PL Series

PLA BALL SCREW DRIVEN LINEAR ACTUATOR

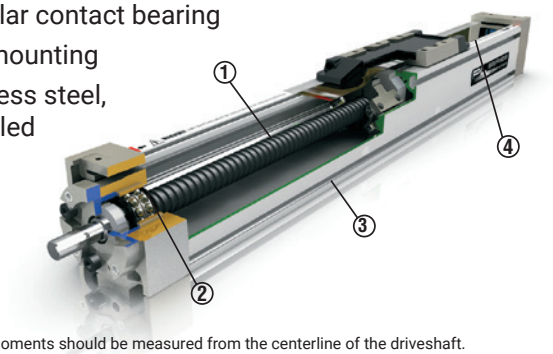
Made in the USA

FEATURES & BENEFITS

- **High Speed Cam Roller Design** - Pre-loaded ball bearing cam rollers are guided by the patent pending Integral V™ hardened steel raceways. Creates smooth precision guidance
- **Ball, Acme or Lead Screw Driven** - high positioning accuracy and high load/torque load requirements
- **SIMO®** - (Simultaneous Integral Milling Operation) patent pending machining process for precision machined surfaces on all housing sides
- **Accessories:** couplings, mounting clamps, motor mounts, limit switches, gear reducers, shaft extensions etc.

KEY FEATURES

(1) Positioning accuracy assured by ball or lead screw drive
(2) Double row angular contact bearing
(3) T-slots for easy mounting
(4) Seal strip - stainless steel, magnetically sealed

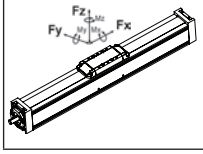


NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the driveshaft.
2. Limit switches must be used in order to prevent the carriage from contacting the actuator end blocks, resulting in damage.
3. 25mm of over-travel has been added to the body length in each direction to allow for carriage over-travel. 25mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.
4. Fx applies to ball and acme screws only. Contact manufacturer for lead screw values.

*Max length and speed are limited by critical speed of screw. Max load is limited by column strength of screw. Values listed are theoretical max.

TECHNICAL DATA

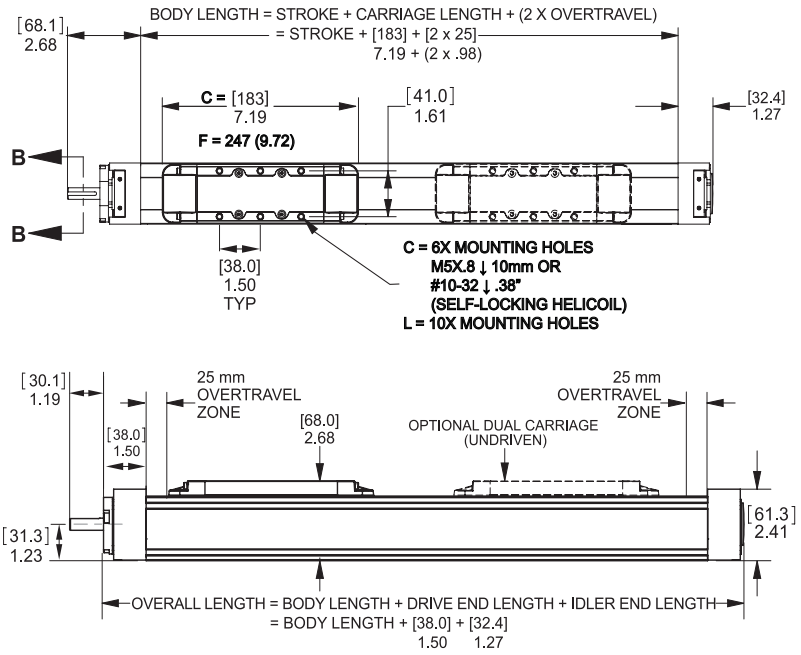

Size		mm	55 x 55	in	2.17 x 2.17
Max. Speed - 1" Lead		m/s	2	in/s	79
Max. Stroke Length*		mm	2710	in	107
Min. Stroke Length		mm	50	in	1.97
Max RPM*			4755		
Base Weight		Kg	1.636	lbf	3.61
Add for 100 mm of Stroke		Kg	0.379	lbf	0.84
Max. Load	Fx^4	N	1958	lbf	440
	Fy	N	285	lbf	64
	Fz	N	980	lbf	220
Max. Moments	Mx	Nm	12	lbf-in	106
	My	Nm	52	lbf-in	460
	Mz	Nm	52	lbf-in	460
Moment of Inertia	Ix	cm^4	29	in_4	0.70
	Iy	cm^4	32	in^4	0.77
Max. Radial Load on Input Shaft		N	200	lbf	45
No Load Torque		Nm	0.015	lbf-in	0.13

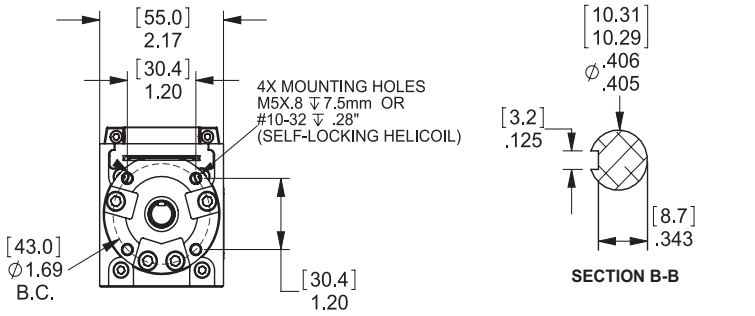


For combined loads, the combined loading cannot exceed the following formula.

$$\frac{Fy_A}{Fy}+\frac{Fz_A}{Fz}+\frac{Mx_A}{Mx}+\frac{My_A}{My}+\frac{Mz_A}{Mz}<=1$$

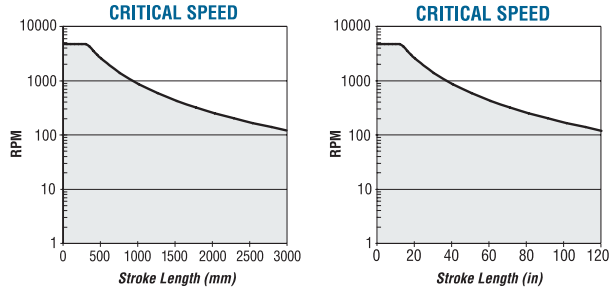
DIMENSIONAL INFORMATION

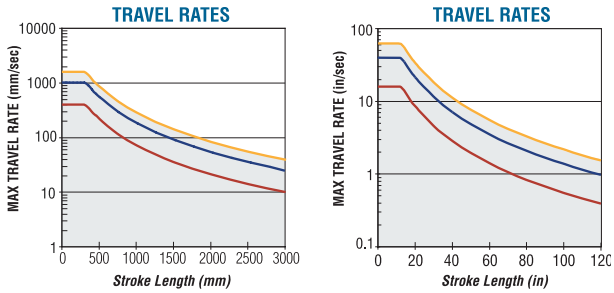


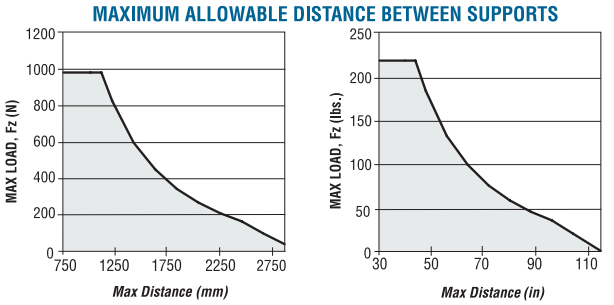


LOAD RANGE (Ball & Acme Screws)

The recommended operating range is below and to the left of the shown curves. Speeds indicated by the curves are based upon 80% of the critical speed of the ball screw. Higher recommended speed ranges can be achieved by selecting a larger lead ball screw.







■ .200/5.08 mm lead ■ .500/12.7 mm lead ■ 1.00/25.4 mm lead ■ All equal the same

Measured with 0.631" diameter ball screw

ORDERING INFORMATION

EXAMPLE: PLA055S-01JX-XXXX-1CD2M

PLA	055	X	-	XX	XX	X	-	XXXX	-	X	X	X	X	X
Series	**Size (mm)** (Base x Height)	**Drive**		**Journal Configuration**	**Leads**	**Accuracy**		**Body Length**		**#Carriages**	**Carriage Style**	**Bearing Quantity**	**Bearing Type**	**Mounting Holes**
PLA Screw Driven	55mm x 55mm	SEE CHART BELOW.								**1** = Driven (S) **2** = (1) Driven & Undriven	**C** = Standard Length -183 mm **L** = Extended Length*- 247 mm	**D** = Double - 16 Rollers (S)	**2** = Sealed Steel (S)	**I** = in. (#10-32) **M** = mm (S) (M5 x 0.8)

Drive	Journal Config.	Leads			Accuracy
			Metric (mm/rev)	Imperial (in/rev)	
N = No motor-undriven **P** = Ball screw w/ pre-loaded nut **S** = Ball screw w/ ball nut (S) **C** = Acme screw w/ bronze nut **D** = Acme screw w/ polymer nut **L** = Lead screw w/ polymer nut **K** = Lead screw w/ polymer anti-backlash nut	**00** = Undriven **01** = 1 Drive Shaft (S) **02** = 2 Drive Shafts (Both Ends)	**For L & K Drive Option Lead Screw**	**AH** = 1 **AJ** = 10 **AG** = 2 **AF** = 16 **AX** = 5 **AW** = 25	**N/A**	**All Lead Options** **X** = ISO CLASS 10 (< ± 210µm/300mm) (< ± .008"/ft.) **S and P (Metric) Lead Options Only** **7** = ISO CLASS 7 (< ± 52µm/300mm) **5** = ISO CLASS 5 (< ± 23µm/300mm)
		For S Drive Option Ball Screw	**AX** = 5 **AJ** = 10	**AA** = 0.200	
		For P Drive Option Pre-Load Ball Screw	**AX** = 5 **AJ** = 10 **Note:** Single pre-load reduced lash nut uses C= Standard Carriage	**AA** = 0.200 **Note:** Pre-load double nut requires L= extended length carriage	
		For C & D Drive Option Acme Screw	**N/A**	**AM** = 0.100 **AA** = 0.200 **AN** = 0.125 **AC** = 0.500	

(S) = Standard

*Extended length carriage only available and required for P (Imperial) lead option.

Please Note: To ensure quick delivery, PBC reserves the right at its sole discretion to upgrade accuacy class or bearing quantity (free of charge), with or without notice, if the requested option is unavailable.