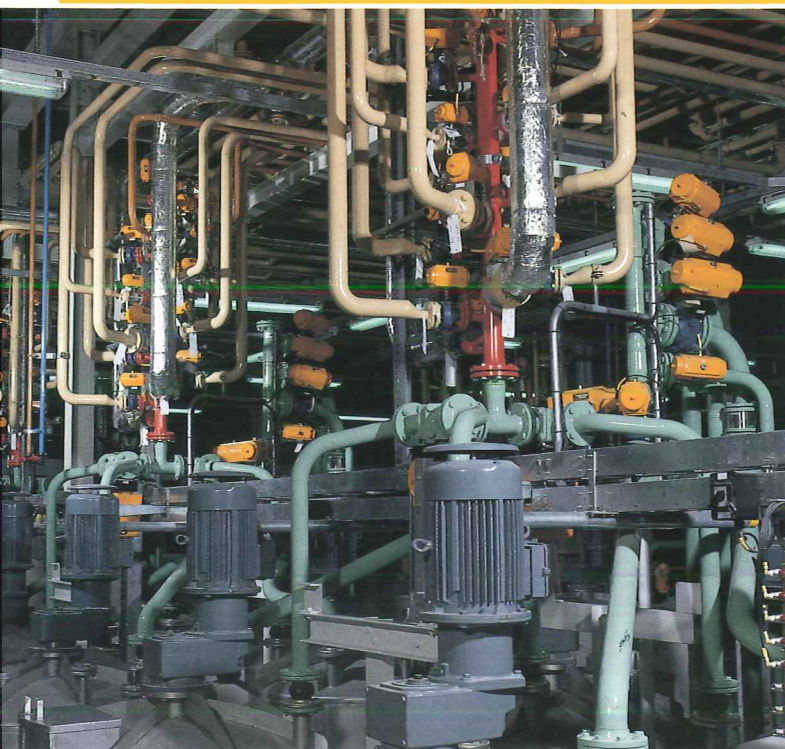


The pneumatic actuators by El-O-Matic



Pneumatic actuators for industrial valves are predominantly applied in continuous processes. This means that great demands are made of them. While one actuator may pass through hundreds of cycles, 24 hours a day, another opens and closes just once every month. The conditions under which the actuators work are frequently by no means run-of-the-mill. They are often exposed to extreme temperatures and corrosive media.

Optimum performance under all conditions

El-O-Matic is uniquely aware that the performance of its' pneumatic actuators is vitally important to your production process. If an actuator is not performing well, this can have catastrophic consequences for the rest of the process. This is why the concept of quality played a key role in the development process. El-O-Matics' pneumatic actuators are reliable quality products which continue to deliver optimum performance under the most demanding conditions.

Specifications

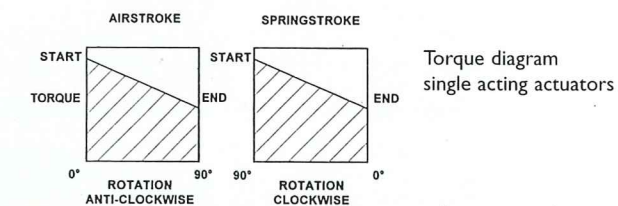
- pressure 0.2 to 10 bar
- temperature -20°C to +80°C
- rotation 91.5° (0.5°cw to 91° ccw)
- materials casing: aluminium alloy
shaft: high-grade aluminium alloy
2-component polyurethane
- finish
- service life one million operations, minimum

Features

- Applicable to ball valves, plug valves and butterfly valves.
- Can be used for other quarter turn applications, such as dampers and ventilation grids.
- Patented three point piston suspension system ensures high cycle life.
- Actuators manufactured from high-grade aluminium alloys, giving high corrosion-resistance.
- Compact rack & pinion design.
- Available in single and double acting versions.
- Range consists of 12 sizes, with torques from 12 to 4,000 Nm.
- Drive and mounting in accordance with ISO 5211/ DIN 3337 standard.
- Air supply connections and topshaft comply with VDI/VDE 3845 (NAMUR) standard.
- Actuators from 25 Nm to 1600 Nm are provided with a drive insert, enabling it to be fitted directly to a wide range of valves.
- Anti-blowout shaft.
- Stroke limitation is standard on the range up to 1600 Nm, on larger sizes and E12 this is an option.
- Other materials on request.



Patented three point piston support system



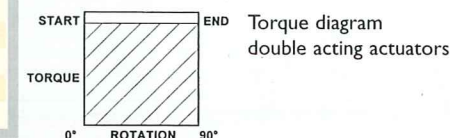
Torques in Nm

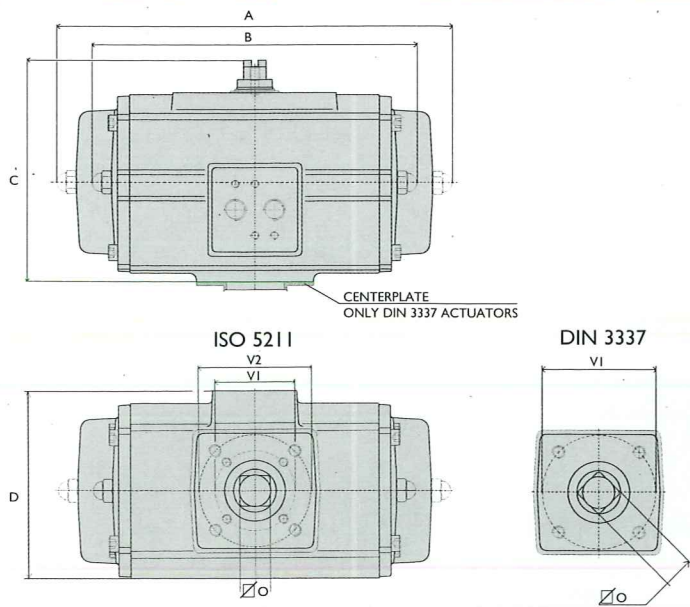
Single acting

Springset nr.	3		3.5		4		4.5		5		5.5		6		7		Springstroke (Nm)	
Actuator	start	end	start	end	start	end	start	end	start	end	start	end	start	end	start	end	start	end
ES12	2	-	3,7	1,0	5,0	2,3	6,4	3,6	7,7	4,9	9,0	6,2	10,3	7,5	12,9	10,1	7,2	4,6
ES25	3	7	2	9	5	11	7	14	9	16	12	19	14	21	17	26	11	7
	4	-	-	-	-	9	3	11	5	14	8	16	10	19	13	23	14	9
	5	-	-	-	-	-	-	-	-	11	4	14	6	16	8	21	13	11
	6	-	-	-	-	-	-	-	-	-	11	2	14	4	18	9	21	13
ES40	3	12	4	17	8	22	13	26	18	31	22	35	27	40	31	49	20	12
	4	-	-	-	17	5	21	10	26	14	30	19	35	23	44	33	27	17
	5	-	-	-	-	-	-	-	21	7	26	11	30	16	39	25	33	21
	6	-	-	-	-	-	-	-	-	-	21	4	25	8	34	17	40	25
ES65	3	18	5	25	11	32	18	39	25	46	32	52	39	59	46	73	32	20
	4	-	-	-	24	6	31	13	38	20	45	27	52	34	66	48	42	26
	5	-	-	-	-	-	-	-	30	8	37	15	44	22	58	36	53	33
	6	-	-	-	-	-	-	-	-	-	30	3	37	10	50	23	63	40
ES100	3	29	10	39	20	49	30	59	41	70	51	80	61	90	71	110	44	27
	4	-	-	-	39	14	49	24	59	34	69	44	80	54	100	75	58	37
	5	-	-	-	-	-	-	-	49	17	59	27	69	38	89	58	73	46
	6	-	-	-	-	-	-	-	-	-	48	11	59	21	79	41	88	55
ES200	3	61	19	84	42	106	64	129	86	151	109	173	131	196	153	240	198	61
	4	-	-	-	83	26	105	49	127	71	150	93	172	116	217	160	131	82
	5	-	-	-	-	-	-	-	104	33	126	56	149	78	193	123	164	102
	6	-	-	-	-	-	-	-	-	-	103	18	125	41	170	85	196	123
ES350	3	101	30	140	68	179	107	217	146	256	185	295	224	334	263	412	340	112
	4	-	-	-	136	41	175	80	214	118	252	157	291	196	369	274	232	149
	5	-	-	-	-	-	-	-	171	52	210	91	249	130	326	207	289	186
	6	-	-	-	-	-	-	-	-	-	-	-	206	63	283	141	347	223
ES600	3	179	54	245	120	311	186	377	252	443	318	509	384	575	450	707	582	183
	4	-	-	-	240	74	306	140	372	206	438	272	504	338	636	470	389	245
	5	-	-	-	-	-	-	-	302	94	368	160	434	226	566	358	487	306
	6	-	-	-	-	-	-	-	-	-	298	48	364	114	496	246	584	367
ES950	3	272	82	371	181	469	279	568	378	666	476	765	575	863	673	1060	870	269
	4	-	-	268	14	366	113	465	211	563	310	662	408	760	507	957	704	359
	5	-	-	-	-	-	-	-	460	143	559	242	657	340	854	537	724	448
	6	-	-	-	-	-	-	-	-	-	456	75	554	174	751	371	869	538
ES1600	3	445	144	608	307	771	470	934	633	1097	796	1260	959	1423	1121	1748	1447	449
	4	-	-	-	599	198	762	361	925	523	1088	686	1251	849	1577	1175	947	598
	5	-	-	-	-	-	-	-	753	251	916	414	1079	577	1405	903	1184	748
	6	-	-	-	-	-	-	-	-	-	744	142	907	305	1233	630	1421	897
PS2500	8	712	320	958	566	1203	811	1449	1057	1694	1302	1940	1548	2186	1794	2677	2285	663
	10	-	-	774	284	1019	529	1265	775	1510	1020	1756	1266	2001	1511	2492	2002	829
	12	-	-	-	835	247	1081	492	1326	738	1572	984	1817	1229	2308	1720	1585	995
	14	-	-	-	-	-	896	210	1142	456	1387	701	1633	947	2124	1438	1849	1160
PS4000	8	1213	551	1629	968	2045	1384	2462	1800	2878	2216	3294	2633	3710	3049	4543	3882	1119
	10	-	-	1318	491	1734	908	2151	1324	2567	1740	2983	2157	3400	2573	4232	3405	1399
	12	-	-	-	-	1424	431	1840	848	2256	1264	2672	1680	3089	2097	3921	2929	1679
	14	-	-	-	-	-	-	1529	372	1945	788	2362	1204	2778	1620	3610	2453	1958

Double acting

Actuator	Supply pressure (bar)										
	2	3	3,5	4	4,5	5	5,5	6	6,5	7	8
ED12	4,8	7,3	8,5	9,7	10,9	12,2	13,4	14,6	15,9	17,1	19,6
ED25	9	13	16	18	20	23	25	27	29	32	36
ED40	17	25	29	34	38	42	47	51	55	59	68
ED65	25	38	45	51	58	64	71	78	84	91	104
ED100	37	57	66	76	86	95	105	114	124	134	153
ED200	82	124	146	167	188	209	230	251	272	293	335
ED350	143	216	253	290	326	363	400	436	473	510	583
ED600	243	368	430	492	554	617	679	741	804	866	991
ED950	363	549	642	735	828	921	1014	1107	1200	1293	1479
ED1600	600	907	1061	1214	1368	1522	1676	1829	1983	2137	2444
PD2500	958	1449	1694	1940	2186	2431	2677	2922	3168	3413	3904
PD4000	1624	2456	2872	3289	3705	4121	4538	4954	5370	5786	6619





Dimensions

Double acting
Single acting

Model	ISO 5211				DIN 3337			
	A	B	C	D	O	VI/V2	WI/W2	O
E12	118	103	80	60	9	42	M6	9
E25	172	159	100	83	11	36/50	M5/M6	11
E40	204	180	113	96	14	50/70	M6/M8	14
E65	249	199	125	107	14	50/70	M6/M8	14
E100	267	221	138	117	19	50/70	M6/M8	17
E200	360	283	163	137	22	70/102	M8/M10	22
E350	387	305	201	182	27	70/102	M8/M10	22
E600	480	390	250	217	27	102/125	M10/M12	27
E950	532	440	289	242	36	102/140	M10/M16	36
E1600	641	520	327	275	46	165/254	M20/4xM16	46
P2500	570	378	396	360	46	165/254	M20/4xM16	46
P4000	834	502	420	390	55	165/254	M20/8xM16	55

Suitable for all quarter turn applications

The pneumatic actuators by El-O-Matic

EL-O-MATIC®
INTERNATIONAL



ACTUATOR TYPE		E12	E25	E40	E65	E100	E200	E350	E600	E950	E1600	P2500	P4000
Bore	mm.	46	56	70	80	91	110	145	175	200	230	300	325
Stroke	mm.	12.6	15.7	18.8	22	25.1	37.7	37.7	44	50.3	62.8	56.5	81.7
Weight: Double acting	kg.	0.61	1.3	1.8	2.4	3.1	5.8	10.4	19.4	26.4	42.7	56.8	86.6
Single acting	kg.	0.67	1.7	2.4	3.6	4.6	9.1	16.9	27.6	38.6	65.8	88.2	131.8
Operating time	sec.	0.4	0.5	0.7	1.1	1.2	2.3	3.6	4.5	5.4	6.9	7.0	12
Air consumption	Port A L/stroke	0.05	0.10	0.16	0.33	0.35	0.8	1.8	2.9	4.7	7.3	8.0	13.5
at 1 atm (litres)	Port B L/stroke	0.06	0.11	0.22	0.36	0.49	1.0	1.9	3.1	4.9	8.0	9.3	17.5

Addresses

International El-O-Matic BV Asveldweg 19 P.O. Box 223 7550 AE Hengelo Holland Tel. +31 74 256 10 10 Fax +31 74 291 09 38	Germany El-O-Matic GmbH Postfach 460234 47856 Willich Siemensring 112 47877 Willich Tel. +49 2154 499660 Fax +49 2154 427669	France El-O-Matic France Z.A. Creapole I 32 Rue de Tournenfil 91540 Mennecey Tel. +33 1 69 900 734 Fax +33 1 69 900 709	Australia El-O-Matic Pacific Region P.O. Box 12 Glenelg 5045 South Australia Tel. +61 8 8377 2744 Fax +61 8 8377 2576	Singapore El-O-Matic Valve Actuators Far East Pte Ltd. 28 Third Lok Yang Road Singapore 628016 Tel. +65 26 24 515 Fax +65 268 00 28 / 770 80 80
Benelux El-O-Matic Benelux Asveldweg 11 P.O. Box 223 7550 AE Hengelo Holland Tel. +31 74 256 10 20 Fax +31 74 243 86 90	India El-O-Matic India Pvt Ltd 296/A/1/5, St. Patrick's Town Near Railway Crossing Hadapsar Industrial Estate Pune 411 013 Tel. +91 212 672916 Fax +91 212 674465	South Africa El-O-Matic (Pty) Ltd. Teknypark, 62 Lower Germiston Road Heriotdale, Johannesburg P.O. Box 40348 Cleveland 2022 Tel. +27 11 626 2880/1/2 Fax +27 11 626 2905	United Kingdom El-O-Matic Ltd. 16/17 Beeding Close Southern Cross Trading Est. Bognor Regis West Sussex, PO 22 9TS Tel. +44 1243 830 363 Fax +44 1243 830 843	USA El-O-Matic USA Inc. 135 English Street Hackensack NJ 07601 Tel. +1 201 489 5550 Fax +1 201 489 9171
	Venezuela El-O-Matic International Av. Principal Los Ruices Edif. stemo piso I Ofc. IA Caracas, Venezuela Tel. +58 2 237 77 51 Fax +58 2 238 9023			

Call now

Have we awakened your interest in our pneumatic actuators? El-O-Matic will be glad to provide expert advice. We can also send you more detailed information, or even better arrange a personal meeting, at which we will prove that El-O-Matic's pneumatic actuators are superbly suited to every quarter-turn application, including your own.

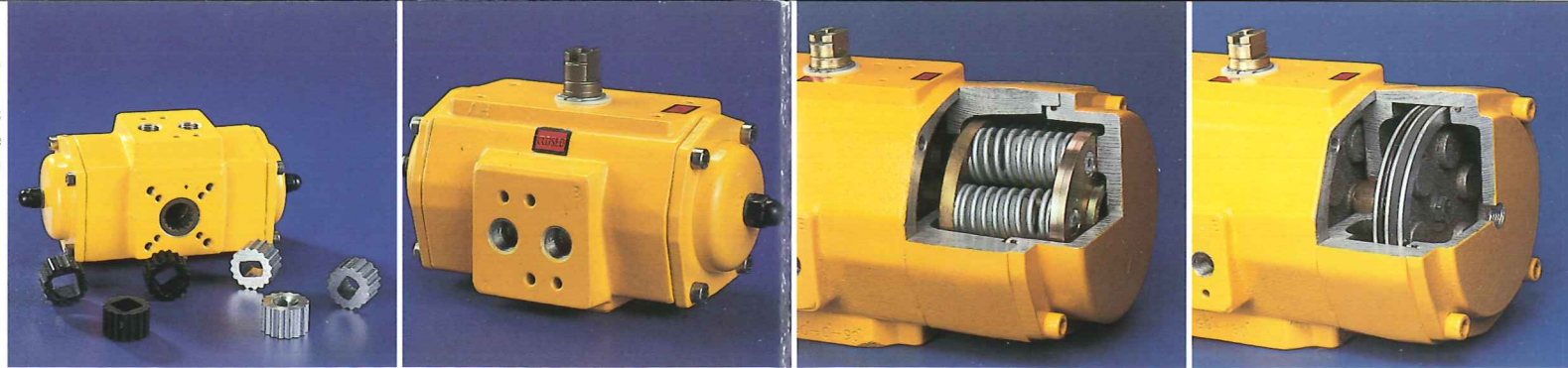
E-mail address: elomatic@worldonline.nl

EL-O-MATIC®
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PNE

Drive inserts (left)
Air supply connections
and shaft in accordance
with NAMUR (right)

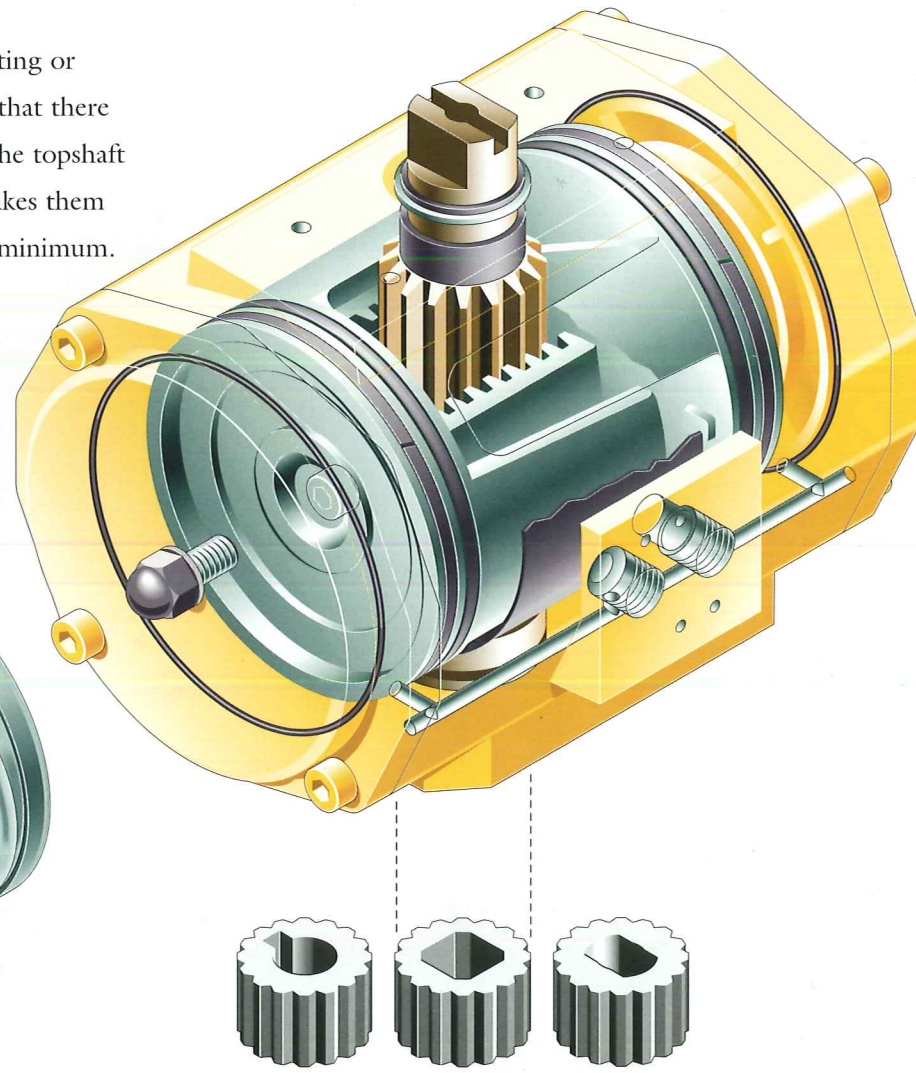


3P actuator (right)

Failmid actuator (left)

Construction

Our pneumatic actuators are either double acting or spring return. They are designed in such a way that there are no moving parts on the outside except for the topshaft and when fitted, the position indicator. This makes them safe, easy to install and keeps maintenance to a minimum. Furthermore, thanks to their compact rack and pinion construction, all actuators are relatively lightweight and take up little space.



Fail safe

Spring return actuators are inherently "fail safe". The advantage of this is that in the event of sudden loss of air pressure, the actuator automatically returns to the fail-safe position. El-O-Matic can deliver a variety of spring packages, allowing the correct choice to be made for each application.

Limit stops

Actuators in the range up to 1600 Nm, are fitted with limit stops, making them suitable for high performance butterfly valves. Limit stops on the larger sizes are optional.

Standardization

The El-O-Matic pneumatic actuators are fully standardized. The air supply and the mechanical feedback connections comply with the VDI/VDE 3845 (NAMUR) standard. Mounting arrangements are designed according to ISO 5211 or DIN 3337.

Drive inserts

Actuators in the range up to 1600 Nm have drive inserts. The advantage of this is that the actuator can be directly mounted to a wide range of valves without the need for bridging or connector pieces. This saves you time and money, requires fewer components and is considerably quicker to fit an actuator to a valve. The inserts can be

supplied for virtually all forms of valve shafts, squares, Double D and Key Drives.

Long service life

Our actuators are fitted with pistons with a patented 3-point support, completely synthetic bearings and a rack & pinion transmission. We also devote a great deal of attention to fine tolerances of the gear system and connecting components. This reduces backlash on the system and guarantees a long service life.

Application

The choice of a particular type of actuator depends on the application. The most important selection criterion is the required torque. El-O-Matic can supply actuators with torques ranging from 12 to 4,000 Nm. The E series ranges from 12 to 1600 Nm, and the more powerful P series from 2500 to 4,000 Nm.

Which actuator should you use for a particular valve? El-O-Matic has all sizing data at its' fingertips for virtually all quarter turn valve manufacturers in the world. This electronic databank is an inhouse development to match the right actuator to the right valve.

Special versions

Alongside the standard E and P series, the following special versions are also available:

- Steel actuators.
 - 180° actuators.
 - 3 position actuator for 3 position valves.
 - 3 position actuator with fail-mid control. In the event of a malfunction, the valve always returns to the middle position.
- In addition to these there are actuators for applications involving: high temperature, low temperature, offshore, nuclear, fast acting, hygienic service, operation by gas or hydraulics, lockup systems and many others. All these are proven specifications, perfected by many years of experience in valve automation.

Accessories

Most applications require the addition of some sort of accessory control function. For example, for indication to the control room or complete process control. For this application, El-O-Matic has a broad range of accessories. You can read more about this in our brochure 'The pneumatic accessories by El-O-Matic'. A summary is provided below.

Limit-switch boxes

To signal the open/closed position of the valve, usually in conjunction with on/off type of control.

Positioners

Are used on modulating or control valve applications. They ensure that the valve can be placed in any required position. You can read more about these in the brochure 'The valve positioners by El-O-Matic'.

Solenoid valves

To control the actuator from an electrical signal.

Manual override

To open/close the valve manually.

Breather block

Prevents a corrosive external atmosphere from entering the actuator.

Block & vent valve

Isolates the actuator from its' air supply and by venting the actuator air makes it safe for local service.

Speed control plate

Allows the actuators' operating speed to be precisely regulated.

