

ACTUATORS AND CONTROLS

Apollo Ball Valves

TORQUE CONSTANTS FOR APOLLO PEEK SEATED 83B/86B WITH GRAPHITE STEM PACKING

TORQUE CONSTANT (LB-IN) AT DIFFERENTIAL PRESSURE INDICATED (PSIG)										
Differential Pressure (psig):		200	400	600	800	1000	1200	1400	1500	LSST
Valve Model	Size									(in.-lbs)
FULL PORT 3-PIECE 83B/86B	1/4 - 1/2	75	80	86	91	98	105	111	118	112
	3/4	130	150	170	177	185	194	204	210	195
	1	250	263	276	289	302	315	328	345	375
	1-1/4	420	463	506	549	592	635	678	720	630
	1-1/2	420	463	506	549	592	635	678	720	630
	2	840	922	1004	1086	1168	1250	1332	1410	1260

Caution: 2" PEEK seated valves operating at pressures higher than 1000 psig. should be automated or have a gear operator installed. Lever operation is not suggested. All values are stated in (in. lbs.)

TORQUE CONSTANTS FOR APOLLO FLANGED BALL VALVES

Valve Series	Size	WORKING PRESSURE (PSIG)										
		0	100	200	300	400	500	600	700	740	LSST	-24 Adder
											(in.-lbs)	(in.-lbs)
87A-100'S 88A-140'S 87B-100'S 88B-100'S	1-1/2" SP 150	132	144	155	167						264	68
	2" SP 150	176	193	211	228						352	96
	2-1/2" SP 150	231	254	277	300						462	127
	3" SP 150	253	327	402	476						506	127
	4" SP 150	850	860	875	890						1700	292
	6" SP 150	1325	1345	1370	1400						2650	292
	8" SP 150	2200	2494	2788	3081						4400	661
87A-200'S 88A-240'S	10" SP 150	3300	3580	3860	4140						6600	661
	1/2" FP 150	22	22	22	22						44	45
	3/4" FP 150	39	43	47	51						77	68
	1" FP 150	132	144	155	167						264	68
	1-1/2" FP 150	176	193	211	228						352	96
	2" FP 150	231	254	277	300						462	127
	2-1/2" FP 150	253	327	402	476						506	127
	3" FP 150	850	860	875	890						1700	292
	4" FP 150	1325	1345	1370	1400						2650	292
	6" FP 150	2200	2494	2788	3081						4400	661
	8" FP 150	3300	3580	3860	4140						6600	661
87A-700'S 88A-740'S	10" FP 150	4400	5059	5718	6377						8800	988
	12" FP 150	4950	8300	11650	15000						9900	988
	1-1/2" SP 300	132	144	155	167	178	190	201	213	217	264	68
	2" SP 300	176	193	211	228	245	262	280	297	304	352	96
	2-1/2" SP 300	231	254	277	300	323	346	369	392	401	462	127
	3" SP 300	253	327	402	476	551	625	700	774	804	506	127
	4" SP 300	850	860	875	890	910	950	1030	1110	1142	1700	292
	6" SP 300	1325	1345	1370	1400	1430	1474	1615	1756	1812	2650	292
8" SP 300	2200	2494	2788	3081	3375	3669	3963	4257	4374	4400	661	
87A-900'S 88A-940'S	10" SP 300	3300	3580	3860	4140	4420	4700	4980	5260	5372	6600	661
	1/2" FP 300	22	22	22	22	23	23	23	23	23	44	45
	3/4" FP 300	39	43	47	51	55	59	63	67	69	77	68
	1" FP 300	132	144	155	167	178	190	201	213	217	264	68
	1-1/2" FP 300	176	193	211	228	245	262	280	297	304	352	96
	2" FP 300	231	254	277	300	323	346	369	392	401	462	127
	2-1/2" FP 300	253	327	402	476	551	625	700	774	804	506	127
	3" FP 300	850	860	875	890	910	950	1030	1110	1142	1700	292
	4" FP 300	1325	1345	1370	1400	1430	1474	1615	1756	1812	2650	292
	6" FP 300	2200	2494	2788	3081	3375	3669	3963	4257	4374	4400	661
	8" FP 300	3300	3580	3860	4140	4420	4700	4980	5260	5372	6600	661
	10" FP 300	4400	5059	5718	6377	7036	7696	8355	9014	9277	8800	988
12" FP 300	4950	8300	11650	15000	18349	21699	25049	28399	29739	9900	988	

Apollo Ball Valves

TORQUE CONSTANTS FOR APOLLO END ENTRY VALVE (1), (2)

20% V

TORQUE CONSTANT (LB-IN) AT DIFFERENTIAL PRESSURE INDICATED (PSIG)									
Differential Pressure (psig)		200	400	600	800	1000	1500	LSST***	-24/-29 Adder
Valve Model	Size							(in.-lbs)	(in.-lbs)
STD PORT 70-64X 71-14X 76-10X 76-60X 89-14X 399-10X	1/4 - 1/2	35	35	40	43	46	48	70	45
	3/4	50	50	54	59	62	64	100	45
	1	101	101	103	106	116	130	202	56
	1-1/4	171	171	205	216	246	286	342	96
	1-1/2	192	192	216	265	280	311	384	96
	2	271	271	276	300	309	354	542	96
	2-1/2 & 3	715	715	790		1200		1430	96
FULL PORT BRONZE 77D-14X	1/4 - 1/2	35	35	40				70	45
	3/4	74	74	84				148	56
	1	234	234	250				468	56
	1-1/4	286	286	321				552	56
	1-1/2	357	357	398				714	96
	2	650	650	722				1300	96
	2-1/2 & 3	715	715	790				1430	111
FULL PORT BRONZE 77D-14X	1/2	25	25	25	25			50	
	3/4	55	55	55	55			110	
	1	87	87	87	87			174	
	1-1/2	120	120	120	120			240	
	2	280	280	280	280			560	
**STD PORT **71-ARX-64 89-ARX-64 76-ARX-64	1/4 - 1/2	26	27	28	30	32	35	50	45
	3/4	50	52	54	57	60	64	100	45
	1	86	88	90	94	97	110	170	56
	1-1/4	140	145	156	160	172	194	280	96
	1-1/2	164	173	186	195	201	235	320	96
	2	230	258	270	310	350	460	440	96
	2-1/2	495	576	680	790	900		900	96
	3	540	700	820	920	1030		1000	96
*FULL PORT **77-ARX-64	1/4 - 1/2	50	52	54				100	45
	3/4	86	88	90				170	56
	1	148	160	180				280	56
	1-1/2	300	310	340				580	96
	2	355	420	563				680	96
FULL PORT 3-PIECE 82-14X & 24X	1/4 - 1/2	78	78	90	123	140	157	156	56
	3/4	156	156	178	201	229	257	312	56
	1	208	208	230	248	382	317	416	96
	1-1/4	234	234	276	309	352	395	468	96
	1-1/2	350	350	390	450	513	576	700	96
	2	715	715	755	800	912	1024	1430	96
	3	710						1100	292
	4	1052					1540	292	
FULL PORT 3-PIECE 83A-14X & 24X 83B-14X & 24X 86A-10X & 20X 86B-10X & 20X	1/4 - 1/2	38	39	41	42	43	49	75	45
	3/4	61	62	63	63	67	79	121	68
	1	97	104	110	117	124	141	180	68
	1-1/4	182	198	213	228	243	281	335	96
	1-1/2	182	198	213	228	243	281	335	96
	2	275	388	402	466	529	688	422	127
FULL PORT 3-PIECE 83R-108-01 & 83R-100-01 86R-108-01 & 86R-100-01	2	715	715	755	800	912	1024	1430	96
	3	1030	1030	1087	1148	1212		2060	201

* Torques tested with multifilled seats. Does not require torque adjustment of -20%.

** 71-ARX-64 and 77-ARX-64 rated to 600 psig maximum.

*** LSST - Long Stand Still Torque

Note 1:
Constants are used to determine the in-service torque requirements of Apollo Valves.
Note 2:
Constants are based on RPTFE seats, and clean dry air at the stated differential pressure.



For additional information, submittal sheets and manuals, visit www.apollovalves.com

Customer Service (704) 841-6000