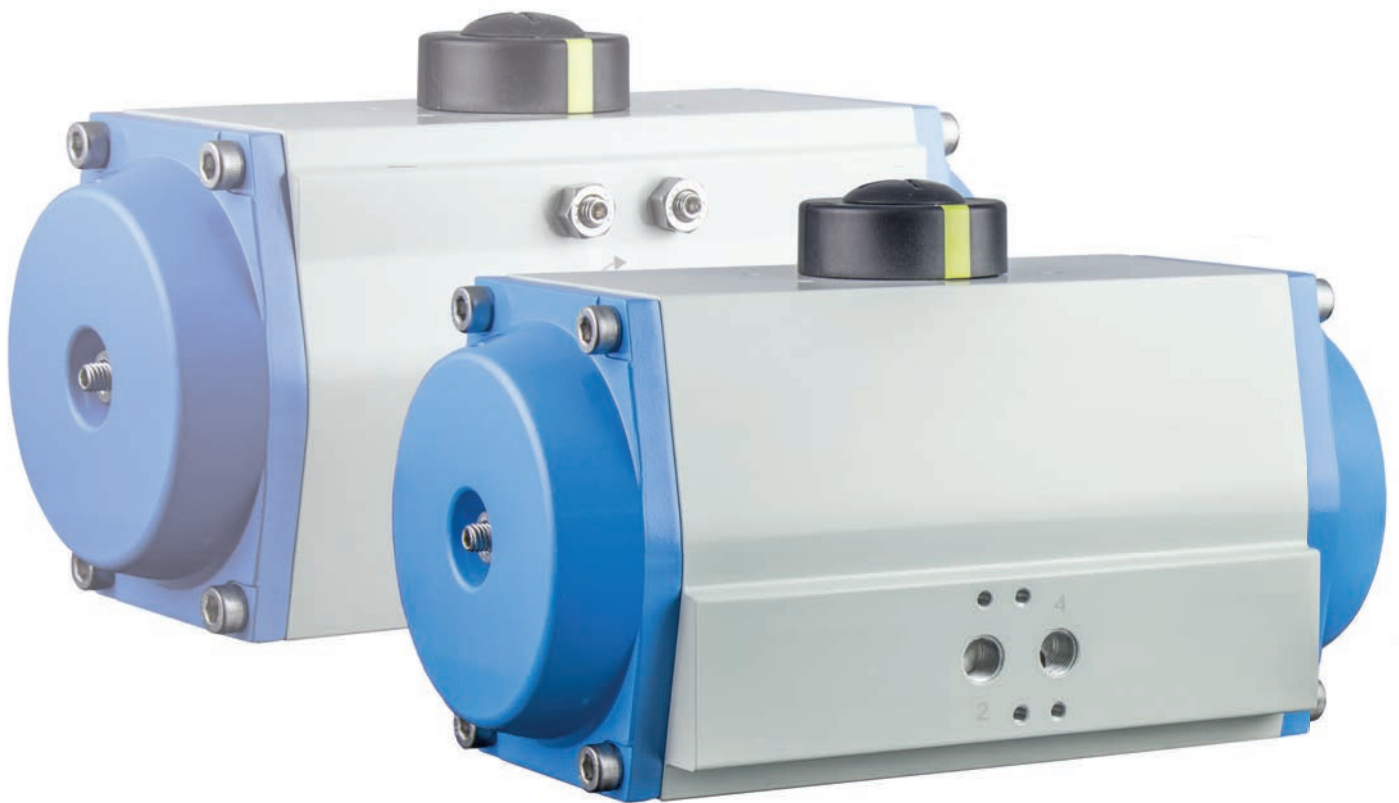


Pneumatic Rotary Actuator

IT'S THE DETAILS THAT MAKE THE DIFFERENCE...



twin*torque*[®]

High-performance pneumatic actuators



Company profile

Airpower in Dattenberg near Linz am Rhein, located between Bonn and Koblenz, is your independent partner for pneumatic and electric rotary actuators as well as industrial valves designed for the process industry and plant construction.

The company headquarters were part of an investment, made in 2019, with a new 5000 sqm building complex comprising spacious administration, storage, and production areas.

As an independent company, we offer comprehensive and professional technical advice and support in matters of engineering and customer service. Our technical support is geared towards specific project-related requirements targeting optimal cost-benefit ratio. We attach great importance to personal contact. We are committed to support you! An experienced team ensures your absolute satisfaction. Well-engineered product technology, designed and produced according to international standards and norms, guarantees absolute safety.



We have international approvals according to DIN EN ISO 9001-2015, ATEX, SIL3, EAC etc. Our employees, either in Sales, Construction, Purchase or Assembly make sure that orders are processed smoothly and quickly. We deliver over 10.000 pneumatic actuators from 4 to 13.000 Nm from stock. Our program includes manually operated and fully automated industrial valves from nominal width DN10 to DN1400.

Upon request from customers we also deliver special designs with the help of our construction department.

Thus, along with the standard 90° swivel angle, we also supply actuators with different angles such as 120°, 135°, 180° and 3-position actuators (metering unit) as well as Scotch-Yoke actuators.

Our global sales market includes complete European area, Scandinavia, the Middle East, Africa. Asia and South America. Professional closeness to our customers is highly important for us. Benefit from our expertise!

You can send us an e-mail or call us at:

E-Mail: sales@airpower-gmbh.com

Phone: +49 2644 40697 0

Fax: +49 2644 40697 99



Applications

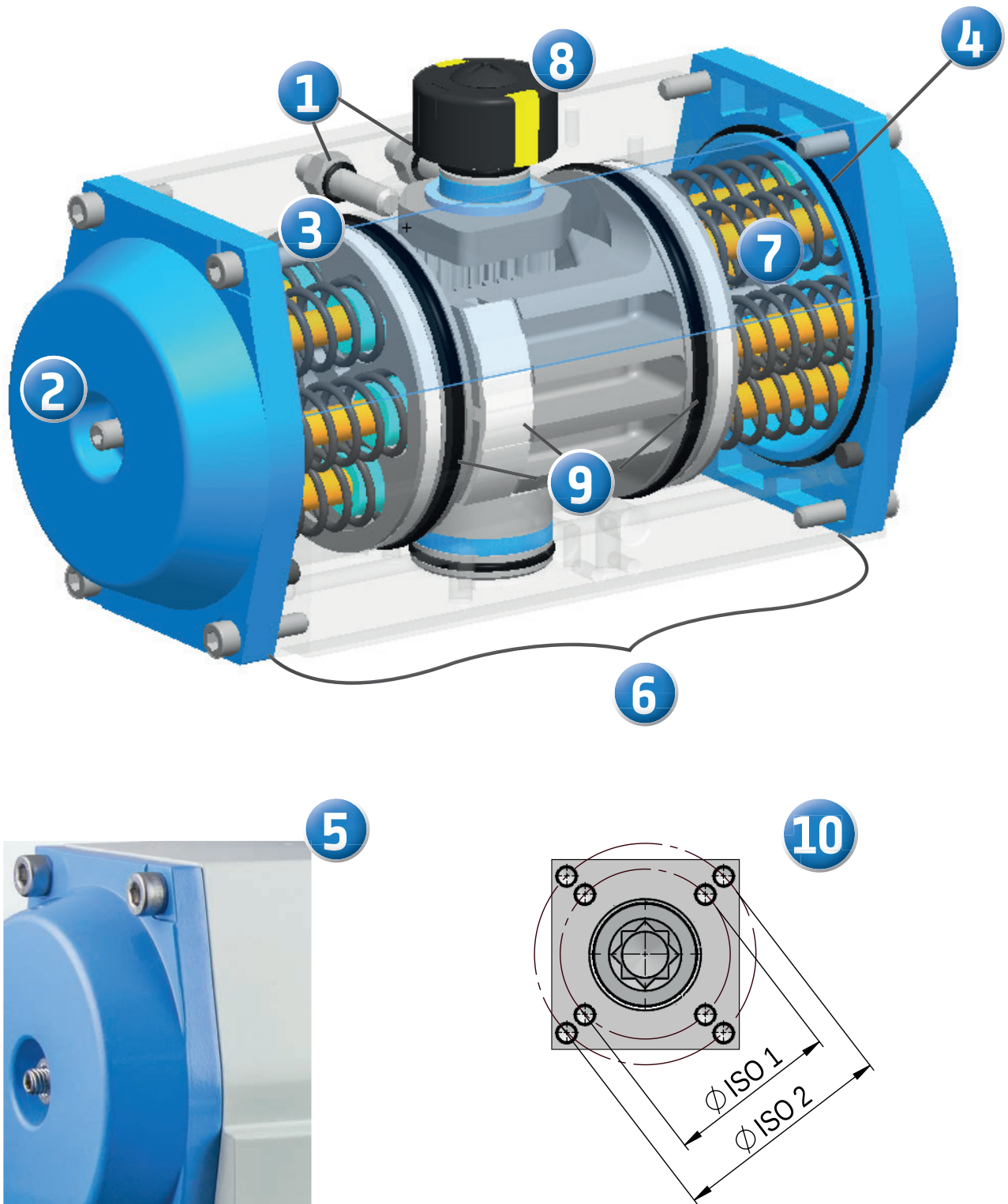
Renewable energies, solar technology, environmental protection, water treatment, distribution, disposal, filter and process technology, bulk goods, food, paper and pulp, chemical and petrochemicals, biotechnology and pharmaceutical industry, mining and mine technology, maritime/offshore, plant and mechanical engineering, steel and metallurgical engineering, process automation, process engineering, valve manufacturers, vehicle and rail technology, sugar industry and many more.



airpower europe



Advantages/Benefits



Advantages/Benefits

1. End position adjustment For the versions APD/APS-040 to 400, two end positions can be set separately in range from +5° to -5° using two independently acting adjusting screws. For butterfly valves: The valve disc achieves complete sealing before reaching full closure. • Extended service life due to less abrasion. Lower torque value and more economic actuator selection. • For ball and plug valves: The open position can be set exactly, avoidance of turbulent flow of the medium and cavitation.	6. Design features Same dimensions for both double and single-acting actuators with a 90° swivel angle. 180° swivel angle adjustable from 120° to 180° Low capital commitment due to the fact that only double-acting actuators have to be stocked and single-acting actuators can be produced by the easy installation of safety springs. • Simple, safe handling and adjustment to the existing control pressure thanks to captive springs. • Covering a wide range of applications.
2. Stroke limiter In addition to the end position setting twintorque has a stroke limitation setting in one direction (open or close) as a standard for versions APD/APS-050-210. This allows modification of the swivel angle. Version APD/S 240-400 on request. • With the additional stroke limitation, the flow rate can be set reproducibly for butterfly valves and seals. • Cost savings as special solutions are not required. (e.g. special switching cams or electrical solutions)	7. Corrosion protection: airpower – safety springs The captive springs are plastic coated. Stainless steel guide sleeves. • Long service life thanks to good corrosion protection. • starting from APS-070 free of non-ferrous metals. • reduced service and maintenance costs. • No risk of an accident.
3. Corrosion protection: Piston The die-cast aluminum pistons are hard-anodized or galvanized from cast steel. • Functional reliability even when using critical control media. • Long service-life.	8. Position indicator The position indicator included in the scope of delivery is designed in such a way that signaling devices can be mounted directly on the actuator in accordance with the NAMUR interface VDI / VDE 3845. • Use of inexpensive standard components. • Fast, inexpensive construction of signal devices. • Position indicator visible from far.
4. Silicone free • Can also be used in areas where PWIS-free actuators are required e.g. paint-shops.	9. O-ring and bearings The standard seals can be used from -35° to +80°C. • Wide temperature range, optionally -55 °C or 200 °C. • Inexpensive maintenance through simple replacement of sealing and wearing parts.
5. Corrosion protection: Housing + Caps The aluminum housing is hard anodized as standard and also PE-coated on the outside. Screws are stainless steel. • The die-cast aluminum caps are powder-coated. • Applicable in almost all environmental conditions, including critical ones.	10. ISO 5211 Flanschbilder (Schnittstelle Antrieb/Armatur) ISO 5211 flange interfaces (actuator/valve interface) Two ISO 5211 flange interfaces with double square per actuator size. Cost savings through flexible automation of valves.

Technical Specifications

	Standard design	By request
Design	Pneumatic double piston – rotary actuator Type APD = double acting /Type APS = single acting	3-position actuator (3P) 0°-90°-180°, 0°-45°-90° Quick-acting actuator Scotch-Yoke Actuators
Construction features	Double-piston rotary actuator based on the rack and pinion principle with self-centering piston guide in the housing. Single-acting: with captive safety springs	
Mounting position	Any	
Standards	Connection Actuator signaling devices: in accordance with VDI/VDE 3845 (NAMUR) Connection: actuator/control valve: in accordance with NAMUR or VDI /VDE 3845 Connection actuator/valve: Standardized flange interface on the body as well as pinion with inner-square (double square) in acc. with EN ISO 5211	Different interface dimensions possible Pinion with two flats in acc. with EN ISO 5211 or according to customer requests
Guidelines/ Approvals	ATEX product line 2014/34/EU EC-Machinery Directive 2006/42 CE, EAC, SIL3	
Materials	Housing: AL-alloy hard anodised, coated on the outside, RAL9010 Caps: AL-alloy, coated, RAL5015 Piston: AL-alloy, hard anodised (APD/S-040-210), APD/S-240-400 steel coated Pinion: Steel, corrosion protected (C-steel AISI 1045) Seals: NBR (Perbunan) Bearings: Plastic, POM (Delrin) Screws: Stainless steel, AISI 304	Various cap colors possible Stainless steel actuator made of V4A Pinion: stainless steel AISI 304 or AISI 316
Ambient temperature	-35° to +80°C	High temperature version: -15° to + 140° C Higher temperatures up to +250° C Low temperature version: -55° to +70° C
Nominal swivel angle	Double and single acting: 0° / + 90°, adjustable from +5° to -5°.	120 ° swivel angle 135 ° swivel angle 180 ° swivel angle Also adjustable in one direction +5° to -90°, for sizes APD / APS-240-400 on request
Torque	3,1 Nm to 13.022 Nm	Higher torque
Control pressure	2 to 10 bar	Higher control pressure on request
Control medium/ Quality	Filtered air minimum acc. To DIN/ISO 8573-1, Class 4	Other non-aggressive, gaseous or liquid media

Criteria for actuator dimensioning

	Dimensioning example	
	Double acting	Single acting (spring return)
Which mode of operation is required for the quarter-turn actuator?	Safety position in the event of air failure is not required.	Required safety position of the valve in the event of air failure.
Minimum control pressure on the actuator?	Minimum control pressure= 5 bar	Minimum control pressure= 5 bar
What is the break-away torque of the valve?	Breakaway torque of the valve specified by the manufacturer = 40 Nm	Breakaway torque of the valve specified by the manufacturer = 35 Nm
Is the breakaway torque with or without a safety factor?	Safety factor (+ 30%) 40 Nm + 30% = 52 Nm	Safety factor (+ 30%) 35 Nm + 30% = 45 Nm
Selection results	The double-acting actuator, which reaches at least 52 Nm at 5 bar control pressure, is the APD-080	The single-acting actuator, which reaches at least 45 Nm at 5 bar control pressure, is the APS-090 with 10 springs



Standard version / 90°, 180°



Stainless steel version / 90°



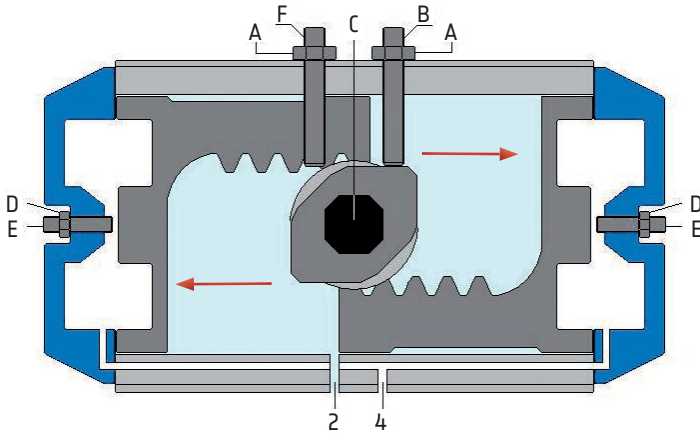
3-position version /
0° -90° -180°, 0° -45° -90°



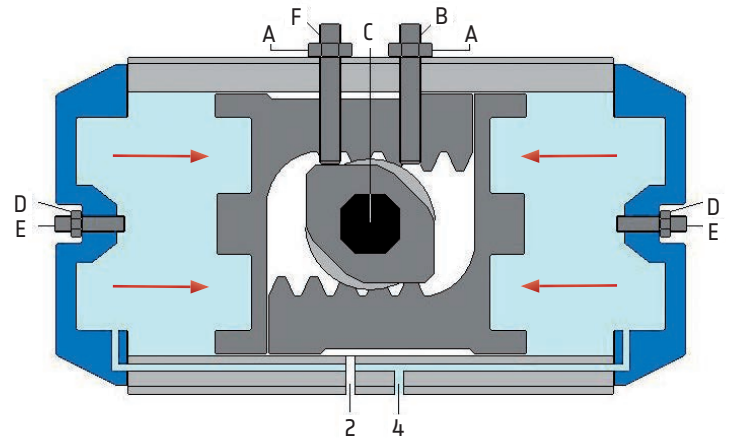
Scotch-Yoke version / 90°

Double acting function

Switching position 90°



Basic position 0°

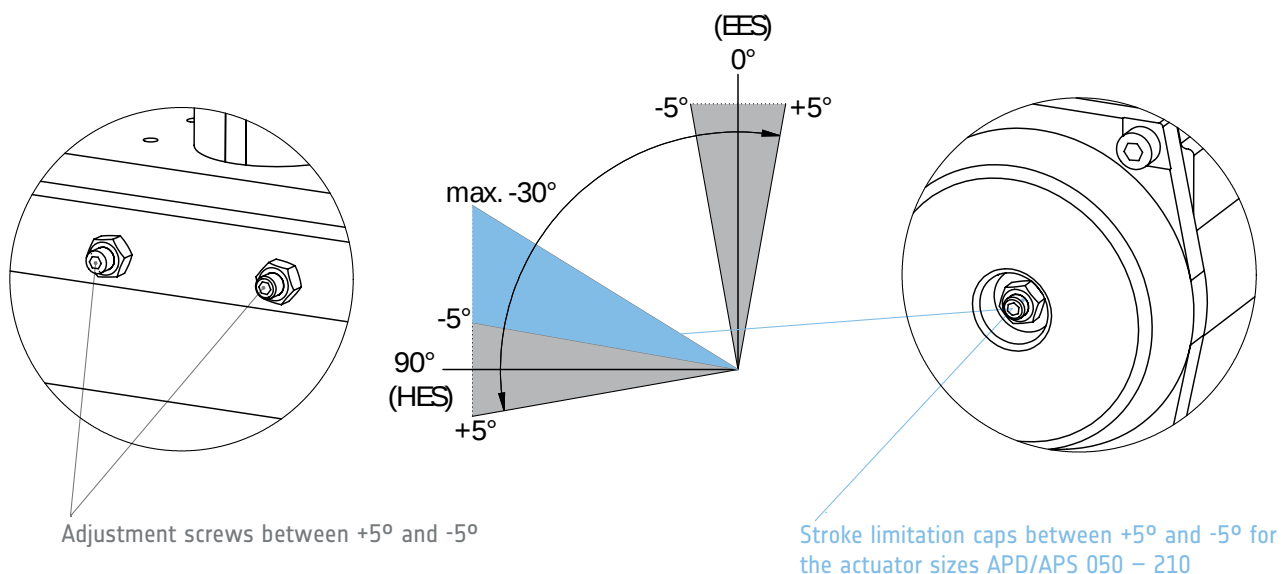


When pressure is applied to connection "2", the two pistons move from the 0° basic position towards the 90° switching position.

The force of both pistons is transmitted to pinion „C“ via the piston racks. When the pistons are pressurized via connection „4“, the pistons move towards each other into the basic position 0°

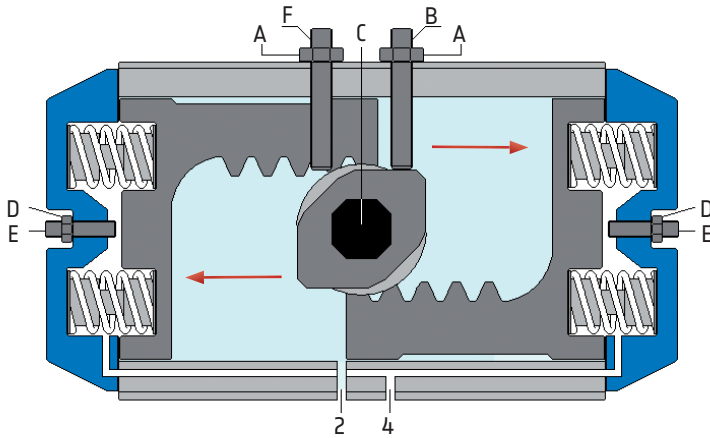
End position adjustment

In both end positions, the swivel angle can be set between +5° and -5° with the end position adjusting screws (EES) in a depressurized state. In addition, the nominal swivel angle of the switched drive (90 °) can be set using the stroke adjustment screws (HES) in the cover (optional by + 5 ° to max. -90 °)

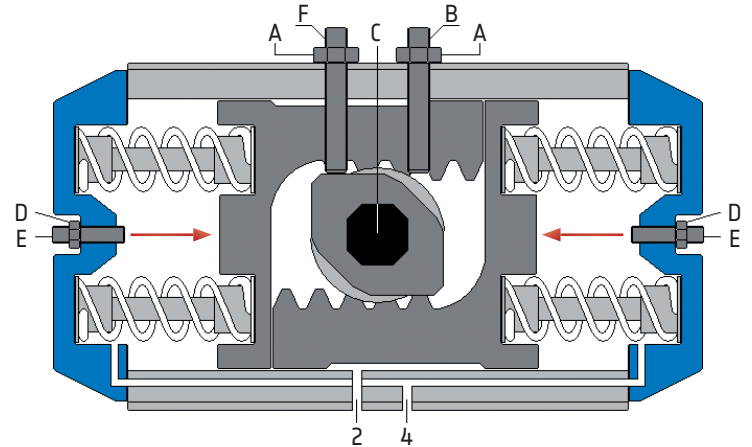


Single-acting function

Switching position 90°



Basic position 0°

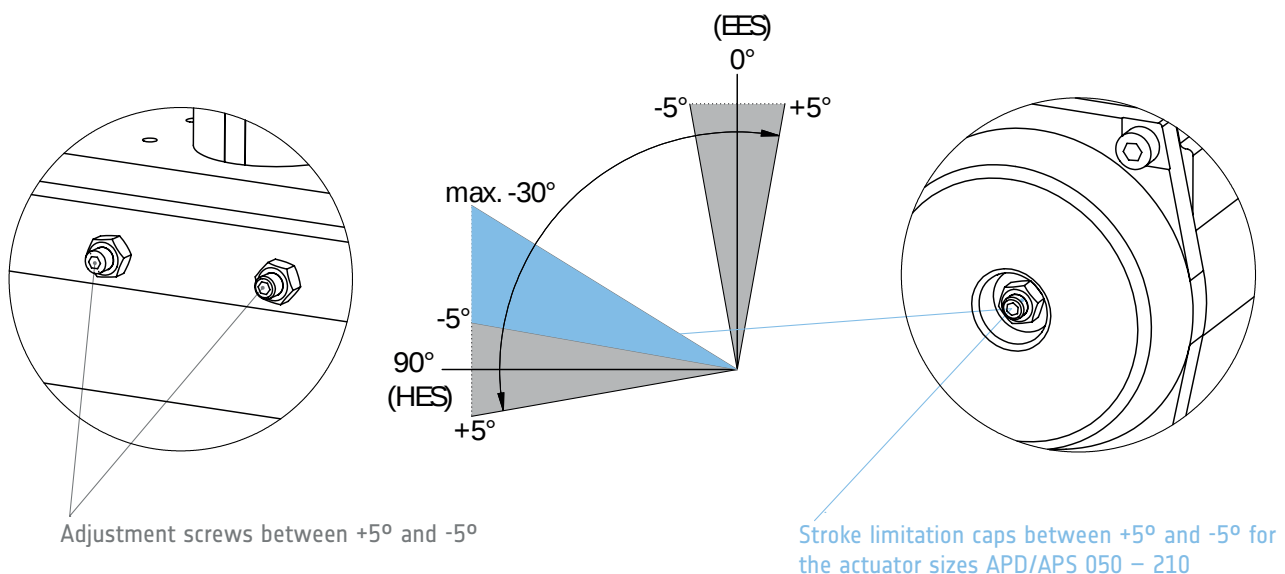


When pressure is applied to connection "2", the two pistons move from the 0° basic position apart into the 90° switching position and tension the springs.

When the inner chamber is vented via port '2', the springs return the pistons to 0° basic position. The number of springs (4 to 16 springs) must be adapted to the existing control pressure.

End position adjustment

In both end positions, the swivel angle can be set between +5° and -5° with the end position adjusting screws (EES) in a depressurized state. In addition, the nominal swivel angle of the switched drive (90 °) can be set using the stroke adjustment screws (HES) in the cover (optional by + 5 ° to max. -90 °)



Torques [Nm] double acting, Type APD 032 - 400

Actuator type	Control pressure Pst [bar]								
	3	3,5	4	4,5	5	5,5	6	7	8
APD-032	4,6	5,4	6,1	6,9	7,6	8,4	9,2	10,7	12,2
APD-040	7,2	8,4	9,6	10,8	12	13,2	14,4	16,8	19,2
APD-050	12	14	16	18	20	22	24	28	32
APD-060	22	25	29	32	36	40	43	50	58
APD-070	30	35	40	45	50	55	60	70	80
APD-080	47	55	62	70	78	86	94	109	125
APD-090	68	79	91	102	114	125	136	159	182
APD-110	99	115	132	148	165	181	197	230	263
APD-130	154	180	205	231	257	282	308	359	410
APD-140	263	307	351	395	439	482	526	614	702
APD-160	401	468	534	601	668	735	802	935	1069
APD-190	646	754	862	969	1077	1185	1292	1508	1723
APD-210	789	921	1052	1184	1315	1447	1578	1841	2104
APD-240	1160	1353	1546	1739	1933	2126	2319	2706	3092
APD-270	1761	2054	2349	2642	2936	3229	3523	4110	4697
APD-300	2289	2670	3052	3434	3815	4197	4578	5341	6104
APD-350	3427	3998	4570	5141	5712	6283	6854	7997	9139
APD-400	4883	5697	6511	7325	8139	8953	9767	11394	13022

Torques [Nm] single acting, type APS-050

Actuator type	No. of springs	Md F [Nm]		Pneumatic net torque Md [Nm] at minimum control pressure Pst [bar]															
				3		3,5		4		4,5		5		5,5		6		7	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
APS-050	4	3,1	4,7																
	5	4,2	6,2	5,8	7,8														
	6	5,1	7,4	4,6	6,9	6,6	8,9												
	7	5,9	8,6	3,4	6,1	5,4	8,1	7,4	10,1										
	8	6,8	9,9			4,1	7,2	6,1	9,2	8,1	11,2								
	9	7,6	11,1					4,9	8,4	6,9	10,4	8,9	12,4						
	10	8,5	12,4							5,6	9,5	7,6	11,5	9,6	13,5				
	11	9,3	13,6									6,4	10,7	8,4	12,7	10,4	14,7		
	12	10,1	14,8											7,2	11,9	9,2	13,9	13,2	17,9

► Numbers printed in bold and highlighted in blue = preferred selection. The complete number tables are available on request

Torques [Nm] single acting, type APS-060 - 090

Actuator type	No. of springs	Md F [Nm]		Pneumatic net torque Md [Nm] at minimum control pressure Pst [bar]															
				3		3,5		4		4,5		5		5,5		6		7	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
APS-060	4	5,4	8,3																
	5	6,8	10,4	11,2	14,8														
	6	8,2	12,5	9,1	13,4	12,7	17,0												
	7	9,6	14,6	7,0	12,0	10,6	15,6	14,2	19,2										
	8	10,9	16,7			8,5	14,3	12,1	17,9	15,7	21,5								
	9	12,3	18,8					10,0	16,5	13,6	20,1	17,2	23,7						
	10	13,7	20,9							11,5	18,7	15,1	22,3	18,7	25,9				
	11	15,0	22,9									13,1	21,0	16,7	24,6	20,3	28,2		
	12	16,4	25,0											14,6	23,2	18,2	26,8	25,4	34,0
APS-070	4	8,4	11,6																
	5	10,5	14,5	15,5	19,5														
	6	12,7	17,4	12,6	17,3	17,6	22,3												
	7	14,8	20,3	9,7	15,2	14,7	20,2	19,7	25,2										
	8	16,9	23,2			11,8	18,1	16,8	23,1	21,8	28,1								
	9	19,0	26,1					13,9	21,0	18,9	26,0	23,9	31,0						
	10	21,1	29,0							16,0	23,9	21,0	28,9	26,0	33,9				
	11	23,2	31,9									18,1	26,8	23,1	31,8	28,1	36,8		
	12	25,3	34,7											20,3	29,7	25,3	34,7	35,3	44,7
APS-080	4	12,6	18,4																
	5	15,8	23,0	23,8	31,0														
	6	19,0	27,6	19,2	27,8	27,0	35,6												
	7	22,1	32,2	14,6	24,7	22,4	32,5	30,2	40,3										
	8	25,3	36,8			17,8	29,3	25,6	37,1	33,4	44,9								
	9	28,5	41,4					21,0	33,9	28,8	41,7	36,6	49,5						
	10	31,6	46,0							24,2	38,6	32,0	46,4	39,8	54,2				
	11	34,8	50,6									27,4	43,2	35,2	51,0	43,0	58,8		
	12	38,0	55,2											30,6	47,8	38,4	55,6	54,0	71,2
APS-090	4	18,6	27,5																
	5	23,3	34,4	33,7	44,8														
	6	28,0	41,0	27,1	40,1	38,5	51,5												
	7	32,7	48,1	20,0	35,4	31,4	46,8	42,7	58,1										
	8	37,3	55,0			24,5	42,2	35,8	53,5	47,2	64,9								
	9	42,0	61,9					28,9	48,8	40,3	60,2	51,6	71,5						
	10	46,7	68,7							33,5	55,5	44,8	66,8	56,2	78,2				
	11	51,4	75,6									37,9	62,1	49,3	73,5	60,6	84,8		
	12	56,0	82,5											42,4	68,9	53,7	80,2	76,4	102,9

► Numbers printed in bold and highlighted in blue = preferred selection. The complete number tables are available on request

Torques [Nm] single acting, type APS-110 - 160

Actuator type	No. of springs	Md F [Nm]		Pneumatic net torque Md [Nm] at minimum control pressure Pst [bar]															
				3		3,5		4		4,5		5		5,5		6		7	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
APS-110	4	25,3	39,4																
	5	31,6	49,2	49,5	67,1														
	6	38,0	59,1	39,6	60,7	56,1	77,2												
	7	44,3	69,9	28,8	54,4	45,3	70,9	61,7	87,3										
	8	50,6	78,7			36,5	64,6	52,9	81,0	69,4	97,5								
	9	56,9	88,6					43,0	74,7	59,5	91,2	75,9	107,6						
	10	63,3	98,4							49,7	84,8	66,1	101,2	82,6	117,7				
	11	69,6	108,3									56,2	94,9	72,7	111,4	89,1	127,8		
	12	75,9	118,1											62,9	105,1	79,3	121,5	112,2	154,4
APS-130	4	41,9	62,7																
	5	52,4	78,4	75,5	101,5														
	6	62,8	94,1	59,8	91,1	85,5	116,8												
	7	73,3	109,7	44,2	80,6	69,9	106,3	95,5	131,9										
	8	83,8	125,4			54,2	95,8	79,8	121,4	105,5	147,1								
	9	94,2	141,1					64,1	111,0	89,8	136,7	115,4	162,3						
	10	104,7	156,8							74,1	126,2	99,7	151,8	125,4	177,5				
	11	115,2	172,4									84,1	141,3	109,8	167,0	135,4	192,6		
	12	125,7	188,1											94,1	156,5	119,7	182,1	171,0	233,4
APS-140	4	68,6	103,2																
	5	85,8	129,0	134,1	177,3														
	6	102,9	154,8	108,3	160,2	152,2	204,1												
	7	120,1	180,5	82,6	143,0	126,5	186,9	170,3	230,7										
	8	137,3	206,3			100,7	169,7	144,5	213,5	188,4	257,4								
	9	154,4	232,1					118,7	196,4	162,6	240,3	206,4	284,1						
	10	171,6	257,9							136,8	223,1	180,6	266,9	224,5	310,8				
	11	188,7	283,7									154,8	249,8	198,7	293,7	242,5	337,5		
	12	205,9	309,5											172,9	276,5	216,7	320,3	304,4	408,0
APS-160	4	111,7	166,6																
	5	139,7	208,3	192,5	261,1														
	6	168,0	250,0	150,8	232,8	217,6	299,6												
	7	196,0	292,0	108,8	204,8	175,6	271,6	242,4	338,4										
	8	223,0	333,0			134,6	244,6	201,4	311,4	268,2	378,2								
	9	251,0	375,0					159,4	283,4	226,2	350,2	293,0	417,0						
	10	279,0	417,0							184,2	322,2	251,0	389,0	317,8	455,8				
	11	307,0	458,0									210,0	361,0	276,8	427,8	343,6	494,6		
	12	335,0	500,0											234,8	399,8	301,6	466,6	435,2	600,2

► Numbers printed in bold and highlighted in blue = preferred selection. The complete number tables are available on request

Torques [Nm] single acting, type APS-190 - 270

Actuator type	No. of springs	Md F [Nm]		Pneumatic net torque Md [Nm] at minimum control pressure Pst [bar]															
				3		3,5		4		4,5		5		5,5		6		7	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
APS-190	4	152,0	234,4																
	5	190,0	293,0	353,2	456,2														
	6	227,0	352,0	294,2	419,2	401,9	526,9												
	7	265,0	410,0	236,2	381,2	343,9	488,9	451,6	596,6										
	8	303,0	469,0			284,9	450,9	392,6	558,6	500,3	666,3								
	9	341,0	527,0					334,6	520,6	442,3	628,3	550,0	736,0						
	10	379,0	586,0							383,3	590,3	491,0	698,0	598,7	805,7				
	11	417,0	645,0									432,0	660,0	539,7	767,7	647,4	875,4		
	12	455,0	703,0											481,7	729,7	589,4	837,4	804,8	1052
APS-210	4	208,0	288,0																
	5	260,0	360,0	429,0	529,0														
	6	313,0	432,0	357,0	476,0	488,5	607,5												
	7	365,0	503,0	286,0	424,0	417,5	555,5	549,0	687,0										
	8	417,0	575,0			345,5	503,5	477,0	635,0	608,5	766,5								
	9	469,0	647,0					405,0	583,0	536,5	714,5	668,0	846,0						
	10	521,0	719,0							464,5	662,5	596,0	794,0	727,5	925,5				
	11	573,0	791,0									524,0	742,0	655,5	873,5	787,0	1005		
	12	625,0	863,0											583,5	821,5	715,0	953,0	978,0	1216
APS-240	4	311	420																
	5	389	525	633	769														
	6	467	630	528	691	721	884												
	7	544	735	423	614	616	807	809	1000										
	8	622	840			511	729	704	922	897	1115								
	9	700	945					599	844	792	1037	985	1230						
	10	778	1050							687	959	880	1152	1073	1345				
	11	855	1155									775	1075	968	1268	1161	1461		
	12	933	1260											863	1190	1056	1383	1442	1769
APS-270	4	424	596																
	5	530	745	1016	1231														
	6	636	894	867	1125	1161	1419												
	7	742	1043	718	1019	1012	1313	1305	1606										
	8	848	1192			863	1207	1156	1500	1450	1794								
	9	954	1341					1007	1394	1301	1688	1594	1981						
	10	1060	1490							1152	1582	1445	1875	1739	2169				
	11	1166	1639									1296	1769	1590	2063	1883	2356		
	12	1272	1788											1441	1957	1734	2250	2321	2837

► Numbers printed in bold and highlighted in blue = preferred selection. The complete number tables are available on request

Torques [Nm] single acting, type APS-300 - 400

Actuator type	No. of springs	Md F [Nm]		Pneumatic net torque Md [Nm] at minimum control pressure Pst [bar]															
				3		3,5		4		4,5		5		5,5		6		7	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
APS-300	4	584	849																
	5	730	1061	1228	1559														
	6	876	1273	1016	1413	1397	1794												
	7	1022	1485			1185	1648	1567	2030										
	8	1168	1697					1355	1884	1736	2265								
	9	1314	1909							1524	2119	1906	2501						
	10	1460	2122									1693	2355	2074	2736				
	11	1606	2334											1862	2590	2244	2972		
	12	1752	2546													2032	2826	2795	3589
APS-350	4	938	1361																
	5	1173	1702	1725	2254														
	6	1408	2043	1384	2019	1955	2590												
	7	1642	2383			1615	2356	2187	2928										
	8	1877	2724					1846	2693	2417	3264								
	9	2112	3064							2077	3029	2648	3600						
	10	2346	3405									2307	3366	2878	3937				
	11	2581	3745											2538	3702	3110	4274		
	12	2816	4086													2769	4039	3911	5181
APS-400	7	1837	2880	2004	3047														
	8	2100	3292	1592	2784	2406	3598												
	9	2362	3703			1995	3336	2809	4150										
	10	2624	4115					2397	3888	3211	4702								
	11	2887	4526							2800	4439	3614	5253						
	12	3149	4938									3202	4991	4016	5805				
	13	3412	5349											3605	5542	4419	6356		
	14	3674	5761													4007	6094	5635	7722
	15	3937	6172															5224	7459
	16	4199	6584															4812	7197

► Numbers printed in bold and highlighted in blue = preferred selection. The complete number tables are available on request

Order key Form Fax / Notes

airpower order-Fax: +49 (0)2644 406 97 99

Order examples for a double-acting quarter turn actuator

A	P	D	–	060	/	090	–	V14	–	H
Type / mode of action D = double				Type/ Size		Swivel- angle 90° [180°]		Pinion Type *		Assembly variant Page 20/21

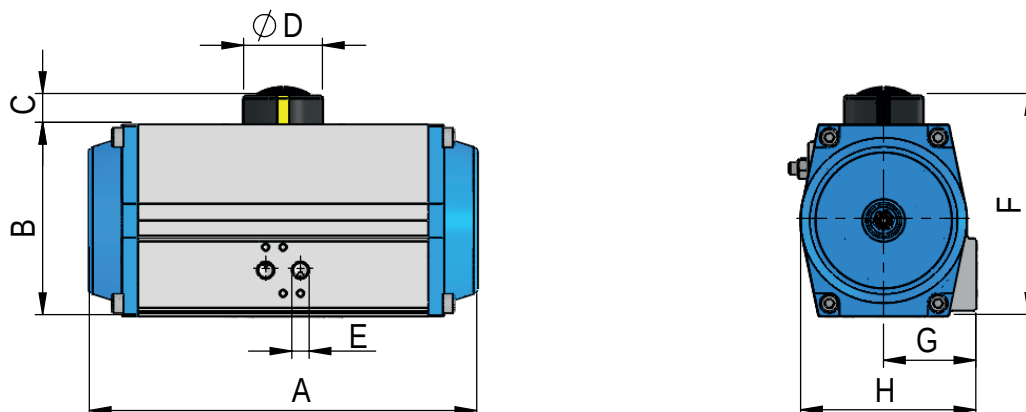
Order examples for a single-acting quarter turn actuator (spring return)

A	P	S	–	060	/	090	–	06	–	V14	–	E
Type/ Mode of action S = Single				Type/ Size		Swivel- angle 90°		Num- ber of springs 4 to 12		Pinion Type *		Assembly variant Page 20/21

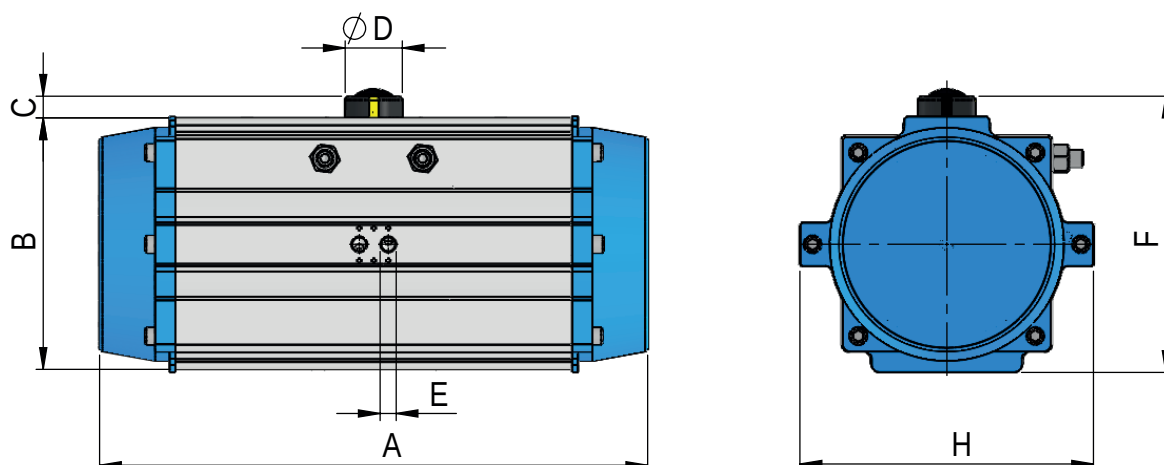
* V14 = Square = 14 mm

This image shows a blank sheet of white paper with horizontal grey ruling lines. A single vertical blue line runs down the left side of the page, creating a margin. The paper is otherwise empty of any text or markings.

Dimensional drawing APD-40 – APD/APS-400



APD-040 to APD/APS-270



APD/APS-300 to APD/APS-400

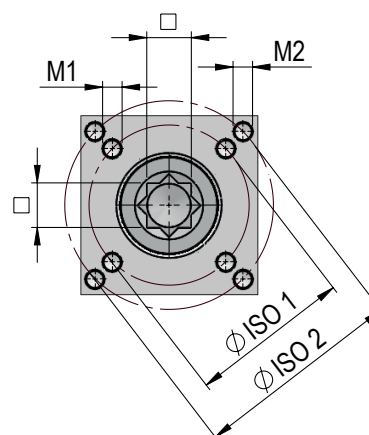
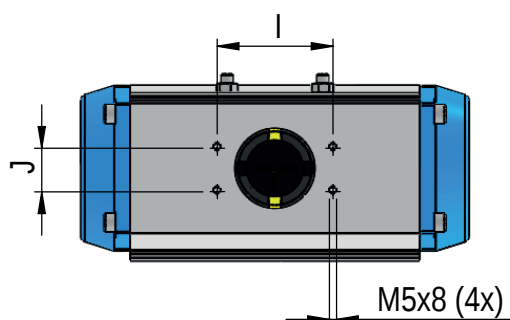


Table of dimensions

Actuator type	A / 90°	A / 180°	B	C	øD	E	F	G	H	I	J	□ x depth	ISO 1	M1	ISO 2	M2
APD-040	120	/	60	20	ø40	G1/4"	80	36,5	65	80	30	9x11	ø36 / F03	4xM5	ø50 / F05	4xM6
APD/APS - 050	146	210	74	20	ø40	G1/4"	94	41,5	71	80	30	11x14	ø36 / F03	4xM5	ø50 / F05	4xM6
APD/APS - 060	168	243	88	20	ø40	G1/4"	108	47	83	80	30	14x18	ø50 / F05	4xM6	ø70 / F07	4xM8
APD/APS - 070	184	258	100	20	ø40	G1/4"	120	53	94,5	80	30	17x19	ø50 / F05	4xM6	ø70 / F07	4xM8
APD/APS - 080	204	298	109	20	ø40	G1/4"	129	56	101	80	30	17x21	ø50 / F05	4xM6	ø70 / F07	4xM8
APD/APS - 090	260	360	120	20	ø40	G1/4"	140	55	107	80	30	17x21	ø50 / F05	4xM6	ø70 / F07	4xM8
APD/APS - 110	268	386	133	20	ø55	G1/4"	153	64	121,5	80	30	22x26	ø70 / F07	4xM8	ø102 / F10	4xM10
APD/APS - 130	298	426	155	20	ø55	G1/4"	175	71	141	80	30	22x26	ø70 / F07	4xM8	ø102 / F10	4xM10
APD/APS - 140	390	565	172	30	ø55	G1/4"	202	77	153	130	30	27x31	ø102 / F10	4xM10	ø125 / F12	4xM12
APD/APS - 160	458	652	197	30	ø55	G1/4"	227	88	176	130	30	27x31	ø102 / F10	4xM10	ø125 / F12	4xM12
APD/APS - 190	528	756	230	30	ø80	G1/4"	260	101	204	130	30	36x40	ø140 / F14	4xM16	/	/
APD/APS - 210	532	760	255	30	ø80	G1/4"	285	111	224	130	30	36x40	ø140 / F14	4xM16	/	/
APD/APS - 240	602	/	265	30	ø80	G1/4"	295	130	260	130	30	46x50	ø165 / F16	4xM20	/	/
APD/APS - 270	722	/	326	30	ø80	G1/2"	356	147	294	130	30	46x50	ø165 / F16	4xM20	/	/
APD/APS - 300	758	/	348	30	ø80	G1/2"	378	/	406	130	30	46x60	ø165 / F16	4xM20	/	/
APD/APS - 350	888	/	408	30	ø80	G1/2"	438	/	460	130	30	55x60	ø165 / F16	4xM20	ø254 / F25	8xM16
APD/APS - 400	924	/	464	30	ø80	G1/2"	494	/	516	130	30	55x60	ø165 / F16	4xM20	ø254 / F25	8xM16

- ▶ The data sheets for the individual actuator sizes can be found on our website www.airpower-gmbh.com or simply request them by email at sales@airpower-gmbh.com.
- ▶ CAD / 3D models are also available on request.

Weights and switching times

	Type	Weight [kg] double acting		Weight [kg] single-acting (12 springs)
		90°	180°	
Weights of double and single-acting quarter turn actuators	032	0,51	-	-
	040	0,90	-	-
	050	1,40	2,50	1,50
	060	2,10	3,60	2,30
	070	2,60	4,90	2,90
	080	3,30	5,60	3,70
	090	5,00	8,30	5,75
	110	6,20	12,20	7,10
	130	9,61	16,10	11,00
	140	13,75	24,10	16,25
	160	21,95	36,50	26,00
	190	33,20	56,60	39,80
	210	40,00	84,00	49,60
	240	67,00	-	81,00
	270	97,00	-	119,00
	300	137,00	-	165,00
	350	205,00	-	249,00
	400	289,00	-	337,00

	Type	Switching times [sed.] Double-acting		Switching times [sed.] Single-acting	
		0° - 90°	90° - 0°	0° - 90°	90° - 0°
Switching times for double and single-acting rotary actuators	032	0,20	-	-	-
	040	0,25	-	-	-
	050	0,30	0,30	0,50	0,40
	060	0,35	0,35	0,60	0,45
	070	0,40	0,40	0,70	0,50
	080	0,50	0,50	0,80	0,60
	090	0,75	0,75	0,90	0,70
	110	1,25	1,25	1,00	0,80
	130	1,60	1,60	1,20	1,00
	140	1,80	1,80	1,40	1,20
	160	1,90	1,90	1,60	1,50
	190	2,50	2,50	2,10	1,90
	210	2,80	2,80	2,60	2,30
	240	4,10	4,10	3,70	3,20
	270	2,90	2,90	3,40	2,20
	300	3,60	3,60	4,40	2,80
	350	5,70	5,70	6,60	3,80
	400	7,50	7,50	11,1	8,70

- * ▶ The specified switching times are guide values at 6bar control pressure directly on the actuator without load! At high switching speeds of the valve, impermissibly high braking forces can occur in the end positions of the actuator, which can lead to mechanical destruction of the actuator. Corrective action through throttling (supply or exhaust air) directly on the actuator or by selecting a bigger actuator!
- ▶ The switching times of the single-acting actuators are all indicated with 12 built-in springs!
- ▶ The actuator sizes APD / S-040-240 were controlled via a 1/4" NAMUR solenoid valve with a flow rate of 1250 NI/min and a supply air hose (length 2 m) with an inner diameter of 6 mm.
- ▶ The actuator sizes APD / S-270-400 were controlled via a 1/2 "NAMUR solenoid valve with a flow rate of 3000 NI / min and a supply air hose (length 2 m) with an internal diameter of 8 mm
- ▶ The switching times were determined with unthrottled actuators!

Air consumption

Double acting, type APD: 1 stroke corresponds to 1x OPEN (0° -90°) and 1x CLOSE (90° -0°)

Type APD	Volume [l]	Control pressure [bar]								
	Double stroke	3	3,5	4	4,5	5	5,5	6	7	8
032										
040	0,11	0,44	0,49	0,54	0,60	0,65	0,71	0,76	0,87	0,98
050	0,25	0,99	1,11	1,24	1,36	1,48	1,61	1,73	1,98	2,22
060	0,43	1,70	1,92	2,13	2,34	2,55	2,76	2,98	3,40	3,83
070	0,67	2,65	2,98	3,32	3,65	3,98	4,31	4,64	5,30	5,96
080	0,96	3,80	4,28	4,75	5,22	5,70	6,17	6,65	7,59	8,54
090	1,53	6,06	6,82	7,57	8,33	9,08	9,84	10,59	12,10	13,61
110	2,12	8,40	9,44	10,49	11,54	12,58	13,63	14,68	16,77	18,86
130	3,32	13,15	14,79	16,43	18,07	19,71	21,35	22,98	26,26	29,54
140	5,63	22,30	25,08	27,86	30,64	33,42	36,20	38,98	44,53	50,09
160	8,68	34,39	38,67	42,95	47,24	51,52	55,81	60,09	68,66	77,23
190	13,8	54,67	61,48	68,29	75,10	81,91	88,73	95,54	109,16	122,78
210	17,6	69,72	78,41	87,10	95,78	104,47	113,16	121,84	139,22	156,59
240	20,0	79,23	89,10	98,97	108,85	118,72	128,59	138,46	158,2	177,95
270	31,0	122,81	138,11	153,41	168,71	184,01	199,31	214,61	245,22	275,82
300	54,0	213,92	240,57	267,23	293,88	320,54	347,19	373,84	427,15	480,46
350	81,0	182,23	204,93	227,64	250,34	273,05	295,75	318,46	363,87	409,28
400	109,0	431,80	485,60	539,40	593,21	647,01	700,81	754,61	862,21	969,81

Single-acting, type APS: 1 stroke corresponds to 1x OPEN (0° -90°) and 1x CLOSE (90° -0° via spring force)

Type APS	Volume [l]	Control pressure [bar]								
	Double stroke	3	3,5	4	4,5	5	5,5	6	7	8
050	0,11	0,44	0,49	0,54	0,60	0,65	0,71	0,76	0,87	0,98
060	0,20	0,79	0,89	0,99	1,09	1,19	1,29	1,38	1,58	1,78
070	0,29	1,15	1,29	1,44	1,58	1,72	1,86	2,01	2,29	2,58
080	0,41	1,62	1,83	2,03	2,23	2,43	2,64	2,84	3,24	3,65
090	0,62	2,46	2,76	3,07	3,37	3,68	3,99	4,29	4,90	5,52
110	0,94	3,72	4,19	4,65	5,12	5,58	6,04	6,51	7,44	8,36
130	1,47	5,82	6,55	7,27	8,00	8,73	9,45	10,18	11,63	13,08
140	2,43	9,63	10,83	12,03	13,22	14,42	15,62	16,82	19,22	21,62
160	3,65	14,46	16,26	18,06	19,86	21,67	23,47	25,27	28,87	32,48
190	5,90	23,37	26,28	29,20	32,11	35,02	37,93	40,85	46,67	52,49
210	7,40	29,32	32,97	36,62	40,27	43,93	47,58	51,23	58,54	65,84
240	11,00	43,58	49,01	54,44	59,86	65,29	70,72	76,15	87,01	97,87
270	17,00	67,35	75,74	84,13	92,52	100,91	109,30	117,69	134,47	151,25
300	24,00	95,08	106,92	118,77	130,61	142,46	154,31	166,15	189,84	213,54
350	35,00	99,04	111,38	123,72	136,06	148,40	160,74	173,08	197,75	222,43
400	53,00	209,96	236,12	262,28	288,44	314,60	340,76	366,92	419,24	471,56

Calculation basis: Calculation basis: Average atmospheric pressure of 1013 mbar at an ambient temperature of + 20° C

Mounting variants actuator assembly „parallel to the pipeline”

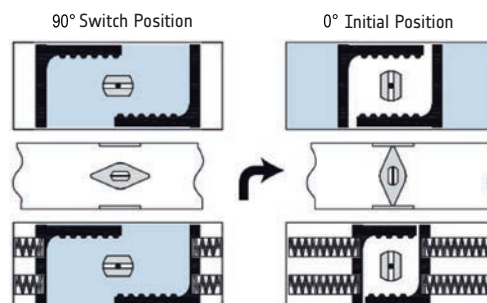
Mounting variant: H (double + single acting)

Safety position: spring force closes, clockwise

0° Initial Position



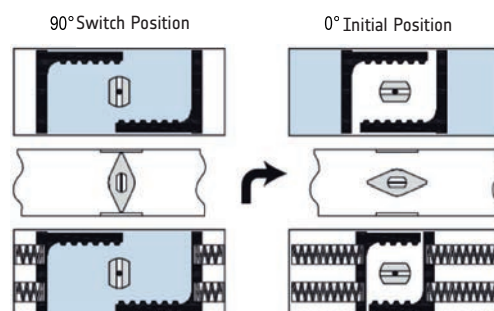
Standard: clockwise „CLOSED”
according to DIN EN 15714-1



Mounting variant: G (double + single acting)

Safety position: **opening** by spring force, clockwise

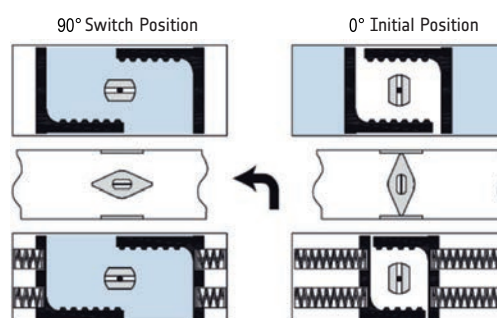
0° Initial Position



Mounting variant: E (double + single acting)

Safety position: spring force closes, **counterclockwise**

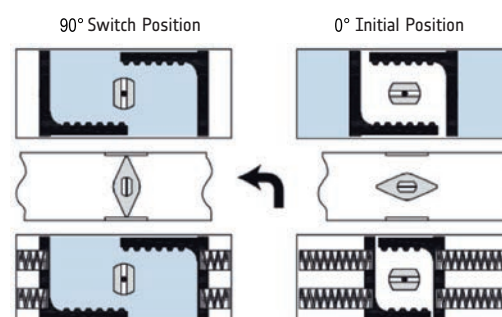
0° Initial Position



Mounting variant: F (double + single acting)

Safety position: **opening** by spring force, **counterclockwise**

0° Initial Position



Mounting variants actuator assembly „across the pipeline”

Mounting variant: H (double + single acting)

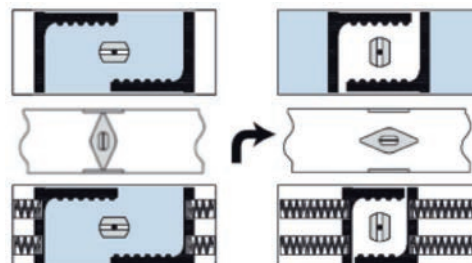
Safety position: opening by spring force, clockwise

0° Initial Position



90° Switch Position

0° Initial Position



Mounting variant: G (double + single acting)

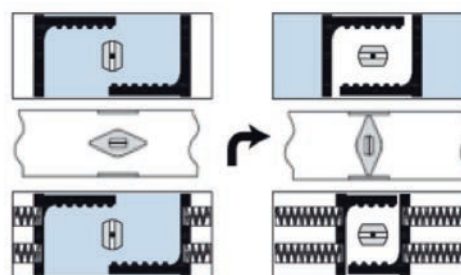
Safety position: spring force **closes**, clockwise

0° Initial Position



90° Switch Position

0° Initial Position



Mounting variant: E (double + single acting)

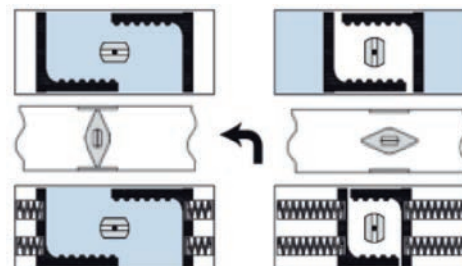
Safety position: opening by spring force, **counterclockwise**

0° Initial Position



90° Switch Position

0° Initial Position



Mounting variant: F (double + single acting)

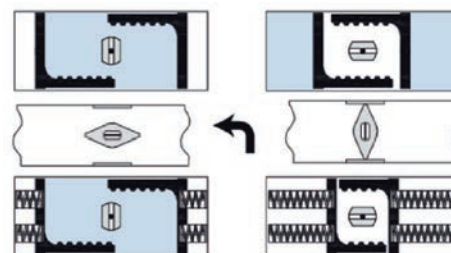
Safety position: spring force **closes**, **counterclockwise**

0° Initial Position

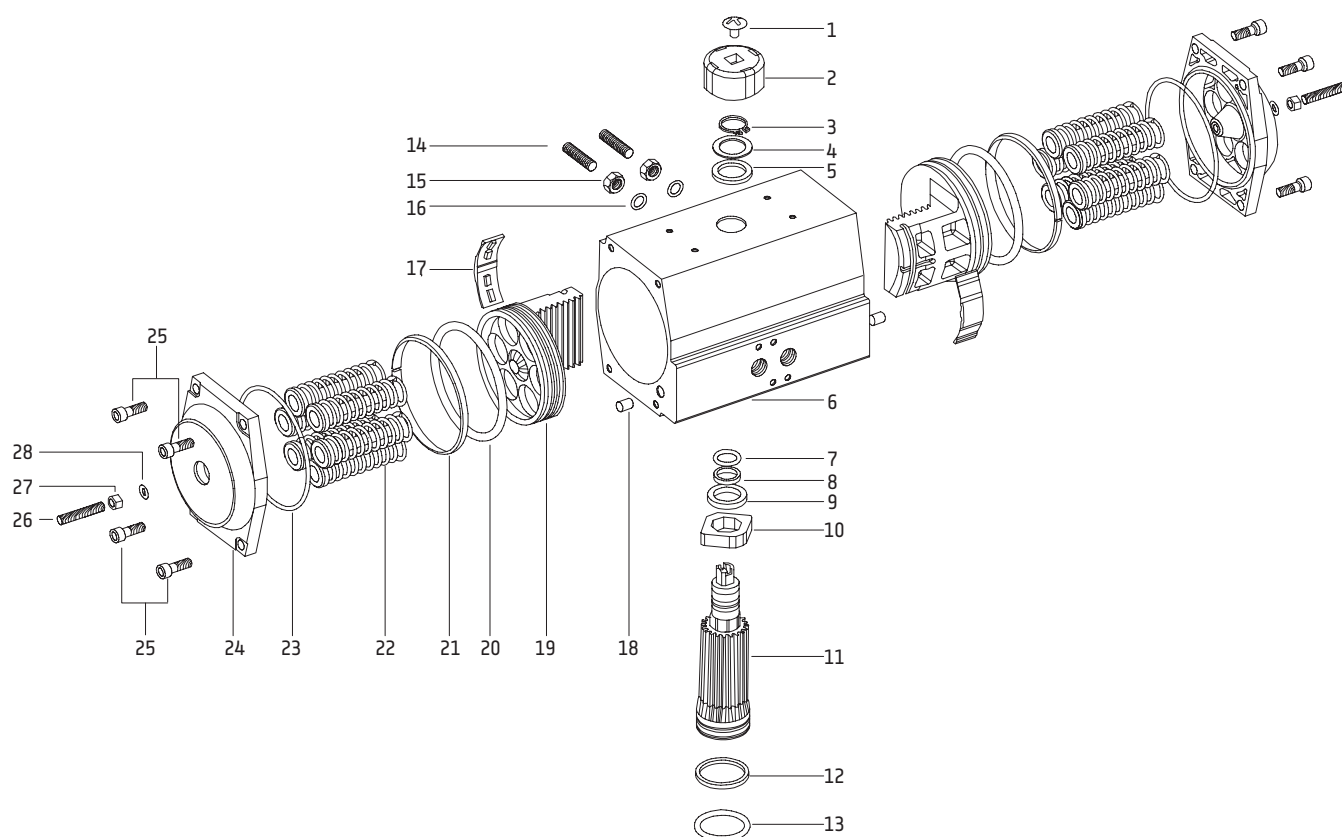


90° Switch Position

0° Initial Position



Spare parts / order code



1 Screw
2 Position Indicator
3 Circlip
4 Washer
5 Slide ring
6 Housing
7 O-Ring

8 Bearing
9 Shim
10 Stop cam
11 Pinion
12 Bearing
13 O-Ring
14 Threaded pin

15 Lock-nut
16 O-Ring
17 Guide segment
18 Plug
19 Piston
20 O-Ring
21 Piston guide ring

22 Safety springs
23 O-Ring
24 Caps
25 Cap screws
26 Threaded pin
27 Lock-nut
28 O-Ring

Spare parts set | No. 1

Seals and wearing parts

Parts: 3, 4, 5, 7, 8, 9, 12, 13, 16, 17, 18, 20, 21, 23, 28

Spare parts set | No. 2

Piston, complete

Parts: 17, 19, 20, 21

Spare parts set | No. 3

Pinion, complete

Parts: 3, 4, 5, 7, 8, 9, 11, 12, 13

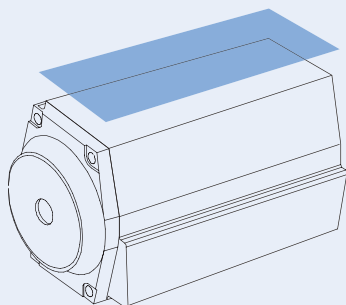
Spare parts set | No. 4

Cap, complete

Parts: 23, 24, 25, 26*, 27*, 28*
*not at APD/S-240-400

Accessories Program for all actuator interfaces

Interface Actuator /Signal unit according to VDI /VDE 3845



Switchbox
made of different materials and different types of switches

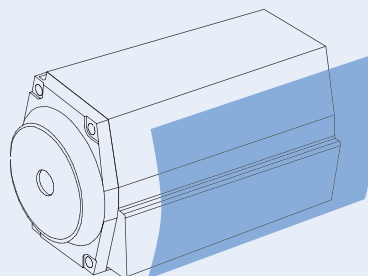


Proximity initiators
Switches and sensors



Positioners
pneumatic and electro-pneumatic or digital

Interface actuator / control valve according to VDI / VDE 3845 or NAMUR



NAMUR control valve
made of different materials, also explosion-proof



Throttle plate
with NAMUR flange pattern

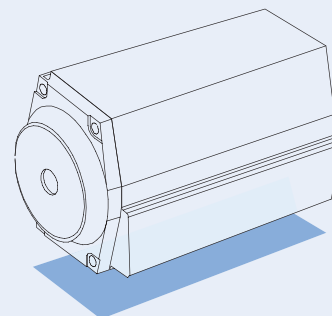


Throttle silencer
and fine throttles for speed regulation



Silencer
prevents the entry of dirt and dust

Interface actuator / valve according to DIN EN ISO 5211



Mounting bridge



Shaft adapter



Reducers



Gearbox



Assembly and installation service

We assemble and test for you on a project-specific basis, including piping and many other options such as:

Manual override, valve terminal, emergency air supply, etc.



Manual

Operating and maintenance instructions
for the pneumatic quarter turn actuator

Service hotline for queries and information: **+49-2644-40697-0**
Further information can also be found at www.airpower-gmbh.com.

We reserve the right to make technical developments and change the data.
25/2020 airpower europe GmbH



airpower europe GmbH

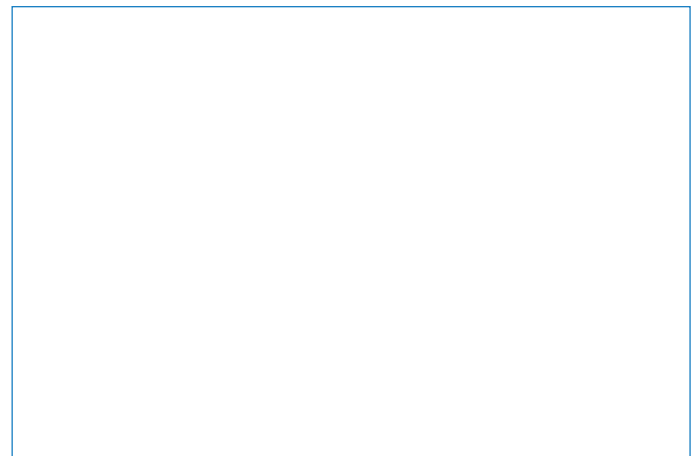
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