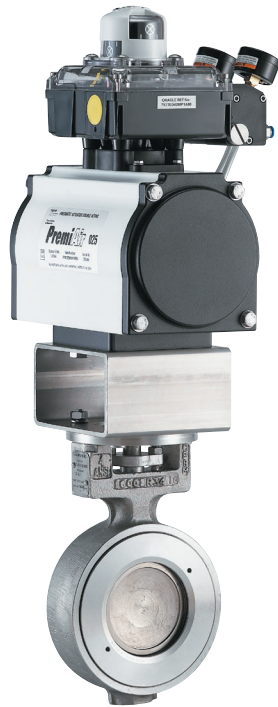




## KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY VALVE

Hi-Seal, high performance butterfly valves offer efficient, bi-directional sealing across a wide spectrum of service conditions



### FEATURES

- Positive sealing which is mechanically achieved and does not rely on line pressure assistance.
- Bi-directional shut-off performance.
- Body design options: wafer, lugged or double flanged.
- Suitable for use on end-of-line service (lugged and double flanged).
- Available in 3 design options. Soft seated, fire-safe or metal seated.
- Compact design, minimizes weight, installation and maintenance costs.
- Long life durability due to double offset operating principle minimizing seat wear.
- One piece shaft for maximum strength and safety with long life.
- Accessible packing adjustment without operator removal.
- Fast and simple seat replacement.

### GENERAL APPLICATIONS

#### Design options

- Soft seated
- Fire safe
- Metal seated

### TECHNICAL DATA

Pressure class	Size range
ASME 150	NPS 2 - 48
PN 10/16	DN 50-1200
ASME 300	NPS 2 - 24
PN 25/40	DN 50-600
ASME 600	on application
PN 64/100	on application

# KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY

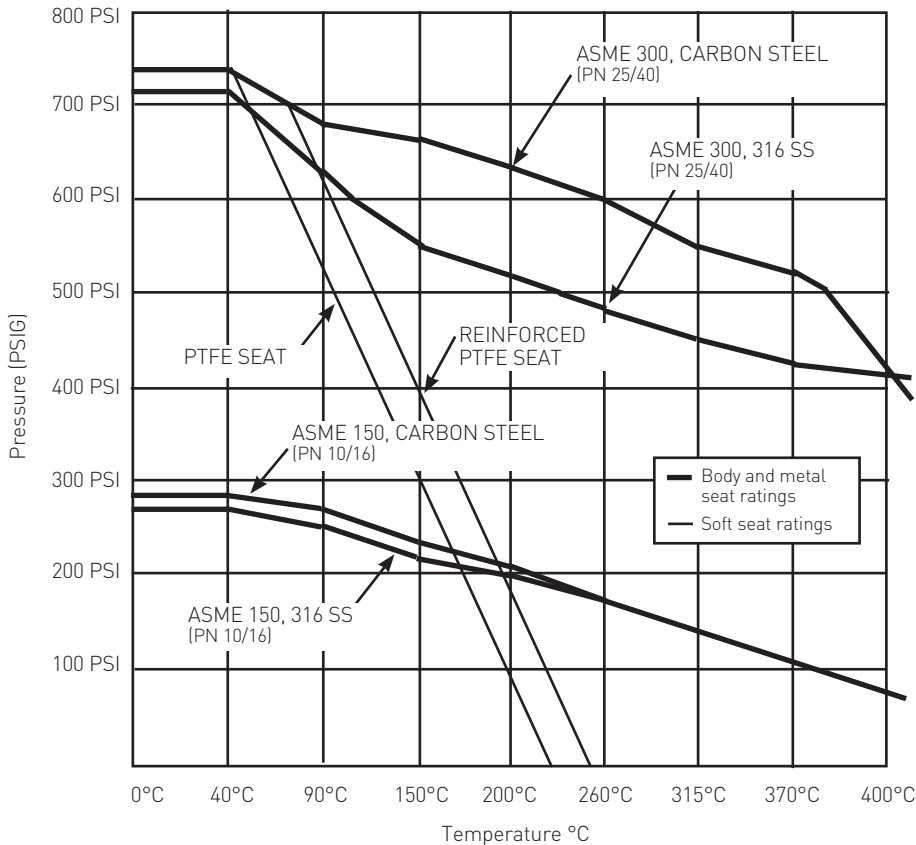
Technical specifications	
<b>Design</b>	API 609, BS EN 593, MSS SP-68 TRB 801 (available on request)
<b>Wall section</b>	ASME B16.34
<b>End flange compatability</b>	ASME B16.5, PN 10/16, 25/40, ASME B16.47 Series A
<b>Face to face</b>	BS EN 558, API 609 and DIN 3202 K1, K2
<b>Pressure/temperature rating</b>	ASME B16.34
<b>Fire test certification</b>	BS EN ISO 10497, BS 6755 Pt 2, API 6FA, API 607
<b>Material certification</b>	EN 10204 (DIN 50049 3.1.b) NACE MR0103*
<b>Pressure testing</b>	BS EN 12266 Pt 1, BS ISO 5208, API 598
<b>Factory quality system</b>	ISO 9001
<b>ISO top mounting flange (when specified)</b>	ISO 5211

\* Materials of construction conform to the requirements of NACE Standard MR0103 - 2003.  
Compliance to NACE MR0175 / ISO 15156 on request.

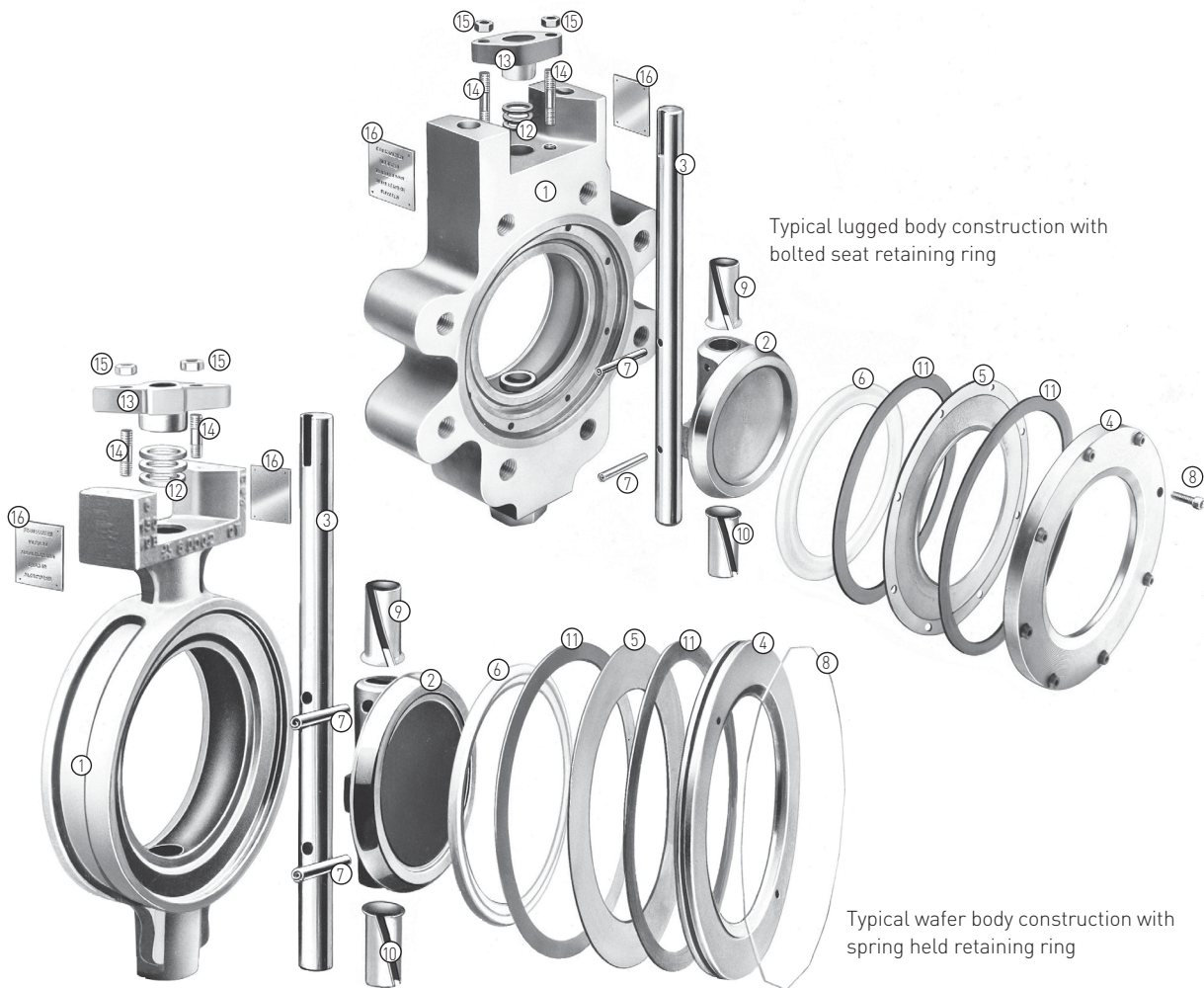
## PRESSURE/TEMPERATURE GRAPH

### NOTES

1. The maximum working capability of any valve is either the body rating or the seat shut-off capability, whichever is the lower.
2. The seat ratings shown are based on data from API 609.
3. The body ratings shown are from ASME B16.34.



# KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY



## MATERIALS OF CONSTRUCTION

Fire safe models				
Item	Description	Carbon steel valves	Stainless steel valves	Aluminium bronze valves
1	Body	ASTM A216 WCC	ASTM A351 CF8M	
2	Disc	ASTM A351 CF8M ENP	ASTM A351 CF8M ENP	
3	Shaft	ASTM A564 Gr630 (17- 4PH)	ASTM A564 Gr630 (17- 4PH)	Alloy K 500
4	Retaining ring	ASTM A216 WCC	ASTM A351 CF8M	ASTM B148 C95800/AB2
5	Metal seat	Alloy 625	Alloy 625	Alloy 625
6	Soft seat	Virgin PTFE	Virgin PTFE	Virgin PTFE
7	Disc pin	AISI 302	AISI 302	Alloy K 500
8	Retaining ring screw	High tensile steel	ASTM A193 GR B8X	Allow K 500
9	Shaft bearing - top	PTFE Composite	PTFE Composite	PTFE Composite
10	Shaft bearing - bottom	PTFE Composite	PTFE Composite	PTFE Composite
11	Body gasket	Graphite	Graphite	Graphite
12	Gland packing	Graphite	Graphite	Graphite
13	Gland follower/flange	ASTM A351 CF8M	ASTM A351 CF8M	ASTM A351 CF8M
14	Gland stud	ASTM A193 GR B7	BS EN ISO 3506 A4 GR70	BS EN ISO 3506 A4 GR70
15	Gland nut	ASTM A194 GR 2H	BS EN ISO 3506 A4 GR70	BS EN ISO 3506 A4 GR70
16	Identification plates	Stainless steel	Stainless steel	Stainless steel
Soft seated models <sup>[2]</sup>				
2	Disc	ASTM A351 CF8M	ASTM A351 CF8M	
5	Seat energizer	Alloy 625	Alloy 625	Alloy 625
8	Retaining ring spring	Stainless steel	Stainless steel	Phosphor bronze
12	Gland packing	Virgin PTFE	Virgin PTFE	Virgin PTFE

## NOTES

1. On valve sizes above NPS 12 [DN 300] a bolted base plate is provided.
2. Materials for soft seated models are the same as for Fire Safe models, except as stated.

# KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY VALVE

## DIMENSIONS

### ALTERNATIVE MATERIALS

#### Body

Duplex stainless steels	6 Mo
Inconel	Ferralium
Hastelloy	Titanium
Monel	
Other materials on request	

#### Seat

RTFE (Reinforced PTFE)
UHMPE (Ultra High Molecular Weight Polyethelene)
PEEK (PolyetheretherKetone)

#### Metal seated valves

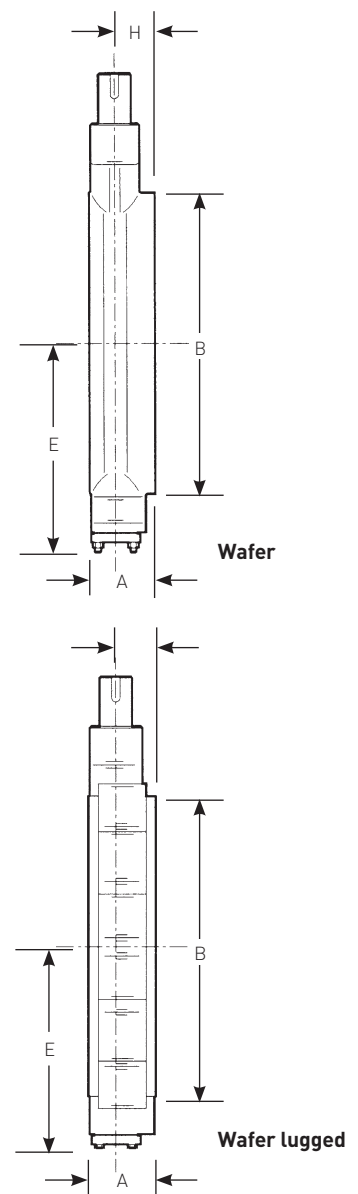
Inconel

### VALVE OUTLINE - PN 10/16

NPS	DN	A	B	D	H	E	P	R
2	50	43	102	115	25.0	74	4	M16
3	80	47	138	135	27.5	82	8	M16
4	100	52	162	159	30.0	113	8	M16
5	125	56	188	164	35.0	116	8	M16
6	150	56	216	178	32.0	131	8	M20
8	200	61	270	204	35.5	165	12	M20
10	250	69	324	237	40.0	200	12	M24
12	300	79	381	286	45.0	233	12	M24
14	350	92	438	314	56.0	277	16	M24
16	400	102	490	343	62.0	318	16	M27
18	450	114	-	367	70.0	335	-	-
20	500	127	610	470	75.0	392	20	M30
24	600	154	725	524	94.0	460	20	M33
26	650	-	-	565	97.0	555	-	-
28	700	229	795	593	100.0	582	24	M33
30	750	-	-	625	100.0	614	-	-
32	800	241	900	651	110.0	579	24	M36
36	900	241	1000	779	130.0	729	28	M36
40	1000	300	1115	825	130.0	785	28	M39
42	1050	-	-	874	130.0	821	-	-
48	1200	350	1330	1040	155.0	979	32	M45

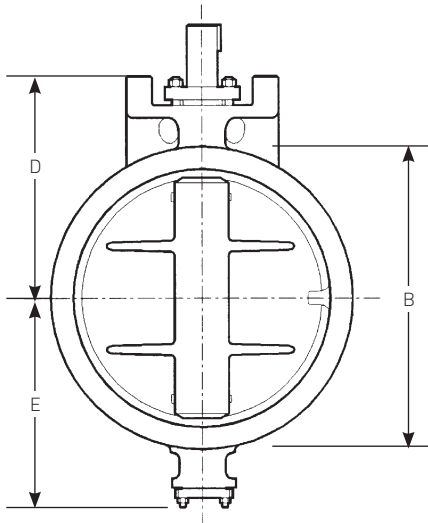
### VALVE OUTLINE - PN 25/40

NPS	DN	A	B	D	H	E	P	R (PN 25)	R (PN 40)
2	50	43	102	115	25.0	74	4	M16	M16
3	80	47	138	135	27.5	82	8	M16	M16
4	100	52	162	159	30.0	113	8	M20	M20
6	150	70	218	196	35.0	146	8	M24	M24
8	200	71	285	228	41.5	181	12	M24	M27
10	250	76	345	272	44.5	219	12	M27	M30
12	300	83	410	308	48.0	274	16	M27	M30
14	350	127	465	339	56.0	316	16	M30	M33
16	400	140	535	377	65.0	359	16	M33	M36
18	450	150	-	462	73.0	387	-	-	-
20	500	152	615	488	78.0	413	20	M33	M39
24	600	178	735	560	94.0	481	20	M36	M45



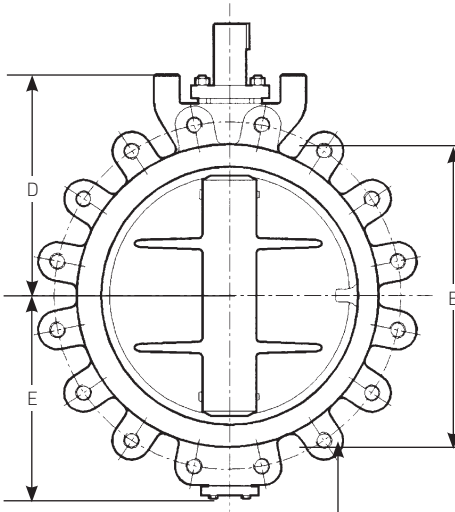
# KEYSTONE WINN HISEAL HIGH PERFORMANCE BUTTERFLY VALVE

## DIMENSIONS



**VALVE OUTLINE - ASME 150**

NPS	DN	A	B	D	H	E	P	R
2	50	43	102	115	25.0	74	4	5/8" UNC
3	80	47	138	135	27.5	82	4	5/8" UNC
4	100	52	162	159	30.0	113	8	5/8" UNC
5	125	56	188	164	35.0	116	8	3/4" UNC
6	150	56	216	178	32.0	131	8	3/4" UNC
8	200	61	270	204	35.5	165	8	3/4" UNC
10	250	69	324	237	40.0	200	12	7/8" UNC
12	300	79	381	286	45.0	233	12	7/8" UNC
14	350	92	413	314	56.0	277	12	1" UNC
16	400	102	470	343	62.0	318	16	1" UNC
18	450	114	533	367	70.0	335	16	1 1/8" 8 UN
20	500	127	584	470	75.0	392	20	1 1/8" 8 UN
24	600	154	692	524	94.0	460	20	1 1/4" 8 UN
26	650	165	743	565	97.0	555	24	1 1/4" 8 UN
28	700	229	794	593	100.0	582	28	1 1/4" 8 UN
30	750	229	857	625	100.0	614	28	1 1/4" 8 UN
32	800	241	908	651	110.0	579	28	1 1/2" 8 UN
36	900	241	1022	779	130.0	729	32	1 1/2" 8 UN
40	1000	241	1125	825	130.0	785	36	1 1/2" 8 UN
42	1050	300	1194	874	130.0	821	36	1 1/2" 8 UN
48	1200	350	1359	1040	155.0	979	44	1 1/2" 8 UN



**VALVE OUTLINE - ASME 300**

NPS	DN	A	B	D	H	E	P	R
2	50	43	102	115	25.0	74	8	5/8" UNC
3	80	47	138	135	27.5	82	8	3/4" UNC
4	100	52	162	159	30.0	113	8	3/4" UNC
6	150	59	218	196	35.0	146	12	3/4" UNC
8	200	71	285	228	41.5	181	12	7/8" UNC
10	250	83	345	272	44.5	219	16	1" UNC
12	300	92	410	308	48.0	274	16	1 1/8" 8 UN
14	350	117	465	339	56.0	316	20	1 1/8" 8 UN
16	400	133	470	377	65.0	359	20	1 1/4" 8 UN
18	450	150	560	462	73.0	387	24	1 1/4" 8 UN
20	500	159	584	488	78.0	413	24	1 1/4" 8 UN
24	600	178	735	560	94.0	481	24	1 1/2" 8 UN

P = No. of holes  
R = Size of holes

## WEIGHTS (kg)

ASME 150 / PN 16					ASME 300 / PN 25/40			
NPS	DN	Wafer	Lugged	Double flanged	NPS	DN	Wafer	Lugged
2	50	3.5	5.0	-	2	50	3.5	5.0
3	80	6.0	6.0	20	3	80	6.0	8.0
4	100	8.0	11.5	22	4	100	8.0	11.5
6	150	13.0	15.0	30	6	150	13.0	25.5
8	200	18.0	26.0	45	8	200	25.0	40.0
10	250	24.0	49.0	65	10	250	54.0	49.0
12	300	42.0	65.0	95	12	300	70.0	95.0
14	350	80.0	90.0	125	14	350	111.0	146.0
16	400	100.0	120.0	200	16	400	200.0	250.0
18	450	143.0	200.0	250	18	450	180.0	260.0
20	500	180.0	230.0	310	20	500	240.0	350.0
24	600	320.0	340.0	425	24	600	350.0	361.0

## NOTES

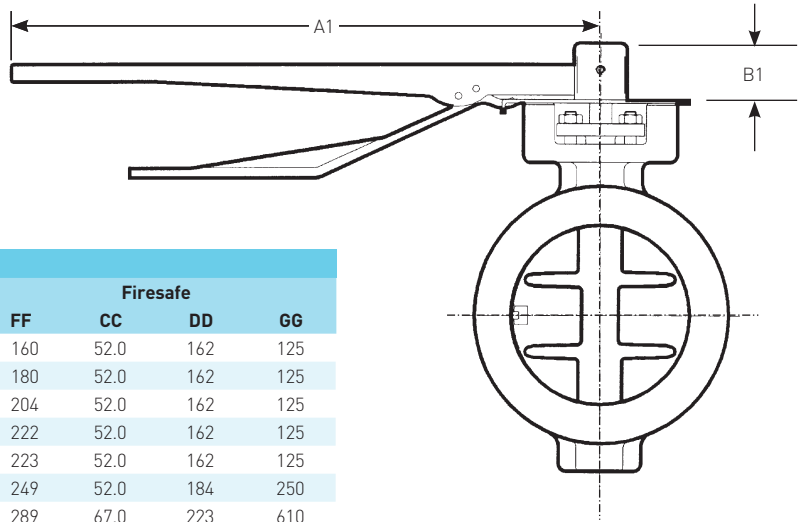
1. All weights are for bare shaft valves.

# KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY VALVE

## DIMENSIONS OPERATORS

### LEVER OPERATOR

NPS	DN	ASME 150		ASME 300	
		PN 10/16	B1	PN 25/40	B1
2	50	A1	42	A1	42
3	80	250	42	250	42
4	100	250	42	250	42
6	150	380	42	380	42
		500	52	500	52



### GEARBOX OPERATORS

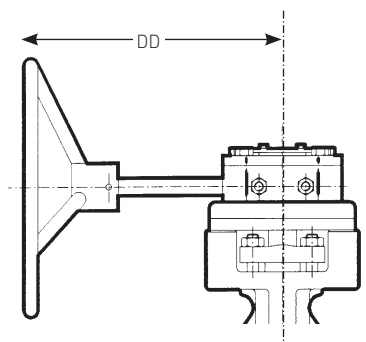
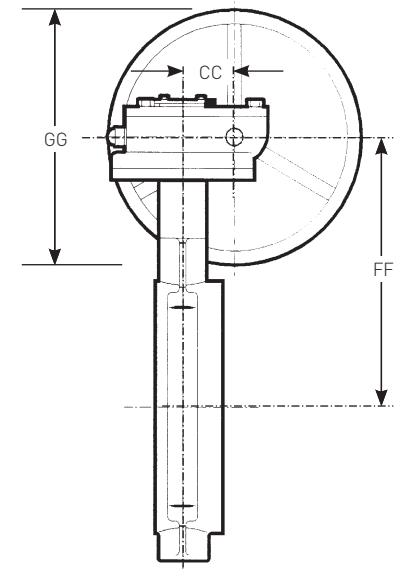
		ASME 150 / PN 16							
NPS	DN	Soft seated				Firesafe			
		FF	CC	DD	GG	FF	CC	DD	GG
2	50	160	52.0	162	125	160	52.0	162	125
3	80	180	52.0	162	125	180	52.0	162	125
4	100	204	52.0	162	125	204	52.0	162	125
5	125	222	52.0	162	125	222	52.0	162	125
6	150	223	52.0	162	125	223	52.0	162	125
8	200	249	52.0	169	200	249	52.0	184	250
10	250	289	67.0	195	200	289	67.0	223	610
12	300	338	67.0	210	250	338	67.0	293	457
14	350	374	90.0	310	610	374	90.0	310	610
16	400	403	123.0	362	610	403	123.0	400	762
18	450	433	123.0	402	762	433	154.0	427	762
20	500	536	154.0	427	762	552	53.5	462	457
24	600	606	53.5	462	457	606	53.5	462	457
26	650	628	181.0	535	610	688	181.0	535	610
28	700	656	181.0	535	610	656	181.0	535	610
30	750	688	181.0	535	610	688	181.0	535	610
32	800	714	181.0	535	610	714	181.0	535	610
36	900	842	181.0	535	610	842	181.0	535	610
40	1000	895	237.0	558	610	895	237.0	558	610
42	1050	944	237.0	558	610	944	237.0	558	610
48	1200	1110	237.0	558	610	1110	237.0	558	610

		ASME 300 / PN 25/40							
NPS	DN	Soft seated				Firesafe			
		FF	CC	DD	GG	FF	CC	DD	GG
2	50	160	60	162	127	160	60	162	127
3	80	180	60	162	127	180	60	162	127
4	100	204	60	162	127	204	60	162	127
6	150	241	52	169	203	241	52	169	203
8	200	280	67	210	254	280	67	255	457
10	250	324	67	255	457	332	90	272	457
12	300	368	90	304	610	368	123	356	610
14	350	399	123	356	610	399	154	419	762
16	400	437	154	419	762	441	54	426	457

		Gear operator ASME 300							
NPS	DN	Soft seated				Firesafe			
		FF	CC	DD	GG	FF	CC	DD	GG
18	450	544	54	462	457	544	54	462	457
20	500	570	54	497	610	568	68	549	762
24	600	640	68	549	762	641	97	565	762

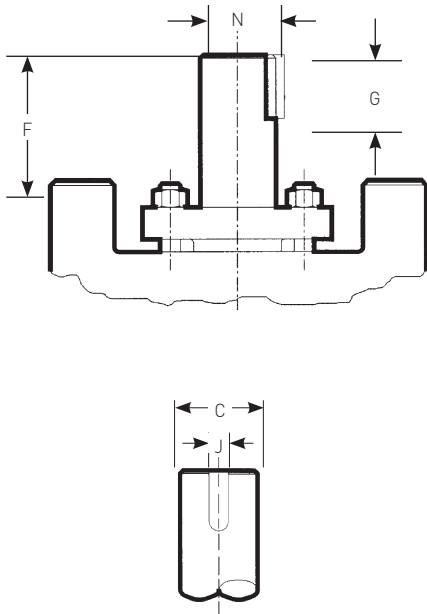
		Gear operator PN 25							
NPS	DN	Soft seated				Firesafe			
		FF	CC	DD	GG	FF	CC	DD	GG
20	500	570	54	462	457	570	54	462	457
24	600	642	54	462	457	642	54	533	762

		Gear operator PN 40							
NPS	DN	Soft seated				Firesafe			
		FF	CC	DD	GG	FF	CC	DD	GG
20	500	570	54	462	457	568	68	549	762
24	600	641	97	529	610	641	97	565	762



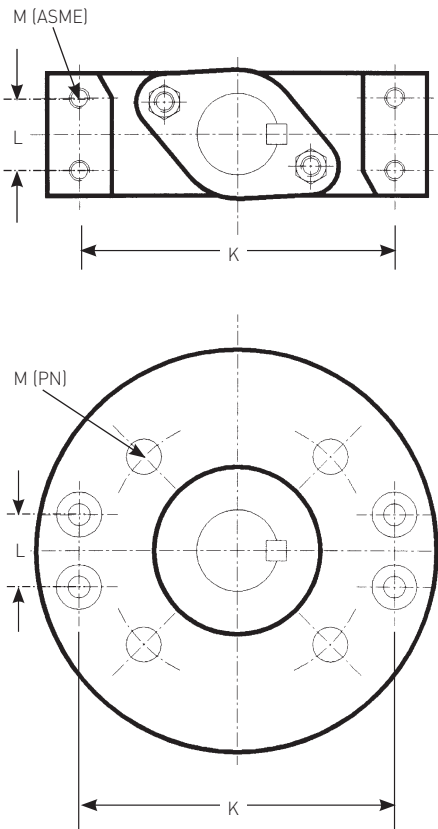
# KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY VALVE

## DIMENSIONS



### OPERATOR MOUNTING

Shaft		ASME 150 / PN 16					ASME 300 / PN 25/40				
NPS	DN	C	G	J	F	N	C	G	J	F	N
2	50	12.72/ 12.70	14	3.18/ 3.15	41	10.88/ 10.73	12.72/ 12.70	14	3.18/ 3.15	41	10.88/ 10.73
3	80	15.83	16	4.75	41	12.98	15.83	16	4.75	41	12.98
4	100	17.44	19	4.78	41	14.68	17.44	19	4.78	41	14.68
5	125	17.42	19	4.75	41	14.55					
6	150	19.04/ 19.02	22	4.75	52	4.75	23.77	35	6.35	52	20.14
8	200	23.75	38	6.32	52	20.01	31.70	44	7.93	52	27.23
10	250	31.68	44	7.90	52	27.10	34.88	56	9.53	56	29.44
12	300	34.85	56	9.50	56	29.33	41.23	65	11.13	70	34.95
14	350	41.20	65	11.10	70	34.83	50.74	40	12.70	78	43.53
16	400	50.70	40	12.67	78	43.38	57.10	40	15.88	78	48.10
18	450	57.05	40	15.85	78	47.90	63.45	65	15.88	90	54.51
20	500	63.40	65	15.85	90	54.36	72.97	45	19.05	100	62.15
24	600	72.92	45	19.02	100	62.00	82.50/ 82.45	65	22.23/ 22.20	110	69.90/ 69.75
26	650	82.50	65	22.00	110	70.00					
28	700	82.50	65	22.00	110	70.00					
30	750	82.50	65	22.00	155	70.00					
32	800	89.00	70	22.00	125	76.20					
36	900	100.00	93	25.40	125	86.30					
40	1000	100.00	93	25.40	125	86.30					
42	1050	100.00	93	25.40	125	86.30					
48	1200	125.00	106	31.80	125	107.00					



### MOUNTING PAD

Shaft		ASME 150 / PN 16					ASME 300 / PN 25/40				
NPS	DN	ASME			PN		ASME			PN	
		K	L	M	ISO	M	K	L	M	ISO	M
2	50	82.5	-	3/8" UNC	F10	M10	82.5	-	3/8" UNC	F10	M10
3	80	82.5	-	3/8" UNC	F10	M10	82.5	-	3/8" UNC	F10	M10
4	100	82.5	-	3/8" UNC	F10	M10	82.5	-	3/8" UNC	F10	M10
5	125	82.5	-	3/8" UNC	F10	M10					
6	150	102.0	-	3/8" UNC	F10	M10	102.0	-	3/8" UNC	F10	M10
8	200	102.0	-	3/8" UNC	F10	M10	127.0	25.4	3/8" UNC	F12	M10
10	250	127.0	25.4	3/8" UNC	F12	M10	152.0	36.0	3/8" UNC	F14	M10
12	300	152.0	36.0	3/8" UNC	F14	M10	178.0	41.3	1/2" UNC	F16	M12
14	350	178.0	41.3	1/2" UNC	F16	M12	197.0	45.0	1/2" UNC	F16	M12
16	400	197.0	45.0	1/2" UNC	F16	M12	197.0	50.0	3/4" UNC	F25	M20
18	450	197.0	50.0	3/4" UNC	F16	M20	210.0	50.0	3/4" UNC	F25	M20
20	500	210.0	50.0	3/4" UNC	F25	M20	241.0	76.0	3/4" UNC	F25	M20
24	600	241.0	76.0	3/4" UNC	F25	M20	285.0	110.0	3/4" UNC	F30	M20
26	650	285.0	90.0	3/4" UNC	-	-					
28	700	285.0	110.0	3/4" UNC	-	-					
30	750	279.4	76.0	1" UNC	-	-					
32	800	285.0	110.0	3/4" UNC	-	-					
36	900	279.4	76.0	1" UNC	-	-					
40	1000	285.0	110.0	3/4" UNC	-	-					
42	1050	285.0	110.0	3/4" UNC	-	-					
48	1200	285.0	170.0	1 1/4" UNS	-	-					

Optional ISO 5211 mounting flange

# KEYSTONE WINN HI-SEAL HIGH PERFORMANCE BUTTERFLY VALVE

## SELECTION GUIDE

Example	10	-	F	15	W	-	1	1	F	5	-	2
<b>NPS</b>												
<b>10</b>												
<b>Valve type</b>												
<b>F</b>												
Firesafe												
<b>S</b>												
Soft seat												
<b>M</b>												
Metal seat												
<b>ASME rating</b>												
<b>15</b>												
150												
<b>30</b>												
300												
<b>Body style</b>												
<b>W</b>												
Wafer												
<b>L</b>												
Lug												
<b>F</b>												
Double flange												
<b>Body material</b>												
<b>1</b>												
Carbon Steel												
<b>2</b>												
Stainless Steel (316)												
<b>3</b>												
Aluminium Bronze												
<b>4</b>												
Ferralium												
<b>5</b>												
6 MO.												
<b>X</b>												
Other												
<b>Disc/shaft material</b>												
<b>1</b>												
316 SS disc 17-4 SS shaft												
<b>2</b>												
Al. Brz. disc and Alloy K 500 shaft												
<b>3</b>												
Ferralium disc Ferralium shaft												
<b>4</b>												
6 MO disc Ferralium shaft												
<b>5</b>												
Alloy K 500 disc and shaft												
<b>6</b>												
316 SS disc 316 SS shaft												
<b>7</b>												
Alloy 20 disc Alloy 20 shaft												
<b>X</b>												
Other												
<b>Seat material</b>												
<b>Soft seated</b>												
<b>2</b>												
PTFE												
<b>3</b>												
RTFE												
<b>4</b>												
UHMPE												
<b>Firesafe</b>												
<b>F</b>												
PTFE/Incoloy												
<b>R</b>												
RTFE/ Incoloy												
<b>Metal Seated</b>												
<b>M</b>												
Incoloy												
<b>Packing material</b>												
<b>Soft Seated</b>												
<b>2</b>												
PTFE												
<b>5</b>												
Graphite												
<b>Firesafe</b>												
<b>5</b>												
Graphite												
<b>Metal Seated</b>												
<b>5</b>												
Graphite												
<b>Operator</b>												
<b>0</b>												
Bare shaft												
<b>1</b>												
10 Position lever lock handle												
<b>2</b>												
Gear operator (weatherproof)												
<b>4</b>												
Gear operator (O-ring sealed)												
<b>5</b>												
Pneumatic actuator (specify)												
<b>6</b>												
Electric actuator (specify)												
<b>7</b>												
Extended shaft (specify)												
<b>Special service</b>												
<b>C</b>												
Chlorine												
<b>N</b>												
NACE												
<b>H</b>												
High Temp												
<b>O</b>												
Oxygen												
Leave blank if none required												

## NOTES

- The valve coding system identifies the valve design type, materials of construction, operator type and any special service preparation.

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