			428.5	431.19	14.27
		60			419	422.82	19.05
		80			409.5	414.46	23.83
		100			398.5	404.78	29.36
		120			387.5	395.03	34.93
		140			378	386.77	39.67
		160			366.5	376.99	45.24
500	20	STD	508	516	489	490.28	9.53
		XS			482.5	484.74	12.7
		40			478	480.55	15.09
		60			467	470.88	20.62
		80			455.5	461.13	26.19
		100			443	450.02	32.54
		120			432	440.29	38.1
		140			419	429.17	44.45
		160			408	419.44	50.01
550	22	STD	558.8	567	539	541.08	9.53
		XS			533	535.54	12.7
		60			514	518.86	22.23
		80			501	507.75	28.58
		100			488.5	496.63	34.93
		120			476	485.52	41.28
		140			463	474.41	47.63
		160			450.5	463.3	53.98
600	24	STD	609.6	619	590.5	591.88	9.53
		XS			584	586.34	12.7
		30			581	583.59	14.27
		40			574.5	577.97	17.48
		60			560.5	565.49	24.61
		80			547.5	554.38	30.96
		100			532	540.49	38.89
		120			517.5	528.03	46.02
		140			505	516.91	52.37
		160			490.5	504.37	59.54

Pressure Temperature Ratings







Temperature (℉ /℃)

Class 150 Pressure-Temperature Ratings ASME B16.5, ASME B16.34

ASTM Materials	Group 1.1	Group 1.2	Group 1.3	Group 1.4	Group 1.5	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 2.3	Group 2.5	Group 2.8	Group 3.17
	A216 WCB(1) A350 LF2(1)	A216 WCC(1) A350 LCC(2) A352 LC2 A352 LC3	A352 LCB(2)	A350 LF2(1)	A182 F1(3) A350 LC1(2) A217 WC1(3) (4)	A217 WC6(4) (5)	A217 WC9(4) (5)	A217 C5(4)	A182 F304(6) A351 CF3(7) A351 CF8(7)	A182 F316(6) A351 CF3M(8) A351 CF8M(6)	A182 F304L (7) A182 F316L (11)	A351 CF8C(6)	A182 F51(9)	A351 CN7M(10)
Temperature (°C)	Working Pressure,Mpa													
-29 to 38	1.96	1.98	1.84	1.63	1.84	1.98	1.98	2	1.9	1.9	1.59	1.9	2	1.59
50	1.92	1.95	1.82	1.6	1.84	1.95	1.95	1.95	1.83	1.84	1.53	1.87	1.95	1.54
100	1.77	1.77	1.74	1.49	1.77	1.77	1.77	1.77	1.77	1.62	1.33	1.74	1.77	1.35
150	1.58	1.58	1.58	1.44	1.58	1.58	1.58	1.58	1.58	1.48	1.2	1.58	1.58	1.23
200	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.37	1.12	1.38	1.38	1.13
250	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.05	1.21	1.21	1.04
300	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1	1.02	1.02	0.97
325	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
350	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
375	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	
400	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	
425	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55		
450	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46		
475	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37		0.37		
500	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28		0.28		
538	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14		0.14		

Shell Test		2.94	2.97	2.76	2.45	2.76	2.97	2.97	3	2.85	2.85	2.39	2.85	3	2.39
Closure Tightness Test	Liquid	2.16	2.18	2.02	1.79	2.02	2.18	2.18	2.2	2.09	2.09	1.75	2.09	2.2	1.75
	Gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

(1) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 427°C for a long time, allowed, but not recommended to be used for a long time.
(2) Do not use when over 340°C.
(3) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 465°C for a long time, allowed, but not recommended to be used for a long time.
(4) Only use the material via normalizing plus tempering process
(5) Do not use when over 590°C.
(6) In the working condition with the temperature over 538°C , do not use until the carbon content is equal and over 0.04%.
(7) Do not use when over 425°C.
(8) Do not use when over 455°C.
(9) This kind of steel may become fragile when used in a high temperature improperly. Do not use it when over 315°C.
(10) Only use the annealed material.

Class 300 Pressure-Temperature Ratings ASME B16.5, ASME B16.34

ASTM Materials	Group 1.1	Group 1.2	Group 1.3	Group 1.4	Group 1.5	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 2.3	Group 2.5	Group 2.8	Group 3.17
	A216 WCB(1) A350 LF2(1)	A216 WCC(1) A350 LCC(2) A352 LC2 A352 LC3	A352 LCB(2)	A350 LF2(1)	A182 F1(3) A350 LC1(2) A217 WC1(3) (4)	A217 WC6(4) (5)	A217 WC9(4) (5)	A217 C5(4)	A182 F304(6) A351 CF3(7) A351 CF8(7)	A182 F316(6) A351 CF3M(8) A351 CF8M(6)	A182 F304L (7) A182 F316L (11)	A351 CF8C(6)	A182 F51(9)	A351 CN7M(10)
Temperature (°C)	Working Pressure,Mpa													
-29 to 38	5.11	5.17	4.8	4.26	4.8	5.17	5.17	5.17	4.96	4.96	4.14	4.96	5.17	4.14
50	5.01	5.17	4.75	4.18	4.8	5.17	5.17	5.17	4.78	4.81	4	4.88	5.17	4.01
100	4.66	5.15	4.53	3.88	4.79	5.15	5.15	5.15	4.09	4.22	3.48	4.53	5.07	3.53
150	4.51	5.02	4.39	3.76	4.73	4.97	5.03	5.03	3.7	3.85	3.14	4.25	4.59	3.2
200	4.38	4.86	4.25	3.64	4.58	4.8	4.86	4.86	3.45	3.57	2.92	3.99	4.27	2.94
250	4.19	4.63	4.08	3.49	4.45	4.63	4.63	4.63	3.25	3.34	2.75	3.78	4.05	2.72
300	3.98	4.29	3.87	3.32	4.29	4.29	4.29	4.29	3.09	3.16	2.61	3.61	3.89	2.54
325	3.87	4.14	3.76	3.22	4.14	4.14	4.14	4.14	3.02	3.09	2.55	3.54	3.82	2.44
350	3.76	4	3.64	3.12	4.03	4.03	4.03	4.03	2.96	3.03	2.51	3.48	3.76	
375	3.64	3.78	3.5	3.04	3.89	3.89	3.89	3.89	2.9	2.99	2.48	3.42	3.74	
400	3.47	3.47	3.26	2.93	3.65	3.65	3.65	3.65	2.84	2.94	2.43	3.39	3.65	
425	2.88	2.88	2.73	2.58	3.52	3.52	3.52	3.52	2.8	2.91	2.39	3.36		
450	2.3	2.3	2.16	2.14	3.37	3.37	3.37	3.37	2.74	2.88	2.34	3.35		
475	1.74	1.74	1.57	1.41	3.17	3.17	3.17	2.79	2.69	2.87		3.17		
500	1.18	1.18	1.11	1.03	2.41	2.57	2.82	2.14	2.65	2.82		2.82		
538	0.59	0.59	0.59	0.59	1.13	1.49	1.84	1.37	2.44	2.52		2.52		
550						1.27	1.56	1.2	2.36	2.5		2.5		
575						0.88	1.05	0.89	2.08	2.4		2.4		
600						0.61	0.69	0.62	1.69	1.99		2.16		
625						0.43	0.45	0.4	1.38	1.58		1.83		
650						0.28	0.28	0.24	1.13	1.27		1.41		
675									0.93	1.03		1.24		
700									0.8	0.84		1.01		
725									0.68	0.7		0.79		
750									0.58	0.59		0.59		
775									0.46	0.46		0.46		
800									0.35	0.35		0.35		
816									0.28	0.28		0.28		

Shell Test		7.67	7.76	7.2	6.39	7.2	7.76	7.76	7.76	7.44	7.44	6.21	7.44	7.76	6.21
Closure Tightness Test	Liquid	5.62	5.69	5.28	4.69	5.28	5.69	5.69	5.69	5.46	5.46	4.56	5.46	5.69	4.56
	Gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

(1) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 427°C for a long time, allowed, but not recommended to be used for a l ong time.
(2) Do not use when over 340°C.
(3) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 465°C for a long time, allowed, but not recommended to be used for a long time.
(4) Only use the material via normalizing plus tempering process.
(5) Do not use when over 590°C.
(6) In the working condition with the temperature over 538°C , do not use until the carbon content is equal and over 0.04%.
(7) Do not use when over 425°C.
(8) Do not use when over 455°C.
(9) This kind of steel may become fragile when used in a high temperature improperly. Do not use it when over 315°C.
(10) Only use the annealed material.



Petro Valves

ASME B16.5, ASME B16.34

ASTM Materials	Group 1.1	Group 1.2	Group 1.3	Group 1.4	Group 1.5	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 2.3	Group 2.5	Group 2.8	Group 3.17
	A216 WCB(1) A350 LF2(1)	A216 WCC(1) A350 LCC(2) A352 LC2 A352 LC3	A352 LCB(2)	A350 LF2(1)	A182 F1(3) A350 LC1(2) A217 WC1(3)(4)	A217 WC6(4)(5)	A217 WC9(4)(5)	A217 C5(4)	A182 F304(6) A351 CF3(7) A351 CF8(7)	A182 F316(6) A351 CF3M(8) A351 CF8M(6)	A182 F304L (7) A182 F316L (11)	A351 CF8C(6)	A182 F51(9)	A351 CN7M(10)
Temperature (°C)	Working Pressure,Mpa													
-29 to 38	10.21	10.34	9.6	8.51	9.6	10.34	10.34	10.34	9.93	9.93	8.27	9.93	10.34	8.27
50	10.02	10.34	9.49	8.35	9.6	10.34	10.34	10.34	9.56	9.62	8	9.75	10.34	8.03
100	9.32	10.3	9.07	7.77	9.59	10.3	10.3	10.3	8.17	8.44	6.96	9.06	10.13	7.06
150	9.02	10.03	8.79	7.51	9.47	9.95	10.03	10.03	7.4	7.7	6.28	8.49	9.19	6.41
200	8.76	9.72	8.51	7.28	9.16	9.59	9.72	9.72	6.9	7.13	5.83	7.99	8.53	5.87
250	8.39	9.27	8.16	6.98	8.9	9.27	9.27	9.27	6.5	6.68	5.49	7.56	8.09	5.44
300	7.96	8.57	7.74	6.64	8.57	8.57	8.57	8.57	6.18	6.32	5.21	7.22	7.77	5.08
325	7.74	8.26	7.52	6.45	8.26	8.26	8.26	8.26	6.04	6.18	5.1	7.07	7.63	4.88
350	7.51	8	7.28	6.25	8.04	8.04	8.04	8.04	5.93	6.07	5.01	6.95	7.53	
375	7.27	7.57	6.99	6.07	7.76	7.76	7.76	7.76	5.81	5.98	4.95	6.84	7.47	
400	6.94	6.94	6.52	5.87	7.33	7.33	7.33	7.33	5.69	5.89	4.86	6.78	7.33	
425	5.75	5.75	5.46	5.15	7	7	7	7	5.6	5.83	4.77	6.72		
450	4.6	4.6	4.32	4.27	6.77	6.77	6.77	6.77	5.48	5.77	4.68	6.69		
475	3.42	3.42	3.13	2.82	6.34	6.34	6.34	5.57	5.39	5.73		6.34		
500	2.35	2.32	2.21	2.06	4.81	5.15	5.65	4.28	5.3	5.65		5.65		
538	1.18	1.18	1.18	1.18	2.27	2.98	3.69	2.74	4.89	5		5		
550						2.54	3.13	2.41	4.71	4.98		4.98		
575						1.76	2.11	1.78	4.17	4.79		4.79		
600						1.22	1.38	1.25	3.38	3.98		4.29		
625						0.85	0.89	0.8	2.76	3.16		3.66		
650						0.57	0.57	0.47	2.25	2.53		2.81		
675									1.87	2.06		2.52		
700									1.61	1.68		2		
725									1.35	1.4		1.54		
750									1.16	1.17		1.17		
775									0.9	0.9		0.9		
800									0.7	0.7		0.7		
816									0.59	0.59		0.59		

Shell Test		15.32	15.51	14.4	12.77	14.4	15.51	15.51	15.51	14.9	14.9	12.4	14.9	15.51	12.4
Closure Tightness Test	Liquid	11.23	11.37	10.56	9.36	10.56	11.37	11.37	11.37	10.92	10.92	9.1	10.92	11.37	9.1
	Gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

(1) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 427°C for a long time, allowed, but not recommended to be used for a long time.
(2) Do not use when over 340°C.
(3) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 465°C for a long time but not recommended to be used for a long time.
(4) Only use the material via normalizing plus tempering process
(5) Do not use when over 590°C.
(6) In the working condition with the temperature over 538°C , do not use it until the carbon content is equal and over 0.04%.
(7) Do not use when over 425°C.
(8) Do not use when over 455°C.
(9) This kind of steel may become fragile when used in a high temperature improperly. Do not use when over 315°C.
(10) Only use the annealed material.

Class 900 Pressure-Temperature Ratings

ASME B16.5, ASME B16.34

ASTM Materials	Group 1.1	Group 1.2	Group 1.3	Group 1.4	Group 1.5	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 2.3	Group 2.5	Group 2.8	Group 3.17
	A216 WCB(1) A350 LF2(1)	A216 WCC(1) A350 LCC(2) A352 LC2 A352 LC3	A352 LCB(2)	A350 LF2(1)	A182 F1(3) A350 LC1(2) A217 WC1(3) (4)	A217 WC6(4) (5)	A217 WC9(4) (5)	A217 C5(4)	A182 F304(6) A351 CF3(7) A351 CF8(7)	A182 F316(6) A351 CF3M(8) A351 CF8M(6)	A182 F304L (7) A182 F316L (11)	A351 CF8C(6)	A182 F51(9)	A351 CN7M(10)
Temperature (°C)	Working Pressure,Mpa													
-29 to 38	15.32	15.51	14.41	12.77	14.41	15.51	15.51	15.51	14.89	14.89	12.41	14.89	15.51	12.41
50	15.04	15.51	14.24	12.53	14.41	15.51	15.51	15.51	14.35	14.43	12.01	14.63	15.51	12.04
100	13.98	15.46	13.6	11.65	14.38	15.44	15.46	15.46	12.26	12.66	10.44	13.59	15.2	10.59
150	13.52	15.05	13.18	11.27	14.2	14.92	15.06	15.06	11.1	11.55	9.42	12.74	13.78	9.61
200	13.14	14.58	12.76	10.92	13.74	14.39	14.58	14.58	10.34	10.7	8.75	11.98	12.8	8.81
250	12.58	13.9	12.23	10.47	13.35	13.9	13.9	13.9	9.75	10.01	8.24	11.34	12.14	8.17
300	11.95	12.86	11.61	9.95	12.86	12.86	12.86	12.86	9.27	9.49	7.82	10.83	11.66	7.61
325	11.61	12.4	11.27	9.67	12.4	12.4	12.4	12.4	9.07	9.27	7.64	10.61	11.45	7.33
350	11.27	12.01	10.92	9.37	12.07	12.07	12.07	12.07	8.89	9.1	7.52	10.43	11.29	
375	10.91	11.35	10.49	9.11	11.65	11.65	11.65	11.65	8.71	8.96	7.43	10.26	11.21	
400	10.42	10.42	9.79	8.8	10.98	10.98	10.98	10.98	8.53	8.83	7.29	10.17	10.98	
425	8.63	8.63	8.19	7.73	10.51	10.51	10.51	10.51	8.4	8.74	7.16	10.08		
450	6.9	6.9	6.48	6.41	10.14	10.14	10.14	10.14	8.22	8.65	7.02	10.04		
475	5.23	5.13	4.7	4.23	9.51	9.51	9.51	8.36	8.08	8.6		9.51		
500	3.53	3.47	3.32	3.09	7.22	7.72	8.47	6.41	7.95	8.47		8.47		
538	1.77	1.77	1.77	1.77	3.4	4.47	5.53	4.11	7.33	7.52		7.52		
550						3.81	4.69	3.61	7.07	7.48		7.48		
575						2.64	3.16	2.67	6.25	7.18		7.18		
600						1.83	2.07	1.87	5.06	5.97		6.42		
625						1.28	1.34	1.2	4.14	4.74		5.49		
650						0.85	0.85	0.71	3.38	3.8		4.25		
675									2.8	3.1		3.76		
700									2.41	2.51		2.98		
725									2.03	2.1		2.32		
750									1.73	1.76		1.76		
775									1.37	1.37		1.37		
800									1.05	1.05		1.05		
816									0.86	0.86		0.86		

Shell Test		22.98	23.27	21.62	19.16	21.62	23.27	23.27	23.27	22.34	22.34	18.62	22.34	23.27	18.62
Closure Tightness Test	Liquid	16.85	17.06	15.85	14.05	15.85	17.06	17.06	17.06	16.38	16.38	13.65	16.38	17.06	13.65
	Gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

(1) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 427°C for a long time, but not recommended to be used for a long time.
(2) Do not use when over 340°C.
(3) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 465°C for a long time ,but not recommended to be used for a long time.
(4) Only use the material via normalizing plus tempering process
(5) Do not use when over 590°C.
(6) In the working condition with the temperature over 538°C , do not use it until the carbon content is equal and over 0.04%.
(7) Do not use when over 425°C.
(8) Do not use when over 455°C.
(9) This kind of steel may become fragile when used in a high temperature improperly. Do not use it when over 315°C.
(10) Only use the annealed material.

Class 1500 Pressure-Temperature Ratings ASME B16.5, ASME B16.34

ASTM Materials	Group 1.1	Group 1.2	Group 1.3	Group 1.4	Group 1.5	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 2.3	Group 2.5	Group 2.8	Group 3.17
	A216 WCB(1) A350 LF2(1)	A216 WCC(1) A350 LCC(2) A352 LC2 A352 LC3	A352 LCB(2)	A350 LF2(1)	A182 F1(3) A350 LC1(2) A217 WC1(3) (4)	A217 WC6(4) (5)	A217 WC9(4) (5)	A217 C5(4)	A182 F304(6) A351 CF3(7) A351 CF8(7)	A182 F316(6) A351 CF3M(8) A351 CF8M(6)	A182 F304L (7) A182 F316L (11)	A351 CF8C(6)	A182 F51(9)	A351 CN7M(10)
Temperature (°C)	Working Pressure,Mpa													
-29 to 38	25.53	25.86	24.01	21.28	24.01	25.86	25.86	25.86	24.82	24.82	20.68	24.82	25.86	20.68
50	25.06	25.86	23.73	20.89	24.01	25.86	25.86	25.86	23.91	24.06	20.01	24.38	25.86	20.07
100	23.3	25.76	22.67	19.42	23.97	25.74	25.76	25.76	20.43	21.1	17.39	22.65	25.33	17.65
150	22.54	25.08	21.97	18.78	23.67	24.87	25.08	25.08	18.5	19.25	15.7	21.24	22.96	16.02
200	21.9	24.32	21.27	18.21	22.9	23.98	24.34	24.34	17.24	17.83	14.58	19.97	21.33	14.68
250	20.97	23.18	20.39	17.46	22.25	23.18	23.18	23.18	16.24	16.69	13.73	18.91	20.23	13.61
300	19.91	21.44	19.34	16.59	21.44	21.44	21.44	21.44	15.46	15.81	13.03	18.04	19.43	12.69
325	19.36	20.66	18.79	16.12	20.66	20.66	20.66	20.66	15.11	15.44	12.74	17.68	19.08	12.21
350	18.78	20.01	18.2	15.62	20.11	20.11	20.11	20.11	14.81	15.16	12.54	17.38	18.82	
375	18.18	18.92	17.49	15.18	19.41	19.41	19.41	19.41	14.52	14.94	12.38	17.1	18.68	
400	17.36	17.36	16.31	14.67	18.31	18.31	18.31	18.31	14.22	14.72	12.15	16.95	18.31	
425	14.38	14.38	13.65	12.88	17.51	17.51	17.51	17.51	14	14.57	11.93	16.81		
450	11.5	11.5	10.79	10.68	16.9	16.9	16.9	16.9	13.7	14.42	11.71	16.73		
475	8.72	8.54	7.83	7.05	15.82	15.82	15.82	13.93	13.47	14.34		15.82		
500	5.88	5.79	5.54	5.15	12.03	12.86	14.09	10.69	13.24	14.09		14.09		
538	2.95	2.95	2.95	2.95	5.67	7.45	9.22	6.86	12.21	12.55		12.55		
550						6.35	7.82	6.02	11.78	12.49		12.49		
575						4.4	5.26	4.44	10.42	11.97		11.97		
600						3.05	3.44	3.12	8.44	9.95		10.7		
625						2.13	2.23	2	6.89	7.91		9.12		
650						1.42	1.42	1.18	5.63	6.33		7.07		
675									4.67	5.16		6.27		
700									4.01	4.19		4.97		
725									3.38	3.49		3.86		
750									2.89	2.93		2.96		
775									2.28	2.28		2.28		
800									1.74	1.74		1.74		
816									1.41	1.41		1.41		

Shell Test		38.3	38.79	36.02	31.92	36.02	38.79	38.79	38.79	37.23	37.23	31.02	37.23	38.79	31.02
Closure Tightness Test	Liquid	28.08	28.45	26.41	23.41	26.41	28.45	28.45	28.45	27.3	27.3	22.75	27.3	28.45	22.75
	Gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

(1) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 427°C for a long time, but not recommended to be used for a long time.
(2) Do not use when over 340°C.
(3) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 465°C for a long time,but not recommended to be used for a long time.
(4) Only use the material via normalizing plus tempering process
(5) Do not use when over 590°C.
(6) In the working condition with the temperature over 538°C , do not use it until the carbon content is equal and over 0.04%.
(7) Do not use when over 425°C.
(8) Do not use when over 455°C.
(9) This kind of steel may become fragile when used in a high temperature improperly. Do not use it when over 315°C.
(10) Only use the annealed material

Class 2500 Pressure-Temperature Ratings ASME B16.5, ASME B16.34

ASTM Materials	Group 1.1	Group 1.2	Group 1.3	Group 1.4	Group 1.5	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 2.3	Group 2.5	Group 2.8	Group 3.17
	A216 WCB(1) A350 LF2(1)	A216 WCC(1) A350 LCC(2) A352 LC2 A352 LC3	A352 LCB(2)	A350 LF2(1)	A182 F1(3) A350 LC1(2) A217 WC1(3) (4)	A217 WC6(4) (5)	A217 WC9(4) (5)	A217 C5(4)	A182 F304(6) A351 CF3(7) A351 CF8(7)	A182 F316(6) A351 CF3M(8) A351 CF8M(6)	A182 F304L (7) A182 F316L (11)	A351 CF8C(6)	A182 F51(9)	A351 CN7M(10)
Temperature (°C)	Working Pressure,Mpa													
-29 to 38	42.55	43.09	40.01	35.46	40.01	43.09	43.09	43.09	41.37	41.37	34.47	41.37	43.09	34.49
50	41.77	43.09	39.56	34.81	40.01	43.09	43.09	43.09	39.85	40.09	33.35	40.64	43.09	33.44
100	38.83	42.94	37.78	32.36	19.95	42.9	42.94	42.94	34.04	35.16	28.99	37.74	42.22	29.42
150	37.56	41.81	36.61	31.3	39.45	41.45	41.82	41.82	30.84	32.08	26.16	35.39	38.27	26.7
200	36.5	40.54	35.44	30.34	38.17	39.96	40.54	40.54	28.73	29.72	24.3	33.28	35.54	24.47
250	34.95	38.62	33.98	29.1	37.09	38.62	38.62	38.62	27.07	27.81	22.89	31.51	33.72	22.69
300	33.18	35.71	32.24	27.65	35.71	35.71	35.71	35.71	25.76	26.35	21.72	30.07	32.38	21.15
325	32.26	34.43	31.31	26.86	34.43	34.43	34.43	34.43	25.19	25.74	21.23	29.46	31.8	20.35
350	31.3	33.35	30.33	26.04	33.53	33.53	33.53	33.53	24.69	25.27	20.89	28.96	31.37	
375	30.31	31.53	29.14	25.3	32.32	32.32	32.32	32.32	24.19	24.9	20.63	28.51	31.31	
400	28.93	28.93	27.19	24.45	30.49	30.49	30.49	30.49	23.7	24.53	20.25	28.26	30.49	
425	23.97	23.97	22.75	21.47	29.16	29.16	29.16	29.16	23.33	24.29	19.88	28.01		
450	19.17	19.17	17.99	17.8	28.18	28.18	28.18	28.18	22.84	24.04	19.51	27.88		
475	14.53	14.24	13.06	11.74	26.39	26.39	26.39	23.21	22.45	23.89		26.39		
500	9.79	9.65	9.23	8.59	20.05	21.44	23.5	17.82	22.07	23.5		23.5		
538	4.92	4.92	4.92	4.92	9.46	12.41	15.37	11.43	20.36	20.89		20.89		
550						10.59	13.03	10.04	19.63	20.8		20.8		
575						7.34	8.77	7.4	17.37	19.95		19.95		
600						5.09	5.74	5.19	14.07	16.59		17.85		
625						3.55	3.72	3.33	11.49	13.18		15.2		
650						2.36	2.36	1.97	9.35	10.55		11.77		
675									7.79	8.6		10.45		
700									6.69	6.98		8.3		
725									5.63	5.82		6.44		
750									4.81	4.89		4.91		
775									3.8	3.8		3.8		
800									2.92	2.92		2.92		
816									2.38	2.38		2.38		

Shell Test		63.83	64.64	60.02	53.19	60.02	64.64	64.64	64.64	62.06	62.06	51.71	62.06	64.64	51.71
Closure Tightness Test	Liquid	46.81	47.4	44.01	39.01	44.01	47.4	47.4	47.4	45.51	45.51	37.92	45.51	47.4	37.92
	Gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

(1) The carburet of the carbon steel may be allowed to transform into graphite when placed in the working condition over 427°C for a long time, but not recommended to be used for a long time.
(2) Do not use when over 340°C.
(3) The carburet of the carbon steel be allowed to transform into graphite when placed in the working condition over 465°C for a long time, but not recommended to be used for a long time.
(4) Only use the material via normalizing plus tempering process
(5) Do not use when over 590°C.
(6) In the working condition with the temperature over 538°C , do not use it until the carbon content is equal and over 0.04%.
(7) Do not use when over 425°C.
(8) Do not use when over 455°C.
(9) This kind of steel may become fragile when used in a high temperature improperly. Do not it use when over 315°C.
(10) Only use the annealed material.



Headoffice

The company is located in the town of Ou Bei where is famous for landscape of Nanxi river

Sales Network

Our customers are all over the world.

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