

Torques for Sizing Actuators - Inch-Pounds (316 SS Seat)

Actuator selection is dependent upon a number of variable factors such as pressure drop across the valve, seat and bearing friction torques, cryogenic temperatures and flowing media. The figures in the following table are based on standard valves and materials working in normal service conditions. A safety factor as recommended by the actuator manufacturer should be applied. Consult Batley Valve for cryogenic torque figures.

SIZES 50-1000mm Class 150lb Valve torques at 200°C (LBF/IN)

Valve Dia	Shaft Size	CLOSED PRESSURE DROP PSI G				
		50	100	150	200	285
50	12	116	120	124	128	135
80	15	262	273	283	294	310
100	20	446	475	505	535	586
125	20	636	686	736	786	870
150	20	1010	1080	1150	1220	1340
200	25	1820	1990	2150	2310	2590
250	30	2820	3110	3410	3710	4210
300	35	4250	4760	5270	5780	6650
350	35	5680	6360	7100	7700	8850
400	40	7600	8620	9640	10670	12410
450	45	9800	11290	12760	14230	16730
500	45	12590	14600	16500	18500	21900
600	60	18500	21900	25300	28800	34700
700	70	23200	28100	33100	38000	46300
750	80	27000	33600	40000	46900	58200
800	80	32000	39600	47100	54700	67600
900	90	40800	51000	61000	71500	89000
1000	100	49500	62000	75100	87000	109100

SIZES 50-1000mm Class 300lb Valve torques at 200°C (LBF/IN)

Valve Dia	Shaft Dia	CLOSED PRESSURE DROP PSI G				
		300	400	500	600	740
50	12	140	145	153	162	173
80	15	344	370	396	423	460
100	20	595	655	714	774	858
125	20	890	986	1090	1190	1230
150	25	1500	1670	1860	2030	2280
200	30	2860	3240	3630	4020	4570
250	35	4600	5300	5900	6660	7600
300	40	7200	8400	9500	10700	12300
350	50	10900	12800	14800	16700	19400
400	60	16300	19400	22500	25600	29800
450	65	21600	25900	30200	34400	40400
500	70	28000	33000	38000	44000	52000
600	80	43000	52000	61000	71000	84000
700	90	63000	78000	92000	106000	130000
750	100	78000	97000	126000	134000	160000
800	110	96000	120000	142000	166000	200000
900	120	122000	154000	183000	210000	260000
1000	130	167000	210000	250000	305000	350000

SIZES 50-1000mm Class 150lb Valve torques at 400°C (LBF/IN)

Valve Dia	Shaft Dia	CLOSED PRESSURE DROP PSI G		
		50	100	150
50	12	165	171	177
80	15	380	398	415
100	20	607	648	688
125	20	853	920	987
150	20	1340	1440	1530
200	25	2410	2620	2840
250	30	3710	4110	4510
300	35	5600	6280	6960
350	35	7450	8350	9250
400	40	9960	11300	12700
450	45	13000	14900	16900
500	45	15800	17700	19700
600	60	24200	28800	33400
700	70	31700	39300	47000
750	80	36900	47000	57100
800	80	44300	56000	67500
900	90	56000	71000	86000
1000	100	71200	93600	115000

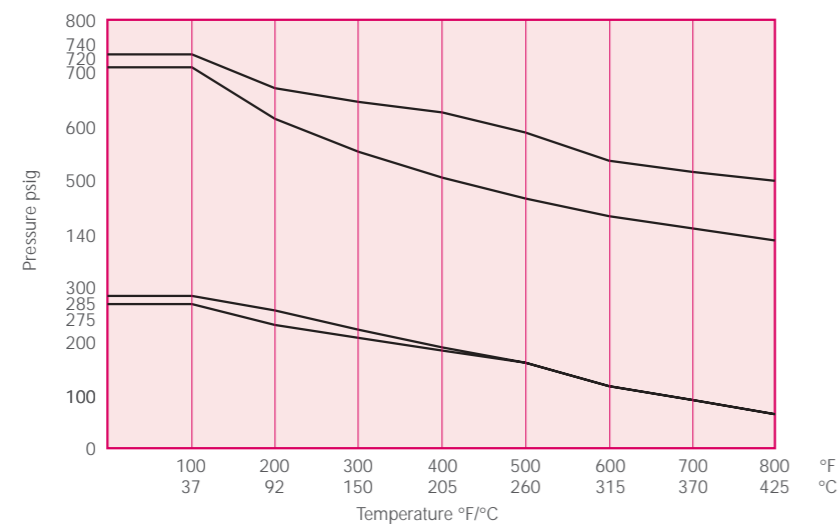
SIZES 50-1000mm Class 300lb Valve torques at 400°C (LBF/IN)

Valve Dia	Shaft Dia	CLOSED PRESSURE DROP PSI G			
		200	300	400	500
50	12	185	195	204	215
80	15	450	468	503	538
100	20	798	810	891	972
125	20	1167	1187	1320	1454
150	25	1800	2010	2240	2480
200	30	3490	3790	4330	4840
250	35	5190	6110	3120	7950
300	40	8090	9620	11180	12700
350	50	11700	14300	16900	19500
400	60	17100	21000	25100	29200
450	65	22500	28300	33900	39600
500	70	28900	32400	38500	44600
600	80	44500	56800	69200	81600
700	90	63600	83200	101000	121000
750	100	78600	103000	127000	153000
800	110	97800	129000	160000	192000
900	120	123000	163000	203000	245000
1000	130	166000	223000	282000	340000

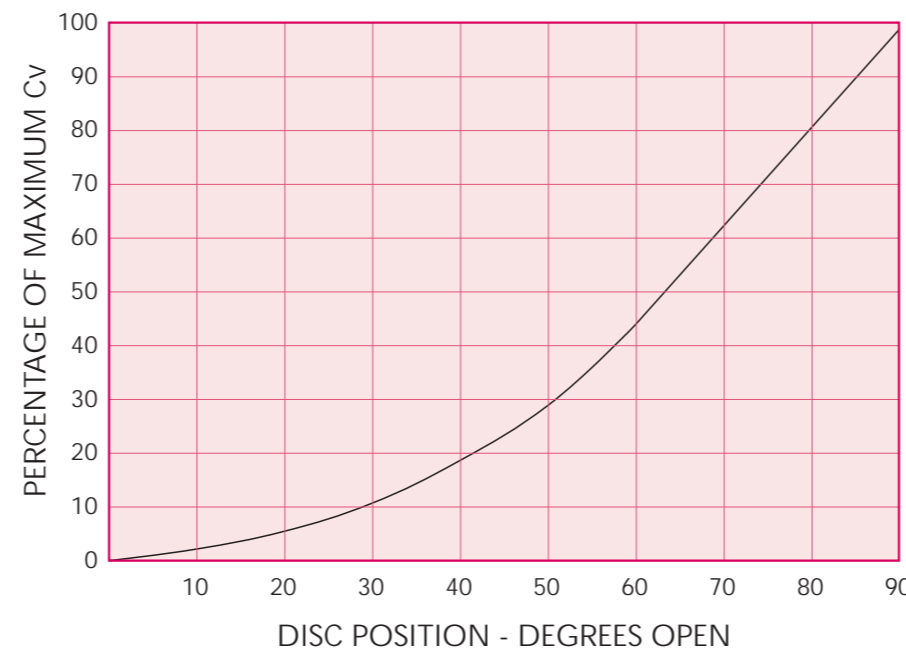
Pressure limit is 110psi at 400°C as per ANSI B16.5 150lb.

Pressure limit is 505psi at 400°C as per ANSI B16.5 300lb.

METALSEAL  
With correct material selection operating temperatures up to 900°C can be accommodated.



Recommended Duty  
On/Off: 0-90°  
Control: 0-70°



The Company's policy is one of continuous research and development and we therefore reserve the right to alter or modify products and specifications without prior notice.

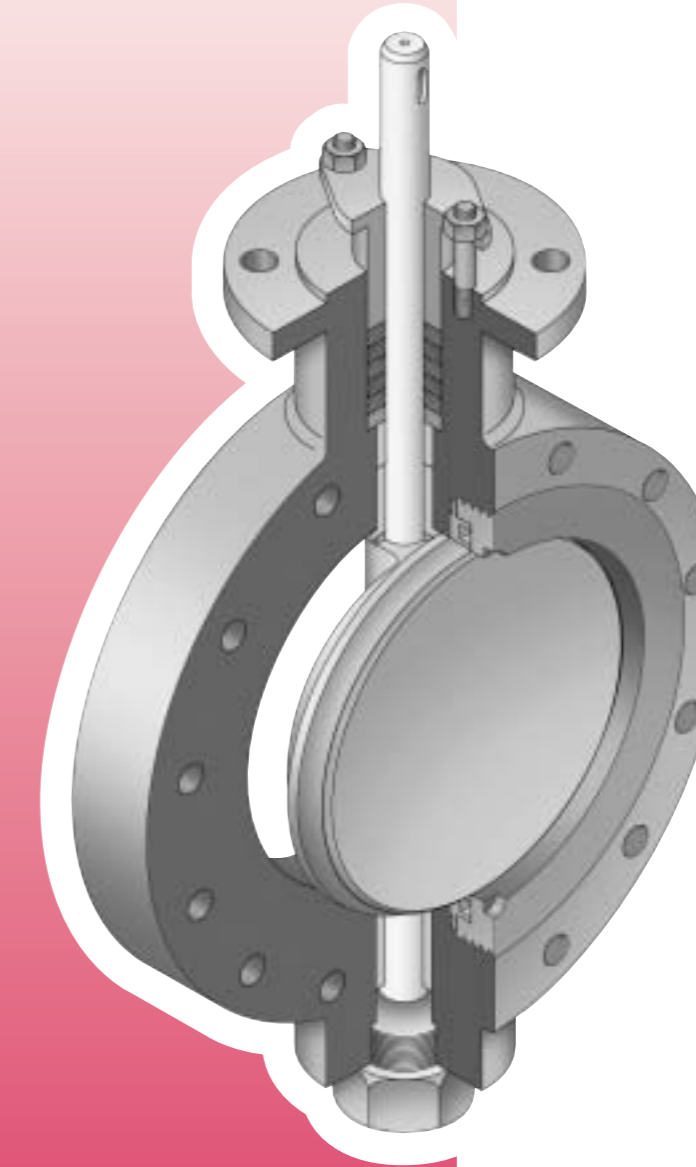
MSV.001 9/98

Nominal Bore	CV Valves for Hyperseal (class 150) - Vane Angle									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
50	89	73	55	40	28	18	11	5	3	
80	226	185	140	102	70	45	27	14	7	
100	402	330	249	181	125	80	48	24	12	
125	642	526	398	289	199	128	77	39	19	
150	1204	987	746	542	373	241	144	72	36	
200	2190	1796	1358	986	679	438	263	131	66	
250	3690	3026	2288	1661	1144	738	443	221	111	
300	5483	4496	3399	2467	1700	1097	658	329	164	
350	6924	5678	4293	3116	2146	1385	831	415	208	
400	9199	7543	5703	4140	2852	1840	1104	552	276	
450	11736	9624	7276	5281	3638	2347	1408	704	352	
500	14215	11656	8813	6397	4407	2843	1706	853	426	
600	20792	17049	12891	9356	6446	4158	2495	1248	624	
700	29395	24104	18225	13228	9112	5879	3527	1764	882	
750	34019	27896	21092	15309	10546	6804	4082	2041	1021	
800	38900	31898	24118	17505	12059	7780	4668	2334	1167	
900	46066	37774	28561	20730	14280	9213	5528	2764	1382	
1000	60079	49265	37249	27036	18624	12016	7209	3605	1802	

Nominal Bore	CV Valves for Hyperseal (class 300) - Vane Angle									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
50	89	73	55	40	28	18	11	5	3	
80	226	185	140	102	70	45	27	14	7	
100	383	314	237	172	119	77	46	23	11	
125	642	526	398	289	199	128	77	39	19	
150	1147	941	711	516	356	229	138	69	34	
200	2086	1711	1293	939	647	417	250	125	63	
250	3515	2882	2179	1582	1090	703	422	211	105	
300	5222	4282	3238	2350	1619	1044	627	313	157	
350	5885	4826	3649	2648	1824	1177	706	353	177	
400	7819	6412	4848	3519	2424	1564	938	469	235	
450	9976	8180	6185	4489	3093	1995	1197	599	299	
500	12083	9908	7491	5437	3746	2417	1450	725	362	
600	17673	14492	10958	7953	5479	3535	2121	1060	530	
700	24986	20489	15491	11244	7746	4997	2998	1499	750	
750	28916	23711	17928	13012	8964	5783	3470	1735	867	
800	33065	27113	20500	14879	10250	6613	3968	1984	992	
900	39156	32108	24277	17620	12138	7831	4699	2349	1175	
1000	51067	41875	31662	22980	15831	10213	6128	3064	1532	



METALSEAL  
BV 26000



High Performance  
Butterfly Valves  
150 & 300lbs



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In 1964 BATLEY was probably the first UK manufacturer of high pressure butterfly shut off valves incorporating a PTFE (Teflon) seal. This type of valve is now known as the high performance butterfly valve. As a natural progression in the evolution of the valve was to incorporate a metal seal in place of the PTFE seal originally fitted.

The seal design and valve geometry combine to ensure a uniform 360° seal contact in the closed position and the double eccentric action moves the disc into and out of the seat with the minimum of wear and seating torque.

The valves are fully rated to ANSI class 150lb and 300lb in sizes up to 1000mm with sizes up to 1600mm on request. The range of 300lb valves can be offered with 150lb rated trim to give a more economical solution for applications only requiring a shut off pressure of up to 285 psi but with a 300lb rated body.

All valve sizes can be drilled to suit most international flange standards up to 300lb and special valves can be manufactured with Bodies drilled to suit flanges up to ANSI Class 2500lb.

The 90° action of the valve allows for fast operation when used on on/off duty and fitted with a powered operator. When fitted with a suitable actuator and positioner the valve can perform the dual function of modulating control and isolation.

The Metalseal design lends its self for use on higher temperatures and abrasive service where a PTFE seal would not be acceptable. The valve is supplied to ANSI Class IV leakage as standards and with ANSI Class V, MSS SP61 & API 5 on special request.

The valve can be supplied with a range of hard surface deposits for the seat & seal such as hard Chrome plating, Stellite & Tungstan Carbide.

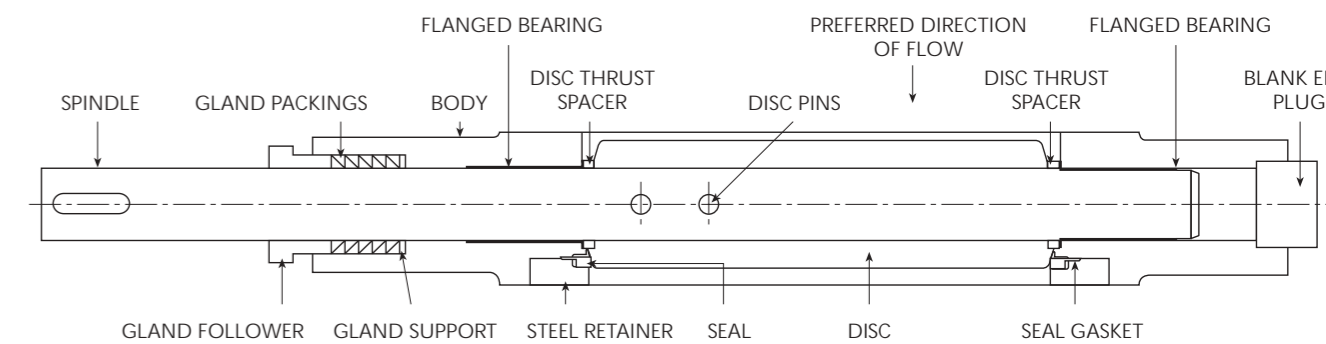
Sizes 50mm to 1000mm CLASS 150LB

VALVE SIZE	A	B	C <sub>1</sub> WAFER	C <sub>2</sub> FLANGED	D	E	F	G	H	J	K	L	M
50	44	95	43	108	95	70	12	67	44	11	4	M8	49
80	69	129	47	114	120	95	15	67	44	11	4	M8	74
100	90	160	52	127	143	120	20	64	44	15	4	M10	96
125	117	186	56	140	165	145	20	67	44	15	4	M10	120
150	140	212	58	140	205	180	20	108	66	16	4	M12	143
200	189	270	64	152	238	210	25	108	66	16	4	M12	194
250	233	328	72	165	260	255	30	108	66	18	4	M16	240
300	284	383	81	178	300	285	35	108	66	18	4	M16	288
350	327	426	92	190	310	325	35	108	66	18	4	M16	317
400	377	474	102	216	320	340	40	108	66	32	4	M16	363
450	426	534	114	222	370	350	45	108	70	32	4	M20	409
500	472	590	127	229	418	410	45	165	97	17	8	M16	455
600	567	692	154	267	490	510	60	165	103	-	-	-	547
700	667	800	172	292	560	580	70	165	103	-	-	-	647
750	725	857	180	292	590	610	80	200	123	-	-	-	705
800	770	914	190	318	610	620	80	200	123	-	-	-	750
900	845	1025	241	330	620	630	90	200	123	-	-	-	835
1000	945	1120	241	410	630	640	100	200	123	-	-	-	925

Sizes 50mm to 1000mm CLASS 300LB

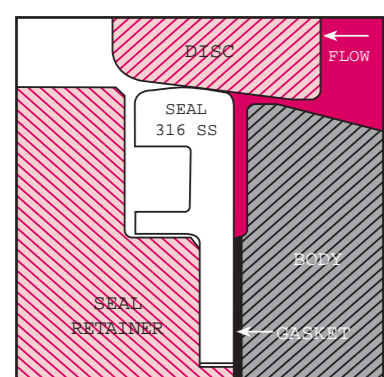
VALVE SIZE	A	B	C <sub>1</sub> WAFER	C <sub>2</sub> FLANGED	D	E	F	G	H	J	K	L	M
50	44	95	43	150	95	70	12	67	44	11	4	M8	49
80	69	129	47	180	120	95	15	67	44	11	4	M8	74
100	90	160	52	190	143	120	20	67	44	15	4	M10	96
125	117	186	56	200	165	145	20	67	44	15	4	M10	120
150	140	212	58	210	205	180	25	108	66	16	4	M12	143
200	189	270	64	230	238	210	30	108	66	16	4	M12	194
250	233	328	72	250	260	255	35	108	66	18	4	M16	240
300	284	383	81	270	300	285	40	165	66	18	4	M16	288
350	317	412	127	290	354	360	50	165	97	36	4	M16	317
400	363	469	146	310	386	410	60	165	103	17	8	M16	363
450	409	533	160	330	418	440	65	165	103	17	8	M16	409
500	455	584	165	350	450	480	70	165	103	17	8	M16	455
600	547	692	181	390	515	560	80	165	103	22	8	M16	547
700	647	800	220	430	580	590	90	165	103	-	-	-	647
750	705	857	241	430	610	620	100	200	123	-	-	-	705
800	745	914	260	470	630	640	110	200	130	-	-	-	750
900	825	1022	270	510	655	665	120	220	130	-	-	-	825
1000	925	1085	270	550	680	690	130	220	130	-	-	-	925

Dimensions shown as - on application.  
API 609 Face to Face dimensions for 300lb valves available on request.



COMPONENT	CARBON STEEL	HIGH TEMP CARBON STEEL	316 ST STEEL
BODY	A216 WCB	A352 WC6/WC9	A351 CF8M
DISC, See Note 1	A216 WCB/A351 CF8M	A351 CF8M	A351 CF8M
SHAFT	See Note 2	See Note 2	See Note 2
PINS	316 SS	316 SS	316 SS
GLAND FOLLOWER	ST STEEL	ST STEEL	ST STEEL
GLAND STUDS, NUTS & WASHERS	ST STEEL	ST STEEL	ST STEEL
GLAND PACKINGS	PTFE/GRAPHOIL	PTFE/GRAPHOIL	PTFE/GRAPHOIL
GLAND RING	316 SS	316 SS	316 SS
BEARINGS	316 SS	316 SS	316 SS
DISC SPACERS	316 SS	316 SS	316 SS
BLANK END PLUG	CARBON STEEL	CARBON STEEL	316 SS
SEAL RETAINER	CARBON STEEL	316SS	316 SS
SEAL GASKET	GRAPHITE	GRAPHITE	GRAPHITE
SEAL	316 SS	316 SS	316 SS

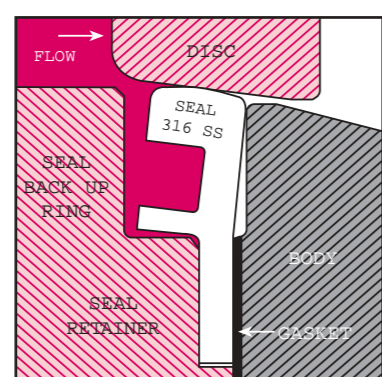
The BATLEY Experience - reliable, well proven seal design provides bi-directional shut off



Reverse Flow Direction

In the closed position the seal retaining ring prevents the seal ring from moving away from the pressure and so maintaining the sealing force between the seal and disc. As the line pressure increases the disc will deflect slightly to help maintain the seat leakage within the required standard.

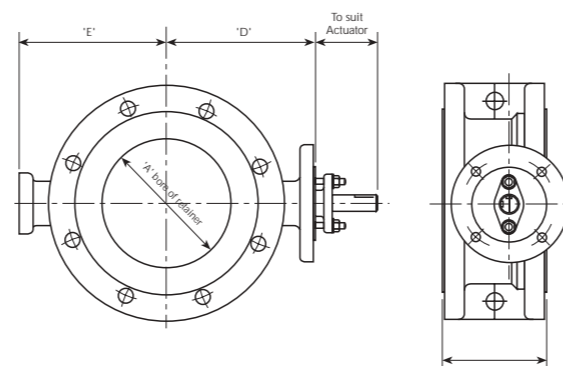
METALSEAL



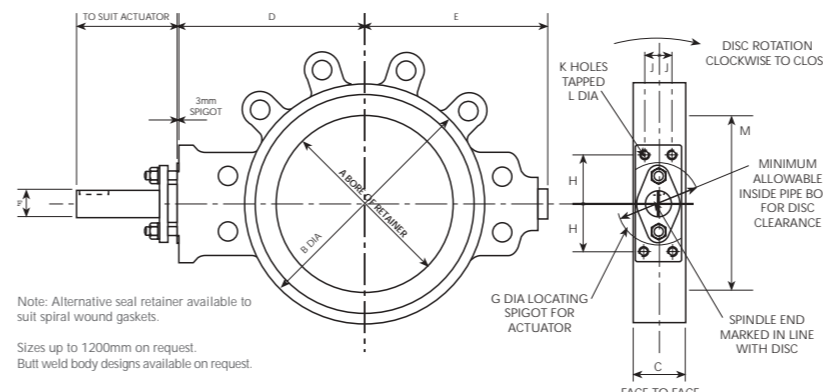
Normal Flow Direction

In the closed position the line pressure will deflect the seal in the direction of the valve body thus maintaining the sealing forces between the seal and disc. This movement allows the required seat leakage to be maintained within the required standard.

DOUBLE FLANGED



WAFER/LUGGED



Alternative materials include: LCB, C5, C12, Monel, Alloy 20, 316L, Titanium, Hastalloy, Inconel & Super Duplex.

1. All discs are hard chromium coated.
2. Shaft materials are chosen to suit the design pressure and temperature of the valve. Standard materials are as follows:  
Up to 400°C - 17-4ph & 316  
401 to 600°C - 316, Monel, Nitronic 50/80, Inconel 625.  
601 to 800°C - 37/18 ss.

Technical Standards

Design: API 609, BS 5155, MSS SP68  
Pressure Testing: API 598, BS 6755 Part 1, FCI 70-2  
Wall Thickness: ANSI B16.34  
Face To Face Dimensions: BS 5155, API 609, DIN 3202, ISO 5752  
Quality Assurance: ISO 9001