

Butterfly Valve - Model 9900

Torque in N-m for ASME Class 150

Size		Pressure Difference - bar (psi)								
		20 (290)			15 (218)			7 (102)		
in	mm	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque
2	50	18	17	7	18	17	5	17	17	4
2.1/2	65	29	27	7	29	27	6	27	26	3
3	80	40	36	13	39	36	11	37	36	6
4	100	70	64	23	68	64	18	65	63	9
6	150	141	129	45	137	128	35	130	126	19
8	200	281	257	100	271	253	77	256	248	40
10	250	481	439	175	464	433	134	437	422	68
12	300	685	627	288	659	616	220	618	597	110
14	350	934	855	339	896	837	259	835	808	131
16	400	1390	1276	466	1331	1245	357	1235	1195	182
18	450	1953	1794	646	1864	1745	494	1723	1667	250
20	500	2545	2344	808	2418	2267	619	2215	2144	317
22	550	3335	2996	970	3145	2891	745	2842	2724	386
24	600	3908	3606	1210	3696	3469	929	3356	3250	479
26	650	4409	4067	1412	4169	3913	1080	3785	3665	550
28	700	5335	4932	1842	5022	4720	1409	4522	4381	718
30	750	6683	6015	2228	6273	5772	1699	5618	5384	853
32	800	7591	6829	2350	7124	6553	1790	6377	6111	895
34	850	8998	8141	3025	8379	7736	2312	7388	7088	1173
36	900	10899	9860	3866	10148	9368	2951	8947	8583	1486
40	1000	13997	12688	4750	12980	11998	3624	11352	10894	1823
42	1050	15185	13780	5297	14055	13001	4040	12246	11754	2020
44	1100	17605	15972	5910	16292	15067	4500	14189	13618	2244
48	1200	20302	18490	5321	18696	17338	4089	16127	15493	2119
52	1300	27184	24824	8788	24898	23128	6714	21241	20415	3395
56	1400	32455	29625	10540	29714	27591	8028	25328	24337	4008
60	1500	37641	34487	12049	34327	31962	9224	29025	27921	4704
64	1600	56159	51622	14640	50897	47494	11216	375906	361855	5739
72	1800	76550	70520	21456	69061	64538	16398	57077	54967	8304
76	1900	86494	79794	25009	77807	72782	19094	63908	61563	9631
80	2000	96495	89071	28591	86665	81096	21797	70936	68338	10928
88	2200	121709	112671	38200	108754	101975	29114	88024	84861	14576

NOTES:-1) For Matel Seat, Fire Safe Design & Soild Metal Seat multiply above torque by 1.5 to 1.8.

2) For actuator selection or sizing , factor of safety of 1.3 - 1.5 is recommended.

3) INVACO reserve the right to change Design, Material or Specification or any other information without prior notice.



Butterfly Valve - Model 9900													
Torque in N-m for ASME Class 300													
Size		Pressure Difference - bar (psi)											
		51 (740)			38 (551)			20 (290)			7 (102)		
in	mm	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque
2	50	23	19	6	22	19	5	21	19	4	19	19	3
2.1/2	65	59	48	19	55	47	15	51	47	9	48	46	4
3	80	73	59	22	68	59	17	63	57	11	58	57	6
4	100	114	93	36	108	92	28	98	90	17	92	89	9
6	150	231	191	81	216	185	63	194	178	39	179	173	21
8	200	425	354	151	392	339	118	347	320	72	315	305	39
10	250	687	571	230	634	548	179	561	515	108	508	492	56
12	300	1119	939	381	1024	890	296	892	822	178	797	772	93
14	350	1829	1558	556	1665	1462	436	1437	1331	272	1273	1236	153
16	400	2795	2384	814	2531	2226	633	2166	2006	383	1903	1847	202
18	450	3540	3046	1111	3186	2818	864	2696	2503	523	2342	2275	276
20	500	4854	4213	1657	4347	3869	1292	3645	3394	786	3138	3050	421
22	550	6441	5354	2282	5719	4909	1768	4719	4293	1056	3997	3848	542
24	600	7546	6573	2837	6704	5979	2186	5539	5157	1285	4697	4563	5615
26	650	9180	7718	3541	8103	7013	2743	6611	6037	1637	5534	5333	839
28	700	11591	9870	4726	10160	8878	3664	8179	7504	2194	6748	6512	1132
30	750	13624	12115	5871	11926	10801	4538	9573	8982	2691	7875	7668	1358
32	800	15437	13143	5252	13466	11757	4068	10737	9838	2430	8766	8452	1246
34	850	17753	15177	6212	15468	13548	4821	12303	11293	2895	10018	9665	1503
36	900	21441	18397	7758	18604	16336	5998	14676	13482	3560	11839	11422	1800
40	1000	29641	25763	11465	25487	22598	8847	19736	18215	5224	15582	15050	2607
42	1050	32309	28087	12650	27740	24594	9738	21413	19758	5707	16845	16265	2795
44	1100	37234	32596	15000	31956	28500	11617	24647	22829	6934	19369	18733	3551
48	1200	41346	36349	16976	35381	31658	13142	27121	25162	7834	21156	20471	4001
56	1400	64935	57362	28524	55049	49407	21861	41362	38392	12636	31476	30437	5973
60	1500	71736	63727	32034	60612	54644	24570	45209	42069	14236	34085	32986	6772

NOTES:-

- 1) For Metal Seat, Fire Safe Design & Solid Metal Seat multiply above torque by 1.5 to 1.8.
- 2) For actuator selection or sizing, factor of safety of 1.3 - 1.5 is recommended.
- 3) INVACO reserve the right to change Design, Material or Specification or any other information without prior notice.



Butterfly Valve - Model 9900

Torque in N-m for ASME Class 600

Size		Pressure Difference - bar (psi)											
		102 (1480)			51 (740)			20 (290)			7 (102)		
in	mm	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque	Break Torque	Seating Torque	Open Torque
3	80	109	81	29	90	76	19	78	73	13	73	71	10
4	100	249	197	84	206	180	58	180	170	42	169	165	35
6	150	503	389	190	401	344	117	339	317	72	313	305	53
8	200	899	733	349	714	631	229	602	569	157	555	543	126
10	250	1505	1236	566	1186	1051	371	992	939	253	910	892	204
12	300	2872	2384	1065	2187	1943	676	1770	1674	439	1595	1562	340
14	350	3359	2762	1339	2520	2222	813	2010	1893	493	1796	1755	359
16	400	4892	4085	1762	3640	3237	1106	2879	2721	707	2560	2505	539
18	450	6256	5279	2348	4598	4109	1458	3590	3398	917	3167	3100	690
20	500	8896	7644	3544	6497	5871	2223	5038	4793	1420	4427	4341	1084
24	600	14982	13071	6373	10624	9668	3878	7974	7600	2362	6864	6732	1726
28	700	23508	19942	9761	145173	129391	52501	12086	11387	3606	10276	10031	2630
30	750	28488	24279	12075	19643	17538	7235	14267	13442	4293	12012	11724	3059

- NOTES:-
- 1) For Metal Seat, Fire Safe Design & Solid Metal Seat multiply above torque by 1.5 to 1.8.
 - 2) For actuator selection or sizing, factor of safety of 1.3 - 1.5 is recommended.
 - 3) INVACO reserve the right to change Design, Material or Specification or any other information without prior notice.