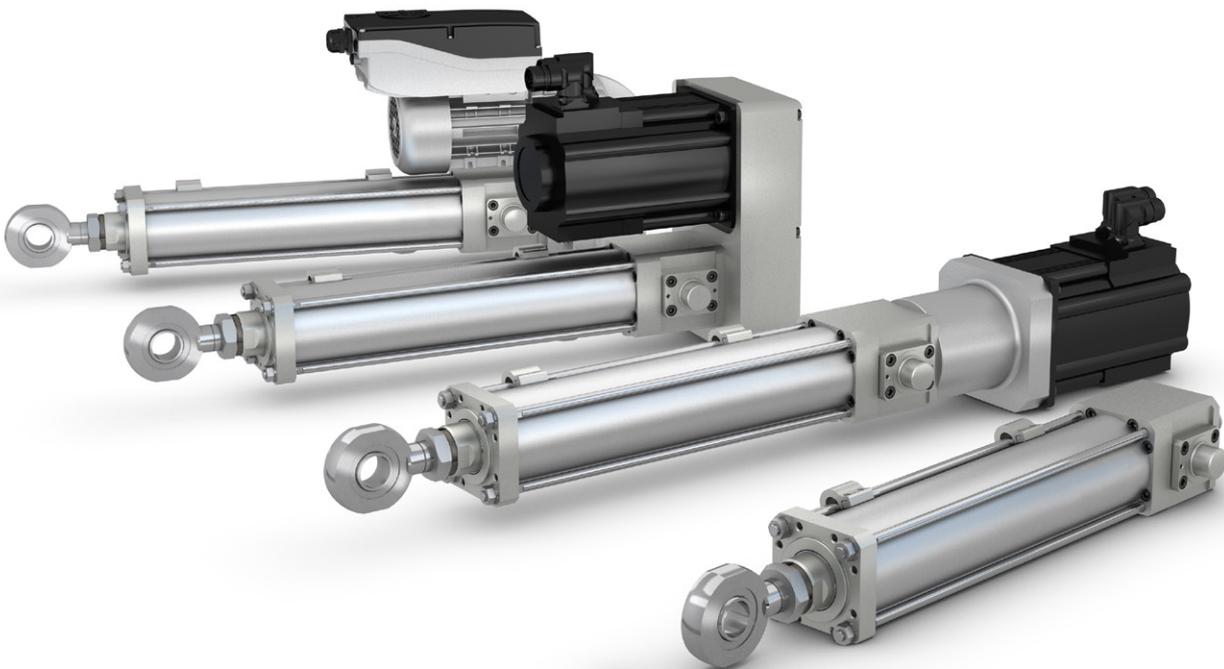


EWELLIX

A Schaeffler Company

Electric cylinders LEMC



Electric cylinders

LEMC



Features

- High performance roller screw
- Steel push tube and aluminium protection tube
- Modular concept
- Possible to relubricate the roller screw nut with direct access
- Servo motors, asynchronous motors and customized motor adapters

Benefits

- High load and lifetime capacity, as well as high acceleration and speed capabilities
- High stiffness and robustness
- Multiple combinations allow for use in wide range of applications
- Low maintenance requirements
- Optimal solution for a wide variety of applications, either with Ewellix-provided motors or with the motor of your choice

Product description

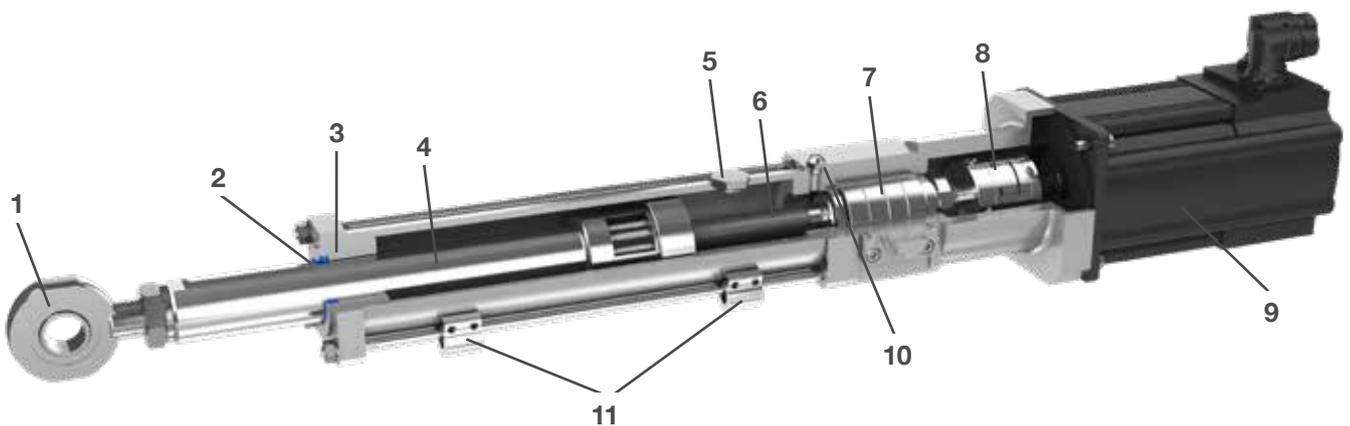
For generations, hydraulic cylinders were often the first choice for large forces or to move heavy loads. Today, hydraulic systems have a powerful rival in the linear motion world – the electric cylinder.

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 actuator is connected directly, electromechanical systems do away with bulky pumps, accumulators, oil tanks and pipework. The absence of pressurised oil has safety and environmental benefits too, minimizing the risk of fire, pollution or injury associated with leaks and spills.

LEMC electric cylinders replace hydraulic systems with a precision roller screw, driven by a locally mounted electric motor and gearbox.

This technology results in an actuator with a higher power density than conventional designs. LEMC actuators use 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 smart asynchronous motor. This provides additional safety and machine protection capabilities, with integrated soft start and motor protection functions. As a further benefit for operations and maintenance staff, the controller incorporates near field communication (NFC) capabilities, allowing it to be adjusted wirelessly using a smartphone.



1. Rod end
2. Scraper to keep out contaminants
3. Guiding bushing
4. Steel push tube and aluminium protection tube
5. Re-lubrication access
6. High quality Ewellix planetary roller screw for highest axial loads with low play and high efficiency
7. High quality SKF bearings
8. Coupling
9. Servo motor or Asynchronous motor
10. Sinter filter for high airflow
11. Adjustable Home and limit switches

Performance overview of linear units

Linear unit	F_{max} kN	F_{0max}	V_{max} mm
–			
LEMC-U-2105	40	40	500
LEMC-U-2110	40	40	1 000
LEMC-U-3005	80	80	440
LEMC-U-3010	80	80	880

Performance overview of actuators

Linear unit	Interface and gear ratio	Motor	F_{co} kN	F_{p0}	V_{max} 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
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

Motors and gearboxes

Servo motors

The LEMC can be ordered with a servo motor. In this case, Ewellix has selected a series of Lenze motors and drives that best matches the performance of the actuator to the end-user application. To complete the design, several options can be selected such as absolute encoder (EnDat, Hyperface), safety brake or associated servodrive. It is also possible to equip the LEMC with your preferred brand of servo motor so that it integrates best into your system. Please contact Ewellix 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. The LEMC can be offered with or without the servodrive. The servo-drive can be in the recommended configuration or any other configuration that fits your installation.

In the case of a different combination, please contact Ewellix to determine what effect the different configuration will have on the performance of the actuator.

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

Asynchronous motors

The LEMC with asynchronous motor is the combination of an LEMC linear unit, a gearbox and a Lenze smart asynchronous motor. The gearboxes are available with several ratios to either favor speed or load for any linear unit size. They are available packaged in parallel and right angle configurations. The gearboxes are oil lubricated. When ordering a LEMC with asynchronous motor, the proper configuration must be identified so that the drains and vents are located correctly.

Smart functions

The asynchronous Lenze motor is equipped with a smart control box with the following features:

- Rotating speed can be adjusted freely between 500 and 2 600 r/min
- 3 digital inputs for changing speed and direction of movement
- 1 digital output for status message
- Integrated ramps for soft start and stop functions, to protect the system mechanics and full motor protection
- Less wiring thanks to electronic contactor and motor protection function
- Excellent energy efficiency
- Can be operated with an NFC-capable smartphone

Performance overview of actuators with asynchronous motors

Linear unit	Interface and gear ratio	Motor	F _{co}	V _{min}	V _{max}
LEMCA-A-2110	B054/ B151	LAA2	4,3/12	15,5/ 5,5	80,2/28,7
LEMCA-A-2110	B319/ P129	LBA2	25,4/10,3	2,7/ 6,5	13,5/ 33,3
LEMCA-A-2110	P187/ P328	LBA2	14,9/ 26,2	4,5/ 2,5	23/13,2
LEMCA-A-3005	B051/ B155	LBA2	ago-24	8/ 2,7	41,7/13,9
LEMCA-A-3005	B319/ P129	LBA2	49,2/20	1,3/ 3,2	6,7/16,7
LEMCA-A-3005	P187/ P328	LBA2	29/ 50,7	2,2/ 1,2	11,5/6,6

Standard motor and gearbox types

Interface, gear ratio and motor	Lenze gearbox	Gearbox 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

Standard Motor interface

Layout	Inline		Parallel					
	21	30	21	3:2	2:1	30	3:2	2:1
LEMC size	21	30	21			30		
Ratio	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								
NX6	L1024110L	L1024110L	P1024110L	P1524110L	P2024110L	P1024110L	P1524110L	P2024110L
	-	-	-	-	-	-	-	P2024110H
NX8	-	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 & B54x & B56x	-	L1028130L	-	-	-	P1028130H	P1528130H	P2028130H

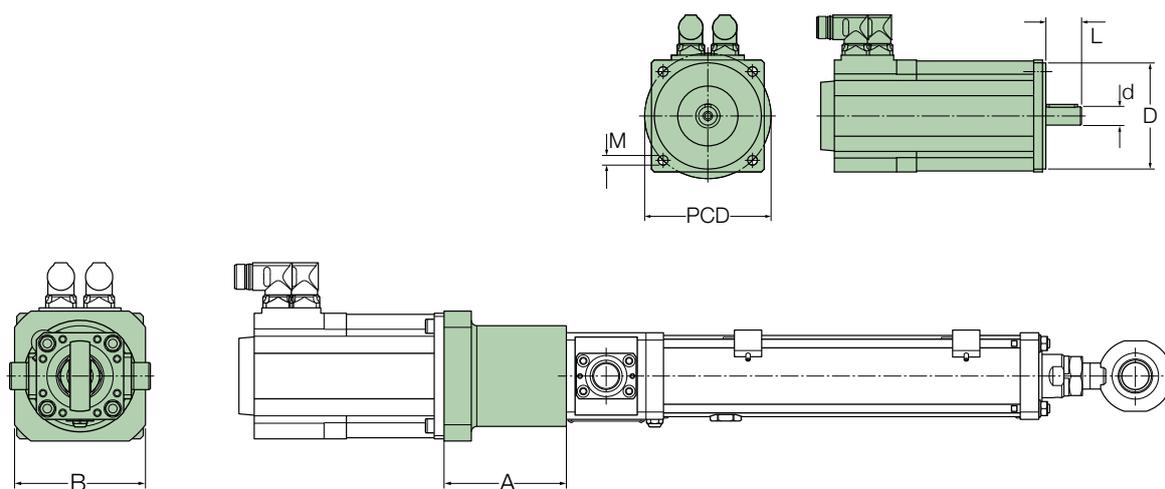
NOTE: For other motors, please contact Ewellix.

Third party motors

In order to attach your preferred motor to the linear unit, Ewellix offers tailor made solutions within the specifications below.

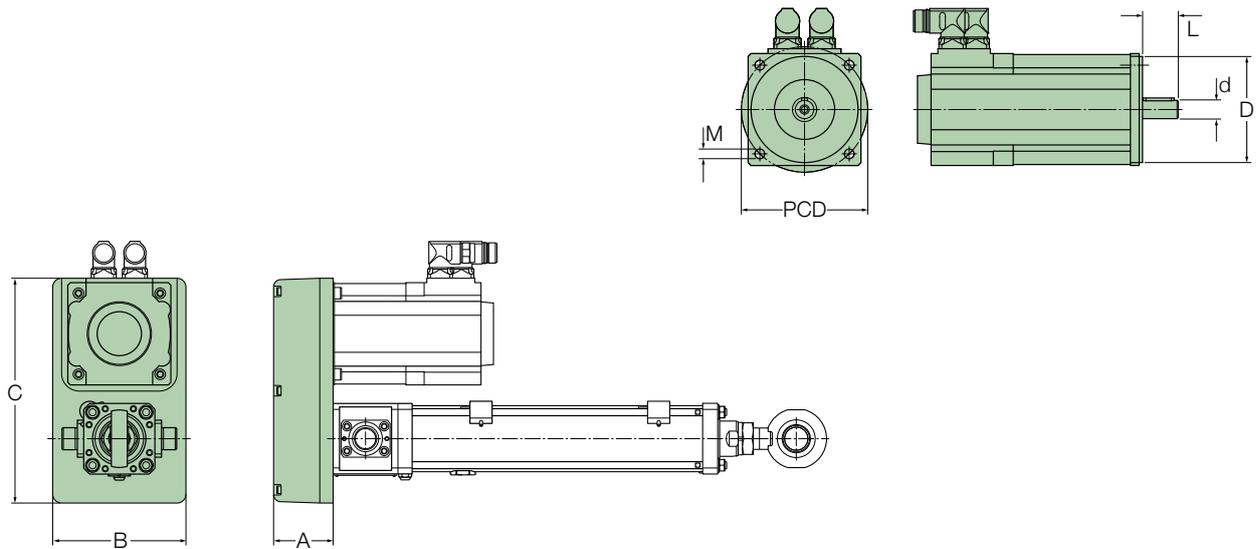
For motor specifications which are not covered by the specifications below, please contact Ewellix.

Inline interface



LEMC	Interface	d	D	L	PCD	M	A	B	Torque max	Inertia	Weight
-		mm				-	mm		Nm	10 ⁻⁴ kgm ²	kg
21	L1019110L	19	110 H8 ⁻⁰ _{-0,054}	40...50	130	M8	112	120	60	1,6	1,7
21	L1024110L	24	110 H8 ⁻⁰ _{-0,054}	40...50	130	M8	112	120	60	1,6	1,7
30	L1019110L	19	110 H8 ⁻⁰ _{-0,054}	40...50	130	M8	106	120	60	1,6	2,9
30	L1024110L	24	110 H8 ⁻⁰ _{-0,054}	40...50	130	M8	106	120	60	1,6	2,9
30	L1024130L	24	130 H8 ⁻⁰ _{-0,063}	50...58	165	M10	118	150	120	3	2,6
30	L1028130L	28	130 H8 ⁻⁰ _{-0,063}	50...60	165	M10	126,5	150	120	3	2,6
30	L1032130L	32	130 H8 ⁻⁰ _{-0,063}	50...58	165	M10	118	150	120	3	2,6

Parallel interface



LEMC	Interface	d	D		L	PCD	M	A	B	C	Torque max	Inertia	Weight
-		mm					-	mm			Nm	10 ⁻⁴ kgm ²	kg
21	P1019110L	19	110 G8	+0.012 +0.066	40...50	130	M8	67	150	255	40	14,4	3,5
21	P1024110L	24	110 G8	+0.012 +0.066	40...50	130	M8	67	150	255	40	14,4	3,5
21	P1519110L	19	110 G8	+0.012 +0.066	40...50	130	M8	67	150	255	25	7,55	3,4
21	P1524110L	24	110 G8	+0.012 +0.066	40...50	130	M8	67	150	255	25	7,55	3,4
21	P2019110L	19	110 G8	+0.012 +0.066	40...50	130	M8	67	150	255	20	9,55	4,3
21	P2024110L	24	110 G8	+0.012 +0.066	40...50	130	M8	67	150	255	20	9,55	4,3
30	P1019110L	19	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	55	37,6	5,8
30	P1024110L	24	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	55	37,6	5,8
30	P1024130L	24	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	55	37,6	5,6
30	P1024130H	24	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	90	37,6	5,6
30	P1028130L	28	130 G8	+0.014 +0.077	50...60	165	M10	72	180	325	55	37,6	5,6
30	P1028130H	28	130 G8	+0.014 +0.077	50...60	165	M10	72	180	325	90	37,6	5,6
30	P1032130L	32	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	55	37,6	5,6
30	P1032130H	32	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	90	37,6	5,6
30	P1519110L	19	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	40	27,5	6,3
30	P1524110L	24	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	40	27,5	6,3
30	P1524130H	24	110 G8	+0.012 +0.066	50...58	165	M10	72	180	325	100	70,3	9
30	P1528130H	28	130 G8	+0.014 +0.077	50...60	165	M10	72	180	325	100	70,3	9
30	P1532130H	32	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	100	70,3	9
30	P2019110L	19	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	35	25	7
30	P2019110H	19	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	70	34,5	8,5
30	P2024110L	24	110 G8	+0.012 +0.066	40...50	130	M8	72	180	325	35	25	7
30	P2024130H	24	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	70	34,5	8,3
30	P2028130H	28	130 G8	+0.014 +0.077	50...60	165	M10	72	180	325	70	34,5	8,3
30	P2032130H	32	130 G8	+0.014 +0.077	50...58	165	M10	72	180	325	70	34,5	8,3

Parallel gearbox

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 three stage spur gear directly to the linear unit (max. output torque 300 Nm). Three gear ratios are available and it is maintenance free.



Technical data

Gearbox type		CAM-GS-CBA-XX	CAM-GS-CCA-XX	CAM-GS-CDA-XX
Short designation	Unit			
Type	–	Parallel	Parallel	Parallel
Gear reduction	–	3,89	9,82	24,95
Nominal output torque	Nm	100	100	100
Max. output torque	Nm	300	300	300
Max. input power	W	3 000	3 000	3 000
Max. input speed	r/min	4 500	4 500	4 500
Efficiency	%	85	85	85
Weight	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, the access to this key is covered by a plate (↳ fig. 1). On request, it's possible to have a round opening for direct access (↳ fig. 2) or to mount an electromagnetic brake (↳ fig. 3).

Fig. 1



Fig. 2



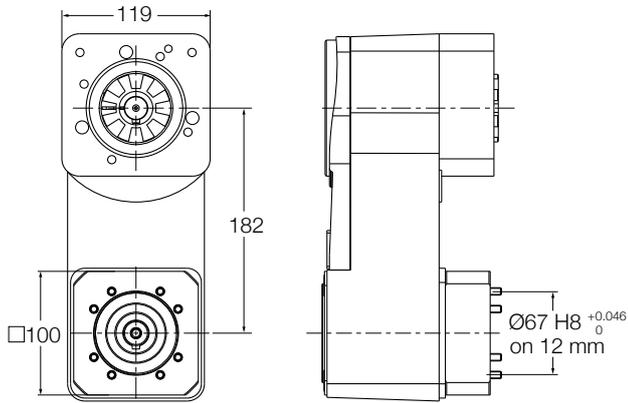
On request

Fig. 3



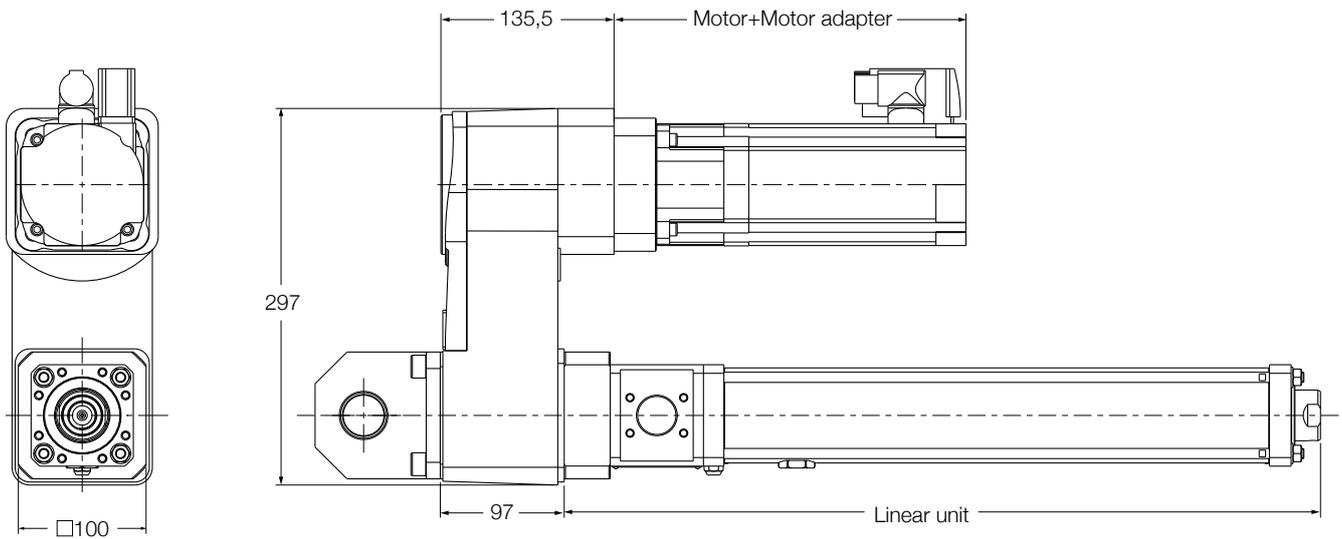
On request

Dimensional drawing



All dimensions in mm

Complete actuator



All dimensions in mm

Manuals

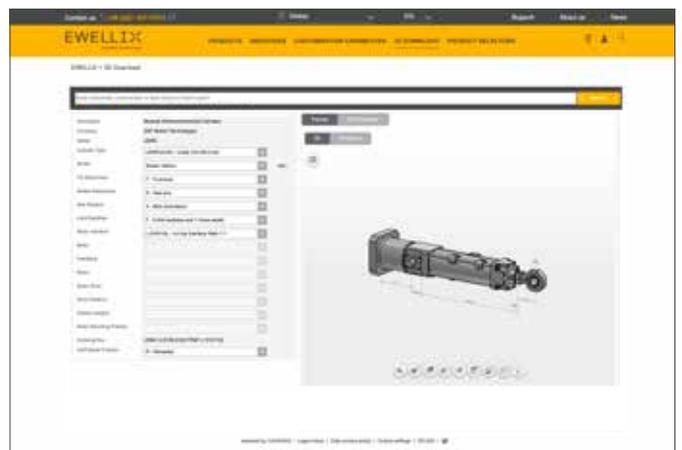
Supporting documents are available for downloading on ewellix.com

3D models

Product configurators for 3D models download are available on ewellix.com



Instruction for maintenance, limit switch and motor assembly



3D model configurator



LEMC-U-21

Linear unit



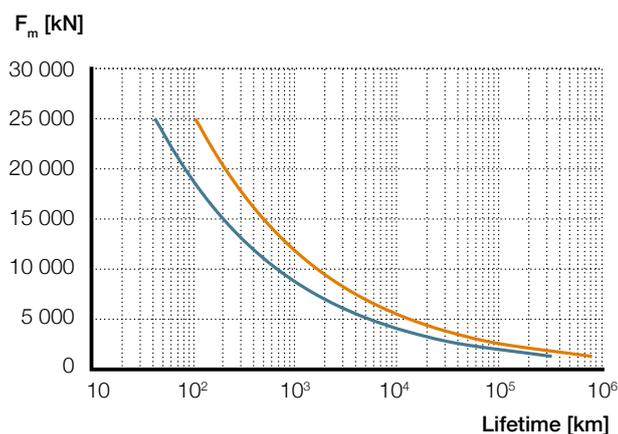
Technical data

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_{0max}	kN	40	40
Dynamic load capacity	C	kN	50,5	54,3
Maximum torque to reach Fmax	M_{max}	Nm	41,7	84,4
Max. linear speed	v_{max}	mm/s	500	1 000
Max. rotational speed	n_{max}	1/min	6 000	6 000
Max. acceleration	a_{max}	m/s ²	6	12
Duty cycle	D_{unit}	%	100	100
Mechanical Data				
Screw type	–	–	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21
Screw lead	p_{screw}	mm	5	10
Lead accuracy	–	–	G5	G5
Stroke ²⁾	s	mm	100...600	100...600
Internal overstroke each side	s_0	mm	5	5
Backlash	$s_{backlash}$	mm	0,02	0,04
Efficiency	η_{lu}	%	76	75
Inertia @ 0 mm stroke	J_{lu}	10 ⁻⁴ kgm ²	1,45	1,45
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,15	0,15
Weight @ 0 mm stroke	m_{lu}	kg	7,3	7,3
Δ weight per 100 mm stroke	Δm	kg	1,2	1,2
Weight of anti-rotation	m_{arot0}	kg	0,9	0,9
Environment				
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40
Degree of protection	IP	–	54S	54S

¹⁾ Maximum dynamic axial force usable to apply the theoretical lifetime calculation (L10)

²⁾ By 100 mm steps

Performance diagram



— LEMC-x-2105

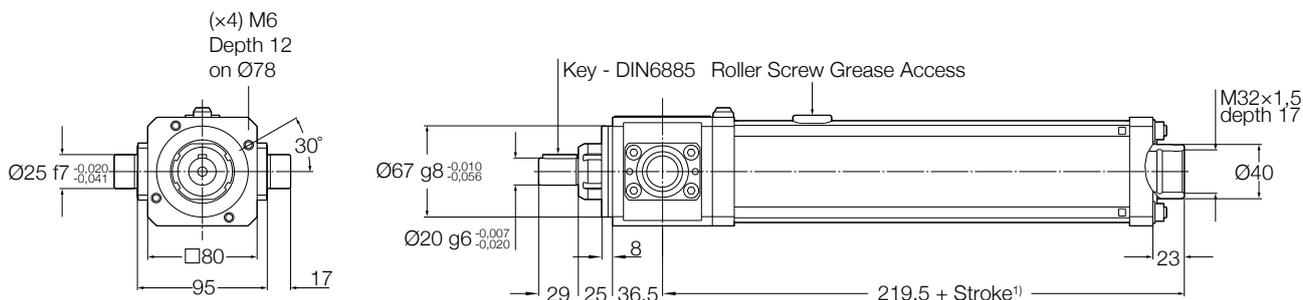
— LEMC-x-2110

Ordering key

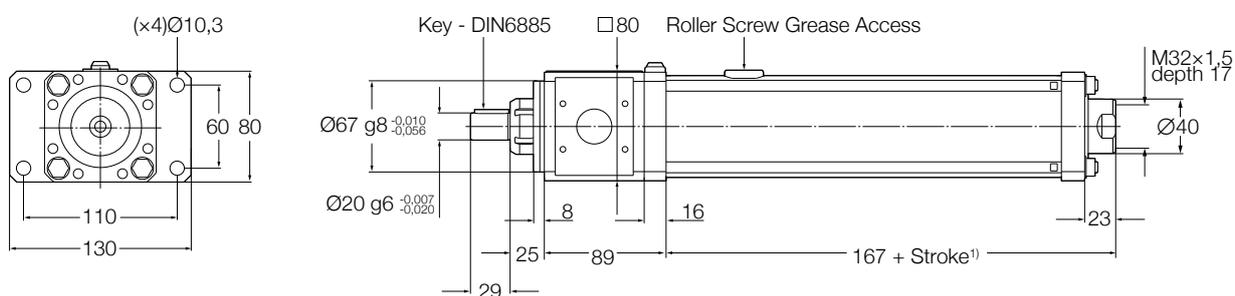
See page 19

Dimensional drawing

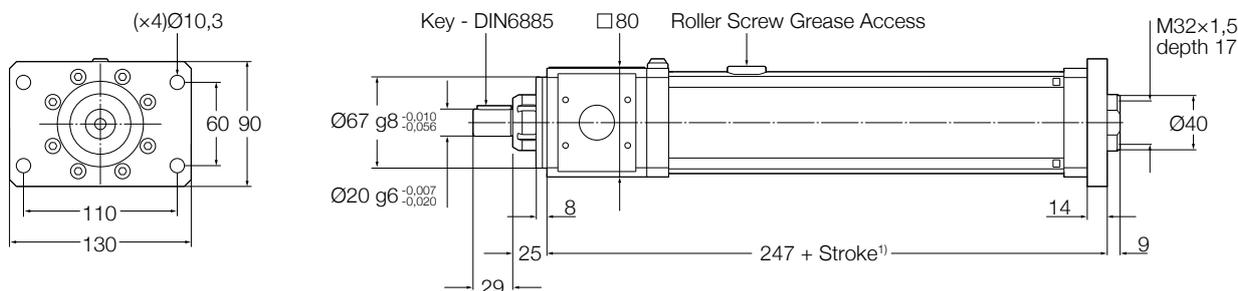
LEMC-U-21xx-xxxx-TNNx-NNN (Trunnions)



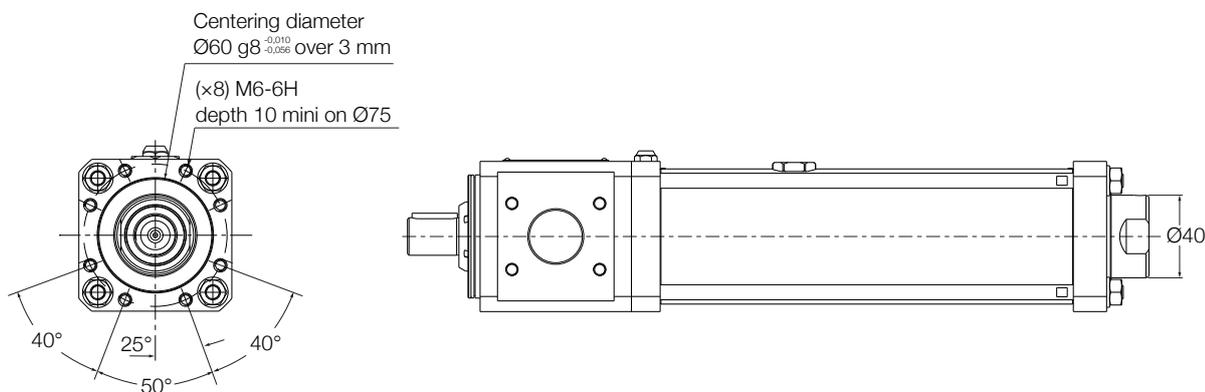
LEMC-U-21xx-xxxx-BNNx-NNN (Back plate)



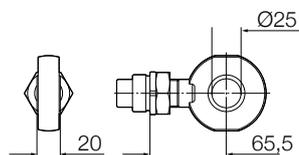
LEMC-U-21xx-xxxx-FNNx-NNN (Front plate)



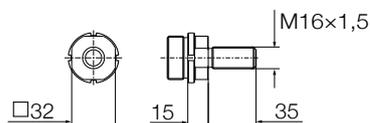
LEMC-U-21xx-xxxx-NNNx-NNN



LEMC-U-21xx-xxxx-xRxx (Rod end)



LEMC-U-21xx-xxxx-xMxx (Male attachment)



¹⁾Add 30 mm for anti-rotation option

LEMC-U-30

Linear unit



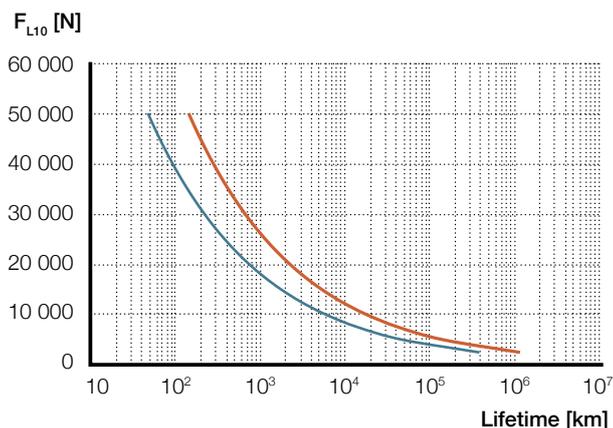
Technical data

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_{0max}	kN	80	80
Dynamic load capacity	C	kN	106	122
Maximum torque to reach Fmax	M_{max}	Nm	87,1	161,5
Max. linear speed	v_{max}	mm/s	440	880
Max. rotational speed	n_{max}	1/min	5 280	5 280
Max. acceleration	a_{max}	m/s ²	6	12
Duty cycle	D_{unit}	%	100	100
Mechanical Data				
Screw type	–	–	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30
Screw lead	p_{screw}	mm	5	10
Lead accuracy	–	–	G5	G5
Stroke ²⁾	s	mm	100...800	100...800
Internal overstroke each side	s_0	mm	5	5
Backlash	$s_{backlash}$	mm	0,02	0,04
Efficiency	η_{lu}	%	73	79
Inertia @ 0 mm stroke	J_{lu}	10 ⁻⁴ kgm ²	5	5
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,65	0,65
Weight @ 0 mm stroke	m_{lu}	kg	14,7	14,7
Δ weight per 100 mm stroke	Δm	kg	2,1	2,1
Weight of anti-rotation	m_{arot0}	kg	1,3	1,3
Environment				
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40
Degree of protection	IP	–	54S	54S

¹⁾ Maximum dynamic axial force usable to apply the theoretical lifetime calculation (L10)

²⁾ By 100 mm steps

Performance diagram



— LEMC-x-3005

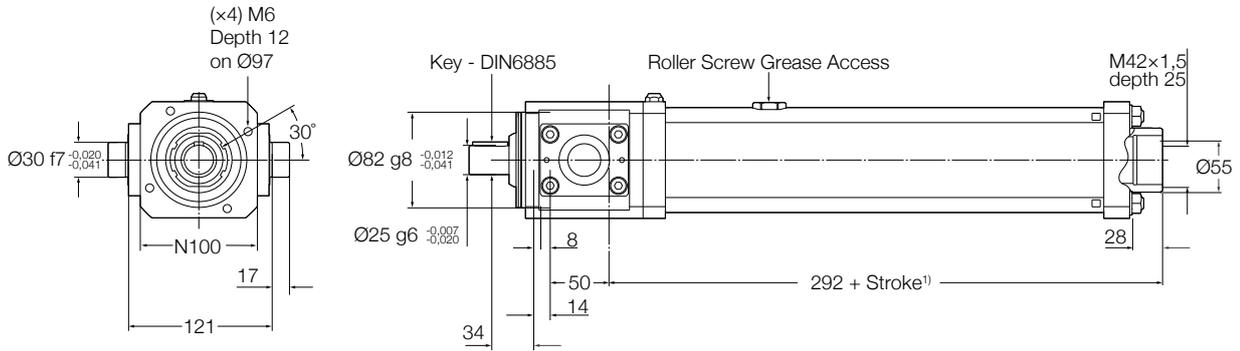
— LEMC-x-3010

Ordering key

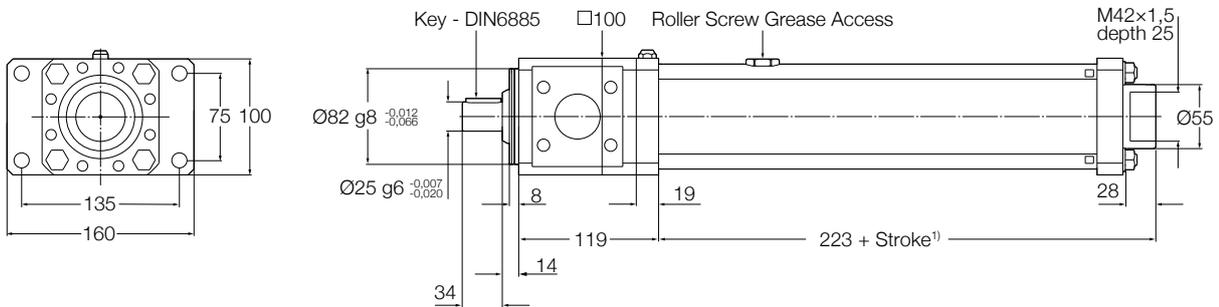
See page 19

Dimensional drawing

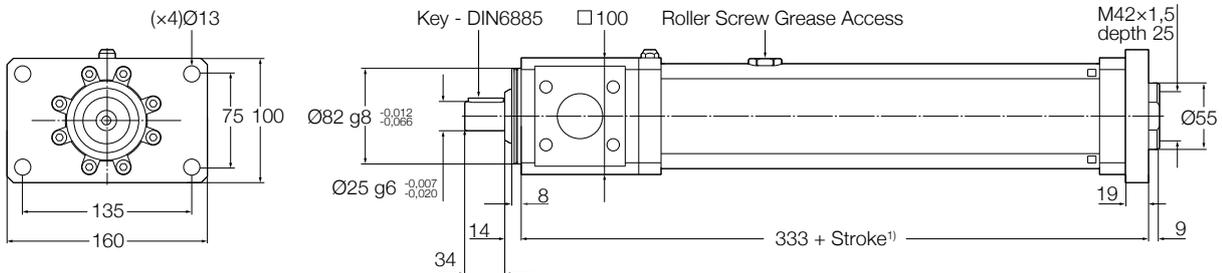
LEMCC-U-30xx-xxxx-TNNx-NNN (Trunnions)



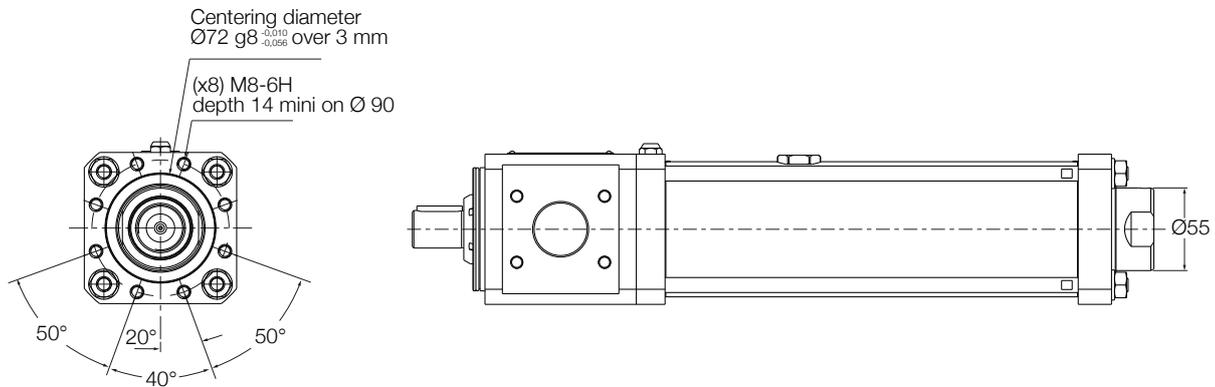
LEMCC-U-30xx-xxxx-BNNx-NNN (Back plate)



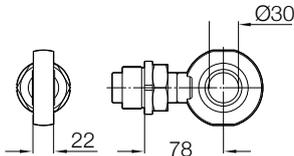
LEMCC-U-30xx-xxxx-FNNx-NNN (Front plate)



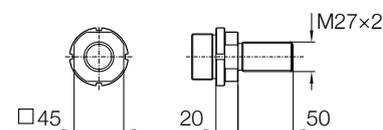
LEMCC-U-30xx-xxxx-NNNx-NNN



LEMCC-U-30xx-xxxx-xRxx (Rod end)



LEMCC-U-30xx-xxxx-xMxx (Male attachment)



¹Add 30 mm for anti-rotation option

Ordering key

Linear units

L E M C - U - 2 1 0 5 - 0 1 0 0 - T R A F 1 - P 2 0 2 4 1 1 0 H

Linear unit only _____

Screw diameter _____

Screw lead _____

Stroke _____

Rear attachment _____

- T Trunnions
- F Front plate
- B Back plate
- N No attachment

Front attachment _____

- M Male attachment
- N No attachment (female thread)
- R Rod end

Tube options _____

- N No anti-rotation with standard sealing
- S No anti-rotation with improved sealing (metallic scraper)
- A Anti-rotation

Limit switches _____

- F 2 limit switches and 1 home switch
- S 2 limit switches only
- M 1 limit switch and 1 home switch
- L 1 limit switch only
- H Home switch only
- N No switch

Grease _____

- 1 Standard grease
- 2 Food grade grease
- 3 High load grease capacity
- 4 Short move grease capacity

L E M C - U - 2 1 0 5 - 0 1 0 0 - T R A F 1 - P 2 0 2 4 1 1 0 H

Motor adapter option

- L In line motor interface
- P Parallel motor interface
- G CAM gearbox (spur gear)
- N No interface

Ratio

- 10 (1 to 1) - only with L and P
- 15 (3 to 2) - only with P
- 20 (2 to 1) - only with P
- 39 (3,89 to 1) - only with G (spur gear)
- 98 (9,82 to 1) - only with G (spur gear)
- 2E (24,95 to 1) - only with G (spur gear)

Motor shaft diameter¹⁾**Motor centering diameter¹⁾****Motor adapter option**

- L Standard motor adapter (for in line or parallel adapter)
- H High capacity motor adapter (only for belt parallel adapter)
- A Spur gear, no rear attachment and no brake
- B Spur gear, no rear attachment and with brake
- C Spur gear, with 0° rear attachment and no brake
- D Spur gear, with 0° rear attachment and with brake
- E Spur gear, with 90° rear attachment and no brake
- F Spur gear, with 90° rear attachment and with brake

¹⁾ For standard third party motors please refer to **pages 8-10**

Example**Linear unit without motor interface**

LEMC-U-2105-0100-TRAF1-N

Linear unit with motor interface

LEMC-U-2105-0100-TRAF1-L1019110L

LEMC-S-2105

Electric cylinder servo motor,
inline configuration



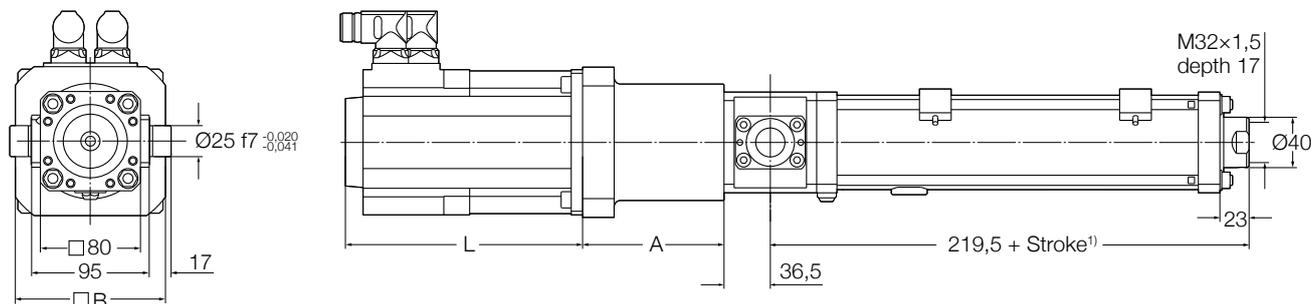
Technical data

Designation	Symbol	Unit	Inline adapter and servo motor					
			L10 LA1	L10 LA2	L10 LA3	L10 LA4	L10 LA5	L10 LA6
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	6,1	6,1	10,9	10,9	14,4	14,4
Continuous force @ max. speed	F_c	kN	5,3	4,1	9,6	7,2	13,0	10,6
Peak force @ zero speed	F_{p0}	kN	17,3	17,3	27,8	27,8	33,5	31
Peak force @ max. speed	F_p	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 (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21	21	21	21	21
Screw lead	p_{screw}	mm	5	5	5	5	5	5
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...600	100...600	100...600	100...600	100...600	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	7,05	7,05	10,40	10,40	13,70	13,70
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,15	0,15	0,15	0,15	0,15	0,15
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	1,07	1,07	1,07	1,07
Weight @ 0 mm stroke	m	kg	15,3	15,3	18,4	18,4	21,5	21,5
Δ weight per 100 mm stroke	Δm	kg	1,15	1,15	1,15	1,15	1,15	1,15
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,12	1,82	1,57	2,77	2,76	4,67
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing



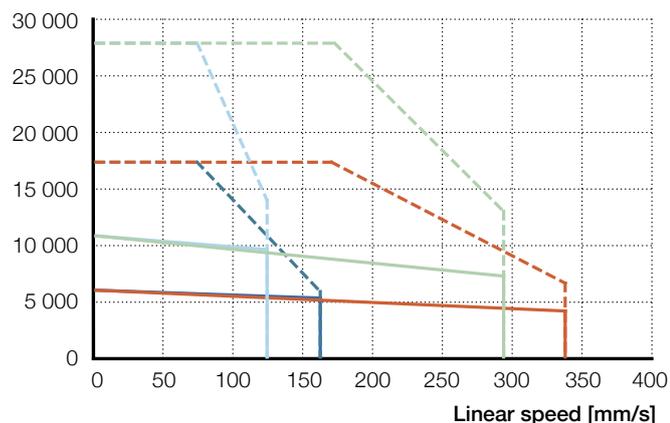
Reference	L ²⁾ mm	A	B
L10LA1	188	112	120
L10LA2	188	112	120
L10LA3	228	112	120
L10LA4	228	112	120
L10LA5	268	112	120
L10LA6	268	112	120

¹⁾ Add 30 mm for anti-rotation option

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

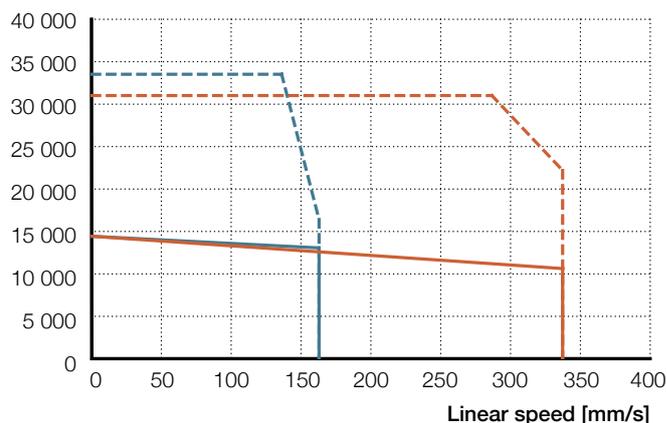
Performance diagrams

Axial force [N]



L10LA1	L10LA2	L10LA3	L10LA4
— F _{cont}	— F _{cont}	— F _{cont}	— F _{cont}
- - - F _{peak}			

Axial force [N]



L10LA5	L10LA6
— F _{cont}	— F _{cont}
- - - F _{peak}	- - - F _{peak}

For Force / Lifetime diagrams see page 15

Ordering key

See page 37

LEMC-S-2105

Electric cylinder servo motor, parallel configuration



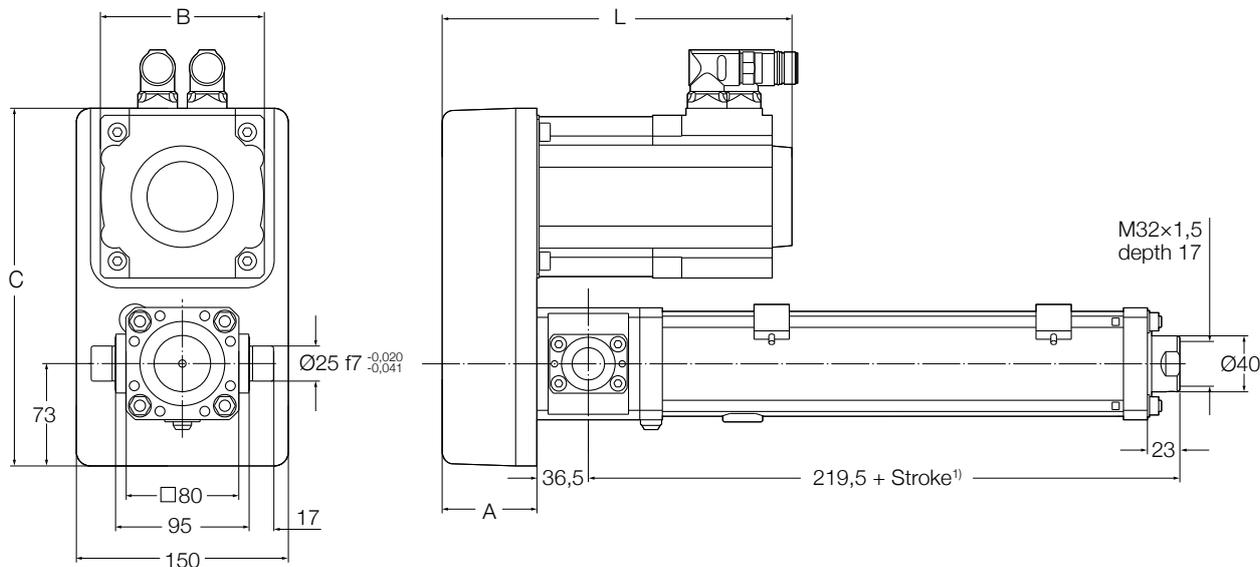
Technical data

Designation	Symbol	Unit	Parallel adapter and servo motor					
			P10 LA1	P10 LA2	P10 LA3	P10 LA4	P15 LA9	P10 LA6
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	6	6	10,6	10,6	13,5	14
Continuous force @ max. speed	F_c	kN	5,1	4	9,3	7	10,5	10,2
Peak force @ zero speed	F_{p0}	kN	16,8	16,8	27	27	29,3	30,1
Peak force @ max. speed	F_p	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
Holding force (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21	21	21	21	21
Screw lead	p_{screw}	mm	5	5	5	5	5	5
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...600	100...600	100...600	100...600	100...600	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	19,9	19,90	23,20	23,20	15,50	26,50
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,15	0,15	0,15	0,15	0,07	0,15
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	1,07	1,07	1,07	1,07
Weight @ 0 mm stroke	m	kg	17,2	17,2	20,3	20,3	20,2	23,4
Δ weight per 100 mm stroke	Δm	kg	1,15	1,15	1,15	1,15	1,15	1,15
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,12	1,82	1,57	2,77	2,75	4,67
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing

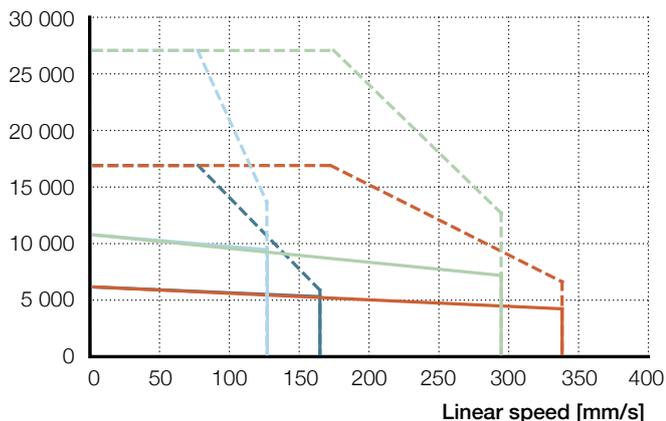


Reference	L ²⁾ mm	A	B	C
P10LA1	247,5	67	116	255
P10LA2	247,5	67	116	255
P10LA3	287,5	67	116	255
P10LA4	287,5	67	116	255
P15LA9	287,5	67	116	255
P10LA6	327,5	67	116	255

¹⁾ Add 30 mm for anti-rotation option
²⁾ For brake option add 20 mm. For absolute encoder option add 49 mm

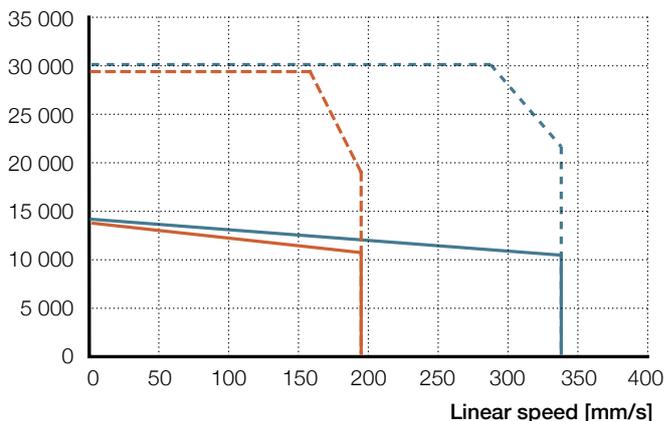
Performance diagrams

Axial force [N]



P10LA1	P10LA2	P10LA3	P10LA4
— F _{cont}	— F _{cont}	— F _{cont}	— F _{cont}
- - - F _{peak}			

Axial force [N]



P15LA9	P10LA6
— F _{cont}	— F _{cont}
- - - F _{peak}	- - - F _{peak}

For Force / Lifetime diagrams see [page 15](#)

Ordering key

See [page 37](#)

LEMC-S-2110

Electric cylinder servo motor, inline configuration



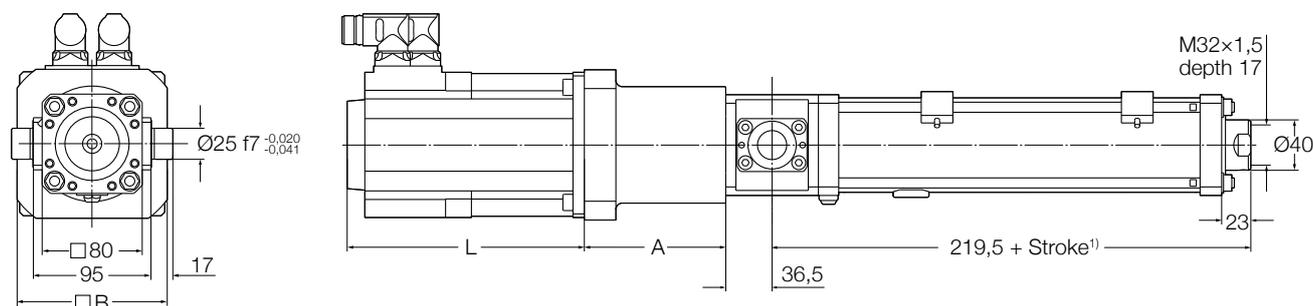
Technical data

Designation	Symbol	Unit	Inline adapter and servo motor					
			L10 LA1	L10 LA2	L10 LA3	L10 LA4	L10 LA7	L10 LA8
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	3	3	5,4	5,4	7,1	7,1
Continuous force @ max. speed	F_c	kN	2,6	2	4,7	3,6	6,4	5,2
Peak force @ zero speed	F_{p0}	kN	8,5	8,5	13,7	13,7	26,5	26,1
Peak force @ max. speed	F_p	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 (motorbrake option)	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
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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21	21	21	21	21
Screw lead	p_{screw}	mm	10	10	10	10	10	10
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...600	100...600	100...600	100...600	100...600	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	7,05	7,05	10,40	10,40	13,70	13,70
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,15	0,15	0,15	0,15	0,15	0,15
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	1,07	1,07	1,07	1,07
Weight @ 0 mm stroke	m	kg	15,3	15,3	18,4	18,4	21,5	21,5
Δ weight per 100 mm stroke	Δm	kg	1,15	1,15	1,15	1,15	1,15	1,15
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,12	1,82	1,57	2,77	2,76	4,67
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit **pages 5-10**

Dimensional drawing



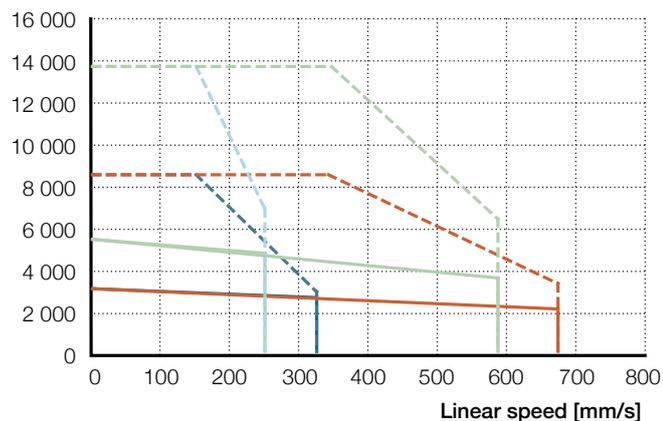
Reference	L ²⁾ mm	A	B
L10LA1	188	112	120
L10LA2	188	112	120
L10LA3	228	112	120
L10LA4	228	112	120
L10LA7	268	112	120
L10LA8	268	112	120

¹⁾ Add 30 mm for anti-rotation option

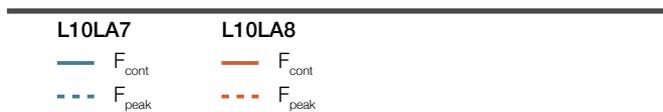
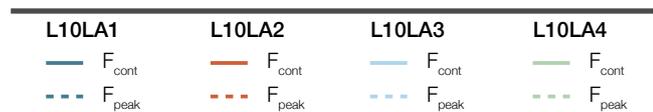
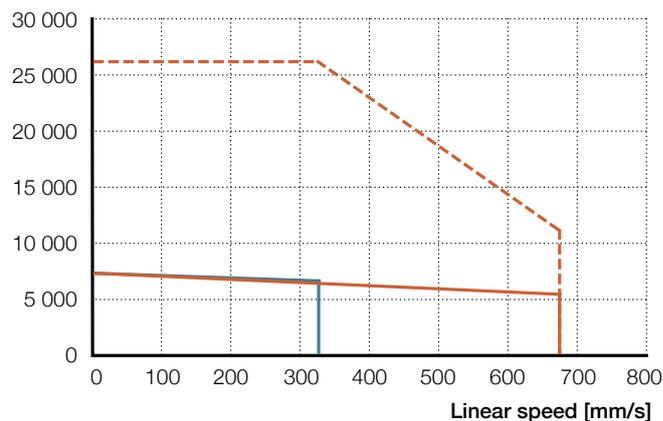
²⁾ For brake option add 20 mm. For absolute encoder option add 49 mm

Performance diagrams

Axial force [N]



Axial force [N]



For Force / Lifetime diagrams see [page 15](#)

Ordering key

See [page 37](#)

LEMC-S-2110

Electric cylinder servo motor,
parallel configuration



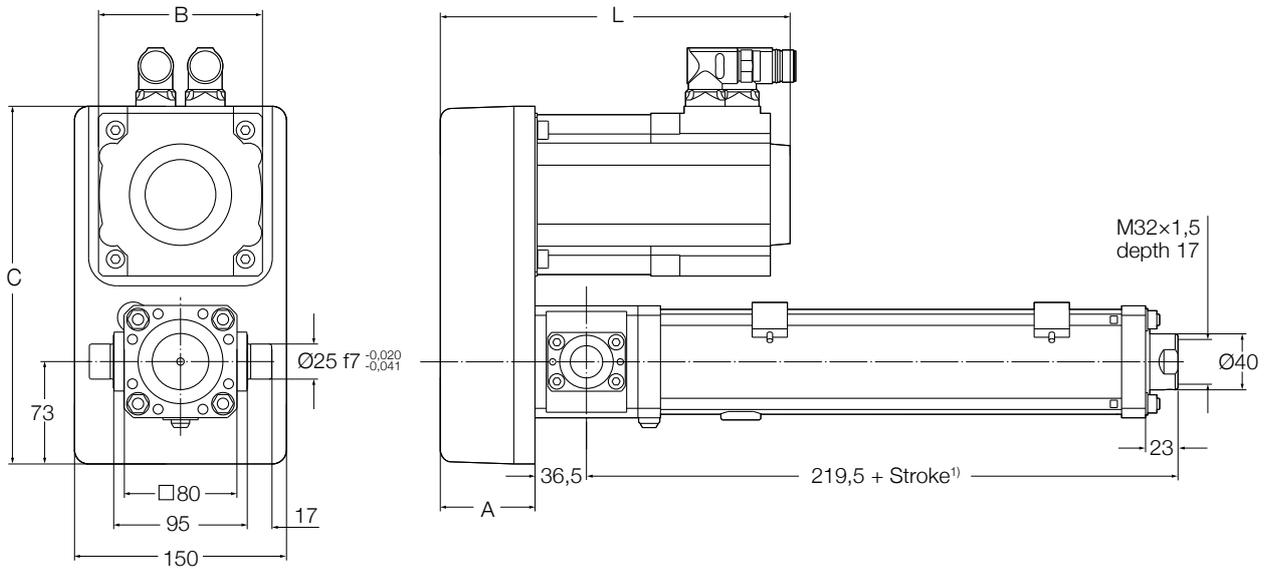
Technical data

Designation	Symbol	Unit	Parallel adapter and servo motor					
			P10 LA1	P10 LA2	P10 LA3	P20 LA3	P10 LA4	P20 LA4
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	2,9	2,9	5,2	10,5	5,2	10,5
Continuous force @ max. speed	F_c	kN	2,5	2	4,6	9,2	3,4	6,9
Peak force @ zero speed	F_{p0}	kN	8,3	8,3	13,3	26,7	13,3	26,7
Peak force @ max. speed	F_p	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 (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21	21	21	21	21
Screw lead	p_{screw}	mm	10	10	10	10	10	10
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...600	100...600	100...600	100...600	100...600	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	19,9	19,90	23,20	17,20	23,20	17,20
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,15	0,15	0,15	0,04	0,15	0,04
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	1,07	1,07	1,07	1,07
Weight @ 0 mm stroke	m	kg	17,2	17,2	20,3	16,8	20,3	16,8
Δ weight per 100 mm stroke	Δm	kg	1,15	1,15	1,15	1,15	1,15	1,15
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	0,90	0,90	0,90	0,90	0,90	0,90
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,12	1,82	1,57	1,57	2,77	2,77
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing



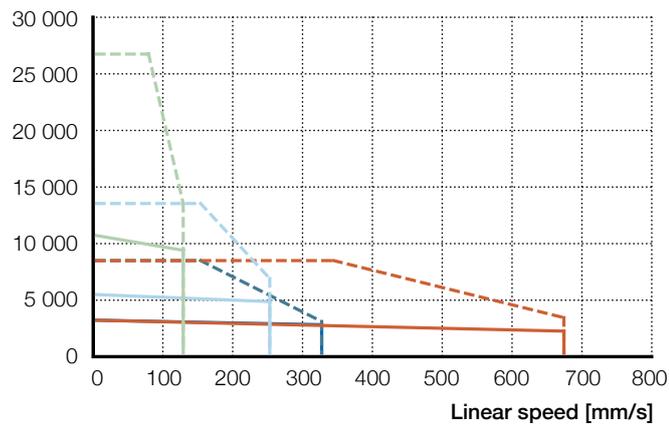
Reference	L ²⁾ mm	A	B	C
P10LA1	247,5	67	116	255
P10LA2	247,5	67	116	255
P10LA3	287,5	67	116	255
P20LA3	287,5	67	116	255
P10LA4	287,5	67	116	255
P20LA4	287,5	67	116	255

¹⁾ Add 30 mm for anti-rotation option

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

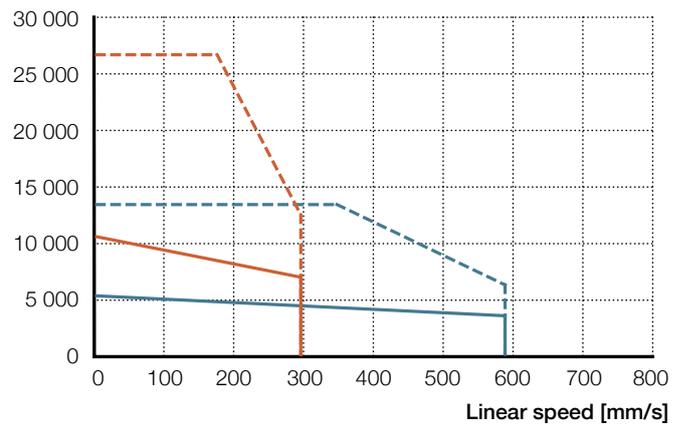
Performance diagrams

Axial force [N]



P10LA1	P10LA2	P10LA3	P20LA3
— F _{cont}	— F _{cont}	— F _{cont}	— F _{cont}
- - - F _{peak}			

Axial force [N]



P10LA4	P20LA4
— F _{cont}	— F _{cont}
- - - F _{peak}	- - - F _{peak}

For Force / Lifetime diagrams see [page 15](#)

Ordering key

See [page 37](#)

LEMC-S-3005

Electric cylinder servo motor,
inline configuration



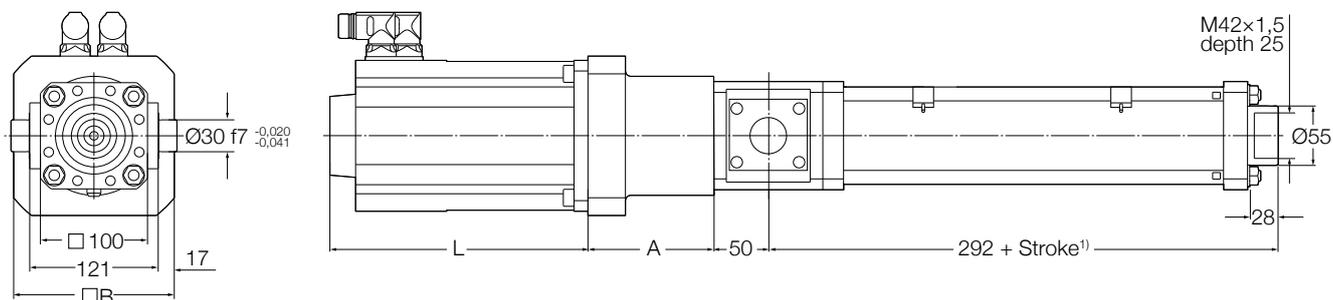
Technical data

Designation	Symbol	Unit	Inline adapter and servo motor					
			L10 LA3	L10 LA4	L10 LB1	L10 LB2	L10 LB5	L10 LB6
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	10,5	10,5	19,3	19,3	34	32,9
Continuous force @ max. speed	F_c	kN	9,2	6,9	14,7	12,9	27,5	19,3
Peak force @ zero speed	F_{p0}	kN	26,6	26,6	50,5	50,5	69	54,9
Peak force @ max. speed	F_p	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 (motorbrake option)	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
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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30	30	30	30	30
Screw lead	p_{screw}	mm	5	5	5	5	5	5
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...800	100...800	100...800	100...800	100...800	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	13,90	13,90	22,2	22,20	42,70	42,70
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,65	0,65	0,65	0,65	0,65	0,65
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	3,20	3,20	3,20	3,20
Weight @ 0 mm stroke	m	kg	27,1	27,1	33,1	33,1	42,5	42,5
Δ weight per 100 mm stroke	Δm	kg	2,05	2,05	2,05	2,05	2,05	2,05
Weight of optional brake	m_{brake}	kg	0,90	0,90	1,90	1,90	1,90	1,90
Weight of anti-rotation	m_{arot0}	kg	1,30	1,30	1,30	1,30	1,30	1,30
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,57	2,77	2,51	4,73	4,24	7,09
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing

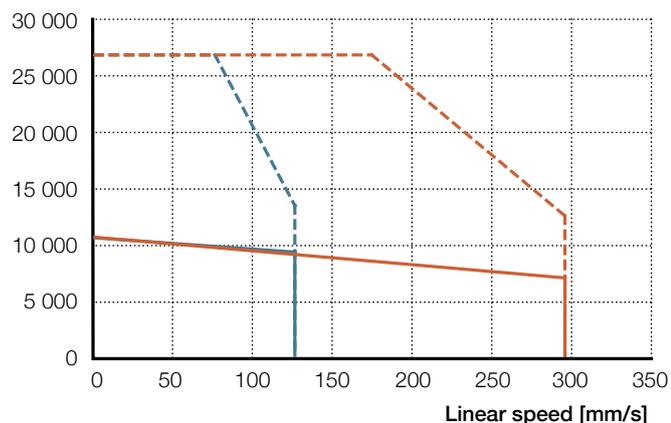


Reference	L ¹⁾ mm	A	B
L10LA3	228	106	120
L10LA4	228	106	120
L10LB1	241	113	150
L10LB2	241	113	150
L10LB5	321	113	150
L10LB6	321	113	150

¹⁾ For brake option add 28 mm. For absolute encoder option add 50 mm

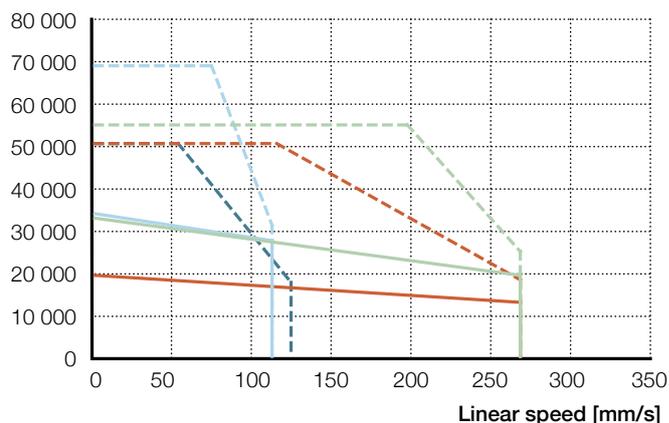
Performance diagrams

Axial force [N]



L10LA3 **L10LA4**
 — F_{cont} — F_{cont}
 - - - F_{peak} - - - F_{peak}

Axial force [N]



L10LB1 **L10LB2** **L10LB5** **L10LB6**
 — F_{cont} — F_{cont} — F_{cont} — F_{cont}
 - - - F_{peak} - - - F_{peak} - - - F_{peak} - - - F_{peak}

For Force / Lifetime diagrams see [page 17](#)

Ordering key

See [page 37](#)

LEMC-S-3005

Electric cylinder servo motor, parallel configuration



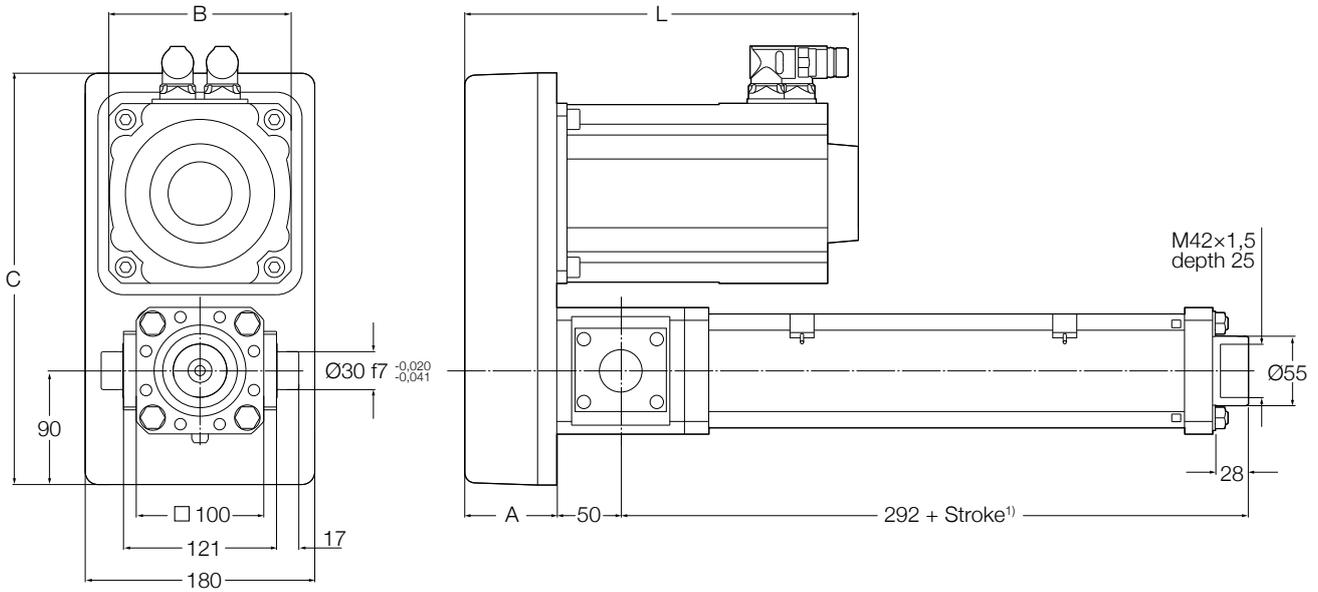
Technical data

Designation	Symbol	Unit	Parallel adapter and servo motor					
			P10 LA3	P10 LA4	P15 LA5	P15 LA6	P10 LB5	P10 LB6
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	10,2	10,2	20	20	32,9	31,9
Continuous force @ max. speed	F_c	kN	8,9	6,7	18	14,7	26,7	18,7
Peak force @ zero speed	F_{p0}	kN	25,8	25,8	46,6	43,1	67	53,3
Peak force @ max. speed	F_p	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 (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30	30	30	30	30
Screw lead	p_{screw}	mm	5	5	5	5	5	5
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...800	100...800	100...800	100...800	100...800	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	49,90	49,90	40,3	40,30	77,30	77,30
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,65	0,65	0,3	0,3	0,65	0,65
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	1,07	1,07	3,20	3,20
Weight @ 0 mm stroke	m	kg	29,9	29,9	33,6	33,6	45,1	45,1
Δ weight per 100 mm stroke	Δm	kg	2,05	2,05	2,05	2,05	2,05	2,05
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90	0,90	1,90	1,90
Weight of anti-rotation	m_{arot0}	kg	1,30	1,30	1,30	1,30	1,30	1,30
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,57	2,77	2,76	4,67	4,24	7,09
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing



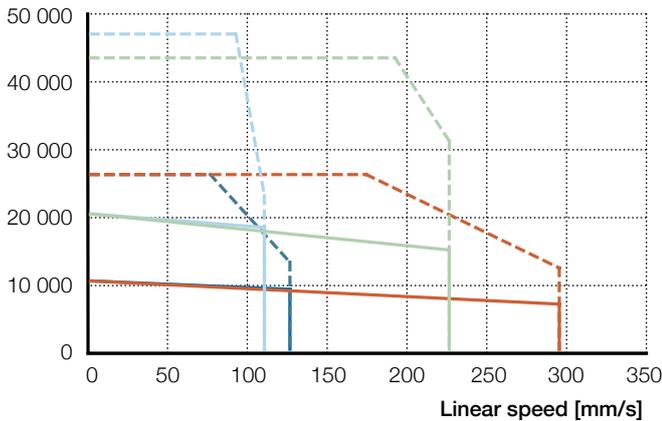
Reference	L ²⁾ mm	A mm	B mm	C mm
P10LA3	292	72	116	325
P10LA4	292	72	116	325
P15LA5	332	72	116	325
P15LA6	332	72	116	325
P10LB5	388	72	143	325
P10LB6	388	72	143	325

¹⁾ Add 30 mm for anti-rotation option

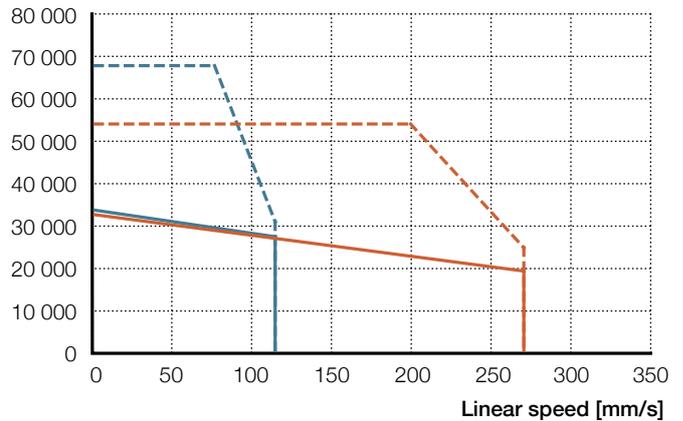
²⁾ For brake option add 28 mm. For absolute encoder option add 50 mm

Performance diagrams

Axial force [N]



Axial force [N]



P10LA3	P10LA4	P15LA5	P15LA6
— F _{cont}	— F _{cont}	— F _{cont}	— F _{cont}
- - - F _{peak}			

P10LB5	P10LB6
— F _{cont}	— F _{cont}
- - - F _{peak}	- - - F _{peak}

For Force / Lifetime diagrams see [page 17](#)

Ordering key

See [page 37](#)

LEMC-S-3010

Electric cylinder servo motor,
inline configuration



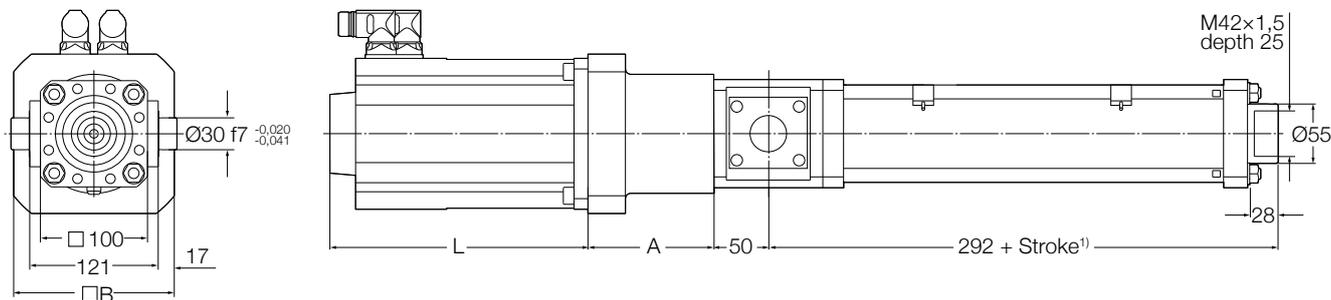
Technical data

Designation	Symbol	Unit	Inline adapter and servo motor					
			L10 LA3	L10 LA4	L10 LB1	L10 LB2	L10 LB7	L10 LB8
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	5,6	5,6	10,4	10,4	18,3	18,3
Continuous force @ max. speed	F_c	kN	5	3,7	7,9	6,9	14,9	10,4
Peak force @ zero speed	F_{p0}	kN	14,4	14,4	27,2	27,2	52	52
Peak force @ max. speed	F_p	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 (motorbrake option)	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
Duty cycle	D	%	100	100	100	100	100	100
Mechanical Data								
Screw type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30	30	30	30	30
Screw lead	p_{screw}	mm	10	10	10	10	10	10
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...800	100...800	100...800	100...800	100...800	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	13,90	13,90	22,20	22,20	42,70	42,70
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,65	0,65	0,65	0,65	0,65	0,65
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	3,20	3,20	3,20	3,20
Weight @ 0 mm stroke	m	kg	27,1	27,1	33,1	33,1	42,5	42,5
Δ weight per 100 mm stroke	Δm	kg	2,05	2,05	2,05	2,05	2,05	2,05
Weight of optional brake	m_{brake}	kg	0,90	0,90	1,90	1,90	1,90	1,90
Weight of anti-rotation	m_{arot0}	kg	1,30	1,30	1,30	1,30	1,30	1,30
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,57	2,77	2,51	4,73	4,24	7,09
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing



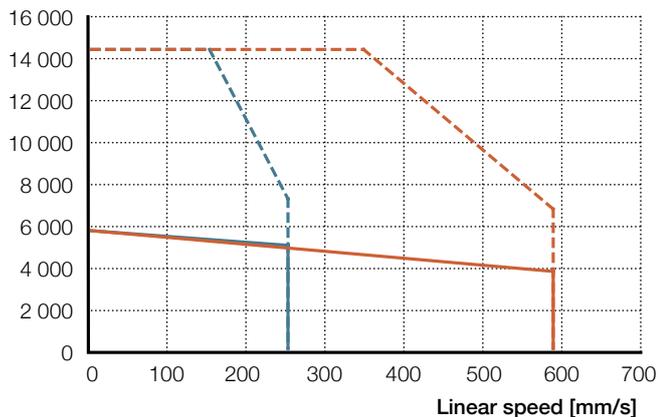
Reference	L ²⁾ mm	A	B
L10LA3	228	106	120
L10LA4	228	106	120
L10LB1	241	113	150
L10LB2	241	113	150
L10LB7	321	113	150
L10LB8	321	113	150

¹⁾ Add 30 mm for anti-rotation option

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

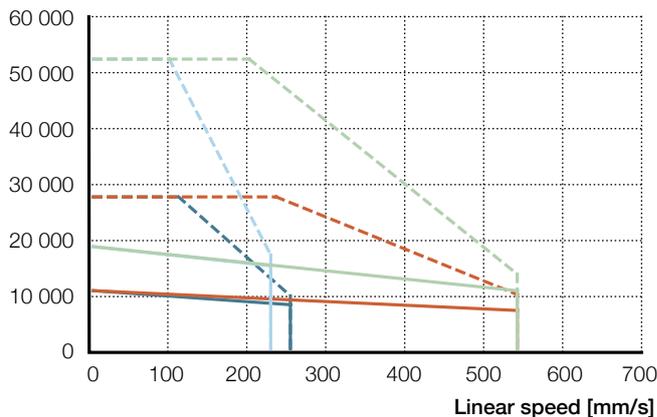
Performance diagrams

Axial force [N]



L10LA3 **L10LA4**
 — F_{cont} — F_{cont}
 - - - F_{peak} - - - F_{peak}

Axial force [N]



L10LB1 **L10LB2** **L10LB7** **L10LB8**
 — F_{cont} — F_{cont} — F_{cont} — F_{cont}
 - - - F_{peak} - - - F_{peak} - - - F_{peak} - - - F_{peak}

For Force / Lifetime diagrams see [page 17](#)

Ordering key

See [page 37](#)

LEMC-S-3010

Electric cylinder servo motor,
parallel configuration



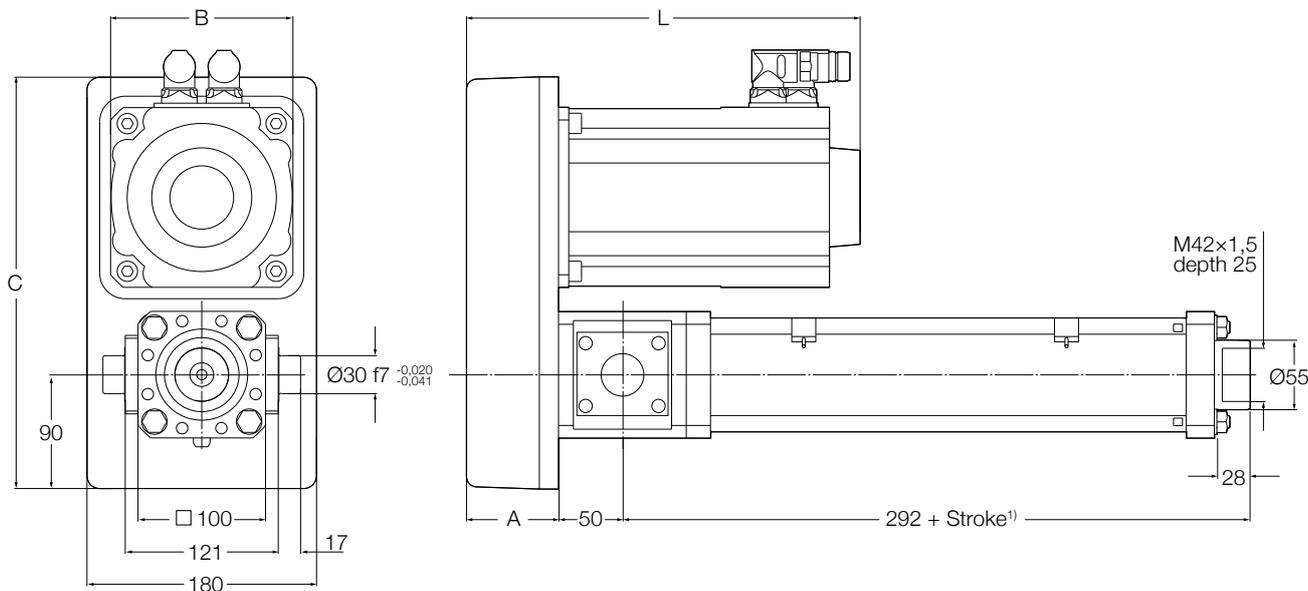
Technical data

Designation	Symbol	Unit	Parallel adapter and servo motor					
			P20 LA1	P20 LA2	P20 LA5	P20 LA6	P15 LB5	P15 LC2
Performance Data								
Continuous force @ zero speed	F_{c0}	kN	6,2	6,2	14,4	14,4	26,7	26,7
Continuous force @ max. speed	F_c	kN	5,3	4,1	13	10,6	21,6	15,1
Peak force @ zero speed	F_{p0}	kN	17,3	17,3	33,5	31	54,2	49,6
Peak force @ max. speed	F_p	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 (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30	30	30	30	30
Screw lead	p_{screw}	mm	10	10	10	10	10	10
Lead accuracy	–	–	G5	G5	G5	G5	G5	G5
Stroke ¹⁾	s	mm	100...800	100...800	100...800	100...800	100...800	100...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
Inertia @ 0 mm stroke	J	10 ⁻⁴ kgm ²	30,20	30,2	46,30	46,30	107,00	107,00
Δ Inertia per 100 mm stroke	ΔJ	10 ⁻⁴ kgm ²	0,16	0,16	0,16	0,16	0,29	0,29
Inertia of optional brake	J_{brake}	10 ⁻⁴ kgm ²	1,07	1,07	1,07	1,07	3,20	3,20
Weight @ 0 mm stroke	m	kg	21,1	21,1	35,8	35,8	48,5	48,5
Δ weight per 100 mm stroke	Δm	kg	2,05	2,05	2,05	2,05	2,05	2,05
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90	0,90	1,90	1,90
Weight of anti-rotation	m_{arot0}	kg	1,30	1,30	1,30	1,30	1,30	1,30
Electrical Data								
Motor type	–	–	Servo	Servo	Servo	Servo	Servo	Servo
Nominal voltage	U	V AC	400	400	400	400	400	400
Nominal 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
Nominal power	P	kW	1,12	1,82	2,76	4,67	4,24	7,09
Environment								
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S	54S	54S	54S

¹⁾ By 100 mm steps

For more information regarding motors and motor adapters, please visit [pages 5-10](#)

Dimensional drawing



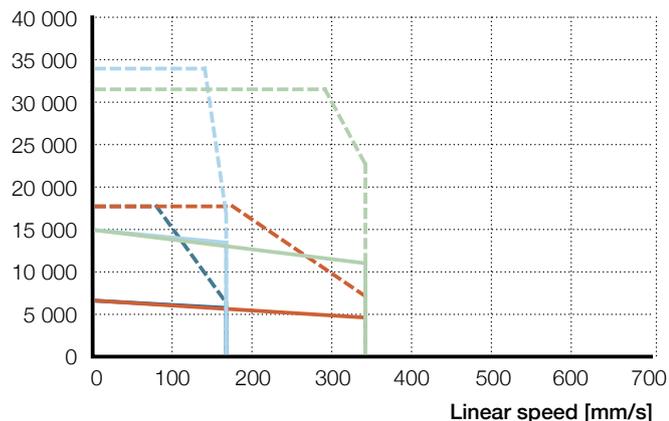
Reference	L ¹⁾ mm	A	B	C
P20LA1	252	72	116	325
P20LA2	252	72	116	325
P20LA5	332	72	116	325
P20LA6	332	72	116	325
P15LB5	388	72	143	325
P15LC2	338	72	143	325

¹⁾ Add 30 mm for anti-rotation option

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

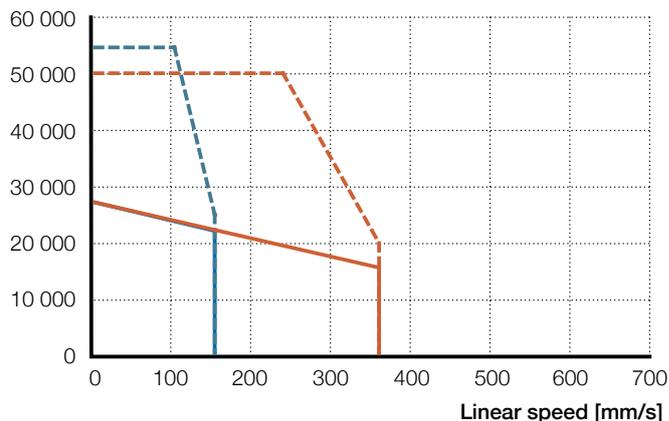
Performance diagrams

Axial force [N]



P20LA1	P20LA2	P20LA5	P20LA6
— F _{cont}	— F _{cont}	— F _{cont}	— F _{cont}
- - - F _{peak}			

Axial force [N]



P15LB5	P15LC2
— F _{cont}	— F _{cont}
- - - F _{peak}	- - - F _{peak}

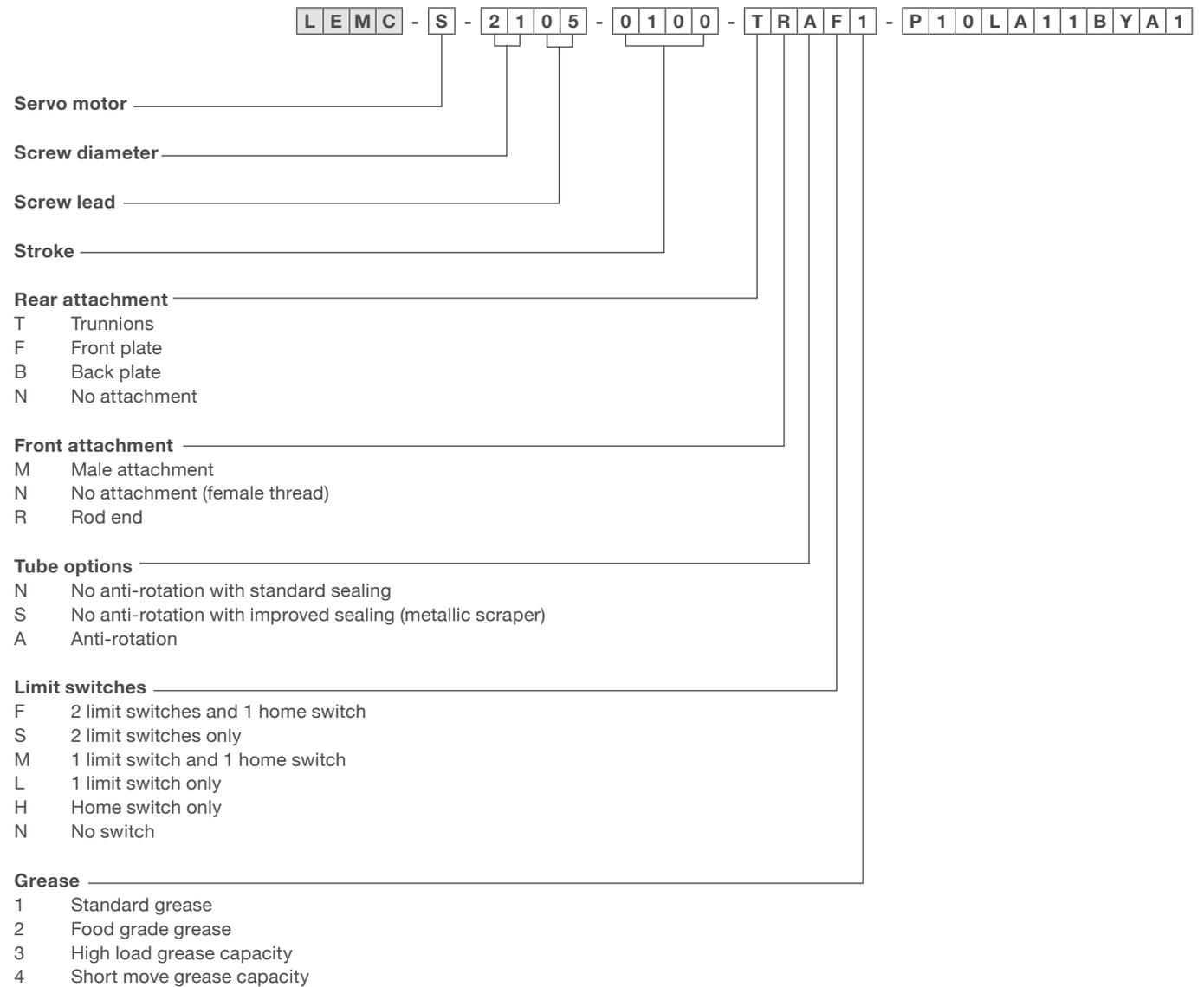
For Force / Lifetime diagrams see [page 17](#)

Ordering key

See [page 37](#)

Ordering key

Actuators with servo motors



L E M C - S - 2 1 0 5 - 0 1 0 0 - T R A F 1 - P 1 0 L A 1 1 B Y A 1

Interface and gear ratio

See pages 5 and 6 – Table: Performance overview of actuators with servo motors

Motor

See pages 5 and 6 – Table: Performance overview of actuators with servo motors

Feedback

- 1 Resolver
- 2 Absolute encoder Hiperface
- 3 Absolute encoder EnDat

EM brake

- B Brake 24 V DC
- N No brake

Motor Drive

- Y Drive included
- N No drive

Drive fieldbus

- A CANopen
- B DeviceNet
- C EtherCAT
- D Ethernet
- E Powerlink MN/CN
- F Powerlink CN
- G Profibus
- H Profinet
- N No fieldbus

Power and signal cables

- 1 5 m
- 2 10 m
- 3 15 m
- 4 20 m
- N No cable

LEMC-A-2110

Electric cylinder asynchronous motor,
L-configuration



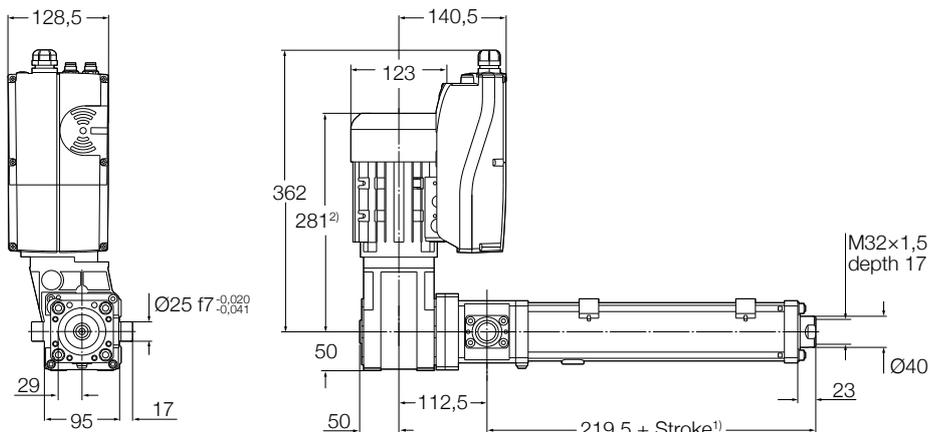
Technical data

Designation	Symbol	Unit	L-configuration adapter and asynchronous motor		
			B054 LAA2	B151 LAA2	B319 LBA2
Performance Data					
Continuous force @ max. speed	F_c	kN	4,3	12	25,4
Dynamic load capacity	C	kN	54,3	54,3	54,3
Holding force (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21	21
Screw lead	p_{screw}	mm	10	10	10
Lead accuracy			G5	G5	G5
Stroke ¹⁾	s	mm	100...600	100...600	100...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
Inertia @ 0 mm stroke	J	10^{-4} kgm ²	4,0600	3,7700	3,7400
Δ Inertia per 100 mm stroke	ΔJ	10^{-4} kgm ²	0,0051	0,0007	0,0001
Inertia of optional brake	J_{brake}	10^{-4} kgm ²	0,0150	0,0150	0,0150
Weight @ 0 mm stroke	m	kg	17,3	17,3	18,7
Δ weight per 100 mm stroke	Δm	kg	1,15	1,15	1,15
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	0,90	0,90	0,90
Electrical Data					
Motor type	–	–	Asynchronous	Asynchronous	Asynchronous
Nominal voltage	U	V AC	3 × 400	3 × 400	3 × 400
Nominal current	I	A	1	1	1
Nominal power	P	kW	0,47	0,47	0,47
Environment					
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S

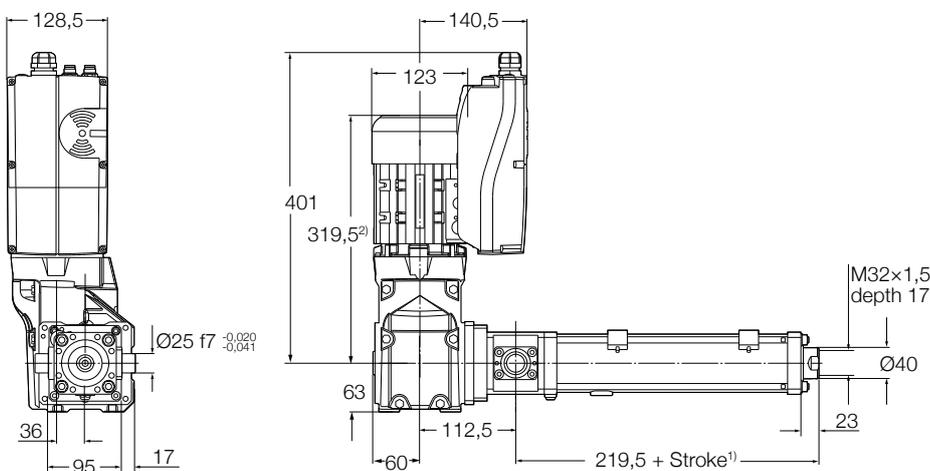
¹⁾ By 100 mm steps

Dimensional drawing

LEMC-A-21xx-..-B054LAA2SN
LEMC-A-21xx-..-B151LAA2SN



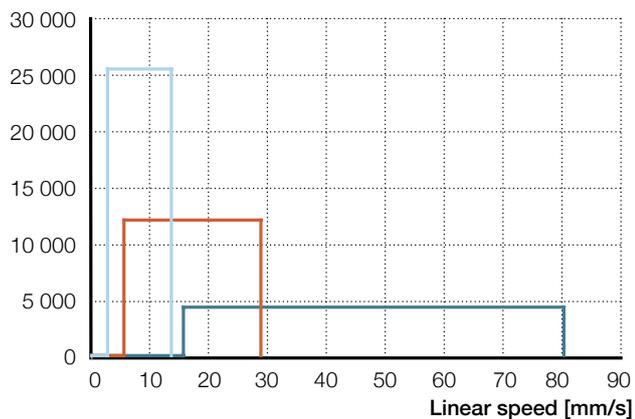
LEMC-A-21xx-..-B319LBA2SN



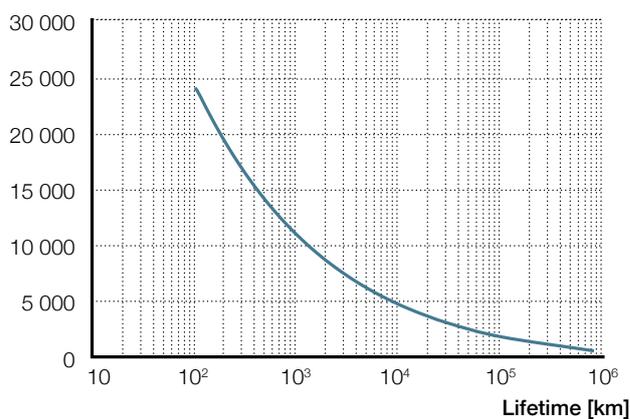
¹⁾ Add 30 mm for anti-rotation option
²⁾ Add 40 mm for Brake option

Performance diagrams

Axial force [N]



F_m [N]



B054LAA2

B151LAA2

B319LBA2

— F_{cont}

— F_{cont}

— F_{cont}

Ordering key

See page 49

LEMC-A-2110

Electric cylinder asynchronous motor,
parallel configuration

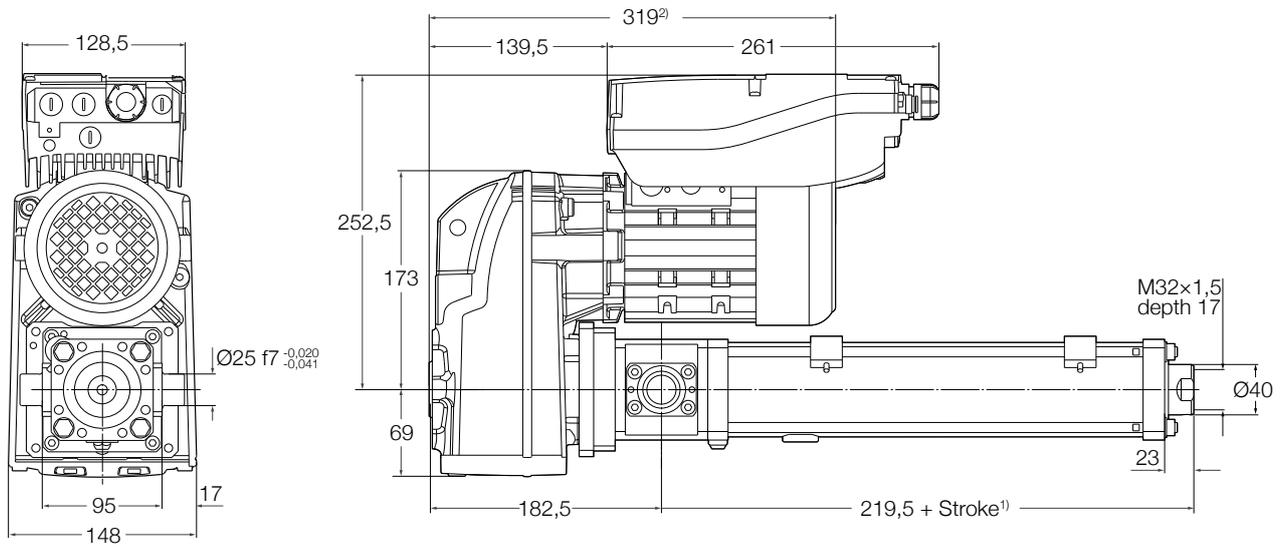


Technical data

Designation	Symbol	Unit	Parallel adapter and asynchronous motor		
			P129 LBA2	P187 LBA2	P328 LBA2
Performance Data					
Continuous force @ max. speed	F_c	kN	10,3	14,9	26,2
Dynamic load capacity	C	kN	54,3	54,3	54,3
Holding force (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	21	21	21
Screw lead	p_{screw}	mm	10	10	10
Lead accuracy			G5	G5	G5
Stroke ¹⁾	s	mm	100...600	100...600	100...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
Inertia @ 0 mm stroke	J	10^{-4} kgm ²	4,3300	4,1200	3,85
Δ Inertia per 100 mm stroke	ΔJ	10^{-4} kgm ²	0,0009	0,0004	0,0001
Inertia of optional brake	J_{brake}	10^{-4} kgm ²	0,0150	0,0150	0,015
Weight @ 0 mm stroke	m	kg	20,7	20,7	20,7
Δ weight per 100 mm stroke	Δm	kg	1,15	1,15	1,15
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	0,90	0,90	0,90
Electrical Data					
Motor type	–	–	Asynchronous	Asynchronous	Asynchronous
Nominal voltage	U	V AC	3 × 400	3 × 400	3 × 400
Nominal current	I	A	1	1	1
Nominal power	P	kW	0,47	0,47	0,47
Environment					
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S

¹⁾ By 100 mm steps

Dimensional drawing

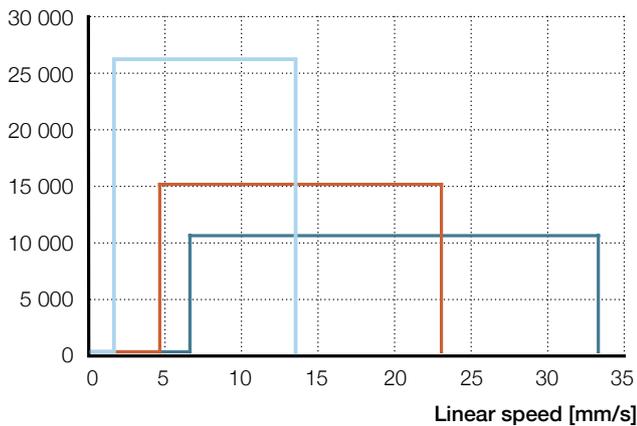


¹⁾ Add 30 mm for anti-rotation option

²⁾ Add 40 mm for Brake option

Performance diagrams

Axial force [N]



P129LBA2

P187LBA2

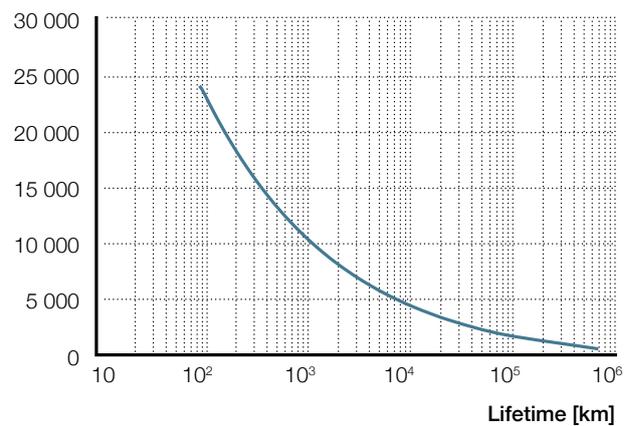
B328LBA2

— F_{cont}

— F_{cont}

— F_{cont}

F_m [N]



Ordering key

See page 49

LEMC-A-3005

Electric cylinder asynchronous motor,
L-configuration

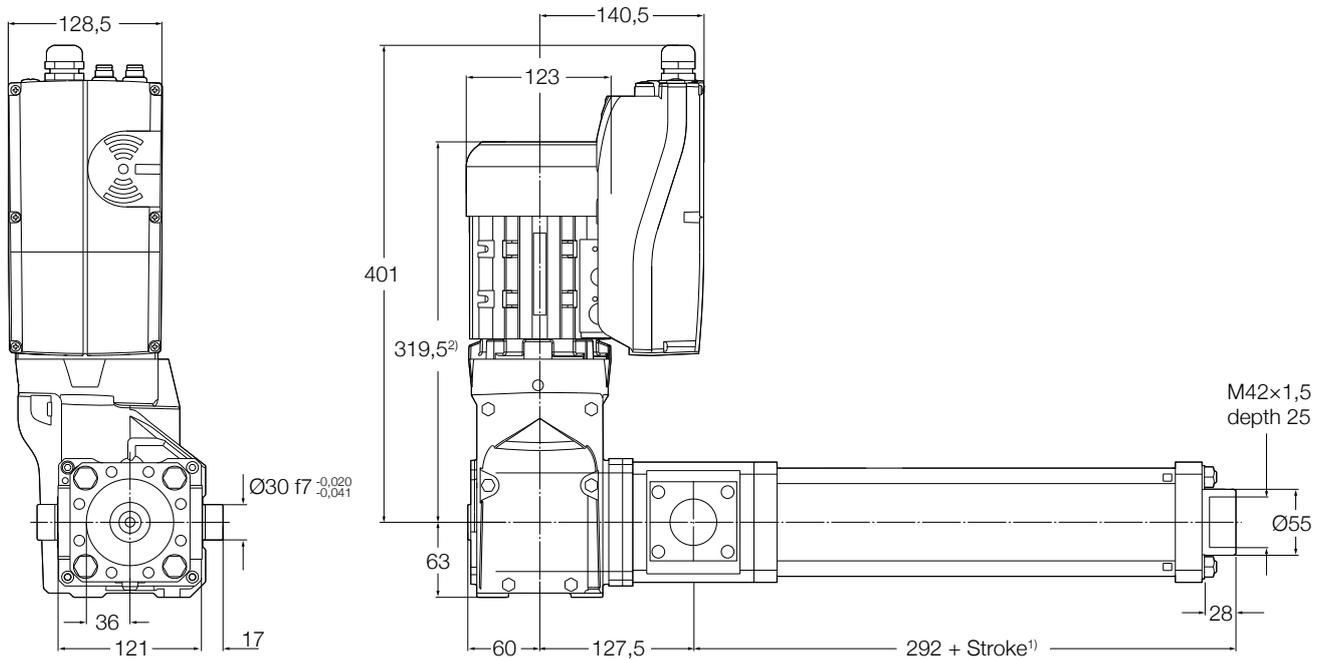


Technical data

Designation	Symbol	Unit	L-configuration adapter and asynchronous motor		
			B051 LBA2	B155 LBA2	B319 LBA2
Performance Data					
Continuous force @ max. speed	F_c	kN	8	24	49,2
Dynamic load capacity	C	kN	106	106	106
Holding force (motorbrake option)	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 type	–	–	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30	30
Screw lead	p_{screw}	mm	5	5	5
Lead accuracy			G5	G5	G5
Stroke ¹⁾	s	mm	100...800	100...800	100...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
Inertia @ 0 mm stroke	J	10^{-4} kgm ²	4,68	3,8600	3,7500
Δ Inertia per 100 mm stroke	ΔJ	10^{-4} kgm ²	0,0242	0,0027	0,0006
Inertia of optional brake	J_{brake}	10^{-4} kgm ²	0,015	0,0150	0,0150
Weight @ 0 mm stroke	m	kg	25,8	25,8	25,8
Δ weight per 100 mm stroke	Δm	kg	2,05	2,05	2,05
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	1,30	1,30	1,30
Electrical Data					
Motor type	–	–	Asynchronous	Asynchronous	Asynchronous
Nominal voltage	U	V AC	3 × 400	3 × 400	3 × 400
Nominal current	I	A	1	1	1
Nominal power	P	kW	0,47	0,47	0,47
Environment					
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S

¹⁾ By 100 mm steps

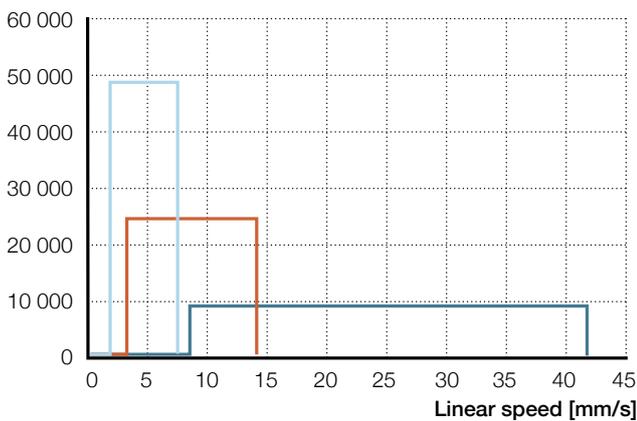
Dimensional drawing



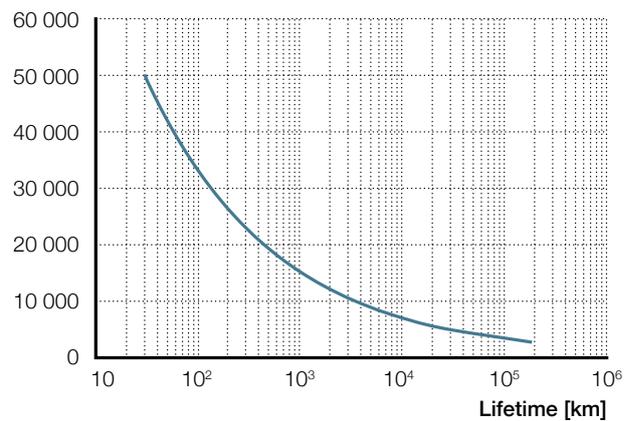
¹⁾ Add 30 mm for anti-rotation option
²⁾ Add 40 mm for Brake option

Performance diagrams

Axial force [N]



F_m [N]



B051LBA2 B155LBA2 B319LBA2
 — F_{cont} — F_{cont} — F_{cont}

Ordering key

See page 49

LEMC-A-3005

Electric cylinder asynchronous motor, parallel configuration

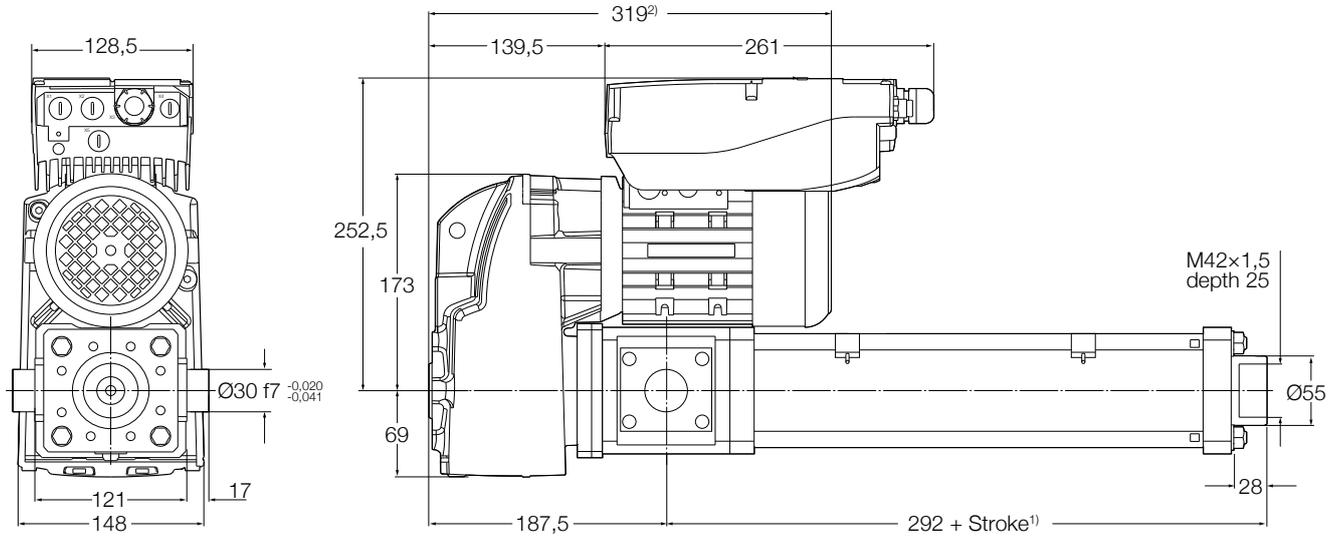


Technical data

Designation	Symbol	Unit	Parallel adapter and asynchronous motor		
			P129 LBA2	P187 LBA2	P328 LBA2
Performance Data					
Continuous force @ max. speed	F_c	kN	20	29	50,7
Dynamic load capacity	C	kN	106	106	106
Holding force (motorbrake option)	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					
Screw type	–	–	Roller screw	Roller screw	Roller screw
Screw diameter	d_{screw}	mm	30	30	30
Screw lead	p_{screw}	mm	5	5	5
Lead accuracy			G5	G5	G5
Stroke ¹⁾	s	mm	100...800	100...800	100...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
Inertia @ 0 mm stroke	J	10^{-4} kgm ²	4,3500	4,1300	3,8500
Δ Inertia per 100 mm stroke	ΔJ	10^{-4} kgm ²	0,0039	0,0018	0,0006
Inertia of optional brake	J_{brake}	10^{-4} kgm ²	0,0150	0,0150	0,0150
Weight @ 0 mm stroke	m	kg	27,8	27,8	27,8
Δ weight per 100 mm stroke	Δm	kg	2,05	2,05	2,05
Weight of optional brake	m_{brake}	kg	0,90	0,90	0,90
Weight of anti-rotation	m_{arot0}	kg	1,30	1,30	1,30
Electrical Data					
Motor type	–	–	Asynchronous	Asynchronous	Asynchronous
Nominal voltage	U	V AC	3 × 400	3 × 400	3 × 400
Nominal current	I	A	1	1	1
Nominal power	P	kW	0,47	0,47	0,47
Environment					
Ambient temperature	$T_{ambient}$	°C	0...+40	0...+40	0...+40
Degree of protection	IP	–	54S	54S	54S

¹⁾ By 100 mm steps

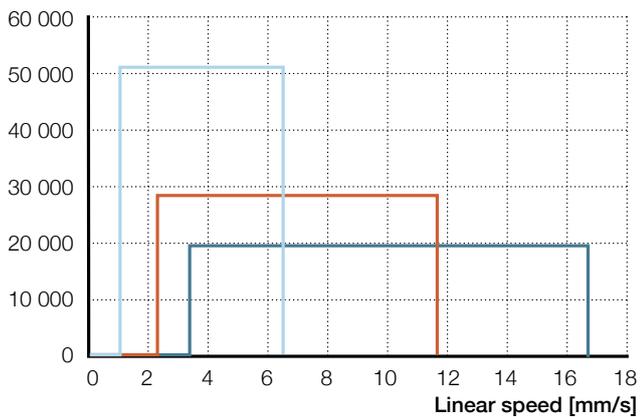
Dimensional drawing



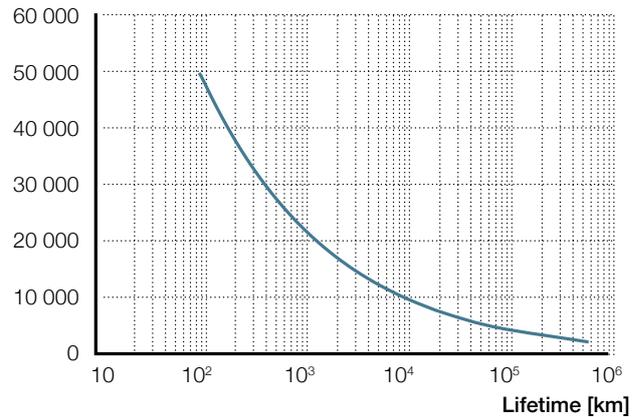
¹⁾ Add 30 mm for anti-rotation option
²⁾ Add 40 mm for Brake option

Performance diagrams

Axial force [N]



F_m [N]



P129LBA2

P187LBA2

P328LBA2

— F_{cont}

— F_{cont}

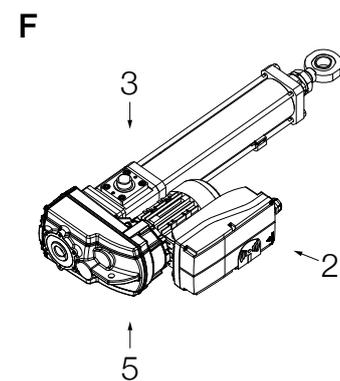
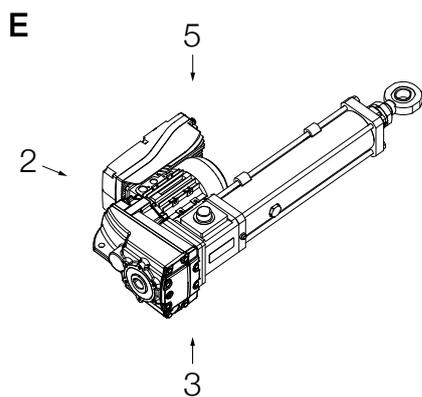
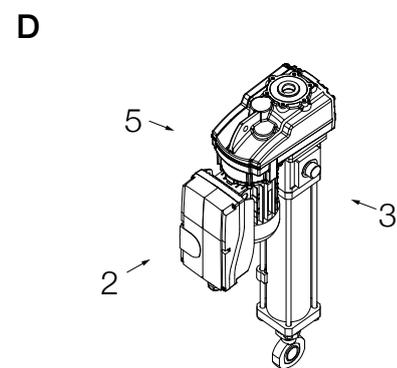
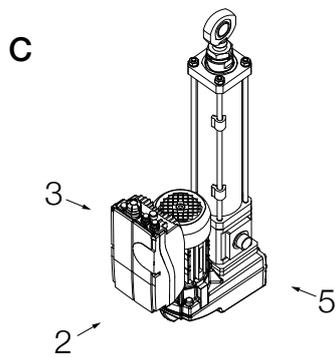
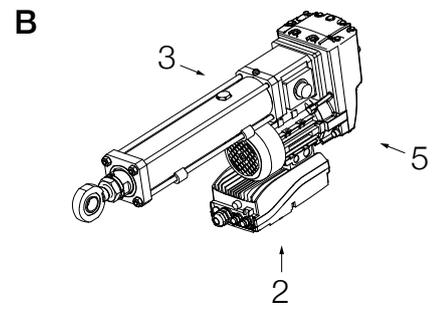
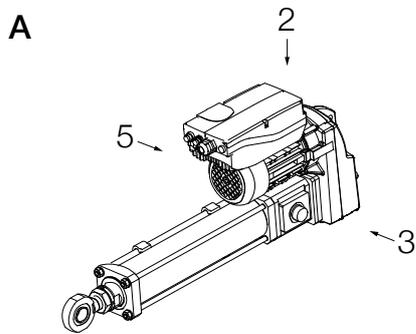
— F_{cont}

Ordering key

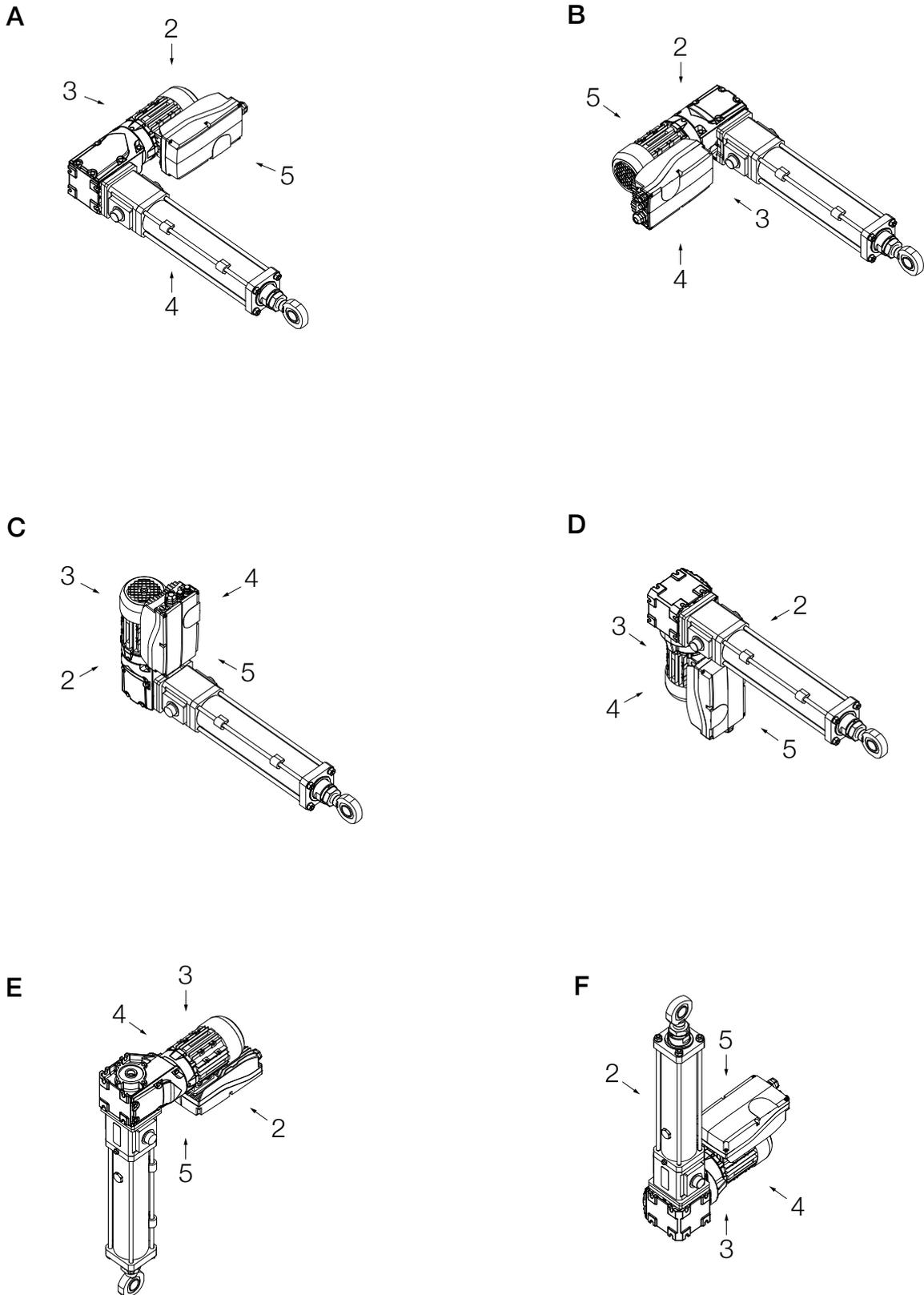
See page 49

Mounting positions

Parallel adapter and motor

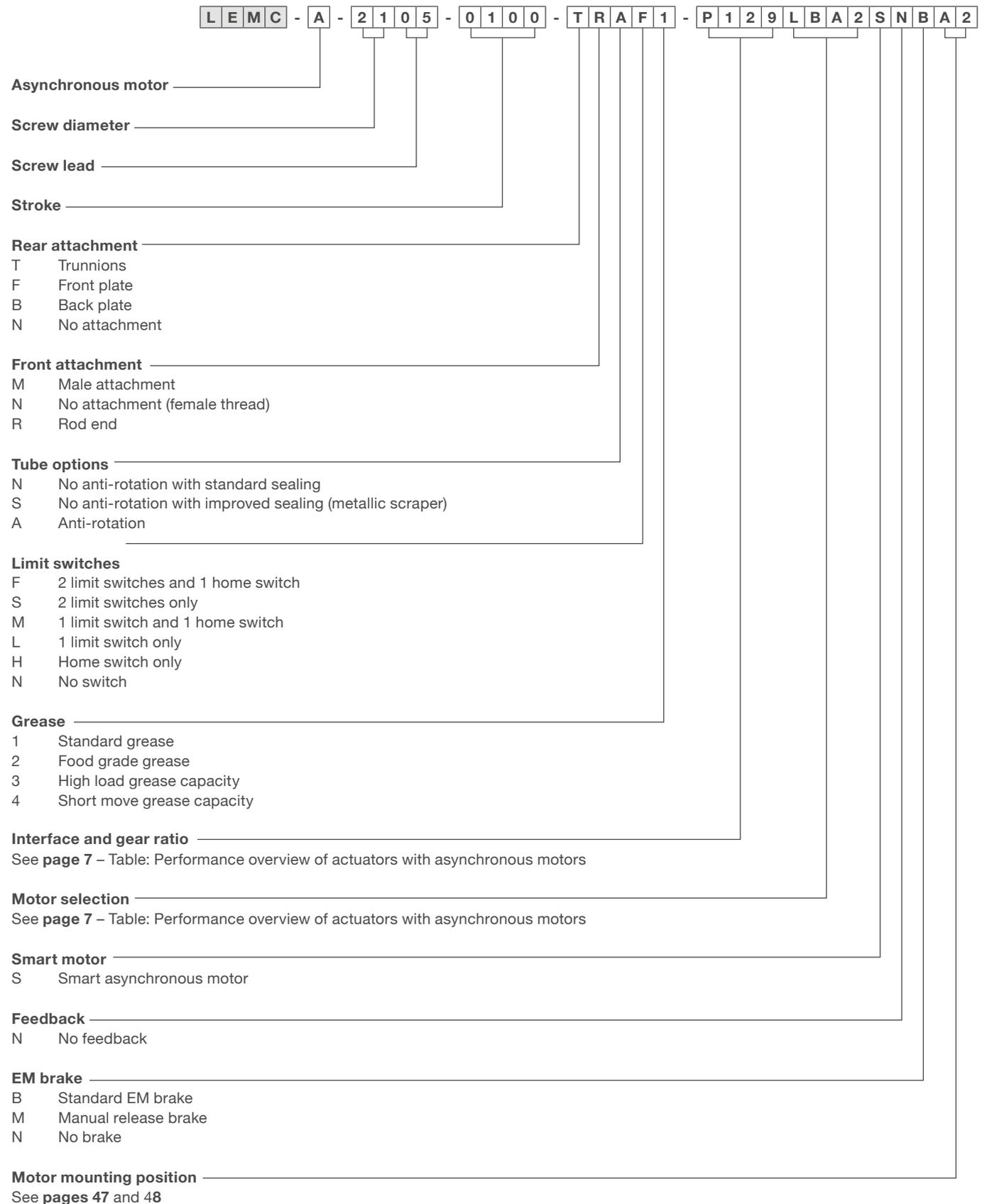


L-configuration and motor



Ordering key

Actuators with asynchronous motors



Accessories

Limit/Home switches

Sensor type: magnetic

Technology: DC PNP

Limit switch to output: normally closed

Home switch output: normally open

Supply voltage (V DC): 24 V

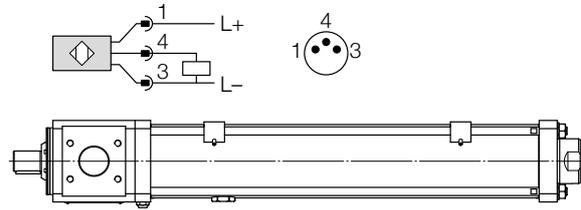
Consumption (mA): < 10 (under 24 V DC)

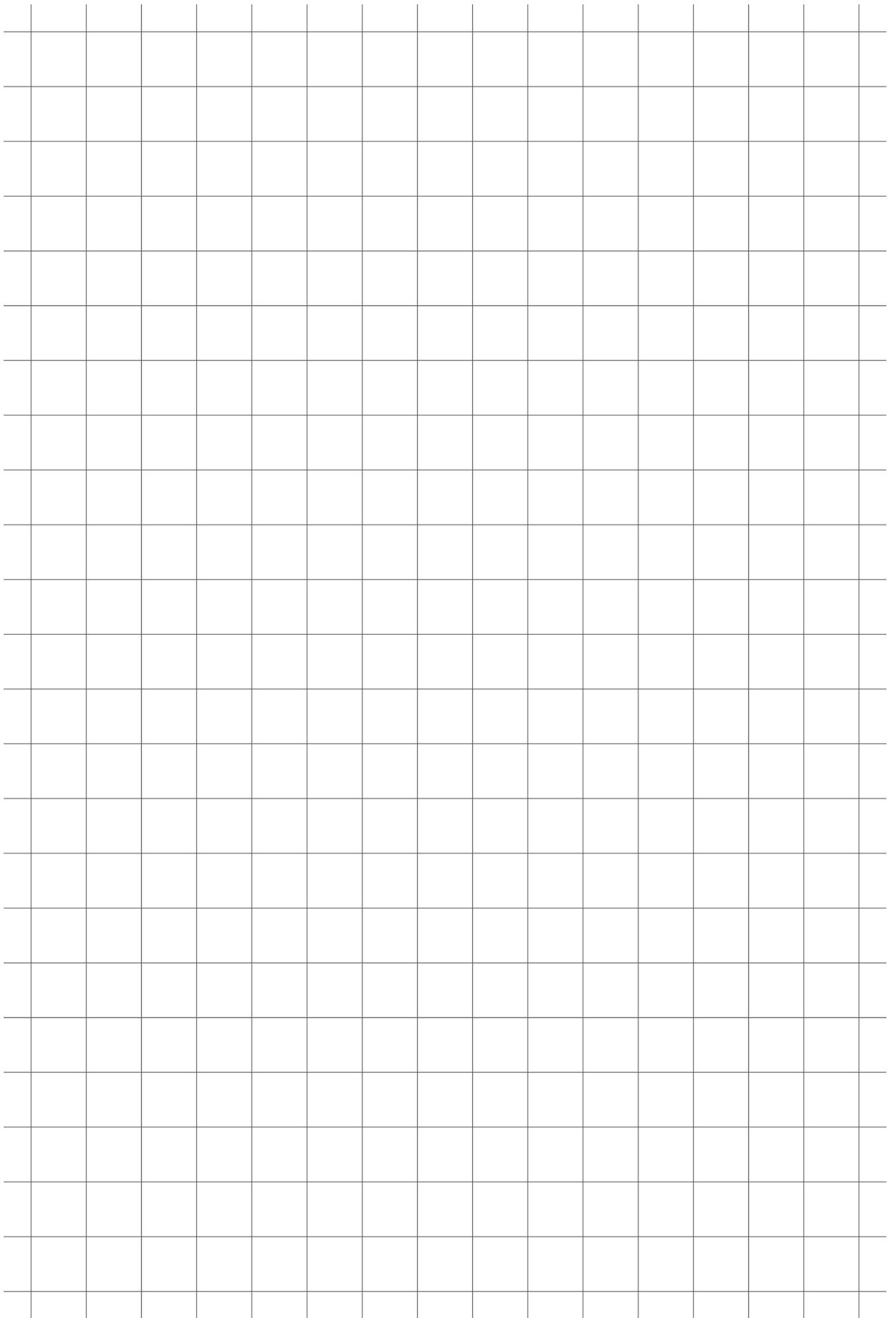
Max current output (mA): 100

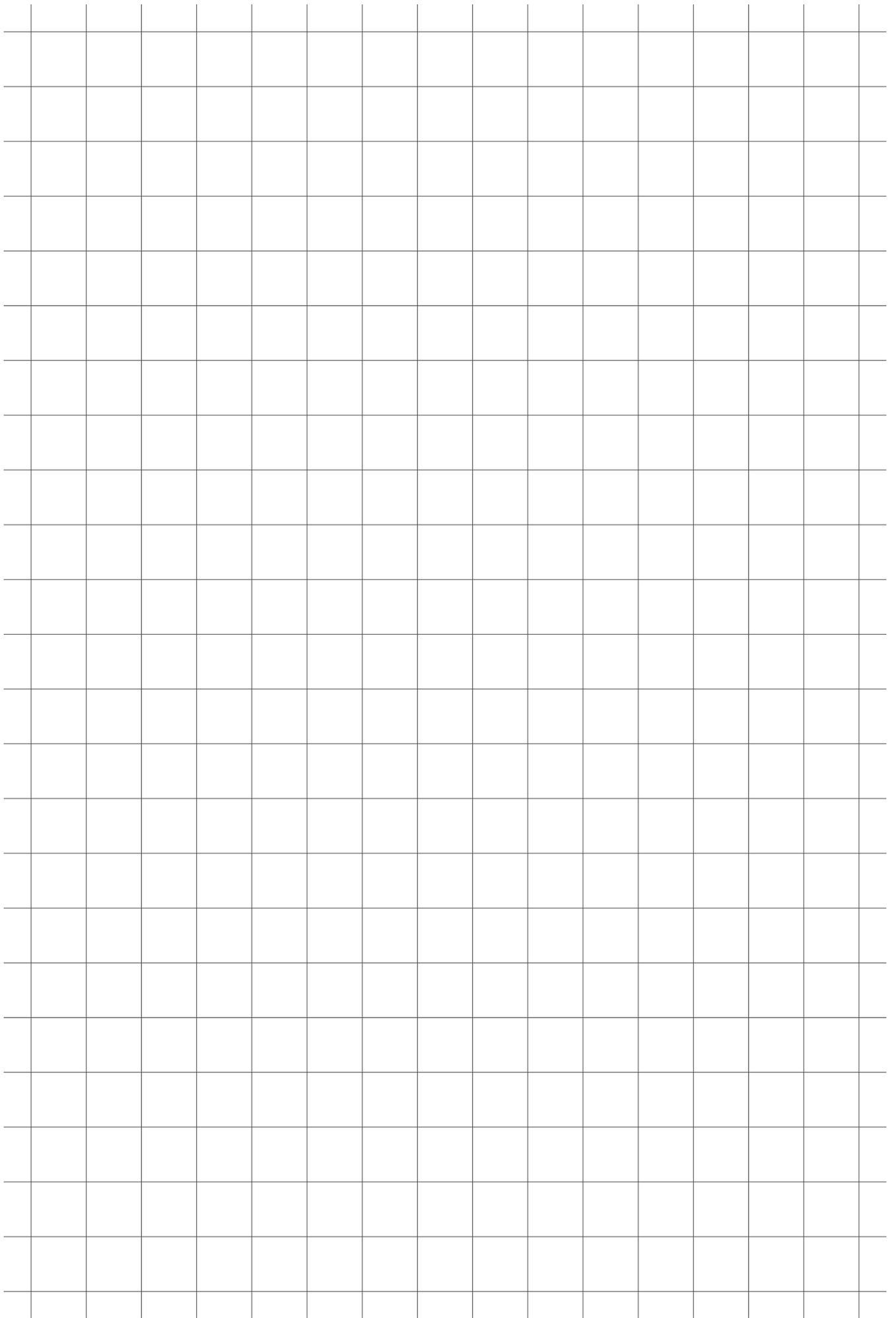
Connection: M8×1 plug

Cable length PUR 0,3 m

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









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