



Main Features:-

- ◆ Rack and Pinion Pneumatic Actuator
- ◆ Series 70001-70018 Double Acting
- ◆ Series 70019-70034 Single Acting
- ◆ ISO and Namur Standards
- ◆ Available PFA Coated - Stainless Versions

Suitable Applications & Approvals:



SERIES: 70001-34

BRAND:

AVP

PNEUMATIC ACTUATORS

KEY FEATURES

The key features of the AV-P Pneumatic actuators include the following:

Actuator body is a Heavy duty extruded aluminium body having a smooth surface finish is hard anodised both externally and internally to increase corrosion resistance and life span of internal parts. Different types of protective coatings, such as ENP, PFA and ECTFE allowing actuators to be used in harsh environments are available upon request.

End caps are Epoxy powder coated die-cast aluminium end caps are identical for actuators in single and double acting configuration to facilitate conversion on site. Alternatively ENP, PFA, ECTFE etc coatings are available for highly aggressive environments.

The pistons are Die-cast aluminium pistons are treated with a special coating to decrease friction coefficient and increase wear resistance. The direction of pinion rotation (CCW to CW) can be changed by rotating the pistons 180° around their axis as the pistons installed at the both ends of the actuator are identical to each other.

The springs are High grade steel spring cartridges are cathaphoresis coated to provide highly improved safety and corrosion resistance in fail safe and emergency shut down operations.

Actuators fitted with NBR o-rings are suitable for use at temperatures ranging from -20 °C to +80 °C. FKM and Silicon O-rings are available for low and high temperature executions.



ACTUATOR KEY DESIGN FEATURES

SUITABLE FOR ISO VALVE AND NAMUR MOUNT FOR ACCESSORIES

All of the AV-P models are available with ISO 5211 interface for valves that also have 5211 mounting arrangement, allowing direct mount actuation. All actuators have a double square (STAR) output drive to the above standard.

All actuators have Namur mount for switchboxes, solenoids and other ancillary equipment such as electro pneumatic positioners, all available from Allvalves.



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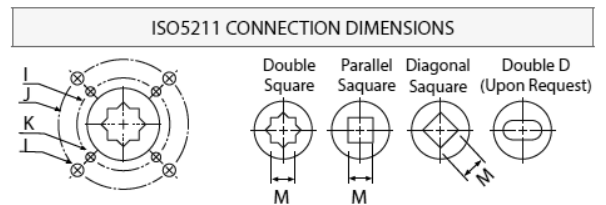
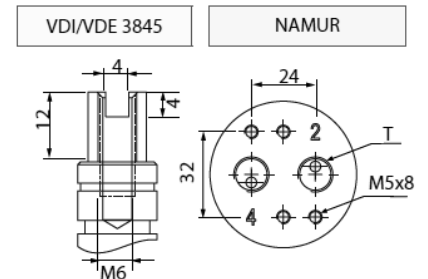
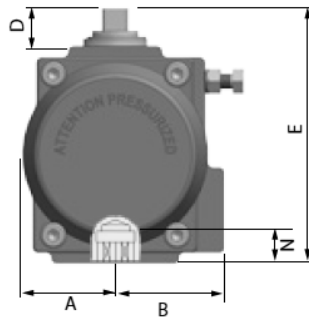
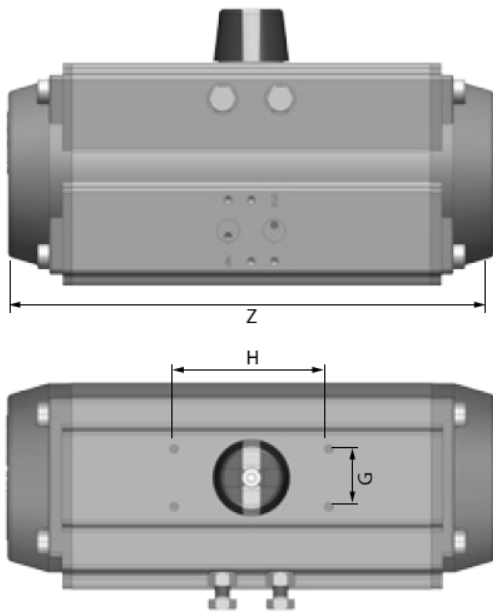
The quarter turn actuators are stocked in the UK by Allvalves Online for next day delivery. Typically models PA52 through to PA140 are stocked with larger models stocked at our European distribution centre for quick deliveries. If not in the UK, allow 2 weeks delivery time.

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BRAND:

AVP
PNEUMATIC ACTUATORS

KEY DIMENSIONS



MODEL	A	B	D	E	G	H	I	K	L	M	N	Z	T
PA32	23	23	20	65	25	50	36	M5X8	-	9	14	99	G1/8"
PA40	40	36	20	81	30	80	36	M5X8	M6X10	9-11	14	124	G1/4"
PA50	30	41	20	92	30	80	36	M5X8	M6X10	9-11	14	154	G1/4"
PA63	36	47	20	107.5	30	80	50	M6X10	M8X13	9-11-14	18	166	G1/4"
PA75	42	53	20	119.5	30	80	50	M6X10	M13X8	11-14	18	186	G1/4"
PA83	46	57	20	128.7	30	80	50	M6X10	M13X8	14-17	21	205	G1/4"
PA92	50	58	20	136.8	30	80	50	M6X10	M13X8	14-17	21	253	G1/4"
PA105	57.5	64	20	153	30	80	70	M8X13	M10X16	17-22	26	268	G1/4"
PA125	67.5	74.5	20	175	30	80	70	M8X13	M10X16	22	31	301	G1/4"
PA140	75	77	20	191.5	30	80	102	M10X16	M12X20	27	31	392	G1/4"
PA160	87	87	20	217	30	80	102	M10X16	M12X20	27	40	451	G1/4"
PA190	103	103	30	260	30	130	-	-	M16X25	36	40	525	G1/4"
PA210	113	113	30	285	30	130	-	-	M16X25	36	50	532	G1/4"
PA240	130	130	30	318	30	130	-	-	M20X25	46	50	610	G1/4"
PA270	147	147	30	356	30	130	-	-	M20X25	46	55	722	G1/4"
PA300	140	173	30	382	30	130	-	-	M20X25	46	50	774	G1/2"
PA350	164	195	30	438	30	130	165	M20X25	M16X25	46	50	912	G1/2"
PA400	260	260	30	494	30	130	165	M20X25	M16X25	46	50	945	G1/2"

ACTUATOR DIMENSIONS

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BRAND:



ACTUATOR UNIT WEIGHTS

	PA32	PA40	PA52	PA63	PA75	PA83	PA92	PA105	PA125	PA140	PA160	PA190	PA210	PA240	PA270
SR			1.5	2.2	2.9	3.6	5.5	6.7	10.4	14.4	23.3	46.1	53.1	73.3	115.9
DA	0.5	0.7	1.4	2.1	2.7	3.3	5.0	5.9	9.0	12.0	19.0	39.1	44.1	59.0	93.6

ACTUATOR AIR CONSUMPTION (LT/STROKE)

	PA32	PA40	PA52	PA63	PA75	PA83	PA92	PA105	PA125	PA140	PA160	PA190	PA210	PA240	PA270
OPEN	0.03	0.06	0.12	0.21	0.30	0.43	0.64	0.88	1.4	2.2	3.2	5.4	6.8	9	14
CLOSE	0.04	0.08	0.16	0.23	0.34	0.47	0.73	0.95	1.6	2.5	3.7	5.9	7.5	11	17

ACTUATOR OPERATION DIRECTION AND SPRING CONFIGURATION OPTIONS

Counter Clockwise Rotation (CCWR)

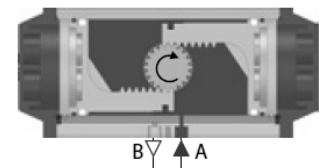
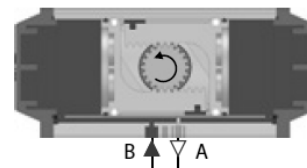
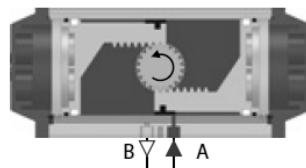
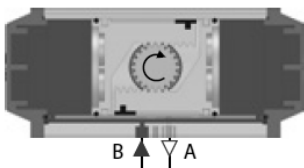
Air supplied through port B forces the piston towards each other causing the pinion to rotate clockwise while air is being exhausted through port A.

Air supplied through port A forces the piston away from each other causing the pinions to rotate counter clockwise while air is being exhausted through port B.

Clockwise Rotation (CWR)

Air supplied through port B forces the piston towards each other causing the pinion to rotate counter clockwise while air is being exhausted through port A.

Air supplied through port A forces the piston away from each other causing the pinions to rotate clockwise while air is being exhausted through port B.



The Proval actuators typically operate counter clockwise to open and clockwise to close. The direction of pinion rotation (CCW to CW) can be reversed changing the orientation of pistons as shown in the picture above.

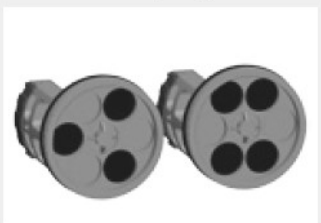
5 Springs



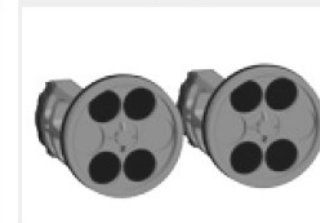
6 Springs



7 Springs



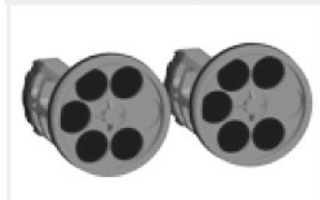
8 Springs



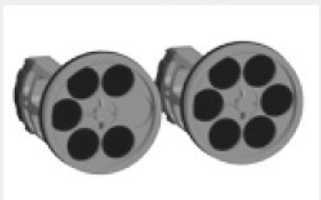
9 Springs



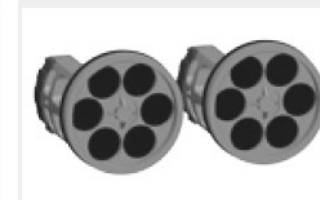
10 Springs



11 Springs



12 Springs



ACTUATOR WEIGHT AND AIR CONSUMPTION



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BRAND:



DOUBLE ACTING ACTUATOR TORQUE RATINGS IN NM

Model	Air Supply Pressure (bar)									
	2	2,5	3	4	4,5	5	5,5	6	7	8
PA 32DA	2	3,5	4	6	7	7,5	8	9	10	12
PA 40DA	6	8	10	13	14	16	18	20	22	26
PA 52DA	8	10	12	16	18	20	22	24	28	32
PA 63DA	15	19	22	30	33	37	40	44	52	58
PA 75DA	20	26	30	40	45	50	55	60	70	80
PA 83DA	33	40	48	63	71	79	86	94	110	125
PA 92DA	45	57	68	90	102	113	124	136	158	182
PA 105DA	66	83	100	132	149	166	182	200	232	265
PA 125DA	101	126	151	202	226	252	276	301	352	402
PA 140DA	171	214	257	342	385	428	471	513	599	684
PA 160DA	266	333	399	532	600	665	732	798	932	1064
PA 190DA	426	532	639	852	958	1064	1170	1277	1490	1702
PA 210DA	532	665	798	1064	1198	1330	1463	1596	1862	2128
PA 240DA	770	962	1155	1540	1732	1924	2117	2309	2693	3078
PA 270DA	1169	1462	1755	2340	2632	2925	3217	3510	4095	4680
PA 300DA	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
PA 350DA	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
PA 400DA	3256	4069	4883	6511	7325	8139	8953	9767	11394	13022

ACTUATOR TORQUE OUTPUTS

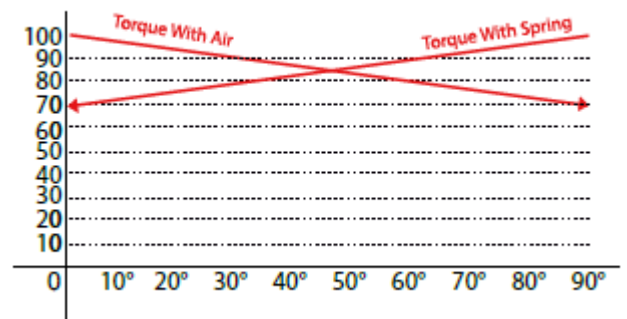
SPRING RETURN WORKING PRINCIPLES WHEN SIZING

Spring return actuators require compressed air to be supplied for the opening stroke only as they utilize pre-stressed cartridge

springs for reversing the rotation.

Unlike acting actuators the output torques generated by spring return actuators depends not only on the cylinder diameter and input air pressure but also on the force created by the springs. Therefore spring return actuators are larger than the double acting actuators that produce the same torque.

As shown in the diagram at the right, the torque curve is a straight line slopping down due to preloaded springs.



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BRAND:



SINGLE ACTING ACTUATOR TORQUE RATINGS IN NM

ACTUATOR TORQUE OUTPUTS

Air Supply	Model	Nr of Springs	2,5 Bar		3 Bar		4 Bar		5 Bar		6 Bar		7 Bar		8 Bar		Torque (Nm)	
			0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
			Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop
PA 52SR	5	5,7	3,8	7,6	5,7												6,2	4,3
	6	4,9	2,5	6,9	4,5	10,9	8,5										7,4	5
	7	4	1,3	6	3,3	9,8	7,3	14	10,4								8,6	5,9
	8			5,2	2	9,2	6	13,2	9,1	17,2	14,1						9,9	6,7
	9			4,3	0,8	8,3	4,8	12,3	7,9	16,3	12,8	20,3	16,8				11,1	7,6
	10					7,4	3,6	11,5	6,7	15,5	11,6	19,5	15,6				12,4	8,5
	11					6,6	2,3	10,6	5,4	14,6	10,4	18,6	14,3	22,6	18,3		13,6	9,3
12								9,7	4,2	13,8	9,1	17,8	12,2	21,8	17,1		14,8	10,2
PA 63SR	5	11,4	7,7	15	11,4	22,3	16,6										10,4	6,8
	6	10,1	5,7	13,6	9,3	20,9	14,9	28,3	23,9								12,5	8,2
	7	8,6	3,6	12,5	7,2	19,5	14,5	26,8	21,9								14,6	9,6
	8			10,9	5,1	18,2	12,4	25,5	19,8	32,8	27	40,1	34,3				16,7	10,9
	9					16,8	10,4	24,1	17,7	31,4	24,9	38,7	32,2				18,8	12,3
	10					1,4	8,2	22,8	15,6	30	22,8	37,3	30,1	44,7	37,4		20,9	13,7
	11								21,5	13,5	28,7	20,7	36	28	43,3	35,3	22,9	15
12								20	11,4	27,3	18,6	34,6	25,9	41,9	33,3	25	16,4	
PA 75SR	5	14,5	10,6	19,4	15,5	29,5	25,7										14,5	10,5
	6	12,4	7,6	17,3	12,6	27,4	22,7	37,5	32,8								17,4	12,7
	7	10,4	4,8	15,2	9,7	25,3	19,9	35,4	29,9								20,3	14,8
	8			13,1	6,8	23,1	16,9	33,3	27	43,2	37	53,3	47				23,2	16,9
	9					21	14,1	31,2	24,1	41,1	34,1	51,2	44,2				26,1	19
	10					19	11,1	28,8	21,2	39	31,2	49,1	41,2	59,1	51,2		29	21,1
	11							27	18,3	37	28,3	47	38,4	57	48,4		31,9	23,2
12							24,9	15,4	34,9	25,4	44,9	35,4	54,9	45,4		34,7	25,3	
PA 83SR	5	23,3	16,1	31,1	24	46,8	39,7										23	15,8
	6	20,1	11,5	28	19,3	43,7	35,1	59,4	50,7								27,6	19
	7	17	6,9	24,8	14,8	40,5	30,5	56,2	46,2								32,2	22,1
	8			21,7	10,1	37,4	25,8	53,1	41,5	68,8	57,2	84,5	72,9				36,8	25,3
	9					34,2	21,3	49,9	37	65,6	52,6	81,2	68,3				41,4	28,5
	10					31	16,6	46,7	32,3	62,4	48	78,1	63,7	93,8	79,3		46	31,6
	11							43,6	27,7	59,3	43,4	75	59,1	90,6	74,8		50,6	34,8
12							40,4	23,2	56,1	38,9	71,7	54,5	87,4	70,2		55,2	38	
PA 92SR	5	33,1	22	44,2	33,2	66,8	55,9										34,4	23,3
	6	28,4	15,2	39,6	26,4	62,2	49	84,8	71,6								41,2	28
	7	23,8	8,2	34,9	19,4	57,5	42,1	80,2	64,7								48,1	32,7
	8			31,3	12,6	52,9	35,2	75,5	57,9	98,1	80,5	120,7	103				55	37,3
	9					48,2	28,4	70,9	51	93,5	73,6	116	96,1				61,9	42
	10					43,6	21,5	66,2	44,1	88,8	66,7	111,3	89,2	134	111,8		68,7	46,7
	11							61,5	37,2	84,1	59,9	106,6	82,4	129,2	105		75,6	51,4
12							56,8	30,4	79,4	53	101,9	75,5	124,5	98,1		82,5	56	
PA 105SR	5	51	33,4	67,5	49,9	100,6	83										49,2	31,6
	6	44,7	23,5	61,1	40	94,2	73,2	127,3	106,2								59,1	38
	7	38,4	13,7	54,9	30,3	87,9	63,4	121	96,4								68,9	44,3
	8			48,5	20,4	81,6	53,5	114,7	86,5	147,7	119,6	180,8	152,7				78,7	50,6
	9					75,3	43,7	108,4	76,8	141,5	109,8	174,5	142,9				88,6	56,9
	10					68,9	33,4	102	66,5	135,1	99,6	168,2	132,6	201,2	165,7		98,4	63,3
	11							95,7	57	128,7	90,1	161,8	123,1	194,8	156,2		108,3	69,6
12							89,4	47,5	122,5	80,6	155,5	113,6	188,6	146,7		118,1	75,9	
PA 140SR	5	128	85	171	127	256	213										129	86
	6	111	59	154	102	239	187	325	273								155	103
	7	94	33	137	76	222	162	308	247								181	120
	8			120	50	205	136	291	221	376	307	462	392				206	137
	9					187	110	273	196	358	281	444	367				232	155
	10					170	84	256	169	341	255	427	340	512	426		258	172
	11							238	143	324	229	409	314	495	400		284	189
12							221	118	307	203	392	289	478	374		310	206	

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SINGLE ACTING ACTUATOR TORQUE RATINGS IN NM

Air Supply	Model	Nr of Springs	2,5 Bar		3 Bar		4 Bar		5 Bar		6 Bar		7 Bar		8 Bar		Torque (Nm)	
			0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
			Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop
PA 160SR	5	193	124	259	191	392	324										208	140
	6	165	83	232	149	365	282	498	415								250	168
	7	137	41	203	107	336	240	469	373								292	196
	8			176	66	309	199	442	290	575	465	708	598				333	223
	9					280	157	413	237	546	423	679	556				375	251
	10					253	115	386	248	519	381	652	514	786	647		417	279
	11								358	207	491	340	624	473	757	606	458	307
12								330	165	463	298	596	431	729	564	500	335	
PA 190SR	5	332	222	438	329	651	542										309	200
	6	292	161	398	267	611	480	824	693								371	240
	7	252	99	358	205	571	418	784	631								433	280
	8			318	143	531	356	744	569	957	782	1169	995				495	320
	9					491	295	704	507	917	720	1130	933				557	360
	10					451	233	664	446	877	658	1090	871	1302	1084		618	400
	11								624	384	837	597	1050	809	1263	1022	680	440
12								584	322	797	535	1010	748	1223	960	742	480	
PA 210SR	5	390	285	523	418	789	684										380	275
	6	335	209	468	342	734	608	1000	874								456	330
	7	280	133	413	266	679	532	945	798								532	385
	8			358	190	624	456	890	722	1156	988	1422	1254				608	440
	9					569	380	835	646	1101	912	1367	1178				684	495
	10					514	304	780	570	1046	836	1312	1102	1578	1368		760	550
	11								725	494	991	760	1257	1026	1523	1292	836	605
12								670	418	936	684	1202	950	1468	1216	912	660	
PA 240SR	5	552	409	744	600	1129	985										554	410
	6	470	297	662	489	1047	874	1432	1259								665	492
	7	388	187	580	379	964	764	1349	1149								775	575
	8			498	268	883	653	1267	1037	1652	1422	2037	1807				886	656
	9					800	542	1185	926	1569	1311	1954	1696				998	739
	10					718	431	1103	816	1488	1201	1872	1586	2257	1970		1108	821
	11								1021	705	1406	1090	1791	1474	2176	1859	1219	903
12								939	594	1323	979	1708	1363	2093	1748	1330	985	
PA 270SR	5	903	675	1195	968	1779	1552										787	560
	6	790	519	1083	811	1667	1396	2252	1981								943	672
	7	679	361	972	654	1556	1238	2141	1823								1101	783
	8			860	497	1444	1081	2029	1666	2614	2252	3199	2836				1258	895
	9					1332	923	1917	1509	2502	2094	3087	2678				1416	1007
	10					1220	767	1805	1352	2390	1937	2974	2521	3560	3107		1572	1119
	11								1693	1194	2278	1779	2862	2364	3448	2949	1730	1231
12								1582	1037	2167	1623	2751	2207	3336	2792	1887	1342	
PA 300SR	5	1097	729														1061	730
	6	935	494	1316	875												1273	876
	7	772	258	1153	639	1916	1402										1485	1022
	8			991	403	1754	1166	2517	1929								1697	1168
	9					1592	930	2355	1693	3118	2456						1909	1213
	10					1430	695	2193	1458	2956	2221	3719	2984	4482	3747		2122	1460
	11							2030	1222	2793	1985	3556	2748	4319	3511	2334	1606	
12								1868	986	2631	1749	3394	2512	4157	3275	2546	1752	
PA 350SR	5	1553	964														1702	1173
	6	1292	586	1863	1157												2043	1408
	7	1031	208	1602	779	2745	1929										2383	1642
	8			1341	401	2484	1544	3626	2686								2724	1877
	9					2224	1165	3366	2307	4508	3449						3064	2112
	10					1936	787	3105	1929	4247	3071	5390	4214	6532	5356	3405	2346	
	11								2804	1551	3986	2693	5129	3836	6271	4978	3745	2581
12								2584	1172	3726	2314	4869	3457	6011	4599	4086	2816	

ACTUATOR TORQUE OUTPUTS



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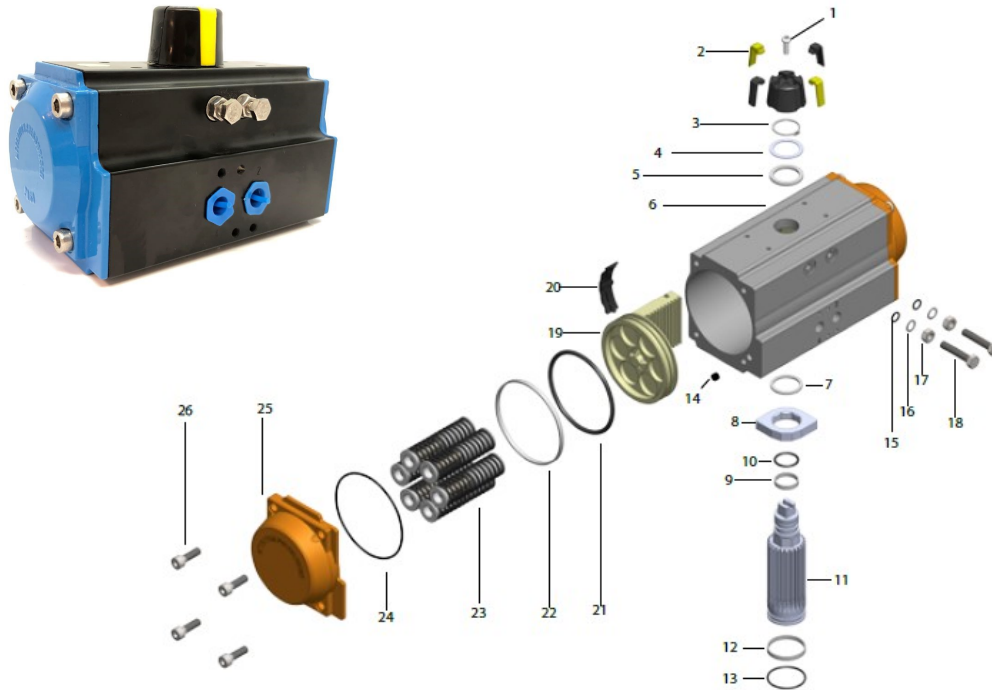
The quarter turn actuators are stocked in the UK by Allvalves Online for next day delivery. Typically models PA52 through to PA140 are stocked with larger models stocked at our European distribution centre for quick deliveries. If not in the UK, allow 2 weeks delivery time.

SERIES: 70001-34

BRAND:



BILL OF MATERIALS



ACTUATOR CONSTRUCTION MATERIALS

No.	Description	Qty	Standard Material	Protection	Optional Material
1	Indicator Screw	1	Stainless Steel	Galvanized Coating	Stainless Steel
2	Indicator	1	Plastic		
3	Circlip	1	Stainless Steel		
4	Metal Washer	1	Stainless Steel		
5	Washer	1	Engineering Plastics		
6	Body	1	Extruded Aluminium Alloy	Hard Anodizing	Stainless Steel , Epoxy / Nickel Coating
7	Inner Washer	1	Engineering Plastics		
8	Cam	1	Alloy Steel		
9	Pinion Upper Bearing	1	Engineering Plastics		
10	Pinion Upper O-Ring	1	NBR		
11	Pinion	1	Alloy Steel	Nickel Plating / Galvanized Coating	Stainless Steel
12	Pinion Lower Bearing	1	NBR		Viton/Silicon
13	Pinion Lower O-Ring	1	Engineering Plastics		
14	Sealing Plug	2	NBR		Viton/Silicon
15	Adjustment Screw O-Ring	2	NBR		Viton/Silicon
16	Washer (Adjustment Bolt)	2	Stainless Steel		
17	Nut (Adjustment Bolt)	2	Stainless Steel		
18	Stroke Adjustment Bolt	2	Stainless Steel		
19	Piston	2	Aluminium Die Cast	Alodine Coating	
20	Guide Piston	2	Engineering Plastics		
21	Piston Bearing	2	Engineering Plastics		
22	Piston O-Ring	2	NBR		Viton/Silicon
23	Cartridge Springs	0-12	Spring Steel	Cataphoresis Coating	
24	End Cap O-Ring	2	NBR		Viton/Silicon
25	End Cap	2	Cast Aluminium	Epoxy Powder Coatinga	Stainless Steel
26	Cap Screw	8	Stainless Steel		



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