
# Electromechanical EWELLIX Linear Actuator

## LEMC

Product Data Sheet

We pioneer motion

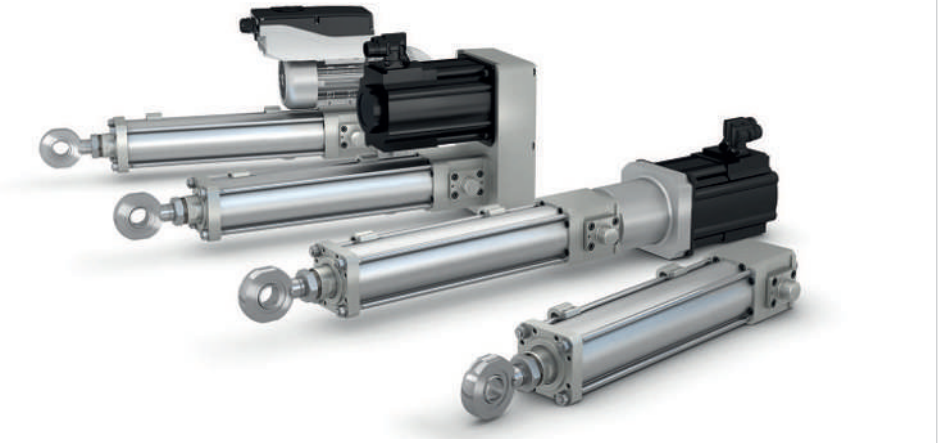
SCHAEFFLER

# Contents

# 1 LEMC



1 Electromechanical linear actuator LEMC




## Features

- high-performance roller screw drive
- steel push tube and aluminum protection tube
- modular concept
- relubrication of the roller screw nut possible with direct access
- servo-motors, induction motors, and customized motor adapters motors

## Benefits

- high load capacity and long service life, as well as high acceleration and speed capabilities
- high stiffness and robustness
- multiple combinations enable use in a wide range of applications
- low maintenance requirements
- optimal solution for a wide variety of applications, either with motors supplied by Schaeffler or with the motor of your choice

## Product description

For generations, hydraulic cylinders were often the first choice for applying high forces or moving heavy loads. Today, hydraulic systems face strong competition in the field of linear motion from electromechanical linear actuators.

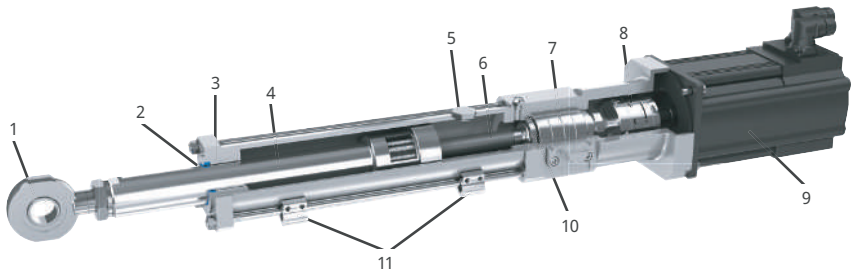
In many applications, electromechanical systems provide a host of advantages over their hydraulic counterparts. They are smaller and lighter, and since the motor powering the linear actuator is connected directly, bulky pumps, accumulators, oil tanks, and pipework are no longer required in electromechanical systems. The absence of pressurized oil also provides safety and environmental benefits, minimizing the risk of fire, pollution, and injuries associated with leaks and oil spills.

LEMC electromechanical linear actuators replace hydraulic systems with a precision roller screw drive powered by a locally mounted electric motor and gearbox.

This technology results in linear actuators with a higher power density than conventional designs. LEMC actuators are based on a modular design that can be configured for many different applications and a range of motor types.

In addition to conventional servo-motors, they can be supplied with an integrated gearbox and an intelligent induction motor. This provides additional safety and machine protection capabilities, with integrated soft start and motor protection functions. A further advantage for operators and maintenance personnel is the NFC (Near Field Communication) function, which enables wireless adjustment via a smartphone.

2 Design of the LEMC electromechanical linear actuator

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| | | | |
|---|---|---|---|
| 1 | Rod spherical plain bearing | 2 | Wiper for protection against contaminants |
| 3 | Guide bushing | 4 | Steel push tube and aluminum protection tube |
| 5 | Access for relubrication | 6 | High-quality roller screw drive for maximum axial loads with low backlash and high efficiency |
| 7 | Bearing for supporting axial loads | 8 | Coupling |
| 9 | Servo-motor or induction motor | 10 | Sinter filter for high airflow |
| 11 | Adjustable home position switch and limit switch | | |

1 Performance overview of linear units

| Linear unit | $F_{max}$ | $F_{0\ max}$ | $v_{max}$ |
|---|---|---|---|
| | kN | kN | mm/s |
| LEMC-U-2105 | 40 | 40 | 500 |
| LEMC-U-2110 | 40 | 40 | 1000 |
| LEMC-U-3005 | 80 | 80 | 440 |
| LEMC-U-3010 | 80 | 80 | 880 |

# 2 Motors and gearboxes



## Servo-motors

LEMC linear actuators can be ordered with a servo-motor. In this case, Schaeffler has selected a range of Lenze motors and drives whose linear actuator performance is optimally matched to the end-user application. To complete the design, several options can be selected, such as absolute encoders (EnDat, Hyperface), safety brakes, or the corresponding servo-motor. It is also possible to equip LEMC linear actuators with a motor from your preferred servo-motor manufacturer to ensure optimal integration into your system. Please contact Schaeffler to check the feasibility of your configuration.

For more information please visit the following sites:

Motors:

http://www.lenze.com/en-us/products/motors/

Drives:

http://www.lenze.com/en-us/products/inverters/

## Drive options

The performance attributes shown in the table on the previous page are the result of specific Lenze servo-motor and drive combinations. LEMC linear actuators can be supplied with or without a servo-motor. The servo-motor may be provided in the recommended configuration or in another configuration that fits your installation.

For a different combination, please contact Schaeffler to determine what effect the different configuration will have on the performance of the linear actuator.

▦2 Performance overview of linear actuators with servo-motors

| Linear unit | Interface and gear ratio | Motor | $F_{c0}$ | $F_{p0}$ | $v_{max}$ |
|---|---|---|---|---|---|
| | | | kN | kN | mm/s |
| LEMC-S-2105 | L10/P10 | LA1 | 6.1/6 | 17.3/16.8 | 163 |
| LEMC-S-2105 | L10/P10 | LA2 | 6.1/6 | 17.3/16.8 | 338 |
| LEMC-S-2105 | L10/P10 | LA3 | 10.9/10.6 | 27.8/27 | 125 |
| LEMC-S-2105 | L10/P10 | LA4 | 10.9/10.6 | 27.8/27 | 294 |
| LEMC-S-2105 | P15 | LA9 | 13.5 | 29.3 | 194 |
| LEMC-S-2105 | L10 | LA5 | 14.4 | 33.5 | 163 |
| LEMC-S-2105 | L10/P10 | LA6 | 14.4/14 | 31/30.1 | 338 |
| LEMC-S-2110 | L10/P10 | LA1 | 3/2.9 | 8.5/8.3 | 325 |
| LEMC-S-2110 | L10/P10 | LA2 | 3/2.9 | 8.5/8.3 | 675 |
| LEMC-S-2110 | L10/P10/P20 | LA3 | 5.4/5.2/10.5 | 13.7/13.3/26.7 | 250/250/125 |
| LEMC-S-2110 | L10/P10/P20 | LA4 | 5.4/5.2/10.5 | 13.7/13.3/26.7 | 588/588/294 |
| LEMC-S-2110 | L10 | LA7 | 7.1 | 26.5 | 325 |
| LEMC-S-2110 | L10 | LA8 | 7.1 | 26.1 | 675 |
| LEMC-S-3005 | L10/P10 | LA3 | 10.5/10.2 | 26.6/25.8 | 125 |
| LEMC-S-3005 | L10/P10 | LA4 | 10.5/10.2 | 26.6/25.8 | 294 |
| LEMC-S-3005 | L10 | LB1 | 19.3 | 50.5 | 125 |
| LEMC-S-3005 | L10 | LB2 | 19.3 | 50.5 | 269 |
| LEMC-S-3005 | P15 | LA5 | 20 | 46.6 | 108 |
| LEMC-S-3005 | P15 | LA6 | 20 | 43.1 | 225 |
| LEMC-S-3005 | L10/P10 | LB5 | 34/32.9 | 69/67 | 113 |
| LEMC-S-3005 | L10/P10 | LB6 | 32.9/31.9 | 54.9/53.3 | 269 |
| LEMC-S-3010 | L10 | LA3 | 5.6 | 14.4 | 250 |
| LEMC-S-3010 | L10 | LA4 | 5.6 | 14.4 | 588 |
| LEMC-S-3010 | L10 | LB1 | 10.4 | 27.2 | 250 |

| Linear unit | Interface and gear ratio | Motor | $F_{c0}$ | $F_{p0}$ | $v_{max}$ |
|---|---|---|---|---|---|
| | | | kN | kN | mm/s |
| LEMC-S-3010 | L10 | LB2 | 10.4 | 27.2 | 538 |
| LEMC-S-3010 | L10 | LB7 | 18.3 | 52.0 | 225 |
| LEMC-S-3010 | L10 | LB8 | 18.3 | 52.0 | 538 |
| LEMC-S-3010 | P20 | LA1 | 6.2 | 17.3 | 163 |
| LEMC-S-3010 | P20 | LA2 | 6.2 | 17.3 | 338 |
| LEMC-S-3010 | P20 | LA5 | 14.4 | 33.5 | 163 |
| LEMC-S-3010 | P20 | LA6 | 14.4 | 31 | 338 |
| LEMC-S-3010 | P15 | LB5 | 26.7 | 54.2 | 150 |
| LEMC-S-3010 | P15 | LC2 | 26.7 | 49.6 | 358 |



3 Motor technical data

| Motor | Lenze servo-motor | Lenze 9400 Highline servoamplifier |
|---|---|---|
| LA1 | MCS12D20 | E94ASHE0044 |
| LA2 | MCS12D41 | E94ASHE0134 |
| LA3 | MCS12H15 | E94ASHE0074 |
| LA4 | MCS12H35 | E94ASHE0134 |
| LA5 | MCS12L20 | E94ASHE0074 |
| LA6 | MCS12L41 | E94ASHE0134 |
| LA7 | MCS12L20 | E94ASHE0134 |
| LA8 | MCS12L41 | E94ASHE0324 |
| LA9 | MCS12H35 | E94ASHE0074 |
| LB1 | MCS14H15 | E94ASHE0134 |
| LB2 | MCS14H32 | E94ASHE0324 |
| LB5 | MCS14P14 | E94ASHE0134 |
| LB6 | MCS14P32 | E94ASHE0244 |
| LB7 | MCS14P14 | E94ASHE0244 |
| LB8 | MCS14P32 | E94ASHE0474 |
| LC2 | MCS14P32 | E94ASHE0324 |

## Induction motors

LEMC linear actuators with induction motors are a combination of a LEMC linear unit, a gearbox, and a Lenze smart induction motor. The gearboxes are available with various gear ratios to optimize either the speed or the load for the respective linear unit. They are available in parallel and right-angle configurations. The gearboxes are oil lubricated. When ordering a LEMC linear actuator with an induction motor, the correct configuration must be specified to ensure that the drains and vents are positioned correctly.

## Intelligent functions

The Lenze induction motor is equipped with an intelligent control unit with the following functions:

- The speed can be adjusted freely between 500 $min^{-1}$ and 2600 $min^{-1}$.
- 3 digital inputs for changing speed and direction of movement
- 1 digital output for status messages
- Integrated ramps for soft start and stop functions to protect the system mechanics and provide full motor protection
- Less wiring thanks to electronic contactor and motor protection function
- Excellent energy efficiency
- Can be operated with an NFC-capable smartphone

### 4 Performance overview of linear actuators with induction motors

| Linear unit | Interface and gear ratio | Motor | $F_{c0}$ | $v_{min}$ | $v_{max}$ |
|---|---|---|---|---|---|
| | | | kN | mm/s | mm/s |
| LEMC-A-2110 | B054/ B151 | LAA2 | 4.3/12 | 15.5/ 5.5 | 80.2/28.7 |
| LEMC-A-2110 | B319/ P129 | LBA2 | 25.4/10.3 | 2.7/ 6.5 | 13.5/33.3 |
| LEMC-A-2110 | P187/ P328 | LBA2 | 14.9/26.2 | 4.5/ 2.5 | 23/13.2 |
| LEMC-A-3005 | B051/ B155 | LBA2 | forward-24 | 8/ 2.7 | 41.7/13.9 |
| LEMC-A-3005 | B319/ P129 | LBA2 | 49.2/20 | 1.3/ 3.2 | 6.7/16.7 |
| LEMC-A-3005 | P187/ P328 | LBA2 | 29/50.7 | 2.2/1.2 | 11.5/6.6 |

### 5 Standard motor and gearbox types

| Interface, gear ratio, and motor | Lenze gearbox | Gear ratio | Lenze smart motor |
|---|---|---|---|
| P129LBA2SN | G500-S220 | 12.992 | M300-063-42 |
| P187LBA2SN | G500-S220 | 18.776 | M300-063-42 |
| P328LBA2SN | G500-S220 | 32.867 | M300-063-42 |
| B054LAA2SN | G500-B45 | 5.411 | M300-063-42 |
| B151LAA2SN | G500-B45 | 15.111 | M300-063-42 |
| B319LBA2SN | G500-B110 | 31.919 | M300-063-42 |
| B051LBA2SN | G500-B110 | 5.185 | M300-063-42 |
| B155LBA2SN | G500-B110 | 15.556 | M300-063-42 |

### 6 Standard motor interface

| Interface | Inline | | Parallel | | | | | |
|---|---|---|---|---|---|---|---|---|
| LEMC size | 21 | 30 | 21 | | | 30 | | |
| Gear reduction | 1:1 | 1:1 | 1:1 | 3:2 | 2:1 | 1:1 | 3:2 | 2:1 |
| **Lenze** | | | | | | | | |
| MCS12 | L1019110L | L1019110L | P1019110L | P1519110L | P2019110L | P1019110L | P1519110L | P2019110L |
| | – | – | – | – | – | – | – | P2019110H |
| MCS14 | – | L1024130L | – | – | – | P1024130L | – | – |
| | – | – | – | – | – | P1024130H | P1524130H | P2024130H |
| **Siemens** | | | | | | | | |
| 1FK706x | L1024110L | L1024110L | P1024110L | P1524110L | P2024110L | P1024110L | P1524110L | P2024110L |
| | – | – | – | – | – | – | – | P2024110H |
| 1FK708x | – | L1032130L | – | – | – | P1032130L | – | – |
| | – | – | – | – | – | P1032130H | P1532130H | P2032130H |
| **Parker** | | | | | | | | |
| N..6 | L1024110L | L1024110L | P1024110L | P1524110L | P2024110L | P1024110L | P1524110L | P2024110L |
| | – | – | – | – | – | – | – | P2024110H |
| N..8 | – | L1032130L | – | – | – | P1032130L | – | – |
| | – | – | – | – | – | P1032130H | P1532130H | P2032130H |
| **Kollmorgen** | | | | | | | | |
| AKM5x | L1019110L | L1019110L | P1019110L | P1519110L | P2019110L | P1019110L | P1519110L | P2019110L |
| | – | – | – | – | – | – | – | P2019110H |
| | L1024110L | L1024110L | P1024110L | P1524110L | P2024110L | P1024110L | P1524110L | P2024110L |
| | – | – | – | – | – | – | – | P2024110H |
| AKM6x | – | L1024130L | – | – | – | P1024130L | – | – |
| | – | – | – | – | – | P1024130H | P1524130H | P2024130H |
| | – | L1032130L | – | – | – | P1032130L | – | – |
| | – | – | – | – | – | P1032130H | P1532130H | P2032130H |
| **Rockwell/Allen Bradley** | | | | | | | | |
| MPL-A/B45x | L1024110L | L1024110L | P1024110L | P1524110L | P2024110L | P1024110L | P1524110L | P2024110L |
| | – | – | – | – | – | – | – | P2024110H |
| MPL-A/B52x | – | L1028130L | – | – | – | P1028130L | – | – |
| MPL-A/B52x and B54x and B56x | – | L1028130L | – | – | – | P1028130H | P1528130H | P2028130H |

NOTE: For other motors, please contact Schaeffler.

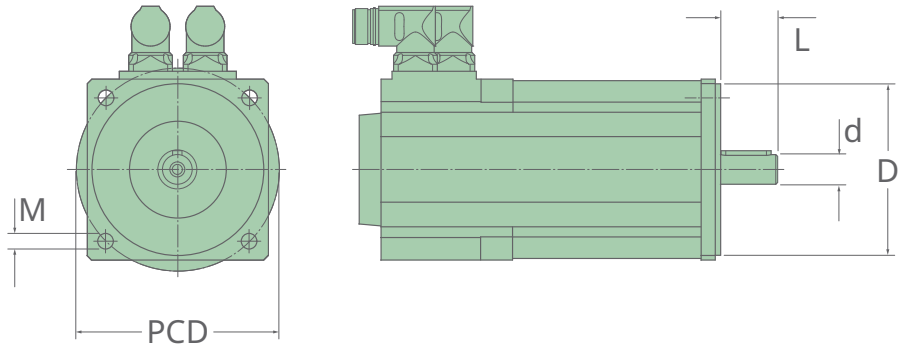
## Third party motors

In order to attach your preferred motor to the linear unit, Schaeffler offers tailor-made solutions according to the specifications listed below.

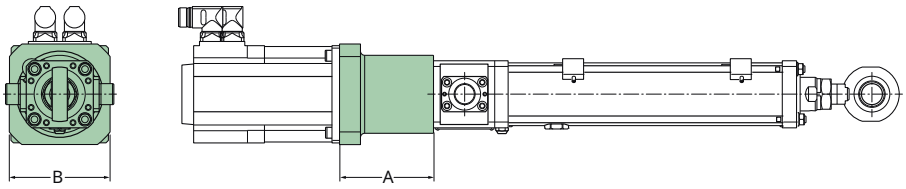
For motor specifications not covered by the specifications listed below, please contact Schaeffler.

## Inline adapter

3 Motor




4 Inline adapter

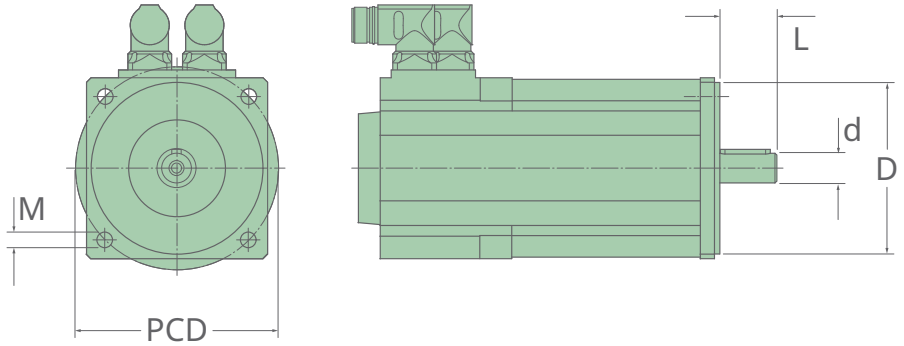



7 Third-party motors, inline adapter

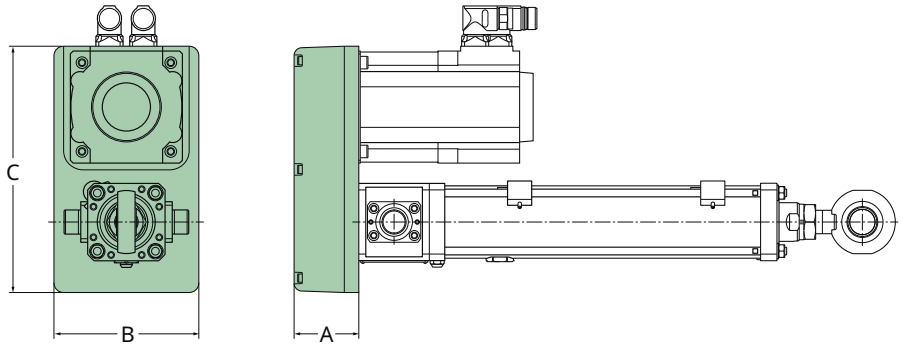
| LEMC | Adapter | d | D | | L | PCD | M | A | B | Max. torque | Moment of inertia | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | mm | | mm | mm | – | mm | mm | Nm | $10^{-4}$ kg · m² | kg |
| 21 | L1019110L | 19 | 110 H8 | 0 −0.054 | 40 to 50 | 130 | M8 | 112 | 120 | 60 | 1.6 | 1.7 |
| 21 | L1024110L | 24 | 110 H8 | 0 −0.054 | 40 to 50 | 130 | M8 | 112 | 120 | 60 | 1.6 | 1.7 |
| 30 | L1019110L | 19 | 110 H8 | 0 −0.054 | 40 to 50 | 130 | M8 | 106 | 120 | 60 | 1.6 | 2.9 |
| 30 | L1024110L | 24 | 110 H8 | 0 −0.054 | 40 to 50 | 130 | M8 | 106 | 120 | 60 | 1.6 | 2.9 |
| 30 | L1024130L | 24 | 130 H8 | 0 −0.063 | 50 to 58 | 165 | M10 | 118 | 150 | 120 | 3 | 2.6 |
| 30 | L1028130L | 28 | 130 H8 | 0 −0.063 | 50 to 60 | 165 | M10 | 126.5 | 150 | 120 | 3 | 2.6 |
| 30 | L1032130L | 32 | 130 H8 | 0 −0.063 | 50 to 58 | 165 | M10 | 118 | 150 | 120 | 3 | 2.6 |

## Parallel adapter

5 Motor




6 Parallel interface




8 Third party motors, parallel adapter

| LEMC | Adapter | d | D | | L | PCD | M | A | B | C | Max. torque | Moment of inertia | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | mm | | mm | mm | – | mm | mm | mm | Nm | $10^{-4}$ kg · $m^2$ | kg |
| 21 | P1019110L | 19 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 67 | 150 | 255 | 40 | 14.4 | 3.5 |
| 21 | P1024110L | 24 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 67 | 150 | 255 | 40 | 14.4 | 3.5 |
| 21 | P1519110L | 19 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 67 | 150 | 255 | 25 | 7.55 | 3.4 |
| 21 | P1524110L | 24 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 67 | 150 | 255 | 25 | 7.55 | 3.4 |
| 21 | P2019110L | 19 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 67 | 150 | 255 | 20 | 9.55 | 4.3 |
| 21 | P2024110L | 24 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 67 | 150 | 255 | 20 | 9.55 | 4.3 |
| 30 | P1019110L | 19 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 55 | 37.6 | 5.8 |
| 30 | P1024110L | 24 | 110 G8 | +0.012<br>+0.066 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 55 | 37.6 | 5.8 |
| 30 | P1024130L | 24 | 130 G8 | +0.014<br>+0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 55 | 37.6 | 5.6 |
| 30 | P1024130H | 24 | 130 G8 | +0.014<br>+0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 90 | 37.6 | 5.6 |
| 30 | P1028130L | 28 | 130 G8 | +0.014<br>+0.077 | 50 to 60 | 165 | M10 | 72 | 180 | 325 | 55 | 37.6 | 5.6 |
| 30 | P1028130H | 28 | 130 G8 | +0.014<br>+0.077 | 50 to 60 | 165 | M10 | 72 | 180 | 325 | 90 | 37.6 | 5.6 |
| 30 | P1032130L | 32 | 130 G8 | +0.014<br>+0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 55 | 37.6 | 5.6 |

| LEMC | Adapter | d | D | | L | PCD | M | A | B | C | Max. torque | Moment of inertia | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | mm | | mm | mm | – | mm | mm | mm | Nm | $10^{-4}$ kg · m² | kg |
| 30 | P1032130H | 32 | 130 G8 | +0.014 +0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 90 | 37.6 | 5.6 |
| 30 | P1519110L | 19 | 110 G8 | +0.012 +0.06 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 40 | 27.5 | 6.3 |
| 30 | P1524110L | 24 | 110 G8 | +0.012 +0.06 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 40 | 27.5 | 6.3 |
| 30 | P1524130H | 24 | 110 G8 | +0.012 +0.06 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 100 | 70.3 | 9 |
| 30 | P1528130H | 28 | 130 G8 | +0.014 +0.077 | 50 to 60 | 165 | M10 | 72 | 180 | 325 | 100 | 70.3 | 9 |
| 30 | P1532130H | 32 | 130 G8 | +0.014 +0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 100 | 70.3 | 9 |
| 30 | P2019110L | 19 | 110 G8 | +0.012 +0.06 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 35 | 25 | 7 |
| 30 | P2019110H | 19 | 110 G8 | +0.012 +0.06 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 70 | 34.5 | 8.5 |
| 30 | P2024110L | 24 | 110 G8 | +0.012 +0.06 | 40 to 50 | 130 | M8 | 72 | 180 | 325 | 35 | 25 | 7 |
| 30 | P2024130H | 24 | 130 G8 | +0.014 +0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 70 | 34.5 | 8.3 |
| 30 | P2028130H | 28 | 130 G8 | +0.014 +0.077 | 50 to 60 | 165 | M10 | 72 | 180 | 325 | 70 | 34.5 | 8.3 |
| 30 | P2032130H | 32 | 130 G8 | +0.014 +0.077 | 50 to 58 | 165 | M10 | 72 | 180 | 325 | 70 | 34.5 | 8.3 |

## Parallel gearboxes

7 Parallel gearboxes

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Parallel gearbox consists of one housing which fits on one side to the linear unit and on the other side to the motor adapter with the matching coupling. The coupling is already mounted on the input shaft of the gearbox and locked by a screw. The counterpart of the coupling is delivered with the motor adapter.

The parallel gearbox transmits the motor torque through the three-stage spur gear directly to the linear unit (max. output torque 300). Three gear ratios are available and the gearbox is maintenance free.

9 Technical data – parallel gearboxes

| Gearbox type | | CAM-GS-CBA-.. | CAM-GS-CCA-.. | CAM-GS-CDA-.. |
|---|---|---|---|---|
| Short designation | Unit | | | |
| Type | – | Parallel | Parallel | Parallel |
| Gear reduction | – | 3.89 | 9.82 | 24.95 |
| Nominal output torque | Nm | 100 | 100 | 100 |

| Gearbox type | | CAM-GS-CBA-.. | CAM-GS-CCA-.. | CAM-GS-CDA-.. |
|---|---|---|---|---|
| **Short designation** | **Unit** | | | |
| Max. output torque | Nm | 300 | 300 | 300 |
| Max. input power | W | 3000 | 3000 | 3000 |
| Max. input speed | r/min | 4500 | 4500 | 4500 |
| Efficiency | % | 85 | 85 | 85 |
| Mass | kg | 9 | 9 | 9 |
| Length | mm | 98.5 | 98.5 | 98.5 |

## Manual override

The parallel gearbox has a manual override as built-in functionality. The gearbox can be manually operated through a hexagonal key located on the gearbox motor axis. As standard, access to this key is covered by a plate.

8 Closed cover for parallel gearbox


| | | |
|---|---|---|
| 1 | Plate | |

9 Round opening for direct access for parallel gearbox


On request, it is possible to have a round opening for direct access.

10 Electromagnetic brake for parallel gearbox

001D5444

On request, it is possible to install an electromagnetic brake.

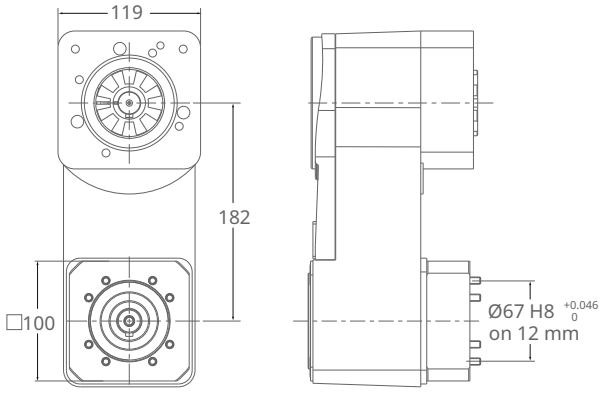
11 Centrifugal brake for parallel gearbox


001BB7DA

| | |
|---|---|
| 1 | Centrifugal brake |

On request, it is possible to install a centrifugal brake.

12 Dimensions for parallel gearboxes

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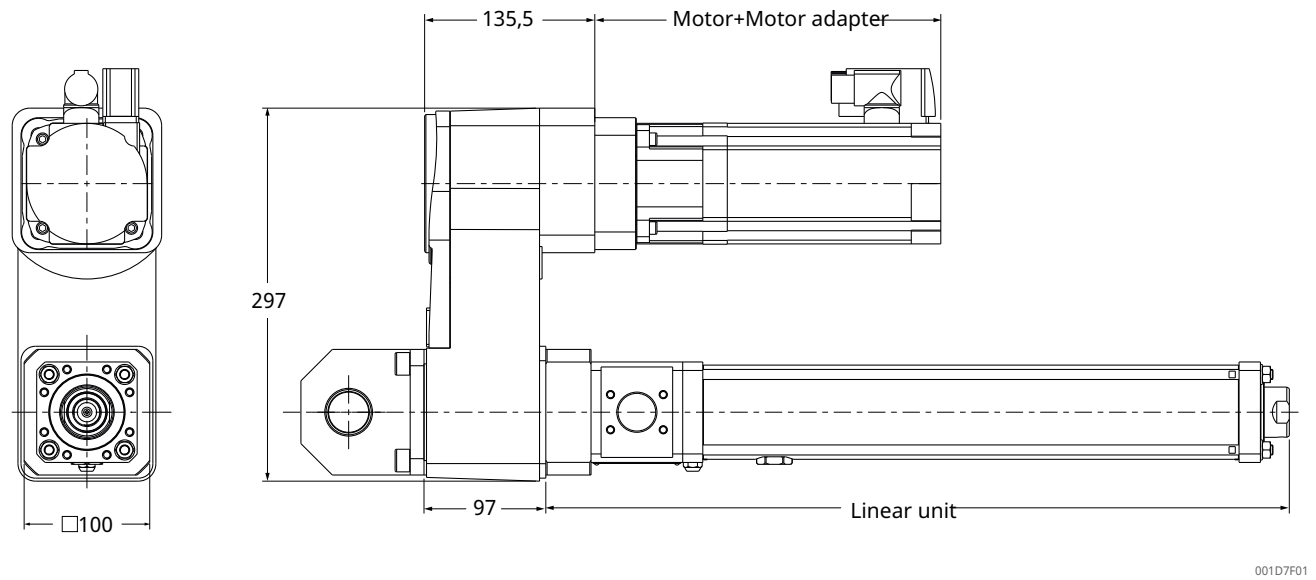
All dimensions in mm

13 Complete actuator




All dimensions in mm

## Manuals

Supporting documents are available for download from medias.

medias | Product catalog |
medias.schaeffler.com

## 3D models

Product configurators for 3D models are available to download from medias.

medias | Product catalog |
medias.schaeffler.com

# 3 LEMC-U, linear unit

## 3.1 LEMC-U-21, linear unit



14 Linear unit LEMC-U-21

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10 Technical data LEMC-U-21

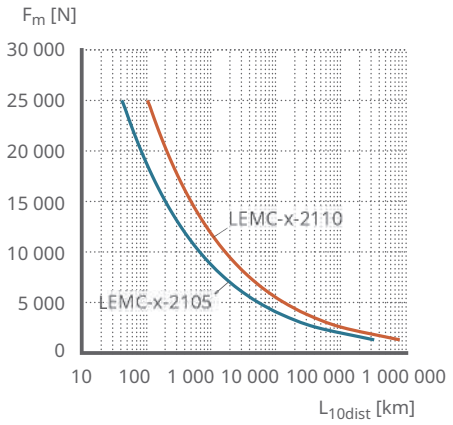
| Designation | Symbol | Unit | LEMC-U-2105 | LEMC-U-2110 |
|---|---|---|---|---|
| **Performance data** | | | | |
| Max. dynamic axial force | $F_{max}$ | kN | 40 | 40 |
| Max. dynamic axial force L10 [1] | $F_{L10}$ | kN | 25 | 25 |
| Max. static axial force | $F_{0\,max}$ | kN | 40 | 40 |
| Dynamic load capacity | C | kN | 50.5 | 54.3 |
| Torque to reach $F_{max}$ | $M_{max}$ | Nm | 41.7 | 84.4 |
| Max. linear speed | $v_{max}$ | mm/s | 500 | 1000 |
| Max. speed | $n_{max}$ | $min^{-1}$ | 6000 | 6000 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 6 | 12 |
| Duty cycle | $D_{unit}$ | % | 100 | 100 |
| **Mechanical data** | | | | |
| Screw drive type | – | – | Roller screw drive | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 10 |
| Lead accuracy | – | – | G5 | G5 |
| Stroke [2] | S | mm | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.04 |
| Efficiency | $\eta_{lu}$ | % | 76 | 75 |
| Moment of inertia at 0 mm stroke | $J_{lu}$ | $10^{-4}\ kg \cdot m^2$ | 1.45 | 1.45 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}\ kg \cdot m^2$ | 0.15 | 0.15 |
| at 0 mm stroke | $m_{lu}$ | kg | 7.3 | 7.3 |
| Δ per 100 mm stroke | Δm | kg | 1.2 | 1.2 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.9 | 0.9 |
| **Ambient** | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S |

1) Maximum dynamic axial force for application of the theoretical life calculation $L_{10}$

2) In increments of 100 mm

## Life diagram

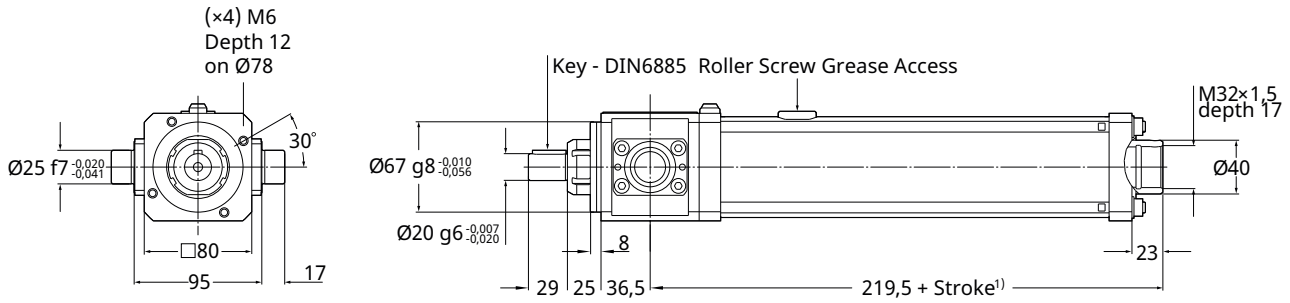
15 Life diagram LEMC-U-21




| | | | |
|---|---|---|---|
| $F_m$ | Equivalent dynamic axial load | $L_{10dist}$ | Service life distance |

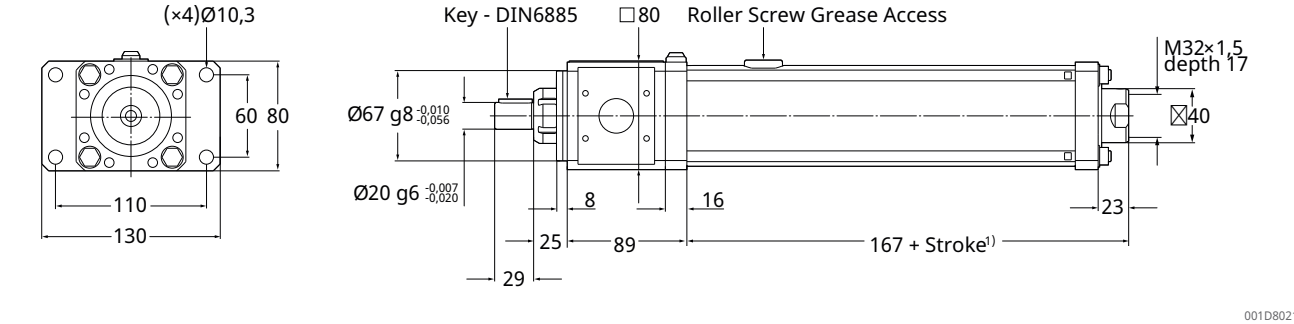
## Dimensional drawings

16 LEMC-U-21..-..-TNN..-NNN (trunnion mount)



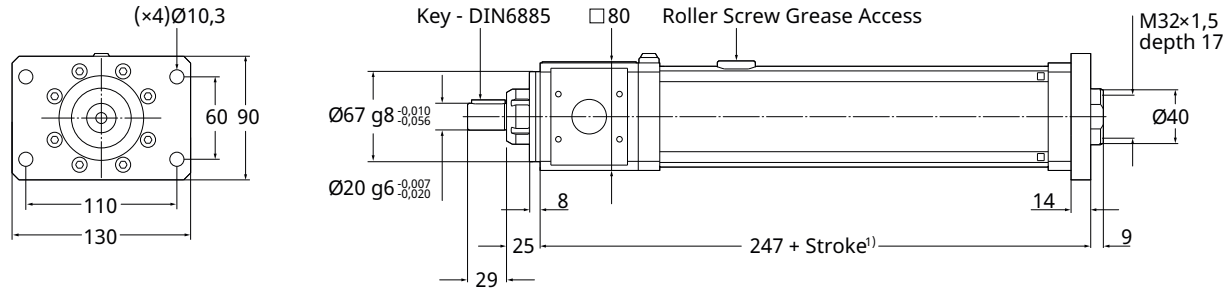

1) For the anti-rotation device option, add 30 mm.

17 LEMC-U-21..-..-BNN..-NNN (rear plate)



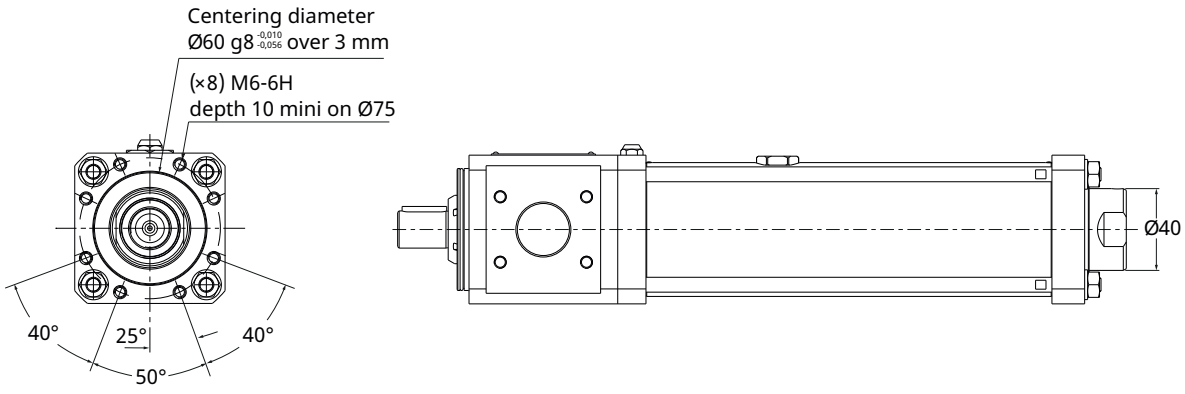

1) For the anti-rotation device option, add 30 mm.

18 LEMC-U-21..-..-FNN..-NNN (front plate)

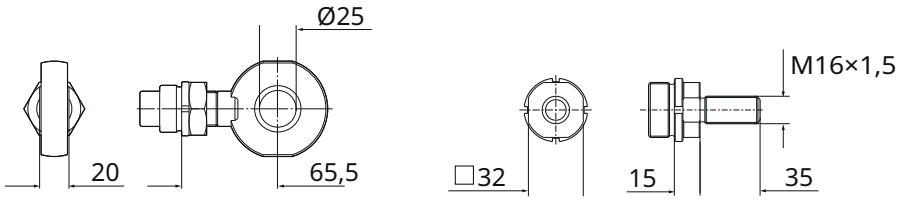



1) For the anti-rotation device option, add 30 mm.

19 LEMC-U-21..-..-NNN..-NNN




20 LEMC-U-21..-..-..R.. (rod spherical plain bearing) and LEMC-U-21..-..-..M.. (fastening with external thread)




## Ordering designation

See ordering designation for linear unit LEMC-U-21/30 ➤53|6.1.

# 3.2 LEMC-U-30, linear unit

21 Linear unit LEMC-U-30

11 Technical data LEMC-U-30

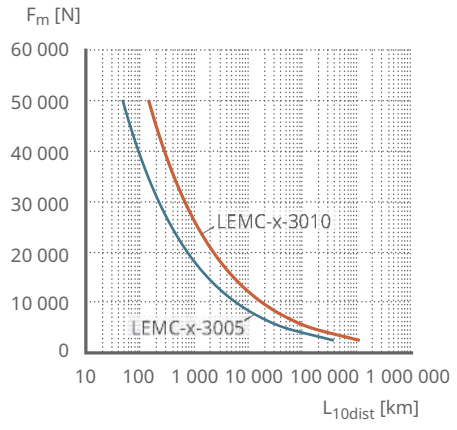
| Designation | Symbol | Unit | LEMC-U-3005 | LEMC-U-3010 |
|---|---|---|---|---|
| **Performance data** | | | | |
| Max. dynamic axial force | $F_{max}$ | kN | 80 | 80 |
| Max. dynamic axial force L10 [1] | $F_{L10}$ | kN | 50 | 50 |
| Max. static axial force | $F_{0\ max}$ | kN | 80 | 80 |
| Dynamic load capacity | C | kN | 106 | 122 |
| Torque to reach $F_{max}$ | $M_{max}$ | Nm | 87.1 | 161.5 |
| Max. linear speed | $v_{max}$ | mm/s | 440 | 880 |
| Max. speed | $n_{max}$ | $min^{-1}$ | 5280 | 5280 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 6 | 12 |
| Duty cycle | $D_{unit}$ | % | 100 | 100 |
| **Mechanical data** | | | | |
| Screw drive type | – | – | Roller screw drive | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 10 |
| Lead accuracy | – | – | G5 | G5 |
| Stroke [2] | S | mm | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.04 |
| Efficiency | $\eta_{lu}$ | % | 73 | 79 |
| Moment of inertia at 0 mm stroke | $J_{lu}$ | $10^{-4}\ kg \cdot m^2$ | 5 | 5 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}\ kg \cdot m^2$ | 0.65 | 0.65 |
| at 0 mm stroke | $m_{lu}$ | kg | 14.7 | 14.7 |
| Δ per 100 mm stroke | Δm | kg | 2.1 | 2.1 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.3 | 1.3 |
| **Ambient** | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S |

1) Maximum dynamic axial force for application of the theoretical life calculation $L_{10}$

2) In increments of 100 mm

## Life diagram

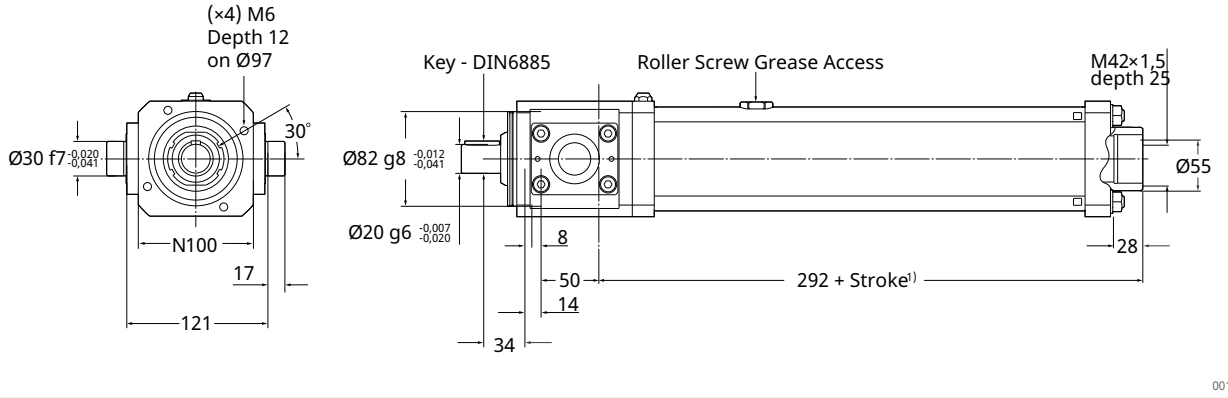
22 Life diagram LEMC-U-30




| | | | |
|---|---|---|---|
| $F_m$ | Equivalent dynamic axial load | $L_{10dist}$ | Service life distance |

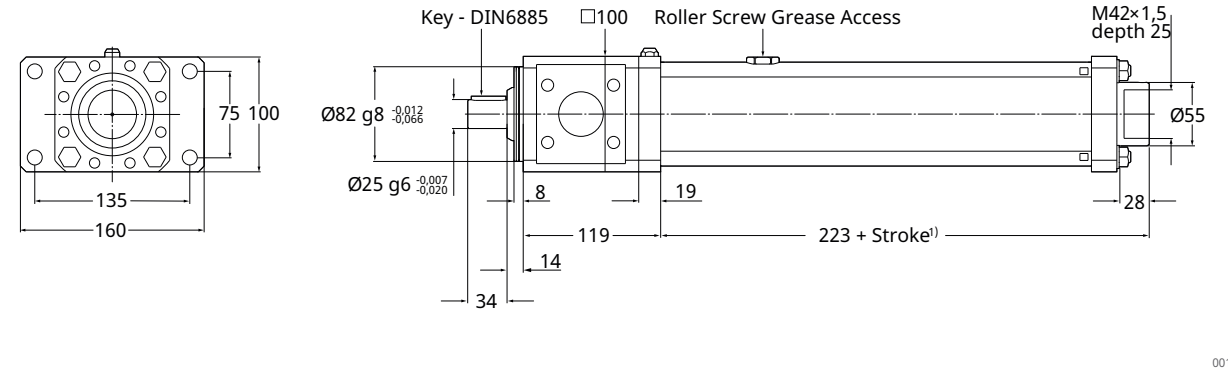
## Dimensional drawings

### 23 LEMC-U-30..-..-TNN..-NNN (trunnion mount)



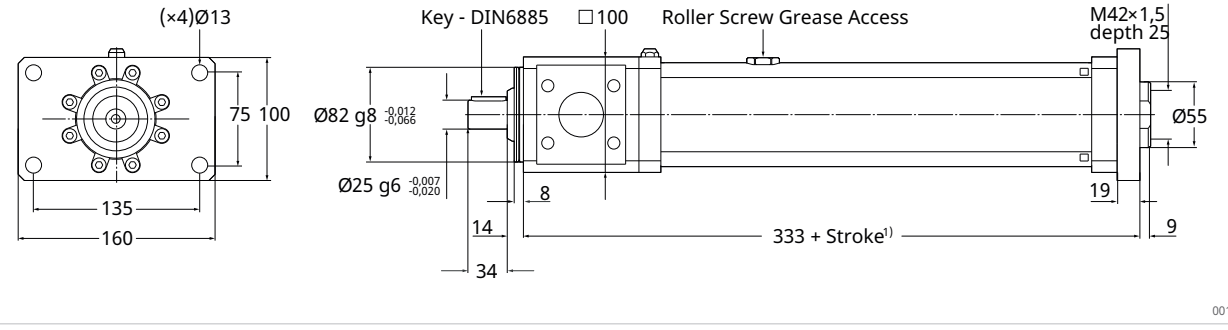

1) For the anti-rotation device option, add 30 mm.

### 24 LEMC-U-30..-..-BNN..-NNN (rear plate)



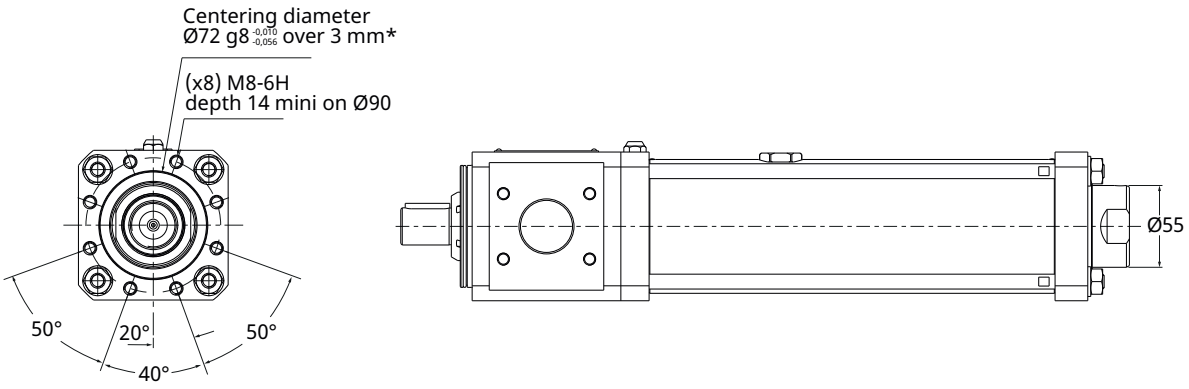

1) For the anti-rotation device option, add 30 mm.

### 25 LEMC-U-30..-..-FNN..-NNN (front plate)

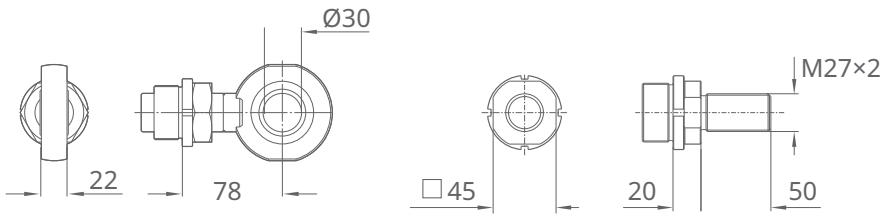



1) For the anti-rotation device option, add 30 mm.

26 LEMC-U-30..-..-NNN..-NNN




27 LEMC-U-30..-..-..R.. (rod spherical plain bearing) and LEMC-U-30..-..-..M.. (fastening with external thread)




## Ordering designation

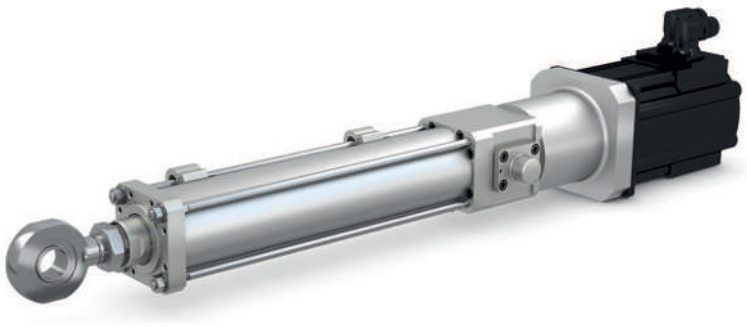
See ordering designation for linear unit LEMC-U-21/30 ➤53|6.1.

# 4 LEMC-S, electromechanical linear actuator, servo-motor

## 4.1 LEMC-S-2105, electromechanical linear actuator, servo-motor, inline configuration



28 Electromechanical linear actuator LEMC-S-2105, inline configuration



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12 Technical data for LEMC-S-2105, inline configuration

| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 | L10 | L10 | L10 | L10 | L10 |
| | | | LA1 | LA2 | LA3 | LA4 | LA5 | LA6 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 6.1 | 6.1 | 10.9 | 10.9 | 14.4 | 14.4 |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 5.3 | 4.1 | 9.6 | 7.2 | 13.0 | 10.6 |
| Peak force at zero speed | $F_{p0}$ | kN | 17.3 | 17.3 | 27.8 | 27.8 | 33.5 | 31 |
| Peak force at max. speed | $F_{p\ vmax}$ | kN | 5.9 | 6.6 | 13.9 | 13 | 16.3 | 22.2 |
| Dynamic load capacity | C | kN | 50.5 | 50.5 | 50.5 | 50.5 | 50.5 | 50.5 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 17.1 | 17.1 | 17.1 | 17.1 | 17.1 | 17.1 |
| Max. linear speed | $v_{max}$ | mm/s | 163 | 338 | 125 | 294 | 163 | 338 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 6 | 6 | 6 | 6 | 6 | 6 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 | 21 | 21 | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1)] | S | mm | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Gear reduction | i | – | 1 | 1 | 1 | 1 | 1 | 1 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · $m^2$ | 7.05 | 7.05 | 10.40 | 10.40 | 13.70 | 13.70 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · $m^2$ | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · $m^2$ | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 |
| at 0 mm stroke | m | kg | 15.3 | 15.3 | 18.4 | 18.4 | 21.5 | 21.5 |
| Δ per 100 mm stroke | Δm | kg | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |

| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 | L10 | L10 | L10 | L10 | L10 |
| | | | LA1 | LA2 | LA3 | LA4 | LA5 | LA6 |
| Rated current | I | A | 2.7 | 5.5 | 4.1 | 8.2 | 6.2 | 12.4 |
| Peak current | $I_{peak}$ | A | 10 | 20 | 12 | 24 | 16.8 | 31.2 |
| Rated power | P | kW | 1.12 | 1.82 | 1.57 | 2.77 | 2.76 | 4.67 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

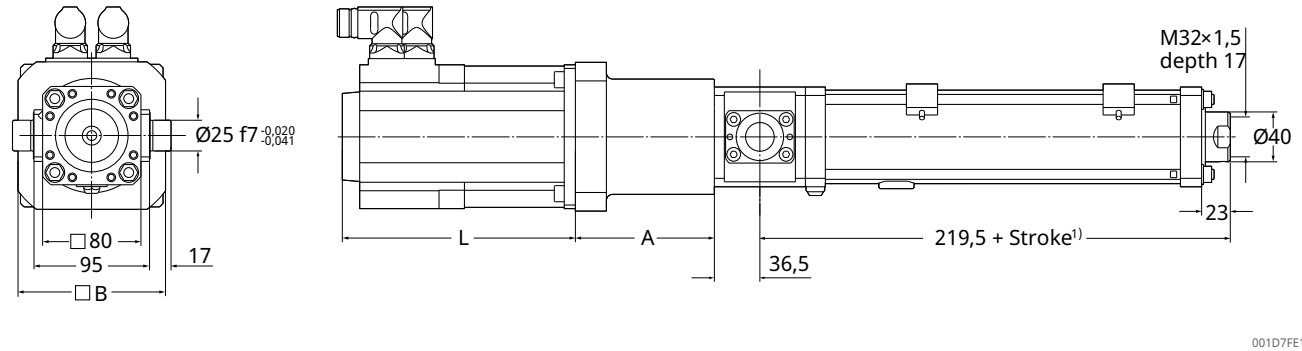
4

1) In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

29 Dimensions of electromechanical linear actuator LEMC-S-2105, inline configuration




1) For the anti-rotation device option, add 30 mm

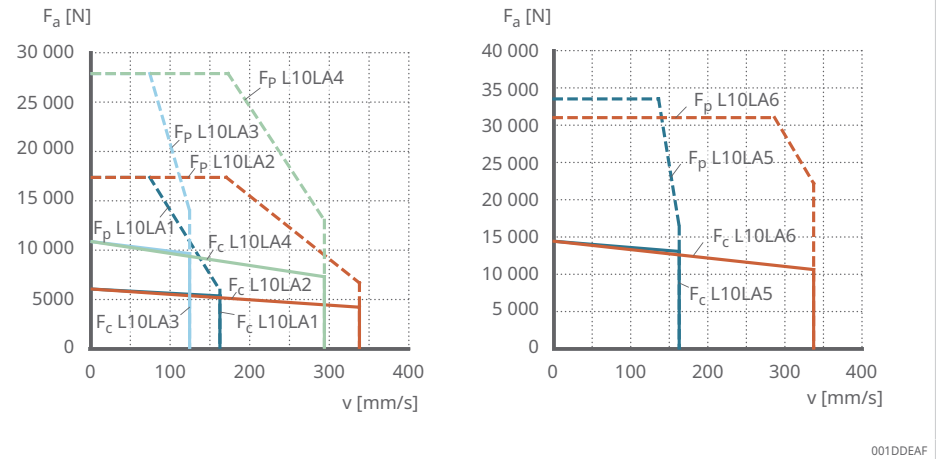
13 Dimensions of electromechanical linear actuator LEMC-S-2105, inline configuration

| Reference | L2) | A | B |
|---|---|---|---|
| | mm | mm | mm |
| L10LA1 | 188 | 112 | 120 |
| L10LA2 | 188 | 112 | 120 |
| L10LA3 | 228 | 112 | 120 |
| L10LA4 | 228 | 112 | 120 |
| L10LA5 | 268 | 112 | 120 |
| L10LA6 | 268 | 112 | 120 |

2) For the brake option, add 20 mm. For the absolute encoder option, add 49 mm.

## Performance diagrams

30 Performance diagrams LEMC-S-2105, inline configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

For life diagram ➤16|15

## Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

# 4.2 LEMC-S-2105, electromechanical linear actuator, servo-motor, parallel configuration

31 Electromechanical linear actuator LEMC-S-2105, parallel configuration


14 Technical data LEMC-S-2105, parallel configuration

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P10 | P10 | P10 | P10 | P15 | P10 |
| | | | LA1 | LA2 | LA3 | LA4 | LA9 | LA6 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 6 | 6 | 10.6 | 10.6 | 13.5 | 14 |
| Continuous force at max. speed | $F_{c\,vmax}$ | kN | 5.1 | 4 | 9.3 | 7 | 10.5 | 10.2 |
| Peak force at zero speed | $F_{p0}$ | kN | 16.8 | 16.8 | 27 | 27 | 29.3 | 30.1 |
| Peak force at max. speed | $F_{p\,vmax}$ | kN | 5.7 | 6.4 | 13.5 | 12.6 | 18.9 | 21.5 |
| Dynamic load capacity | C | kN | 50.5 | 50.5 | 50.5 | 50.5 | 50.5 | 50.5 |

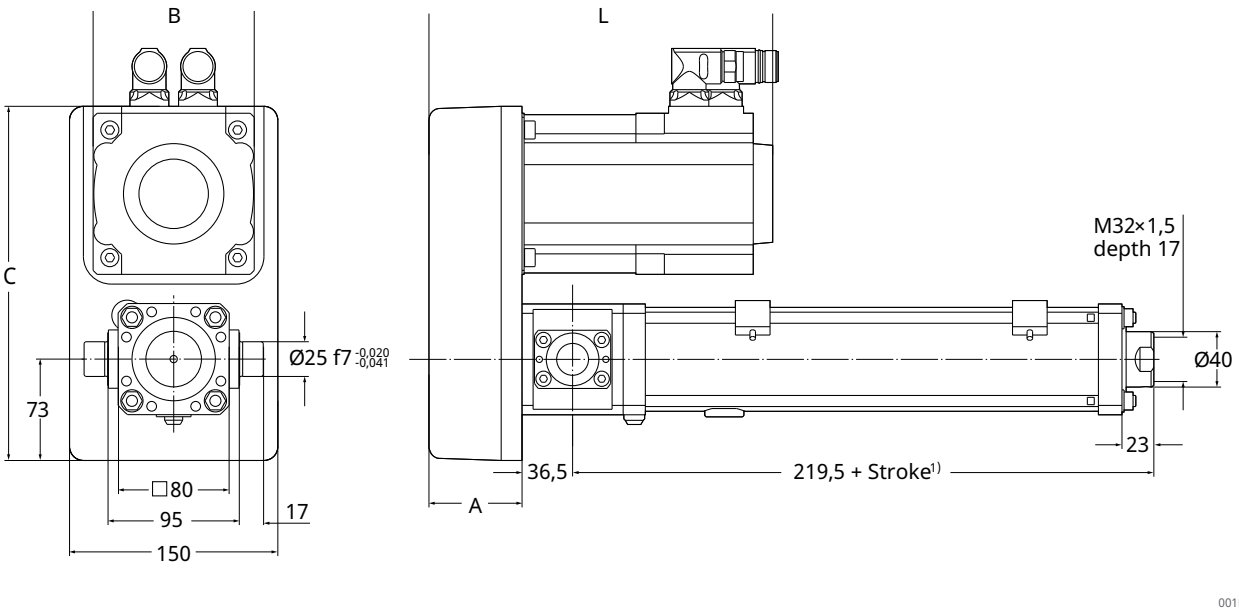
| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P10 | P10 | P10 | P10 | P15 | P10 |
| | | | LA1 | LA2 | LA3 | LA4 | LA9 | LA6 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 17.6 | 17.6 | 17.6 | 17.6 | 26.5 | 17.6 |
| Max. linear speed | $v_{max}$ | mm/s | 163 | 338 | 125 | 294 | 194 | 338 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 6 | 6 | 6 | 6 | 6 | 6 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 | 21 | 21 | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1] | S | mm | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Gear reduction | i | – | 1 | 1 | 1 | 1 | 1.5 | 1 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · $m^2$ | 19.9 | 19.90 | 23.20 | 23.20 | 15.50 | 26.50 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · $m^2$ | 0.15 | 0.15 | 0.15 | 0.15 | 0.07 | 0.15 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · $m^2$ | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 |
| at 0 mm stroke | m | kg | 17.2 | 17.2 | 20.3 | 20.3 | 20.2 | 23.4 |
| Δ per 100 mm stroke | Δm | kg | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 2.7 | 5.5 | 4.1 | 8.2 | 7 | 12.4 |
| Peak current | $I_{peak}$ | A | 10 | 20 | 12 | 24 | 16.8 | 31.2 |
| Rated power | P | kW | 1.12 | 1.82 | 1.57 | 2.77 | 2.75 | 4.67 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

[1] In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

32 Dimensions of electromechanical linear actuator LEMC-S-2105, parallel configuration




1) For the anti-rotation device option, add 30 mm

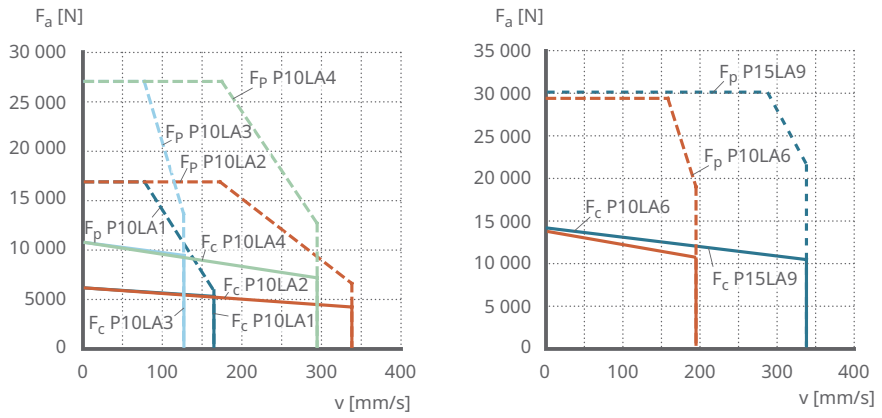
15 Dimensions of electromechanical linear actuator LEMC-S-2105, parallel configuration

| Reference | L2) | A | B | C |
|---|---|---|---|---|
| | mm | mm | mm | mm |
| P10LA1 | 247.5 | 67 | 116 | 255 |
| P10LA2 | 247.5 | 67 | 116 | 255 |
| P10LA3 | 287.5 | 67 | 116 | 255 |
| P10LA4 | 287.5 | 67 | 116 | 255 |
| P15LA9 | 287.5 | 67 | 116 | 255 |
| P10LA6 | 327.5 | 67 | 116 | 255 |

2) For the brake option, add 20 mm. For the absolute encoder option, add 49 mm.

## Performance diagrams

33 Performance diagrams for LEMC-S-2105, parallel configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

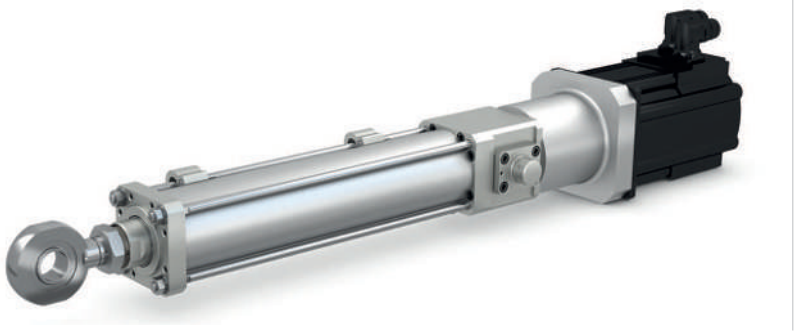
For life diagram ➤16|15

## Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

# 4.3 LEMC-S-2110, electromechanical linear actuator, servo-motor, inline configuration

34 Electromechanical linear actuator LEMC-S-2110, inline configuration




16 Technical data for LEMC-S-2110, inline configuration

| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 LA1 | L10 LA2 | L10 LA3 | L10 LA4 | L10 LA7 | L10 LA8 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 3 | 3 | 5.4 | 5.4 | 7.1 | 7.1 |
| Continuous force at max. speed | $F_{c\,vmax}$ | kN | 2.6 | 2 | 4.7 | 3.6 | 6.4 | 5.2 |
| Peak force at zero speed | $F_{p0}$ | kN | 8.5 | 8.5 | 13.7 | 13.7 | 26.5 | 26.1 |
| Peak force at max. speed | $F_{p\,vmax}$ | kN | 2.9 | 3.3 | 6.9 | 6.4 | 8.1 | 10.9 |
| Dynamic load capacity | C | kN | 54.3 | 54.3 | 54.3 | 54.3 | 54.3 | 54.3 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 8.7 | 8.7 | 8.7 | 8.7 | 8.7 | 8.7 |
| Max. linear speed | $v_{max}$ | mm/s | 325 | 675 | 250 | 588 | 325 | 675 |

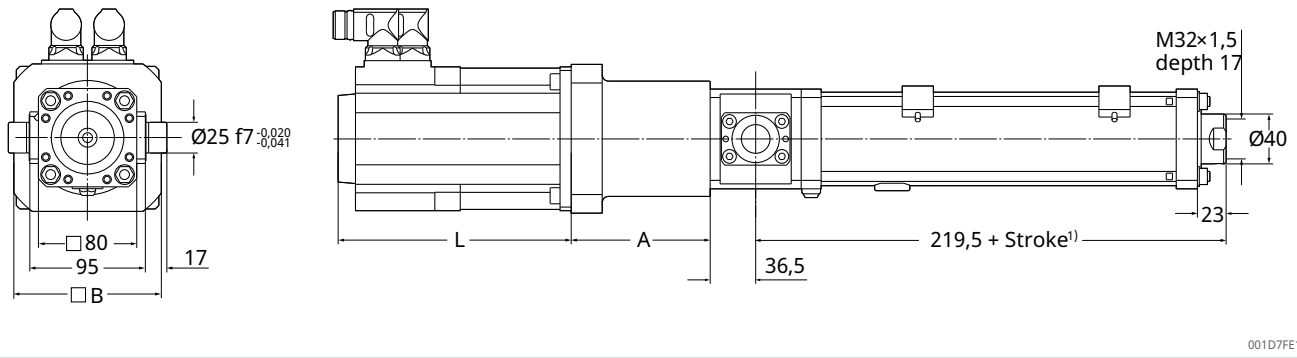
| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 | L10 | L10 | L10 | L10 | L10 |
| | | | LA1 | LA2 | LA3 | LA4 | LA7 | LA8 |
| Max. acceleration | $a_{max}$ | m/s² | 12 | 12 | 12 | 12 | 12 | 12 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 | 21 | 21 | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 10 | 10 | 10 | 10 | 10 | 10 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1] | S | mm | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Gear reduction | i | – | 1 | 1 | 1 | 1 | 1 | 1 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · m² | 7.05 | 7.05 | 10.40 | 10.40 | 13.70 | 13.70 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · m² | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · m² | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 |
| at 0 mm stroke | m | kg | 15.3 | 15.3 | 18.4 | 18.4 | 21.5 | 21.5 |
| Δ per 100 mm stroke | Δm | kg | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 2.7 | 5.5 | 4.1 | 8.2 | 6.2 | 12.4 |
| Peak current | $I_{peak}$ | A | 10 | 20 | 12 | 24 | 28 | 56 |
| Rated power | P | kW | 1.12 | 1.82 | 1.57 | 2.77 | 2.76 | 4.67 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

[1] In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

35 Dimensions of electromechanical linear actuator LEMC-S-2110, inline configuration




[1] For the anti-rotation device option, add 30 mm

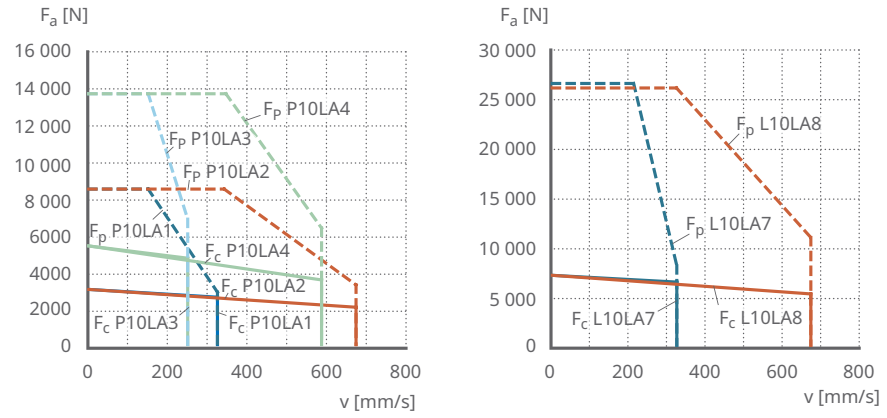
17 Dimensions of electromechanical linear actuator LEMC-S-2110, inline configuration

| Reference | L[2)] | A | B |
|---|---|---|---|
| | mm | mm | mm |
| L10LA1 | 188 | 112 | 120 |
| L10LA2 | 188 | 112 | 120 |
| L10LA3 | 228 | 112 | 120 |
| L10LA4 | 228 | 112 | 120 |
| L10LA7 | 268 | 112 | 120 |
| L10LA8 | 268 | 112 | 120 |

[2)] For the brake option, add 20 mm. For the absolute encoder option, add 49 mm.

## Performance diagrams

36 Performance diagrams LEMC-S-2110, inline configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

For life diagram ➤16|15

## Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

## 4.4 LEMC-S-2110, electromechanical linear actuator, servo-motor, parallel configuration

37 Electromechanical linear actuator LEMC-S-2110, parallel configuration

001BEBAA



18 Technical data LEMC-S-2110, parallel configuration

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P10 | P10 | P10 | P20 | P10 | P20 |
| | | | LA1 | LA2 | LA3 | LA3 | LA4 | LA4 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 2.9 | 2.9 | 5.2 | 10.5 | 5.2 | 10.5 |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 2.5 | 2 | 4.6 | 9.2 | 3.4 | 6.9 |
| Peak force at zero speed | $F_{p0}$ | kN | 8.3 | 8.3 | 13.3 | 26.7 | 13.3 | 26.7 |
| Peak force at max. speed | $F_{p\ vmax}$ | kN | 2.8 | 3.2 | 6.7 | 13.3 | 6.2 | 12.4 |
| Dynamic load capacity | C | kN | 54.3 | 54.3 | 54.3 | 54.3 | 54.3 | 54.3 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 9 | 9 | 9 | 18 | 9 | 18 |
| Max. linear speed | $v_{max}$ | mm/s | 325 | 675 | 250 | 125 | 588 | 294 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 12 | 12 | 12 | 12 | 12 | 12 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 | 21 | 21 | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 10 | 10 | 10 | 10 | 10 | 10 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1)] | S | mm | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Gear reduction | i | – | 1 | 1 | 1 | 2 | 1 | 2 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · $m^2$ | 19.9 | 19.90 | 23.20 | 17.20 | 23.20 | 17.20 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · $m^2$ | 0.15 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · $m^2$ | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 |
| at 0 mm stroke | m | kg | 17.2 | 17.2 | 20.3 | 16.8 | 20.3 | 16.8 |
| Δ per 100 mm stroke | Δm | kg | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 2.7 | 5.5 | 4.1 | 4.1 | 8.2 | 8.2 |
| Peak current | $I_{peak}$ | A | 10 | 20 | 12 | 12 | 24 | 24 |

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P10 | P10 | P10 | P20 | P10 | P20 |
| | | | LA1 | LA2 | LA3 | LA3 | LA4 | LA4 |
| Rated power | P | kW | 1.12 | 1.82 | 1.57 | 1.57 | 2.77 | 2.77 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

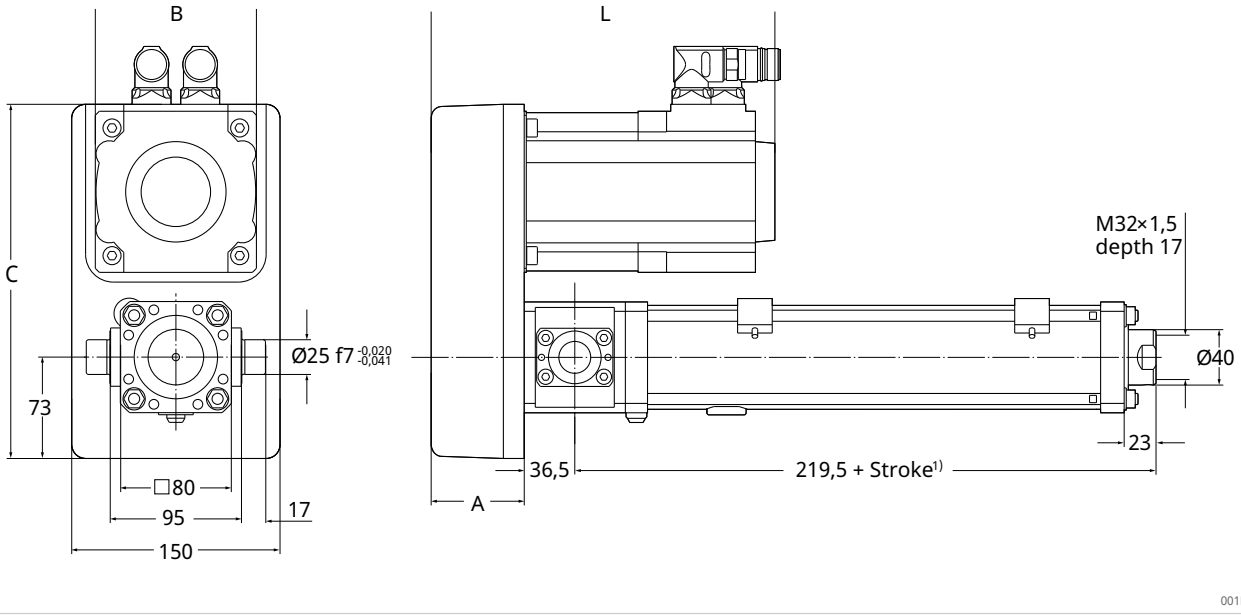
4

1) In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

38 Dimensions of electromechanical linear actuator LEMC-S-2110, parallel configuration




1) For the anti-rotation device option, add 30 mm

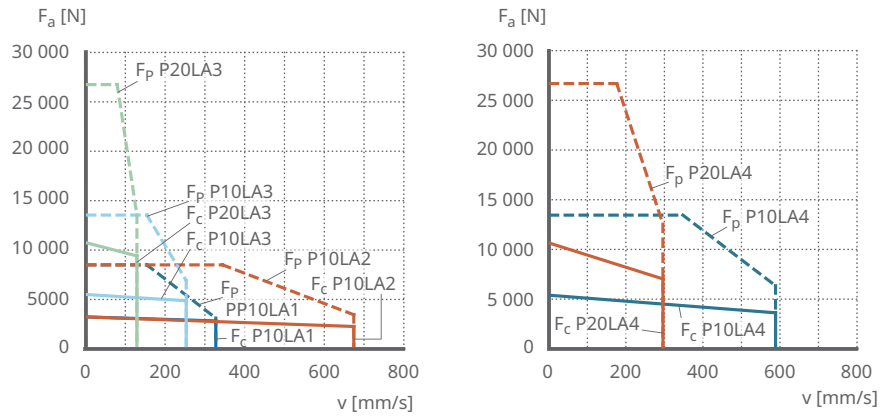
19 Dimensions of electromechanical linear actuator LEMC-S-2110, parallel configuration

| Reference | L2) | A | B | C |
|---|---|---|---|---|
| | mm | mm | mm | mm |
| P10LA1 | 247.5 | 67 | 116 | 255 |
| P10LA2 | 247.5 | 67 | 116 | 255 |
| P10LA3 | 287.5 | 67 | 116 | 255 |
| P20LA3 | 287.5 | 67 | 116 | 255 |
| P10LA4 | 287.5 | 67 | 116 | 255 |
| P20LA4 | 287.5 | 67 | 116 | 255 |

2) For the brake option, add 20 mm. For the absolute encoder option, add 49 mm.

## Performance diagrams

39 Performance diagrams for LEMC-S-2110, parallel configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

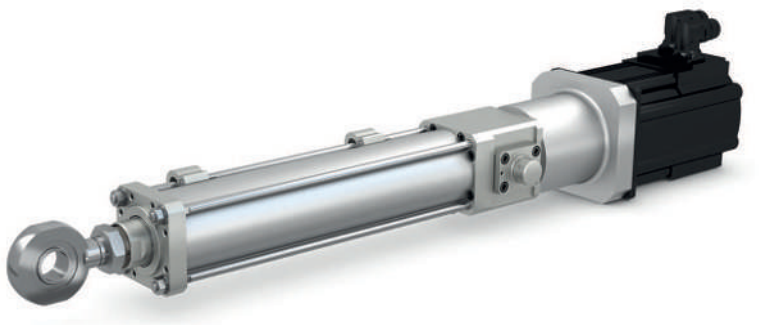
For life diagram ➤16|15

## Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

# 4.5 LEMC-S-3005, electromechanical linear actuator, servo-motor, inline configuration

40 Electromechanical linear actuator LEMC-S-3005, inline configuration




20 Technical data for LEMC-S-3005, inline configuration

| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 LA3 | L10 LA4 | L10 LB1 | L10 LB2 | L10 LB5 | L10 LB6 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 10.5 | 10.5 | 19.3 | 19.3 | 34 | 32.9 |
| Continuous force at max. speed | $F_{c\,vmax}$ | kN | 9.2 | 6.9 | 14.7 | 12.9 | 27.5 | 19.3 |
| Peak force at zero speed | $F_{p0}$ | kN | 26.6 | 26.6 | 50.5 | 50.5 | 69 | 54.9 |
| Peak force at max. speed | $F_{p\,vmax}$ | kN | 13.3 | 12.4 | 17.6 | 18.2 | 31.2 | 24.9 |
| Dynamic load capacity | C | kN | 106 | 106 | 106 | 106 | 106 | 106 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 18.2 | 18.2 | 33.3 | 33.3 | 33.3 | 33.3 |
| Max. linear speed | $v_{max}$ | mm/s | 125 | 294 | 125 | 269 | 113 | 269 |

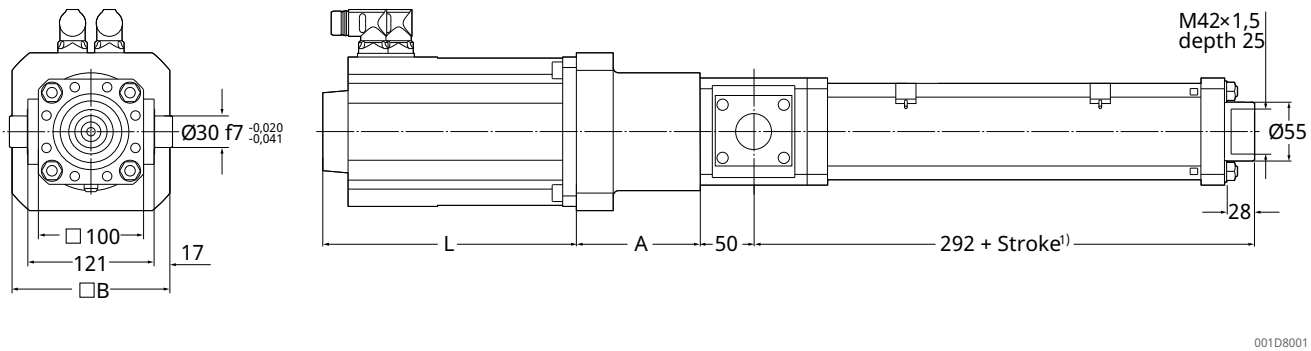
| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 | L10 | L10 | L10 | L10 | L10 |
| | | | LA3 | LA4 | LB1 | LB2 | LB5 | LB6 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 6 | 6 | 6 | 6 | 6 | 6 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 | 30 | 30 | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1] | S | mm | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.02 | 0.020 | 0.02 | 0.02 | 0.02 |
| Gear reduction | i | – | 1 | 1 | 1 | 1 | 1 | 1 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · $m^2$ | 13.90 | 13.90 | 22.2 | 22.20 | 42.70 | 42.70 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · $m^2$ | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · $m^2$ | 1.07 | 1.07 | 3.20 | 3.20 | 3.20 | 3.20 |
| at 0 mm stroke | m | kg | 27.1 | 27.1 | 33.1 | 33.1 | 42.5 | 42.5 |
| Δ per 100 mm stroke | Δm | kg | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 4.1 | 8.2 | 8.5 | 16.9 | 12.2 | 23.5 |
| Peak current | $I_{peak}$ | A | 12 | 24 | 26 | 52 | 31.2 | 47 |
| Rated power | P | kW | 1.57 | 2.77 | 2.51 | 4.73 | 4.24 | 7.09 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

[1] In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

41 Dimensions of electromechanical linear actuator LEMC-S-3005, inline configuration




[1] For the anti-rotation device option, add 30 mm

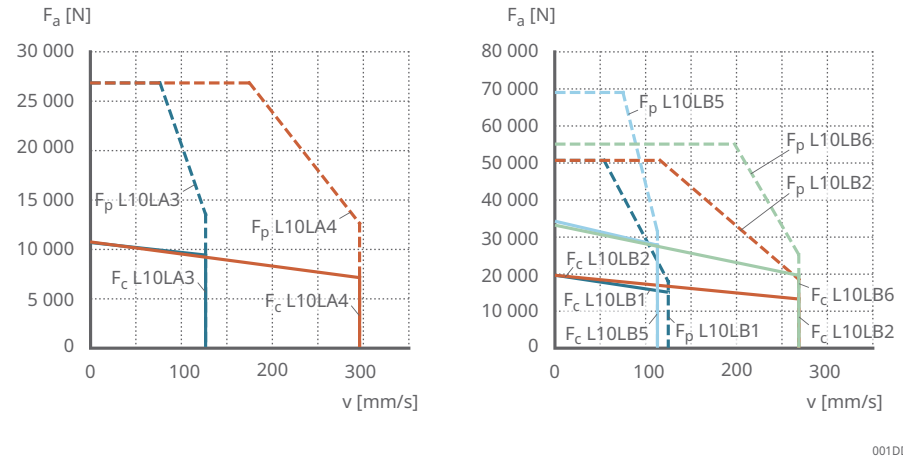
21 Dimensions of electromechanical linear actuator LEMC-S-3005, inline configuration

| Reference | L[2)] | A | B |
|---|---|---|---|
| | mm | mm | mm |
| L10LA3 | 228 | 106 | 120 |
| L10LA4 | 228 | 106 | 120 |
| L10LB1 | 241 | 113 | 150 |
| L10LB2 | 241 | 113 | 150 |
| L10LB5 | 321 | 113 | 150 |
| L10LB6 | 321 | 113 | 150 |

[2)] For the brake option, add 28 mm. For the absolute encoder option, add 50 mm.

## Performance diagrams

42 Performance diagrams LEMC-S-3005, inline configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

For life diagram ➤16|42

## Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

## 4.6 LEMC-S-3005, electromechanical linear actuator, servo-motor, parallel configuration

43 Electromechanical linear actuator LEMC-S-3005, parallel configuration

001BEBAA

22 Technical data LEMC-S-3005, parallel configuration

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P10 | P10 | P15 | P15 | P10 | P10 |
| | | | LA3 | LA4 | LA5 | LA6 | LB5 | LB6 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 10.2 | 10.2 | 20 | 20 | 32.9 | 31.9 |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 8.9 | 6.7 | 18 | 14.7 | 26.7 | 18.7 |
| Peak force at zero speed | $F_{p0}$ | kN | 25.8 | 25.8 | 46.6 | 43.1 | 67 | 53.3 |
| Peak force at max. speed | $F_{p\ vmax}$ | kN | 12.9 | 12 | 22.7 | 30.9 | 30.3 | 24.1 |
| Dynamic load capacity | C | kN | 106 | 106 | 106 | 106 | 106 | 106 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 18.7 | 18.7 | 28.1 | 28.1 | 34.3 | 34.3 |
| Max. linear speed | $v_{max}$ | mm/s | 125 | 294 | 108 | 225 | 113 | 269 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 4.6 | 4.6 | 4.6 | 4.2 | 6 | 6 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 | 30 | 30 | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1)] | S | mm | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Gear reduction | i | – | 1 | 1 | 1.5 | 1.5 | 1 | 1 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · $m^2$ | 49.90 | 49.90 | 40.3 | 40.30 | 77.30 | 77.30 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · $m^2$ | 0.65 | 0.65 | 0.3 | 0.3 | 0.65 | 0.65 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · $m^2$ | 1.07 | 1.07 | 1.07 | 1.07 | 3.20 | 3.20 |
| at 0 mm stroke | m | kg | 29.9 | 29.9 | 33.6 | 33.6 | 45.1 | 45.1 |
| Δ per 100 mm stroke | Δm | kg | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 1.90 | 1.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 4.1 | 8.2 | 6.2 | 12.4 | 12.2 | 23.5 |
| Peak current | $I_{peak}$ | A | 12 | 24 | 16.8 | 31.2 | 31.2 | 47 |

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P10 | P10 | P15 | P15 | P10 | P10 |
| | | | LA3 | LA4 | LA5 | LA6 | LB5 | LB6 |
| Rated power | P | kW | 1.57 | 2.77 | 2.76 | 4.67 | 4.24 | 7.09 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

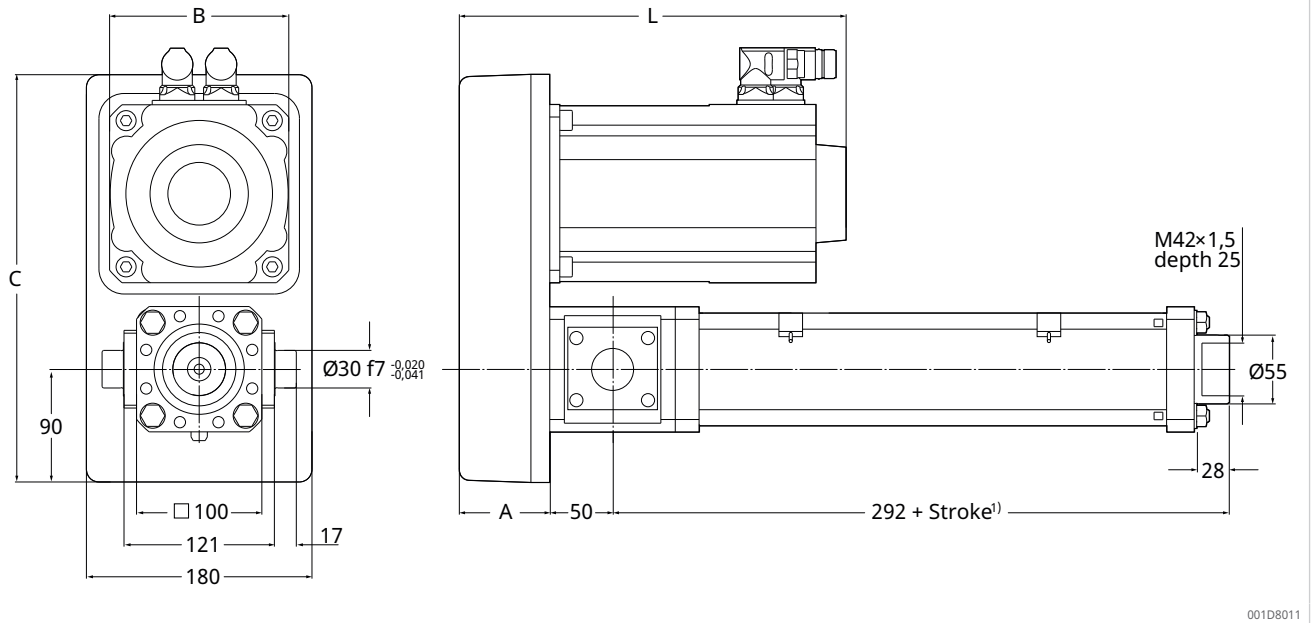
1) In increments of 100 mm



For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

44 Dimensions of electromechanical linear actuator LEMC-S-3005, parallel configuration



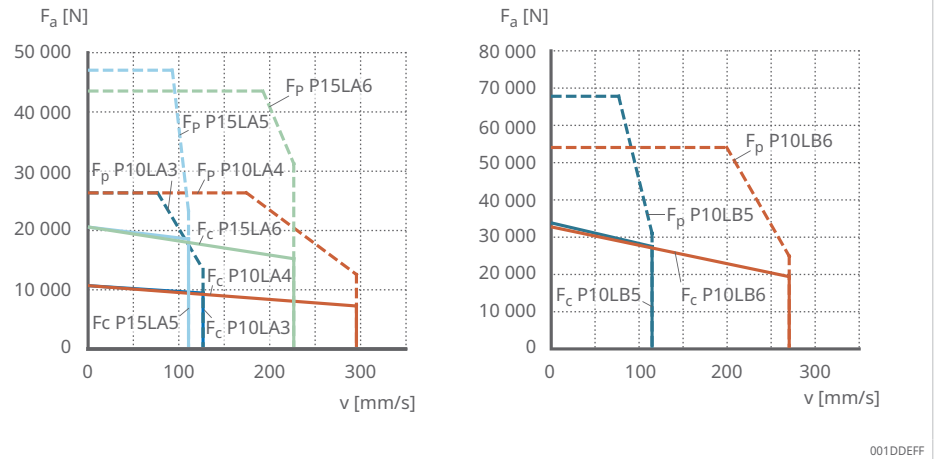

1) For the anti-rotation device option, add 30 mm

23 Dimensions of electromechanical linear actuator LEMC-S-3005, parallel configuration

| Reference | L2) | A | B | C |
|---|---|---|---|---|
| | mm | mm | mm | mm |
| P10LA3 | 292 | 72 | 116 | 325 |
| P10LA4 | 292 | 72 | 116 | 325 |
| P15LA5 | 332 | 72 | 116 | 325 |
| P15LA6 | 332 | 72 | 116 | 325 |
| P10LB5 | 388 | 72 | 143 | 325 |
| P10LB6 | 388 | 72 | 143 | 325 |

2) For the brake option, add 28 mm. For the absolute encoder option, add 50 mm.

### Performance diagrams




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

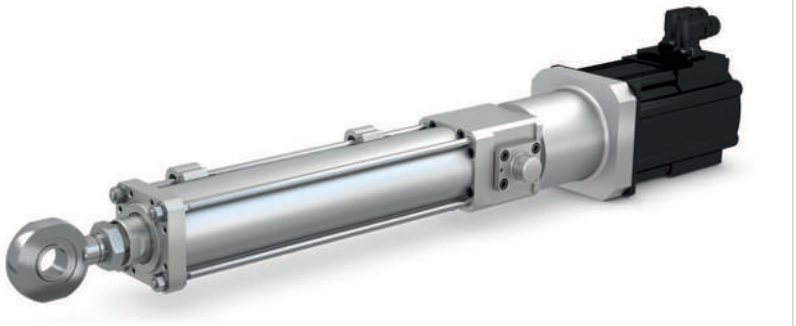
For life diagram ➤16|15

### Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

## 4.7 LEMC-S-3010, electromechanical linear actuator, servo-motor, inline configuration

45 Electromechanical linear actuator LEMC-S-3010, inline configuration




24 Technical data for LEMC-S-3010, inline configuration

| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 | L10 | L10 | L10 | L10 | L10 |
| | | | LA3 | LA4 | LB1 | LB2 | LB7 | LB8 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 5.6 | 5.6 | 10.4 | 10.4 | 18.3 | 18.3 |
| Continuous force at max. speed | $F_{c\,vmax}$ | kN | 5 | 3.7 | 7.9 | 6.9 | 14.9 | 10.4 |
| Peak force at zero speed | $F_{p0}$ | kN | 14.4 | 14.4 | 27.2 | 27.2 | 52 | 52 |
| Peak force at max. speed | $F_{p\,vmax}$ | kN | 7.2 | 6.7 | 9.5 | 9.8 | 16.8 | 13.4 |
| Dynamic load capacity | C | kN | 122 | 122 | 122 | 122 | 122 | 122 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 8.2 | 8.2 | 15.1 | 15.1 | 15.1 | 15.1 |
| Max. linear speed | $v_{max}$ | mm/s | 250 | 588 | 250 | 538 | 225 | 538 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 12 | 12 | 12 | 12 | 12 | 12 |

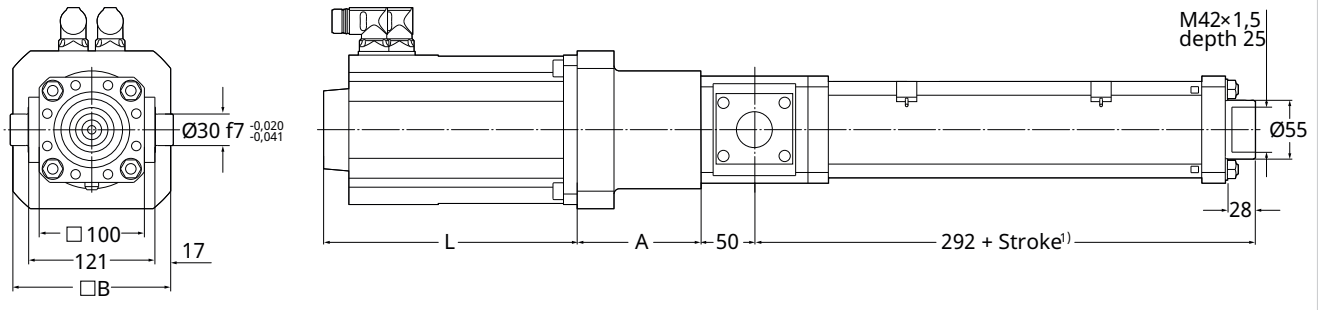
| Designation | Symbol | Unit | Inline adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L10 | L10 | L10 | L10 | L10 | L10 |
| | | | LA3 | LA4 | LB1 | LB2 | LB7 | LB8 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 | 30 | 30 | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 10 | 10 | 10 | 10 | 10 | 10 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1] | S | mm | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Gear reduction | i | – | 1 | 1 | 1 | 1 | 1 | 1 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · m² | 13.90 | 13.90 | 22.20 | 22.20 | 42.70 | 42.70 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · m² | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · m² | 1.07 | 1.07 | 3.20 | 3.20 | 3.20 | 3.20 |
| at 0 mm stroke | m | kg | 27.1 | 27.1 | 33.1 | 33.1 | 42.5 | 42.5 |
| Δ per 100 mm stroke | Δm | kg | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 4.1 | 8.2 | 8.5 | 16.9 | 12.2 | 24.3 |
| Peak current | $I_{peak}$ | A | 12 | 24 | 26 | 52 | 46 | 92 |
| Rated power | P | kW | 1.57 | 2.77 | 2.51 | 4.73 | 4.24 | 7.09 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

[1] In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

46 Dimensions of electromechanical linear actuator LEMC-S-3010, inline configuration




[1] For the anti-rotation device option, add 30 mm

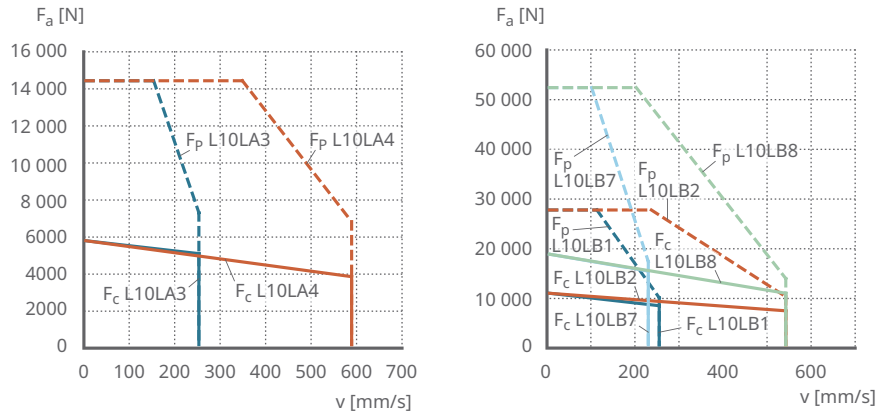
25 Dimensions of electromechanical linear actuator LEMC-S-3010, inline configuration

| Reference | L[2)] | A | B |
|---|---|---|---|
| | mm | mm | mm |
| L10LA3 | 228 | 106 | 120 |
| L10LA4 | 228 | 106 | 120 |
| L10LB1 | 241 | 113 | 150 |
| L10LB2 | 241 | 113 | 150 |
| L10LB7 | 321 | 113 | 150 |
| L10LB8 | 321 | 113 | 150 |

[2)] For the brake option, add 28 mm. For the absolute encoder option, add 50 mm.

## Performance diagrams

47 Performance diagrams LEMC-S-3010, inline configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

For life diagram ➤16|15

## Ordering designation

See ordering designation for linear actuator LEMC-S ➤55|6.2.

## 4.8 LEMC-S-3010, electromechanical linear actuator, servo-motor, parallel configuration

48 Electromechanical linear actuator LEMC-S-3010, parallel configuration

001BEBAA



26 Technical data LEMC-S-3010, parallel configuration

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P20 | P20 | P20 | P20 | P15 | P15 |
| | | | LA1 | LA2 | LA5 | LA6 | LB5 | LC2 |
| **Performance data** | | | | | | | | |
| Continuous force at zero speed | $F_{c0}$ | kN | 6.2 | 6.2 | 14.4 | 14.4 | 26.7 | 26.7 |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 5.3 | 4.1 | 13 | 10.6 | 21.6 | 15.1 |
| Peak force at zero speed | $F_{p0}$ | kN | 17.3 | 17.3 | 33.5 | 31 | 54.2 | 49.6 |
| Peak force at max. speed | $F_{p\ vmax}$ | kN | 5.9 | 6.6 | 16.3 | 22.2 | 24.5 | 19.5 |
| Dynamic load capacity | C | kN | 122 | 122 | 122 | 122 | 122 | 122 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 17 | 17 | 17 | 17 | 23.4 | 23.3 |
| Max. linear speed | $v_{max}$ | mm/s | 163 | 338 | 163 | 338 | 150 | 358 |
| Max. acceleration | $a_{max}$ | $m/s^2$ | 4.7 | 4.7 | 6 | 5.5 | 7.4 | 6.8 |
| Duty cycle | D | % | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mechanical data** | | | | | | | | |
| Screw drive type | – | – | Roller screw drive | | | | | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 | 30 | 30 | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 10 | 10 | 10 | 10 | 10 | 10 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 | G5 | G5 |
| Stroke [1)] | S | mm | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Gear reduction | i | – | 2 | 2 | 2 | 2 | 1.5 | 1.5 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · $m^2$ | 30.20 | 30.2 | 46.30 | 46.30 | 107.00 | 107.00 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · $m^2$ | 0.16 | 0.16 | 0.16 | 0.16 | 0.29 | 0.29 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · $m^2$ | 1.07 | 1.07 | 1.07 | 1.07 | 3.20 | 3.20 |
| at 0 mm stroke | m | kg | 21.1 | 21.1 | 35.8 | 35.8 | 48.5 | 48.5 |
| Δ per 100 mm stroke | Δm | kg | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 | 0.90 | 1.90 | 1.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| **Electrical specifications** | | | | | | | | |
| Motor type | – | – | Servo | | | | | |
| Rated voltage | U | V AC | 400 | 400 | 400 | 400 | 400 | 400 |
| Rated current | I | A | 2.7 | 5.5 | 6.2 | 12.4 | 12.2 | 24.3 |
| Peak current | $I_{peak}$ | A | 10 | 20 | 16.8 | 31.2 | 31.2 | 56 |

| Designation | Symbol | Unit | Parallel adapter and servo-motor | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P20 | P20 | P20 | P20 | P15 | P15 |
| | | | LA1 | LA2 | LA5 | LA6 | LB5 | LC2 |
| Rated power | P | kW | 1.12 | 1.82 | 2.76 | 4.67 | 4.24 | 7.09 |
| **Ambient** | | | | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S | IP54S | IP54S | IP54S |

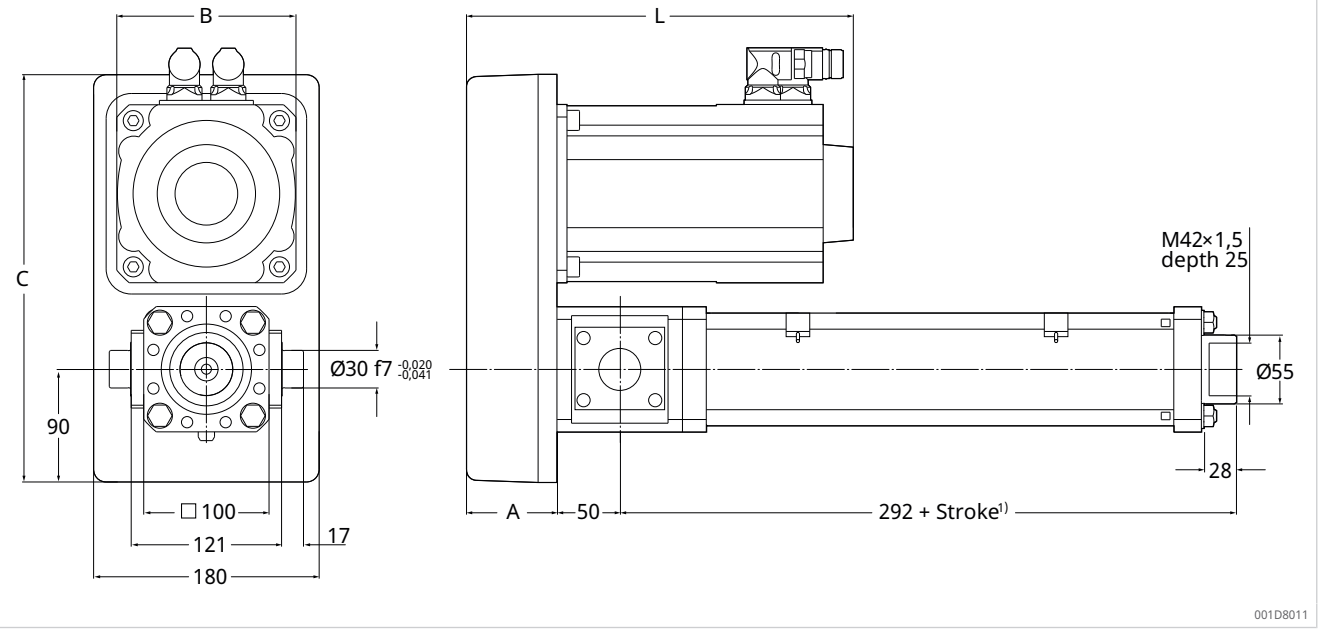
4

1) In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

49 Dimensions of electromechanical linear actuator LEMC-S-3010, parallel configuration




1) For the anti-rotation device option, add 30 mm

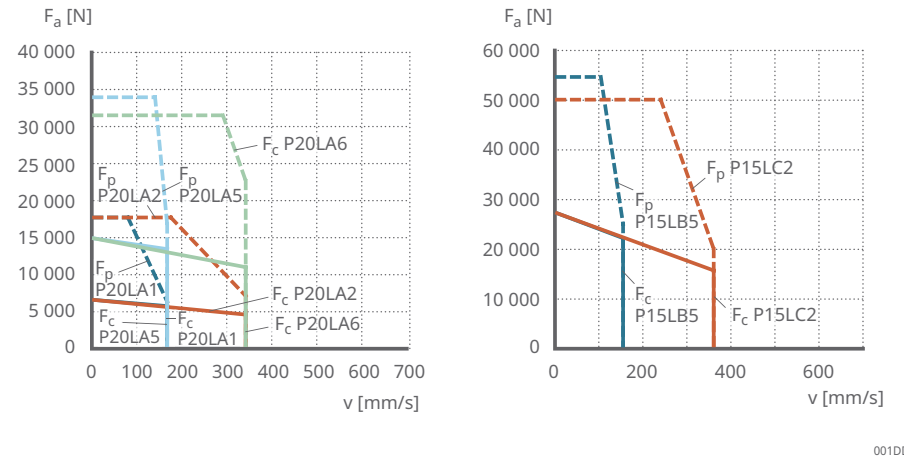
27 Dimensions of electromechanical linear actuator LEMC-S-3010, parallel configuration

| Reference | L2) | A | B | C |
|---|---|---|---|---|
| | mm | mm | mm | mm |
| P20LA1 | 252 | 72 | 116 | 325 |
| P20LA2 | 252 | 72 | 116 | 325 |
| P20LA5 | 332 | 72 | 116 | 325 |
| P20LA6 | 332 | 72 | 116 | 325 |
| P15LB5 | 388 | 72 | 143 | 325 |
| P15LC2 | 388 | 72 | 143 | 325 |

2) For the brake option, add 28 mm. For the absolute encoder option, add 50 mm.

## Performance diagrams

50 Performance diagrams for LEMC-S-3010, parallel configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_p$ | Peak force | $F_c$ | Continuous force |

For life diagram ➤16|15

## Ordering designation

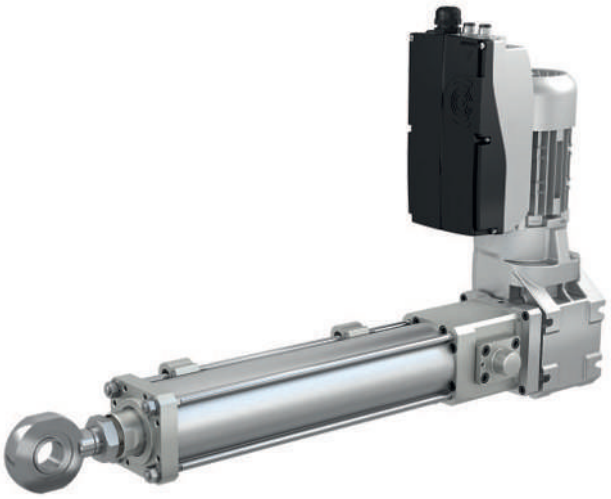
See ordering designation for linear actuator LEMC-S ➤55|6.2.

# 5 LEMC-A, electromechanical linear actuator, induction motor

## 5.1 LEMC-A-2110, electromechanical linear actuator, induction motor, L configuration



51 Electromechanical linear actuator LEMC-A-2110, L configuration



001BEBAD

28 Technical data – LEMC-A-2110, L configuration

| Designation | Symbol | Unit | L-configuration adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | B054 | B151 | B319 |
| | | | LAA2 | LAA2 | LBA2 |
| **Performance data** | | | | | |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 4.3 | 12 | 25.4 |
| Dynamic load capacity | C | kN | 54.3 | 54.3 | 54.3 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 16 | 40 | 40 |
| Min. linear speed | $v_{min}$ | mm/s | 15.5 | 5.5 | 2.7 |
| Max. linear speed | $v_{max}$ | mm/s | 80.2 | 28.7 | 13.5 |
| Duty cycle | D | % | 100 | 100 | 100 |
| **Mechanical data** | | | | | |
| Screw drive type | – | – | Roller screw drive | | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 10 | 10 | 10 |
| Lead accuracy | – | – | G5 | G5 | G5 |
| Stroke [1)] | S | mm | 100 to 600 | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.04 | 0.04 | 0.04 |
| Gear reduction | i | – | 5.411 | 15.111 | 31.919 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · m² | 4.0600 | 3.7700 | 3.7400 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · m² | 0.0051 | 0.0007 | 0.0001 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · m² | 0.0150 | 0.0150 | 0.0150 |
| at 0 mm stroke | m | kg | 17.3 | 17.3 | 18.7 |
| Δ per 100 mm stroke | Δm | kg | 1.15 | 1.15 | 1.15 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.90 | 0.90 | 0.90 |
| **Electrical specifications** | | | | | |
| Motor type | – | – | Asynchronous | | |

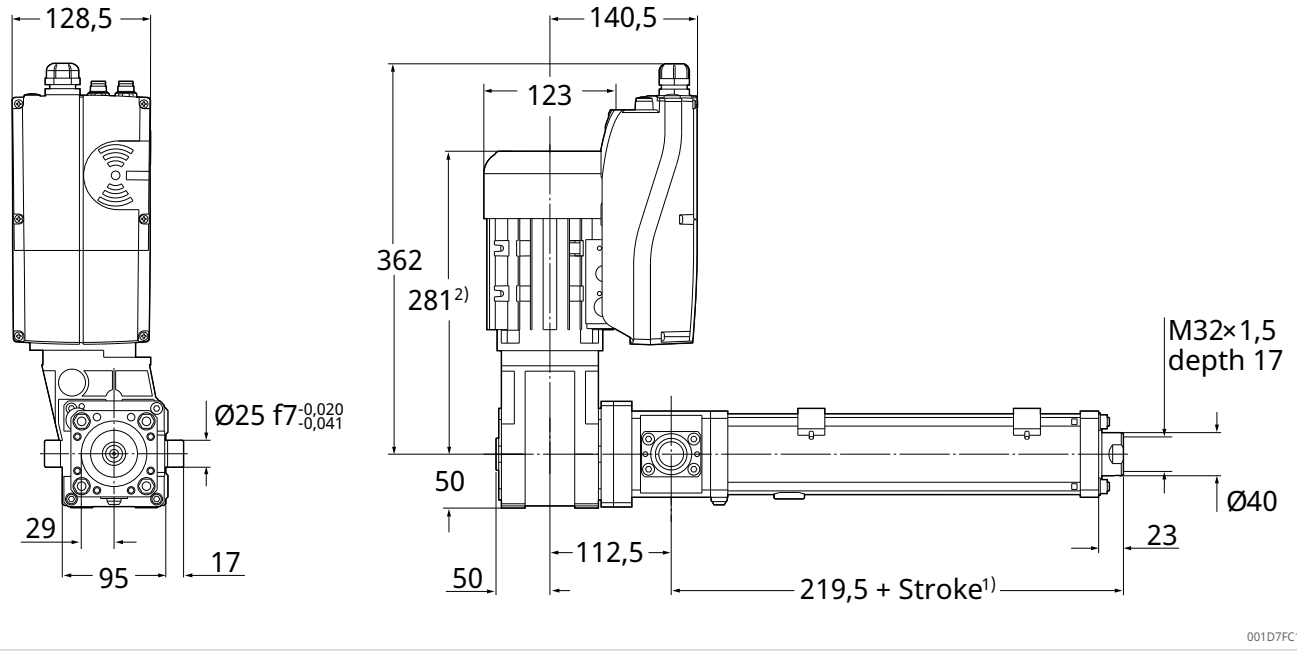
| Designation | Symbol | Unit | L-configuration adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | B054 | B151 | B319 |
| | | | LAA2 | LAA2 | LBA2 |
| Rated voltage | U | V AC | 3 × 400 | 3 × 400 | 3 × 400 |
| Rated current | I | A | 1 | 1 | 1 |
| Rated power | P | kW | 0.47 | 0.47 | 0.47 |
| **Ambient** | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S |

1) In increments of 100 mm

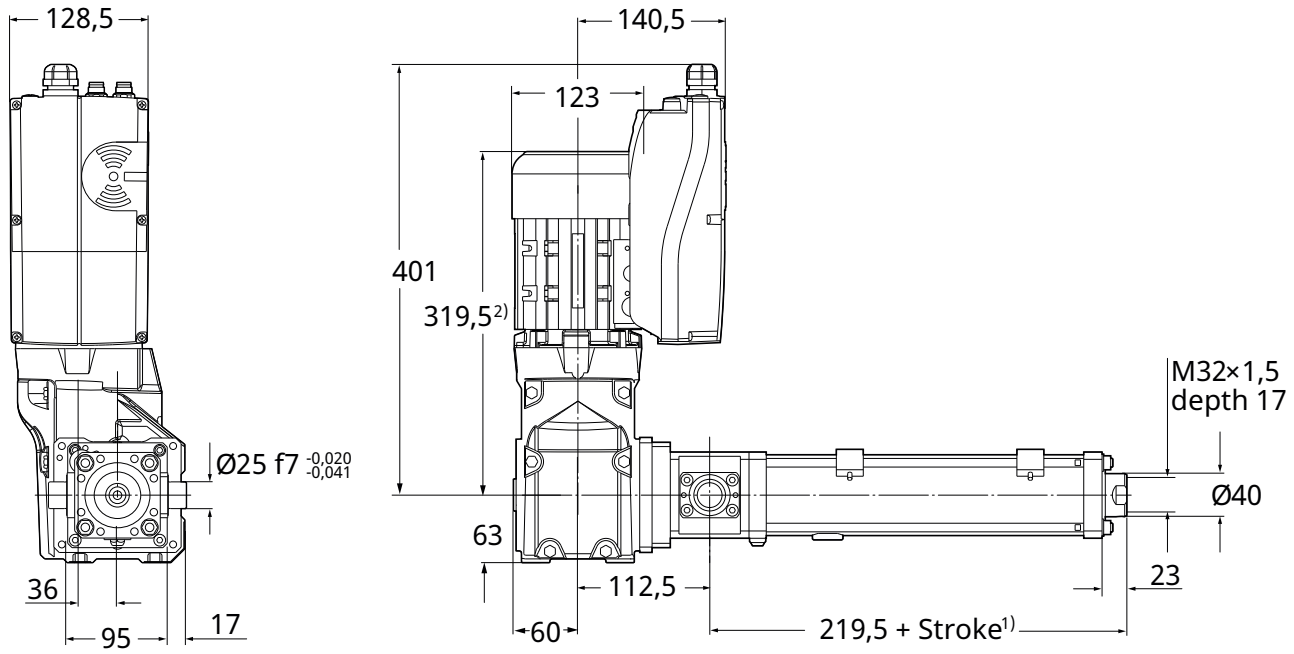
For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

52 Dimensions of electromechanical linear actuator BLEMC-A-21..-..-B054LAA2SN and LEMC-A-21..-..-B151LAA2SN, L configuration



53 Dimensions of electromechanical linear actuator LEMC-A-21 B319LBA2SN, L configuration

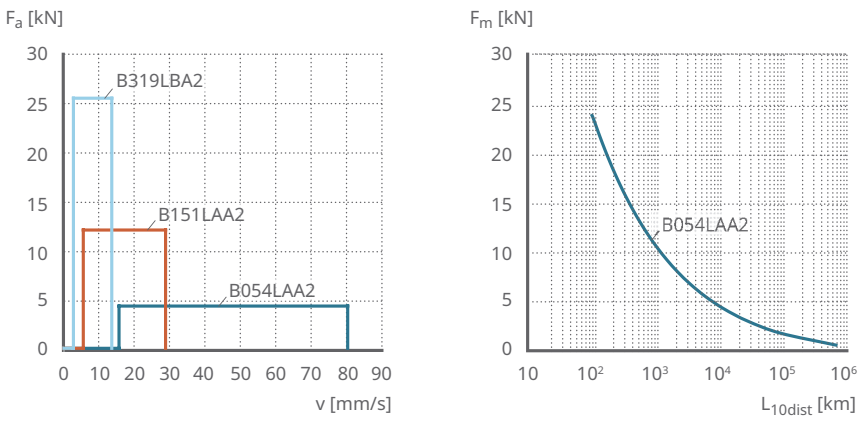



1) For the anti-rotation device option, add 30 mm.

2) For the brake option, add 40 mm.

## Performance diagrams

54 Performance diagrams for LEMC-A-2110, L-configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_m$ | Equivalent dynamic axial load | $L_{10dist}$ | Service life distance |

## Ordering designation

See ordering designation for linear actuator LEMC-A ➤57|6.3.

## 5.2 LEMC-A-2110, electromechanical linear actuator, induction motor, parallel configuration

55 Electromechanical linear actuator LEMC-A-2110, parallel configuration

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29 Technical data – LEMC-A-2110, parallel configuration

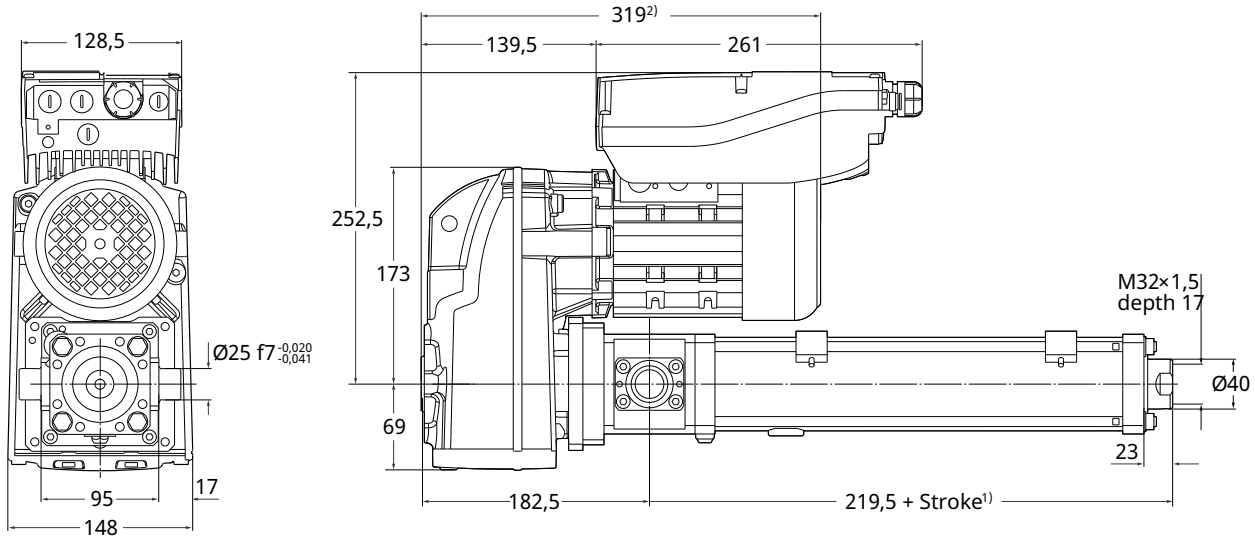
| Designation | Symbol | Unit | Parallel adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | P129 | P187 | P328 |
| | | | LBA2 | LBA2 | LBA2 |
| **Performance data** | | | | | |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 10.3 | 14.9 | 26.2 |
| Dynamic load capacity | C | kN | 54.3 | 54.3 | 54.3 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 39 | 40 | 40 |
| Min. linear speed | $v_{min}$ | mm/s | 6.5 | 4.5 | 2.5 |
| Max. linear speed | $v_{max}$ | mm/s | 33.3 | 23.0 | 13.2 |
| Duty cycle | D | % | 100 | 100 | 100 |
| **Mechanical data** | | | | | |
| Screw drive type | – | – | Roller screw drive | | |
| Screw drive diameter | $d_{screw}$ | mm | 21 | 21 | 21 |
| Screw drive lead | $p_{screw}$ | mm | 10 | 10 | 10 |
| Lead accuracy | – | – | G5 | G5 | G5 |
| Stroke [1] | S | mm | 100 to 600 | 100 to 600 | 100 to 600 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.04 | 0.04 | 0.04 |
| Gear reduction | i | – | 12.992 | 18.776 | 32.867 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · m² | 4.3300 | 4.1200 | 3.85 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · m² | 0.0009 | 0.0004 | 0.0001 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · m² | 0.0150 | 0.0150 | 0.015 |
| at 0 mm stroke | m | kg | 20.7 | 20.7 | 20.7 |
| Δ per 100 mm stroke | Δm | kg | 1.15 | 1.15 | 1.15 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 0.90 | 0.90 | 0.90 |
| **Electrical specifications** | | | | | |
| Motor type | – | – | Asynchronous | | |
| Rated voltage | U | V AC | 3 × 400 | 3 × 400 | 3 × 400 |
| Rated current | I | A | 1 | 1 | 1 |
| Rated power | P | kW | 0.47 | 0.47 | 0.47 |
| **Ambient** | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S |

[1] In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

56 Dimensions of electromechanical linear actuator LEMC-A-2110, parallel configuration

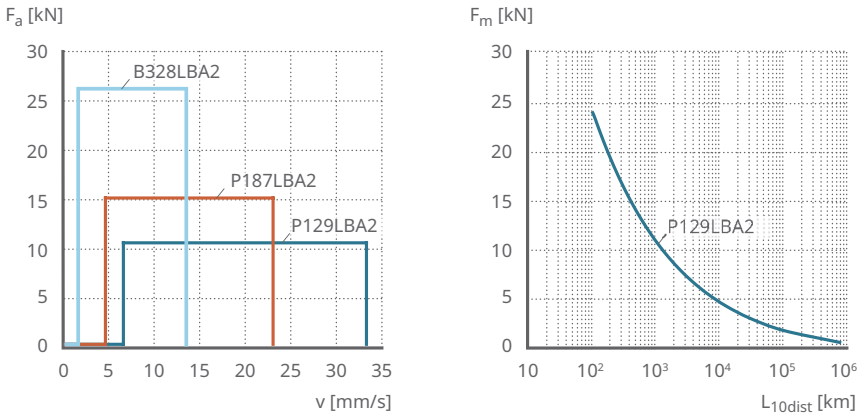



[1)] For the anti-rotation device option, add 30 mm.

[2)] For the brake option, add 40 mm.

## Performance diagrams

57 Performance diagrams for LEMC-A-2110, parallel configuration



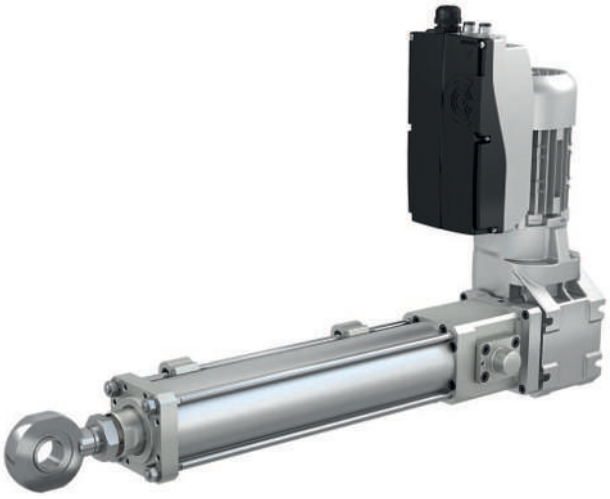

| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_m$ | Equivalent dynamic axial load | $L_{10dist}$ | Service life distance |

## Ordering designation

See ordering designation for linear actuator LEMC-A ➤57|6.3.

## 5.3 LEMC-A-3005, electromechanical linear actuator, induction motor, L configuration

58 Electromechanical linear actuator LEMC-A-3005, L configuration



001BEBAD

30 Technical data – LEMC-A-3005, L configuration

| Designation | Symbol | Unit | L-configuration adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | B051 | B155 | B319 |
| | | | LBA2 | LBA2 | LBA2 |
| **Performance data** | | | | | |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 8 | 24 | 49.2 |
| Dynamic load capacity | C | kN | 106 | 106 | 106 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 32 | 80 | 80 |
| Min. linear speed | $v_{min}$ | mm/s | 8 | 2.7 | 1.3 |
| Max. linear speed | $v_{max}$ | mm/s | 41.8 | 13.9 | 6.8 |
| Duty cycle | D | % | 100 | 100 | 100 |
| **Mechanical data** | | | | | |
| Screw drive type | – | – | Roller screw drive | | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 5 | 5 |
| Lead accuracy | – | – | G5 | G5 | G5 |
| Stroke [1)] | S | mm | 100 to 800 | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.02 | 0.02 |
| Gear reduction | i | – | 5.185 | 15.556 | 31.919 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · m² | 4.68 | 3.8600 | 3.7500 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · m² | 0.0242 | 0.0027 | 0.0006 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · m² | 0.0150 | 0.0150 | 0.0150 |
| at 0 mm stroke | m | kg | 25.8 | 25.8 | 25.8 |
| Δ per 100 mm stroke | Δm | kg | 2.05 | 2.05 | 2.05 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.30 | 1.30 | 1.30 |
| **Electrical specifications** | | | | | |
| Motor type | – | – | Asynchronous | | |
| Rated voltage | U | V AC | 3 × 400 | 3 × 400 | 3 × 400 |
| Rated current | I | A | 1 | 1 | 1 |
| Rated power | P | kW | 0.47 | 0.47 | 0.47 |

| Designation | Symbol | Unit | L-configuration adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | B051 | B155 | B319 |
| | | | LBA2 | LBA2 | LBA2 |
| **Ambient** | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S<br>54S | IP54S |

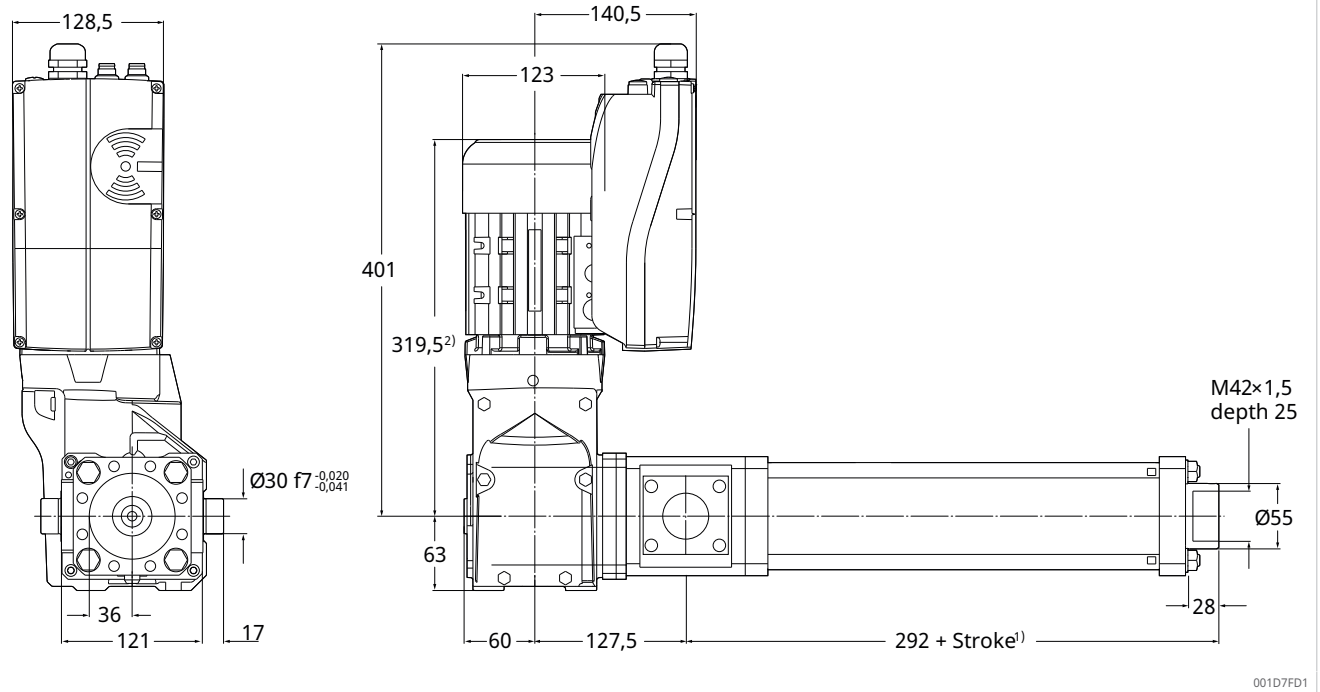
[1] In increments of 100 mm

5

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

59 Dimensions of electromechanical linear actuator LEMC-A-3005, L configuration

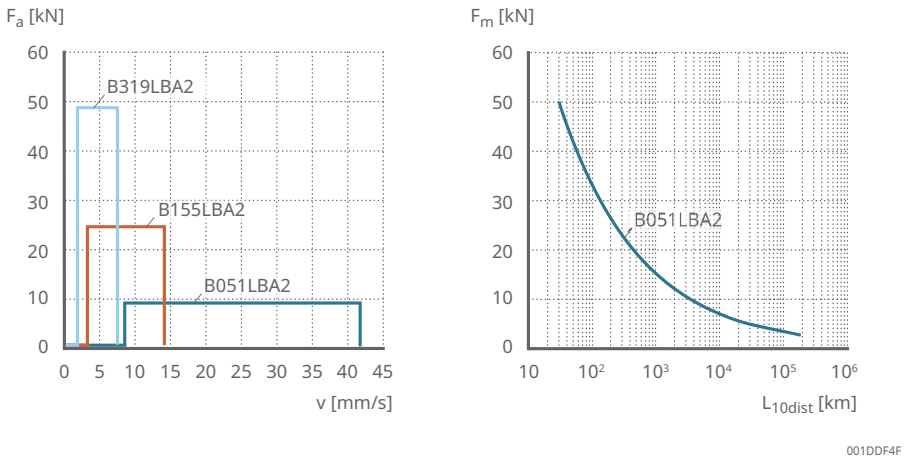



[1] For the anti-rotation device option, add 30 mm.

[2] For the brake option, add 40 mm.

### Performance diagrams

60 Performance diagrams for LEMC-A-3005, L-configuration



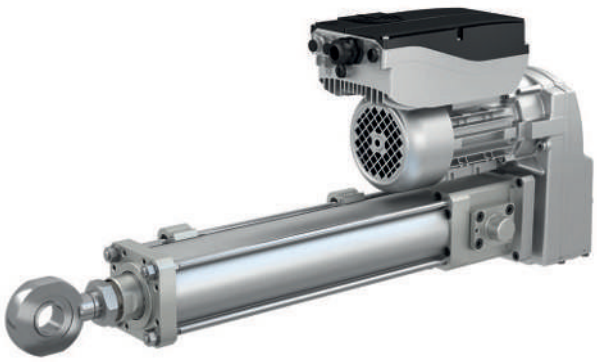

| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_m$ | Equivalent dynamic axial load | $L_{10dist}$ | Service life distance |

### Ordering designation

See ordering designation for linear actuator LEMC-A ➤57|6.3.

## 5.4 LEMC-A-3005, electromechanical linear actuator, induction motor, parallel configuration

61 Electromechanical linear actuator LEMC-A-3005, parallel configuration




31 Technical data – LEMC-A-3005, parallel configuration

| Designation | Symbol | Unit | Parallel adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | P129 | P187 | P328 |
| | | | LBA2 | LBA2 | LBA2 |
| **Performance data** | | | | | |
| Continuous force at max. speed | $F_{c\ vmax}$ | kN | 20 | 29 | 50.7 |
| Dynamic load capacity | C | kN | 106 | 106 | 106 |
| Holding force (optional motor brake) | $F_{hold}$ | kN | 80 | 80 | 80 |
| Min. linear speed | $v_{min}$ | mm/s | 3.3 | 2.3 | 1.3 |
| Max. linear speed | $v_{max}$ | mm/s | 16.7 | 11.5 | 6.6 |
| Duty cycle | D | % | 100 | 100 | 100 |
| **Mechanical data** | | | | | |

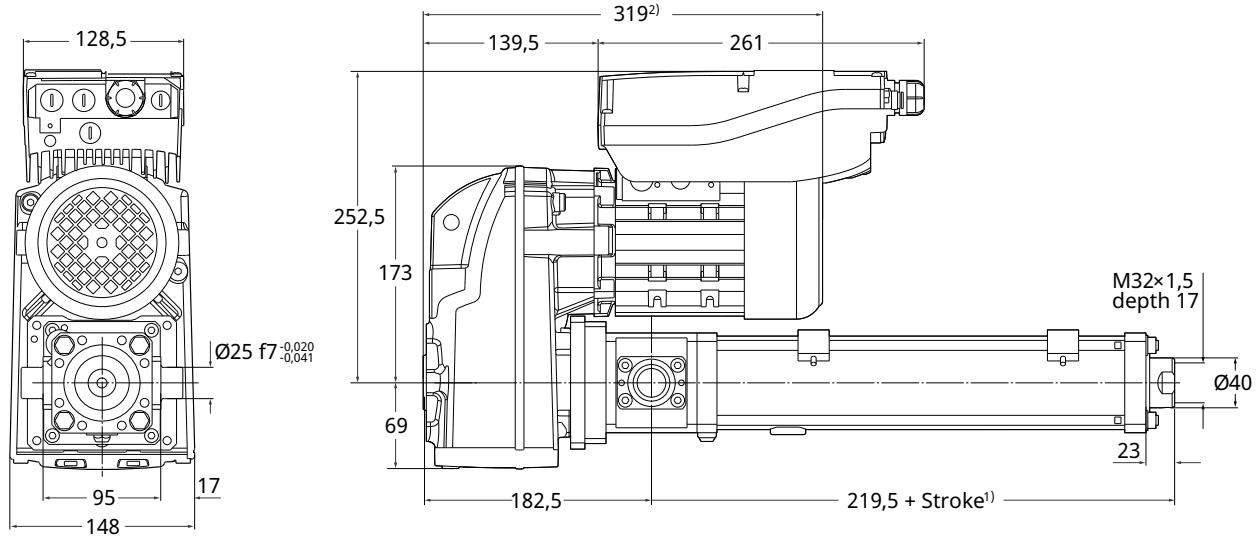
| Designation | Symbol | Unit | Parallel adapter and induction motor | | |
|---|---|---|---|---|---|
| | | | P129 | P187 | P328 |
| | | | LBA2 | LBA2 | LBA2 |
| Screw drive type | – | – | Roller screw drive | | |
| Screw drive diameter | $d_{screw}$ | mm | 30 | 30 | 30 |
| Screw drive lead | $p_{screw}$ | mm | 5 | 5 | 5 |
| Lead accuracy | – | – | G5 | G5 | G5 |
| Stroke [1] | S | mm | 100 to 800 | 100 to 800 | 100 to 800 |
| Internal overstroke each side | $S_0$ | mm | 5 | 5 | 5 |
| Backlash | $S_{backlash}$ | mm | 0.02 | 0.02 | 0.02 |
| Gear reduction | i | – | 12.992 | 18.776 | 32.867 |
| Moment of inertia at 0 mm stroke | J | $10^{-4}$ kg · m² | 4.3500 | 4.1300 | 3.8500 |
| Δ moment of inertia per 100 mm stroke | ΔJ | $10^{-4}$ kg · m² | 0.0039 | 0.0018 | 0.0006 |
| Moment of inertia of optional brake | $J_{brake}$ | $10^{-4}$ kg · m² | 0.0150 | 0.0150 | 0.0150 |
| at 0 mm stroke | m | kg | 27.8 | 27.8 | 27.8 |
| Δ per 100 mm stroke | Δm | kg | 2.05 | 2.05 | 2.05 |
| of optional brake | $m_{brake}$ | kg | 0.90 | 0.90 | 0.90 |
| of anti-rotation device | $m_{arot0}$ | kg | 1.30 | 1.30 | 1.30 |
| **Electrical specifications** | | | | | |
| Motor type | – | – | Asynchronous | | |
| Rated voltage | U | V AC | 3 × 400 | 3 × 400 | 3 × 400 |
| Rated current | I | A | 1 | 1 | 1 |
| Rated power | P | kW | 0.47 | 0.47 | 0.47 |
| **Ambient** | | | | | |
| Ambient temperature | $T_{amb}$ | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Protection code (IP) | – | – | IP54S | IP54S | IP54S |

[1] In increments of 100 mm

For more information regarding motors and motor adapters, please visit page .

## Dimensional drawings

62 Dimensions of electromechanical linear actuator LEMC-A-3005, parallel configuration

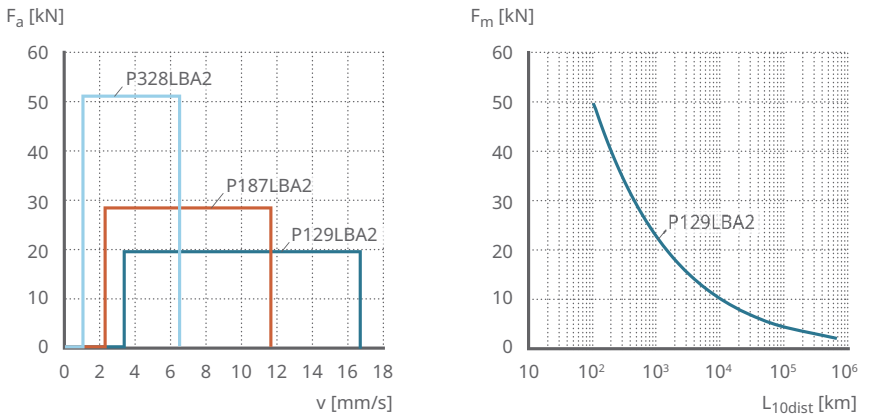



[1] For the anti-rotation device option, add 30 mm.

[2] For the brake option, add 40 mm.

### Performance diagrams

63 Performance diagrams for LEMC-A-3005, parallel configuration




| | | | |
|---|---|---|---|
| $F_a$ | Axial force | v | Speed |
| $F_m$ | Equivalent dynamic axial load | $L_{10dist}$ | Service life distance |

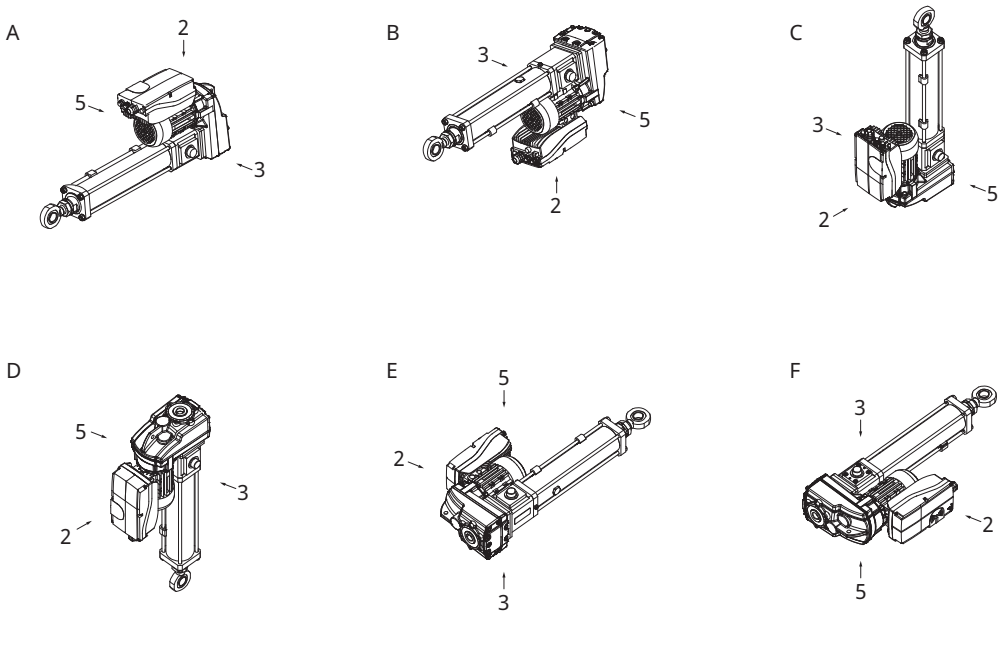
### Ordering designation

See ordering designation for linear actuator LEMC-A ➤57|6.3.

## 5.5 Mounting positions

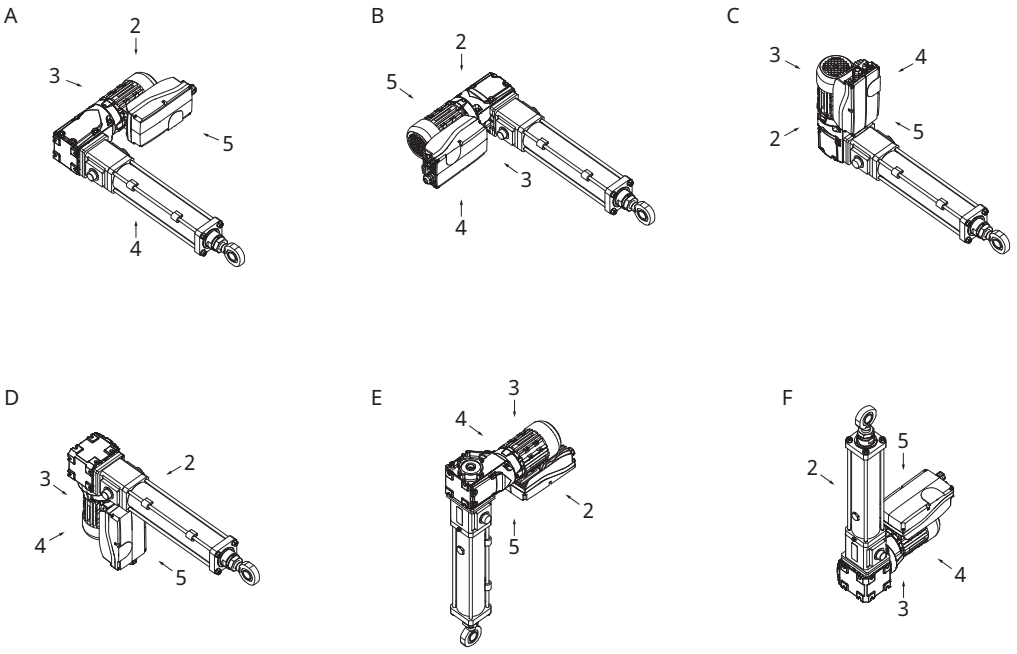
### Parallel adapter and motor

64 Mounting positions – parallel adapter and motor



## L-configuration and motor

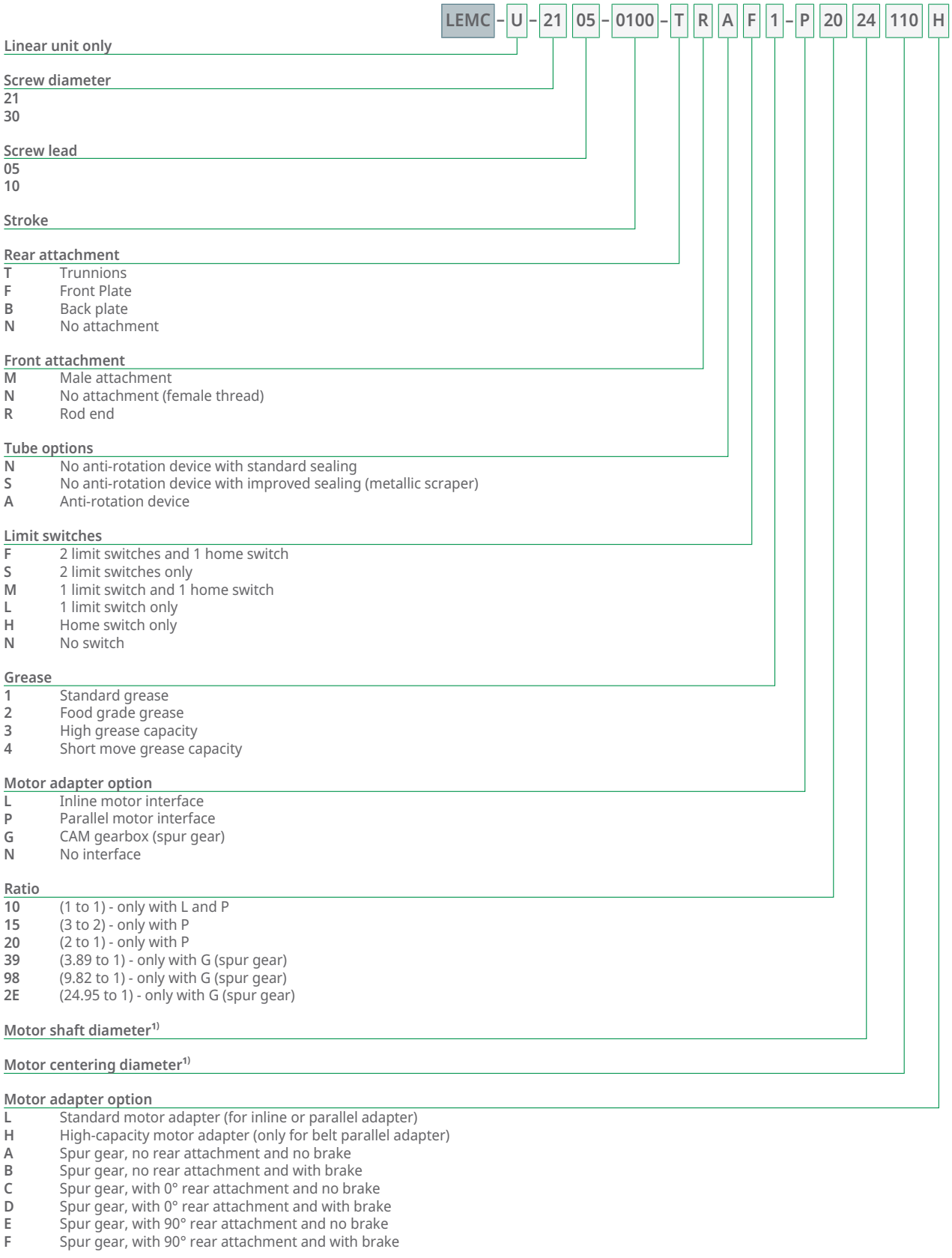
65 Mounting positions for the L-configuration and motor



# 6 Ordering designation

## 6.1 LEMC-U

66 Structure of the order designation for linear unit LEMC-U-21/30



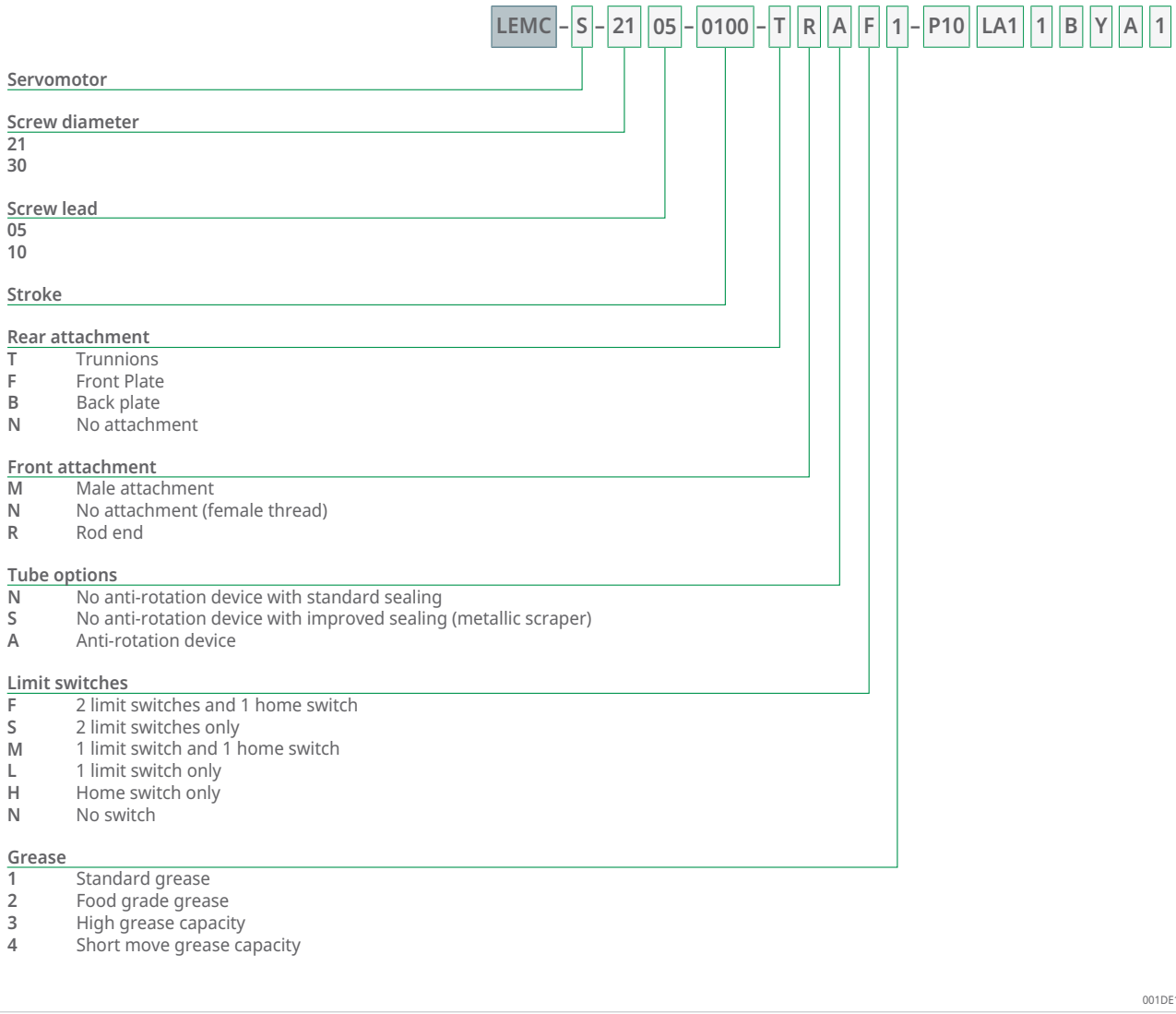

1) Standard third-party motors

**Example**

| | |
|---|---|
| Linear unit without motor interface | LEMC-U-2105-0100-TRAF1-N |
| Linear unit with motor interface | LEMC-U-2105-0100-TRAF1-L1019110L |

## 6.2 LEMC-S

67 Structure of the order designation for linear unit LEMC-S

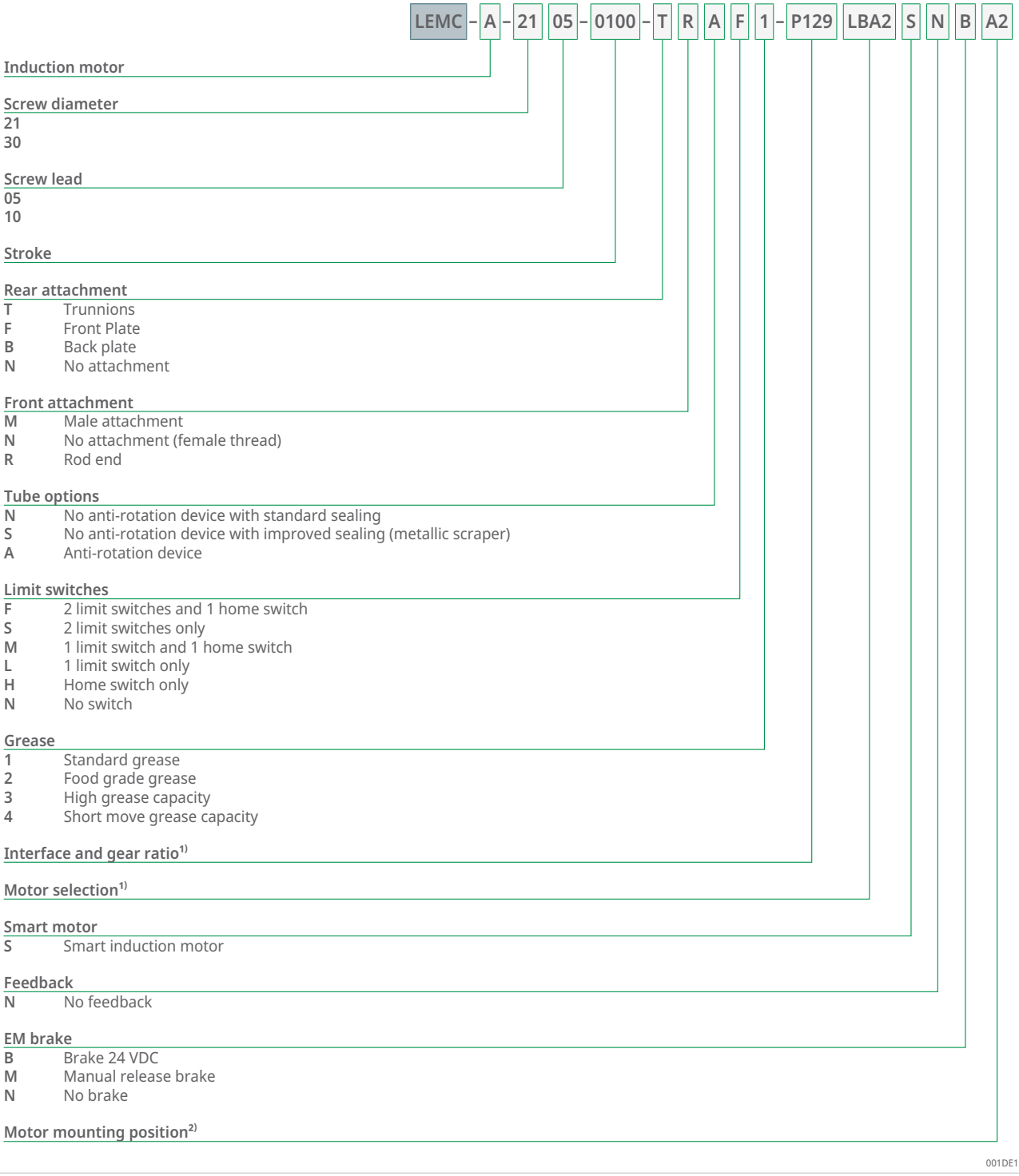


68 Structure of the order designation for LEMC-S with servo-motors


1) Performance overview of actuators with servo-motors

## 6.3 LEMC-A

69 Structure of the ordering designation for linear unit LEMC-A with induction motors



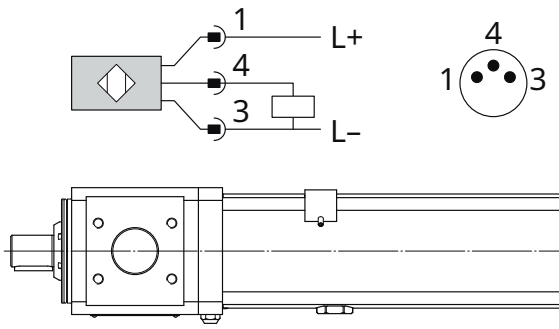

1) Performance overview of linear actuators with induction motors

2) See mounting positions ➤51|5.5

# 7 Accessories

## Limit/home switches

70 Limit/home switches




| | |
|---|---|
| Sensor type: | magnetic |
| Technology: | DC PNP |
| Limit switch on output: | Opener |
| Home switch output: | Closer |
| Supply voltage: | DC 24 V |
| Consumption (mA): | < 10 (under DC 24 V) |
| Max. current output (mA): | 100 |
| Connection: | Plug M8×1 |
| Length of PUR cable: | 0.3 m |

The location of the home and limit switches can be adjusted easily on the linear unit.

**Schaeffler Technologies AG & Co. KG**
Georg-Schäfer-Straße 30
97421 Schweinfurt
Germany
www.schaeffler.de/en
info.de@schaeffler.com

In Germany:
Phone 0180 5003872
From other countries:
Phone +49 9721 91-0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