Lifting Column LC2000

24 Vdc - load up to 2000 N

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Standard Features and Benefits

- For medical and ergonomic automation applications
- Self supporting column in extruded anodized aluminum
- Low weight and quiet operation
- Smooth operating telescopic lead screw drive
- High load torque capability
- Very short retracted length
- High extension to retraction ratio
- Maintenance free
- Load holding brake
- Integrated end of stroke limit switches
- EMC recognized for medical applications

General Specifications

Parameter	LC2000
Screw type	telescopic lead screw
Internally restrained	yes
Manual override	no
Dynamic braking	no (1)
Holding brake	yes
End of stroke protection	end of stroke limit switches
Mid stroke protection	no (1)
Motor protection	no (1)
Motor connection	cable
Motor connector	Molex 8 pin plug
Certificates	CE EMC for medical applications (2)
Options	encoder position feedback

(1) Dynamic braking, mid-stroke protection, and motor protection are provided when used with DCG control.
(2) Emission: EN 61000-6-3:2001, EN 60601-1-2:1993, EN 55011 Class B
Immunity: EN 61000-6-2:2001, EN 61000-4-2, EN 61000-4-3

Performance Specifications

Parameter		LC2000
Maximum load	[N]	2000
Maximum load torque, dynamic / static	[Nm]	150* / 500
Speed, at no load / at maximum load	[mm/s]	19 / 15
Available input voltages	[Vdc]	24
Minimum ordering stroke (S)	[mm]	200
Maximum ordering stroke (S)	[mm]	600
Operating temperature limits	[°C]	0 to +40
Full load duty cycle @ 20 °C	[%]	15
Maximum on time	[s]	60
Lead cross section	[mm²]	1.5
Standard cable length	[mm]	2000
Protection class		IP44

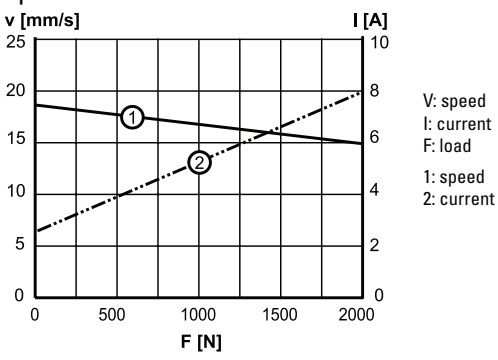
* Higher dynamic loads up to 400 Nm available upon request, contact customer support.

Compatible Controls

Control model	See page
DCG-180 for operation of single unit	66
DCG-280 for synchronous operation of two units	66

Performance Diagrams

Speed and Current vs. Load



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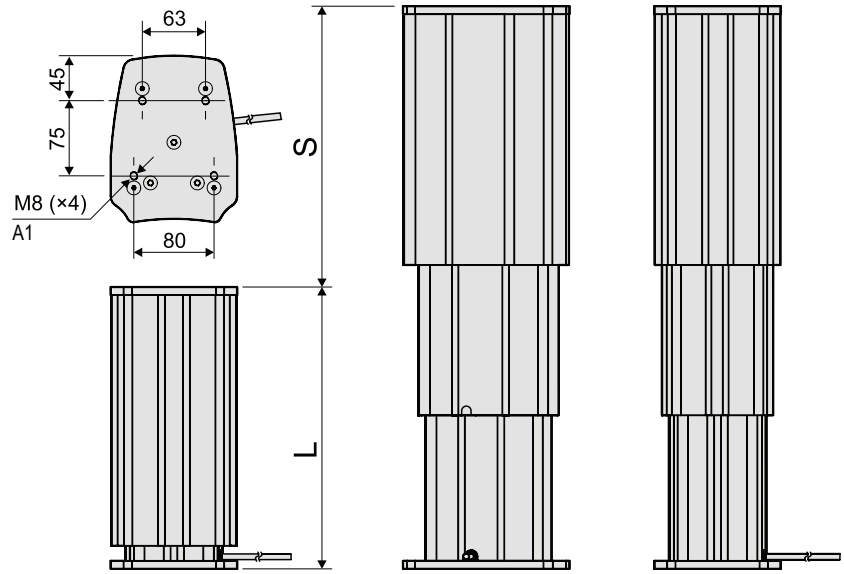
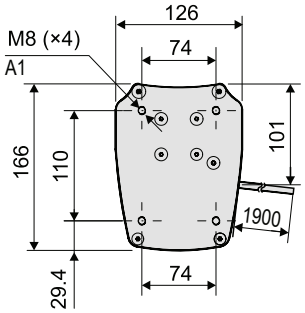




S: stroke
L: retracted length
A1: mounting screws must not enter deeper than 10 mm.

Stroke, retracted length and weight relationship			
		Minimum	Maximum
Stroke (S)	[mm]	200	600
Retracted length (L)	[mm]	250 or L min	441
Min. retracted length (L min) based on stroke (S)	[mm]	L min = (S + 282) / 2	
Weight of unit based on stroke (S)	[kg]	Weight = 3.4 + L [mm] × 0.0203 + S [mm] × 0.001	

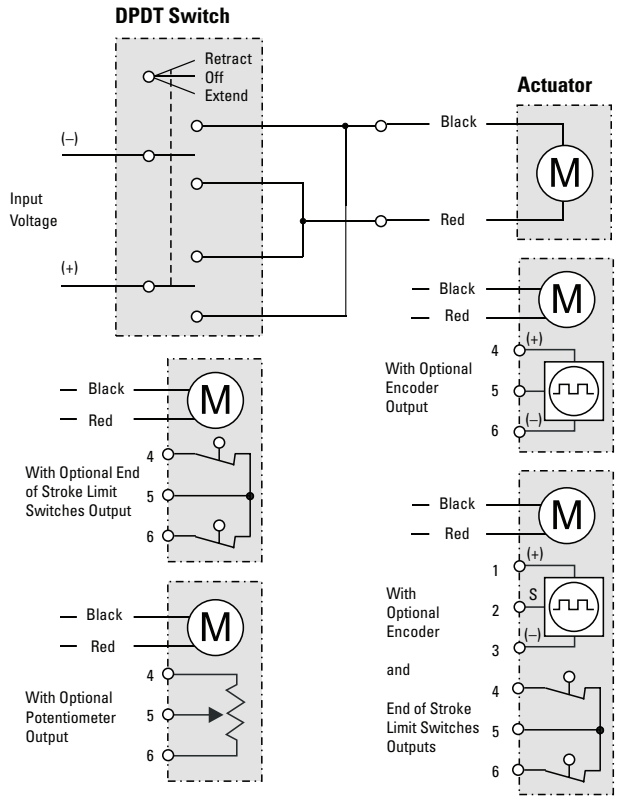
The desired stroke (S) will determine the minimum retracted length (L min) and the weight of the unit. Units can be built with a retracted length (L) between the calculated L min value and maximum retracted length.

Examples of strokes and the resulting minimum retracted length (L min) and weight										
Stroke (S)	[mm]	200	250	300	350	400	450	500	550	600
Minimum retracted length (L min)	[mm]	250	266	291	316	341	366	391	416	441
Weight	[kg]	8.7	9.1	9.7	10.2	10.8	11.3	11.9	12.4	13

Electrical Wiring Diagrams

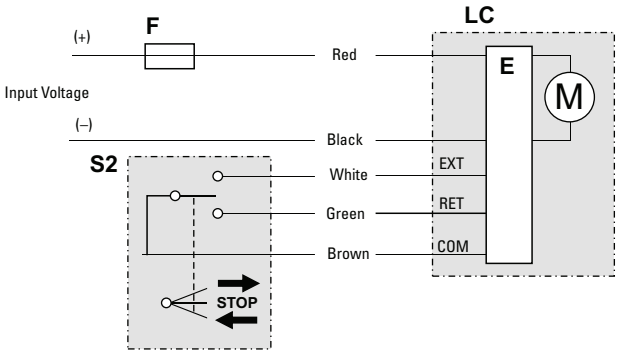
DC-actuators

Electrak PPA-DC



Connect the black lead to positive and red to negative to extend the actuator. Change polarity to retract the actuator. The encoder is supplied with 4,5 - 12 Vdc between terminals 4 or 1 and 6 or 3 and the pulse train signal is generated on terminal 5 or 2. The potentiometer output has 0 ohm between terminal 4 and 5 when the actuator is fully retracted.

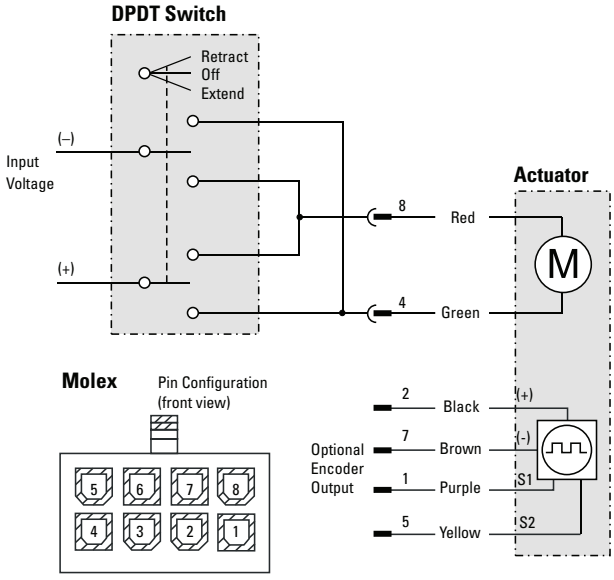
LC1600



Connect the white (EXT) and brown (COM) leads to extend the actuator. To retract the actuator connect the green (RET) and brown (COM) leads.
The actuator will automatically switch off when reaching the ends of stroke or a mid-stroke overload.

With encoder feedback (NE) or with no feedback options (NX): For the LC1600, only use the NE and NX versions with the DCG control.

LC2000 / 3000, LM80-H/ -V / -I



Connect the green lead to positive and red to negative to extend the actuator. Change polarity to retract the actuator. The encoder is supplied with 5 - 18 Vdc on pin 2 and 7 and the two pulse train signals are generated on pin 1 and 5.

Ordering Keys

Lifting Columns

LC1600, LC2000, LC3000

1	2	3	4	5
LC2000	N	24	-400341	NX

1. Model
LC1600 = LC1600
LC2000 = LC2000
LC3000 = LC3000

2. Type
N = standard

3. Supply voltage
24 = 24 VDC

4. Stroke and retracted length
LC1600:
-200380 = 200 and 380 mm
-250430 = 250 and 430 mm
-300480 = 300 and 480 mm
-350580 = 350 and 581 mm
-400630 = 400 and 631 mm

LC2000:
-400341 = 400 and 341 mm
(1) see more on page 39

LC3000:
-400530 = 400 and 530 mm
(1) see more on page 41

5. Connection, electronic limit switches and encoder options
LC1600:
LX = Cable (L = 900 mm), flying leads, electronic limit switches
NE = Cable (L = 1900 mm), Molex connector, encoder feedback (2)
NX = Cable (L = 1900 mm), Molex connector, no encoder feedback (3)
LC2000, LC 3000:
NE = Cable (L = 1900 mm), Molex connector, encoder feedback (4)
NX = Cable (L = 1900 mm), Molex connector, no encoder feedback

(1) This is just an example, see section Ordering Stroke, Retracted Length and Weight on page 39 (LC2000) and page 41 (LC3000) for directions on how to calculate this number.
(2) Encoders are used when synchronizing multiple units. This option may only be used in conjunction with the DCG-254 control.
(3) This option may only be used in conjuction with the DCG-154 control.
(4) Encoders are used when syncronizing multiple units.

DMD

1	2	3	4
DMD24 -	10B5 -	16	PO

1. Model and input voltage
DMD12 - = DMD, 12 Vdc
DMD24 - = DMD, 24 Vdc
DMD36 - = DMD, 36 Vdc

2. Dynamic load capacity, screw type and maximum speed
05A5 - = 1100 N, acme, 54 mm/s
10A5 - = 2250 N, acme, 30 mm/s
20A5 - = 2250 N, acme, 15 mm/s
05B5 - = 2250 N, ball, 61 mm/s
10B5 - = 4500 N, ball, 30 mm/s
20B5 - = 4500 N, ball, 15 mm/s
21B5 - = 6800 N, ball, 15 mm/s

3. Stroke
04 = 4 inch (101,6 mm)
06 = 6 inch (152,4 mm)
08 = 8 inch (203,2 mm)
10 = 10 inch (254,0 mm)
12 = 12 inch (304,8 mm)
14 = 14 inch (355,6 mm)
16 = 16 inch (406,4 mm)
18 = 18 inch (457,2 mm)
20 = 20 inch (508,0 mm)
24 = 24 inch (609,6 mm)

4. Options[1]
PO = potentiometer

[1]Leave position blank for no option.

DMA

1	2	3	4
DMA22 -	20A5 -	06	

1. Model and input voltage
DMA22 - = DMA, 1 × 230 Vac
DMA42 - = DMA, 3 × 400 Vac

2. Dynamic load capacity, screw type and maximum speed
05A5 - = 1100 N, acme, 54 mm/s[1]
10A5 - = 2250 N, acme, 30 mm/s
20A5 - = 2250 N, acme, 15 mm/s
05B5 - = 2250 N, ball, 61 mm/s
10B5 - = 4500 N, ball, 30 mm/s
20B5 - = 4500 N, ball, 15 mm/s
21B5 - = 6800 N, ball, 15 mm/s

3. Stroke
04 = 4 inch (101,6 mm)
06 = 6 inch (152,4 mm)
08 = 8 inch (203,2 mm)
10 = 10 inch (254,0 mm)
12 = 12 inch (304,8 mm)
14 = 14 inch (355,6 mm)
16 = 16 inch (406,4 mm)
18 = 18 inch (457,2 mm)
20 = 20 inch (508,0 mm)
24 = 24 inch (609,6 mm)

4. Options[2]
PO = potentiometer

[1] 05A5 not possible with 400 Vac input voltage.
[2] Leave position blank for no option.