

The most compact electromechanical alternative to pneumatic cylinders

Characteristics

- High force and dynamic
- Integrated encoder system
- Integrated anti-rotation mechanism (option)
- High utilization of the installation length for the stroke
- Configurable motion profiles with different motion controllers
- Plug & play replacement for pneumatic cylinders (based on ISO 15552)
- Combined connection for power and sensor signals (single cable solution)

Advantageous Pneumatic Replacement

The liteECO® linear actuators are ideal for applications that require short linear movements: e.g. in production lines, machine tools, or packaging systems. For simple and complex movements: for fixing, adjusting, locking or following any motion profile.

In the process, they save more than 75 % energy compared to pneumatic systems and up to 80 % installation space compared to existing electrical solutions.

The dynamic positioning capability as well as simple and fast integration into the Industry 4.0 world represent significant advantages.

Product Configuration

LE48.-.-.-.S--.F--

Features

- 00 : without wiper ring
- 01 : with wiper ring

Sensor Configuration

- x0 : incremental
- x1 : incremental, hall
- x2 : SSI*
- 0x : without limit position sensor
- 1x : with limit position sensor*

Stroke and Anti-Rotation

- 50G : 50 mm, anti-rotation
- 56U : 56 mm, no anti-rotation
- 46U : 46 mm, no anti-rotation
(just for force configuration D)

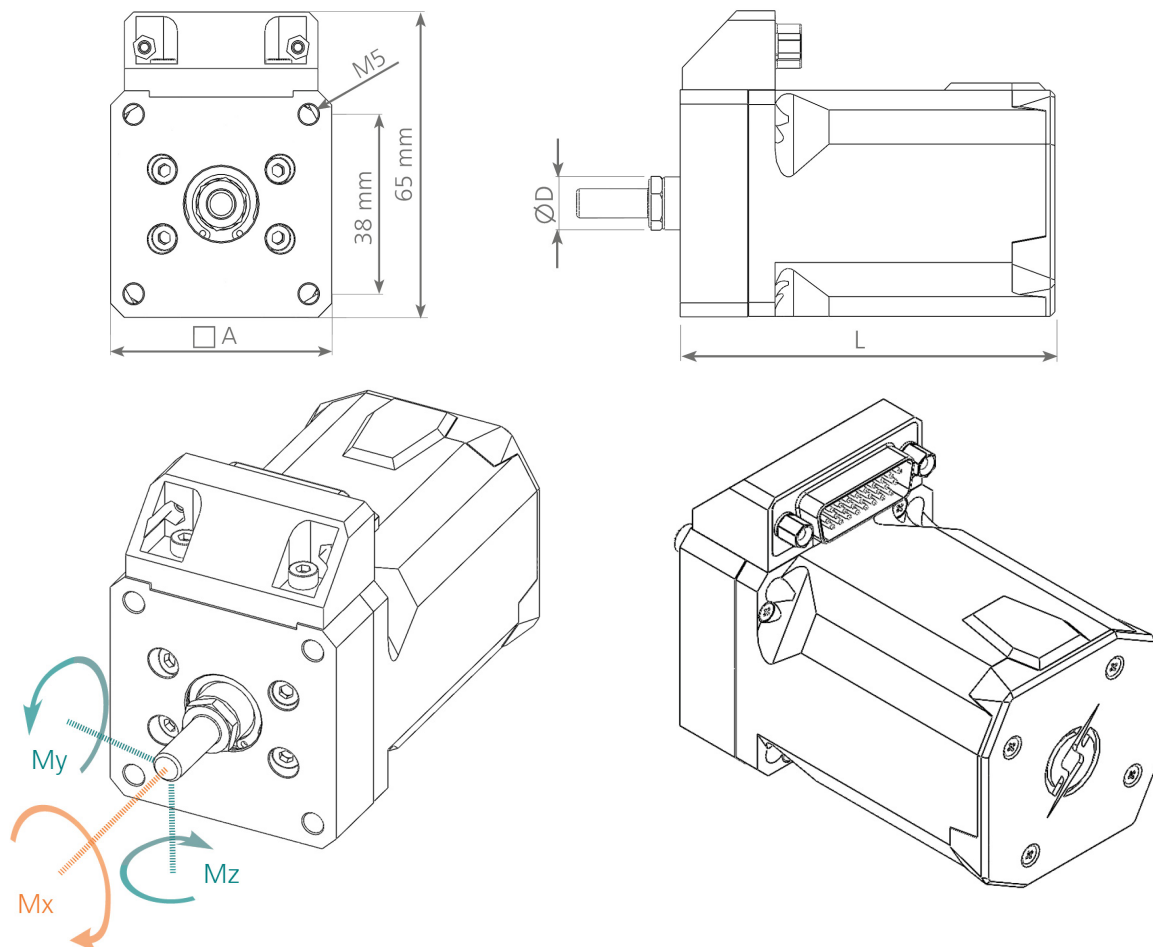
Force and Speed

	max. force	max. speed
A*	125 N	1.200 mm/s
B	200 N	750 mm/s
C	300 N	500 mm/s
D	800 N	90 mm/s

Awards



Dimensions, Coupling, Materials	
A	48 x 48 mm
L	84 mm
D	11 mm (LE48.A ... LE48.C) 10 mm (LE48.D)
Weight	approx. 440 g
Mx (anti-rotation configuration)	< 5 Nm
My, Mz (transverse forces to the plunger)	< 1 Nm
Coupling the flange Mounting Screw-in depth (min. ... max.)	4 x M5 (internal thread) 8 ... 20 mm
Coupling the plunger	M6 (external thread)
Hybrid connection (power & signal)	DA26 (HD 26M D-SUB plug)
IP protection class	IP 40
Materials (of the external components) Plunger Flange Housing Wiper ring (option)	stainless steel (1.4305) aluminum (AW6082) FDA conform polymer HPU (hydrolysis-resistant polyurethane)



Performance data	Unit	LE48.A*	LE48.B*	LE48.C	LE48.D
Max. stroke					
Anti-rotation ¹⁾	mm		50		-
No anti-rotation ²⁾	mm		56		46 ³⁾
Max. force (static) ⁴⁾	N	125	200	300	800
Nominal force (quasi-static) ⁵⁾	N				
Poor thermal coupling ⁶⁾		41	66	100	500
Good thermal coupling ⁷⁾		62,5	100	150	500
Max. speed ⁸⁾	mm/s	1.200	750	500	90
Max. acceleration ⁹⁾	m/s ²	60	37,5	25	2
Positioning time ¹¹⁾	ms	approx. 65	approx. 90	approx. 125	approx. 600
Backlash ¹¹⁾	mm	± 0,1			± 0,05
Nominal voltage	V	24 bis 48			
Max. phase current ¹²⁾	A	12			6
Nom. phase current (quasi-static) ¹³⁾					
Poor thermal coupling ⁶⁾	A	2,9			
Good thermal coupling ⁷⁾	A	5,0			
Operating temperature ¹⁴⁾	°C	+5 to +40			
Internal temperature limit	°C	+90			
Position sensor system	-	incremental, hall, SSI*, limit position sensor*			

Explanatory footnotes:

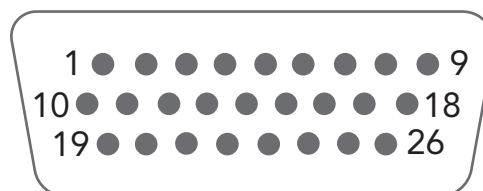
* planned variant / on request

- 1) With integrated anti-rotation mechanism of the plunger
- 2) Without integrated anti-rotation mechanism of the plunger
- 3) Currently only configurable without integrated anti-rotation mechanism of the plunger and a max. stroke of 46 mm
- 4) Max. static force and axial load capacity of the plunger as well as the internal mechanics;
exceeding loads are not permissible and must be absorbed by external mechanics or brakes
- 5) The quasi-static nominal force was determined by continuous positioning under nominal load;
Positioning process: upstroke: 800 ms, holding time: 200 ms, downstroke: 800 ms, holding time: 200 ms, 100% duty cycle
- 6) With thermal insulation (actuator in air)
- 7) When connected to an aluminum mounting plate with a convection surface of approx. 200 cm²
- 8) The applied voltage (conductor-conductor) can be up to 48 V. The characteristic data refer to a nominal voltage of 24V (at the actuator);
the actual voltage at the actuator can deviate from the DC link voltage and depends on the used frequency inverter and the length of the cable
- 9) During braking (negative acceleration), energy is generated and fed back into the DC link; if the DC link is not capable of regenerative braking,
care must be taken to ensure adequate dimensioning of the DC link capacity and/or the use of an additional brake chopper
- 10) Over the entire stroke with an operating voltage of min. 24 V; without load
- 11) The backlash is dependent on wear; the wear is dependent on load, dynamics and mileage
- 12) The max. phase current can be applied for max. 20 seconds in order not to exceed the internal limit temperature of 90 °C,
starting from an initial temperature of the actuator of 20°C
- 13) Permissible rated phase current not to exceed the winding temperature of 90°C at an ambient temperature of 20 °C
- 14) Max. permissible ambient temperature; the internal temperature limit (90 °C) is not allowed to exceed

SMELA GmbH reserves the right to make changes in the sense of technical improvements and new findings.

liteECO® Actuator connection DA26 (HD 26M D-SUB plug)		
PIN No.	Function	Note
1	GND	DC power supply for sensors
2	Enc A	with sensor configuration Sx0, Sx1
3	Enc B	with sensor configuration Sx0, Sx1
4	Enc Z	with sensor configuration Sx0, Sx1
5	Temp +	optional, on request
6	Switch pos. limit	optional with sensor configuration S1x
7	Hall Sensor 1	with sensor configuration Sx1
8	Hall Sensor 2	with sensor configuration Sx1
9	-	-
10	Motor Phase 1	-
11	5 V	DC power supply for sensors
12	Enc !A	with sensor configuration Sx0, Sx1
13	Enc !B	with sensor configuration Sx0, Sx1
14	Enc !Z	with sensor configuration Sx0, Sx1
15	Temp -	optional, on request
16	Switch neg. limit	optional with sensor configuration S1x
17	Hall Sensor 3	with sensor configuration Sx1
18	GND	DC power supply for sensors
19	Motor Phase 1	-
20	Motor Phase 1	-
21	Motor Phase 2	-
22	Motor Phase 2	-
23	Motor Phase 2	-
24	Motor Phase 3	-
25	Motor Phase 3	-
26	Motor Phase 3	-

Note: Pre-assembled cables suitable for drag chains are available on request via sales@smela.com.



DA26 (HD 26M D-SUB plug)