

DIMENSIONAL DRAWINGS

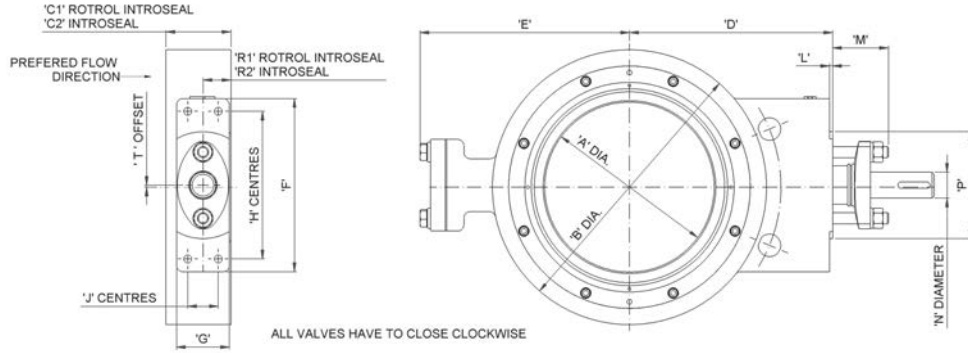


TABLE 16. CLASS 150LB WAFER VALVES (SERIES 63, 64 AND 65)

VALVE SIZE	DIMENSIONS		DIMENSIONS																	
	in	mm	A	B	C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
4	100	87	160	60	54	145	145	120	44	100	25	3	45	3/4"	80	3/8"	24.5	24.5	4	1
6	150	138	215	80	59	180	180	150	50	130	30	3	45	3/4"	105	3/8"	26	26	4	1
8	200	188	270	95	64	200	205	170	52	145	30	3	55	1"	105	3/8"	30	27.5	4	2
10	250	238	324	130	72	230	240	170	64	145	35	3	55	1"	105	1/2"	47.5	34.5	4	2
12	300	287	382	145	81	270	270	170	72	145	35	3	55	1 1/4"	105	1/2"	49	37	4	2
14	350	328	426	170	92	308	295	170	80	145	45	3	55	1 1/2"	105	5/8"	62	42	4	2
16	400	365	474	185	102	340	335	170	80	145	45	3	55	1 1/2"	105	5/8"	70	51	4	2
18	450	415	535	210	114	360	365	260	100	210	60	3	60	1 3/4"	170	3/4"	80	57	4	2
20	500	465	590	240	127	395	390	260	100	210	60	3	65	2"	170	3/4"	90	63.5	4	2
24	600	563	695	290	154	480	460	260	125	210	90	3	65	2 1/4"	170	3/4"	110	77	6	2
28	700	665	805	340	165	540	530	260	150	210	100	3	65	2 1/2"	170	1"	136	82.5	6	3
30	750	715	860	365	165	565	550	260	150	210	100	3	65	3"	170	1"	135	79	6	3
32	800	763	920	385	190	600	590	260	150	210	100	3	65	3"	170	1"	144	95	6	3
36	900	863	1028	430	200	655	645	260	150	210	100	3	65	3"	170	1"	165	100	6	3

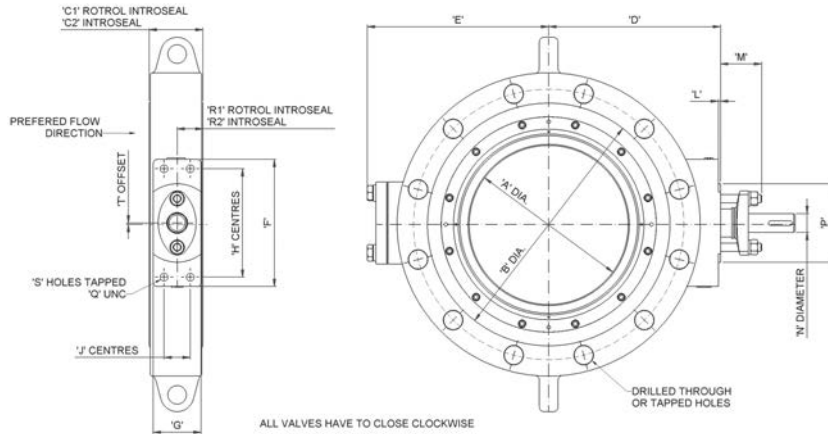


TABLE 17. CLASS 150LB LUGGED WAFER VALVES (SERIES 63, 64 AND 65)

VALVE SIZE	DIMENSIONS		DIMENSIONS																	
	in	mm	A	B	C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
4	100	87	160	60	54	145	145	120	44	100	25	3	45	3/4"	80	3/8"	24.5	24.5	4	1
6	150	138	215	80	59	180	180	150	50	130	30	3	45	3/4"	105	3/8"	26	26	4	1
8	200	188	270	95	64	200	205	170	52	145	30	3	55	1"	105	3/8"	30	27.5	4	2
10	250	238	324	130	72	230	240	170	64	145	35	3	55	1"	105	1/2"	47.5	34.5	4	2
12	300	287	382	145	81	270	270	170	72	145	35	3	55	1 1/4"	105	1/2"	49	37	4	2
14	350	328	426	170	92	308	295	170	80	145	45	3	55	1 1/2"	105	5/8"	62	42	4	2
16	400	365	474	185	102	340	335	170	80	145	45	3	55	1 1/2"	105	5/8"	70	51	4	2
18	450	415	535	210	114	360	365	260	100	210	60	3	60	1 3/4"	170	3/4"	80	57	4	2
20	500	465	590	-	127	395	390	260	100	210	60	3	65	2"	170	3/4"	90	63.5	4	2
24	600	563	695	-	154	480	460	260	125	210	90	3	65	2 1/4"	170	3/4"	110	77	6	2
28	700	665	805	-	165	540	530	260	150	210	100	3	65	2 1/2"	170	1"	136	82.5	6	3
30	750	715	860	-	165	565	550	260	150	210	100	3	65	3"	170	1"	135	79	6	3
32	800	763	920	-	190	600	590	260	150	210	100	3	65	3"	170	1"	144	95	6	3
36	900	863	1028	-	200	655	645	260	150	210	100	3	65	3"	170	1"	165	100	6	3

Note: Only available to 18" (450mm) for Rotrol Introseals - sizes above that are flanged

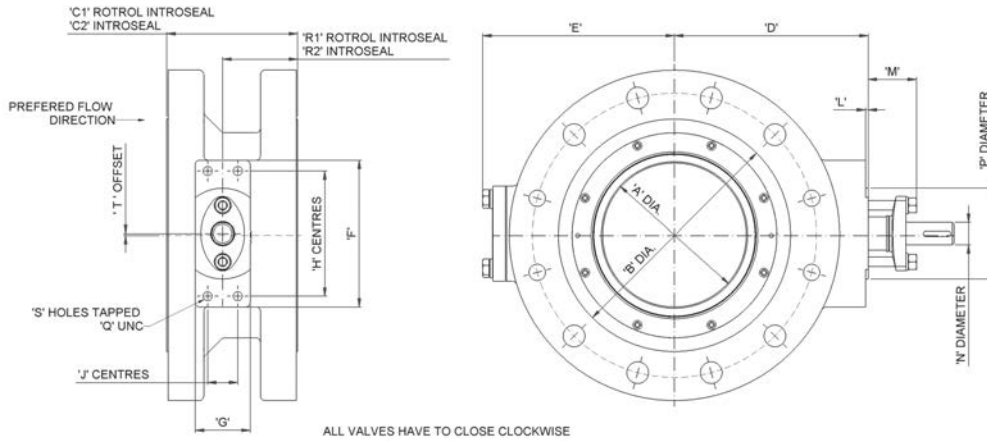


TABLE 18. CLASS 150LB FLANGED VALVES (SERIES 63, 64 AND 65)

VALVE SIZE	DIMENSIONS		DIMENSIONS																		
	in	mm	A	B	C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S	T
4	100	87	1	60	127	127	145	145	120	44	100	25	3	45	3/4"	80	3/8"	77	77	4	1
6	150	138	215	140	140	185	180	150	50	130	30	3	45	3/4"	105	3/8"	86	86	4	1	
8	200	188	270	152	152	200	205	170	52	145	35	3	55	1"	105	3/8"	87	87	4	2	
10	250	238	324	165	165	230	240	170	64	145	35	3	55	1"	105	1/2"	82	82	4	2	
12	300	287	381	178	178	270	270	170	72	145	35	3	55	1 1/4"	105	1/2"	82	82	4	2	
14	350	328	413	190	190	308	295	170	80	145	45	3	55	1 1/2"	105	5/8"	81	81	4	2	
16	400	365	470	223	216	340	335	170	80	145	45	3	55	1 1/2"	105	5/8"	108	108	4	2	
18	450	415	533	250	222	360	365	260	100	210	60	3	60	1 3/4"	170	3/4"	111	111	4	2	
20	500	465	590	265	229	395	390	260	100	210	60	3	65	2"	170	3/4"	115	115	4	2	
24	600	563	692	313	267	480	460	260	125	210	90	3	65	2 1/4"	170	3/4"	134	134	4	2	
28	700	665	801	350	292	540	530	260	150	210	100	3	65	2 1/2"	170	1"	146	146	6	3	
30	750	715	857	380	318	565	550	260	150	210	100	3	65	3"	170	1"	159	159	6	3	
32	800	763	915	400	318	600	590	260	150	210	100	3	65	3"	170	1"	159	159	6	3	
36	900	863	1022	430	330	655	645	260	150	210	100	3	65	3"	170	1"	165	165	6	3	

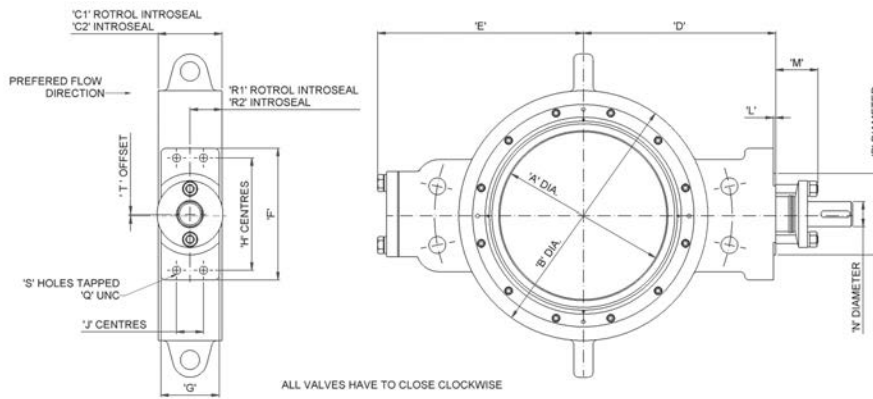


TABLE 19. CLASS 300LB WAFER VALVES (SERIES 63, 64 AND 65)

VALVE SIZE	DIMENSIONS		DIMENSIONS																	
	in	mm	A	B	C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
4	100	87	160	60	54	145	145	120	44	100	25	3	45	3/4"	80	3/8"	24.5	24.5	4	1
6	150	138	216	80	59	185	180	150	50	130	30	3	55	1"	105	3/8"	26	26	4	1
8	200	188	270	100	73	225	220	170	64	145	35	3	55	1 1/4"	105	3/8"	35	36.5	4	2
10	250	238	324	130	83	250	265	170	70	145	35	3	55	1 1/4"	105	1/2"	41.5	45	4	2
12	300	287	382	150	92	285	285	170	80	145	35	3	55	1 1/2"	105	1/2"	50	44	4	2
14	350	328	426	175	117	325	340	250	100	210	60	3	65	2"	170	3/4"	64	59	4	2
16	400	365	474	190	133	350	360	260	100	210	60	3	65	2"	170	3/4"	66.5	66.5	4	2
18	450	415	535	214	149	400	400	260	100	210	60	3	65	2 1/4"	170	3/4"	74.5	74.5	4	2
20	500	465	590	240	159	430	430	260	125	210	90	3	65	2 3/4"	170	3/4"	79.5	79.5	6	2
24	600	563	695	282	181	530	505	260	150	210	100	3	65	3"	170	3/4"	91	91	6	2
28	700	665	805	340	209	595	580	260	150	210	100	3	65	3 1/2"	170	1"	115	104	6	3
30	750	715	860	350	241	625	605	260	150	210	100	3	65	3 1/2"	170	1"	120	120	6	3
32	800	763	920	385	241	650	640	260	150	210	100	3	65	3 1/2"	170	1"	144	120	6	3
36	900	863	1028	440	260	710	700	260	150	210	100	3	65	3 1/2"	170	1"	165	130	6	3

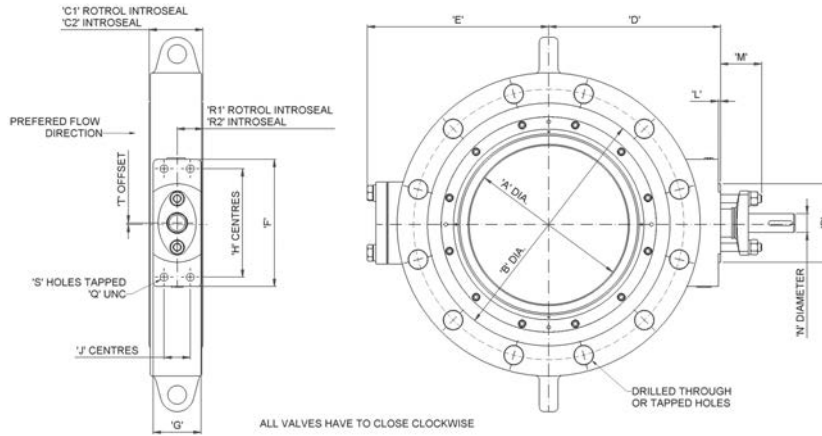


TABLE 20. CLASS 300LB WAFER LUGGED VALVES (SERIES 63, 64 AND 65)

VALVE SIZE	DIMENSIONS		DIMENSIONS																	
	in	mm	A	B	C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
4	100	87	160	60	54	145	145	120	44	100	25	3	45	3/4"	80	3/8"	24.5	24.5	4	1
6	150	138	216	80	59	185	180	150	50	130	30	3	55	1"	105	3/8"	26	26	4	1
8	200	188	270	100	73	225	220	170	64	145	35	3	55	1 1/4"	105	1/2"	35	36.5	4	1
10	250	238	324	128	83	250	265	170	70	145	35	3	55	1 1/4"	105	1/2"	45	45	4	2
12	300	287	381	145	92	285	285	170	80	145	35	3	55	1 1/2"	105	1/2"	49	48	4	2
14	350	328	413	170	117	325	340	260	100	210	60	3	65	2"	170	3/4"	59	59	4	2
16	400	365	470	190	133	350	360	260	100	210	60	3	65	2"	170	3/4"	66.5	66.5	4	2
18	450	415	535	215	149	400	400	260	100	210	60	3	60	2 1/4"	170	3/4"	74.5	74.5	4	2
20	500	465	590	-	159	430	430	260	125	210	90	3	65	2 3/4"	170	3/4"	-	79.5	6	2
24	600	563	692	-	181	530	505	260	150	210	90	3	65	3"	170	3/4"	-	90	6	2
28	700	665	801	-	209	595	580	260	150	210	100	3	65	3 1/2"	170	1"	-	104	6	3
30	750	715	857	-	241	625	605	260	150	210	100	3	65	3 1/2"	170	1"	-	120	6	3
32	800	763	915	-	241	650	640	260	150	210	100	3	65	3 1/2"	170	1"	-	120	6	3
36	900	863	1022	-	260	710	700	260	150	210	100	3	65	3 1/2"	170	1"	-	130	6	3

Note: Only available to 18" 450mm for Rotrol Introseals - sizes above that are flanged

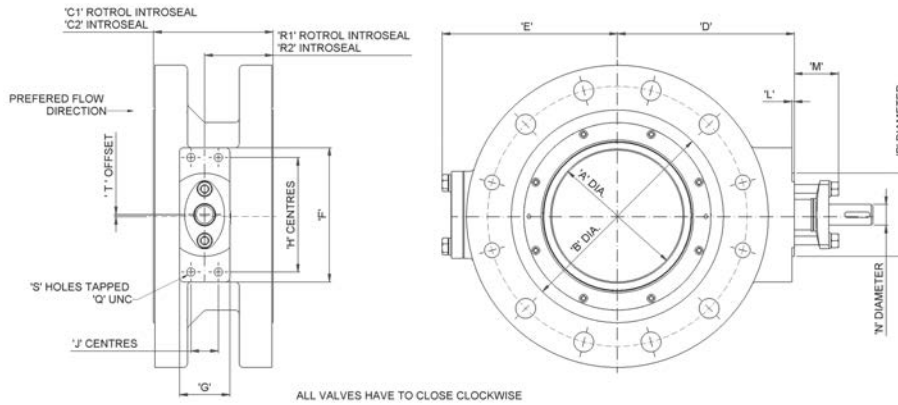


TABLE 21. CLASS 300LB DOUBLE FLANGED (SERIES 63, 64 AND 65)

VALVE SIZE	DIMENSIONS		DIMENSIONS																	
	in	mm	A	B	C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
4	100	87	160	127	127	145	145	120	44	100	25	3	45	3/4"	80	3/8"	77	77	4	1
6	150	138	216	140	140	185	180	150	50	130	30	3	45	1"	105	3/8"	80	80	4	1
8	200	188	270	152	152	225	220	170	64	145	35	3	55	1 1/4"	105	1/2"	87	87	4	2
10	250	238	324	165	165	250	265	170	70	145	35	3	55	1 1/4"	105	1/2"	82	82	4	2
12	300	287	381	178	178	285	285	170	80	145	35	3	55	1 1/2"	105	1/2"	82	82	4	2
14	350	328	413	207	190	325	340	260	100	210	60	3	55	2"	170	3/4"	95	95	4	2
16	400	365	470	231	216	350	360	260	100	210	60	3	55	2"	170	3/4"	108	108	4	2
18	450	415	535	250	222	400	400	260	100	210	60	3	60	2 1/4"	170	3/4"	111	111	4	2
20	500	465	590	275	229	430	430	260	125	210	90	3	65	2 3/4"	170	3/4"	114	114	6	2
24	600	563	692	325	267	530	505	260	150	210	90	3	65	3"	170	3/4"	134	134	6	2
28	700	665	801	371	292	595	570	260	150	210	100	3	65	3 1/2"	170	1"	146	146	6	3
30	750	715	857	390	318	625	605	260	150	210	100	3	65	3 1/2"	170	1"	159	159	6	3
32	800	763	915	400	318	650	640	260	150	210	100	3	65	3 1/2"	170	1"	159	159	6	3
36	900	863	1022	440	330	710	700	260	150	210	100	3	65	3 1/2"	170	1"	165	165	6	3

SERIES 66 CLASS 150LB AND 300LB CV TABLES

TABLE 22. CV VALUES FOR SERIES 66 HIGHLIGHT (SWING THROUGH CLASS II VALVES)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 150LB										
VALVE SIZE in mm		ANGLE OF OPENING								
		10	20	30	40	50	60	70	80	90
VALVE SIZE in mm		PERCENTAGE OF 90° CV								
		1.2	4.2	9	16	26	41	64	89	100
4	100	9	30	64	114	185	292	456	634	712
6	150	19	68	145	258	420	662	1034	1437	1615
8	200	34	120	257	456	741	1169	1824	2537	2850
10	250	54	188	402	714	1161	1831	2858	3974	4465
12	300	78	271	581	1034	1680	2649	4134	5749	6460
14	350	97	339	727	1292	2100	3311	5168	7187	8075
16	400	129	451	966	1718	2791	4401	6870	9554	10735
18	450	164	575	1231	2189	3557	5609	8755	12175	13680
20	500	200	698	1496	2660	4323	6816	10640	14796	16625
24	600	291	1017	2180	3876	6299	9932	15504	21560	24225
28	700	396	1385	2967	5274	8571	13516	21098	29339	32965
30	750	456	1596	3420	6080	9880	15580	24320	33820	38000
32	800	523	1831	3924	6977	11337	17878	27907	38808	43605
36	900	667	2334	5002	8892	14450	22786	35568	49462	55575

TABLE 23. CV VALUES FOR SERIES 66 HIGHLIGHT (SWING THROUGH CLASS II VALVES) CV AT 90 = 40% OF STANDARD VALVE)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 150LB										
VALVE SIZE in mm		ANGLE OF OPENING								
		10	20	30	40	50	60	70	80	90
VALVE SIZE in mm		PERCENTAGE OF 90° CV								
		1.8	5	10	16	25	38	55	80	100
4	100	5	14	28	46	71	108	157	228	285
6	150	12	32	65	103	162	245	355	517	646
8	200	21	57	114	182	285	433	627	912	1140
10	250	32	89	179	286	447	679	982	1429	1786
12	300	47	129	258	413	646	982	1421	2067	2584
14	350	58	162	323	517	808	1227	1777	2584	3230
16	400	77	215	429	687	1074	1632	2362	3435	4294
18	450	98	274	547	876	1368	2079	3010	4378	5472
20	500	120	333	665	1064	1663	2527	3658	5320	6650
24	600	174	485	969	1550	2423	2682	5330	7752	9690
28	700	237	659	1319	2110	3297	5011	7252	10549	13186
30	750	274	760	1520	2432	3800	5776	8360	12160	15200
32	800	314	872	1744	2791	4361	6628	9593	13954	17444
36	900	400	1112	2223	3557	5558	8447	12227	17784	22230

TABLE 24. CV VALUES FOR SERIES 66 HIGHLIGHT (SWING THROUGH CLASS II VALVES) WITH INTEGRAL OR LOOSE BAFFLE PLATES (CV AT 90 = 65% OF ROTROL VALVE)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 150LB										
VALVE SIZE		ANGLE OF OPENING								
		10	20	30	40	50	60	70	80	90
in	mm	PERCENTAGE OF 90° CV								
		2.3	9.2	15	22	37	54	74	94	100
4	100	5	17	28	41	68	100	137	174	185
6	150	10	39	63	92	155	227	311	395	420
8	200	20	68	111	163	274	400	548	697	741
10	250	27	107	174	255	430	627	859	1091	1161
12	300	39	155	252	370	621	907	1243	1579	1680
14	350	48	194	315	462	777	1134	1554	1974	2100
16	400	64	258	419	614	1033	1507	2065	2624	2791
18	450	82	328	534	782	1316	1921	2632	3343	3557
20	500	100	399	648	951	1599	2334	3199	4063	4323
24	600	145	582	945	1386	2330	3401	4661	5921	6299
28	700	198	791	1286	1886	3171	4628	6342	8057	8571
30	750	228	912	1482	2174	3656	5335	7311	9287	9880
32	800	262	1047	1701	2494	4195	6122	8390	10657	11337
36	900	334	1334	2167	3179	5346	7803	10693	13583	14450

TABLE 25. CV VALUES FOR SERIES 66 HIGHLIGHT (SWING THROUGH CLASS II VALVES)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 300LB										
VALVE SIZE		ANGLE OF OPENING								
		10	20	30	40	50	60	70	80	90
in	mm	PERCENTAGE OF 90° CV								
		1.2	4.2	9	16	26	41	64	89	100
4	100	9	30	64	114	185	292	456	634	712
6	150	19	68	145	258	420	662	1034	1437	1615
8	200	31	108	231	410	667	1052	1642	2283	2565
10	250	48	169	362	643	1045	1648	2572	3576	4019
12	300	70	244	523	930	1512	2384	3721	5174	5814
14	350	87	305	654	1163	1890	2980	4651	6468	7268
16	400	116	406	870	1546	2512	3961	6183	8599	9662
18	450	144	503	1077	1915	3112	4908	7661	10653	11970
20	500	175	611	1309	2328	3782	5964	9310	12947	14547
24	600	247	865	1853	3295	5354	8442	13178	18326	20591
28	700	336	1177	2522	4483	7285	11488	17933	24938	28020
30	750	388	1357	2907	5168	8398	13243	20672	28747	32300
32	800	445	1557	3336	5930	9637	15196	23721	32987	37064
36	900	567	1984	4251	7558	12282	19368	30233	42042	47239

TABLE 26. CV VALUES FOR SERIES 66 HIGHLIGHT (SWING THROUGH CLASS II VALVES) CV AT 90 = 40% OF STANDARD VALVE)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 300LB										
VALVE SIZE in mm		ANGLE OF OPENING								
		10	20	30	40	50	60	70	80	90
PERCENTAGE OF 90° CV		PERCENTAGE OF 90° CV								
		1.8	5	10	16	25	38	55	80	100
4	100	5	14	28	46	71	108	157	228	285
6	150	12	32	65	103	162	245	355	517	646
8	200	18	51	103	164	257	390	564	821	1026
10	250	29	80	161	257	402	611	884	1286	1607
12	300	42	116	233	372	581	884	1279	1860	2326
14	350	52	145	291	465	727	1105	1599	2326	2907
16	400	70	193	386	618	966	1469	2126	3092	3865
18	450	86	239	479	766	1197	1819	2633	3830	4788
20	500	105	291	582	931	1455	2211	3200	4655	5819
24	600	148	412	824	1318	2059	3130	4530	6589	8237
28	700	202	560	1121	1793	2802	4259	6164	8966	11208
30	750	233	646	1292	2067	3230	4910	7106	10336	12920
32	800	267	741	1483	2372	3706	5634	8154	11861	14826
36	900	340	945	1890	3023	4724	7180	10393	15116	18896

TABLE 27. CV VALUES FOR SERIES 66 HIGHLIGHT (SWING THROUGH CLASS II VALVES) WITH INTEGRAL OR LOOSE BAFFLE PLATES (CV AT 90 = 60% OF ROTROL VALVE)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 300LB										
VALVE SIZE in mm		ANGLE OF OPENING								
		10	20	30	40	50	60	70	80	90
PERCENTAGE OF 90° CV		PERCENTAGE OF 90° CV								
		2.3	9.2	15	22	37	54	74	94	100
4	100	4	16	26	38	63	92	126	161	171
6	150	9	36	58	85	143	209	287	364	388
8	200	14	57	92	135	228	332	456	579	616
10	250	22	89	145	212	357	521	714	907	964
12	300	32	129	209	307	516	753	1033	1312	1395
14	350	40	161	262	384	645	942	1291	1640	1744
16	400	54	214	348	510	858	1252	1716	2180	2319
18	450	66	265	431	632	1063	1551	2126	2700	2873
20	500	81	322	524	768	1292	1885	2654	3282	3491
24	600	114	456	741	1087	1829	2669	3657	4645	4942
28	700	155	621	1009	1479	2488	3631	4976	6321	6725
30	750	179	716	1163	1705	2868	4186	5736	7287	7752
32	800	205	821	1334	1957	3291	4804	6583	8362	8895
36	900	262	1047	1701	2494	4195	6122	8390	10657	11337

TABLE 28. PACKING TORQUE

SHAFT SIZE (in)	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.5
TORQUE (Lbs.Ins.)	37	74	99	124	222	259	296	334	371	408	445	519

TABLE 29. TORQUE VALUES FOR SERIES 66 HIGHLIGHT ROTARY CONTROL VALVES (Lbs. Ins.)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 150 AND 300 – COMBINED TORQUES – DYNAMIC AND FRICTION (Lbs. Ins.) PER PSI																							
VALVE SIZE in mm	CLASS	SHAFT DIA in	FTF/ PSI	ANGLE OF OPENING																			
				0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
4	100	150	0.5	0.47	0.47	0.73	0.79	0.92	1.05	1.24	1.43	1.81	2.39	3.09	3.99	5.21	6.93	9.81	13.1	17	21	14.4	0.47
4	100	300	0.75	0.71	0.71	0.96	1.03	1.15	1.28	1.47	1.67	2.05	2.63	3.33	4.23	5.44	7.17	10	13.3	17.2	21.2	14.7	0.71
6	150	150	0.75	1.59	1.59	2.45	2.67	3.1	3.53	4.18	4.83	6.12	8.1	10.4	13.5	17.6	23.4	33.1	44.1	57.3	70.7	48.7	1.59
6	150	300	1	2.12	2.12	2.98	3.2	3.63	4.06	4.71	5.36	6.65	8.6	11	14	18.1	23.9	33.7	44.7	57.8	71.2	49.2	2.12
8	200	150	0.75	2.82	2.82	4.87	5.38	6.41	7.43	8.97	10.5	13.6	18.2	23.8	31	40.7	54.5	77.6	104	135	167	114	2.82
8	200	300	1	3.76	3.76	5.81	6.32	7.35	8.37	9.91	11.4	14.5	19.1	24.8	31.9	41.7	55.5	78.5	105	136	168	115	3.76
10	250	150	1	5.88	5.88	9.88	10.9	12.9	14.9	17.9	20.9	26.9	35.9	46.9	60.9	79.9	107	152	203	264	326	224	5.88
10	250	300	1.25	7.35	7.35	11.4	12.4	14.4	16.4	19.4	22.4	28.4	37.4	48.4	62.4	81.4	108	153	204	265	327	225	7.35
12	300	150	1	8.47	8.47	15.4	17.1	20.6	24	29.2	34.4	44.8	60.3	79.3	104	136	183	261	349	454	561	385	8.47
12	300	300	1.5	12.7	12.7	19.6	21.3	24.8	28.3	33.4	38.6	49	64.5	83.5	108	141	187	265	353	459	566	389	12.7
14	350	150	1.25	14.4	14.4	23.7	26	30.7	35.3	42.3	49.3	63.3	84.2	110	142	187	249	354	473	615	759	522	14.4
14	350	300	1.75	20.2	20.2	29.5	31.8	36.5	41.1	48.1	55.1	69	90	116	148	192	255	360	478	620	765	527	20.2
16	400	150	1.25	18.8	18.8	33	36.5	43.6	50.7	61.4	72	93.3	125	164	214	281	377	537	717	934	1154	792	18.8
16	400	300	2	30.1	30.1	44.3	47.8	54.9	62	72.7	83.3	105	137	176	225	293	388	548	729	945	1165	803	30.1
18	450	150	1.5	28.6	28.6	49.1	54.2	64.5	74.8	90.2	106	136	183	239	311	408	547	778	1040	1353	1671	1148	28.6
18	450	300	2.25	42.9	42.9	63.4	68.5	78.8	89.1	104	120	151	197	253	325	423	561	792	1054	1367	1685	1162	42.9
20	500	150	1.5	35.3	35.3	63.8	70.9	85.2	99.5	121	142	185	249	328	428	563	756	1077	1441	1876	2318	1590	35.3
20	500	300	2.5	58.8	58.8	87.3	94.5	109	123	144	166	209	273	351	451	587	779	1100	1464	1899	2341	1614	58.8
24	600	150	1.75	59.3	59.3	110	122	147	172	210	248	323	436	575	751	989	1329	1894	2535	3302	4081	2799	59.3
24	600	300	3	102	102	152	164	190	215	252	290	366	479	617	793	1032	1371	1937	2578	3344	4123	2841	102
28	700	150	2	92.2	92.2	173	193	234	274	335	396	517	699	922	1205	1590	2136	3046	4078	5313	6567	4503	92.2
28	700	300	3.5	161	161	242	263	303	343	404	465	586	768	991	1274	1659	2205	3116	4148	5382	6636	4573	161
30	750	150	2	106	106	206	231	281	331	406	481	631	857	1132	1482	1958	2633	3760	5036	6562	8114	5561	106
30	750	300	3.5	185	185	285	310	360	410	486	561	711	936	1211	1562	2037	2713	3839	5115	6642	8193	5641	185
32	800	150	2.5	151	151	273	303	364	425	517	608	791	1066	1402	1829	2409	3233	4606	6162	8024	9916	6803	151
32	800	300	3	181	181	303	333	394	455	547	638	822	1096	1432	1859	2439	3263	4636	6193	8054	9946	6833	181
36	900	150	2.5	191	191	366	410	497	585	716	848	1110	1505	1986	2600	3432	4614	6585	8819	11491	14207	9739	191
36	900	300	3	229	229	404	448	535	623	754	886	1148	1543	2024	2638	3470	4652	6623	8857	11529	14245	9777	229

Note: Packing torque to be added to the above to obtain total torque (refer to Table 27)

TABLE 30. TORQUE VALUES FOR SERIES 66 HIGHLIGHT ROTARY CONTROL VALVES (Lbs. Ins.)

WAFER, LUGGED AND DOUBLE FLANGED – CLASS 150 AND 300 – COMBINED TORQUES – DYNAMIC AND FRICTION (Lbs. Ins.) PER PSI																								
VALVE SIZE in mm	CLASS	SHAFT DIA in	FTF/ PSI	ANGLE OF OPENING																				
				0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90		
4	100	150	0.5	0.47	0.47	0.47	0.57	0.6	0.66	0.85	1.11	1.37	1.69	2.13	2.65	3.29	4.12	5.14	6.55	8.53	10.5	6.74	0.47	
4	100	300	0.75	0.71	0.71	0.71	0.8	0.83	0.9	1.09	1.35	1.6	1.92	2.37	2.88	3.52	4.35	5.38	6.79	8.77	10.7	6.98	0.71	
6	150	150	0.75	1.59	1.59	1.59	1.91	2.02	2.24	2.88	3.75	4.61	5.69	7.2	8.93	11.1	13.9	17.4	22.1	28.8	35.3	22.8	1.59	
6	150	300	1	2.12	2.12	2.12	2.44	2.55	2.76	3.41	4.28	5.14	6.22	7.73	9.46	11.6	14.4	17.9	22.6	29.3	35.8	23.3	2.12	
8	200	150	0.75	2.82	2.82	2.82	3.59	3.85	4.36	5.89	7.94	9.99	12.6	16.1	20.2	25.4	32	40.2	51.5	67.3	82.7	53	2.82	
8	200	300	1	3.76	3.76	3.76	4.53	4.79	5.3	6.84	8.88	10.9	13.5	17.1	21.2	26.3	32.9	41.1	52.4	68.3	82.7	53.9	3.76	
10	250	150	1	5.88	5.88	5.88	10.9	12.9	14.9	17.9	20.9	26.9	35.9	46.9	60.9	79.9	107	152	203	264	326	224	5.88	
10	250	300	1.25	7.35	7.35	7.35	11.4	12.4	14.4	16.4	19.4	22.4	28.4	37.4	48.4	62.4	81.4	108	153	204	265	327	225	7.35
12	300	150	1	8.47	8.47	8.47	15.4	17.1	20.6	24	29.2	34.4	44.8	60.3	79.3	104	136	183	261	349	454	561	385	8.47
12	300	300	1.5	12.7	12.7	12.7	19.6	21.3	24.8	28.3	33.4	38.6	49	64.5	83.5	108	141	187	265	353	459	566	389	12.7
14	350	150	1.25	14.4	14.4	14.4	23.7	26	30.7	35.3	42.3	49.3	63.3	84.2	110	142	187	249	354	473	615	759	522	14.4
14	350	300	1.75	20.2	20.2	20.2	29.5	31.8	36.5	41.1	48.1	55.1	69	90	116	148	192	255	360	478	620	765	527	20.2
16	400	150	1.25	18.8	18.8	18.8	33	36.5	43.6	50.7	61.4	72	93.3	125	164	214	281	377	537	717	934	1154	792	18.8
16	400	300	2	30.1	30.1	30.1	44.3	47.8	54.9	62	72.7	83.3	105	137	176	225	293	388	548	729	945	1165	803	30.1
18	450	150	1.5	28.6	28.6	28.6	49.1	54.2	64.5	74.8	90.2	106	136	183	239	311	408	547	778	1040	1353	1671	1148	28.6
18	450	300	2.25	42.9	42.9	42.9	63.4	68.5	78.8	89.1	104	120	151	197	253	325	423	561	792	1054	1367	1685	1162	42.9
20	500	150	1.5	35.3	35.3	35.3	63.8	70.9	85.2	99.5	121	142	185	249	328	428	563	756	1077	1441	1876	2318	1590	35.3
20	500	300	2.5	58.8	58.8	58.8	87.3	94.5	109	123	144	166	209	273	351	451	587	779	1100	1464	1899	2341	1614	58.8
24	600	150	1.75	59.3	59.3	59.3	110	122	147	172	210	248	323	436	575	751	989	1329	1894	2535	3302	4081	2799	59.3
24	600	300	3	102	102	102	152	164	190	215	252	290	366	479	617	793	1032	1371	1937	2578	3344	4123	2841	102
28	700	150	2	92.2	92.2	92.2	173	193	234	274	335	396	517	699	922	1205	1590	2136	3046	4078	5313	6567	4503	92.2
28	700	300	3.5	161	161	161	242	263	303	343	404	465	586	768	991	1274	1659	2205	3116	4148	5382	6636	4573	161
30	750	150	2	106	106	106	206	231	281	331	406	481	631	857	1132	1482	1958	2633	3760	5036	6562	8114	5561	106
30	750	300	3.5	185	185	185	285	310	360	410	486	561	711	936	1211	1562	2037	2713	3839	5115	6642	8193	5641	185
32	800	150	2.5	151	151	151	273	303	364	425	517	608	791	1066	1402	1829	2409	3233	4606	6162	8024	9916	6803	151
32	800	300	3	181	181	181	303	333	394	455	547	638	822	1096	1432	1859	2439	3263	4636	6193	8054	9946	6833	181
36	900	150	2.5	191	191	191	366	410	497	585	716	848	1110	1505										

DIMENSIONAL DRAWINGS

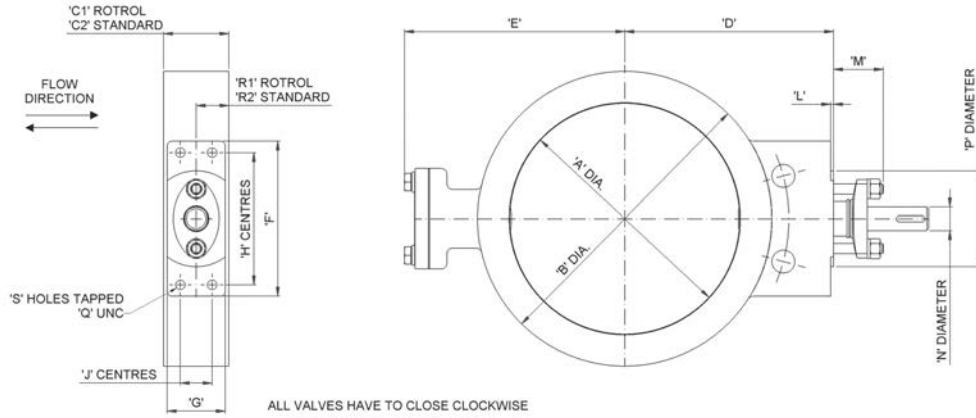


TABLE 31. CLASS 150LB WAFER VALVES (SERIES 66)

VALVE SIZE in	mm	DIMENSIONS		C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
		A	B																
4	100	102	160	60	54	145	145	120	38	100	25	3	40	1/2"	90	3/8"	30	24.5	4
6	150	152	215	80	59	185	180	150	50	130	30	3	45	3/4"	105	3/8"	40	26	4
8	200	203	270	110	64	200	205	170	52	145	35	3	45	3/4"	105	3/8"	55	27.5	4
10	250	254	324	130	72	230	240	170	64	145	35	3	55	1"	105	1/2"	65	34.5	4
12	300	305	382	164	81	270	270	170	64	145	35	3	55	1"	105	1/2"	82	44	4
14	350	340	426	170	92	308	295	170	80	145	45	3	55	1 1/4"	105	5/8"	85	41.5	4
16	400	390	474	216	102	340	335	170	80	145	45	3	55	1 1/4"	105	5/8"	108	51	4
18	450	440	535	222	114	360	365	260	100	210	60	3	60	1 1/2"	170	3/4"	111	57	4
20	500	490	590	229	127	395	390	260	100	210	60	3	65	1 1/2"	170	3/4"	114.5	63.5	4
24	600	590	695	300	154	480	460	260	125	210	90	3	65	1 3/4"	170	3/4"	150	77	4
28	700	690	805	360	165	540	530	260	150	210	100	3	65	2"	170	1"	180	82.5	6
30	750	740	860	380	165	565	550	260	150	210	100	3	65	2"	170	1"	190	82.5	6
32	800	790	920	400	190	600	590	260	150	210	100	3	65	2 1/2"	170	1"	200	95	6
36	900	890	1027	460	200	655	645	260	150	210	100	3	65	2 1/2"	170	1"	230	100	6

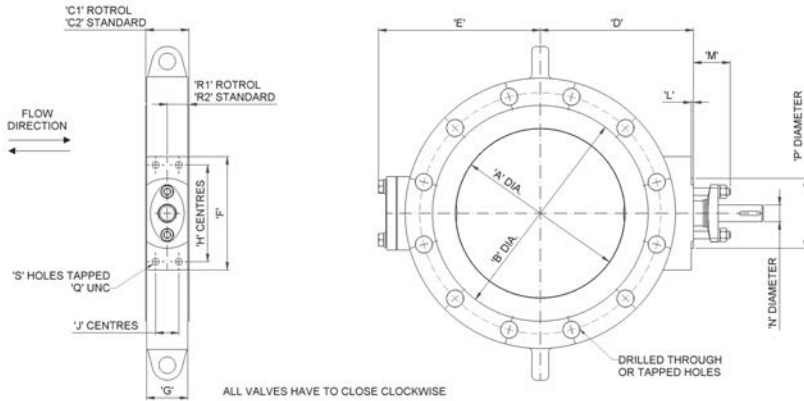


TABLE 32. CLASS 150LB WAFER LUGGED VALVES (SERIES 66)

VALVE SIZE in	mm	DIMENSIONS		C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
		A	B																
4	100	102	160	60	54	145	145	120	44	100	25	3	40	1/2"	90	3/8"	30	24.5	4
6	150	152	215	80	59	185	180	150	50	130	30	3	45	3/4"	105	3/8"	40	26	4
8	200	203	270	110	64	200	205	170	52	145	35	3	45	3/4"	105	3/8"	55	27.5	4
10	250	254	324	130	72	230	240	170	64	145	35	3	55	1"	105	1/2"	65	34.5	4
12	300	305	381	164	81	270	270	170	72	145	35	3	55	1"	105	1/2"	82	44	4
14	350	340	413	170	92	308	295	170	80	145	45	3	55	1 1/4"	105	5/8"	85	41.5	4
16	400	390	474	216	102	340	335	170	80	145	45	3	55	1 1/4"	105	5/8"	108	51	4
18	450	440	533	222	114	360	365	260	100	210	60	3	60	1 1/2"	170	3/4"	111	57	4
20	500	490	590	-	127	395	390	260	100	210	60	3	65	1 1/2"	170	3/4"	-	63.5	4
24	600	590	692	-	154	480	460	260	125	210	90	3	65	1 3/4"	170	3/4"	-	77	4
28	700	690	801	-	165	540	530	260	150	210	100	3	65	2"	170	1"	-	82.5	6
30	750	740	860	-	165	565	550	260	150	210	100	3	65	2"	170	1"	-	82.5	6
32	800	790	915	-	190	600	590	260	150	210	100	3	65	2 1/2"	170	1"	-	95	6
36	900	890	1022	-	200	655	645	260	150	210	100	3	65	2 1/2"	170	1"	-	100	6

Note: Only available to 18" 450mm for Rotrol Introseals – sizes above that are flanged

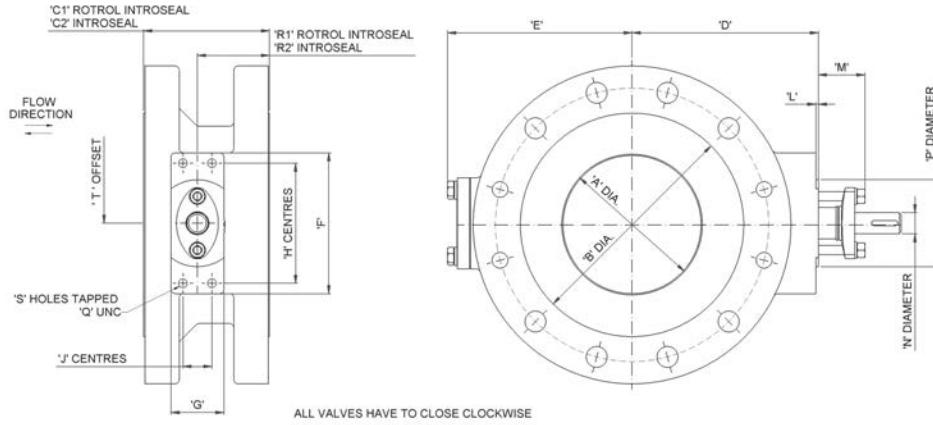


TABLE 33. CLASS 150LB FLANGED VALVES (SERIES 66)

VALVE SIZE in	mm	DIMENSIONS		C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
		A	B																
4	100	102	160	127	127	145	145	120	44	100	25	3	40	1/2"	90	3/8"	77	77	4
6	150	152	215	140	140	185	180	150	50	130	30	3	45	3/4"	105	3/8"	86	86	4
8	200	203	270	152	152	200	205	170	52	145	35	3	45	3/4"	105	3/8"	87	87	4
10	250	254	324	165	165	230	240	170	64	145	35	3	55	1"	105	1/2"	82	82	4
12	300	305	381	178	178	270	270	170	72	145	35	3	55	1"	105	1/2"	82	82	4
14	350	340	413	190	190	308	295	170	80	145	45	3	55	1 1/4"	105	5/8"	81	81	4
16	400	390	470	216	216	340	335	170	80	145	45	3	55	1 1/4"	105	5/8"	108	108	4
18	450	440	533	222	222	360	365	260	100	210	60	3	60	1 1/2"	170	3/4"	111	111	4
20	500	490	590	229	229	395	390	260	100	210	60	3	65	1 1/2"	170	3/4"	114.5	114.5	4
24	600	590	692	300	267	480	460	260	125	210	90	3	65	1 3/4"	170	3/4"	150	133.5	4
28	700	690	801	360	292	540	530	260	150	210	100	3	65	2"	170	1"	180	146	6
30	750	740	857	380	318	565	550	260	150	210	100	3	65	2"	170	1"	190	159	6
32	800	790	915	400	318	600	590	260	150	210	100	3	65	2 1/2"	170	1"	200	159	6
36	900	890	1022	460	330	655	645	260	150	210	100	3	65	2 1/2"	170	1"	230	159	6

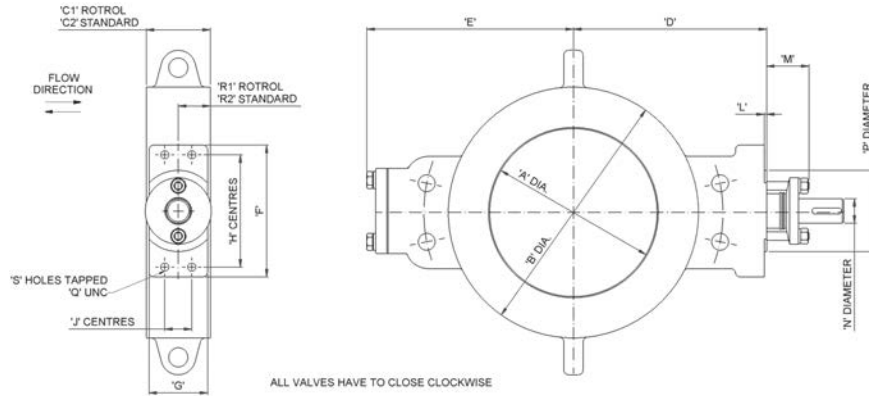


TABLE 34. CLASS 300LB WAFER VALVES (SERIES 66)

VALVE SIZE in	mm	DIMENSIONS		C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
		A	B																
4	100	102	160	60	54	145	145	120	44	100	25	3	45	3/4"	80	3/8"	30	24.5	4
6	150	152	216	80	59	185	180	150	50	130	30	3	55	1"	105	3/8"	40	26	4
8	200	203	270	110	73	225	220	170	64	145	35	3	55	1"	105	1/2"	55	36.5	4
10	250	254	324	130	83	250	265	170	70	145	35	3	55	1 1/4"	105	1/2"	65	45.5	4
12	300	305	382	164	92	285	285	170	80	145	35	3	55	1 1/2"	105	1/2"	82	48	4
14	350	340	426	170	117	325	340	260	100	210	60	3	65	1 3/4"	170	3/4"	85	58.5	4
16	400	390	474	216	133	350	360	260	100	210	60	3	65	2"	170	3/4"	108	66.5	4
18	450	430	535	222	149	400	400	260	100	210	60	3	65	2 1/4"	170	3/4"	111	74.5	4
20	500	480	590	229	159	430	430	260	125	210	90	3	65	2 1/2"	170	3/4"	114.5	79.5	6
24	600	580	695	300	181	530	505	260	150	210	90	3	65	3"	170	3/4"	150	90.5	6
28	700	685	805	360	209	595	580	260	150	210	100	3	65	3"	170	1"	180	104.5	6
30	750	735	860	380	241	625	605	260	150	210	100	3	65	3"	170	1"	190	120.5	6
32	800	785	920	400	241	650	640	260	150	210	100	3	65	3"	170	1"	200	120.5	6
36	900	985	1027	460	260	710	700	260	150	210	100	3	65	3"	170	1"	230	130	6

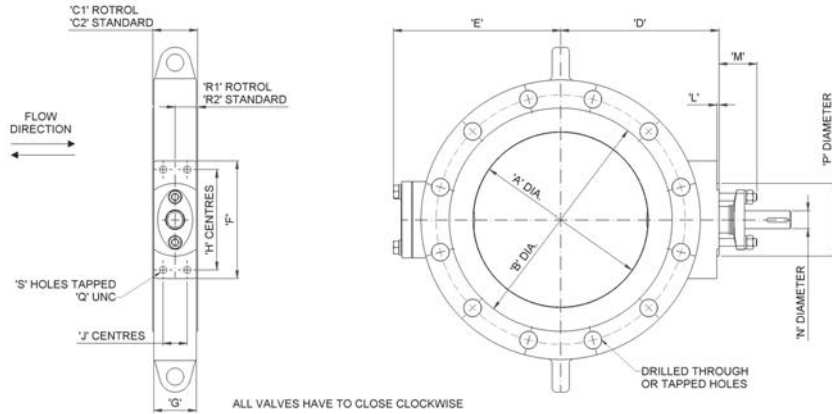


TABLE 35. CLASS 300LB WAFER LUGGED VALVES SERIES 66)

VALVE SIZE in	mm	DIMENSIONS		C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
		A	B																
4	100	102	160	60	54	145	145	120	44	100	25	3	45	3/4"	90	3/8"	30	24.5	4
6	150	152	216	80	59	185	180	150	50	130	30	3	55	1"	105	3/8"	40	26	4
8	200	203	270	110	73	225	220	170	64	145	35	3	55	1"	105	1/2"	55	36.5	4
10	250	254	324	130	83	250	265	170	70	145	35	3	55	1 1/4"	105	1/2"	65	45.5	4
12	300	305	381	164	92	285	285	170	80	145	35	3	55	1 1/2"	105	1/2"	82	48	4
14	350	340	413	170	117	325	340	260	100	210	60	3	55	1 3/4"	170	3/4"	85	58.5	4
16	400	390	470	216	133	350	360	260	100	210	60	3	65	2"	170	3/4"	108	66.5	4
18	450	430	535	222	149	400	400	260	100	210	60	3	65	2 1/4"	170	3/4"	111	74.5	4
20	500	480	590	-	1599	430	430	260	125	210	90	3	65	2 1/2"	170	3/4"	-	79.5	6
24	600	580	692	-	181	530	505	260	150	210	90	3	65	3"	170	3/4"	-	90.5	6
28	700	685	801	-	209	595	580	260	150	210	100	3	65	3"	170	1"	-	104.5	6
30	750	735	857	-	241	625	605	260	150	210	100	3	65	3"	170	1"	-	120.5	6
32	800	785	915	-	241	650	640	260	150	210	100	3	65	3"	170	1"	-	120.5	6
36	900	885	1022	-	260	710	700	260	150	210	100	3	65	3"	170	1"	-	130	6

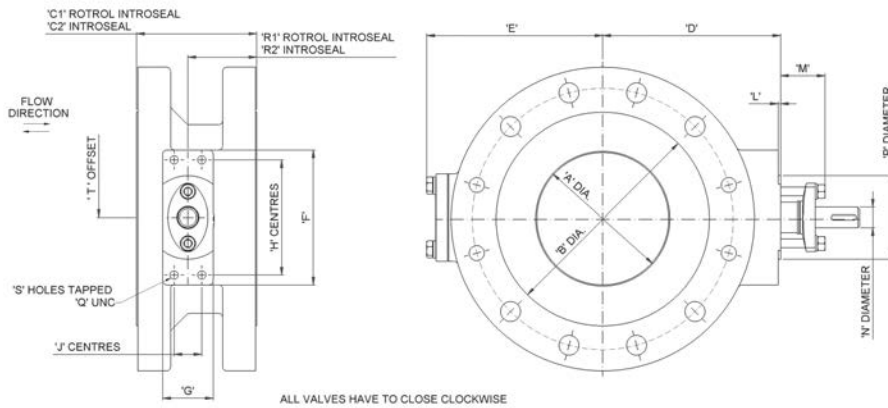


TABLE 36. CLASS 300LB FLANGED VALVES (SERIES 66)

VALVE SIZE in	mm	DIMENSIONS		C1	C2	D	E	F	G	H	J	L	M	N	P	Q	R1	R2	S
		A	B																
4	100	102	160	127	127	145	145	120	44	100	25	3	45	3/4"	90	3/8"	77	77	4
6	150	152	215	140	140	185	180	150	50	130	30	3	55	1"	105	3/8"	80	80	4
8	200	203	270	152	152	225	220	170	64	145	35	3	55	1"	105	1/2"	87	87	4
10	250	254	324	165	165	250	265	170	70	145	35	3	55	1 1/4"	105	1/2"	82	82	4
12	300	305	381	178	178	285	285	170	80	145	35	3	55	1 1/2"	105	1/2"	82	82	4
14	350	340	413	190	190	325	340	260	100	210	60	3	65	1 3/4"	170	3/4"	95	95	4
16	400	390	470	216	216	350	360	260	100	210	60	3	65	2"	170	3/4"	108	108	4
18	450	430	535	222	222	400	400	260	100	210	60	3	65	2 1/4"	170	3/4"	111	111	4
20	500	480	590	229	229	430	430	260	125	210	90	3	65	2 1/2"	170	3/4"	114.5	114.5	6
24	600	580	692	300	267	530	505	260	150	210	90	3	65	3"	170	3/4"	150	133.5	6
28	700	685	801	360	292	595	580	260	150	210	100	3	65	3"	170	1"	180	146	6
30	750	735	857	380	318	625	605	260	150	210	100	3	65	3"	170	1"	190	159	6
32	800	785	915	400	318	650	640	260	150	210	100	3	65	3"	170	1"	200	159	6
36	900	885	1022	460	330	710	700	260	150	210	100	3	65	3"	170	1"	230	165	6

A SMALL SELECTION OF PREVIOUS CUSTOMER PROJECTS

PROJECT	CUSTOMER	DATE	SERIES	VALVE SIZE	FLANGE RATING	BODY MATERIAL	TRIM STYLE	DESIGN CV	PRESSURE DROP (CLOSED) BAR	DESIGN PRESSURE	DESIGN TEMP (°C)	LINE FLUID	DESTINATION
12180	AZERBAIJAN INTERNATIONAL OPERATIONS	2006	63	18"	Wafer 300	Duplex A890 Gr 4A	Standard Disk	9,450	36	36	45	HC Gas	BP AIOC
12179	AZERBAIJAN INTERNATIONAL OPERATIONS	2006	63	20"	Flanged 150	EN1982-1999 CC33	Rotrol + Baffles	5,400	15	15	70	Seawater	BP AIOC
12190	AIBEL AS	2005	63	10"	Flanged 300	Duplex A995 Gr 4A	Rotrol + Baffles	1,430	11	11	120	Produced water	Maersk Volve Platform
12198	AZERBAIJAN INTERNATIONAL OPERATIONS	2006	63	18"	Wafer 600	Duplex A890 Gr 4A	Standard Disk	8,411	8	80	80	HC Gas	BP AIOC Sangachal II
12284	AIBEL AS	2007	63	16"	Flanged 150	Al/Bronze EN1982-1999 CC33	Rotrol + Baffles	3,380	14	14	50	Seawater	Alvhiem FPSO
12489	AZERBAIJAN INTERNATIONAL OPERATIONS	2007	63	24"	Wafer 600	ASTM A352 LCC	Standard Disk	14,986	55	55	80	HC Gas	BP AIOC Sangachal
12541	SINGLE BUOY MOORINGS	2008	63	8"	Wafer 150	Duplex A995 Gr 4A	Standard Disk	2,250	16	16	130	Gas	Talisman Yme MOPUSTOR
12541	SINGLE BUOY MOORINGS	2008	63	10"	Wafer 150	Super Duplex ASTM A890 Gr6A	Standard Disk	3,575	15	15	85	Seawater	Talisman Yme MOPUSTOR
12544	PETROFAC INTERNATIONAL	2008	63	16"	Wafer 300	Incoloy 825	Rotrol	3,042	35	35	70	Raw Sour Gas	Karachaganak Development
12544	PETROFAC INTERNATIONAL	2008	63	20"	Wafer 600	ASTM A352 LCC	Standard Disk	10,395	70	70	65	Raw Sour Gas	Karachaganak Development
12552	SINGLE BUOY MOORINGS	2008	63	16"	Wafer 300	ASTM A216 WCB	Standard Disk	7,605	30	30	65	Crude Oil	Talisman Yme MOPUSTOR
12566	CBI LUMMUS BV	2008	64	14"	Flanged 300	ASTM A216 WCB	Standard Disk	5,490	34	34	162	Crude Oil	SASREF
20855	THE MAERSK COMPANY	2006	63	10"	Wafer 150	Monel ASTM A94-M35-1	Rotrol	1,430	15	15	60	Seawater	Maersk Oil
20878	PSN LTD	2006	63	18"	Wafer 300	Al/Bronze EN1982-1999 CC33	Standard Disk	3,780	14	14	75	Seawater	Clyde Platform
20931	SHELL UK OIL PRODUCT	2007	64	16"	Wafer 150	ASTM A216 WCB	Standard Disk	3,718	3	3	275	Light Gas Oil	Shell UK
21001	SHELL UK EXPLORATION	2007	66	16"	Wafer 150	ASTM A351 CF8M	Standard Disk	10,735	9.3	9.3	5	Salt Water	Shell UK
21005	TALISMAN ENERGY (UK)	2007	66	8"	Wafer 300	Monel ASTM A94-M35-1	Standard Disk	1,026	19	19	21	Seawater Energy UK	Talisman
21074	APACHE NORTH SEA LIMITED	2007	66	8"	Wafer 150	Monel ASTM A94-M35-1	Standard Disk	1,140	10	10	65	Seawater	Apache North Sea
21101	SHELL UK EXPLORATION	2008	66	12"	Flanged 300	Super Duplex ASTM A890 Gr6A	Rotrol + Baffles	2,326	18.5	18.5	24	Seawater	Shell UK
21455	SHELL UK EXPLORATION	2009	63	12"	Flanged 300	A351 CK 3McuN	Rotrol + Baffles	2,605	11	11	15	Seawater	Shell UK
21587	O M E as	2009	66	6"	Wafer 900	ASTM A352 LCC	Rotrol	594	114	114	50	Regen Gas	BP Skarv
21636	KARACHAGANAK PETROLEUM	2009	64	8"	Wafer 600	ASTM A352 LCC	Standard Disk	1,964	80	80	100	Sour HC Gas	Karachaganak Development
510003	STATOIL PETROLEUM AS	2007	64	12"	Flanged 600	ASTM A351 CF8M	Standard Disk	4,601	33.5	33.5	385	HC Gas	Statoil Mongstad
510003	STATOIL PETROLEUM AS	2007	64	24"	Flanged 300	ASTM A217 C5	Standard Disk	17,425	10	10	385	HC Gas	Statoil Mongstad
510003	STATOIL PETROLEUM AS	2007	66	28"	Wafer 150	ASTM A216 WCB	Standard Disk	13,186	5	5	54	Seawater	Statoil Mongstad
510004	AKER OFFSHORE PARTNERS	2009	66	20"	Wafer 150	ASTM B367 G2C2	Standard Disk	6,650	15	15	55	Seawater	Statoil Gjoa
510007	STATOIL PETROLEUM AS	2008	64	14"	Wafer 150	ASTM A216 WCB	Standard Disk	6,100	3.5	3.5	110	Air	Statoil Mongstad
510057	FMC KONGSBERG METERING	2009	66	12"	Wafer 300	ASTM A351 CF8M	Standard Disk	5,814	19	19	38	Propane Liquid	Statoil Karsto
520029	STATOIL PETROLEUM AS	2009	63	18"	Flanged 150	ASTM A352 LCC	Rotrol	4,320	19	19	50	Butane	Statoil Mongstad

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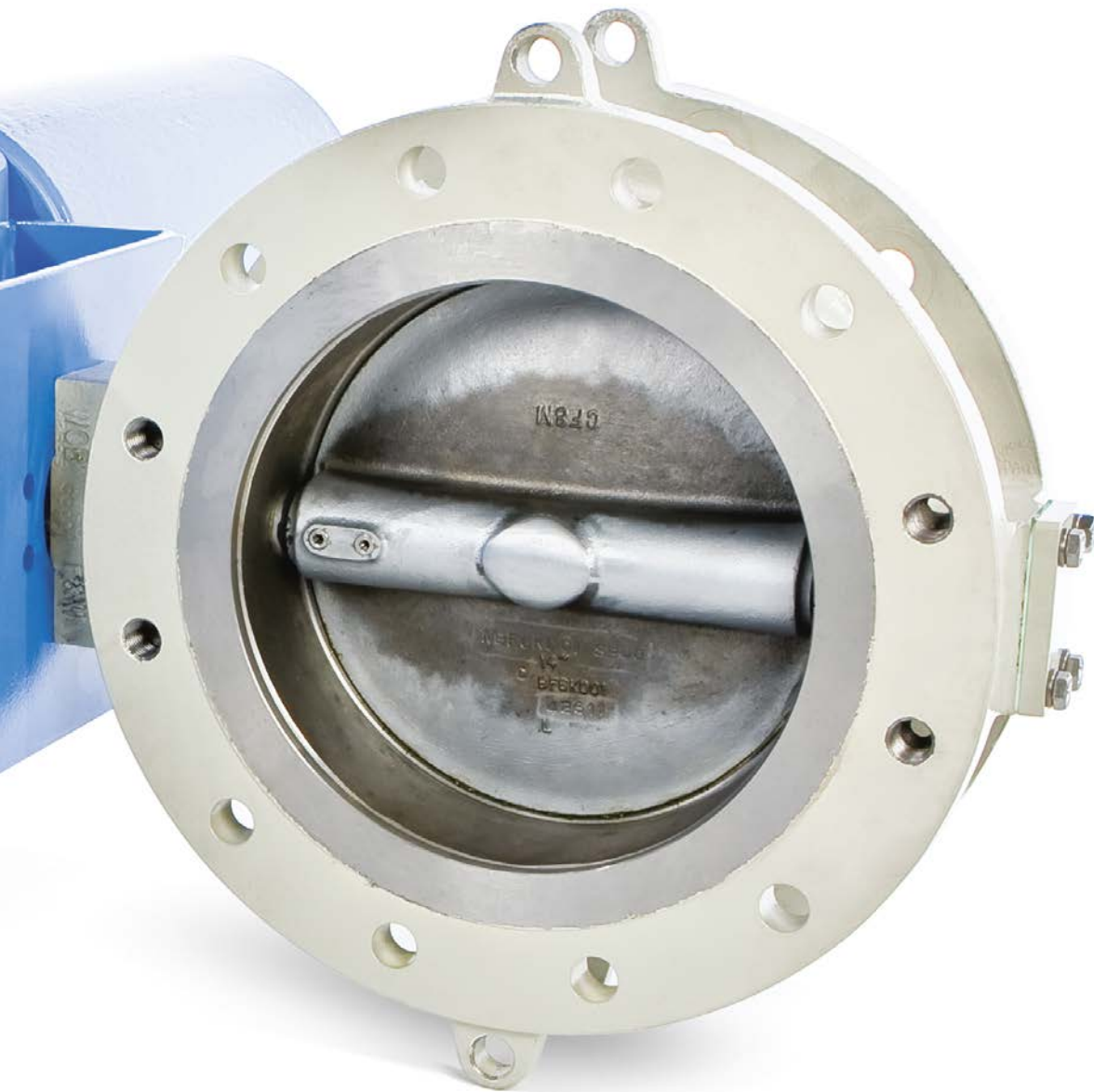
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The company's policy is one of continual development and the right is reserved to modify the specifications contained herein without notice.