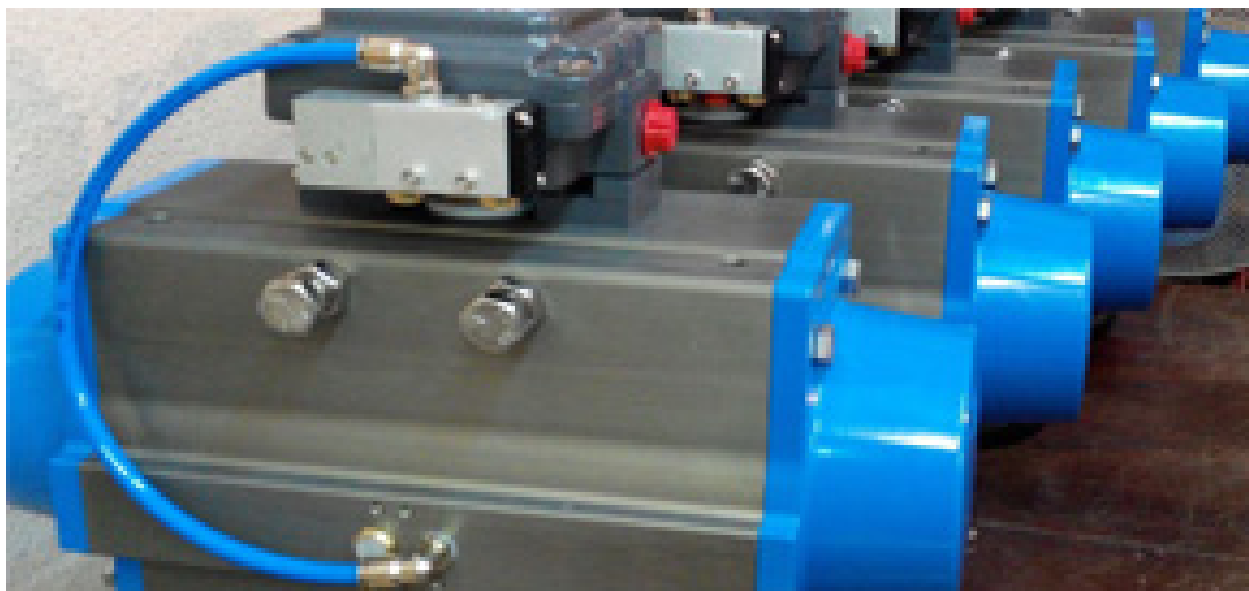


Spring-Diaphragm Actuators



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ASD系列弹簧薄膜执行器

ASD Series Spring-Diaphragm Actuators

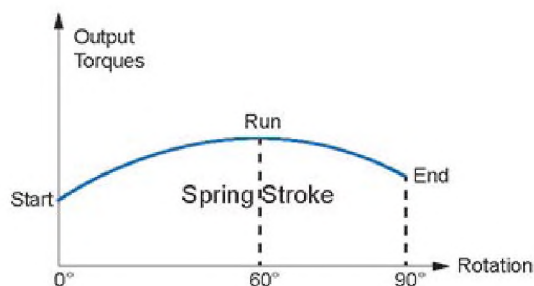
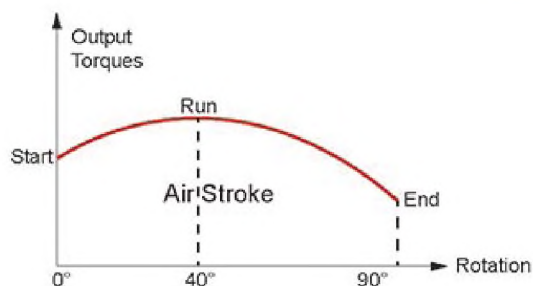


- Rotary travel: $0^{\circ}\sim 90^{\circ}$ with $\pm 5^{\circ}$ adjustment at closed and open stops.
角行程 $0^{\circ}\sim 90^{\circ}$ ，外置双限位调节器
- High control precision of operation because of spring diaphragm structure
弹簧薄膜结构运行平衡控制精度高
- Applicable to various working media, such as gas, water and hydraulic fluid
适用于多种工作介质，气、水和基于矿物的液压流体均可驱动工作
- Available to operate at low pressure (minimum pressure 1 Bar)
可以在低压情况下正常工作（最低压力1Bar）

Designed and developed specifically for quarter turn valves. The ACHEM ASD Spring-Diaphragm Rotary Actuators were designed by using advanced, spring-diaphragm technology that focuses on the crank-shaft and the connecting rod. The ACHEM ASD Spring-Diaphragm Rotary Actuators are designed to be used with minimal pressures when necessary and can be operated by air, gas, water, oil or other supply media. Our housing and cover are constructed with a ductile iron / carbon steel casing that is coated with a polyester powder coating. Our independent media room is equipped with a Buna-N diaphragm reinforced with polyamine fabric. These actuators are designed to work in temperatures as low as -40°C (-40 °F) and as high as 200C (392 °F).

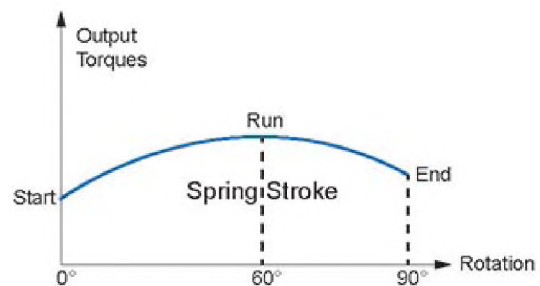
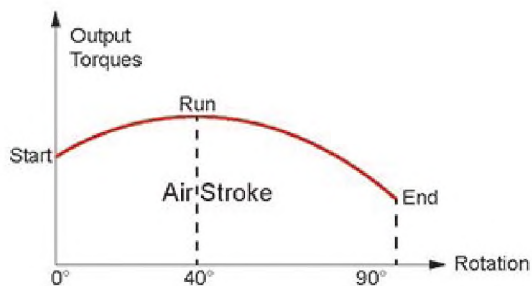
ASD Actuator Output Torques(Nm)

型号 Size	气源压力 Air Strock at Presure (BAR)															弹簧回复 Spring Strock		
	1			1.3			2			2.8			3.4			Start (90°)	Run (60°)	End (0°)
	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)			
ASD2A	25	33	10	45	53	27	95	100	69							34	39	17
ASD2B1							55	37	8	80	90	42	110	129	68	90	105	48
ASD2B2													140	141	35	130	149	65
ASD2C																119	144	75
ASD2D																144	174	90
ASD3A	60	68	22	100	114	49	210	221	116							85	97	41
ASD3B1							110	91	30	180	203	100	260	287	160	180	211	100
ASD3B2													240	223	110	250	291	134
ASD3C																320	369	162
ASD3D																394	448	186
ASD4B1							170	193	80	340	407	250	460	568	370	310	372	190
ASD4B2													476	429	139	569	629	226
ASD4C																657	738	290
ASD4D																748	843	335
ASD5B1							350	305	105	626	724	368	848	1038	590	672	806	414
ASD5B2													800	904	350	958	1135	556
ASD5C																1029	1241	650
ASD5D																1333	1590	800
ASD6B1							545	639	182	1244	1485	800	1583	1998	1250	1350	1650	900
ASD6B2													1300	1518	650	2057	2439	1200
ASD6C																2363	2811	1400
ASD6D																2768	3275	1600



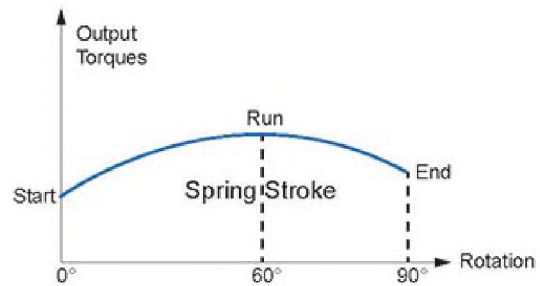
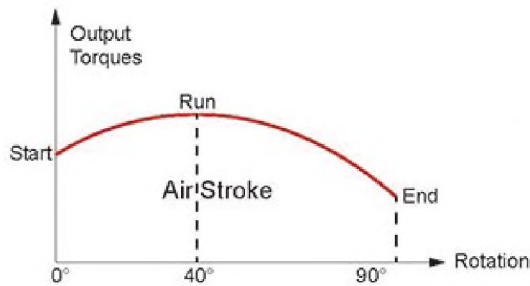
ASD Actuator Output Torques (Nm)

型号 Size	气源压力 Air Strock at Presure (BAR)												弹簧回复 Spring Strock		
	4.1			4.8			5.5			6.2			Start (90°)	Run (60°)	End (0°)
	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)			
ASD2A													34	39	17
ASD2B1													90	105	48
ASD2B2	170	198	68	220	254	100							130	149	65
ASD2C	132	144	50	154	187	79	187	230	108				119	144	75
ASD2D				148	185	64	180	217	92	213	261	120	144	174	90
ASD3A													85	97	41
ASD3B1													180	211	100
ASD3B2	280	323	179	370	422	247							250	291	134
ASD3C	270	288	108	350	393	175	440	498	248				320	369	162
ASD3D				302	300	104	378	404	171	508	517	240	394	448	186
ASD4B1													310	372	190
ASD4B2	654	671	276	840	921	420							569	629	226
ASD4C	685	691	250	826	919	400	1092	1165	552				657	738	290
ASD4D				697	696	214	886	941	369	1105	1156	488	748	843	335
ASD5B1													672	806	414
ASD5B2	1100	1302	630	1400	1701	930							958	1135	556
ASD5C	826	1137	560	1290	1586	865	1581	1994	1150				1029	1241	650
ASD5D				1056	1213	760	1571	1852	1080	1773	2070	1330	1333	1590	800
ASD6B1													1350	1650	900
ASD6B2	1886	2147	1200	2502	3038	1800							2057	2439	1200
ASD6C	1523	1589	1100	2267	2550	1700	2933	2870	2200				2363	2811	1400
ASD6D				1765	2773	1500	2800	3282	2000	3544	4272	2700	2768	3275	1600



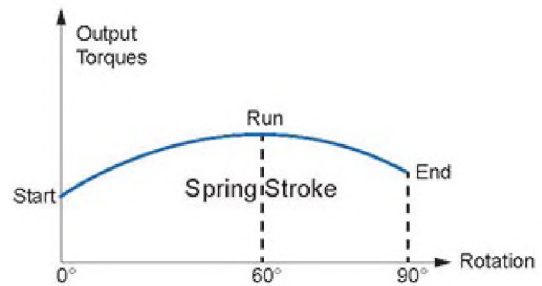
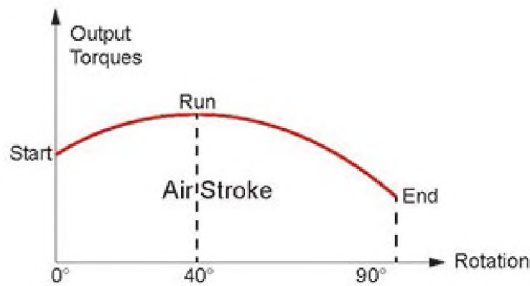
ASD Actuator Output Torques(in.lbs)

型号 Size	气源压力 Air Strock at Presure (PSI)															弹簧回复 Spring Strock		
	15			20			30			40			50			Start (90°)	Run (60°)	End (0°)
	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)			
ASD2A	229	302	92	423	498	254	870	916	632							301	345	150
ASD2B1							504	339	73	698	785	366				797	929	425
ASD2B2													1257	1266	314	1151	1319	575
ASD2C																1053	1274	664
ASD2D																1274	1540	797
ASD3A	549	623	201	939	1070	460	1923	2023	1062							752	858	363
ASD3B1							1007	833	275	1569	1770	872	2334	2576	1436	1593	1867	885
ASD3B2													2154	2002	987	2213	2575	1186
ASD3C																2832	3266	1434
ASD3D																3487	3965	1646
ASD4B1							1556	1767	732	2965	3549	2180	4129	5098	3321	2744	3292	1682
ASD4B2													4272	3851	1248	5036	5567	2000
ASD4C																5814	6531	2567
ASD4D																6620	7461	2965
ASD5B1							3204	2792	961	5458	6313	3209	7611	9317	5296	5947	7133	3664
ASD5B2													7181	8114	3141	8478	10045	4921
ASD5C																9107	10983	5753
ASD5D																11797	14072	7080
ASD6B1							4990	5850	1666	10847	12948	6975	14208	17933	11220	11948	14603	7965
ASD6B2													11668	13625	5834	18204	21585	10620
ASD6C																20913	24877	12390
ASD6D																24497	28984	14160



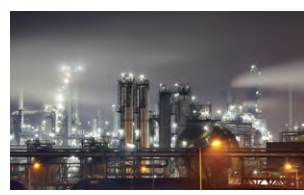
ASD Actuator Output Torques (in.lbs)

型号 Size	气源压力 Air Strock at Presure (PSI)											弹簧回复 Spring Strock			
	60			70			80			90			Start (90°)	Run (60°)	End (0°)
	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)	Start (0°)	Run (40°)	End (90°)			
ASD2A													301	345	150
ASD2B1													797	929	425
ASD2B2	1518	1769	607	1958	2261	890							1151	1319	575
ASD2C	1179	1286	447	1371	1664	703	1660	2042	959				1053	1274	664
ASD2D				1317	1647	570	1598	1926	817	1887	2312	1063	1274	1540	797
ASD3A													752	858	363
ASD3B1													1593	1867	885
ASD3B2	2501	2885	1599	3293	3756	2199							2213	2575	1186
ASD3C	2412	2572	965	3115	3498	1558	3906	4421	2202				2832	3266	1434
ASD3D				2688	2670	926	3356	3587	1518	4501	4581	2126	3487	3965	1646
ASD4B1													2744	3292	1682
ASD4B2	5841	5993	2465	7477	8198	3738							5036	5567	2000
ASD4C	6118	6172	2233	7352	8180	3560	9694	10343	4901				5814	6531	2567
ASD4D				6204	6195	1905	7866	8354	3276	9790	10242	4324	6620	7461	2965
ASD5B1													5947	7133	3664
ASD5B2	9825	11629	5627	12461	15140	8278							8478	10045	4921
ASD5C	7378	10156	5002	11482	14117	7699	14036	17702	10209				9107	10983	5753
ASD5D				9399	10797	6765	13947	16442	9588	15709	18340	11784	11797	14072	7080
ASD6B1													11948	14603	7965
ASD6B2	16846	19177	10718	22270	27041	16022							18204	21585	10620
ASD6C	13603	14193	9825	20178	22697	15131	26038	25479	19531				20913	24877	12390
ASD6D				15710	24682	13351	24858	29137	17755	31399	37849	23922	24497	28984	14160



ALF系列四活塞气动执行器

ALF Series Four Pistons Pneumatic Actuators



- Four piston have the characteristics of small size, big output and high efficiency
四活塞执行器具有大扭矩，小体积，高效能的特点
- Rotary travel: $0^{\circ} \sim 90^{\circ}$ with $\pm 5^{\circ}$ adjustment at closed and open stops
角行程 $0^{\circ} \sim 90^{\circ}$ ，外置双限位调节器
- Shorter working travel distance and faster cycle times.
工作行程短，打开关闭速度快

A more intelligent design yields better performance and longevity. The pistons in the ACHEM actuator are smaller in diameter and shorter in length. The 4 pistons work together and travel a shorter distance, thus creating a more efficient mechanism for generating higher output torque. This innovation minimizes the overall actuator size compared to the standard designs and results in a faster cycle times.

As shown in the following figures, in the case of actuators taking about the same space, the ACHEM actuator output torque is about 80% higher than 2 piston actuator.

ALF Spring Return Actuator Output Torques (Nm)

Model	Spring Set	Operating Pressure (bar)														Spring Stroke	
		3		4		5		5.5		6		7		8			
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
ALF-15SR	S4 (1A)	7	4	10	7	13	11	15	12	17	14	20	17	24	21	8	3
	NA (1B)			8	4	12	8	13	10	15	11	18	14	22	18	9	5
	S2M4 (1C)					18	5	12	7	13	8	18	11	20	13	12	7
	S4M4 (2)								11	8	14	8.5	18	12	15	9	
ALF-20SR	S2M4 (2AB)	10	5	17	12	24	18	27	22	30	25	37	31	43	37	12	7
	S4M4 (2A)			16	10	22	16	26	19	29	22	35	29	41	35	15	9
	S4M2.2 (2AB)			14	7	20	13	24	18	27	19	33	26	39	32	10	11
	S4L4 (2B)					18	10	23	13	25	17	31	23	35	28	21	13
	S4M2.2 (2A)					17	8	25	12	23	15	30	22	36	28	22	15
	M4L4 (2C)							18	10	22	13	28	19	36	26	25	18
	S2M4L4 (2C)									21	11	27	17	33	23	27	17
S4M4L4 (2)									19	9	24	15	30	21	20	12	
ALF-25SR	S2M4 (2AB)	25	15	38	27	51	40	58	47	65	53	76	68	90	78	25	15
	S4M4 (2A)	23	11	34	23	48	36	55	42	62	49	75	62	80	74	28	18
	S4M2.2 (2AB)			33	19	46	32	53	39	60	46	73	68	88	78	32	19
	S4L4 (2B)					43	27	58	34	67	41	79	73	83	88	36	21
	S4M2.2 (2A)					41	22	47	29	54	38	67	48	80	61	42	24
	M4L4 (2C)					38	18	45	24	52	31	64	44	77	58	47	27
	S2M4L4 (2C)							43	19	50	25	63	38	75	58	52	29
S4M4L4 (2)									47	21	60	34	73	48	57	31	
ALF-30SR	S2M4 (2AB)	40	28	63	47	84	70	98	81	107	92	120	114	150	139	35	21
	S4M4 (2A)	36	19	57	40	80	63	81	73	100	84	126	117	148	139	40	26
	S4M2.2 (2AB)			52	30	75	52	86	63	88	74	120	96	143	119	53	31
	S4L4 (2B)			48	19	79	43	87	54	99	65	116	97	128	109	62	38
	S4M2.2 (2A)					68	38	77	47	89	58	111	88	134	103	69	40
	M4L4 (2C)					64	28	73	39	85	58	107	73	128	94	78	44
	S2M4L4 (2C)									89	48	100	62	125	88	88	48
S4M4L4 (2)									75	32	88	55	128	77	95	54	
ALF-35SR	S2M4 (2AB)	81	59	118	89	150	123	174	141	192	158	230	199	268	232	62	32
	S4M4 (2A)	75	39	111	74	150	112	168	129	188	147	234	184	262	221	74	38
	S4M2.2 (2AB)	64	35	100	62	138	99	157	117	175	134	213	171	251	208	87	48
	S4L4 (2B)			92	44	130	62	168	88	196	117	204	154	242	191	105	58
	S4M2.2 (2A)					123	67	141	84	169	102	197	139	226	176	121	65
	M4L4 (2C)							133	68	161	84	188	123	227	169	137	73
	S2M4L4 (2C)									143	73	191	117	218	169	149	82
S4M4L4 (2)									135	63	173	100	211	157	161	88	
ALF-45SR	S2M4 (2AB)	148	99	222	158	295	229	331	264	367	300	448	371	513	442	133	73
	S4M4 (2A)	134	69	208	132	280	203	317	239	350	275	426	348	469	417	159	88
	S4M2.2 (2AB)			187	113	269	184	298	219	342	255	415	328	488	397	179	87
	S4L4 (2B)			179	82	252	153	288	188	325	224	398	285	471	365	212	115
	S4M2.2 (2A)					238	127	274	182	311	199	383	289	458	340	239	130
	M4L4 (2C)					223	162	289	197	299	173	388	344	442	319	285	144
	S2M4L4 (2C)									283	147	358	218	428	289	282	158
S4M4L4 (2)									268	127	341	183	414	354	319	173	
ALF-60SR	S2M4 (2AB)	209	216	532	385	700	524	792	639	879	723	1052	891	1225	1080	382	192
	S4M4 (2A)	208	190	501	329	675	488	782	583	848	667	1021	835	1194	1004	380	194
	S4M2.2 (2AB)			478	285	651	484	738	538	824	623	997	791	1170	890	468	218
	S4L4 (2B)			442	221	635	389	732	475	788	559	961	727	1134	898	473	254
	S4M2.2 (2A)					580	327	687	411	754	485	826	683	1009	822	529	290
	M4L4 (2C)					548	298	635	382	721	437	894	685	1067	774	480	323
	S2M4L4 (2C)									698	378	891	548	1034	715	481	358
S4M4L4 (2)									657	322	826	480	1003	659	720	388	
ALF-75SR	S2M4 (2AB)	473	443	862	755	1312	1057	1472	1233	1831	1578	2351	1980	2776	2380	612	302
	S4M4 (2A)	414	345	835	657	1295	969	1414	1124	1574	1280	1894	1602	2212	1902	615	350
	S4M2.2 (2AB)			801	582	1211	884	1370	1048	1530	1265	1856	1577	2168	1827	680	336
	S4L4 (2B)			820	461	1140	773	1299	928	1458	1084	1779	1386	2007	1708	819	407
	S4M2.2 (2A)					1082	614	1342	838	1491	988	1722	1288	2048	1688	921	525
	M4L4 (2C)					1025	578	1194	732	1344	887	1684	1199	1882	1589	1034	504
	S2M4L4 (2C)									1288	789	1607	1101	1925	1411	1128	642
S4M4L4 (2)									1228	681	1548	1003	1807	1312	1228	708	

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