



## EL3500 Series Electric Actuators

### Description

The EL3500 series actuators are suitable for on/off control, modulating control with valve motor drive controller or modulating control with its integral valve positioner electronics.

This actuator range can be used with the following valves:

2-port	SPIRA-TROL
	BX, BM, SB, KA, KB, KC and NS
3-port	TW

### Operation

The drive of a synchronous motor is converted into a linear motion of the actuator stem by using a spur gear transmission. An integrated spring package limits the stem force to a 600 N thrust in both directions. Installed torque switches, switch off the actuator automatically, when the specified stem force is reached.

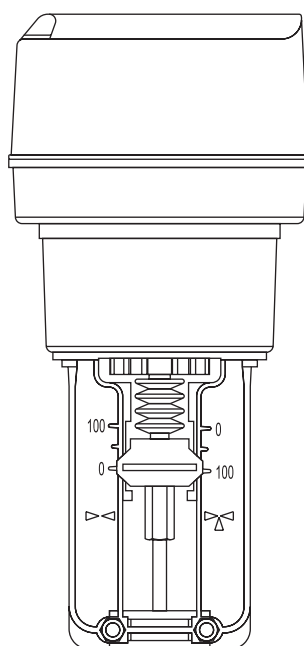
### Available types

The EL3500 series actuators are available in the following configurations:

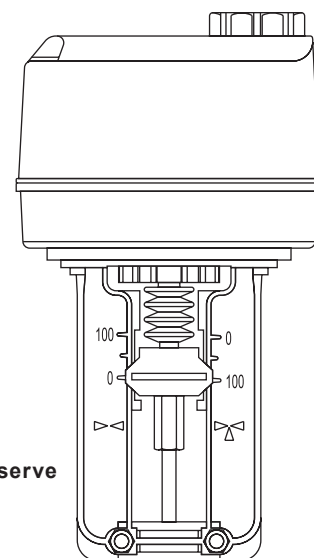
Spring reserve actuators have the suffix SR or SE appended to the basic actuator code e.g. EL3501SE. Where:

**SR** = Spring retract.

**SE** = Spring extend.



Actuators with spring reserve  
 (SR and SE)



Actuators without spring reserve

**EL3501** 230 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller.


**EL3502** 24 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller.

**EL3501SE** 230 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller with the benefit of spring extend on power failure.

**EL3502SE** 24 Vac operating voltage for ON/OFF control or modulating control with external valve motor drive controller with the benefit of spring extend on power failure.

**EL3512, EL3512SR, EL3512SE** 24 Vac operating voltage with 0 to 10 Vdc, or 2 to 10 Vdc control signal. For 4 - 20 mA control signal use a 500 Ω resistance across the signal source, see Installation and Maintenance Instructions for full details. Modulating control from any controller providing this control signal.

## Approvals

This equipment is  marked, and conforms to EN 50081-1 and 50082-2 (EMC), EN 60730-1 (safety), following the provisions of directives 89/336/EEC amended by 92/31/EEC and 93/68/EEC (EMC) and 72/23/EEC amended by 93/68/EEC.

## Ambient limits

Storage temperatures	-40 to +70 °C at 5 to 95 % RH
Operating temperatures	-10 to +50 °C at 5 to 95 % RH
Maximum valve medium temperature	+150 °C*

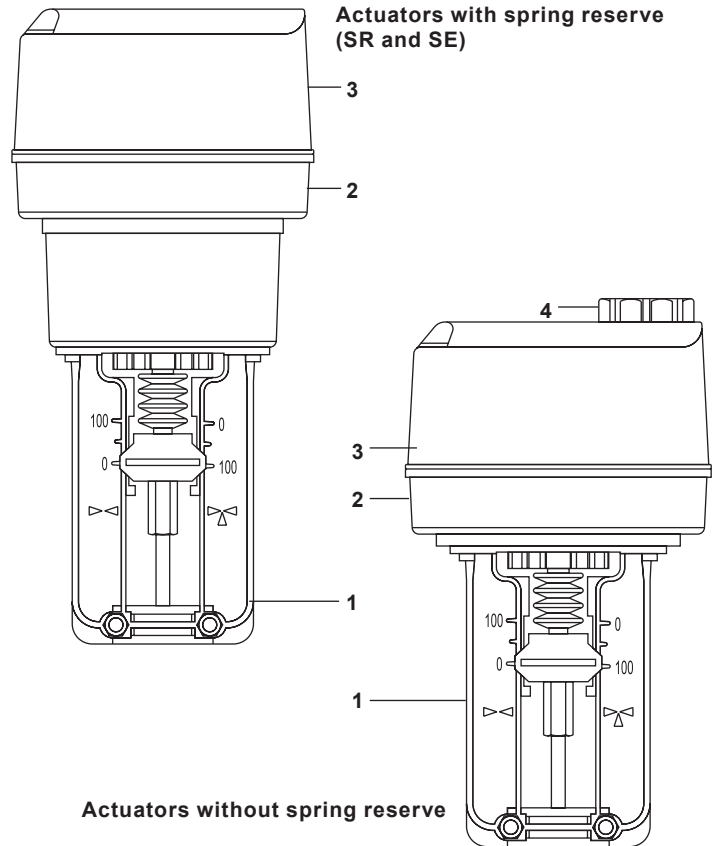
\* For temperatures up to 250 °C an EL3905 high temperature kit must be used.

## Materials

No.	Part	Material
1	Yoke	Aluminium die casting
2	Base	Glass fibre reinforced plastic
3	Cover	ABS-FR
4	Handle	ABS-FR

## Protection

IP rating	IP54
Insulation for EN 60730	Class II
Flame resistant to UL 94-V0 (with metal cable gland)	



## Specifications

Model	EL3501	EL3502	EL3501SE	EL3502SE	EL3512	EL3512SE	EL3512SR
Supply voltage	230 Vac +10% -15% 50/60 Hz	24 Vac ±15% 50/60 Hz	230 Vac +10% -15% 50/60 Hz	24 Vac ±15% 50/60 Hz	24 Vac ±15% 50/60 Hz	24 Vac ±15% 50/60 Hz	24 Vac ±15% 50/60 Hz
Power consumption	6.5 VA	4 VA	12 VA	11 VA	5 VA	12 VA	12 VA
Actuator speed	0.32 mm/s	0.32 mm/s	0.19 mm/s	0.19 mm/s	0.32 mm/s	0.19 mm/s	0.19 mm/s
Control signal	VMD	VMD	VMD	VMD	0 - 10 Vdc 2 - 10 Vdc (4 - 20 mA)	0 - 10 Vdc 2 - 10 Vdc (4 - 20 mA)	0 - 10 Vdc 2 - 10 Vdc (4 - 20 mA)
Spring reserve	NO	NO	YES	YES	NO	YES	YES
Manual handle	YES	YES	NO	NO	YES	NO	NO

## Maximum differential pressures ( $\Delta p$ ) bar for SPIRA-TROL valves (KE, LE, KEA and LEA with PTFE or graphite stem seal)

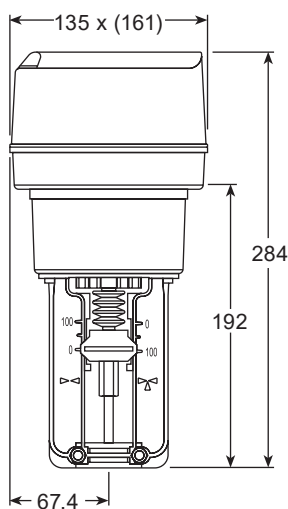
### Notes:

- 1) Refer to the valve TI for maximum valve operating pressures.
- 2) The actuator differential pressures shown in the table below also apply to the spring reserve versions.

Valve size	DN15		DN20		DN25		DN32		DN40		DN50	
Valve travel	20 mm											
Kvs value	4		6.3		10		16		25		36	
EL3500 series actuator and derivatives	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
Modulating duty* (metal-to-metal)	24.8	9.5	19.5	7.8	13.0	5.2	10.0	4.0	4.4	1.7	3.1	1.2
Class IV shut-off (metal-to-metal)	9.8	-	6.3	-	2.2	-	2.1	-	-	-	-	-
Class VI shut-off (soft seating)	24.4	9.5	19.3	7.5	12.8	5.0	9.9	3.8	4.2	1.6	3.0	1.1

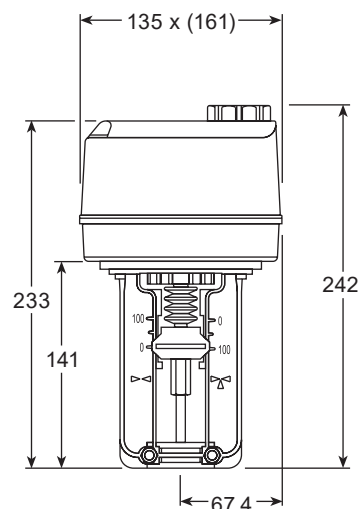
\* **Modulating duty** - For pure control applications providing control across the full valve operating range but not guaranteeing shut-off to a greater level than the minimum flowrate based on the valve 50:1 turndown.

### Dimensions/weights (approximate) in mm and kg



Actuator with spring reserve (SE and SR)

	Weight
Spring reserve (SE and SR)	2.4 kg



Actuators without spring reserve

	Weight
Non spring reserve	1.3 kg

## Installation and wiring

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. Full Installation and Maintenance Instructions are supplied with the product.

## Termination details

See Installation and Maintenance Instructions for more details.

## Accessories

All EL3500 actuators are supplied (as standard) with a linkage kit suitable for LE/KE valves. However, the following optional extras are also available at extra cost:

<b>EL3904 spare linkage kit</b>	For LE/KE valves.
<b>EL3906 spare linkage kit</b>	For SPIRA-TROL control valves
<b>EL3808 linkage kit</b>	For the self-acting range of valves BX, BM, SB, KA KB, KC, NS and TW (DN15 to DN50 for TW only).
<b>EL3809 linkage kit</b>	For the self-acting range of valves TW (DN80 to DN100).
<b>Auxiliary potentiometer</b>	<b>EL3901</b> (10k $\Omega$ ) or <b>EL3902</b> (220 $\Omega$ ) are available for mounting on site. They can be used as a feedback potentiometer and/or to provide remote indication of the valve position. A cable gland is supplied with this.
<b>EL3903 auxiliary switches</b>	Their switching points are adjustable over the full length of the actuator stroke. The switches can be used e.g. to provide remote indication of any stroke position. A cable gland is supplied with this.
<b>EL3905 high temperature kit</b>	Enables all EL3500 to be used for valve medium temperatures from 150 °C to 250 °C.

## How to order

To receive this actuator for use with;	LE or KE valve, order:	<b>1 - EL3501 actuator</b>
	TW DN20 to DN50, or BX, BM, SB, KA, KB, KC, NS valves, order:	<b>1 - EL3501 actuator and 1 - EL3808 linkage kit</b>
	TW DN80 to DN100 valve, order:	<b>1 - EL3501 actuator and 1 - EL3809 linkage kit</b>