



Larger Torque From Zhitai Actuator

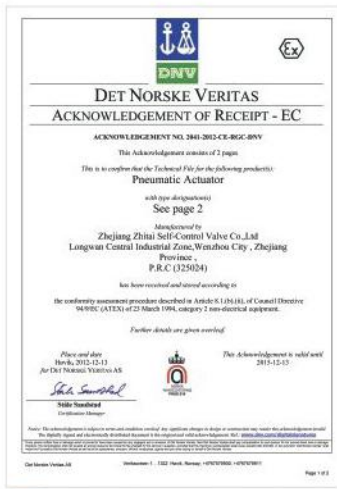
RACK&PINION TYPE PNEUMATIC ACTUATOR
DR TYPE DOUBLE ACTION
SC TYPE SINGLE ACTION



ZHEJIANG ZHITAI SELF-CONTROL VALVE CO., LTD.

AT040-AT400

Company Profile



Zhejiang Zhitai Automatic Control Valve Co., Ltd, a member of Valve Association of Longwan District, is located in Longwan Central Industrial Zone, Wenzhou City (Yongqiang Hi-tech Park), "China's Valve Town". It's a professional technology company integrated with development, manufacturing, sales and after-sales services of valve actuators and Automatic Control valves. It has powerful technical force, and advanced production processes as well as perfect manufacturing equipment, sophisticated detection equipment and good management system. Our company is equipped with several vertical machining centers and high-precision CNC machine tools, for which CAD three-dimensional model innovation and optimization design and CIMS computer network management system are applied. Our management system has passed ISO9001 international quality system certification. Besides, we have a number of national utility model patents.

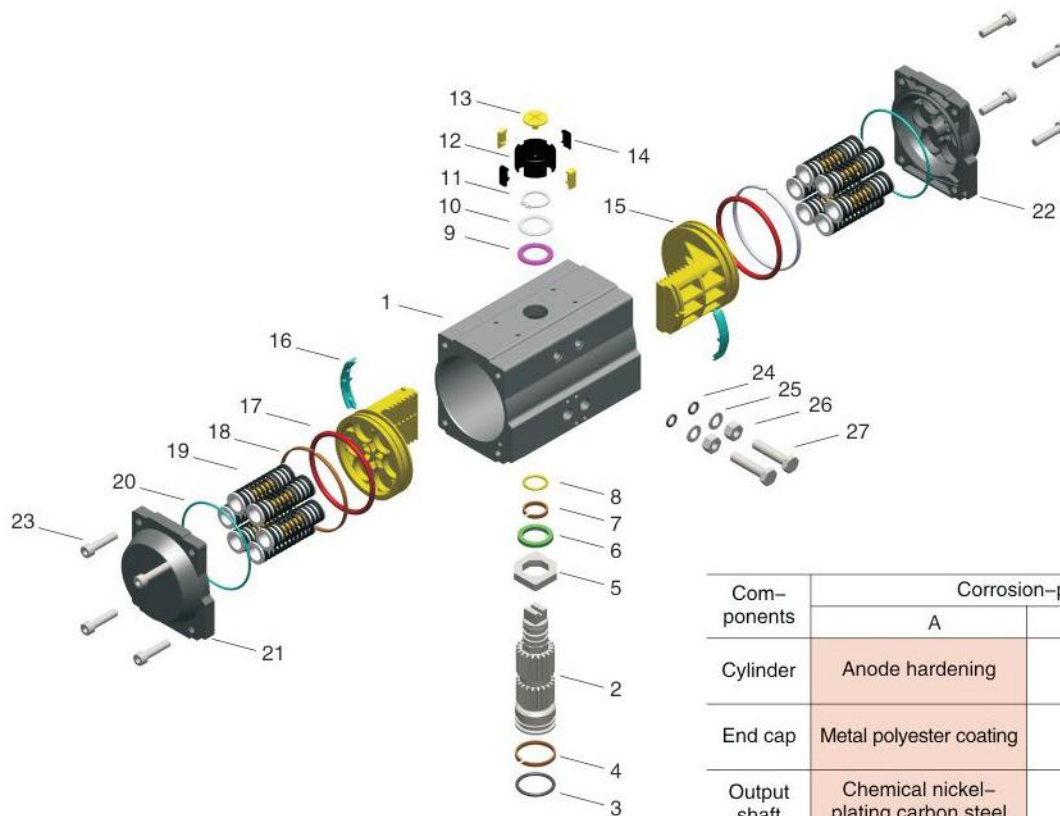
Presently, our main products include: pneumatic actuators, pneumatic valves and pneumatic control valves; electric actuators, electric valves and electric control valves; automatic control products such as hydraulic actuators and hydraulic valves. We've provided a large amount of products for various industries, such as valve actuators, pneumatic valves, electric valves and hydraulic valves. Our products are widely used in natural gas, electricity, petroleum, chemical, metallurgical, pharmacy, paper, printing and dyeing, municipal, construction, water supply and drainage, kilns and other industries, and are generally praised by the customers. Zhitai series actuators and valves are the best choice for automatic fluid control engineering and equipment manufacturing. We'll win the customers with better quality and services.

Our company, adhering to the business philosophy of "taking quality as the root and integrity as the foundation", make efforts to operate our enterprise, to provide consultation, model selection, design, manufacture, installation, commissioning and control program solutions for customers. Our company, with the principle of customer-orientation, provides you with full and comprehensive services, to enable you enjoy both quality products and reliable services. We take an oath that we'll achieve the commitment with our actual strength. We sincerely welcome customers from home and abroad to visit us for supervision, communication and cooperation. It's a great honor for us to cooperate with you.



AT040-AT400

Components, Materials & Corrosion-Proof



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

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

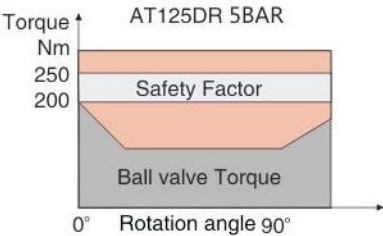
Part No	Quantity for a machine	Part name	Standard material	Actual material
01	1	Cylinder	Extruded aluminum alloy	Stainless steel
02	1	Output shaft	Carbon steel	Stainless steel
03	1	O-ring (at the bottom of the output shaft)	NBR	Fluorine/silicon rubber
04	1	Bearing (at the bottom of the output shaft)	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	-

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 2000lb*in, air supply pressure of 70psi, medium of non-lubricating steam, considering safety factors, you should add a 25% safe value that is equal to 2500lb*in; you can find the air supply pressure of 70psi in the double-action output torque table, and then search the equal or approximate torque data in the vertical line, and select 2619lb*in; and then search leftward the model in the line, and select AT125DR.

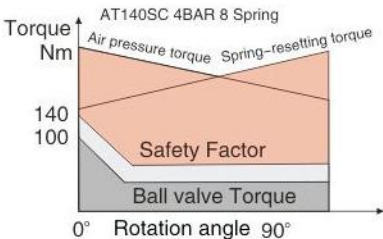


DR double-action output torque (Nm)

Model	AirpressuretoqueN*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

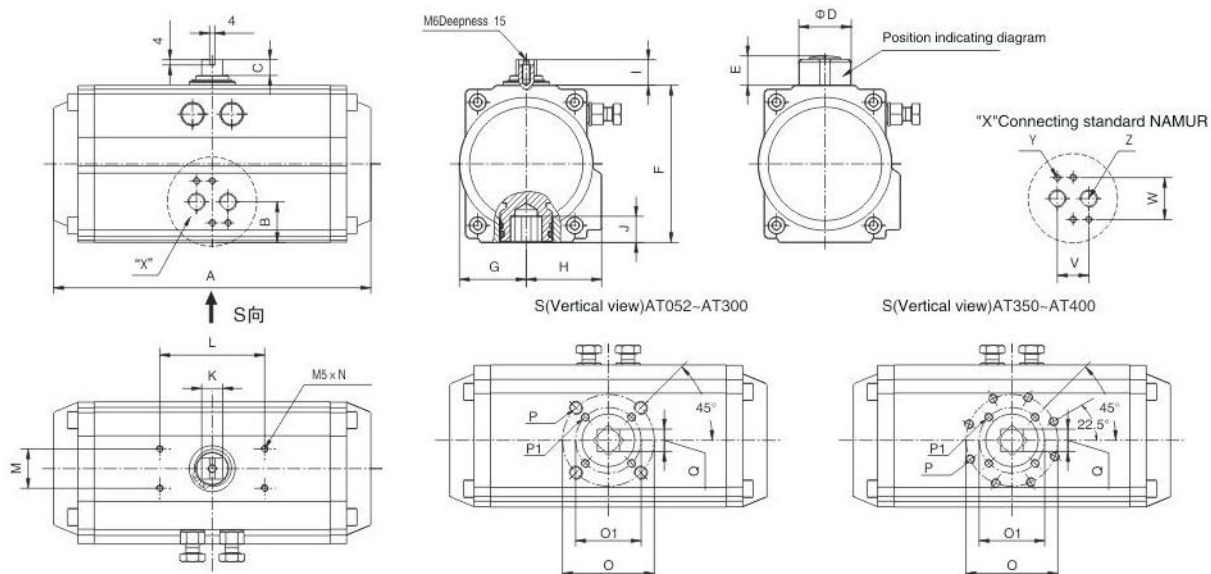
SC Single-action output torque (NM)

Mod	Spring quantum	Air pressure torque N·M													
		Spring Torque		3.0bar		4.0bar		5.0bar		6.0bar		7.0bar		8.0bar	
		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						
	7	4.2	2.8	3.2	1.8	5.2	3.8	7.2	5.9	9.3	7.9				
	8	4.8	3.2	2.8	1.2	4.8	3.2	6.8	5.3	8.9	7.3	10.9	9.3		
	9	5.4	3.6			4.4	2.6	6.4	4.7	8.5	6.7	10.5	8.7	12.5	10.7
	10	6.0	4.0			4.0	2.0	6.0	4.1	8.1	6.1	10.1	8.1	12.1	10.1
	11	6.6	4.4					5.6	3.5	7.7	5.5	9.7	7.5	11.7	9.5
52	12	7.2	4.8					5.2	2.9	7.2	4.9	9.3	6.9	11.3	8.9
	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						
	7	7.6	5.5	7.2	5.2	11.5	9.4	15.7	13.7	20.0	17.9				
	8	8.6	6.3	6.4	4.1	10.7	8.4	14.9	12.6	19.2	16.8	23.4	21.1		
	9	9.7	7.1			9.9	7.3	14.1	11.5	18.4	15.8	22.6	20.0	26.9	24.3
	10	10.8	7.9			9.1	6.2	13.3	10.4	17.6	14.7	21.8	18.9	26.1	23.2
63	11	11.9	8.7					12.6	9.4	16.8	13.6	21.0	17.9	25.3	22.1
	12	13.0	9.5					11.8	8.3	16.0	12.5	20.3	16.8	24.5	21.0
	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						
	7	13.9	9.5	13.0	8.5	20.4	16.0	27.9	23.5	35.4	31.0				
	8	15.9	10.9	11.6	6.5	19.1	14.0	26.6	21.5	34.0	29.0	41.5	36.5		
	9	17.9	12.2			17.7	12.0	25.2	19.5	32.7	27.0	40.2	34.5	47.7	42.0
75	10	19.9	13.6			16.4	10.0	23.9	17.5	31.3	25.0	38.8	32.5	46.3	40.0
	11	21.9	14.9					22.5	15.5	30.0	23.0	37.5	30.5	44.9	38.0
	12	23.9	16.3					21.1	13.6	28.6	21.0	36.1	28.5	43.6	36.0
	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						
	7	21.7	14.2	22.9	15.5	35.3	27.8	47.6	40.2	60.0	52.6				
	8	24.8	16.2	20.9	12.4	33.2	24.7	45.6	37.1	58.0	49.5	70.4	61.8		
83	9	27.9	18.3			31.2	21.6	43.6	34.0	56.0	46.4	68.3	58.7	80.7	71.1
	10	30.9	20.3			29.2	18.5	41.6	30.9	53.9	43.3	66.3	55.7	78.7	68.0
	11	34.0	22.3					39.5	27.8	51.9	40.2	64.3	52.6	76.6	64.9
	12	37.1	24.4					37.5	24.7	49.9	37.1	62.2	49.5	74.6	61.8
	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						
	7	30.1	20.8	27.9	18.6	44.1	34.8	60.4	51.0	76.6	67.3				
92	8	34.4	23.8	24.9	14.3	41.2	30.5	57.4	46.7	73.6	63.0	89.9	79.2		
	9	38.8	26.7			38.2	26.2	54.4	42.4	70.7	58.7	86.9	74.9	103.1	91.1
	10	43.1	29.7			35.2	21.9	51.5	38.1	67.7	54.3	83.9	70.6	100.2	86.8
	11	47.4	32.7					48.5	33.8	64.7	50.0	81.0	66.3	97.2	82.5
	12	51.7	35.6					45.5	29.5	61.8	45.7	78.0	62.0	94.2	78.2
	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						
105	7	42.4	30.5	39.3	27.4	62.6	50.7	85.8	74.0	109.1	97.2				
	8	48.4	34.9	34.9	21.4	58.2	44.6	81.5	67.9	104.7	91.2	128.0	114.4		
	9	54.5	39.2			53.9	38.6	77.1	61.8	100.4	85.1	123.7	108.4	146.9	131.6
	10	60.6	43.6			49.5	32.5	72.8	55.8	96.0	79.1	119.3	102.3	142.6	125.6
	11	66.6	47.9					68.4	49.7	91.7	73.0	114.9	96.3	138.2	119.5
	12	72.7	52.3					64.0	43.7	87.3	66.9	110.6	90.2	133.8	113.5
	5	46.1	39.3	64.6	57.8	99.2	92.4								
125	6	55.3	47.2	56.8	48.6	91.4	83.2	126.0	117.9						
	7	64.5	55.0	48.9	39.4	83.5	74.0	118.2	108.6	152.8	143.3				
	8	73.8	62.9	41.0	30.2	75.7	64.8	110.3	99.4	144.9	134.1	179.6	168.7		
	9	83.0	70.7			67.8	55.6	102.4	90.2	137.1	124.8	171.7	159.5	206.4	194.1
	10	92.2	78.6			59.9	46.3	94.6	81.0	129.2	115.6	163.9	150.3	198.5	184.9
	11	101.4	86.5					86.7	71.8	121.4	106.4	156.0	141.0	190.6	175.7
	12	110.6	94.3					78.9	62.5	113.5	97.2	148.1	131.8	182.8	166.5
140	5	80	53	131	104	192	166								
	6	96	64	120	88	182	150	243	211						
	7	112	74	110	72	171	134	233	195	294	257				
	8	128	85	99	56	161	118	222	179	283	241	345	302		
	9	144	95			150	102	211	163	273	225	334	286	395	347
	10	160	106			139	86	201	147	262	209	324	270	385	331
	11	175	117					190	131	252	193	313	254	374	315
140	12	191	127					180	115	241	177	302	238	364	299
	5	139	93	184	138	277	230								
	6	167	111	166	110	258	203	351	295						
	7	195	130	147	82	240	175	332	267	424	360				
	8	222	148	129	55	221	147	313	239	406	332	498	424		
	9	250	167			203	119	295	212	387	304	480	396	572	489
	10	278	185			184	91	276	184	369	276	461	368	554	461
140	11	306	204					258	156	350	248	443	341	535	433
	12	334	222					239	128	332	220	424	313	516	405

SC Single-action output torque(NM)

Mod	Spring quantum	Airpressuretoque N*M													
		Spring Torque		3.0bar		4.0bar		5.0bar		6.0bar		7.0bar		8.0bar	
		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						
	7	295	200	222	127	363	268	504	408	644	549				
	8	338	229	193	85	334	225	475	366	616	507	756	648		
	9	380	257			306	183	446	324	587	465	728	605	869	746
	10	422	286			277	141	418	282	559	422	699	563	840	704
	11	464	315					389	239	530	380	671	521	811	662
190	12	507	343					361	197	501	338	642	479	783	619
	5	349	232	448	332	675	559								
	6	418	278	402	262	629	489	856	716						
	7	488	325	356	192	582	419	809	646	1036	873				
	8	558	371	309	123	536	350	763	576	990	803	1217	1030		
	9	627	418			490	280	717	507	943	733	1170	960	1397	1187
	10	697	464			443	210	670	437	897	664	1124	891	1351	1117
210	11	767	510					624	367	851	594	1077	821	1304	1048
	12	837	557					577	297	804	524	1031	751	1258	978
	5	467	297	638	468	950	780								
	6	560	356	579	375	891	687	1202	998						
	7	654	416	519	282	831	593	1143	905	1455	1217				
	8	747	475	460	188	772	500	1083	812	1395	1123	1707	1435		
	9	840	535			712	407	1024	718	1336	1030	1647	1342	1959	1653
240	10	934	594			653	313	965	625	1276	937	1588	1248	1900	1560
	11	1027	653					905	532	1217	843	1529	1155	1840	1467
	12	1121	713					846	438	1158	750	1469	1062	1781	1373
	5	797	448	1018	668	1506	1157								
	6	957	538	928	509	1417	998	1905	1486						
	7	1116	627	839	350	1327	838	1816	1327	2304	1815				
	8	1276	717	749	190	1238	679	1726	1167	2215	1656	2703	2144		
270	9	1435	806			1148	519	1637	1008	2125	1496	2614	1985	3102	2473
	10	1595	896			1058	360	1547	848	2036	1337	2524	1825	3013	2314
	11	1754	985					1457	689	1946	1177	2435	1666	2923	2155
	12	1914	1075					1368	529	1856	1018	2345	1507	2834	1995
	5	1037	540	1522	1024	2209	1711								
	6	1245	648	1414	816	2101	1503	2788	2190						
	7	1452	756	1306	609	1993	1296	2680	1983	3367	2670				
300	8	1660	864	1198	401	1885	1088	2572	1775	3259	2463	3946	3150		
	9	1867	971			1777	881	2464	1568	3151	2255	3838	2942	4525	3629
	10	2075	1079			1669	673	2356	1361	3043	2048	3730	2735	4417	3422
	11	2282	1187					2248	1153	2935	1840	3622	2527	4309	3214
	12	2490	1295					2140	946	2827	1633	3514	2320	4201	3007
	5	1329	821	1724	1216	2572	2064								
	6	1594	985	1560	950	2408	1798	3256	2647						
350	7	1860	1149	1396	685	2244	1533	3092	2381	3940	3229				
	8	2126	1313	1231	419	2080	1267	2928	2115	3776	2963	4624	3812		
	9	2392	1477			1915	1001	2764	1849	3612	2698	4460	3546	5308	4394
	10	2657	1642			1751	736	2600	1584	3448	2432	4296	3280	5144	4128
	11	2923	1806					2435	1318	3284	2166	4132	3014	4980	3863
	12	3189	1970					2271	1052	3119	1901	3968	2749	4816	3597
	5	1925	1204	2606	1885	3876	3155								
400	6	2310	1445	2365	1500	3635	2770	4905	4040						
	7	2695	1686	2124	1115	3394	2385	4664	3655	5934	4925				
	8	3080	1927	1883	730	3153	2000	4423	3270	5693	4540	6963	5810		
	9	3465	2168			2912	1615	4182	2885	5452	4155	6722	5425	7992	6695
	10	3850	2408			2672	1230	3942	2500	5212	3769	6482	5039	7752	6309
	11	4235	2649					3701	2114	4971	3384	6241	4654	7511	5924
	12	4621	2890					3460	1729	4730	2999	6000	4269	7270	5539
400	5	2711	1828	3601	2718	5411	4527								
	6	3253	2193	3235	2176	5045	3985	6855	5795						
	7	3795	2559	2870	1634	4679	3443	6489	5253	8299	7062				
	8	4337	2924	2504	1091	4314	2901	6123	4711	7933	6520	9743	8330		
	9	4879	3290			3948	2359	5758	4168	7567	5978	9377	7787	11187	9597
	10	5422	3655			3583	1817	5392	3626	7202	5436	9011	7245	10821	9055
	11	5964	4021					5027	3084	6836	4894	8646	6703	10455	8513
400	12	6506	4387					4661	2542	6471	4351	8280	6161	10090	7971

Connecting standard ISO5211 / VDI / VDE3845



Unit: mm

型号	At040	At052	At063	At075	At083	At092	At105	At125	At140	At160	At190	At210	At240	At270	At300	At350	At400
Model	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	36.5	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"

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



Custom Service

0086-577-85988588

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