

## Linear actuators CLB Series

### 3.2 TECHNICAL DATA - ball screw linear actuators CLB Series

SIZE		CLB 30	CLB 40	CLB 50	
Push rod diameter	[mm]	35	40	50	
Outer tube diameter	[mm]	55	60	70	
Front attachment diameter	[mm]	14	20	30	
Rear attachment diameter	[mm]	14	20	25	
Attachment for IEC standard motor (flange and hollow shaft)		63 B14	71 B14	71 B14	
Attachment for IEC standard motor (flange adapter + coupling)		—	—	80 B14	
Max. dynamic load	[N]	9 000	12 000	25 000	
Max. static load	pull [N]	10 000	12 000	25 000	
	push [N]	12 000	15 000	25 000	
Ratio	RV	1 : 4 (4 : 16)	1 : 5 (4 : 20)	1 : 5 (4 : 20)	
	RN	1 : 16 (2 : 32)	1 : 20	1 : 20	
	RL	1 : 24	1 : 25	1 : 25	
	RXL	1 : 34	1 : 55	1 : 55	
Ball screw (STANDARD)	Diameter × Lead		20×5	25×6	32×10
	Ball	[mm]	3.175 (1/8 ")	3.969 (5/32 ")	6.350 (1/4 ")
	N° of circuits		3	3	4
	Dynamic load C <sub>a</sub>	[N]	12 000	17 400	41 800
	Static load C <sub>0a</sub>	[N]	21 200	30 500	73 000
Linear travel [mm] for 1 input shaft revolution	Ratio	RV1	1.25	1.2	2
		RN1	0.31	0.3	0.5
		RL1	0.24	0.24	0.4
		RXL1	0.15	0.11	0.18
Mass (actuator 100 mm stroke length, without motor, with lubricant)		[kg]	3.8	6.5	19
Extra-mass for each additional 100 mm stroke length		[kg]	0.8	0.9	2

#### ON REQUEST

Ball screw (Diameter × Lead)		20×10	25×10	32×20
Ball	[mm]	3.175 (1/8 ")	3.969 (5/32 ")	6.35 (1/4 ")
N° of circuits		3	3	3
Dynamic load C <sub>a</sub>	[N]	12 900	18 000	32 200
Static load C <sub>0a</sub>	[N]	23 500	33 000	53 000

**NOTE:** When these ball screws are used, the actuator length will be increased.  
Please, contact SERVOMECH to get information about the exact length.

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### BALL SCREW LINEAR ACTUATORS CLB Series with AC 3-PHASE MOTOR PERFORMANCE with: Duty Cycle $F_i = 100\%$ at ambient temperature $25\text{ }^\circ\text{C}$

LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR: POWER [kW] — N° of POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
<b>CLB 30</b>				
60	3300 <sup>1)</sup>	RV1	0.25 kW 2-pole 2800	0.56
30	4350 <sup>2)</sup>	RV1	0.18 kW 4-pole 1400	0.56
15	5500 <sup>2)</sup>	RN1	0.25 kW 2-pole 2800	0.43
10	6300 <sup>2)</sup>	RL1	0.25 kW 2-pole 2800	0.34
7	7000 <sup>2)</sup>	RN1	0.18 kW 4-pole 1400	0.43
5	7900 <sup>2)</sup>	RL1	0.18 kW 4-pole 1400	0.34
3.5	9000 <sup>2) 3)</sup>	RXL1	0.18 kW 4-pole 1400	0.30
<b>CLB 40</b>				
56	5400 <sup>2)</sup>	RV1	0.55 kW 2-pole 2800	0.56
28	6800 <sup>2)</sup>	RV1	0.37 kW 4-pole 1400	0.56
14	8600 <sup>2)</sup>	RN1	0.55 kW 2-pole 2800	0.38
11	9250 <sup>2)</sup>	RL1	0.55 kW 2-pole 2800	0.36
7	10800 <sup>2)</sup>	RN1	0.37 kW 4-pole 1400	0.38
5.5	11600 <sup>2)</sup>	RL1	0.37 kW 4-pole 1400	0.36
2.5	12000 <sup>3)</sup>	RXL1	0.37 kW 4-pole 1400	0.20
<b>CLB 50</b>				
47	11800 <sup>1)</sup>	RV1	0.75 kW 4-pole 1400	0.56
23	20500 <sup>2)</sup>	RN1	1.1 kW 2-pole 2800	0.38
19	22000 <sup>2)</sup>	RL1	1.1 kW 2-pole 2800	0.36
12	25000 <sup>3)</sup>	RN1	0.75 kW 4-pole 1400	0.38
9.3	25000 <sup>3)</sup>	RL1	0.37 kW 4-pole 1400	0.36
4.2	25000 <sup>3)</sup>	RXL1	0.37 kW 4-pole 1400	0.20

1) value limited by electric motor power; ball screw lifetime  $L_{10h} > 1000$  hours (see diagrams on pages 34 ... 35)

The total dynamic efficiency ( $\eta$ ) of CLB Series actuators, used to determine the DYNAMIC LOAD is calculated as follows:

$$\eta = \eta_1 \times \eta_2 \times \eta_3$$

where:

$\eta_1$  – wormgear dynamic efficiency, calculated according to BS 721 : Part 2 : 1983

$\eta_2 = 0.9$  – ball screw - nut efficiency

$\eta_3 = 0.9$  – bearings and sealing elements "efficiency"

2) value related to the ball screw lifetime  $L_{10h} = 1000$  h, with constant load, without load vibrations nor shocks; for different lifetime refer to diagrams on pages 34 ... 35

3) limit value of linear actuator dynamic load capacity (see page 105)

Notes regarding the tables at page 106 (linear actuators CLA Series):

1) value limited by electric motor power

The total dynamic efficiency ( $\eta$ ) of CLA Series actuators, used to determine the DYNAMIC LOAD is calculated as follows:

$$\eta = \eta_1 \times \eta_2 \times \eta_3$$

where:

$\eta_1$  – wormgear dynamic efficiency, calculated according to BS 721 : Part 2 : 1983

$\eta_2$  – acme screw-bronze nut dynamic efficiency, calculated with reference to the speed

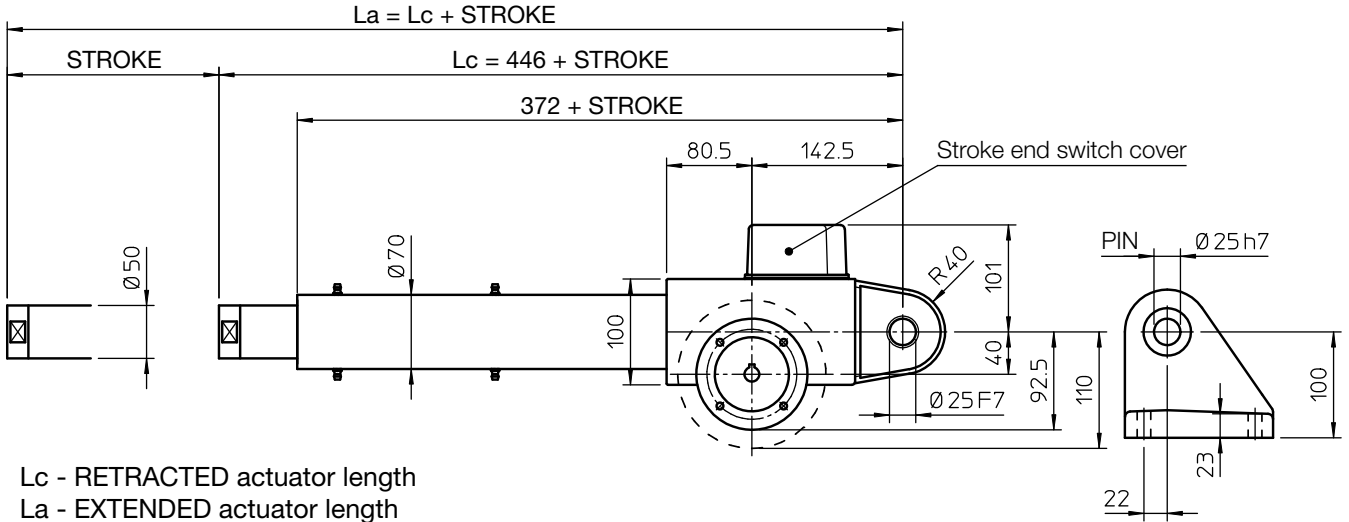
$\eta_3 = 0.9$  – bearings and sealing elements "efficiency"

2) limit value of linear actuator dynamic load capacity (see page 104)

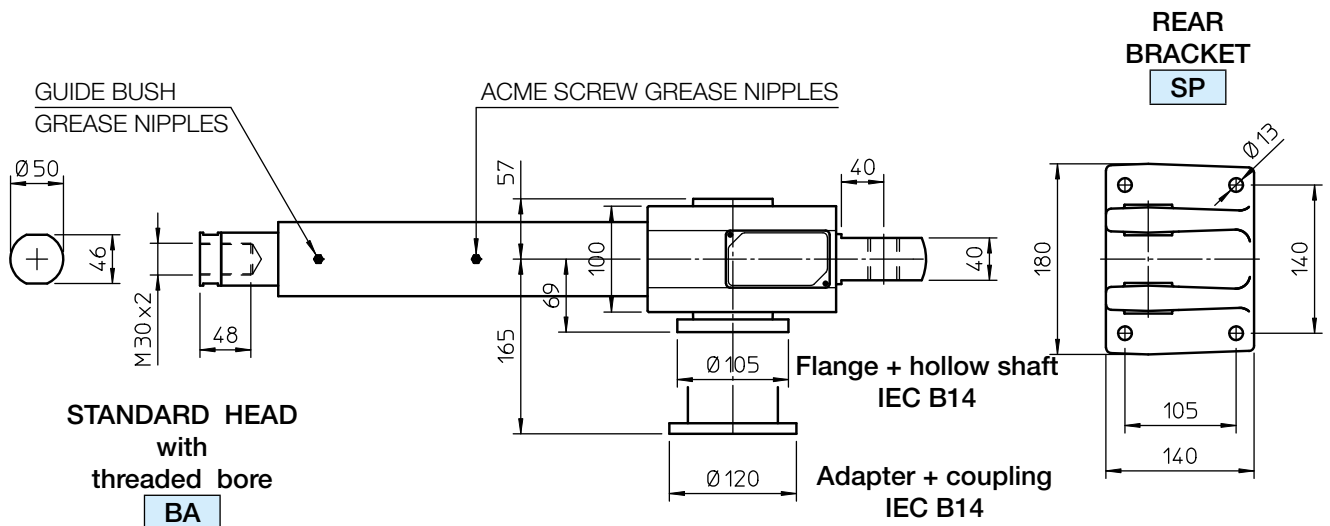
# Linear actuators CLB Series

## 3.4 OVERALL DIMENSIONS

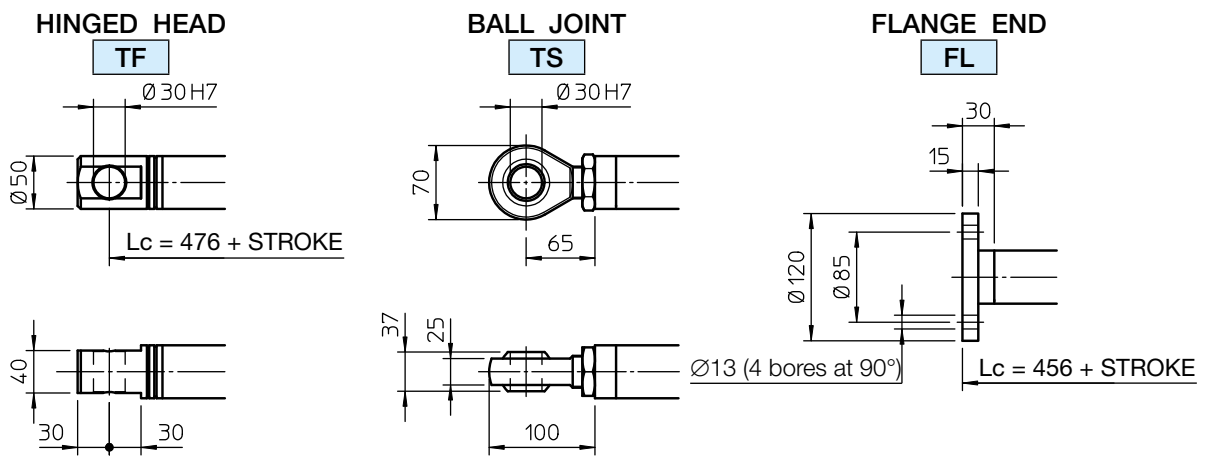
### BALL SCREW LINEAR ACTUATOR CLB 50 AC 3-phase MOTOR



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FRONT ATTACHMENTS



NOTE: For stroke lengths longer than 800 mm it is necessary to increase the guided length between push rod and outer tube to avoid axial backlash. The tube length and the dimensions **Lc** and **La** shall be considered increased by 200 mm for stroke lengths up to max. 1500 mm.