KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES

WAFER STYLE

Resilient seated butterfly valves with valve body and disc in high engineered composite material providing excellent internal and external chemical resistance.

GENERAL APPLICATION

Since the entire valve exists of high engineered composite materials, it is perfectly suited for a wide range of applications such as; building services, hot water applications, industrial waste water and industrial water treatment like purification, ozone or demineralization.
The light weight valve can be perfectly used in transportation and cargo containers and in applications using metal, plastic or glass reinforced pipe lines.

TECHNICAL DATA

Size	: NPS 1.5 - 12
Temperature	: -40°F up to +300°F
Pressure rating	: 150 psi / 232 psi
Flange connections	: DIN PN 6/10/16/ ASME 150 JIS 10K AS 2129 Table E
Face to face	: EN 558-1/T5 API 609

FEATURES

- Patented wafer style body and disc in high engineered composite results in excellent internal and external chemical resistance.
- Light weight construction results in lower cost and simplified installation.
- No extra pipe support needed when installed in plastic or GRP piping.
- Disc in high engineered composite material provides excellent corrosion resistance.
- All fasteners in stainless steel 316 as standard.
- Bubble tight shut-off in both directions, in accordance with EN 12266-1 leakrate A.
- Pressure range up to PN 16 at elevated temperature.
- Valve can be used in high line velocity applications up to 40 ft/sec.
- Spindle and primary valve seals are not influenced by the flange bolting force or pipe flange type.
- High C_v value.
- No need for flange gaskets.
- Primary stem sealing exceeds the pressure rating of the valve and prevents leakage through the shaft area to atmosphere.
- A secondary (shaft) sealing provides back-up safety.
- Four integrated locating holes ease installation and centering between the pipe flanges.
- Actuator flange acc. ISO 5211.
- Sustainable production philosophy as the valve materials are 100% recyclable.
- Use of composite material eliminates the need for machining and painting.
- Composite hand lever available.
- Available water approvals: KIWA, ACS, WRAS, NSF, BELGAQUA.
- Certified and approved according Det Norske Veritas (DNV).

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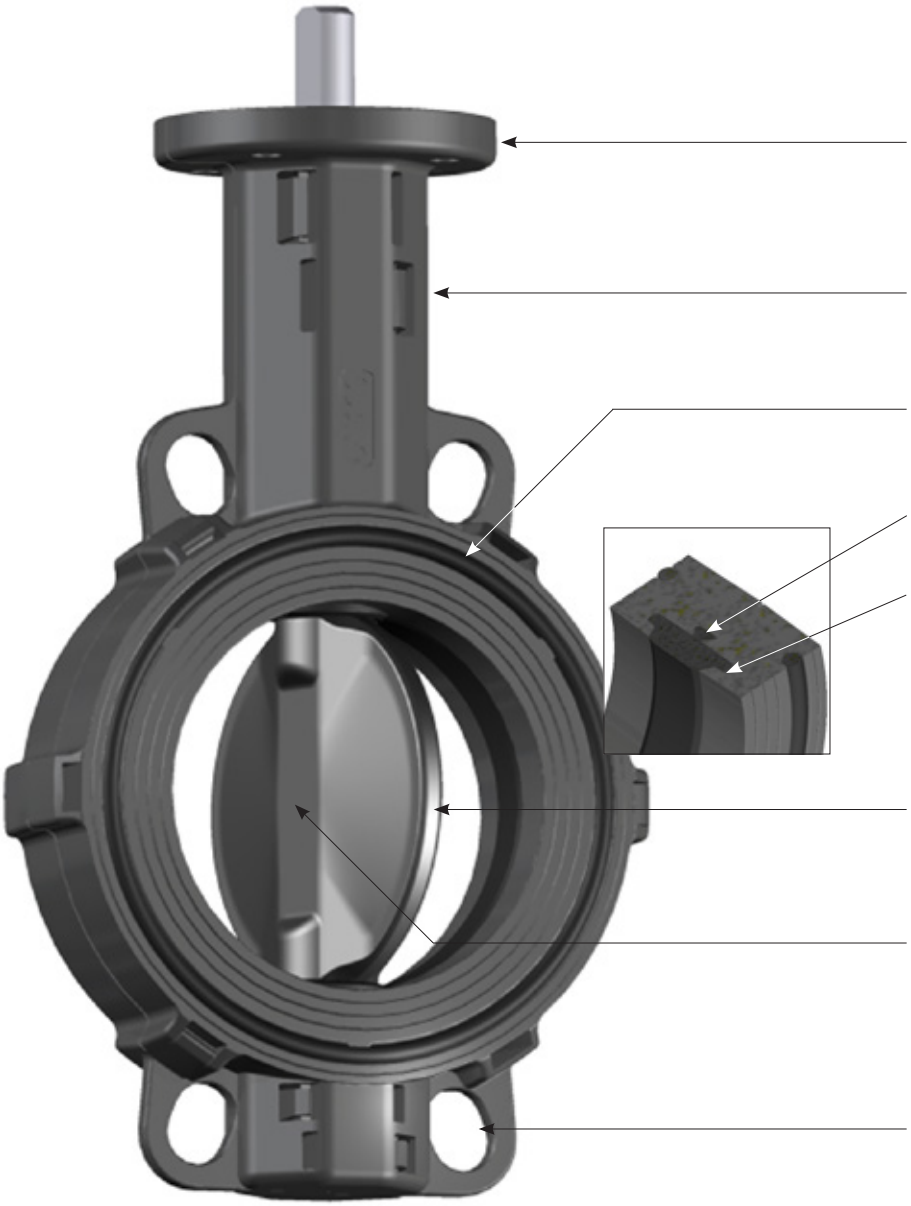
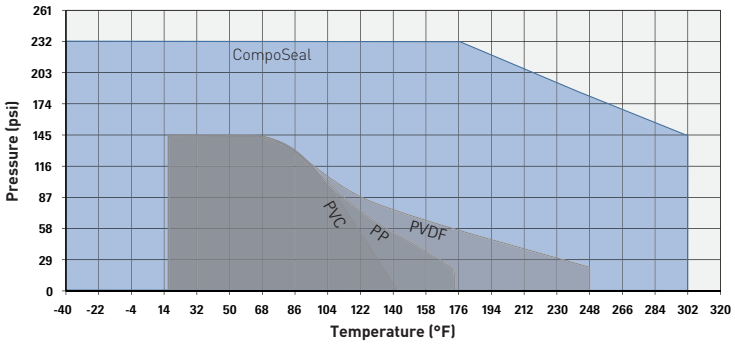
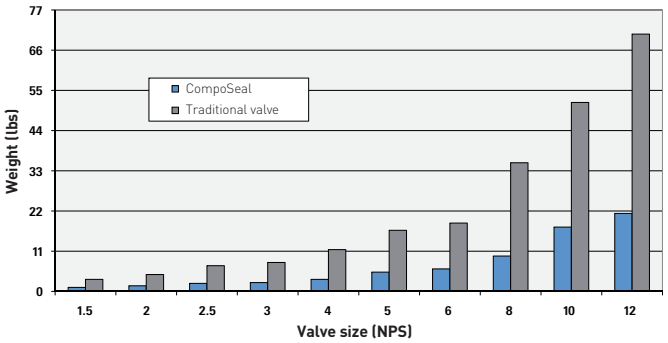


VALVE BENEFITS

- Integrated ISO 5211 top plate
- Smooth Composite body surface eliminating the need to apply paint
- Integrated flange sealing
- Secondary body split sealing
- Primary body split sealing
- Spherical disc edge
- Thin disc profile resulting in high C_v values
- Four body locating holes on all sizes

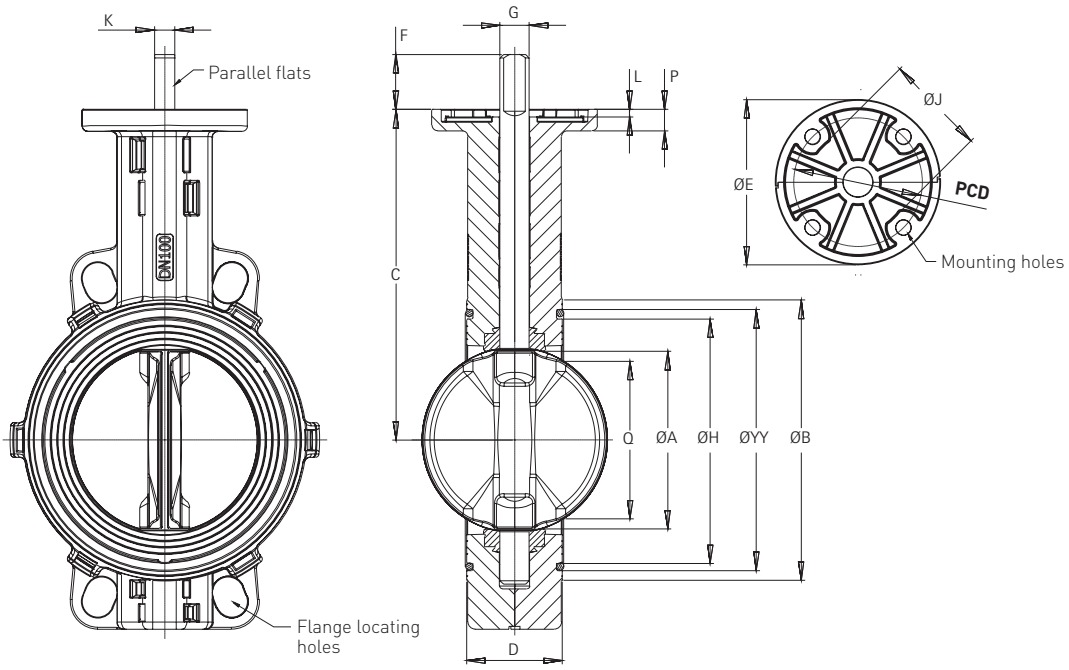


Pressure temperature comparison.
CompoSeal vs. traditional plastic valves such as PVC, PP and PVDF.



Weight comparison CompoSeal vs. traditional iron valves.

ACTUATOR FLANGE ACCORDING ISO 5211



VALVE DIMENSIONS (INCHES)

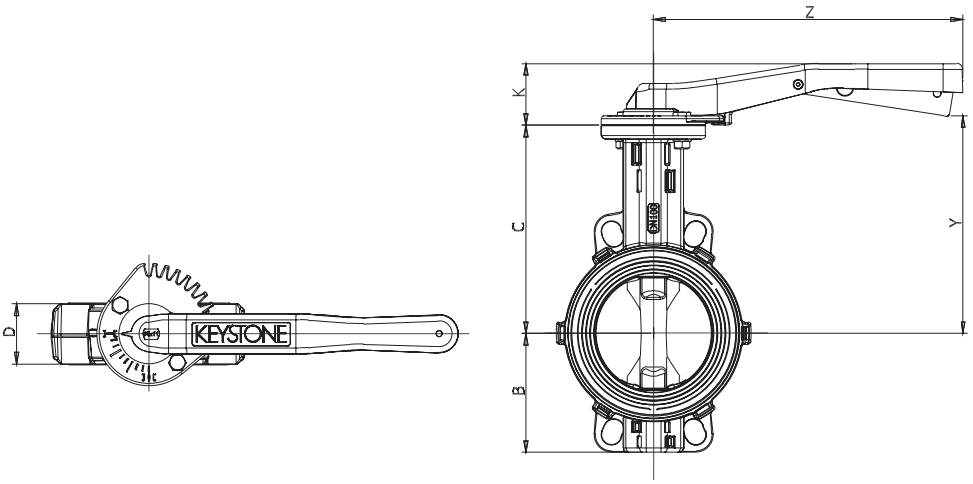
Size (NPS)	A	B	C	D	H	YY	Q	Parallel flats G_{h9}	Parallel flats F	Parallel flats $K^{0}_{\pm 0.05}$	Type	E	J	L	P	PCD	Hole	Mass (lbs)
1.5	1.57	3.03	5.12	1.30	2.44	2.76	0.98	0.47	0.98	0.31	F-05	2.56	1.38	0.16	0.39	1.97	0.26	1.3
2	2.05	3.66	5.31	1.69	3.07	3.39	1.22	0.47	0.98	0.31	F-05	2.56	1.38	0.16	0.39	1.97	0.26	1.8
2.5	2.44	4.25	5.91	1.81	3.58	3.90	1.69	0.63	1.18	0.43	F-07	3.54	2.17	0.16	0.47	2.76	0.34	2.6
3	3.07	4.92	6.30	1.81	4.17	4.57	2.56	0.63	1.18	0.43	F-07	3.54	2.17	0.16	0.47	2.76	0.34	2.9
4	3.94	6.02	7.09	2.05	5.20	5.59	3.43	0.63	1.18	0.43	F-07	3.54	2.17	0.16	0.47	2.76	0.34	4.0
5	4.92	7.17	7.68	2.20	6.30	6.69	4.45	0.79	1.18	0.55	F-07	3.54	2.17	0.16	0.59	2.76	0.34	5.9
6	5.91	8.19	8.27	2.20	7.28	7.68	5.51	0.79	1.18	0.55	F-07	3.54	2.17	0.16	0.59	2.76	0.34	6.8
8	7.87	10.31	9.45	2.36	9.45	9.84	7.56	0.79	1.18	0.55	F-07	3.54	2.17	0.16	0.59	2.76	0.34	9.7
10	9.69	12.48	10.83	2.68	11.54	12.01	9.41	0.98	1.97	0.71	F-12	5.91	3.35	0.16	0.79	4.92	0.51	17.2
12	11.69	14.69	12.20	3.07	13.58	14.06	11.38	0.98	1.97	0.71	F-12	5.91	3.35	0.16	0.79	4.92	0.51	23.8

C_V VALUES

Size (NPS) / Disc opening	1.5	2	2.5	3	4	5	6	8	10	12
10°	-	-	-	-	-	-	-	-	22.62	54.87
20°	0.70	1.04	2.78	5.80	10.67	17.17	25.98	61.48	175	364
30°	4.41	6.84	12.88	23.66	43.62	77.49	125	237	348	428
40°	10.67	16.59	30.39	54.98	98.37	166	256	455	664	833
50°	21.00	32.83	57.65	102	179	295	442	762	1109	1406
60°	38.86	59.86	101	175	302	487	720	1218	1786	2312
70°	58.00	103	181	318	490	768	1181	2008	3048	4204
80°	61.48	117	244	487	816	1281	1967	3417	5355	7671
90°	62.64	118	251	507	841	1320	2028	3711	6900	11452

FLANGE DRILLING COMPATIBILITY

Size (NPS) / Flange standard	1.5	2	2.5	3	4	5	6	8	10	12
PN 6/10/16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ASME 150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JIS 10K	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
JIS 5K	X	X	✓	X	X	✓	✓	X	X	X
AS 2129, Table E	✓	✓	X	✓	✓	✓	✓	✓	✓	✓



HANDLE DIMENSIONS F419 / VALVE DIMENSIONS

Size (NPS)	Type	B	C	D	K	Y	Z	Mass (lbs)
1.5	F419	2.2	5.12	1.3	1.57	5.24	7.09	1.5
2	F419	2.48	5.31	1.69	1.57	5.43	7.09	2.0
2.5	F419	2.99	5.91	1.81	2.13	6.06	10.51	3.3
3	F419	3.46	6.3	1.81	2.13	6.46	10.51	3.5
4	F419	4.02	7.09	2.05	2.13	7.24	10.51	4.6
5	F419	4.72	7.68	2.2	2.13	7.83	10.51	6.6
6	F419	5.2	8.27	2.2	2.13	8.43	10.51	7.5

SIZING TORQUES (IN LBS) [1]

ΔP (psi) / Size (NPS)	1.5	2	2.5	3	4	5	6	8	10	12
Application I										
50	71	89	133	186	266	407	575	1053	1708	2443
100	71	97	142	195	283	443	628	1159	1912	2744
150	80	97	150	212	310	496	699	1328	2230	3195
232	79	97	159	320	336	549	770			
Application II										
50	80	97	150	204	301	469	655	1195	1938	2770
100	80	106	159	212	319	504	708	1310	2142	3071
150	80	106	168	230	345	558	779	1478	2460	3522
232	88	115	177	248	372	611	850			
Application III										
50	106	133	204	283	425	655	929	1682	2708	3885
100	106	142	212	301	443	699	991	1823	2974	4257
150	106	142	230	319	478	761	1080	2027	3363	4823
232	115	150	248	336	513	823	1168			

[1] For standard EPDM/NBR seat only, see note 5 for potable water approved EPDM & FKM-B seat

MAXIMUM ALLOWABLE SHAFT TORQUES (IN LBS)

Valve size (NPS)	1.5	2	2.5	3	4	5	6	8	10	12
SS 1.4057	531.40	531.40	974.23	1417.06	1859.89	3099.81	3985.47	4871.13	8590.90	8590.90

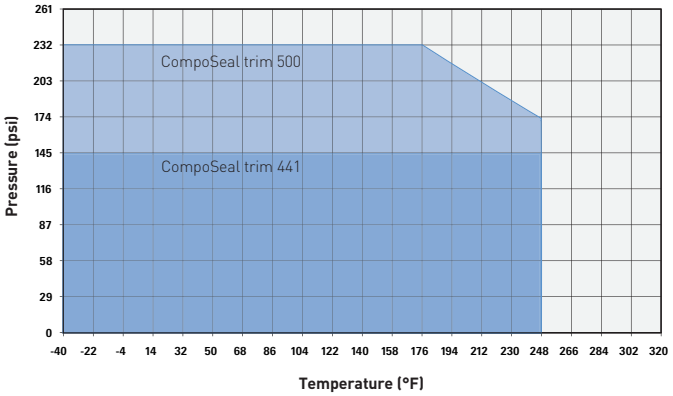
NOTES

1. **Application I:**
   Water, seawater, lubricating types of hydrocarbons. Temp.: 0°F - 176°F;
   Valve opens at least once a month.
   Application II:
   All other liquid applications and lubricating gasses.
   Application III:
   Non lubricating and dry media.
2. The charted maximum sizing operating torque is the sum of all friction and resistance for opening and closing of the disc against the indicated pressure differential.
3. The effect of dynamic torque is not considered in tabulation.
4. In sizing operators it is not necessary to include safety-factors.
5. The specified sizing torque applicable for standard EPDM/NBR seat (used in trim 441/443). Torque values for potable water approved version & FKM-B are based on the following factors:
   Application I: as listed
   Application II: multiplier 1.5
   Application III: multiplier 2

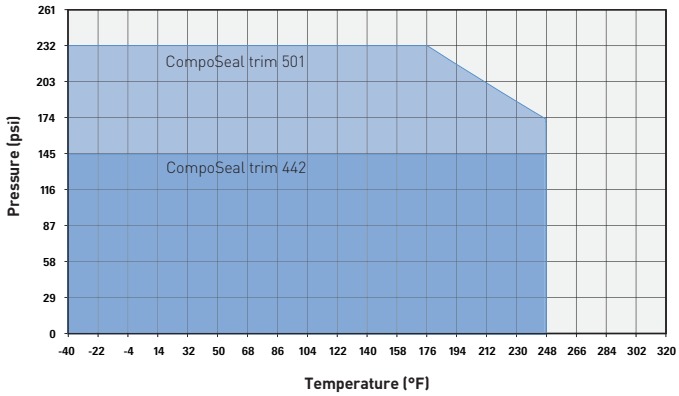
VALVE MATERIAL SELECTION

Body	Disc	Shaft	Seat	Flange O-ring	Sizes	Trim	Remarks
Composite XP1600	Composite XP1620	Stainless steel 1.4057	EPDM	EPDM-WA	NPS 1.5-12	441	
Composite XP1600	Composite XP1620	Stainless steel 1.4057	EPDM-WA	EPDM-WA	NPS 1.5-12	442	Potable water approved
Composite XP1600	Composite XP1620	Stainless steel 1.4057	NBR	NBR	NPS 1.5-12	443	
Composite XP1620	Composite XP1620	Stainless steel 1.4057	EPDM	EPDM-WA	NPS 1.5-6	500	
Composite XP1620	Composite XP1620	Stainless steel 1.4057	EPDM-WA	EPDM-WA	NPS 1.5-6	501	Potable water approved
Composite XP1620	Composite XP1620	Stainless steel 1.4057	NBR	NBR	NPS 1.5-6	444	
Composite XP1620	Composite XP1620	Stainless steel 1.4057	FKM-B	FKM-B	NPS 1.5-6	502	

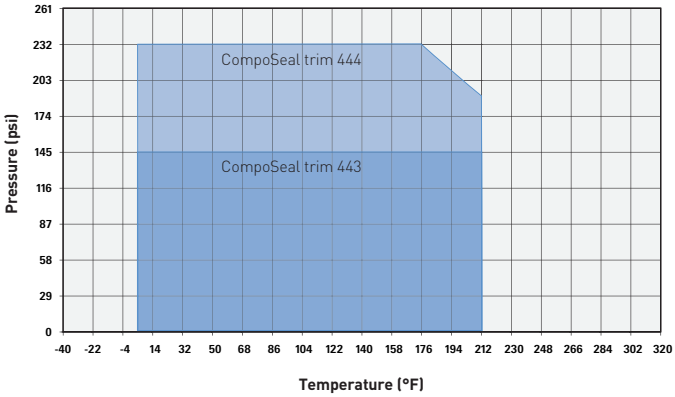
PT diagram CompoSeal with EPDM seat



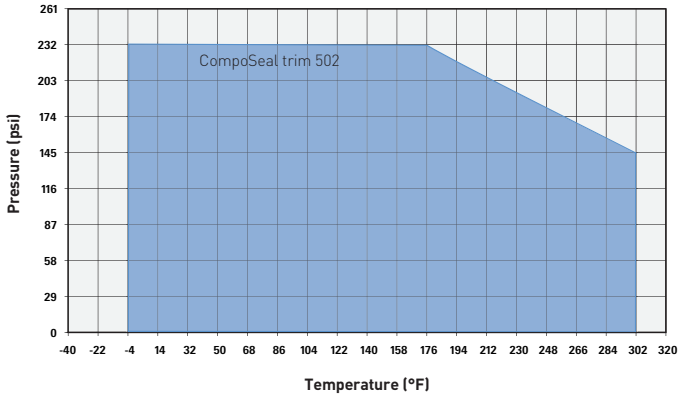
PT diagram CompoSeal with EPDM-WA seat



PT diagram CompoSeal with NBR seat



PT diagram CompoSeal with FKM-B seat



ITEM NUMBER CLARIFICATION

Type	Body style	Flange pattern / face to face	Operation/Connection	Variant
CSW = CompoSeal	W = Wafer	ML = Multidrilled PN 6/10/16/A150/JIS10K/AS2129-E	B = Bare shaft	00 = Standard
		MM = Multidrilled PN 6/10/16/A150/JIS10K	L = Lever operated	
		MN = Multidrilled PN 6/10/16/A150/AS2129-E		

EXAMPLE SET-UP ITEM NUMBER

Type	Size (NPS)	Trim	Body style	Flange pattern	Operation	Variant
CSW	2	441	W	ML	L	00