

spirax sarco

AEL5 Series Electric Linear Actuators for ½" to 4" Control Valves

Description

The AEL5 series electric actuators are reversible having linear output.

Available types

AEL5 actuators are available with 4 supply variants, **230 Vac (2-wire, single phase)**, **115 Vac**, **24 Vac** and **24 Vdc** all being suitable for a VMD (Valve Motor Drive) input power signal. At extra cost, actuators can be fitted with a positioner input card that can accept a 4 - 20 mA or 2 - 10 Vdc control signal - Please note that this option is not available for the 24 Vdc supply variant.

AEL5 actuators can be ordered with or without a potentiometer, those ordered with will be fitted with a 1 kΩ potentiometer as standard.

The potentiometer can be used in conjunction with the positioner for a 2 - 10 V or 4 - 20 mA input signal, or as feedback for VMD. Also available are auxiliary limit switches and anti-condense heater. See TI-P358-28 for further details on the accessories.

These actuators can be used with the following valves, in conjunction with an appropriate valve adaptor and mounting flange.

Valves	2-port	SPIRA-TROL or C Series
	3-port	QL33, QL43, QL63 and QL73 mixing and diverting valves

Note: A mounting flange and valve adaptor is required to mount the actuator to a valve. See the associated tables below:

Mounting flange selection

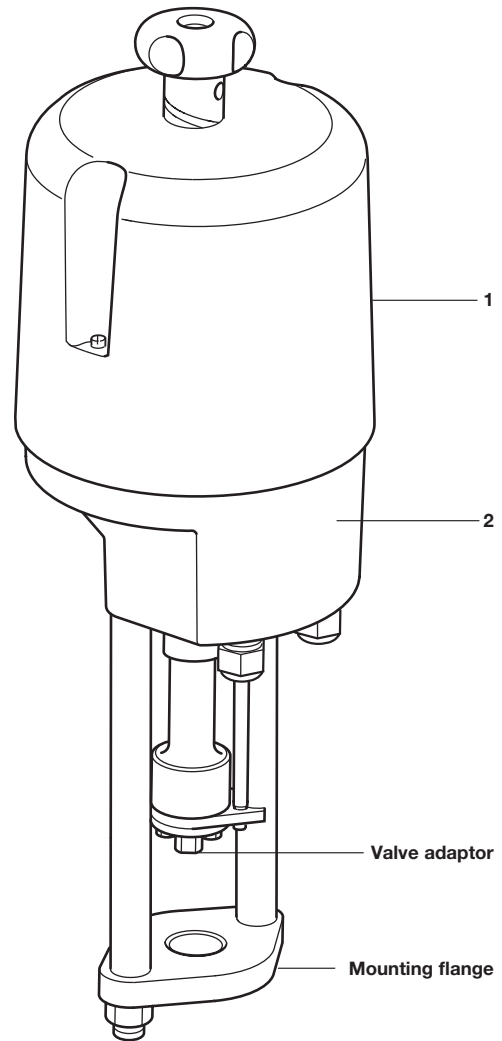
Valve type and size		Actuator	
		AEL51_ AEL52_ AEL53_ AEL54_ AEL55_	AEL56_
L, K, and Q Series	½" to 2"	EL5970	
L Series	2½" to 4"	EL5971	
K and Q Series	2½" to 4"	EL5971	EL5972

Valve adaptor selection

Valve type and size	Valve stem	AEL51_	AEL52_	AEL53_	AEL54_	AEL55_	AEL56_
L, K, and Q Series	½" to 2"	M8 thread	AEL6911	AEL6911	AEL6911	AEL6911	
	2½" to 4"	M12 thread	Integrated	Integrated	Integrated	Integrated	EL5945

Materials

No.	Part		Material
1	Case	225 to 1798 lbf	Polycarbonate
		3147 to 5620 lbf	Die-cast aluminium
2	Housing		Die-cast aluminium



AEL5 Series Electric Linear Actuators for ½" to 4" Control Valves

Technical data

Actuator type	AEL51_	AEL52_	AEL53_	AEL54_	AEL55_	AEL56_
Supply voltage	230 Vac (2-wire single phase), 115 Vac, 24 Vac, (24 Vdc) ±10%					
Supply frequency	50 Hz / 60 Hz / (continuous)					
Maximal power consumption VA Note: power consumption is relative to 50/60 Hz/ (continuous) respectively	25.5 / 25.9 / (41)	37 / 40 / (24)	44 / 47 / (41)	72 / 68 / (41)	53 / 55 / (93)	100 / 86 / (NA)
Stroke in (mm)	2 (50mm)	2 (50mm)	2 (50mm)	2 (50mm)	2½ (65mm)	4 (100mm)
Actuator speed mm/s Note: Speed is relative to 50/60 Hz/ (continuous) respectively	0.25 / 0.3 / (1)	0.5 / 0.6 / (0.5)	0.5 / 0.6 / (1)	0.65 / 0.78 / (0.5)	0.45 / 0.54 / (0.5)	1 / 1.2 / (1)
Enclosure rating	IP65 (for outdoor installations provide adequate shelter)					
Actuator thrust lbf (kN)	225 (1kN)	450 (2kN)	1,011 (4.5kN)	1,798 (8kN)	3,147 (14kN)	5,620 (25kN)
Ambient limits	-4°F to 140°F (Caution: -4°F to 122°F with positioner card fitted)					
Motor	Synchronous motor for 225 lbf to 3147 lbf Asynchronous motor for 5620 lbf (Alternative current) or Brushed direct current motor (Direct current)					
Terminations	1.5 mm ²					
Manual override	Handwheel					
Conduit entries	2 x M20 x 1.5 (for 225 to 3147 lbf) and 3 x M20 x 1.5 (for 5620 lbf)					
Positioner power consumption VA	1					

For alternative speed versions please contact Spirax Sarco

Approvals

This equipment is CE marked and conforms to the following:

- EN 50081-1 and EN 50082-2 (EMC)
- EN 61010-1/A2 (Safety), following the provisions of directives 89/336/EEC amended by 92/31/EEC and 93/68/EEC (EMC) and 72/73/EEC amended by 93/68/EEC (LVD).

AEL5 Series

Electric Linear Actuators

for 1/2" to 4" Control Valves

Maximum differential pressures for modulating duties only -
KEA and LEA 2-port valves
with PTFE or Graphite stem seal

Valve size		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"									
Cv		5.0	7.5	12	16	30	45	75	120	190									
Valve travel		3/4"						1 ³ / ₁₆ "											
Actuator	Voltage	Maximum differential pressure psi																	
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
AEL51211	230	580	432	507	340	333	228	261	174	115	75	81	54	44	17	28	10	17	6
AEL51212	115	580	432	507	340	333	228	261	174	115	75	81	54	44	17	28	10	17	6
AEL51213	24	580	432	507	340	333	228	261	174	115	75	81	54	44	17	28	10	17	6
AEL52211	230	580		580		580		561	471	242	203	173	145	94	68	59	44	38	26
AEL52212	115	580		580		580		561	471	242	203	173	145	94	68	59	44	38	26
AEL52213	24	580		580		580		561	471	242	203	173	145	94	68	59	44	38	26
AEL53211	230					580		580		563	522	400	373	222	196	142	125	88	78
AEL53212	115					580		580		563	522	400	373	222	196	142	125	88	78
AEL53213	24					580		580		563	522	400	373	222	196	142	125	88	78
AEL54211	230							580		580		580		402	376	257	232	160	149
AEL54212	115							580		580		580		402	376	257	232	160	149
AEL54213	24							580		580		580		402	376	257	232	160	149
AEL55311	230									580		580		454	438	283	273		
AEL55312	115									580		580		454	438	283	273		
AEL55313	24									580		580		454	438	283	273		
AEL56411	230											580		580		508	497		
AEL56412	115											580		580		508	497		
AEL56413	24											580		580		508	497		

with Bellows and PTFE or Graphite stem seal

Valve size		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"											
Cv		5.0	7.5	12	16	30	45	75	120	190											
Valve travel		3/4"						1 ³ / ₁₆ "													
Actuator	Voltage	Maximum differential pressure psi																			
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite		
AEL52211	230	287	71	228	57	152	38	117	29	51	12	36	9								
AEL52212	115	287	71	228	57	152	38	117	29	51	12	36	9								
AEL52213	24	287	71	228	57	152	38	117	29	51	12	36	9								
AEL53211	230	580		580		580		580		370	319	264	236	115	88	73	57	45	35		
AEL53212	115	580		580		580		580		370	319	264	236	115	88	73	57	45	35		
AEL53213	24	580		580		580		580		370	319	264	236	115	88	73	57	45	35		
AEL54211	230							580		580		580	558	294	268	189	171	117	106		
AEL54212	115							580		580		580	558	294	268	189	171	117	106		
AEL54213	24							580		580		580	558	294	268	189	171	117	106		
AEL55311	230									580		580		580	577	384	368	241	231		
AEL55312	115									580		580		580	577	384	368	241	231		
AEL55313	24									580		580		580	577	384	368	241	231		
AEL56411	230											580		580		465	454				
AEL56412	115											580		580		465	454				
AEL56413	24											580		580		465	454				

AEL5 Series Electric Linear Actuators for 1/2" to 4" Control Valves

**Maximum differential pressures for class IV shut-off -
KEA and LEA 2-port valves
with PTFE or Graphite stem seal**

Valve size		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"									
Cv		5.0	7.5	12	16	30	45	75	120	190									
Valve travel		3/4"						1 3/16"											
Actuator	Voltage	Maximum differential pressure psi																	
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
AEL51211	230	431	215	319	145	174	69	149	61	38		17							
AEL51212	115	431	215	319	145	174	69	149	61	38		17							
AEL51213	24	431	215	319	145	174	69	149	61	38		17							
AEL52211	230	580		580		566	461	445	348	165	128	109	81	46	20	21.8	4		
AEL52212	115	580		580		566	461	445	348	165	128	109	81	46	20	21.8	4		
AEL52213	24	580		580		566	461	445	348	165	128	109	81	46	20	21.8	4		
AEL53211	230			580		580		580		486	447	336	309	174	148	103	87	58	48
AEL53212	115			580		580		580		486	447	336	309	174	148	103	87	58	48
AEL53213	24			580		580		580		486	447	336	309	174	148	103	87	58	48
AEL54211	230							580		580		580		354	328	218	189	129	116
AEL54212	115							580		580		580		354	328	218	189	129	116
AEL54213	24							580		580		580		354	328	218	189	129	116
AEL55311	230									580		580		580		416	399	252	242
AEL55312	115									580		580		580		416	399	252	242
AEL55313	24									580		580		580		416	399	252	242
AEL56411	230													580		580		477	464
AEL56412	115													580		580		477	464
AEL56413	24													580		580		477	464

with Bellows and PTFE or Graphite stem seal

Valve size		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"									
Cv		5.0	7.5	12	16	30	45	75	120	190									
Valve travel		3/4"						1 3/16"											
Actuator	Voltage	Maximum differential pressure psi																	
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
AEL52211	230	70		33															
AEL52212	115	70		33															
AEL52213	24	70		33															
AEL53211	230	580		580		580		580		278	241	187	160	57	31	26	10	9	
AEL53212	115	580		580		580		580		278	241	187	160	57	31	26	10	9	
AEL53213	24	580		580		580		580		278	241	187	160	57	31	26	10	9	
AEL54211	230							580		580		506	479	236	210	142	125	80	70
AEL54212	115							580		580		506	479	236	210	142	125	80	70
AEL54213	24							580		580		506	479	236	210	142	125	80	70
AEL55311	230									580		580		545	363	339	322	204	193
AEL55312	115									580		580		545	363	339	322	204	193
AEL55313	24									580		580		545	363	339	322	204	193
AEL56411	230													580		580		428	418
AEL56412	115													580		580		428	418
AEL56413	24													580		580		428	418

AEL5 Series

Electric Linear Actuators

for 1/2" to 4" Control Valves

Maximum differential pressures for Class VI shut off -

KEA and LEA 2-port valves

with PTFE or Graphite stem seal

Valve size		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"									
Cv		5.0	7.5	12	16	30	45	75	120	190									
Valve travel		3/4"						1 3/16"											
Actuator	Voltage	Maximum differential pressure psi																	
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
AEL51211	230	580	431	508	336	334	225	261	173	112	74	80	52	42	16				
AEL51212	115	580	431	508	336	334	225	261	173	112	74	80	52	42	16				
AEL51213	24	580	431	508	336	334	225	261	173	112	74	80	52	42	16				
AEL52211	230	580		580		580		557	468	241	202	160	144	93	67	59	42	36	26
AEL52212	115	580		580		580		557	468	241	202	160	144	93	67	59	42	36	26
AEL52213	24	580		580		580		557	468	241	202	160	144	93	67	59	42	36	26
AEL53211	230					580		580		560	521	392	371	220	194	141	125	87	77
AEL53212	115					580		580		560	521	392	371	220	194	141	125	87	77
AEL53213	24					580		580		560	521	392	371	220	194	141	125	87	77
AEL54211	230							580		580		580		400	374	255	239	160	148
AEL54212	115							580		580		580		400	374	255	239	160	148
AEL54213	24							580		580		580		400	374	255	239	160	148
AEL55311	230											580		580		454	437	283	273
AEL55312	115											580		580		454	437	283	273
AEL55313	24											580		580		454	437	283	273
AEL56411	230													580		580		580	
AEL56412	115													580		580		580	
AEL56413	24													580		580		580	

with Bellows and PTFE or Graphite stem seal

Valve size		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"									
Cv		5.0	7.5	12	16	30	45	75	120	190									
Valve travel		3/4"						1 3/16"											
Actuator	Voltage	Maximum differential pressure psi																	
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
AEL52211	230	287	71	228	57	152	38	117	29	36	9								
AEL52212	115	287	71	228	57	152	38	117	29	36	9								
AEL52213	24	287	71	228	57	152	38	117	29	36	9								
AEL53211	230	580		580		580		580		370	332	264	236	115	88	73	57	45	35
AEL53212	115	580		580		580		580		370	332	264	236	115	88	73	57	45	35
AEL53213	24	580		580		580		580		370	332	264	236	115	88	73	57	45	35
AEL54211	230							580		580		580	555	294	268	189	171	117	106
AEL54212	115							580		580		580	555	294	268	189	171	117	106
AEL54213	24							580		580		580	555	294	268	189	171	117	106
AEL55311	230											580		580	576	384	368	239	229
AEL55312	115											580		580	576	384	368	239	229
AEL55313	24											580		580	576	384	368	239	229
AEL56411	230											580		580		580		465	454
AEL56412	115											580		580		580		465	454
AEL56413	24											580		580		580		465	454

AEL5 Series Electric Linear Actuators for 1/2" to 4" Control Valves

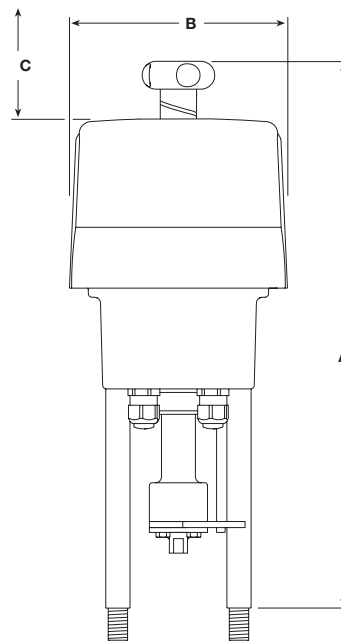
Maximum differential pressures for modulating duties only
QL 3-port valves

with PTFE or Graphite stem seal

Valve size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"										
Cv	4.6	7.3	11.6	18.6	29	41.8	73.1	116	185.6										
Valve travel	3/4"						1 3/16"												
Actuator	Voltage	Maximum differential pressure psi																	
		PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
AEL51211	230	386	174	386	174	222	93	133	54	81	29	46	14	16		6		1.5	
AEL51212	115	386	174	386	174	222	93	133	54	81	29	46	14	16		6		1.5	
AEL51213	24	386	174	386	174	222	93	133	54	81	29	46	14	16		6		1.5	
AEL52211	230	580	574	580	574	466	336	283	203	178	128	107	75	54	33	33	19	16	9
AEL52212	115	580	574	580	574	466	336	283	203	178	128	107	75	54	33	33	19	16	9
AEL52213	24	580	574	580	574	466	336	283	203	178	128	107	75	54	33	33	19	16	9
AEL53211	230	580		580		580		580		423	373	260	228	149	129	102	87	54	46
AEL53212	115	580		580		580		580		423	373	260	228	149	129	102	87	54	46
AEL53213	24	580		580		580		580		423	373	260	228	149	129	102	87	54	46
AEL54211	230									580	473	439	284	264	196	181	107	100	
AEL54212	115									580	473	439	284	264	196	181	107	100	
AEL54213	24									580	473	439	284	264	196	181	107	100	
AEL55311	230									580		438	418	303	290	168	161		
AEL55312	115									580		438	418	303	290	168	161		
AEL55313	24									580		438	418	303	290	168	161		
AEL56411	230									580				580	367	358			
AEL56412	115									580				580	367	358			
AEL56413	24									580				580	367	358			

Dimensions / weights (approximately) in inches and lbs

Model	A	B	C	Weight
AEL51_	18	7	5.4	10.0
AEL52_	18	7	5.4	10.6
AEL53_	18	7	5.4	11.0
AEL54_	20	7	6	15.0
AEL55_	22.4	9	9	22.0
AEL56_	32	9	11	44.0



AEL5 Series

Electric Linear Actuators

for 1/2" to 4" Control Valves

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P358-26) supplied with the product.

Installation and wiring note:

The valve should be installed in the horizontal line. The position of the actuator will depend on the type of valve to which it is fitted and the temperature of the media. However, it is not recommended that the actuators be fitted directly below the valve or in a wet environment.

Disposal

This product is recyclable. No ecological hazard is anticipated with the disposal of this product, providing due care is taken.

Selection example

Control valve	3/4" LEA43 PTSUSS.2 Cv 7.5 Flanged ANSI 150
Maximum ΔP	290 psi
Electrical supply	230 Vac
Control signal	4 - 20 mA
Actuator selected	AEL51211
Positioner required	AEL5961 (Potentiometer must also be selected)
Valve adaptor	AEL6911
Mounting flange	EL5970

How to order

Product	A = Actuator	A
Type	E = Electric	E
Movement	L = Linear	L
Series	5	5
Thrust lbf (kN)	1 = 225 lbf (1kN)	1
	2 = 450 lbf (2kN)	
	3 = 1,011 lbf (4kN)	
	4 = 1,798 lbf (8kN)	
	5 = 3,147 lbf (14kN)	
	6 = 5,620 lbf (25kN)	
Stroke in (mm)	2 = 1" (50mm) (AEL51_, AEL52_, AEL53_ and AEL54_ series only)	2
	3 = 2½" (65mm) (AEL55_ series only)	
	4 = 4" (100mm) (AEL56_ series only)	
Maximum speed (mm/s)	1 = 0 - 0.4 in/sec	1
	1 = 230 Vac (2-wire, single phase)	
	2 = 115 Vac	
	3 = 24 Vac	
Supply voltage	4 = 24 Vdc (not available for AEL56_)	1
	F = Integral 24 V VMD (only for actuators with 24 V supply voltage)	
	G = Integral 115 V VMD (only for actuators with 115 V supply voltage)	
	J = Integral 230 V VMD (only for actuators with 230 V supply voltage)	
Control signal*		J
Failure mode	X = No mechanical/electrical fail safe device	X
Potentiometer	A = With 1 kΩ potentiometer	A
	S = Without	

* For 0/2 - 10 Vdc and 0/4 - 20 mA modulating control signal the appropriate positioner card must be ordered at time of order. Potentiometer "A" option must also be selected. See TI-P358-28-US

How to order example

1 each Spirax Sarco AEL51211JXA electric linear actuator for use with a 4" SPIRA-TROL two-port KEA43 control valve.