



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



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 12 m/sec.
- Spindle and primary valve seals are not influenced by the flange bolting force or pipe flange type.
- High K_v (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.
- 4 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).

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.

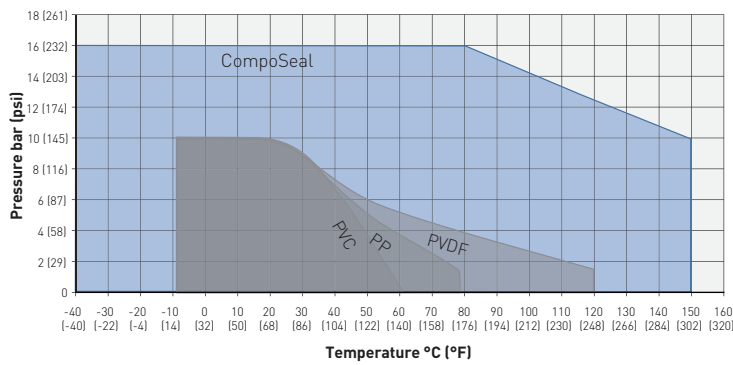
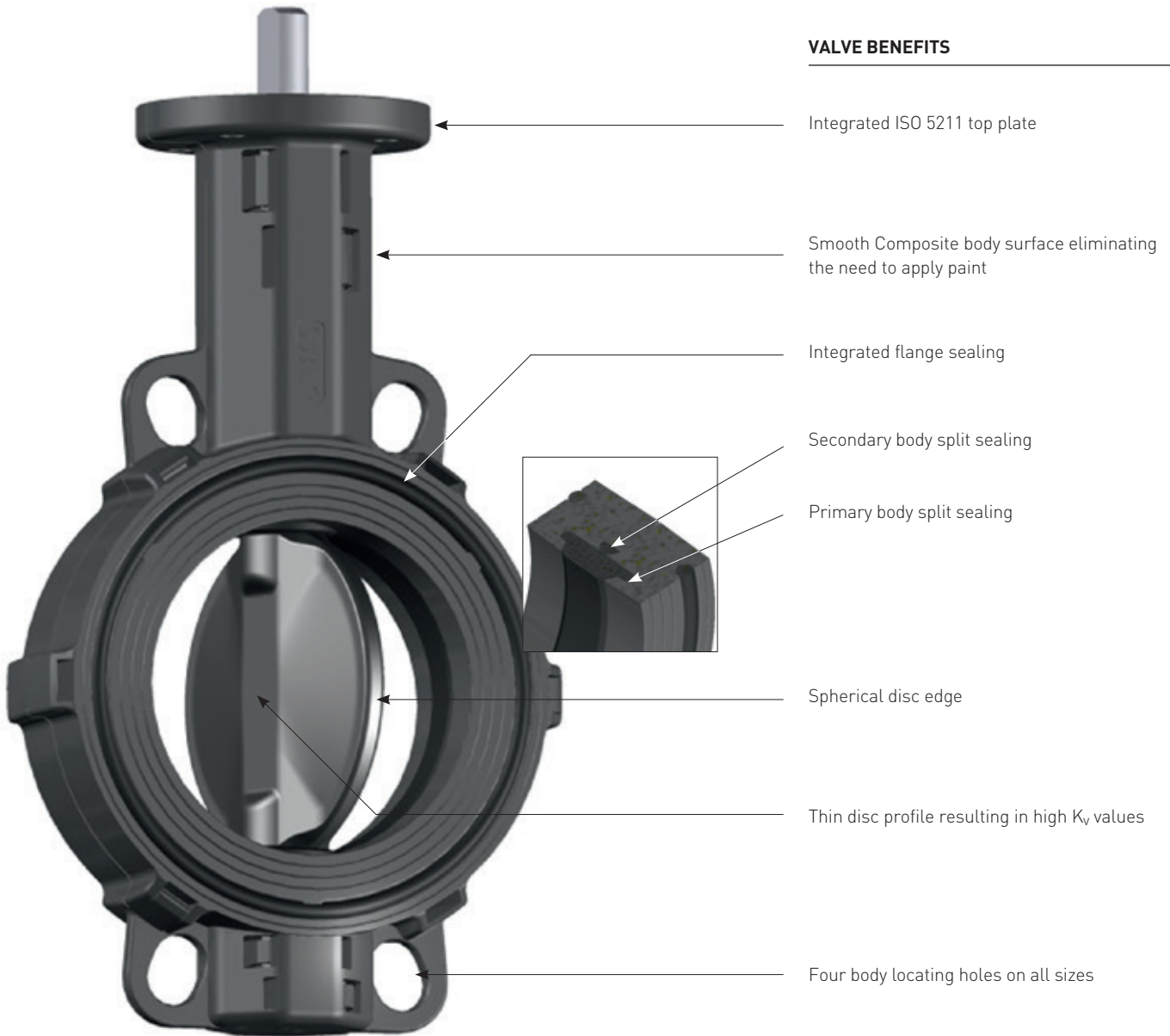
TECHNICAL DATA

Size:	DN 40 - 300 (NPS 1.5 - 12)
Temperature:	-40°C up to +150°C (-40°F up to +300°F)
Pressure rating:	10 bar/16 bar (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

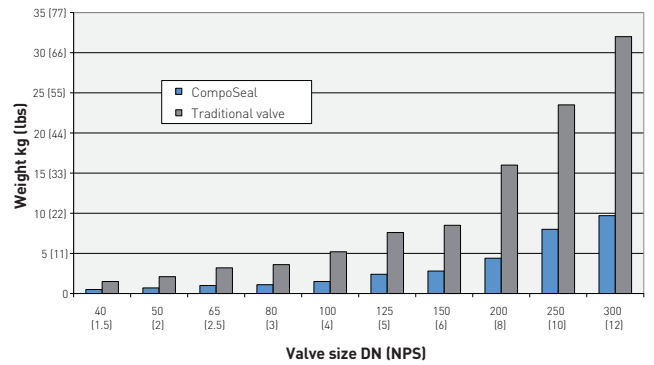


KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES WAFER STYLE

VALVE BENEFITS



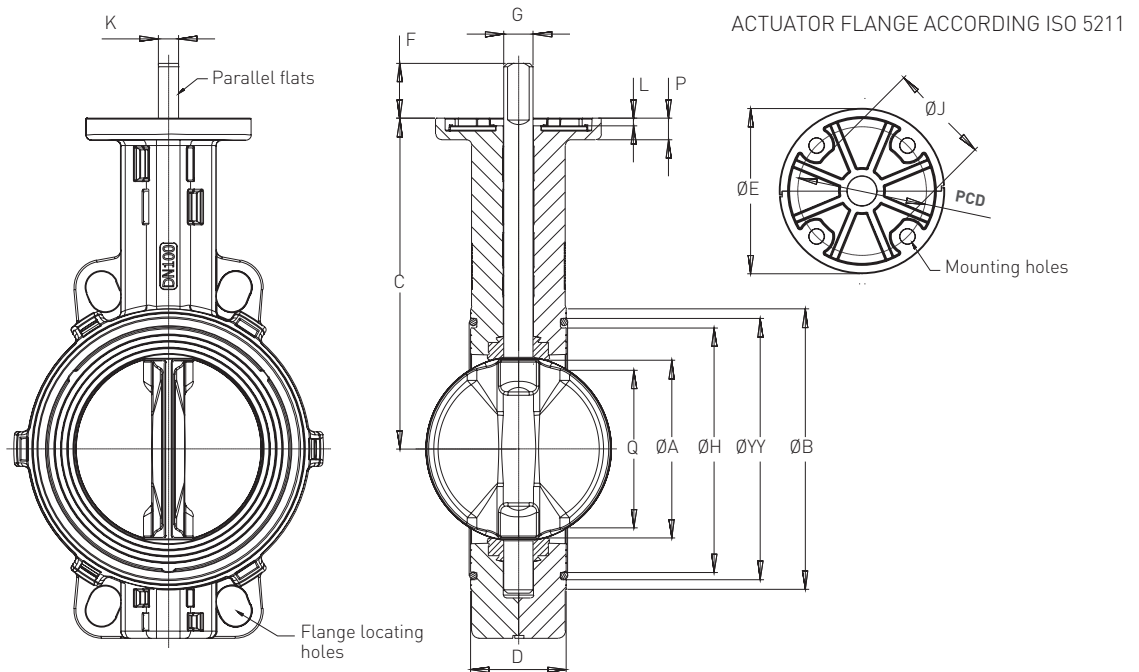
Pressure temperature comparison
CompoSeal vs. traditional plastic valves such as PVC, PP and PVDF



Weight comparison CompoSeal vs. traditional iron valves

KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES

VALVE DATA - METRIC



VALVE DIMENSIONS (mm)

Size (DN)	A	B	C	D	H	YY	Q	Parallel flats			Type	E	J	L	P	PCD	Hole	Mass (kg)
								G_{H9}	F	$K_{0.05}$								
40	40	77	130	33	62	70	25	12	25	8	F-05	65	35	4	10	50	6.6	0.6
50	52	93	135	43	78	86	31	12	25	8	F-05	65	35	4	10	50	6.6	0.8
65	62	108	150	46	91	99	43	16	30	11	F-07	90	55	4	12	70	8.6	1.2
80	78	125	160	46	106	116	65	16	30	11	F-07	90	55	4	12	70	8.6	1.3
100	100	153	180	52	132	142	87	16	30	11	F-07	90	55	4	12	70	8.6	1.8
125	125	182	195	56	160	170	113	20	30	14	F-07	90	55	4	15	70	8.6	2.7
150	150	208	210	56	185	195	140	20	30	14	F-07	90	55	4	15	70	8.6	3.1
200	200	262	240	60	240	250	192	20	30	14	F-07	90	55	4	15	70	8.6	4.4
250	246	317	275	68	293	305	239	25	50	18	F-12	150	85	4	20	125	13.0	7.8
300	297	373	310	78	345	357	289	25	50	18	F-12	150	85	4	20	125	13.0	10.8

Kv (Cv) VALUES

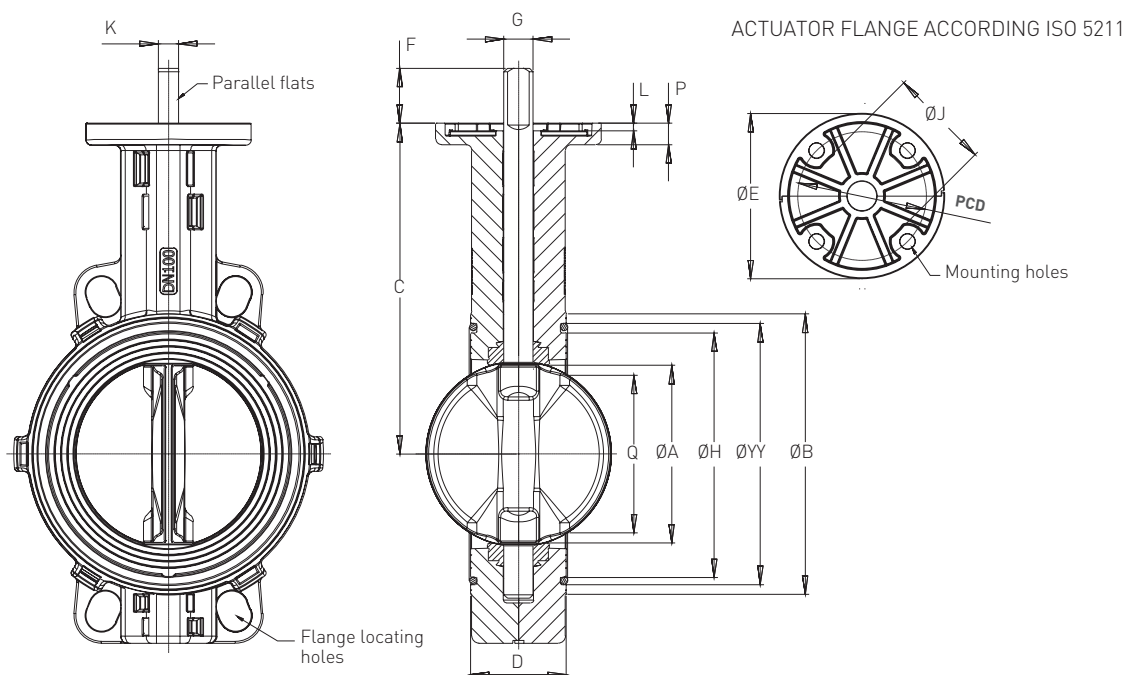
Disc opening	Size DN (NPS)									
	40 (1.5)	50 (2)	65 (2.5)	80 (3)	100 (4)	125 (5)	150 (6)	200 (8)	250 (10)	300 (12)
10°	-	-	-	-	-	-	-	-	19.5 [22.62]	47.3 [54.87]
20°	0.6 [0.70]	0.9 [1.04]	2.4 [2.78]	5.0 [5.80]	9.2 [10.67]	14.8 [17.17]	22.4 [25.98]	53.0 [61.48]	151.0 [175.00]	314.0 [364.00]
30°	3.8 [4.41]	5.9 [6.84]	11.1 [12.88]	20.4 [23.66]	37.6 [43.62]	66.8 [77.49]	108.0 [125.00]	204.0 [237.00]	300.0 [348.00]	369.0 [428.00]
40°	9.2 [10.67]	14.3 [16.59]	26.2 [30.39]	47.4 [54.98]	84.8 [98.37]	143.0 [166.00]	221.0 [256.00]	392.0 [455.00]	572.0 [664.00]	718.0 [833.00]
50°	18.1 [21.00]	28.3 [32.83]	49.7 [57.65]	87.9 [102.00]	154.0 [179.00]	254.0 [295.00]	381.0 [442.00]	657.0 [762.00]	956.0 [1109.00]	1212.0 [1406.00]
60°	33.5 [38.86]	51.6 [59.86]	87.4 [101.00]	151.0 [175.00]	260.0 [302.00]	420.0 [487.00]	621.0 [720.00]	1050.0 [1218.00]	1540.0 [1786.00]	1993.0 [2312.00]
70°	50.0 [58.00]	88.6 [103.00]	156.0 [181.00]	274.0 [318.00]	426.0 [490.00]	668.0 [768.00]	1027.0 [1181.00]	1731.0 [2008.00]	2628.0 [3048.00]	3624.0 [4204.00]
80°	53.0 [61.48]	101.0 [117.00]	210.0 [244.00]	420.0 [487.00]	710.0 [816.00]	1114.0 [1281.00]	1711.0 [1967.00]	2946.0 [3417.00]	4616.0 [5355.00]	6613.0 [7671.00]
90°	54.0 [62.64]	102.0 [118.00]	216.0 [251.00]	437.0 [507.00]	732.0 [841.00]	1148.0 [1320.00]	1764.0 [2028.00]	3199.0 [3711.00]	5948.0 [6900.00]	9872.0 [11452.00]

FLANGE DRILLING COMPATIBILITY

Flange standard	Size DN (NPS)									
	40 (1.5)	50 (2)	65 (2.5)	80 (3)	100 (4)	125 (5)	150 (6)	200 (8)	250 (10)	300 (12)
PN 6/10/16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ASME 150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JIS 10K	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
JIS 5K	X	X	✓	X	X	✓	✓	X	X	X
AS 2129, Table E	✓	✓	X	✓	✓	✓	✓	✓	✓	✓

KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES

VALVE DATA - IMPERIAL

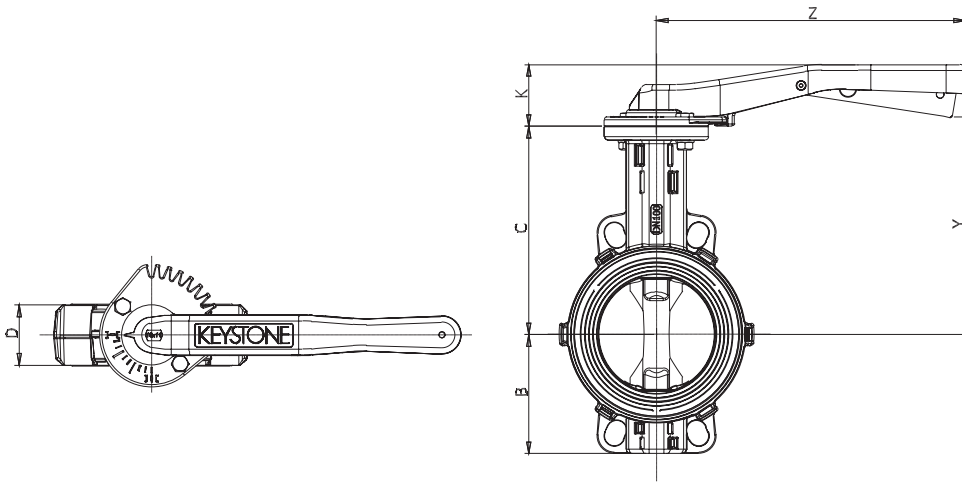


VALVE DIMENSIONS (inches)

Size (NPS)	A	B	C	D	H	YY	Q	Parallel flats			Type	E	J	L	P	PCD	Hole	Mass (lbs)
								G _{h9}	F	K _{0.05}								
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

KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES

VALVE DATA AND TORQUES



HANDLE DIMENSIONS F419 / VALVE DIMENSIONS

Size DN (NPS)	Type	B	C	D	K	Y	Z	Mass kg (lbs)
40 (1.5)	F419	56 [2.20]	130 [5.12]	33 [1.30]	40 [1.57]	133 [5.24]	180 [7.09]	0.7 [1.5]
50 (2)	F419	63 [2.48]	135 [5.31]	43 [1.69]	40 [1.57]	138 [5.43]	180 [7.09]	0.9 [2.0]
65 (2.5)	F419	76 [2.99]	150 [5.91]	46 [1.81]	54 [2.13]	154 [6.06]	267 [10.51]	1.5 [3.3]
80 (3)	F419	88 [3.46]	160 [6.30]	46 [1.81]	54 [2.13]	164 [6.46]	267 [10.51]	1.6 [3.5]
100 (4)	F419	102 [4.02]	180 [7.09]	52 [2.05]	54 [2.13]	184 [7.24]	267 [10.51]	2.1 [4.6]
125 (5)	F419	120 [4.72]	195 [7.68]	56 [2.20]	54 [2.13]	199 [7.83]	267 [10.51]	3.0 [6.6]
150 (6)	F419	132 [5.20]	210 [8.27]	56 [2.20]	54 [2.13]	214 [8.43]	267 [10.51]	3.4 [7.5]

SIZING TORQUES (Nm/lbs) FOR STANDARD EPDM/NBR ⁽¹⁾

Application ΔP bar (psi)	Size DN (NPS)									
	40 (1.5)	50 (2)	65 (2.5)	80 (3)	100 (4)	125 (5)	150 (6)	200 (8)	250 (10)	300 (12)
I										
3.5 (50)	8 (71)	10 (89)	15 (133)	21 (186)	30 (266)	46 (407)	65 (575)	119 (1053)	193 (1708)	276 (2443)
7 (100)	8 (71)	11 (97)	16 (142)	22 (195)	32 (283)	50 (443)	71 (628)	131 (1159)	216 (1912)	310 (2744)
10 (150)	9 (80)	11 (97)	17 (150)	24 (212)	35 (310)	56 (496)	79 (699)	150 (1328)	252 (2230)	361 (3195)
16 (232)	9 (79)	11 (97)	18 (159)	26 (320)	38 (336)	62 (549)	87 (770)			
II										
3.5 (50)	9 (80)	11 (97)	17 (150)	23 (204)	34 (301)	53 (469)	74 (655)	135 (1195)	219 (1938)	313 (2770)
7 (100)	9 (80)	12 (106)	18 (159)	24 (212)	36 (319)	57 (504)	80 (708)	148 (1310)	242 (2142)	347 (3071)
10 (150)	9 (80)	12 (106)	19 (168)	26 (230)	39 (345)	63 (558)	88 (779)	167 (1478)	278 (2460)	398 (3522)
16 (232)	10 (88)	13 (115)	20 (177)	28 (248)	42 (372)	69 (611)	96 (850)			
III										
3.5 (50)	12 (106)	15 (133)	23 (204)	32 (283)	48 (425)	74 (655)	105 (929)	190 (1682)	306 (2708)	439 (3885)
7 (100)	12 (106)	16 (142)	24 (212)	34 (301)	50 (443)	79 (699)	112 (991)	206 (1823)	336 (2974)	481 (4257)
10 (150)	12 (106)	16 (142)	26 (230)	36 (319)	54 (478)	86 (761)	122 (1080)	229 (2027)	380 (3363)	545 (4823)
16 (232)	13 (115)	17 (150)	28 (248)	38 (336)	58 (513)	93 (823)	132 (1168)			

⁽¹⁾ See note 6 for potable water approved EPDM and FKM-B seat. See note 7 for CIP application.

MAXIMUM ALLOWABLE SHAFT TORQUES Nm (lbs)

Valve size DN (NPS)	40 (1.5)	50 (2)	65 (2.5)	80 (3)	100 (4)	125 (5)	150 (6)	200 (8)	250 (10)	300 (12)
SS 1.4057	60	60	110	160	210	350	450	550	970	970
	[531.40]	[531.40]	[974.23]	[1417.06]	[1859.89]	[3099.81]	[3985.47]	[4871.13]	[8590.90]	[8590.90]

NOTES

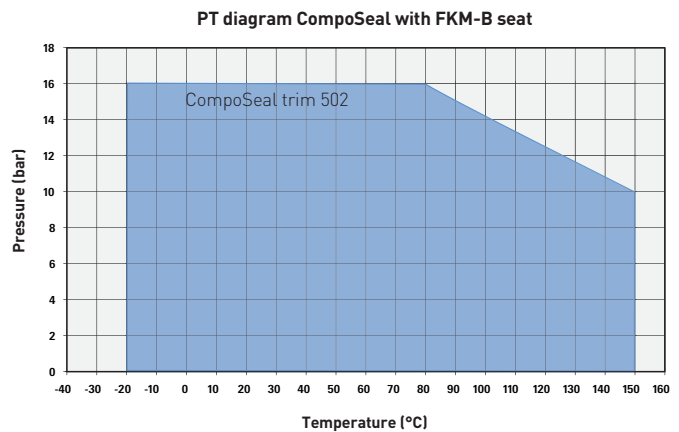
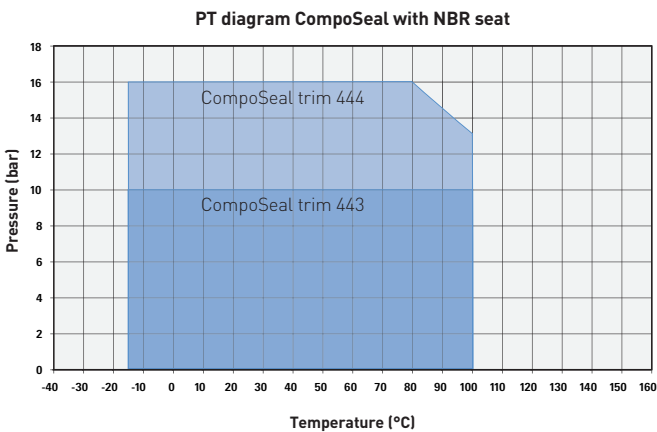
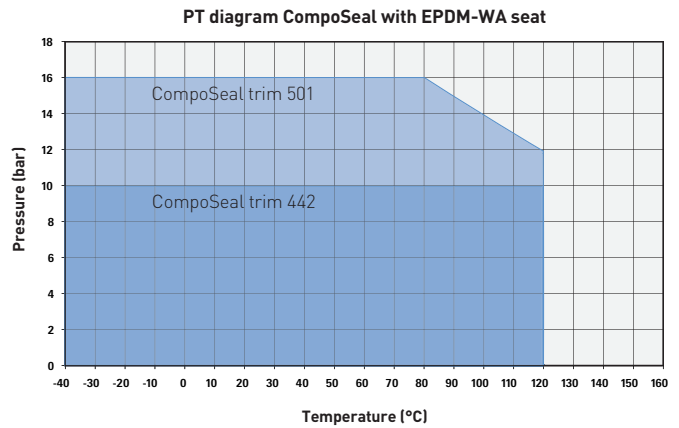
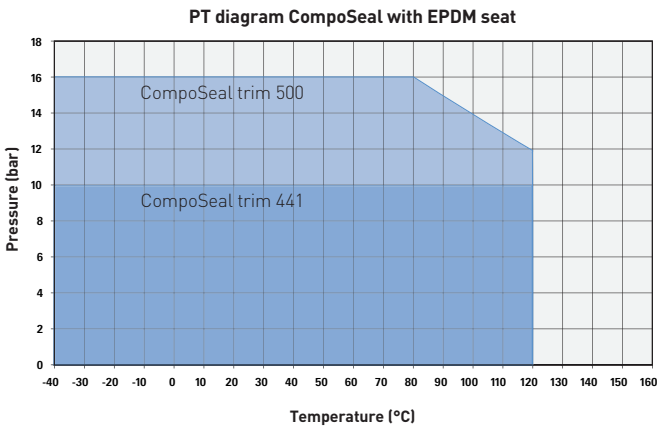
- The specified sizing torque is applicable for standard EPDM/NBR seat (used in trim 441/443).
- Application I:**
Water, seawater, lubricating types of hydrocarbons. Temp.: 0°C - 80°C (0°F - 176°F); Valve opens at least once a month.
Application II:
All other liquid applications and lubricating gasses.
Application III:
Non lubricating and dry media.
- 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.
- The effect of dynamic torque is not considered in tabulation.
- In sizing operators it is not necessary to include safety-factors.
- Torque values for potable water approved version of EPDM and FKM-B are based on the following factors:
Application I: as listed
Application II: multiplier 1.5
Application III: multiplier 2
- For potable water approved version of EPDM used in CIP chlorinated caustic cleaner, use values of Application III with multiplier 2.

KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES

MATERIALS AND PRESSURE RATINGS - METRIC

VALVE MATERIAL SELECTION

Body	Disc	Shaft	Seat	Flange O-ring	Sizes	Trim	Remarks
Composite XP1600	Composite XP1620	Stainless steel 1.4057	EPDM	EPDM-WA	DN 40-300	441	
Composite XP1600	Composite XP1620	Stainless steel 1.4057	EPDM-WA	EPDM-WA	DN 40-300	442	Potable water approved
Composite XP1600	Composite XP1620	Stainless steel 1.4057	NBR	NBR	DN 40-300	443	
Composite XP1620	Composite XP1620	Stainless steel 1.4057	EPDM	EPDM-WA	DN 40-150	500	
Composite XP1620	Composite XP1620	Stainless steel 1.4057	EPDM-WA	EPDM-WA	DN 40-150	501	Potable water approved
Composite XP1620	Composite XP1620	Stainless steel 1.4057	NBR	NBR	DN 40-150	444	
Composite XP1620	Composite XP1620	Stainless steel 1.4057	FKM-B	FKM-B	DN 40-150	502	



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

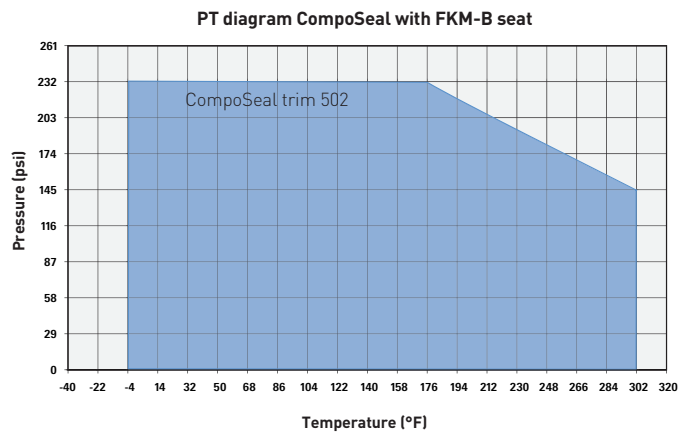
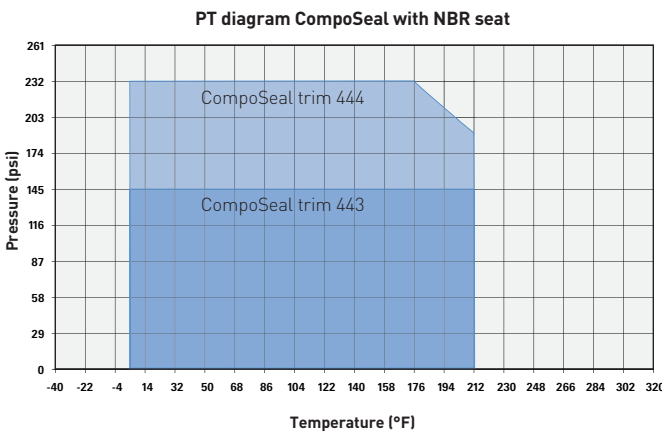
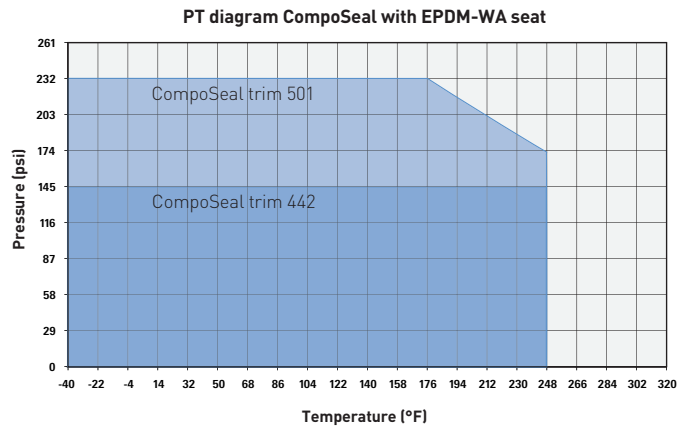
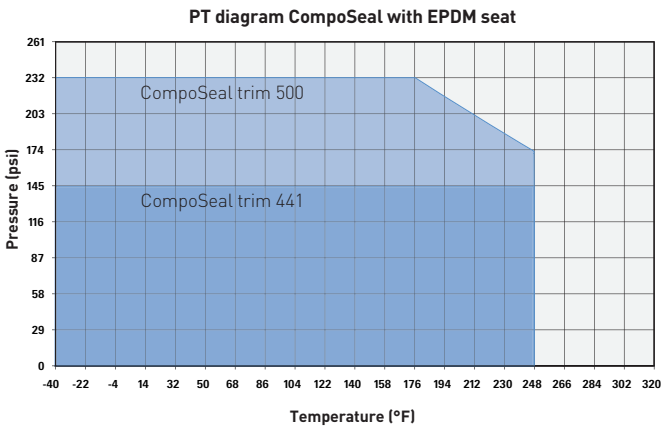
Type	Size DN	Trim	Body style	Flange pattern	Operation	Variant
CSW	050	441	W	ML	L	00

KEYSTONE COMPOSEAL RESILIENT SEATED BUTTERFLY VALVES

MATERIALS AND PRESSURE RATINGS - IMPERIAL

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	



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

