

LINEAR ELECTRIC ACTUATORS ELB (1 kN to 30 kN)



DESCRIPTION

The ADCATrol ELB series linear electric actuators are designed for operation of control valves in modulating and on/off services in process engineering and industrial applications. The self-locking stem nut is driven by an electric motor via a gearing. Mechanical limit switches define the stops for the end positions.

MAIN FEATURES

Modular retrofittable design.

24 V AC, 115 V AC, 230 V AC, 400 V AC 50/60 Hz and 24 V DC supply voltages.

Manual operation with handwheel.

IP 65 protection (IP 67 or IP68 on request).

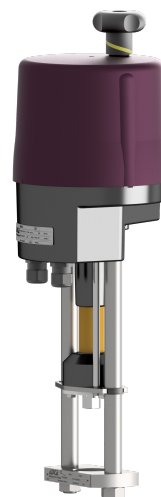
Mounting to valves made via yoke or mounting flange DIN 3358, enabling easy connection to all types of valves. Standard version is suitable for ADCATrol valves.

Sturdy metal main frame for mainboard and accessories.

Mechanical stroke indication via anti-rotation bar.

Friction clutch for easy and tool-free adaptation to the valve stroke.

Universally usable actuators due to control via 3-point-step controllers and analog input signals (0 to 10 V, 0(4) to 20 mA).



OPTIONS AND

ACCESSORIES:

- Electronic positioner.
- Additional limit switches.
- Potentiometers e.g. for 3-point-step control in closed loop.
- 0(4) to 20 mA electronic position feedback units.
- Heating resistor.
- Reversing starter contactor for 3~ 400 V AC.
- IP 67 or IP68 metal cover.
- Silicone free version.

USE: Actuation of ADCATrol control valves, or others on request.

AVAILABLE

MODELS: ELB10, ELB10.1, ELB20, ELB20.1, ELB20.2, ELB45, ELB45.1, ELB80, ELB80.1, ELB100, ELB140, ELB200, ELB250 and ELB300.

TECHNICAL DATA

MODEL	ELB10	ELB10.1	ELB20	ELB20.1	ELB20.2
Maximum thrust a)	1 kN		2 kN		
Operating speed b)	0,25 mm/s	1 mm/s	0,5 mm/s 0,45 mm/s (24 V DC)	0,25	1,4 mm/s 1 mm/s (24 V DC)
Power consumption – 230 V c)	8 W	7,2 W (24 V DC)	12 W	8 W	25 W
Rated current – 230 V	0,03 A	1 A	0,05 A	0,03 A	0,11 A
Maximum current – 230 V	0,04 A	2,5 A	0,07 A	0,04 A	0,13 A
Maximum stroke	50 mm				
Supply voltages	24 / 115 / 230 V AC	24 V DC	24 / 115 / 230 V AC 24 V DC	24 / 115 / 230 V AC	24 / 115 / 230 / 400 V AC 24 V DC
Supply frequency	50 Hz / 60 Hz / continuous				
Type of duty acc. to IEC 60034-1	S2 30 min. S4 80% ED @ 25 °C	S2 30 min. @ 25 °C	S2 30 min. S4 80% ED @ 25 °C	S2 30 min. S4 80% ED @ 25 °C	S2 30 min. S4 50% ED @ 25 °C
Cable entry	2 x M20 x 1,5				
Electrical connection	Terminal configuration according to the electric connection wiring diagram inside the actuator cover				
Mounting position	As desired, except downward position				
Ambient temperature	- 20 °C to 60 °C				
Over-voltage category	II				
Position indicator	By anti-rotation bar				
Manual adjustment	Handwheel				
Type of protection	IP 65 (IP 67 or IP 68 on request)				

MODEL	ELB45	ELB45.1	ELB80	ELB80.1	ELB100
Maximum thrust a)	4,5 kN		8 kN		10 kN
Operating speed b)	0,5 mm/s	1,4 mm/s 1 mm/s (24 V DC)	0,65 mm/s 0,5 mm/s (24 V DC)	1 mm/s	0,45 mm/s 0,35 mm/s (24 V DC)
Power consumption – 230 V c)	18 W	52 W	55 W	64 W	55 W
Rated current – 230 V	0,08 A	0,23 A	0,24 A	0,28 A	0,24 A
Maximum current – 230 V	0,08 A	0,27 A	0,3 A	0,34 A	0,3 A
Maximum stroke	50 mm		50 mm (65 mm on request)		
Supply voltages	24 / 115 / 230 V AC 50/60 Hz	24 / 115 / 230 / 400 V AC 24 V DC	24 / 115 / 230 / 400 V AC 24 V DC	24 / 115 / 230 / 400 V AC	24 / 115 / 230 V AC 24 V DC
Supply frequency	50 Hz / 60 Hz / continuous				
Type of duty acc. to IEC 34-1	S2 30 min. S4 80% ED @ 25 °C	S2 30 min. S4 50% ED @ 25 °C	S2 30 min. S4 50% ED @ 25 °C		
Cable entry	2 x M20 x 1,5				
Electrical connection	Terminal configuration according to the electric connection wiring diagram inside the actuator cover				
Mounting position	As desired, except downward position				
Ambient temperature	- 20 °C to 60 °C				
Over-voltage category	II				
Position indicator	By anti-rotation bar				
Manual adjustment	Handwheel				
Type of protection	IP 65 (IP 67 or IP 68 on request)				

MODEL	ELB140	ELB200	ELB250	ELB300
Maximum thrust a)	14 kN	20 kN	25 kN	30 kN
Operating speed b)	0,45 mm/s	1 mm/s 0,4 mm/s (24 V DC)	1 mm/s 0,4 mm/s (24 V DC)	0,7 mm/s
Power consumption – 230 V c)	55 W	137 W	145 W	170 W
Rated current – 230 V	0,24 A	0,58 A	0,62 A	0,75 A
Maximum current – 230 V	0,3 A	0,95 A	0,95 A	0,95 A
Maximum stroke	65 mm	95 mm		
Supply voltages	24 / 115 / 230 / 400 V AC 24 V DC	24 / 115 / 230 / 400 V AC 24 V DC	24 / 115 / 230 / 400 V AC 24 V DC	230 V AC
Supply frequency	50 Hz / 60 Hz / continuous			
Type of duty acc. to IEC 34-1	S2 30 min. S4 50% ED @ 25 °C			
Cable entry	2 x M20 x 1,5	3 x M20 x 1,5		
Electrical connection	Terminal configuration according to the electric connection wiring diagram inside the actuator cover			
Mounting position	As desired, except downward position			
Ambient temperature	- 20 °C to 60 °C			
Over-voltage category	II			
Position indicator	By anti-rotation bar			
Manual adjustment	Handwheel			
Type of protection	IP 67 (IP 68 on request)	IP 65 (IP 67 or IP 68 on request)		

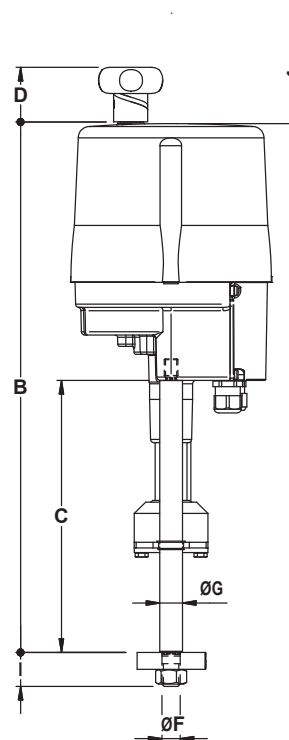
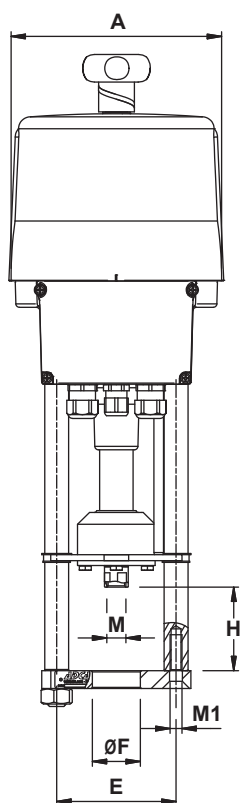
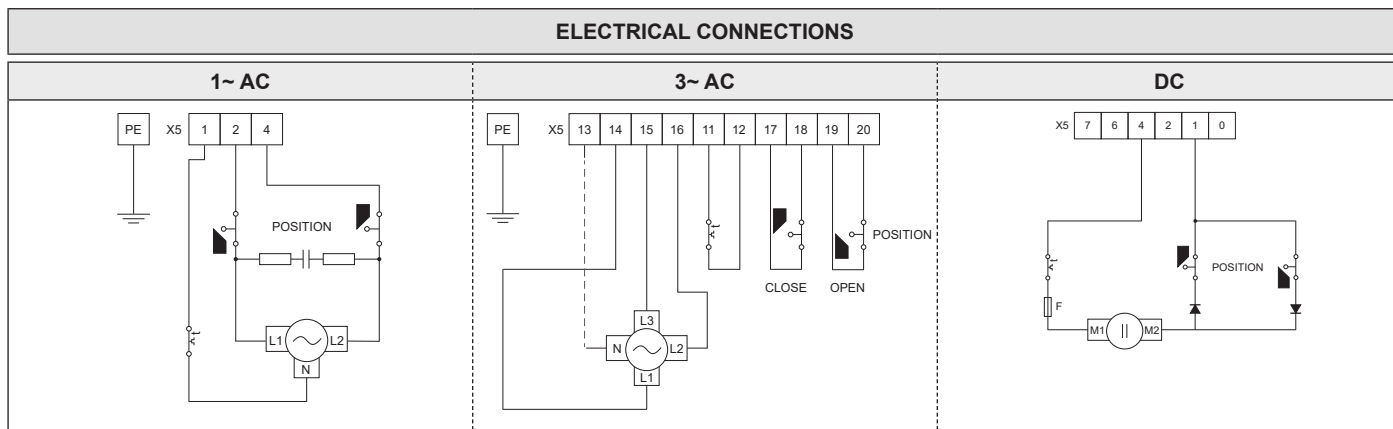
a) Permissible average modulating thrust over the entire travel is 50% of the maximum thrust.

b) At 60 Hz, the operating speed and input power increase by 20%.

c) At maximum thrust. Data may vary depending on accessories.

OPTIONS AND ACCESSORIES

DESIGNATION	DESCRIPTION
2WE	Two additional limit switches for signaling end positions or intermediate positions, freely adjustable, with silver-plated contacts, 0,1 A to 10 A @ 230 V AC/DC
2WE-G	Two additional limit switches for signaling end positions or intermediate positions, freely adjustable, with gold-plated contacts for low voltage, 0,1 mA to 100 mA @ 30V AC/DC
POT	Potentiometer 1000 Ω, ±0,4 linearity
POTD	Tandem (double) potentiometer 2 x 1000 Ω, ±0,4 linearity. Remark: Required when installing electronic positioner and position feedback unit simultaneously.
PT2W	Electronic position feedback unit, 2 wire technology, 4 to 20 mA output, 24 V DC ±15%, smoothed. Remark: Requires POT or POTD (not included).
PT3W	Electronic position feedback unit, 3 wire technology, 0(4) to 20 mA output, 24 V DC ± 15%, smoothed. Remark: Requires POT or POTD (not included).
PEL	Electronic positioner for actuator control. Input 0(2) to 10 V, 0(4) to 20 mA, output 0 to 10 V. Supply voltage 24, 115, 230 V 50/60 Hz. Remarks: Requires POT or POTD (not included). Can also be used with 3~ actuators but requires a reversing contactor. Consult the manufacturer.
PELR	Electronic positioner for actuator control. Input 2 to 10 V, 4 to 20 mA, output 0 to 10 V, 0(4) to 20 mA. Supply voltage 24, 115, 230 V 50/60 Hz. Remarks: Requires POT or POTD (not included). Can also be used with 3~ actuators but requires a reversing contactor. Consult the manufacturer.
HR	Heating resistor. Supply voltage 12 to 36 V AC/DC or 110 to 250 V AC/DC.
BZS	High durability bronze spindle parts. Remark: Only for actuators with 1 to 4,5 kN. Already included for standard actuators in case of higher thrusts. Not retrofittable.
IP67	Higher IP 67 enclosure protection with metal cover
IP68	Verification for increased IP 68 enclosure protection from IP 67 to IP 68. Remark: Not retrofittable.



DIMENSIONS (mm)														
MODEL	Ø A	B	C	D	E	Ø F	Ø G	H	I	J	M *	M1	M2	WEIGHT ** (kg)
ELB10 / ELB20 / ELB45	180	453 / 480	175 / 202	50	100	40	20	70	30	100	M10 / M12	M12	M16	4,5
ELB80 / ELB100	180	490 / 520	210 / 240	50	100	40 / 45 / 65	20	70	30	100	M10 / M12 / M16	M12	M16	7,2
ELB140	180	563 / 583	250 / 270	52	100 / 132	45 / 65	20	70	30	120	M10 / M12 / M16	M12	M16	8
ELB200 / ELB250 / ELB300	250	720	450	—	155	45 / 65 / 80	32	78	45	230	M16 / M27	-	M20	23

* Depending on valve stem thread. Can be coarse or fine thread.

** Approximate weight without accessories and lower yoke flange.

Remark: Stem coupling, yoke dimensions, design and weight may vary depending on the ADCATrol control valve model. Consult the manufacturer.

ORDERING CODES ELB											
Group designation	ELB	10	1	X	X	X	X	5	X	A1	
ELB series linear electric actuator	ELB										
Actuator model											
ELB10		10									
See table below for other actuator model codes											
Supply voltage											
230 V AC 50/60 Hz			1								
115 V AC 50/60 Hz			2								
24 V AC 50/60 Hz			3								
24 V DC			4								
400 V AC 3~ 50/60 Hz			5								
Electronic positioner a)											
Without electronic positioner				X							
PEL electronic positioner				P							
PELR electronic positioner				R							
Limit switches											
Without additional limit switches					X						
Two additional limit switches 2WE					W						
Two additional limit switches with gold-plated contacts 2WE-G					G						
Position feedback unit a)											
Without position feedback unit						X					
PT2W electronic position feedback unit, 2 wire technology						N					
PT3W electronic position feedback unit, 3 wire technology						F					
Potentiometer											
Without potentiometer							X				
POT potentiometer 1000 Ω							P				
POTD tandem potentiometer 2 x 1000 Ω							D				
Type of protection											
With standard IP 65 enclosure protection								5			
Higher IP 67 enclosure protection with metal cover								7			
Verification for increased IP 68 enclosure protection from IP 67 to IP 68								8			
Other options											
Without other options									X		
BZS bronze spindle parts (only for actuators with 1 to 4,5 kN)									Z		
Yoke design and coupling											
ADCATrol V16/2 and V25/2 series (1/2" to 2" – DN 15 to DN 50)										A1	
ADCAPure V926H, V926A (1/2" to 21/2") and V928 series (DN 15 to DN 50)										A3	
ADCATrol V16/2 series (21/2" to 4" – DN 65 to DN 100)										B1	
ADCATrol V25/2 series (21/2" to 4" – DN 65 to DN 100)										B2	
ADCAPure V926H (3" and 4") and V928 series (DN 65 to DN 100)										B3	
ADCATrol V25/2 series (5" to 6" – DN 125 to DN 150)										C2	
ADCATrol V25/2 series (8" – DN 200)										D2	
Other ADCATol valves b)										XX	
Special versions / Extras											
Full description or additional codes have to be added in case of a non-standard combination											E

a) Requires POT or POTD. POTD tandem potentiometer is required when installing electronic positioner and position feedback unit simultaneously.

b) Exact model and size must be specified – consult the manufacturer.

Remark: Options and accessories not mentioned in the ordering codes table must be requested separately, e.g.: ELB101XXXX5XA1 fitted with HR heating resistor.

How to size: For selection of suitable actuator to use with ADCATrol control valves, consult IS PV15.10 – Maximum permissible pressure drops for ADCATrol control valves – or consult the manufacturer.

ACTUATOR MODEL							
MODEL	ELB10	ELB10.1	ELB20	ELB20.1	ELB20.2	ELB45	ELB45.1
Code	10	11	20	21	22	40	41
MODEL	ELB80	ELB80.1	ELB100	ELB140	ELB200	ELB250	ELB300
Code	60	61	70	74	80	82	83