

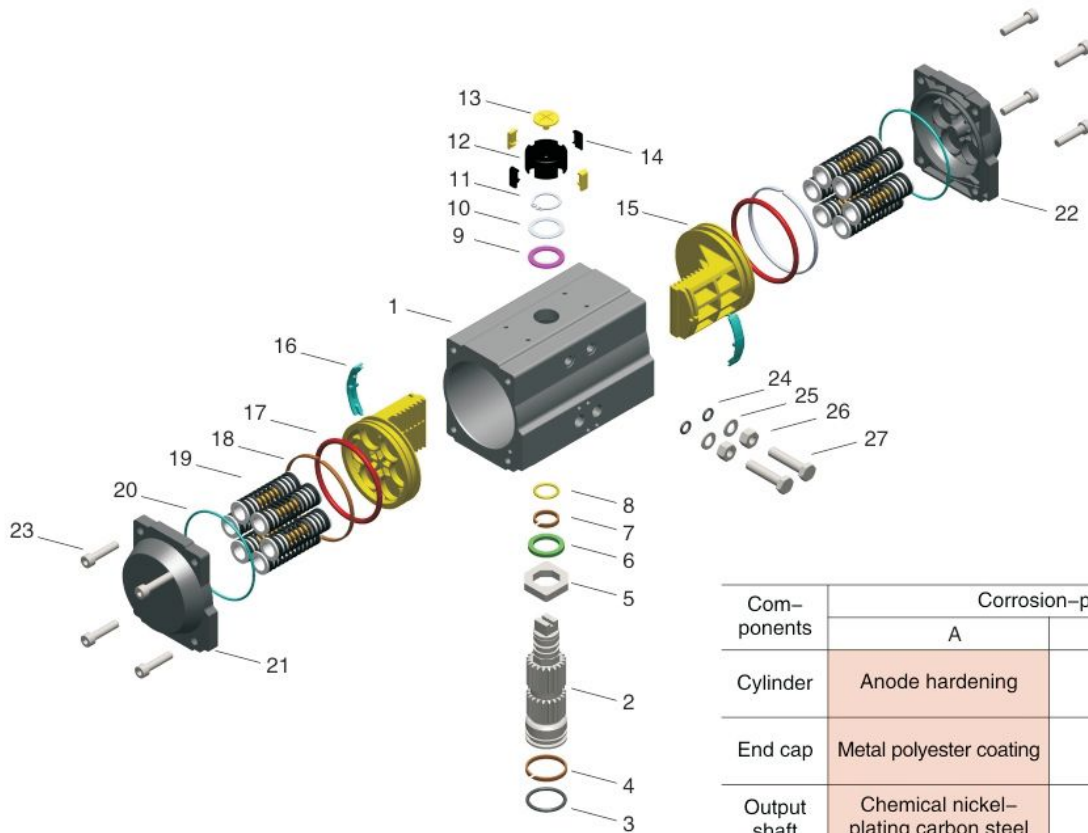


**RACK&PINION TYPE PNEUMATIC ACTUATOR**  
**DR TYPE DOUBLE ACTION**  
**SC TYPE SINGLE ACTION**



# AT040-AT400

## Components, Materials & Corrosion-Proof



Com-ponents	Corrosion-proof grade	
	A	B
Cylinder	Anode hardening	Teflon coating +anode hardening
End cap	Metal polyester coating	Teflon coating
Output shaft	Chemical nickel-plating carbon steel	Chemical nickel-plating carbon steel or stainless steel
Application situation	General situation	General or low acid situation

The following components are recommended for maintenance, including spare parts in the accessory bag.

Part No	Quantity for a machine	Part name	Standard material	Actual material
01	1	Cylinder	Extruded aluminum alloy	Stainless steel
02	1	Output shaft	Carbon steel	Stainless steel
03	1	O-ring (at the bottom of the output shaft)	NBR	Fluorine/silicon rubber
04	1	Bearing (at the bottom of the output shaft)	Nylon46	-
05	1	Adjusting cam	Stainless steel	-
06	1	Thrust bearing (output shaft)	Nylon46	-
07	1	Bearing (at the top of the output shaft)	Nylon46	-
08	1	O-ring (at the top of the output shaft)	NBR	Fluorine/silicon rubber
09	1	Bearing (at the top of the output shaft)	Nylon46	-
10	1	Gasket (output shaft)	Stainless steel	-
11	1	Elastic damping ring	Stainless steel	-
12	1	Position indicator	PPPP+30%GF	-
13	1	Screw	PPPP+30%GF	-
14	4	Position indicating piece	PPPP+30%GF	-
15	2	Piston	Casting aluminum alloy	-
16	2	Guide bearing (at the back of the piston)	Nylon46	-
17	2	O-ring (piston)	NBR	Fluorine/silicon rubber
18	2	Guide ring (piston)	Fluorine-carbon composite material	-
19	5-12	Spring assembly	Alloy spring steel	-
20	2	O-ring (end cap)	NBR	Fluorine/silicon rubber
21	1(1)	Left end cap	Casting aluminum alloy	Stainless steel
22	1(1)	Right end cap	Casting aluminum alloy	Stainless steel
23	8	End cap bolt	Stainless steel	-
24	2	O-ring (adjusting bolt)	NBR	Fluorine/silicon rubber
25	2	Gasket	Stainless steel	-
26	2	Nut	Stainless steel	-
27	2	Adjusting bolt	Stainless steel	-

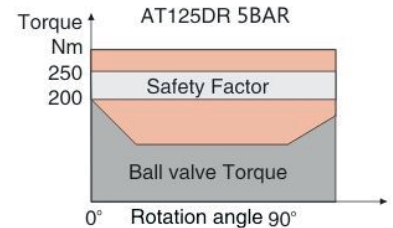
# Double Acting Pneumatic Actuator

## Actuator Selection

When Actuator Selection, you should add a safe value to the defined valve torque, for example, a 25% safe value to steam or non-lubricating liquid media; a 30% safe value to non-lubricating paste or liquid media; a 40% safe value to non-lubricating dry gas media; a 60% safe value to non-lubricating particle or powder media transmitted by gas; a 20% safe value to clean and low-friction lubricating media (the above are theoretical safe values recommended by our company, only for reference).

## Examples for selecting DR double-action actuators

When controlling a ball valve, with torque of 200Nm, air supply pressure of 5.0bar, medium of non-lubricating steam, considering safety factors, you should add a 25% safe value that is equal to 250 Nm; you can find the air supply pressure of 5.0bar in the double-action output torque table, and then search the equal or approximate torque data in the vertical line, and select AT125DR.

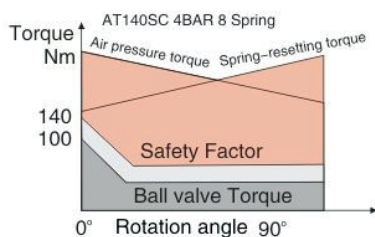


## DR double-action output torque (Nm)

Model	Air torque — N*M							
	2.0bar	3.0bar	4.0bar	5.0bar	5.5bar	6.0bar	7.0bar	8.0bar
AT040	4.0	6.0	8.0	10.1	11.1	12.1	14.1	16.1
AT052	8.5	12.7	17.0	21.2	23.4	25.5	29.7	34.0
AT063	15.0	22.4	29.9	37.4	41.1	44.9	52.4	59.9
AT075	24.7	37.1	49.5	61.9	68.0	74.2	86.6	99.0
AT083	32.5	48.7	64.9	81.2	89.3	97.4	113.6	129.9
AT092	46.5	69.8	93.1	116.3	128.0	139.6	162.9	186.1
AT105	69.3	103.9	138.5	173.2	190.5	207.8	242.5	277.1
AT125	122.7	184.1	245.4	306.8	337.5	368.2	429.5	490.9
AT140	184.7	277.1	369.5	461.8	508.0	554.2	646.5	738.9
AT160	281	422	563	704	774	844	985	1126
AT190	454	680	907	1134	1248	1361	1588	1815
AT210	623	935	1247	1559	1714	1870	2182	2494
AT240	977	1466	1954	2443	2687	2931	3420	3909
AT270	1374	2061	2748	3435	3779	4122	4809	5497
AT300	1696	2545	3393	4241	4665	5089	5938	6786
AT350	2540	3810	5080	6350	6985	7620	8890	10160
AT400	3619	5429	7238	9048	9953	10857	12667	14476

## Examples for selecting SC single-action actuators

When controlling a butterfly valve, with torque of 100Nm, air supply pressure of 4bar, medium of non-lubricating dry gas, considering safety factors, you should add a 40% safe value that is equal to 140Nm; search the spring resetting terminal in the single-action output torque table for an approximate torque of 142Nm; and then find leftward in the line the terminal torque of 156Nm for the air supply pressure of 4bar; you must the relative balance of air supply pressure torque and spring resetting torque; and then search the model and spring quantity leftward in the line, and select AT140SC and 8 springs.



Spring components			
Spring Quantity	Spring installation mode	Spring Quantity	Spring installation mode
5		9	
6		10	
7		11	
8		12	

# Spring Return Pneumatic Actuator

## SC Single-action output torque (NM)

Model	Spring QTY	Air Torque — N*M														
		Spring Torque		3.0bar		4.0bar		5.0bar		5.5bar		6.0bar		7.0bar		
		Start	Over	Start	Over	Start	Over	Start	Over	Start	Over	Start	Over	Start	Over	
40	5	3.0	2.0	4.0	3.0	6.0	5.0									
	6	3.6	2.4	3.6	2.4	5.6	4.4	7.6	6.5	8.6	7.4					
	7	4.2	2.8	3.2	1.8	5.2	3.8	7.2	5.9	8.2	6.8	9.3	7.9			
	8	4.8	3.2	2.8	1.2	4.8	3.2	6.8	5.3	7.8	6.2	8.9	7.3	10.9	9.3	
	9	5.4	3.6			4.4	2.6	6.4	4.7	7.4	5.6	8.5	6.7	10.5	8.7	
	10	6.0	4.0			4.0	2.0	6.0	4.1	7.0	5.0	8.1	6.1	10.1	8.1	
	11	6.6	4.4					5.6	3.5	6.6	4.4	7.7	5.5	9.7	7.5	
	12	7.2	4.8					5.2	2.9	6.2	3.8	7.2	4.9	9.3	6.9	
	52	5	5.4	4.0	8.8	7.3	13.0	11.6								
		6	6.5	4.7	8.0	6.3	12.3	10.5	16.5	14.8	18.6	16.9				
		7	7.6	5.5	7.2	5.2	11.5	9.4	15.7	13.7	17.8	15.8	20.0	17.9		
		8	8.6	6.3	6.4	4.1	10.7	8.4	14.9	12.6	17.0	14.7	19.2	16.8	23.4	21.1
9		9.7	7.1			9.9	7.3	14.1	11.5	16.3	13.6	18.4	15.8	22.6	20.0	
10		10.8	7.9			9.1	6.2	13.3	10.4	15.5	12.5	17.6	14.7	21.8	18.9	
11		11.9	8.7					12.6	9.4	14.7	11.6	16.8	13.6	21.0	17.9	
12		13.0	9.5					11.8	8.3	13.9	10.5	16.0	12.5	20.3	16.8	
63		5	9.9	6.8	15.7	12.5	23.2	20.0								
		6	11.9	8.1	14.3	10.5	21.8	18.0	29.3	25.5	33.1	29.2				
		7	13.9	9.5	13.0	8.5	20.4	16.0	27.9	23.5	31.7	27.3	35.4	31.0		
		8	15.9	10.9	11.6	6.5	19.1	14.0	26.6	21.5	30.3	25.3	34.0	29.0	41.5	36.5
	9	17.9	12.2			17.7	12.0	25.2	19.5	29.0	23.3	32.7	27.0	40.2	34.5	
	10	19.9	13.6			16.4	10.0	23.9	17.5	27.6	21.3	31.3	25.0	38.8	32.5	
	11	21.9	14.9					22.5	15.5	26.3	19.4	30.0	23.0	37.5	30.5	
	12	23.9	16.3					21.1	13.6	24.8	17.4	28.6	21.0	36.1	28.5	
	75	5	15.5	10.2	27.0	21.6	39.3	34.0								
		6	18.6	12.2	24.9	18.6	37.3	30.9	49.7	43.3	56.0	49.5				
		7	21.7	14.2	22.9	15.5	35.3	27.8	47.6	40.2	53.9	46.4	60.0	52.6		
		8	24.8	16.2	20.9	12.4	33.2	24.7	45.6	37.1	51.9	43.3	58.0	49.5	70.4	61.8
9		27.9	18.3			31.2	21.6	43.6	34.0	49.9	40.2	56.0	46.4	68.3	58.7	
10		30.9	20.3			29.2	18.5	41.6	30.9	47.9	37.1	53.9	43.3	66.3	55.7	
11		34.0	22.3					39.5	27.8	45.8	34.0	51.9	40.2	64.3	52.6	
12		37.1	24.4					37.5	24.7	43.8	30.9	49.9	37.1	62.2	49.5	
83		5	21.5	14.9	33.9	27.2	50.1	43.4								
		6	25.8	17.8	30.9	22.9	47.1	39.1	63.3	55.3	71.6	63.6				
		7	30.1	20.8	27.9	18.6	44.1	34.8	60.4	51.0	68.7	59.3	76.6	67.3		
		8	34.4	23.8	24.9	14.3	41.2	30.5	57.4	46.7	65.7	55.0	73.6	63.0	89.9	79.2
	9	38.8	26.7			38.2	26.2	54.4	42.4	62.7	50.7	70.7	58.7	86.9	74.9	
	10	43.1	29.7			35.2	21.9	51.5	38.1	59.7	46.3	67.7	54.3	83.9	70.6	
	11	47.4	32.7					48.5	33.8	56.8	42.1	64.7	50.0	81.0	66.3	
	12	51.7	35.6					45.5	29.5	53.9	37.8	61.8	45.7	78.0	62.0	
	92	5	30.3	21.8	48.0	39.5	71.3	62.8								
		6	36.3	26.2	43.7	33.5	66.9	56.7	90.2	80.0	102.1	91.9				
		7	42.4	30.5	39.3	27.4	62.6	50.7	85.8	74.0	97.7	85.0	109.1	97.2		
		8	48.4	34.9	34.9	21.4	58.2	44.6	81.5	67.9	93.4	79.8	104.7	91.2	128.0	114.4
9		54.5	39.2			53.9	38.6	77.1	61.8	89.0	73.7	100.4	85.1	123.7	108.4	
10		60.6	43.6			49.5	32.5	72.8	55.8	84.7	67.6	96.0	79.1	119.3	102.3	
11		66.6	47.9					68.4	49.7	80.3	61.6	91.7	73.0	114.9	96.3	
12		72.7	52.3					64.0	43.7	76.0	55.5	87.3	66.9	110.6	90.2	
105		5	46.1	39.3	64.6	57.8	99.2	92.4								
		6	55.3	47.2	56.8	48.6	91.4	83.2	126.0	117.9	143.8	135.6				
		7	64.5	55.0	48.9	39.4	83.5	74.0	118.2	108.6	135.8	126.4	152.8	143.3		
		8	73.8	62.9	41.0	30.2	75.7	64.8	110.3	99.4	128.0	117.1	144.9	134.1	179.6	168.7
	9	83.0	70.7			67.8	55.6	102.4	90.2	120.2	108.0	137.1	124.8	171.7	159.5	
	10	92.2	78.6			59.9	46.3	94.6	81.0	112.3	98.7	129.2	115.6	163.9	150.3	
	11	101.4	86.5					86.7	71.8	104.5	89.5	121.4	106.4	156.0	141.0	
	12	110.6	94.3					78.9	62.5	96.6	80.0	113.5	97.2	148.1	131.8	
	125	5	80	53	131	104	192	166								
		6	96	64	120	88	182	150	243	211	273	241				
		7	112	74	110	72	171	134	233	195	262	225	294	257		
		8	128	85	99	56	161	118	222	179	252	209	283	241	345	302
9		144	95			150	102	211	163	241	193	273	225	334	286	
10		160	106			139	86	201	147	233	177	262	209	324	270	
11		175	117					190	131	222	163	252	193	313	254	
12		191	127					180	115	211	147	241	177	302	238	
140		5	139	93	184	138	277	230								
		6	167	111	166	110	258	203	351	295	397	342				
		7	195	130	147	82	240	175	332	267	379	315	424	360		
		8	222	148	129	55	221	147	313	239	360	286	406	332	498	424
	9	250	167			203	119	295	212	341	257	387	304	480	396	
	10	278	185			184	91	276	184	322	230	369	276	461	368	
	11	306	204					258	156	305	203	350	248	443	341	
	12	334	222					239	128	286	175	332	220	424	313	

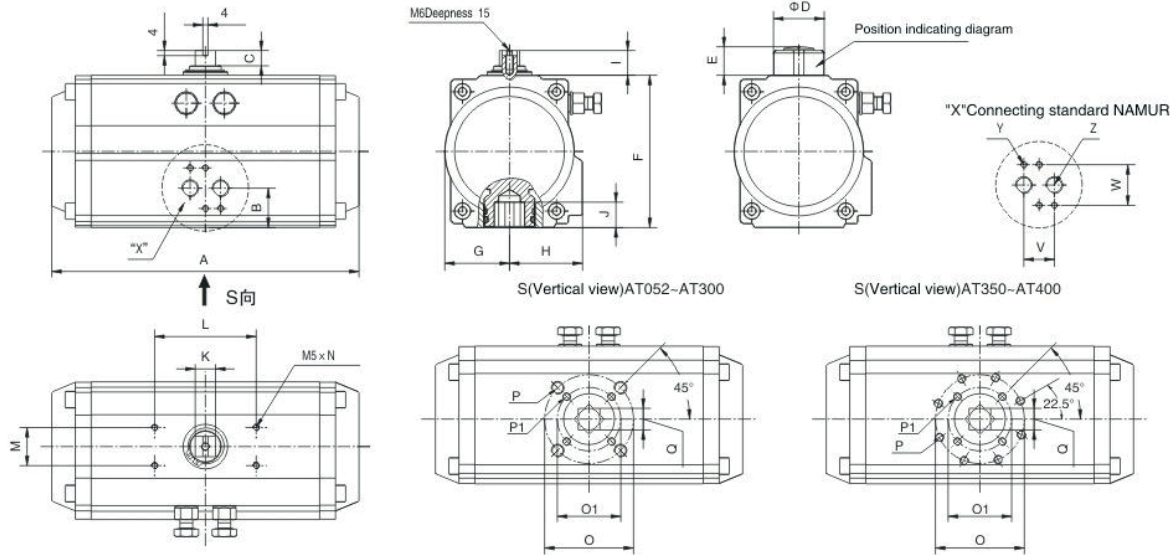
# Spring Return Pneumatic Actuator

## SC Single-action output torque(NM)

Model	Spring QTY	Air Torque — N*M													
		Spring Torque		3.0bar		4.0bar		5.0bar		5.5 bar		6.0bar		7.0bar	
		Start	Over	Start	Over	Start	Over	Start	Over	Start	Over	Start	Over	Start	Over
160	5	211	143	279	211	420	352								
	6	253	172	251	169	391	310	532	450	604	522				
	7	295	200	222	127	363	268	504	408	575	480	644	549		
	8	338	229	193	85	334	225	475	366	546	438	616	507	756	648
	9	380	257			306	183	446	324	518	396	587	465	728	605
	10	422	286			277	141	418	282	489	352	559	422	699	563
	11	464	315					389	239	461	310	530	380	671	521
190	5	349	232	448	332	675	559								
	6	418	278	402	262	629	489	856	716	972	832				
	7	488	325	356	192	582	419	809	646	925	762	1036	873		
	8	558	371	309	123	536	350	763	576	876	692	990	803	1217	1030
	9	627	418			490	280	717	507	833	623	943	733	1170	960
	10	697	464			443	210	670	437	788	553	897	664	1124	891
	11	767	510					624	367	740	483	851	594	1077	821
210	5	467	297	638	468	950	780								
	6	560	356	579	375	891	687	1202	998	1362	1157				
	7	654	416	519	282	831	593	1143	905	1302	1065	1455	1217		
	8	747	475	460	188	772	500	1083	812	1243	971	1395	1123	1707	1435
	9	840	535			712	407	1024	718	1183	878	1336	1030	1647	1342
	10	934	594			653	313	965	625	1124	785	1276	937	1588	1248
	11	1027	653					905	532	1065	691	1217	843	1529	1155
240	5	467	297	638	468	950	780								
	6	560	356	579	375	891	687	1202	998	1362	1157				
	7	654	416	519	282	831	593	1143	905	1302	1065	1455	1217		
	8	747	475	460	188	772	500	1083	812	1243	971	1395	1123	1707	1435
	9	840	535			712	407	1024	718	1183	878	1336	1030	1647	1342
	10	934	594			653	313	965	625	1124	785	1276	937	1588	1248
	11	1027	653					905	532	1065	691	1217	843	1529	1155
270	5	797	448	1018	668	1506	1157								
	6	957	538	928	509	1417	998	1905	1486	2156	1737				
	7	1116	627	839	350	1327	838	1816	1327	2066	1577	2304	1815		
	8	1276	717	749	190	1238	679	1726	1167	1977	1418	2215	1656	2703	2144
	9	1435	806			1148	519	1637	1008	1887	1256	2125	1496	2614	1985
	10	1595	896			1058	360	1547	848	1797	1099	2036	1337	2524	1825
	11	1754	985					1457	689	1708	940	1946	1177	2435	1666
300	5	1037	540	1522	1024	2209	1711								
	6	1245	648	1414	816	2101	1503	2788	2190	3140	2543				
	7	1452	756	1306	609	1993	1296	2680	1983	3032	2335	3367	2670		
	8	1660	864	1198	401	1885	1088	2572	1775	2924	2128	3259	2463	3946	3150
	9	1867	971			1777	881	2464	1568	2816	1921	3151	2255	3838	2942
	10	2075	1079			1669	673	2356	1361	2708	1713	3043	2048	3730	2735
	11	2282	1187					2248	1153	2600	1506	2935	1840	3622	2527
350	5	1329	821	1724	1216	2572	2064								
	6	1594	985	1560	950	2408	1798	3256	2647	3692	3082				
	7	1860	1149	1396	685	2244	1533	3092	2381	3527	2816	3940	3229		
	8	2126	1313	1231	419	2080	1267	2928	2115	3363	2551	3776	2963	4624	3812
	9	2392	1477			1915	1001	2764	1849	3199	2285	3612	2698	4460	3546
	10	2657	1642			1751	736	2600	1584	3035	2019	3448	2432	4296	3280
	11	2923	1806					2435	1318	2870	1754	3284	2166	4132	3014
400	5	1925	1204	2606	1885	3876	3155								
	6	2310	1445	2365	1500	3635	2770	4905	4040	5556	4690				
	7	2695	1686	2124	1115	3394	2385	4664	3655	5315	4306	5934	4925		
	8	3080	1927	1883	730	3153	2000	4423	3270	5075	3922	5693	4540	6963	5810
	9	3465	2168			2912	1615	4182	2885	4834	3537	5452	4155	6722	5425
	10	3850	2408			2672	1230	3942	2500	4593	3152	5212	3769	6482	5039
	11	4235	2649					3701	2114	4353	2768	4971	3384	6241	4654
400	5	2711	1828	3601	2718	5411	4527								
	6	3253	2193	3235	2176	5045	3985	6855	5795	7804	6724				
	7	3795	2559	2870	1634	4679	3443	6489	5253	7442	6182	8299	7062		
	8	4337	2924	2504	1091	4314	2901	6123	4711	7080	5640	7933	6520	9743	8330
	9	4879	3290			3948	2359	5758	4168	6722	5098	7567	5978	9377	7787
	10	5422	3655			3583	1817	5392	3626	6357	4556	7202	5436	9011	7245
	11	5964	4021					5027	3084	5996	4014	6836	4894	8646	6703
12	6506	4387					4661	2542	5634	3473	6471	4351	8280	6161	

# Appearance & Connection Dimension

Connecting standard ISO5211 / VDI / VDE3845



Unit: mm

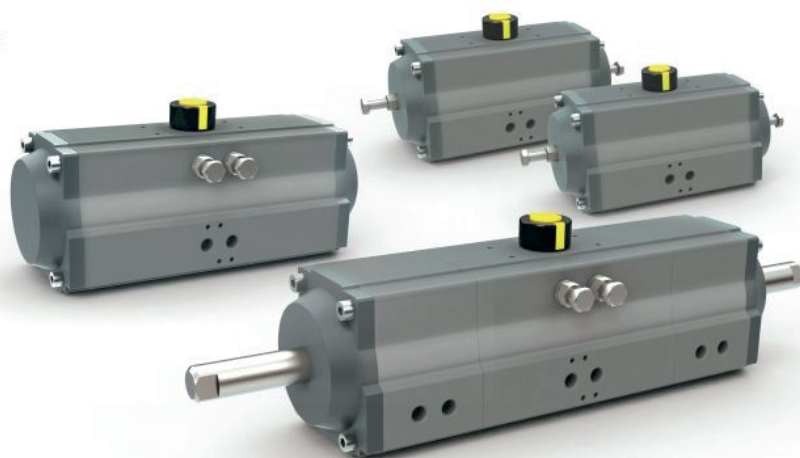
Model	AT040	AT052	AT063	AT075	AT083	AT092	AT105	AT125	AT140	AT160	AT190	AT210	AT240	AT270	AT300	AT350	AT400
	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC	DR/SC
ISO Flange	F04	F03-05	F05-07	F05-07	F05-07	F05-07	F07-10	F07-10	F10-12	F10-12	F14	F14	F16	F16	F16	F16-F25	F16-F25
A	116	145	169	201	209	242	275	332	385	450	507	562	646	722	825	866	1006
B	18.5	24	25.5	27	30.5	31	32.5	33	39.5	43.5	58.5	64	72	74	85	95	233
C	12	12	12	12	12	12	12	12	12	12	20	20	20	20	20	35	35
ΦD	40	40	40	40	40	40	40	55	55	55	80	80	80	80	80	95	95
E	22	22	22	22	22	22	22	22	22	22	33	33	33	33	33	54	54
F	60	72	88	100	108	120	133	155	171.5	197	230	255	290	320	354	410	467
G	24	30	36	42	46	51	58	67.5	76	86.5	103	113	129	146	162	190	260
H	34.5	41	46	52	55	57.5	64	70	77	87.5	103	113	129	146	173	195	260
I	20	20	20	20	20	20	20	20	20	20	30	30	30	30	30	50	50
Jmin	13	13	16	20	20	20	25	25	30	30	40	40	50	50	50	60	60
K	9	12	12	12	16	16	16	22	22	22	32	32	32	32	32	45	45
L	80	80	80	80	80	80	80	80	80	80	130	130	130	130	130	130	130
M	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
ΦO1	42	36	50	50	50	50	70	70	102	102	/	/	/	/	/	165	165
ΦO	/	50	70	70	70	70	102	102	125	125	140	140	165	165	165	254	254
P1	4-M5	4-M5	4-M6	4-M6	4-M6	4-M6	4-M8	4-M8	4-M10	4-M10	/	/	/	/	/	4-M20	4-M20
P	/	4-M6	4-M8	4-M8	4-M8	4-M8	4-M10	4-M10	4-M12	4-M12	4-M16	4-M16	4-M20	4-M20	4-M20	8-M16	8-M16
Q	9	11	14	17	17	17	22	22	27	27	36	36	46	46	46	55	55
V	20	24	24	24	24	24	24	24	24	24	24	24	40	40	40	40	40
W	29	32	32	32	32	32	32	32	32	32	32	32	45	45	45	45	45
Y	M4X6	M5X8	M5X8	M5X8	M5X8	M5X8	M5X8	M5X8	M5X8	M5X8	M5X8	M5X8	M6X10	M6X10	M6X10	M6X10	M6X10
Z	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	1/2"	1/2"	1/2"

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## SPECIFIC ROTATION ANGLE

120/180 angle-stroke pneumatic actuator

Three-position pneumatic actuator



## MATERIAL

Stainless steel 304/316



## ACCESSORIES

E/P rotary positioner

Limit switch box

Spindle Reducers

Solenoid Valve

Manual Override

Air Filter and Pressure Reducer



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