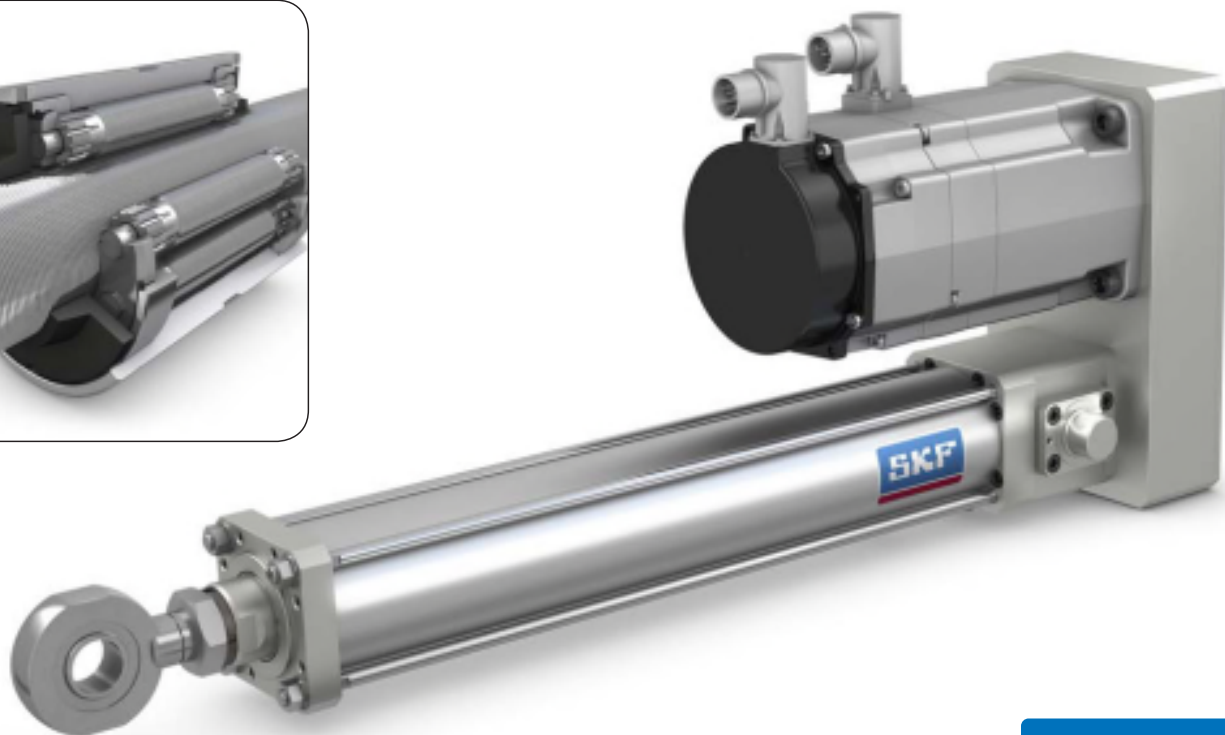


# ElectroMechanical Cylinder LEMC

## Benefits

- High efficiency
- Long service life from use of SKF Planetary roller screw
- Compact and robust structural design
- Modular concept with multiple combinations and options
- Available for all motor brands
- Smart and freely programmable drive system



#### Technical data

|                                        | Unit                              | LEMC2105     | LEMC2110     | LEMC3005     | LEMC3010     |
|----------------------------------------|-----------------------------------|--------------|--------------|--------------|--------------|
| Screw type                             | —                                 | Roller screw | Roller screw | Roller screw | Roller screw |
| Screw diameter                         | d mm                              | 21           | 21           | 30           | 30           |
| Screw lead                             | P mm                              | 5            | 10           | 5            | 10           |
| Max. axial force <sup>1)</sup>         | F <sub>max</sub> kN               | 40           | 40           | 80           | 80           |
| Max. input torque for F <sub>max</sub> | T <sub>max</sub> Nm               | 41,7         | 84,4         | 87,1         | 161,5        |
| Dynamic load carrying capacity         | C <sub>a</sub> kN                 | 50,5         | 54,3         | 91,9         | 106,3        |
| Max. linear speed                      | V <sub>max</sub> mm/s             | 500          | 1 000        | 440          | 880          |
| Max. rotational speed                  | ω <sub>max</sub> rpm              | 6 000        | 6 000        | 5 280        | 5 280        |
| Max. acceleration                      | a <sub>max</sub> m/s <sup>2</sup> | 6            | 12           | 6            | 12           |
| Stroke <sup>2)</sup>                   | s mm                              | 100 to 600   | 100 to 600   | 100 to 800   | 100 to 800   |
| Internal over stroke                   | s <sub>0</sub> mm                 | 2x5          | 2x5          | 2x5          | 2x5          |
| Inertia for stroke 0 <sup>3)</sup>     | J <sub>EMC</sub> kgm <sup>2</sup> | 1,45E-04     | 1,45E-04     | 5,00E-04     | 5,00E-04     |
| Backlash                               | s <sub>ap</sub> mm                | 0,02         | 0,04         | 0,02         | 0,04         |
| Type of protection                     | —                                 | IP54S        | IP54S        | IP54S        | IP54S        |

<sup>1)</sup> Buckling limitation for long stroke

<sup>2)</sup> By 100 mm step

<sup>3)</sup> For LEMC21: +0,15E-04 kgm<sup>2</sup> by 100 mm stroke step  
For LEMC30: +0,65E-04 kgm<sup>2</sup> by 100 mm stroke step

## Calculations

### Cubic mean load

$$F_m = \sqrt[3]{\frac{F_1^3 L_1 + F_2^3 L_2 + F_3^3 L_3 + \dots}{L_1 + L_2 + L_3 + \dots}}$$

$$F_m = \frac{F_{\min} + 2F_{\max}}{3}$$

### Number of cycles

$$Nb \text{ cycles} = \frac{L_{10 \text{ dist}}}{2 \text{ Stroke}}$$

$$L_{10 \text{ dist}} = \left( \frac{\text{Dynamic load carrying capacity}}{F_m} \right)^3 10^6 \times \text{Lead}$$

### Example

$$F_m = 8\,000 \text{ N}$$

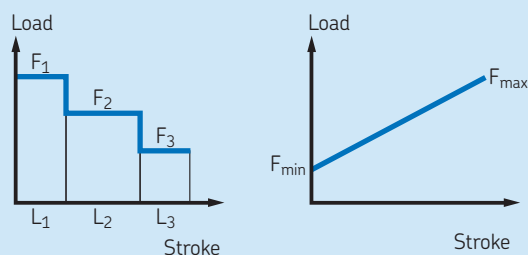
$$\text{Stroke} = 200 \text{ mm}$$

$$\text{LEMC2105} - Nb \text{ of cycles} = 3,1 \text{ millions}$$

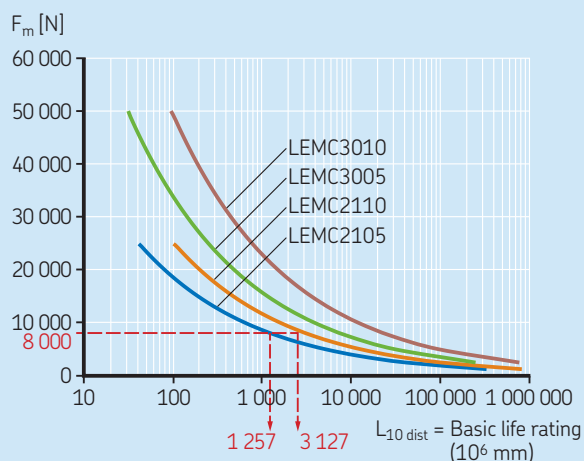
$$\text{LEMC2110} - Nb \text{ of cycles} = 7,8 \text{ millions}$$

**Dynamic load carrying capacity:** This is used to compute the fatigue life of rolling elements (roller screw and bearings). This is the axial force constant in magnitude and direction under which the nominal life (as defined by ISO) reaches one million revolutions.

#### Mean load



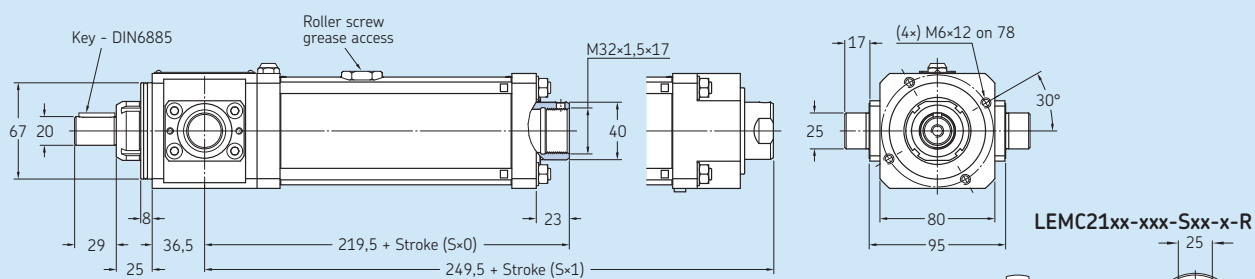
#### LEMC lifetime curve



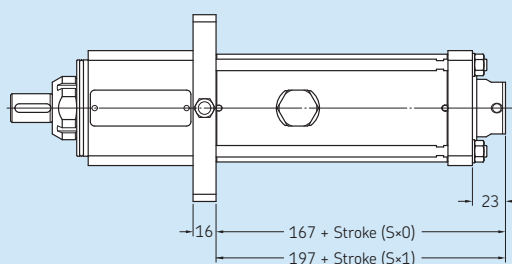
**Maximum axial force:** This is the maximum force which could be applied on the actuator.

**Cubic mean load:** This is the hypothetical load, constant in magnitude and direction, that would have the same influence on the actuator life as the actual loading conditions.

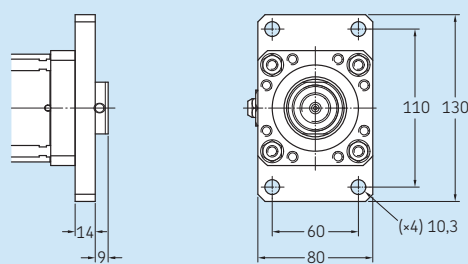
### LEMC21xx-xxx-Sxx-T-N



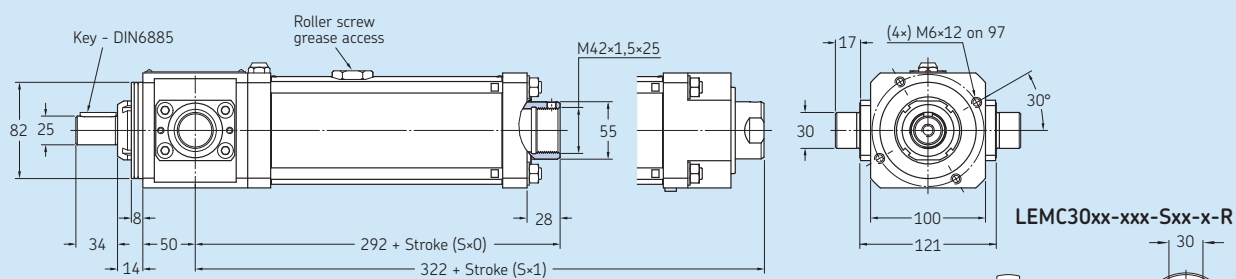
### LEMC21xx-xxx-Sxx-B-N



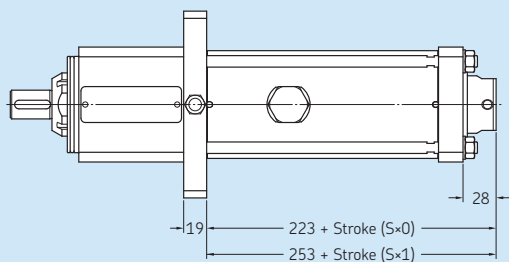
### LEMC21xx-xxx-Sxx-F-N



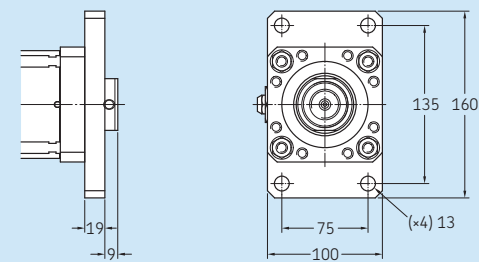
### LEMC30xx-xxx-Sxx-T-N



### LEMC30xx-xxx-Sxx-B-N



### LEMC30xx-xxx-Sxx-F-N



## LEMC designation

LEMC 21 05 - 300 - S L 0 - T - R - 1 1 1 - CS12L20 B - 05 - LC007

### Cylinder type

LEMC = Planetary Roller Screw

### Screw diameter [mm]

21 = Diameter 21

30 = Diameter 30

### Screw lead [mm]

05 = Lead 5

10 = Lead 10

### Stroke [mm]

100 = Stroke 100

xxx = Stroke xxx

800 = Stroke 800

### Cylinder design

S = Standard design

### Motor interface

L = Interface for in line motor

P = Interface for parallel motor

N = No motor interface

### Anti-rotation

0 = Without anti-rotation on the force tube

1 = With anti-rotation on the force tube

### Fixed attachment (Linked to the frame)

T = Trunnion

F = Front plate

B = Back plate

N = No attachment

### Mobile attachment (Linked to the force tube)

R = Rod end

N = No attachment

### Limit and home position switches

0 = No limit switch in retracted position

1 = Limit switch in retracted position

0 = No limit switch in extended position

1 = Limit switch in extended position

0 = No home position switch

1 = Home position switch

### Motor

Motor designation

### Fail safe brake

B = With fail safe brake

### Cable length (motor)

05 = 5 metres (standard)

10 = 10 metres

15 = 15 metres

20 = 20 metres

### Servoamplifier type

Servoamplifier designation

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