

Type VA3001/3002/3003

Pneumatic actuator



Application

Single- or double-acting piston actuator for butterfly valves and other final control elements with rotary closure members
Maximum opening angle $\phi = 94^\circ$

Operating media

- Dry or lubricated air, or the non-corrosive gases

Air supply pressure

- The minimum supply pressure is 2.5 Bar
- The maximum supply pressure is 8 Bar

Working temperature

- Standard: $-20^\circ\text{C} \sim +80^\circ\text{C}$
- Low temperature: $-40^\circ\text{C} \sim +80^\circ\text{C}$
- High temperature: $-15^\circ\text{C} \sim +150^\circ\text{C}$

Travel adjustment

- Have adjustment range of $\pm 5^\circ$ for the rotation at 0° and 90°

Installation

- Either indoor or outdoor

Actuator Body

According to the different requirements, the extruded aluminum alloy ASTM6005 Body can be treated with hard anodized, powder polyester painted, PTFE or Nickel plated.

End caps

Die-casting aluminum powder polyester painted in different colours, PTFE or Nickel plated.

Pistons

The twin rack pistons are made from Die-casting aluminum treated with Hard anodized or made from Cast steel with galvanization. Symmetric mounting position, long cycle life and fast operation, reversing rotation by simply inverting the pistons.

Special features

- No special tools needed for mounting and conversion
- Various spring cartridges



Fig. 1: Type VA3001/3002 Actuator

Fig. 2: Type VA3003 Actuator

- Power transmission without clearance thanks to involute serrations
- Direction of rotation can be reversed without additional components
- Special surface treatment method
- Optional with manual override (handwheel)

Further versions

- With opening angles of 120° to 180°
- Three-position actuator
- With hydraulic rotating speed adjuster
- Stainless steel rotary actuator

Principle of operation

Air supplied to Port 2 forces the pistons towards the actuator end caps, with the exhaust air exiting from Port 4, a counter-clockwise rotation is achieved.

Air supplied to Port 4 forces the pistons inward, exhaust air exits from Port 2, a clockwise rotation is achieved.

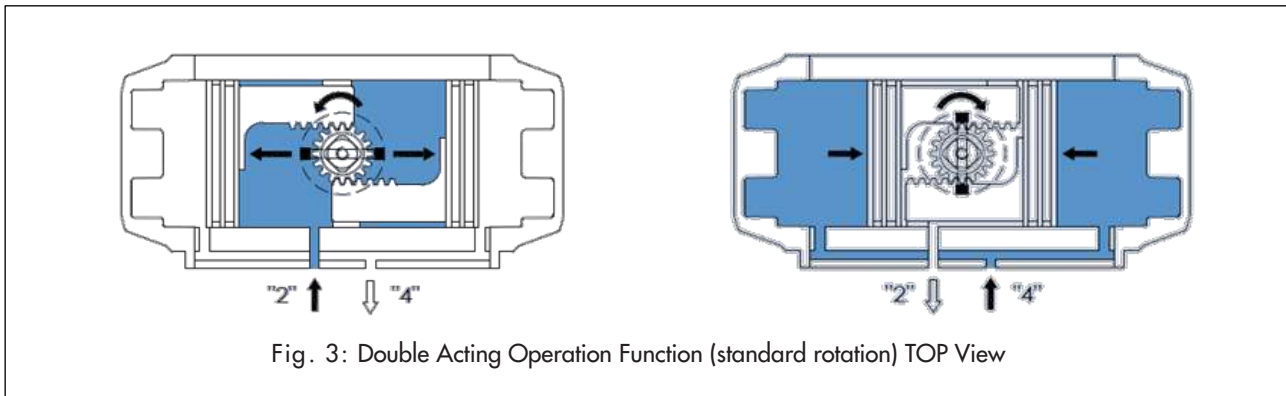


Fig. 3: Double Acting Operation Function (standard rotation) TOP View

Air supplied to port 2 forces the pistons toward the actuator end caps, the springs, with the exhaust air exiting from Port 4, a counter clockwise rotation is achieved.

The loss of air pressure (air or electric failure) at Port 2 allows the springs to force the pistons inward with the exhaust air exiting from Port2, a clockwise rotation is achieved.

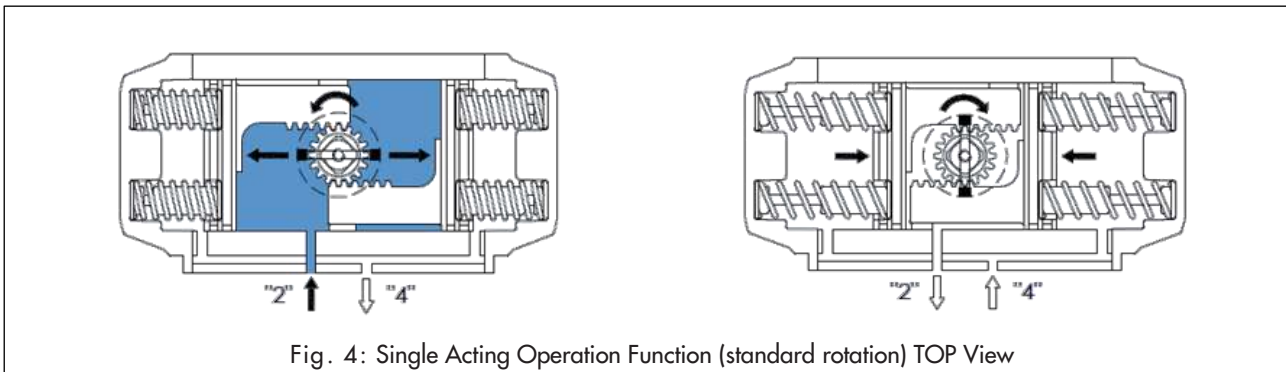


Fig. 4: Single Acting Operation Function (standard rotation) TOP View

Table 1: *Technical data*

Air supply pressure	The minimum supply pressure is 2.5 Bar
	The maximum supply pressure is 8 Bar
Working temperature	Standard:-20°C ~+80°C
	Low temperature:-40°C ~+80°C
	High temperature:-15°C ~+150°C
Travel adjustment	Have adjustment range of $\pm 5^\circ$ for the rotation at 0° and 90°
Installation	Either indoor or outdoor

Table 2: *Materials*

Actuator Body	The extruded aluminum alloy ASTM6005
End caps	Die-casting aluminum
Pistons	The twin rack pistons are made from Die-casting aluminum treated with Hard anodized or made from Cast steel with galvanization.
O-ring(Piston)	NBR
O-ring(End cap)	NBR
O-ring (pinion top)	NBR
O-ring(End cap)	NBR

Output Torque of Pneumatic Actuator

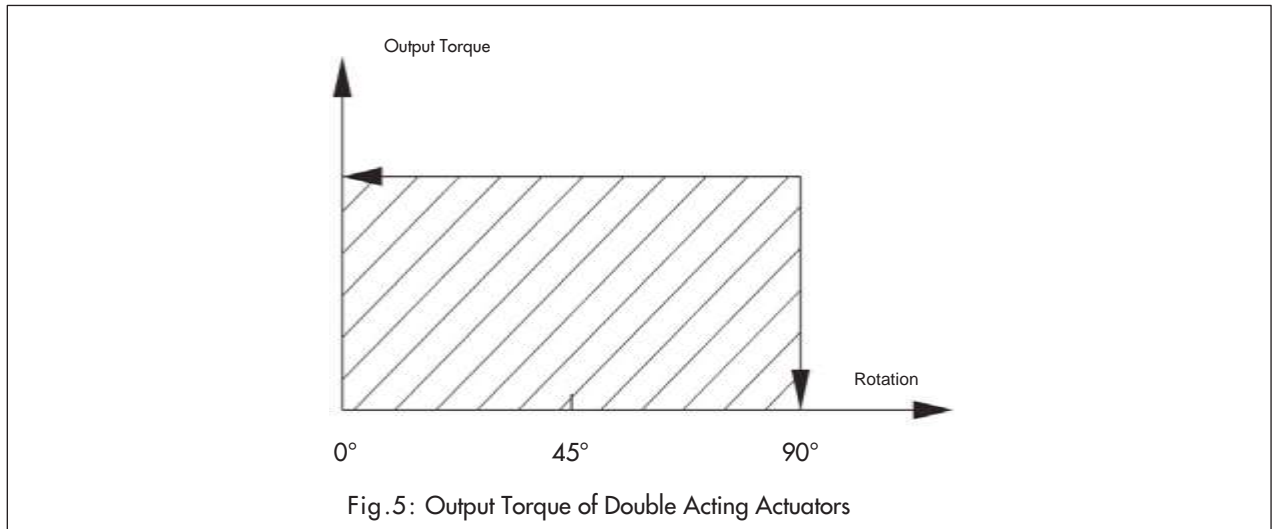


Table 3.1: *Output Torque of Pneumatic Double Acting Actuators*

Unit: Nm

Model	Air supply pressure (Unit:bar)									
	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0
3003-5	2.9	3.4	4.0	4.6	5.3	5.9	6.5	7.1	8.3	9.5
3003-10	5.7	6.9	8.1	9.4	10.6	11.8	13	14.3	16.7	19.2
3003-20	8.6	10.4	12.3	14.2	16.0	17.9	19.8	21.6	25.4	29.1
3003-30	17.4	21.1	25.0	28.7	32.5	26.3	40.1	43.9	51.4	59.0
3003-40	27.0	32.9	38.8	44.7	50.5	56.4	62.3	68.2	79.9	91.7
3003-60	39.7	48.3	56.9	65.6	74.2	82.8	91.4	100.1	117.3	134.6
3003-90	55.7	67.9	80.0	92.1	104.2	116.4	128.5	140.6	164.8	189.1
3003-130	97.9	117.5	137.0	156.6	176.2	195.8	215.3	235.0	274.1	313.3
3003-200	128	159	187	215	243	271	199	327	383	439
3003-340	161	200	235	270	305	340	375	410	480	551
3003-530	358	429	501	573	644	716	787	859	1002	1145
3003-850	535	643	750	857	964	1071	1178	1286	1500	1714
3003-1000	748	897	1047	1197	1346	1496	1645	1795	2094	2394
3003-1500	928	1122	1315	1508	1702	1895	2089	2282	2669	3056
3003-2300	1545	1855	5164	2473	2782	3091	3400	3710	4328	4946
3003-3050	1678	2029	2379	2729	3079	3429	3778	4128	4828	5528
3003-4500	2492	3011	3531	4050	4569	5088	4508	6127	7166	8204
3003-6500	3798	4589	5380	6172	6969	7754	8545	9337	10919	12502

Sizing: Double Acting Actuator

The suggested safety factor for double acting actuators under normal working conditions is 20%-30%

Example:

- The torque needed by valve=100N.m
- The torque considered safety factor (1+30%)=130N.m
- Air Supply=5Bar

According to the above table, we can choose the minimum model is VA3003-130.

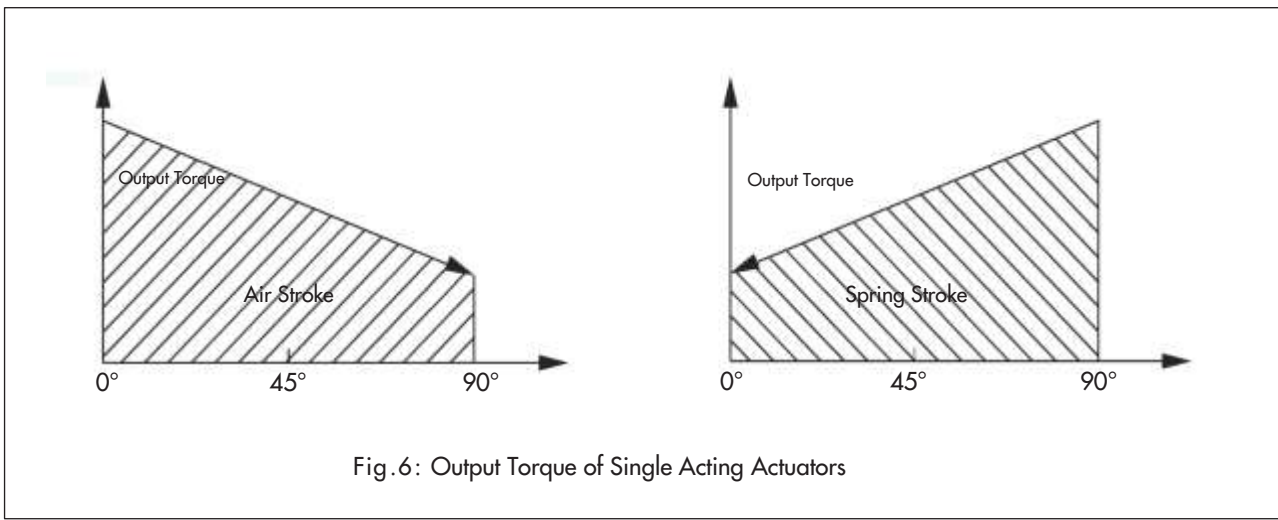


Fig.6: Output Torque of Single Acting Actuators

Table 3.2.1: Output Torque of Pneumatic Single Acting Actuator

Unit: Nm

Air Pressure		Output torque of air to springs (Unit:bar)																				Springs' output	
		2.5		3.0		3.5		4.0		4.5		5.0		5.5		6.0		7.0		8.0			
Model	Spring Qty	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
3001-20 / 3002-20	5	5.1	3.4	6.9	5.3	8.8	7.2	10.7	9.0	12.5	10.9	14.4	12.8	16.3	14.6	18.1	16.5	21.9	20.2	25.6	23.9	5.2	3.9
	6	4.4	2.4	6.2	4.3	8.1	6.1	10.0	8.0	11.8	9.9	13.7	11.7	15.6	13.6	17.4	15.5	21.2	19.2	24.9	22.9	6.2	4.2
	7			5.5	3.2	7.4	5.1	9.3	7.0	11.1	8.8	13.0	10.7	14.9	12.6	16.7	14.4	20.5	18.2	24.2	21.9	7.2	4.9
	8					6.7	4.1	8.6	5.9	10.4	7.8	12.3	9.7	14.2	11.5	16.0	13.4	19.8	17.1	23.5	20.9	8.2	5.6
	9							7.9	4.9	9.7	6.8	11.6	8.6	13.5	10.5	15.3	12.4	19.1	16.1	22.8	19.8	9.3	6.3
	10									9.0	5.7	10.9	7.6	12.8	9.5	14.6	11.3	18.4	15.1	22.1	18.8	10.3	7.0
	11											10.2	6.6	12.1	8.4	13.9	10.3	17.7	14.0	21.4	17.8	11.3	7.7
	12														11.4	7.4	13.2	9.3	17.0	13.0	20.7	16.7	12.4
3001-30 / 3002-30	5	8.7	4.3	12.5	8.1	16.3	11.9	20.0	15.6	23.8	19.4	27.6	23.2	31.4	27.0	35.2	30.8	42.7	38.3	50.3	45.9	13.1	8.7
	6	7.0	1.7	10.7	5.5	14.5	9.2	18.3	13.0	22.1	16.8	25.9	20.6	29.7	24.4	33.4	28.2	41.0	35.7	48.6	43.3	15.7	10.4
	7			9.0	2.8	12.8	6.6	16.6	10.4	20.4	14.2	24.1	18.0	27.9	21.8	31.7	25.5	39.3	33.1	46.8	40.7	18.3	12.2
	8					11.0	4.0	14.8	7.8	18.6	11.6	22.4	15.4	26.2	19.1	30.0	22.9	37.5	30.5	45.1	38.1	21.0	13.9
	9							13.1	5.2	16.9	9.0	20.7	12.7	24.4	16.5	28.2	20.3	35.8	27.9	43.4	35.4	23.6	15.7
	10									15.1	6.3	18.9	10.1	22.7	13.9	26.5	17.7	34.0	25.2	41.6	32.8	26.2	17.4
	11											17.2	7.5	21.0	11.3	24.7	15.1	32.3	22.6	39.9	30.2	28.8	19.1
	12														19.2	8.7	23.0	12.4	30.6	20.0	38.1	27.6	31.4
3001-40 / 3002-40	5	16.3	10.2	22.2	16.0	28.1	21.9	34.0	27.8	39.8	33.7	45.7	39.6	51.6	45.4	57.5	51.3	69.2	63.1	81.0	74.8	16.9	10.7
	6	14.2	6.8	20.1	12.7	25.9	18.6	31.8	24.4	37.7	30.3	43.6	36.2	49.4	42.1	55.3	47.9	67.1	59.7	78.8	71.4	20.2	12.8
	7			17.9	9.3	23.8	15.2	29.7	21.1	35.6	26.9	41.4	32.8	47.3	38.7	53.2	44.6	64.9	56.3	76.7	68.1	23.6	15.0
	8					21.7	11.8	27.5	17.7	33.4	23.6	39.3	29.4	45.2	35.3	51.0	41.2	62.8	53.0	74.5	64.7	27.0	17.1
	9							25.4	14.3	31.3	20.2	37.1	26.1	43.0	32.0	48.9	37.8	60.7	49.6	72.4	61.3	30.3	19.3
	10									29.1	16.8	35.0	22.7	40.9	29.6	46.8	34.5	58.5	46.2	70.3	58.0	33.7	21.4
	11											32.9	19.3	38.7	25.2	44.6	31.1	56.4	42.8	68.1	54.6	37.1	23.5
	12														36.6	21.8	42.5	27.7	54.2	39.5	66.0	51.2	40.4
3001-60 / 3002-60	5	23.2	13.7	31.8	22.3	40.4	30.9	49.0	39.5	57.6	43.1	66.3	56.8	74.9	65.4	83.5	74.0	100.8	91.3	118.0	108.5	16.1	16.6
	6	19.8	8.4	28.4	17.0	37.1	25.7	45.7	34.3	54.3	42.9	62.9	51.5	71.6	60.2	80.2	68.8	97.4	86.0	114.7	103.3	31.3	19.9
	7			25.1	11.8	33.8	20.5	42.4	29.1	51.0	37.7	59.6	46.3	68.3	55.0	76.9	63.6	94.1	80.8	111.4	98.1	36.5	23.2
	8					30.4	15.2	39.1	23.9	47.7	32.5	56.3	41.4	64.9	49.7	73.6	58.4	90.8	75.6	108.1	92.9	41.7	26.5
	9							35.8	18.7	44.4	27.3	53.0	35.9	61.6	44.5	70.3	53.2	87.5	70.4	104.8	87.7	46.9	29.8
	10									41.1	22.1	49.7	30.7	58.3	39.3	67.0	48.0	84.2	65.2	101.5	82.5	52.1	33.1
	11											46.4	25.5	55.0	34.1	63.6	42.7	80.9	60.0	98.1	77.2	57.3	36.4
	12														51.7	28.9	60.3	37.5	77.6	54.8	94.8	72.0	62.5

Table 3.2.2: Output Torque of Pneumatic Single Acting Actuator

Unit: Nm

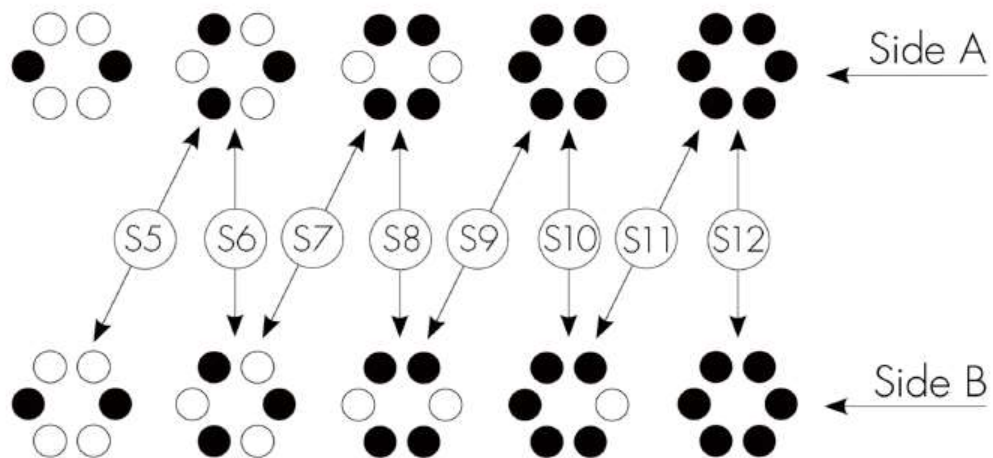
Output torque of air to springs (Unit:bar)																						Springs' output			
Air Pressure		2.5		3.0		3.5		4.0		4.5		5.0		5.5		6.0		7.0		8.0		0°		90°	
Model	Spring Qty.	0°		90°		0°		90°		0°		90°		0°		90°		0°		90°		0°		90°	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
3001-90 / 3002-90	5	33.6	20.9	45.8	33.0	57.9	45.1	70.0	57.3	82.1	69.4	94.3	81.5	106.4	93.6	118.5	105.8	142.7	130.0	167.0	154.2	34.9	22.1		
	6	29.2	13.9	41.4	26.1	53.5	38.2	65.5	50.3	77.7	62.4	89.8	74.5	102.0	86.7	114.1	98.8	138.3	123.0	162.6	147.3	41.8	26.5		
	7			36.9	19.1	49.1	31.2	61.2	43.3	73.3	55.4	85.4	67.6	97.5	79.7	109.7	91.8	133.9	116.1	158.1	140.3	48.8	30.9		
	8					44.6	24.2	56.8	36.4	68.9	48.5	81.0	60.6	93.1	72.7	105.2	84.8	129.5	109.1	153.7	133.3	55.8	35.4		
	9							52.3	29.4	64.5	41.5	76.6	53.6	88.7	65.8	100.8	77.9	125.1	102.1	149.3	126.4	62.7	39.8		
	10									60.0	34.5	72.2	46.7	84.3	58.8	96.4	70.9	120.6	95.1	144.9	119.4	69.7	44.2		
	11											67.7	39.7	79.9	51.8	92.0	63.9	116.2	88.2	140.5	112.4	76.7	48.6		
	12														75.4	44.8	87.6	57.0	111.8	81.2	136.0	105.4	83.6	53.0	
3001-130 / 3002-130	5	63.0	45.9	82.6	65.5	102.1	85.0	121.7	104.6	141.3	124.2	160.9	143.8	180.4	163.3	200.1	183.0	239.2	222.1	278.4	261.3	52.0	34.9		
	6	56.1	35.5	75.7	55.1	95.2	74.6	114.8	94.2	134.4	113.8	154.0	133.4	173.5	152.9	193.2	172.6	232.3	211.7	271.5	250.9	62.4	41.8		
	7	49.1	25.1	68.7	44.7	88.2	64.2	107.8	83.8	127.4	103.4	147.0	123.0	166.5	142.5	186.2	162.2	225.3	201.3	264.5	240.5	72.8	48.8		
	8					81.2	53.8	100.8	73.4	120.4	93.0	140.0	112.6	159.5	132.1	179.2	151.8	218.3	190.9	257.5	230.1	83.2	55.8		
	9					74.2	43.4	93.8	63.0	113.4	82.6	133.0	102.2	152.5	121.7	172.2	141.4	211.3	180.5	250.5	219.7	93.6	62.8		
	10					67.2	33.0	86.8	52.6	106.4	72.2	126.0	91.8	145.5	111.3	165.2	131.0	204.3	170.1	243.5	209.3	104.0	69.8		
	11							79.9	42.2	99.5	61.8	119.1	81.4	138.6	100.9	158.3	120.6	197.4	159.7	236.6	198.9	114.4	76.7		
	12							72.9	31.8	92.5	51.4	112.1	71.0	131.6	90.5	151.3	110.2	190.4	149.3	229.6	188.5	124.8	83.7		
3001-200 / 3002-200	5	77	48	108	78	136	106	164	134	192	162	220	190	248	218	276	246	332	302	388	358	80	51		
	6	67	32	98	62	126	90	154	118	182	146	210	174	238	202	266	230	322	286	378	342	96	61		
	7			88	46	116	74	144	102	172	130	200	158	228	186	256	214	311	270	367	326	112	71		
	8					105	58	133	86	161	114	189	142	217	170	245	198	301	254	357	310	128	81		
	9							123	70	151	98	179	126	207	154	235	182	291	238	347	294	145	91		
	10									141	82	169	110	197	138	225	166	281	222	337	278	161	102		
	11											159	94	187	122	215	150	271	206	327	262	177	112		
	12														177	106	205	134	260	190	316	246	193	122	
3001-340 / 3002-340	5	114	74	155	115	196	156	237	196	277	237	316	278									122	82		
	6	97	49	138	90	179	131	220	172	261	213	302	254	343	295							146	98		
	7			122	66	163	107	204	147	245	188	285	229	326	270	367	311					171	115		
	8					146	82	187	123	228	164	269	205	310	246	351	287	433	369			195	131		
	9							171	99	212	139	253	180	294	221	334	262	416	344	498	426	220	148		
	10									195	115	236	156	277	197	318	238	400	320	482	401	244	164		
	11											220	131	261	172	302	213	383	295	465	377	269	181		
	12														244	148	285	189	367	271	449	353	293	197	
3001-530 / 3002-530	5	213	133	285	204	356	276	428	348	500	419	571	491	643	562	715	634	858	777	1000	920	225	144		
	6	184	88	256	159	328	231	399	303	471	374	542	446	614	517	686	589	829	732	971	875	270	173		
	7	155	43	227	114	299	186	370	258	442	329	513	401	585	472	657	544	800	687	943	830	315	202		
	8					270	141	341	213	413	284	485	356	556	427	628	499	771	642	914	785	360	231		
	9					241	96	312	168	384	239	456	311	527	382	599	454	742	597	885	740	405	260		
	10					212	51	284	123	355	194	427	266	498	337	570	409	713	552	856	695	450	289		
	11							255	78	326	149	398	221	470	292	541	364	684	507	827	650	495	317		
	12									297	104	369	176	441	247	512	319	656	462	798	605	540	346		
3001-850 / 3002-850	5	335	223	443	331	550	438	657	545													312	200		
	6	295	161	403	269	510	376	617	483	724	590											374	240		
	7	255	98	363	206	470	313	577	420	684	527	791	634									437	280		
	8					430	251	537	358	644	465	751	572	858	679	966	787	1180	1001			499	320		
	9					390	188	497	295	604	402	711	509	818	616	926	724	1140	938			562	360		
	10							457	207	564	314	671	421	778	528	886	636	1100	850	1314	1064	650	400		
	11									524	278	631	385	738	492	846	600	1060	814	1274	1028	686	440		
	12									484	215	591	322	689	429	806	537	1020	751	1234	965	749	480		

Table 3.2.3: Output Torque of Pneumatic Single Acting Actuator

Unit: Nm

		Output torque of air to springs (Unit:bar)																				Springs' output				
Air Pressure		2.5		3.0		3.5		4.0		4.5		5.0		5.5		6.0		7.0		8.0						
Model	Spring Qty	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End			
3001-1000 / 3002-1000	5	468	302	617	451	767	601	917	751	1066	900												446	280		
	6	412	212	561	362	711	512	861	661	1010	811	1160	961										535	336		
	7			505	273	655	422	805	572	954	722	1104	871	1253	1021								624	392		
	8					599	333	749	483	898	633	1048	782	1197	932	1347	1081	1646	1381				713	448		
	9							693	394	842	543	992	693	1141	843	1291	992	1590	1291				802	504		
	10							637	305	786	454	936	604	1085	753	1235	903	1534	1202	1834	1502	892	560			
	11									730	365	880	515	1029	664	1179	814	1478	1113	1778	1412	981	616			
	12												824	425	973	575	1123	725	1422	1024	1722	1323	1070	672		
3001-1500 / 3002-1500	5	517	374	711	567	904	761	1098	954	1291	1147	1484	1341										554	410		
	6	435	263	629	456	822	650	1015	843	1209	1037	1402	1230	1596	142								664	492		
	7			547	346	740	539	933	732	1127	926	1320	1119	1514	1313	1707	1506						775	574		
	8					658	428	851	622	1045	815	1238	1008	1431	1202	1625	1395	2012	1782				886	656		
	9							769	511	963	704	1156	898	1349	1091	1543	1284	1930	1671	2316	2058	997	738			
	10									880	593	1074	787	1267	980	1461	1174	1847	1560	2234	1947	1108	821			
	11											992	676	1185	869	1379	1063	1765	1450	2152	1836	1218	903			
	12													1103	759	1296	952	1683	1339	2070	1726	1329	985			
3001-2300 / 3002-2300	5	981	697	1291	1007	1600	1316	1909	1625	2218	1934	2527	2243	2836	2552	3146	2862	3764	3480	4382	4098	848	564			
	6	869	528	1178	837	1487	1146	1796	1455	2106	1765	2415	2074	2724	2383	3033	2692	3652	3311	4270	3929	1017	676			
	7			1065	667	1374	976	1683	1286	1993	1595	2302	1904	2611	2213	2920	2522	3539	3141	4157	3759	1187	789			
	8					1261	807	1571	1116	1880	1426	2189	1735	2498	2044	2807	2353	3426	2971	4044	3590	1356	902			
	9							1458	946	1767	1256	2076	1565	2385	1874	2694	2183	3313	2802	3931	3420	1526	1015			
	10									1654	1086	1963	1395	2272	1704	2582	2014	3200	2632	3818	3250	1696	1128			
	11											1851	1226	2160	1535	2469	1844	3088	2463	3706	3081	1865	1240			
	12													2047	1347	2356	1656	2975	2275	3593	2893	2053	1353			
3001-3050 / 3002-3050	5	1498	1017	2017	1536	2536	2055	3056	2574	3575	3094	4094	3613	4613	4132	5133	4652	6171	5690	7210	6729	1475	994			
	6			1818	1241	2337	1760	2857	2279	3376	2799	3895	3318	4415	3837	4934	4356	5972	5395	7011	6434	1770	1193			
	7			1619	946	2139	1465	2658	1984	3177	2504	3696	3023	4216	3542	4735	4061	5774	5100	6812	6139	2065	1392			
	8					1940	1170	2459	1689	2978	2208	3498	2728	4017	3247	4536	3766	5575	4805	6613	5843	2360	1590			
	9					1741	875	2260	1394	2779	1913	3299	2433	3818	2952	4337	3471	5376	4510	6414	5548	2655	1789			
	10							2061	1099	2581	1618	3100	2138	3619	2657	4138	3176	5177	4215	6216	5253	2950	1988			
	11							1862	804	2382	1323	2901	1842	3420	2362	3940	2881	4978	3920	6017	4958	3246	2187			
	12									2183	1028	2702	1547	3221	2067	3741	2586	4779	3624	5818	4663	3541	2386			
3001-4500 / 3002-4500	5	1498	1017	2017	1536	2536	2055	3056	2574	3575	3094	4094	3616	4613	4132	5133	4652	6171	5690	7210	6729	1475	994			
	6			1818	1241	2337	1760	2857	2279	3376	2799	3895	3318	4415	3837	4934	4356	5972	5395	7011	6434	1770	1193			
	7			1619	946	2139	1465	2658	1984	3177	2504	3696	3023	4216	3542	4735	4061	5774	5100	6812	6139	2065	1392			
	8					1940	1170	2459	1689	2978	2208	3498	2728	4017	3247	4536	3766	5575	4805	6613	5843	2360	1590			
	9					1741	875	2260	1394	2779	1913	3299	2433	3818	2952	4337	3471	5376	4510	6414	5548	2655	1789			
	10							2061	1099	2581	1618	3100	2138	3619	2657	4138	3176	5177	4215	6216	5253	2950	1988			
	11							1862	804	2382	1323	2901	1842	3420	2362	3940	2881	4978	3920	6017	4958	3246	2187			
	12									2183	1028	2702	1547	3221	2067	3741	2586	4779	3624	5818	4663	3541	2386			
3001-6500 / 3002-6500	5	2222	1497	3013	2288	3805	3080	4596	3871	5387	4662	6179	5454										2301	1576		
	6			2698	1828	3490	2620	4281	3411	5072	4202	5863	4993	6655	5785								2761	1891		
	7			2383	1368	3174	2195	3966	2951	4757	3742	5548	4533	6339	5314	7131	6116						3221	2206		
	8					2859	1699	3650	3490	4442	3282	5233	4073	6024	4864	6816	5656	8398	7238				3682	2522		
	9					2544	1239	3335	2030	4126	2821	4918	3613	5709	4404	6500	5195	8063	6778	9665	8360	4142	2837			
	10							3020	1570	3811	2361	4603	3153	5394	3944	6185	4735	7768	6318	9350	7900	4602	3152			
	11							2705	1110	3496	1901	4287	2692	5079	3484	5870	4275	7452	5857	9035	7440	5062	3467			
	12									3181	1441	3972	2232	4763	2023	5555	3815	7137	5397	8720	6980	5522	3782			

Spring Mounting Form



S5	=	5 springs
S6	=	6 springs
S7	=	7 springs
S8	=	8 springs
S9	=	9 springs
S10	=	10 springs
S11	=	11 springs
S12	=	12 springs

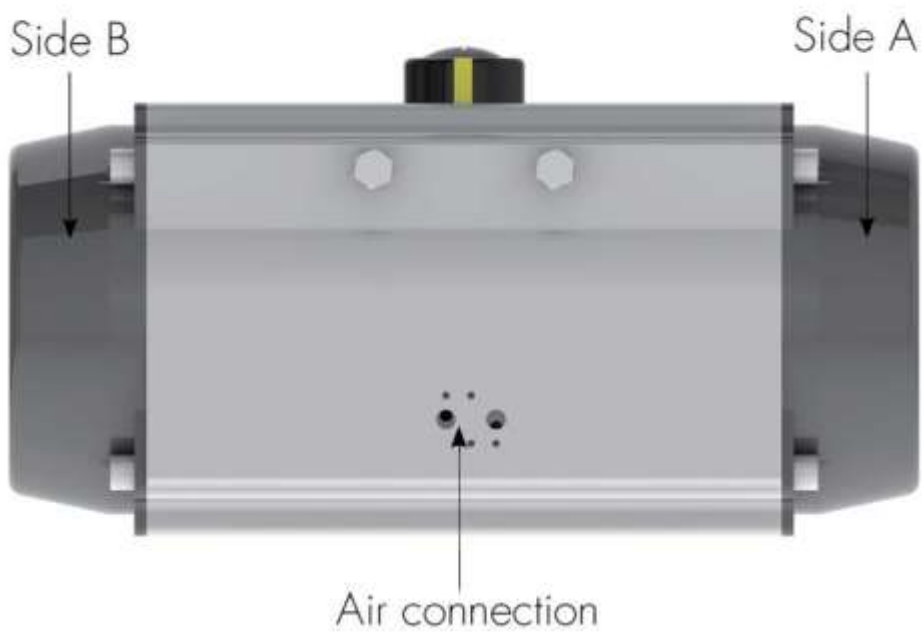


Fig. 7: Spring Set Configuration

Table 4: Dimension for standard version of Type VA3001/3002/3003

Unit: Nm

MODEL	A	B	C	L	E	F ₁	F ₂	P	ΦZ	N	I	FLANGE	Q	Q1	W	W1	Ch	Air Connection
3003-5	37	47	50	110	27	50	-	20	40	10	10	F03	-	36	-	M5x9	9x9	NPT1/4"
3003-10	48	74	60	122	36.5	50	-	20	40	10	12	F03/F05	36	50	M5x7.5	M6x9	11x11	NPT1/4"
3001/3002/3003-20	45	70.5	70	154	41.5	80	-	20	40	10	12	F03/F05	36	50	M5x7.5	M6x9	11x11	NPT1/4"
3001/3002/3003-30	62	89.5	89	189	51.5	80	-	20	40	10	16	F05/F07	50	70	M6x9	M8x12	14x14	NPT1/4"
3001/3002/3003-40	68	102.5	100	210	59	80	-	20	40	14	16	F05/F07	50	70	M6x9	M8x12	14x14	NPT1/4"
3001/3002/3003-60	68	112.5	113	229	63.5	80	-	20	40	14	19	F05/F07	50	70	M6x9	M8x12	17x17	NPT1/4"
3001/3002/3003-90	92	126	123	264	71	80	130	20	40	14	19	F05/F07	70	102	M6x9	M8x12	17x17	NPT1/4"
3001/3002/3003-130	93	138.5	136	308	76.5	80	130	20	40	14	19	F07/F10	70	102	M8x12	M10x15	17x17	NPT1/4"
3001/3002/3003-200	96	157	161	337	85	80	130	30	56	22	25	F07/F10	70	102	M8x12	M10x15	22x22	NPT1/4"
3001/3002/3003-340	110	178	178	377	97	80	130	30	56	22	31	F10/F12	102	125	M10x15	M12x18	27x27	NPT1/4"
3001/3002/3003-530	112	196	200	478	106	80	130	30	56	22	31	F10/F12	102	125	M10x15	M12x18	27x27	NPT1/4"
3001/3002/3003-850	136	216.5	232	552	112	80	130	30	56	22	41	F14	-	140	-	M16x24	36x36	NPT1/4"
3001/3002/3003-1000	140	235.5	255	606	120	80	130	30	80	32	40	F14	-	140	-	M16x24	36x36	NPT1/4"
3001/3002/3003-1500	159	262	292	602	131	80	130	30	80	32	50	F16	-	165	-	M20x28	46x46	NPT1/2"
3001/3002/3003-2300	159	295	331	722	147.5	80	130	30	80	32	50	F16	-	165	-	M20x28	46x46	NPT1/2"
3001/3002/3003-3050	180	335	354	784	173	80	130	30	80	32	50	F16	-	165	-	M20x28	46x46	NPT1/2"
3001/3002/3003-4500	270	385	410	945	195	80	130	30	80	32	50	F16/F25	165	165	M20x28	M16x30	46x46	NPT1/2"
3001/3002/3003-6500	290	520	666	956	260	80	130	30	80	32	60	F25	-	254	-	M16x30	55x55	NPT1/2"

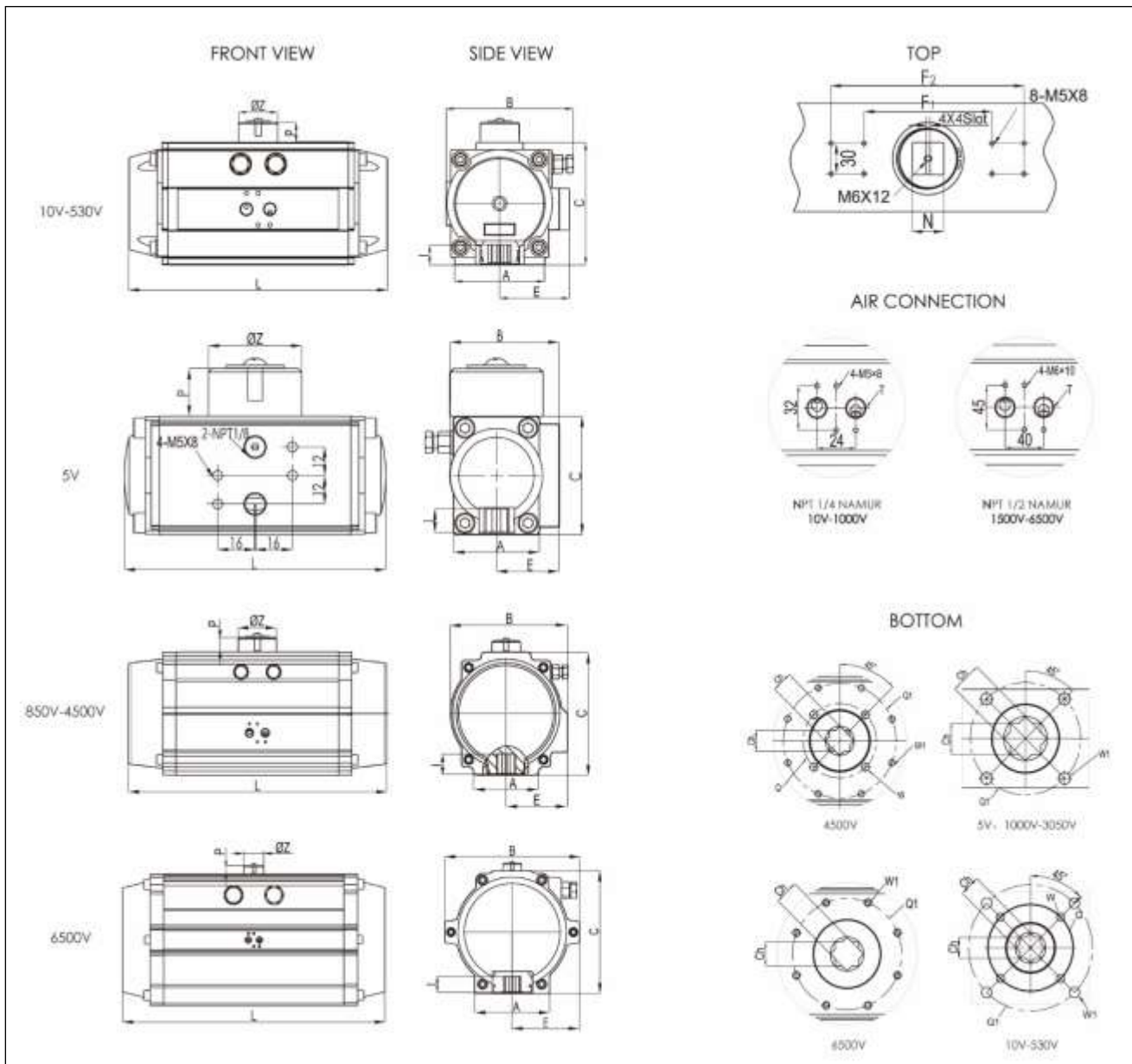


Fig. 8: Dimension of VA3001/3002/3003-5 -6500

Table 5: *Bill of Material*

No.	Description	Qty	STANDARD METIERAL	PROTECTION	OPTIONAL METIERAL
1	Indicator screw	1	plastic		
2	Indicator	1	plastic		
3	Spring clip	1	Stainless Steel		
4	Thrust washer	1	Stainless Steel		
5	Outside washer	1	engineering plastics		
6	Body	1	Extruded aluminum alloy	Hard anodized etc	
7	Inside washer	1	engineering plastics		
8	Cam	1	Alloy steel		
9	O-ring (pinion top)	1	NBR		Viton/Silicone
10	Bearing(pinion top)	1	engineering plastics		
11	Pinion	1	Alloy steel	Nickel plated	Stainless Steel
12	O-ring pinion bottom)	1	engineering plastics		
13	Bearing(pinion bottom)	1	NBR		Viton/Silicone
14	Plug	2	NBR		Viton/Silicone
15	O-ring(Adjust screw)	2	NBR		Viton/Silicone
16	Nut(Adjust screw)	2	Stainless Steel		
17	Adjust screw	2	Stainless Steel		
18	Piston	2	Cast aluminum/casting	anodized/Zinc galvanized	Stainless Steel
19	Guide(Piston)	2	engineering plastics		
20	Bearing(Piston)	2	engineering plastics		
21	O-ring(Piston)	2	NBR		Viton/Silicone
22	Spring	0~12	Spring steel	dip coating	
23	O-ring(End cap)	2	NBR		Viton/Silicone
24	End cap	2	Cast aluminum	powder polyster painted etc	
25	Cap screw	8	Stainless Steel		
26	Stop screw	2	Stainless Steel		
27	Nut(stop screw)	2	Stainless Steel		

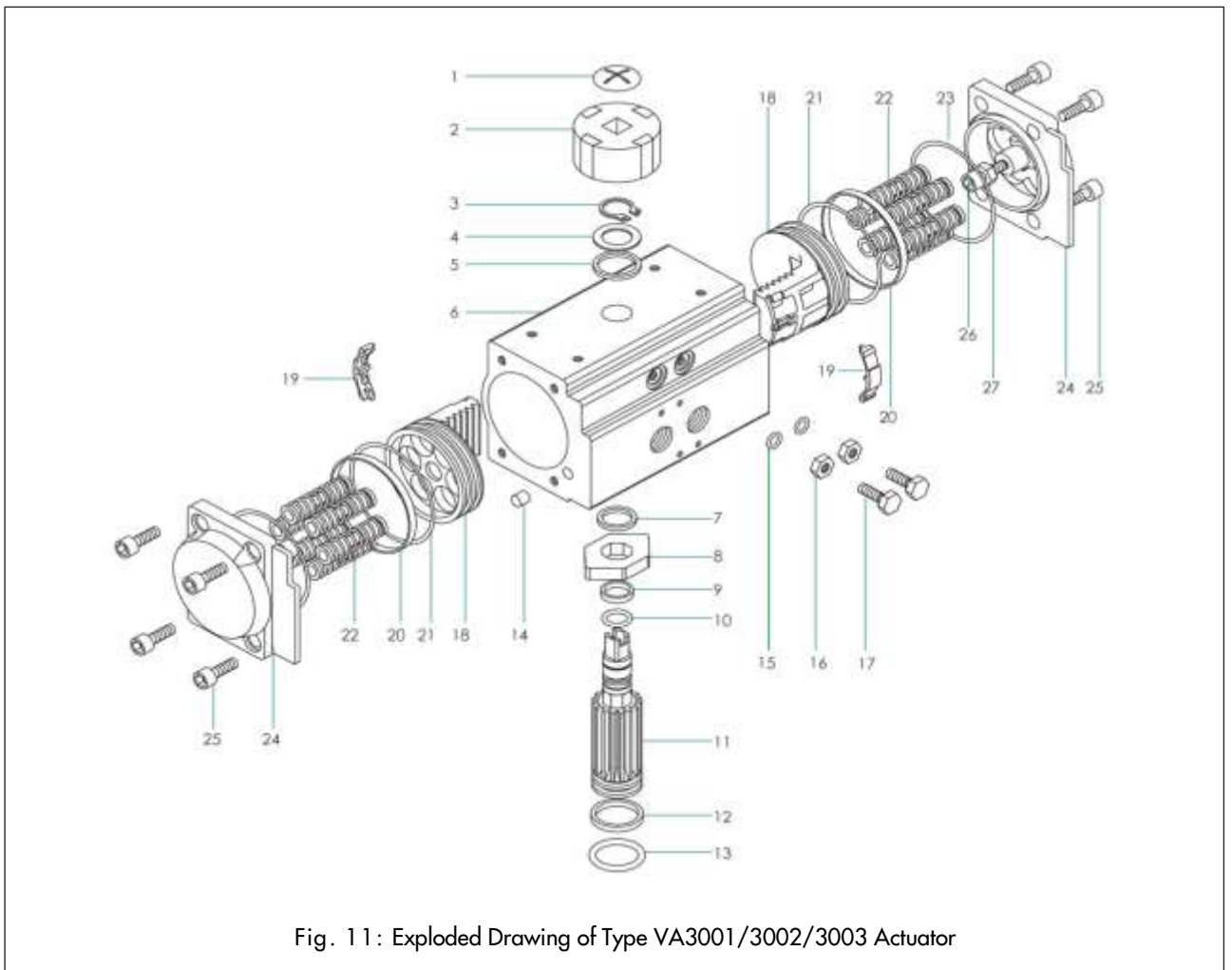


Table 6: *Weights of Type VA3001/3002/3003 in standard version*

Model		3001-5 / 3002-5	3001-10 / 3002-10	3001-20 / 3002-20	3001-30 / 3002-30	3001-40 / 3002-40	3001-60 / 3002-60	SC90V/ SO90V	3001-130 / 3002-130	3001-200 / 3002-200
Weight	kg	0.6	1.1	1.5	2.2	3.3	4.3	5.8	6.9	12.1
Model		3001-340 / 3002-340	3001-530 / 3002-530	3001-850 / 3002-850	3001-1000 / 3002-1000	3001-1500 / 3002-1500	3001-2300 / 3002-2300	3001-3050 / 3002-3050	3001-4500 / 3002-4500	3001-650 / 3002-650
Weight	kg	17	24	35	50	64	90	136	190	300
Model		3003-5	3003-10	3003-20	3003-30	3003-40	3003-60	3003-90	3003-130	3003-200
Weight	kg	0.5	1.0	1.2	2	3.0	3.8	5.2	6.1	11
Model		3003-340	3003-530	3003-850	3003-1000	3003-1500	3003-2300	3003-3050	3003-4500	3003-650 0
Weight	kg	16	21	30	40	53	75	110	150	220

How to Order

Actuator Type	VA	3001	—	20	—	10	—	HM	—	None
Specification=>	1	2	3	4	5	6				

The following details are required on ordering:

1. Series of Actuator

VA is Series No.

2. Actuator Type

3001 Single Acting Actuator and Failure Close

3002 Single Acting Actuator and Failure Open

3003 Double Acting Actuator

3. Actuator Size

5, 10, 20, 30, 40, 60, 90, 130, 200, 340, 530, 850, 1000, 1500, 2300, 3050, 4500, 6500

4. Spring Qty.

5, 6, 7, 8, 9, 10, 11, 12

5. Hand wheel

HM with hand wheel

blank without hand wheel

6. Travel

None = 90°Rotation

75 = 75°Rotation

80 = 80°Rotation

7. Temperature

None = Normal Temperature

L = Low Temperature

8. Special options

None = Normal

F = Fast Exhaust

Specifications subject to change without notice

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