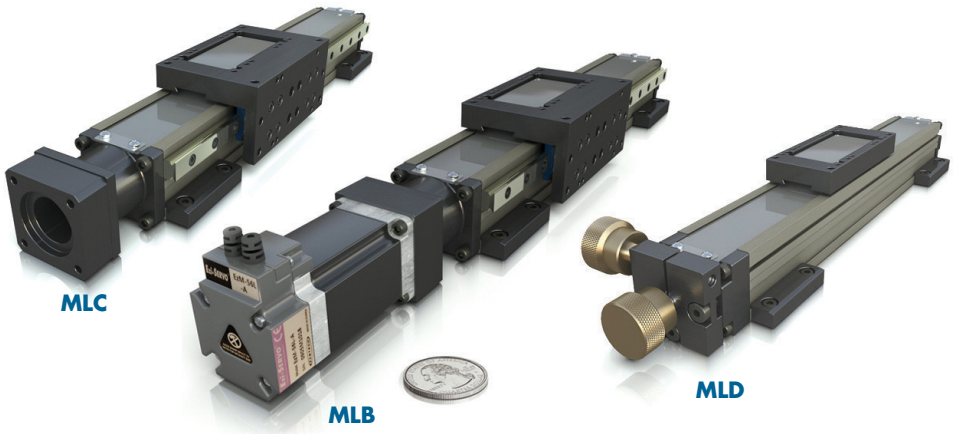
ML Series

MINIATURE SCREW-DRIVEN LINEAR ACTUATOR

Compact and easy to install, a low cost linear solution perfectly suited for the medical industry, life science and small scale automation applications.



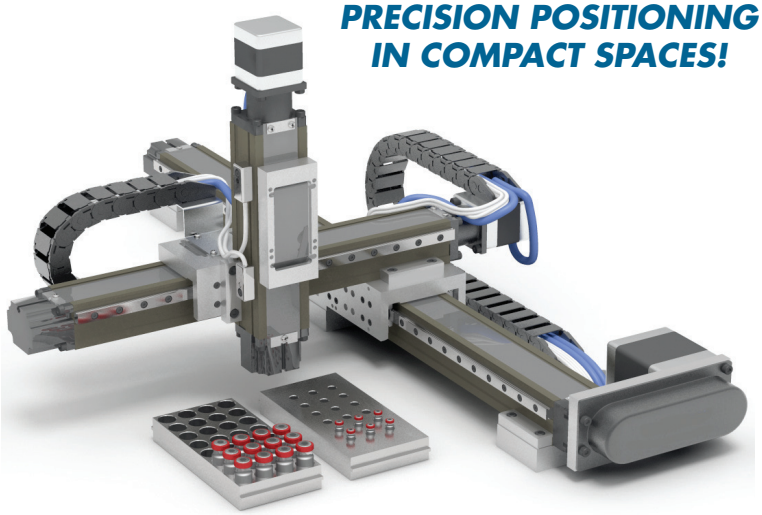
FEATURES & BENEFITS

- Small, Compact Profile - 28 x 32mm
- Patent Pending SIMO™ process for machine tool performance at extruded prices
- Lead Screw Driven - High accuracy and precise repeatability
- Many Multi-Axis Configurations - Easy assembly
- Long Travel Lengths - up to 650 mm

ML PRODUCT SERIES

- **MLB** (Integrated Motors) - pre-mounted Omron® servo motors, Fastech® or PBC® brand stepper motors.
- **MLC** (Motor Mount Only) - designed motor mounts and couplings for easy mounting and extended life.
- **MLD** (Hand driven)- adjustable hand operated knob and optional brake for precision control.
- **MLE** - Designed to provide, uniform ultra smooth velocity and reduce velocity ripple. Perfect for precision scanning and printing applicaitons. (not shown)

LOW COST SOLUTION FOR PRECISION POSITIONING IN COMPACT SPACES!

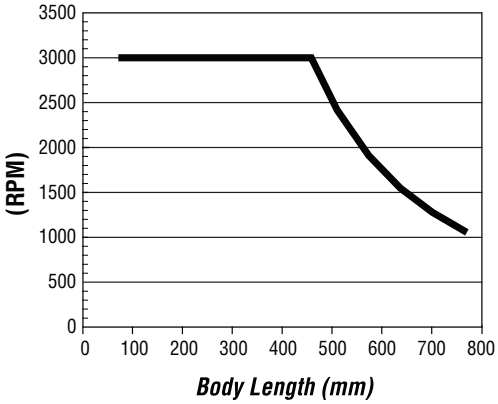


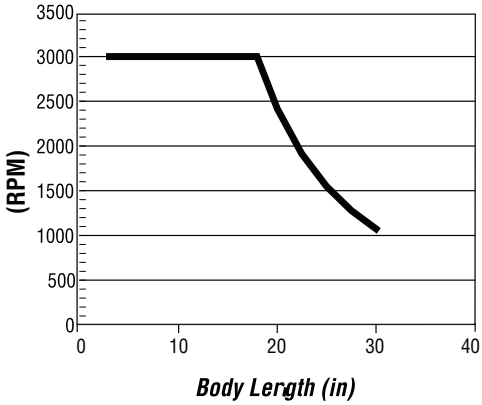
Size		mm	28 x 32	in	1.10 x 1.26
Max. Load - Lite Preload - *anti-backlash* - Normal Preload - *anti-backlash* - Standard	**Fx**	N	44 89 267	lbf	10 20 60
	Fy		107		24
	Fz		178		40
Max. Moments	**Mx**	Nm	1.4	lbf-in	12.4
	My		1.4		12.4
	Mz		1.4		12.4
Bending Moment of Inertia (second moment of area)	**Iy**	cm^4	2.4	in^4	0.058
	Iz		4.4		0.106
Base Weight without Motor		Kg	0.06	lbf	0.13
Add for 100 mm of stroke			0.15		0.34
Total Carriage Mass			0.020		0.044
Total Carriage Mass & Top Plate			0.059		0.130
Coefficient of Friction		0.19			
Max. Speed		m/s	1.9	in/s	75
Max. Stroke Length		mm	650	in	25.6
Min. Stroke Length			5		0.2
Nominal Screw Diameter			10.0		0.375
Max RPM		3000			
No Load Torque Nut - Lite Preload - *anti-backlash* - Normal Preload *anti-backlash* - Standard		Nm	0.0565 0.106 0.007	lbf-in	0.50 0.94 0.062
Linear Guide - Single Linear Guide - Dual Linear Guides		Nm	.017 .034	lbf-in	0.15 0.30
Seal Strip - with Seal Strip - without Seal Strip		Nm	.028 0	lbf-in	0.25 0
Screw Lead Accuracy*		mm/mm	.0006	in/in	.0006
Bi-directional Repeatability - Anti-Backlash Nut - Standard Nut		+/- mm	0.02 076 -.254	+/- in	0.0008 .003 -.010

*Higher accuracies are available to .0001 mm/mm (in/in). Contact manufacturer for details.
Specifications are subject to change without notice.

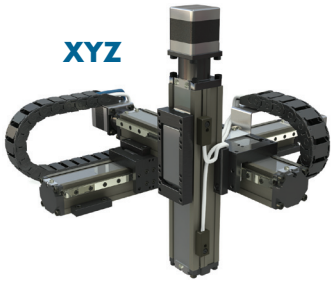
LOAD RANGE

80% CRITICAL SPEED

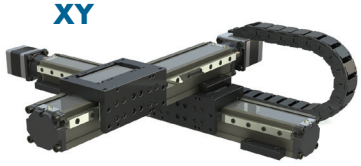




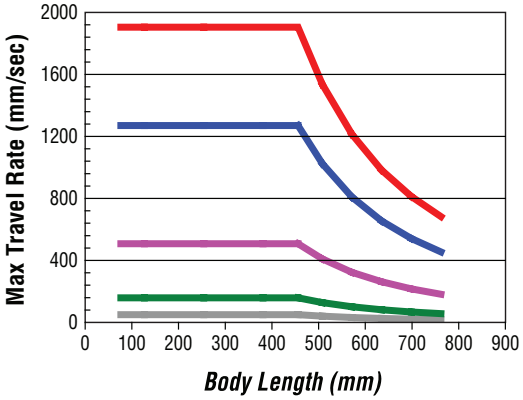
XYZ

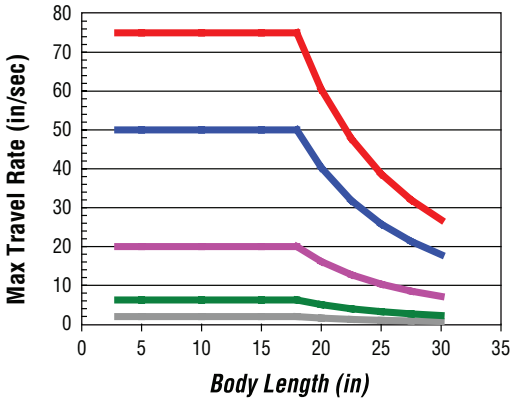


XY

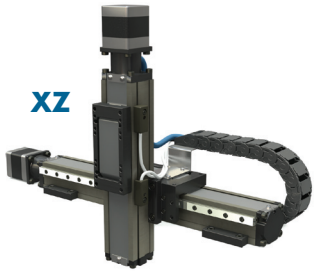


TRAVEL RATES





XZ



Leadscrew (mm)

38.1	25.4	10.16	3.18	1

Leadscrew (in)

1.5	1.00	.400	.125	.039

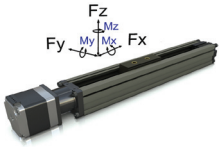
LINEAR GUIDE SUPPORTS			(1) SINGLE # of runner blocks on each guide		(2) DUAL # of runner blocks on each guide			(1) SINGLE # of runner blocks on each guide		(2) DUAL # of runner blocks on each guide	
			1	2	1	2		1	2	1	2
Max. Load Anti-Backlash - Lite Preload - Normal Preload Standard Nut	**Fx**	N	44	44	44	44	lbf	10	10	10	10
			89	89	89	89		20	20	20	20
			267	267	267	267		60	60	60	60
	Fy		180	250	445	890		40	56	100	200
	Fz		267	356	445	890		60	80	100	200
Max. Moments	**Mx**	Nm	1.8	3.6	8.6	18	lbf-in	16	32	76	160
	My		1.8	5	3.6	10		16	44	32	88
	Mz		1.8	5	3.6	10		16	44	32	88
Bending Moment of Inertia (Second moment of area)	**Iy**	cm^4	2.4	2.4	2.4	2.4	in^4	0.058	0.058	0.058	0.058
	Iz		4.4	4.4	4.4	4.4		0.106	0.106	0.106	0.106
Base Weight without Motor		Kg	0.127	0.136	0.195	0.205	lbf	0.28	0.30	0.43	0.45
Add for 100mm of Stroke			0.18	0.18	0.21	0.21		0.40	0.40	0.46	0.46
Total Carriage Mass		Kg	.109	.117	.159	.175	lbm	.240	.257	.350	.385
Coefficent of Friction			0.19		0.01			0.19		0.01	

NOTE:

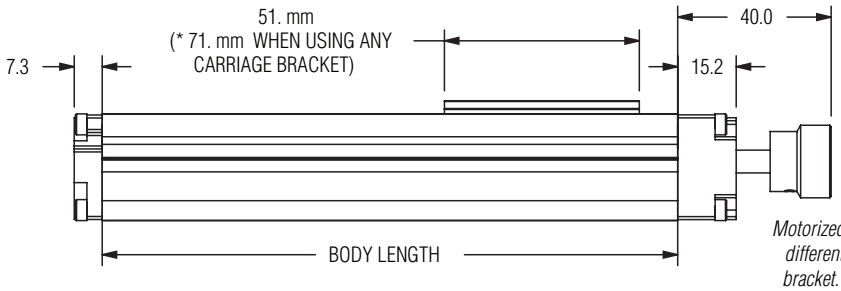
1. Moment arms for calculating moments should be measured from the center of the extrusion.
2. Limit switches must be used in order to prevent the carriage from contacting the actuator end blocks, resulting in damage.
3. Servo drive system - Recommended over-travel of 20 mm
4. Stepper motors or manual hand cranks system - add 5 mm of over-travel.

For combined loads. loading cannot exceed the following formula.

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

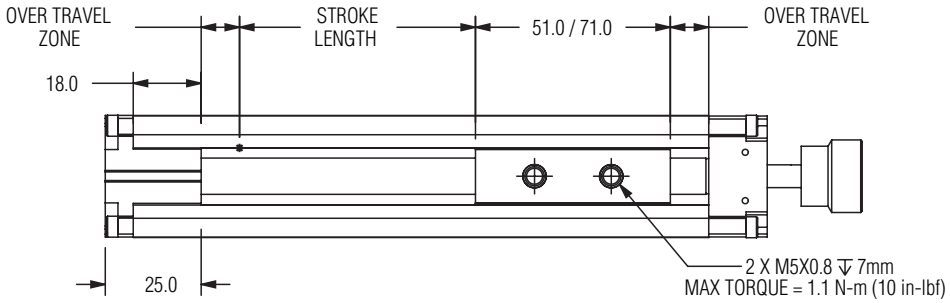


DIMENSIONAL INFORMATION



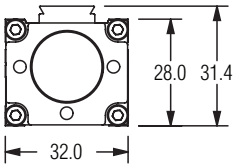
Motorized units use a different drive end bracket. See motor section for more details.

NOTE: BODY LENGTH = STROKE + *CARRIAGE LENGTH + (2 X OVER TRAVEL) + 18mm

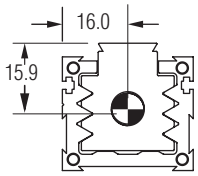


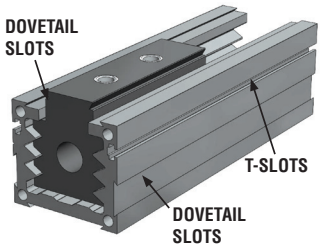
RECOMMENDED OVER TRAVEL- per side
Knob or Hand Crank = 5mm
Stepper Motor = 10mm
Servo Motor = 20mm

CARRIAGE WITH DOVETAIL

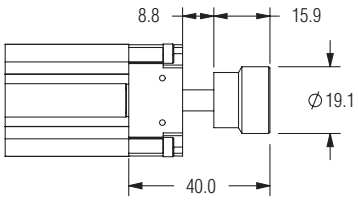


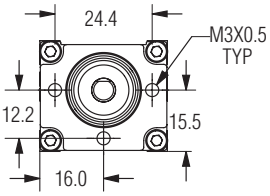
CENTER OF GRAVITY FOR MOMENT CALCULATIONS



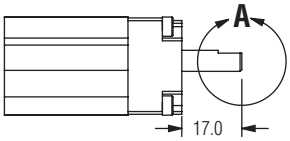


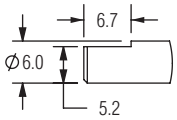
KNOB





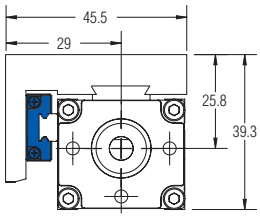
SHAFT ONLY.

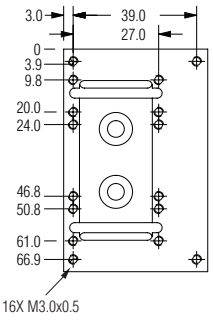


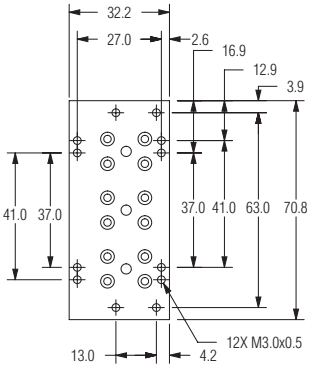


DETAIL A

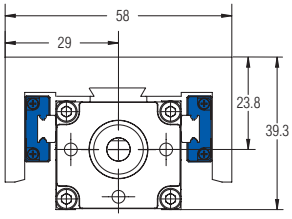
SINGLE LINEAR GUIDE SUPPORTS

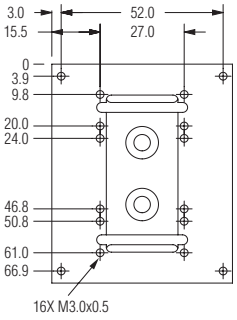


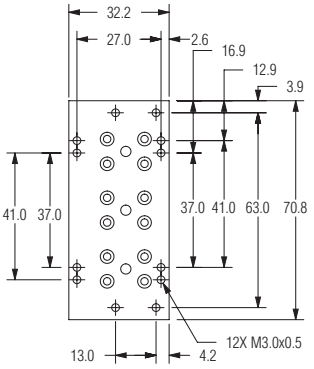




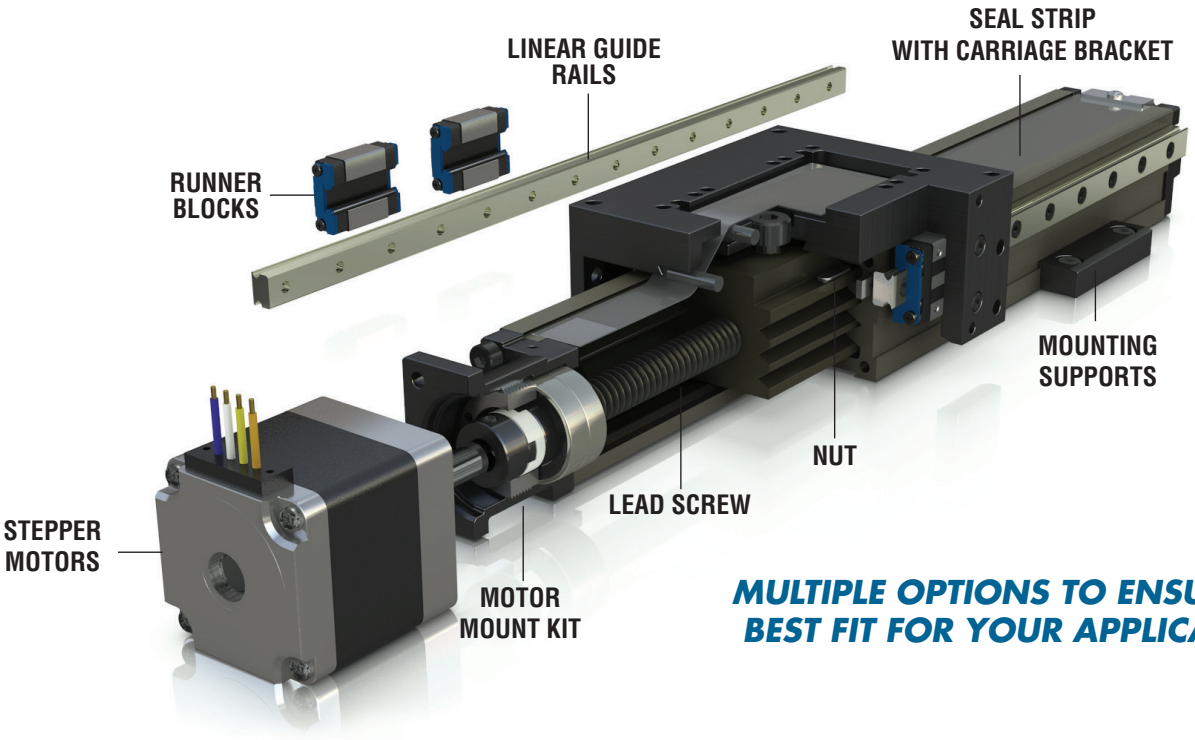
DUAL LINEAR GUIDE SUPPORTS





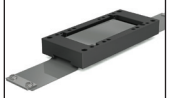
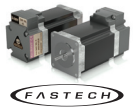


ORDERING OPTIONS & ACCESSORIES

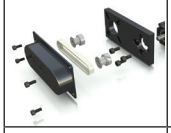


MULTIPLE OPTIONS TO ENSURE THE BEST FIT FOR YOUR APPLICATION!

ORDERING OPTIONS

	**Linear Guide Supports** - Provides increased load and moment capacities. Available in single or dual rails with runner blocks.
	**Lead Screws** - 1mm (0.039"), 3 mm (0.125"), 10 mm (0.4"), 25mm (1"), 38mm (1.5") *Contact manufacturer for other available sizes.*
	**Nut Type** Standard or optional anti-blash nut for applications requiring high bi-directional accuracy and repeatability.
	**Seal Strip** Prevent debris from entering or exiting the actuator.
 PBC LINEAR  FASTECH  OMRON	**Stepper Motors** - PBC brand motors are designed to reduce length in the ML actuator. Standard NEMA and metric sizes available in single, double or triple stack. Fastech® motors offer state-of-the-art monitoring and drive advancements into their EZi-step motor for precision, speed and power. Available in open or closed loop designs. **Servo motors -** Omron high-precision positioning with improved response and vibration control. Available in 40 & 60 mm.

ACCESSORIES

	**Mounting Supports** Dovetail clamps and riser plates for stable positioning and surface mounting.
	**Motor Coupling** Extends life of the motor and provides shortest overall length.
 OMRON	**Position Sensor** Attaches to housing to precisely signal when the carriage has reached limit or home positions.
	**Replacement Parts** Fast replacement parts at a moments notice. Side motor brackets, covers and pulley belt system
	**Upgrade System Parts** Carriage Bracket Kit, Linear Guide Support Kit, Seal Strip Kit
	KABELSCHLEPP **Cable Carrier** Extruded one-piece or snap together side bands for various cable carrier cavities and application requirements.

QUESTIONS? 1(888) 777-1465
TO ORDER CALL: 1(800) 962-8979

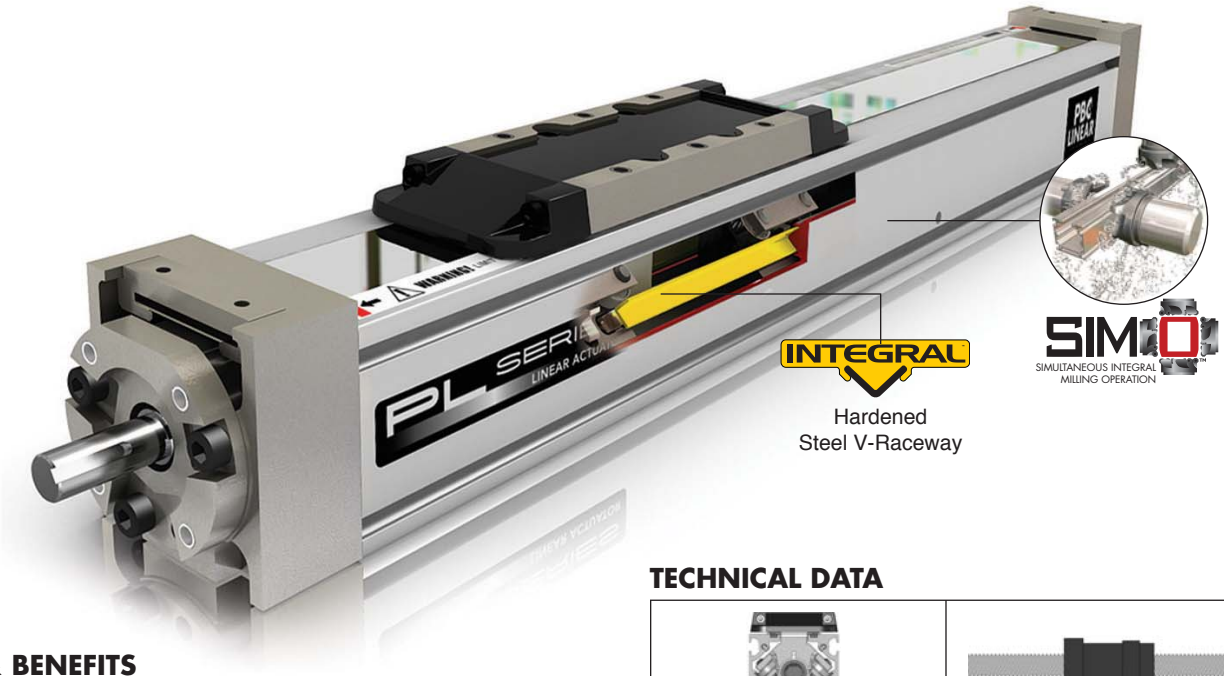
6402 E. Rockton Road, Roscoe, IL 61073 USA • 1-888-777-1765 • www.pbclinear.com

The data and specifications in this publication have been carefully compiled and are believed to be accurate and correct. However, it is the responsibility of the user to determine and ensure the suitability of PBC Linear™ products for a specific application. PBC Linear™only obligation will be to repair or replace without charge, any defective components if returned promptly. No liability is assumed beyond such replacement. Specifications are subject to change without notice. 2/11

PBC LINEAR
A PACIFIC BEARING CO.

PL Series

PLA BALL SCREW DRIVEN LINEAR ACTUATOR



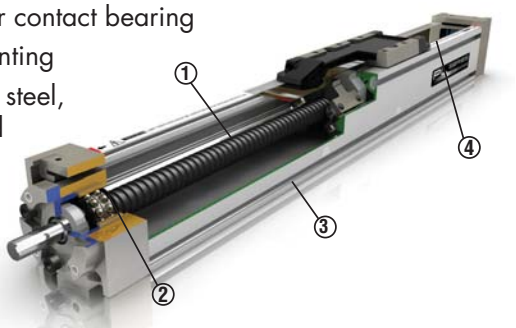
Made in the USA

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.

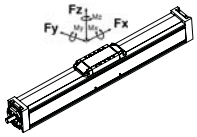
KEY FEATURES

(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



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
Repeatability		mm	± 0.06	in	± 0.002
Max. Radial Load on Input Shaft		N	200	lbf	45
No Load Torque		Nm	0.015	lbf-in	0.13



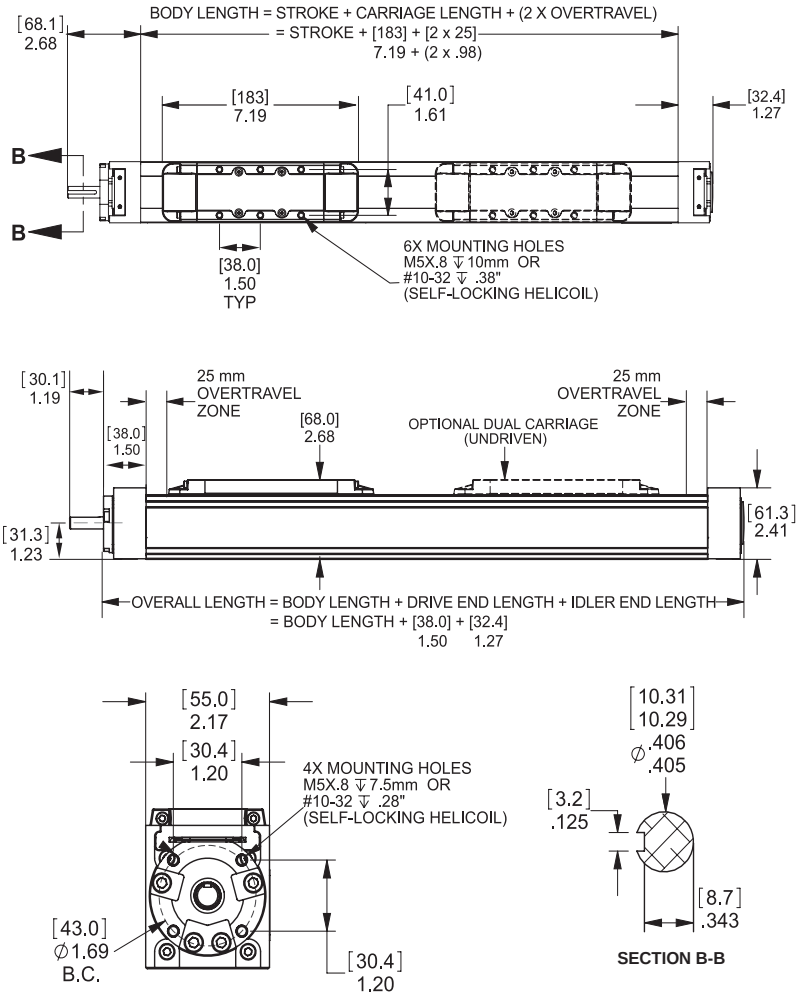
For combined loads, the combined loading cannot exceed the following formula.

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

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.

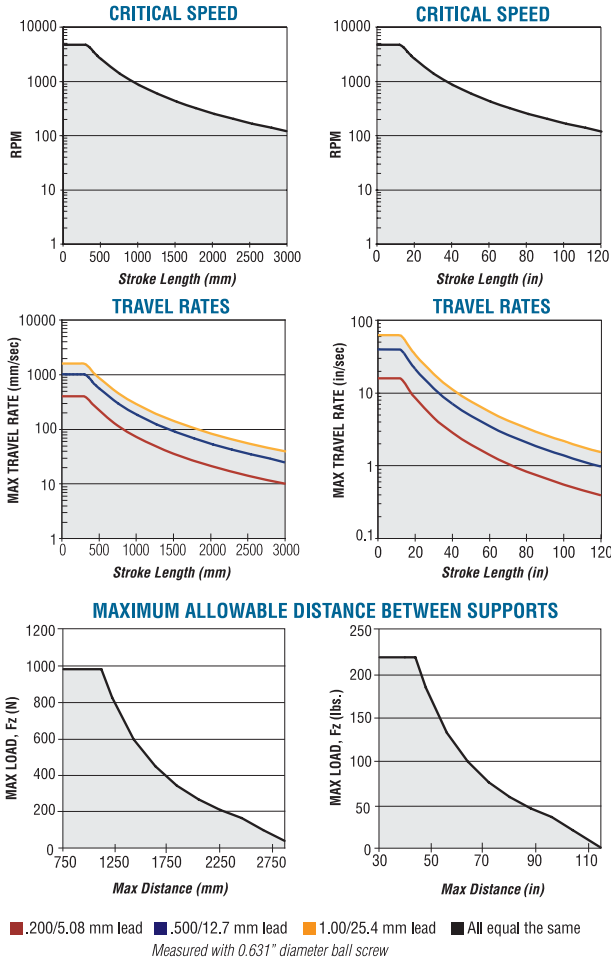
*Max length and speed are limited by critical speed of screw. Max load is limited by column strength of screw. Values listed are theoretical max.

DIMENSIONAL DATA



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.



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	**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
N = No motor-undriven **P*** = Ball screw with pre-loaded nut **S** = Ball screw with 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)	Ball Screw **AK** = 0.1875" (4.76mm) **AX** = 0.1969" (5mm) **AA** = 0.2000" (5.08mm) **AJ** = 0.3937"(10mm) **AF** = 0.629"(16mm)	Acme & Lead Screw **AM** = 0.100" (2.54mm) **AN** = 0.125" (3.18mm) **AA** = 0.200" (5.08mm) **AC** = 0.500" (12.7mm) **AD** =1.000" (25.4mm)	**X** = ISO CLASS 10 (< ± 210µm/300mm) (< ± .008"/ft.) **7** = ISO CLASS 7 (< ± 52µm/300mm) (< ± .002"/ft.) **5** = ISO CLASS 5 (< ± 23µm/300mm) (< ± .0009"/ft.)

(S) = Standard

**Requires an extended length carriage, please contact PBC Linear.*
† Contact manufacturer prior to ordering lead screw option.
***Contact manufacturer for lead /acme screw options and accuracy combinations. Not all combinations are available.*

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.*

Product information and 2D/3D CAD drawings available for download at www.pbclinear.com
For technical & application information call **1-888-777-1465**

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PBC LINEAR
A PACIFIC BEARING CO.

MT Series

MTB 42 BELT DRIVEN LINEAR ACTUATOR

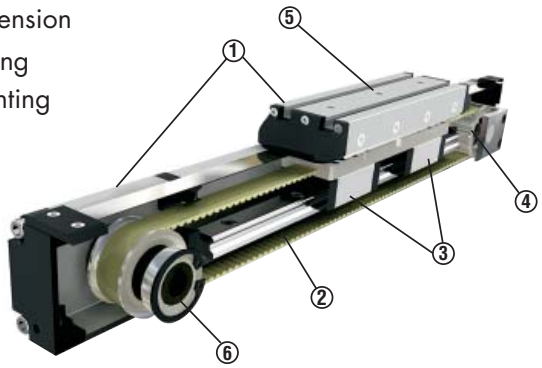
The MT Series offers a number of profile sizes with multiple design configurations to fit almost any application.

FEATURES & BENEFITS

- High Acceleration, Speed & Rigidity
- Long Travel Length
- Low Friction, Noise & Vibration
- Strong yet Lightweight & Corrosion Resistant
- Multiple Accessories & Options

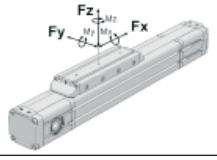
KEY FEATURES

(1) Anodized aluminum housing and carriage
(2) Steel reinforced belt capable of handling high loads
(3) Ball guided rail system
(4) Adjustable belt tension
(5) T-slots for mounting and sensor mounting
(6) Multiple drive configurations



TECHNICAL DATA

Size		mm	42 x 42	in	1.65 x 1.65
Max. Speed		m/s	3	in/s	118
Max. Stroke Length		mm	6000	in	236
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	90	in	3.54
Number of Pulley Teeth		18			
Max RPM		2000			
Base Weight		Kg	1.4	lbf	3.1
Add for 100 mm or 3.94 in of Stroke		Kg	0.18	lbf	0.40
Max. Load	**Fx**	N	460	lbf	103
	Fy	N	1560	lbf	351
	Fz	N	1560	lbf	351
Max. Moments	**Mx**	Nm	20	lbf-in	177
	My	Nm	55	lbf-in	487
	Mz	Nm	55	lbf-in	487
Moment of Inertia	**Ix**	cm^4	12	in^4	0.29
	Iy	cm^4	15	in^4	0.36
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	220	lbf	49.5
No Load Torque		Nm	0.8	lbf-in	7.1

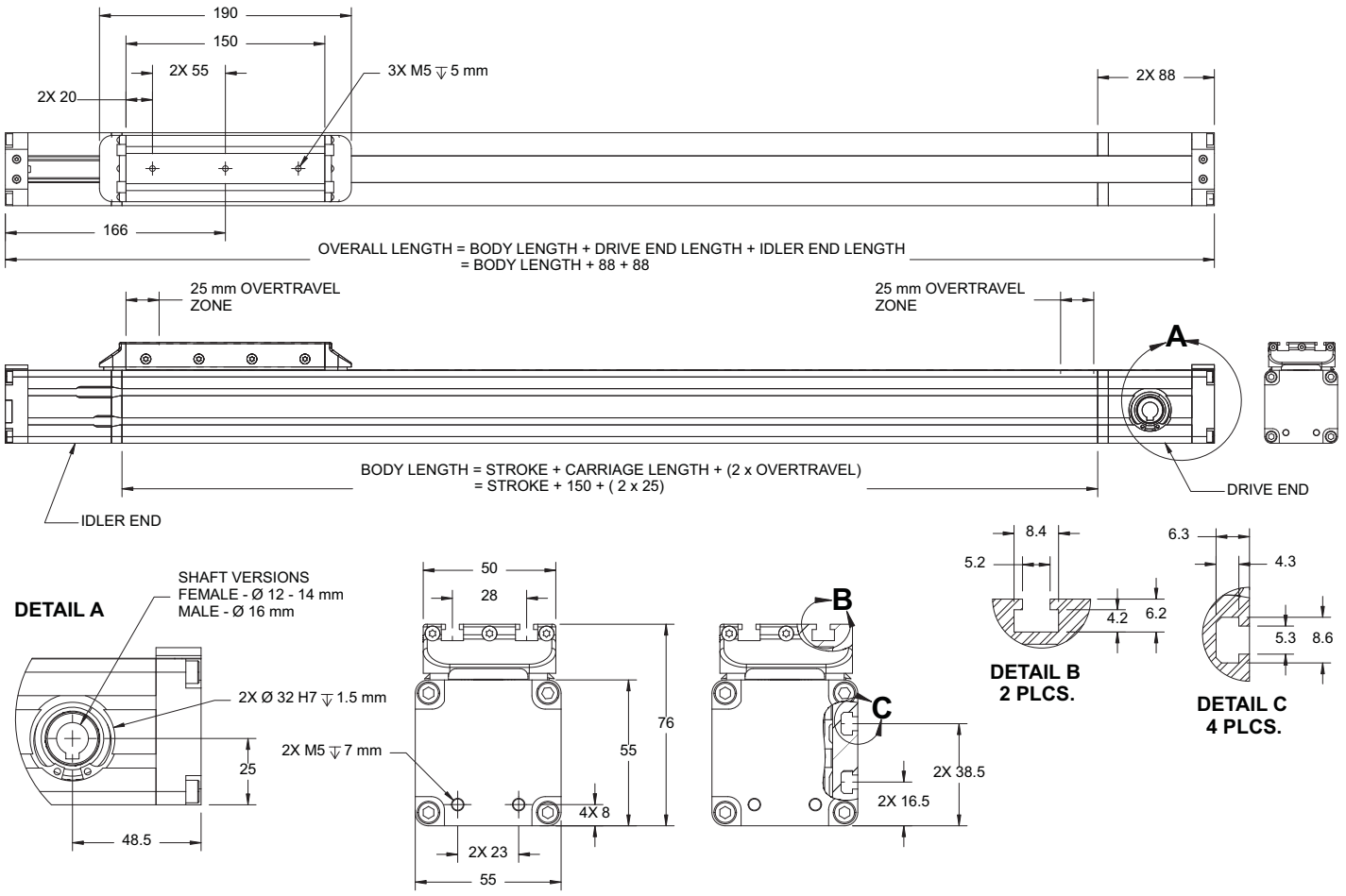


For combined loads, the combined loading cannot exceed the following formula.

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

NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the extrusion.
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. 25 mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.

DIMENSIONAL INFORMATION



ACCESSORIES - (Available upon request.)

Mid Section Mounting Bracket

End Cap Mounting Bracket

Motor Mounts/ Coupling Housing

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTB055D-1000-12F12

MTB	055	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length**	Shaft Diameter	Shaft Type	#Carriage**	Guidance Type
MTB Belt Driven Unit	**55** mm x **55** mm	**N** = Undriven **D** = Driven	**6000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **12** = 12mm **14** = 14mm **16** = 16mm	**0** = No shaft (undriven system) **F** = Female hollow (12, 14) **L** = Left Male (16) **R** = Right Male (16) **B** = Both Male (16)	**1** **2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

**No belt or motor mount, contact manufacturer for "N" version.*
***Contact manufacturer for other options and availability.*

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MT Series

MTB 55 BELT DRIVEN LINEAR ACTUATOR

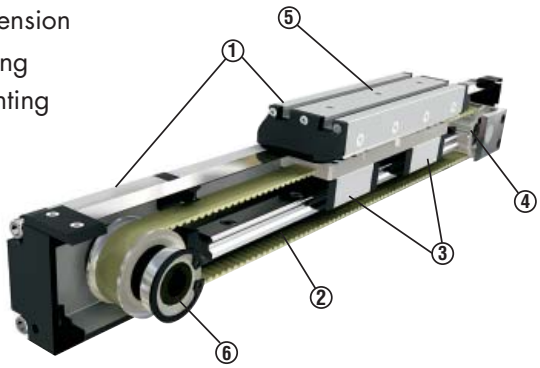
The MT Series offers a number of profile sizes with multiple design configurations to fit almost any application.

FEATURES & BENEFITS

- High Acceleration, Speed & Rigidity
- Long Travel Length
- Low Friction, Noise & Vibration
- Strong yet Lightweight & Corrosion Resistant
- Multiple Accessories & Options

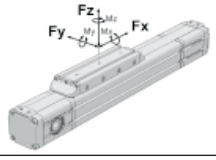
KEY FEATURES

(1) Anodized aluminum housing and carriage
(2) Steel reinforced belt capable of handling high loads
(3) Ball guided rail system
(4) Adjustable belt tension
(5) T-slots for mounting and sensor mounting
(6) Multiple drive configurations



TECHNICAL DATA

Size		mm	55 x 55	in	2.17 x 2.17
Max. Speed		m/s	3	in/s	118
Max. Stroke Length		mm	6000	in	236
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	120	in	4.72
Number of Pulley Teeth		18			
Max RPM		1500			
Base Weight		Kg	4.4	lbf	9.7
Add for 100 mm or 3.94 in of Stroke		Kg	0.34	lbf	0.75
Max. Load	**Fx**	N	820	lbf	184
	Fy	N	1850	lbf	416
	Fz	N	1850	lbf	416
Max. Moments	**Mx**	Nm	25	lbf-in	221
	My	Nm	120	lbf-in	1062
	Mz	Nm	120	lbf-in	1062
Moment of Inertia	**Ix**	cm^4	36	in^4	0.86
	Iy	cm^4	45	in^4	1.08
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	250	lbf	56.2
No Load Torque		Nm	1	lbf-in	8.9

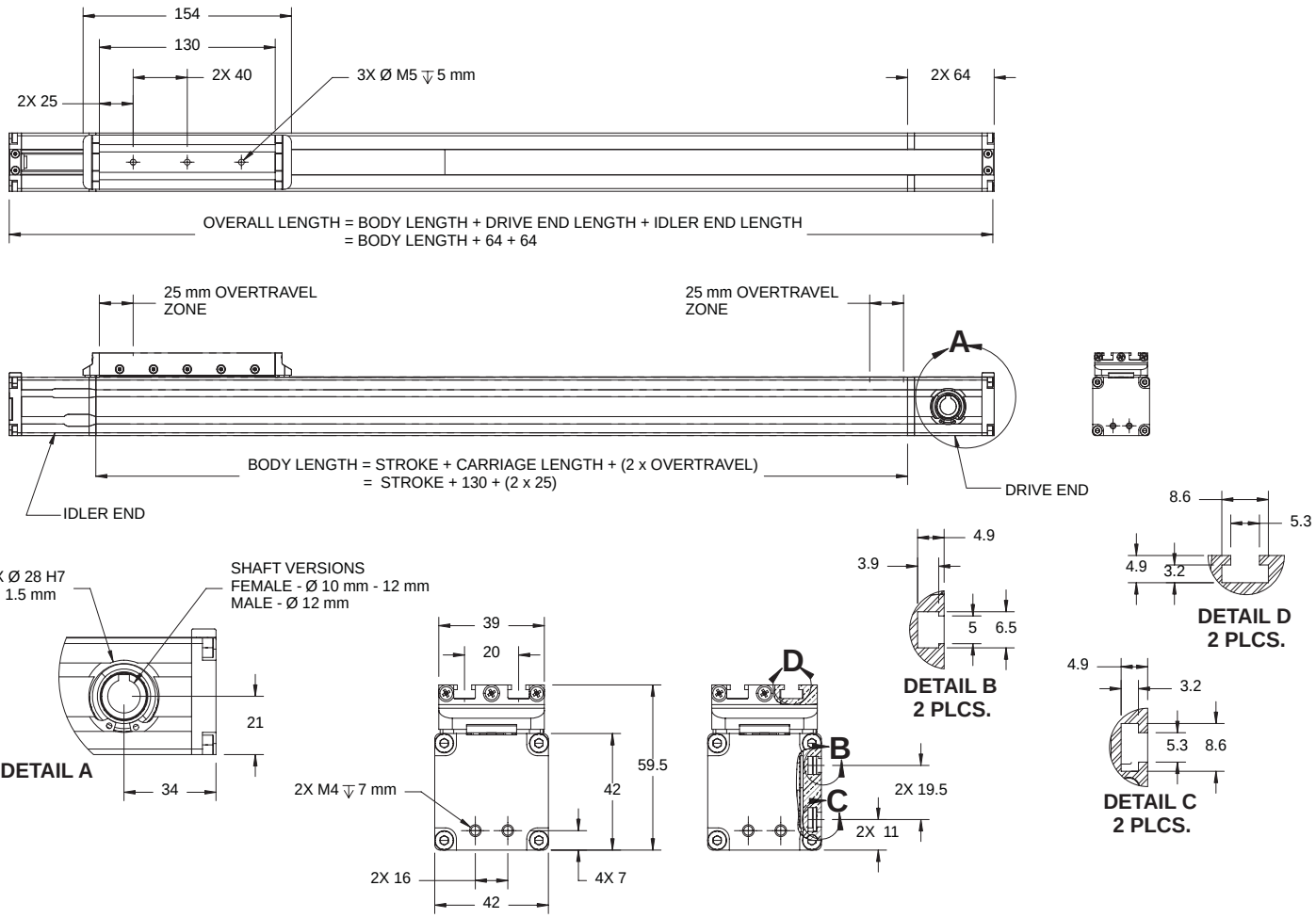


For combined loads, the combined loading cannot exceed the following formula.

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

NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the extrusion.
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. 25 mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.

DIMENSIONAL INFORMATION



ACCESSORIES - (Available upon request.)

Mid Section Mounting Bracket

End Cap Mounting Bracket

Motor Mounts/ Coupling Housings

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTB042D-1000-10F12

MTB	042	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length**	Shaft Diameter	Shaft Type	#Carriage**	Guidance Type
MTB Belt Driven Unit	**42** mm x **42** mm	**N** = Undriven **D** = Driven	**6000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **10** = 10mm **12** = 12mm	**0** = No shaft (undriven system) **F** = Female hollow (10, 12) **L** = Left Male (12) **R** = Right Male (12) **B** = Both Male (12)	**1** **2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

**No belt or motor mount, contact manufacturer for "N" version.*
***Contact manufacturer for other options and availability.*

Product information and 2D/3D CAD drawings available for download at www.pbclinear.com
For technical & application information call **1-888-777-1465**

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PBC LINEAR
A PACIFIC BEARING CO.

MT Series

MTB 80 BELT DRIVEN LINEAR ACTUATOR

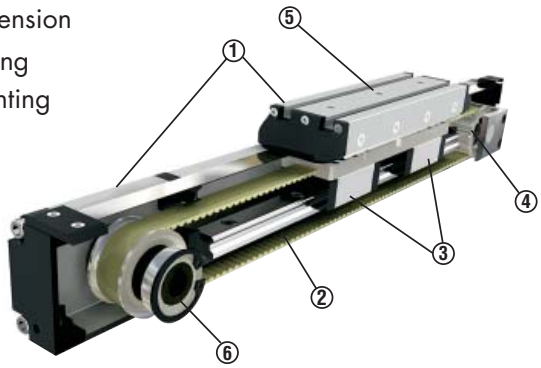
The MT Series offers a number of profile sizes with multiple design configurations to fit almost any application.

FEATURES & BENEFITS

- High Acceleration, Speed & Rigidity
- Long Travel Length
- Low Friction, Noise & Vibration
- Strong yet Lightweight & Corrosion Resistant
- Multiple Accessories & Options

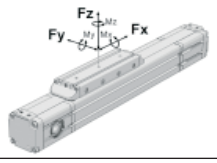
KEY FEATURES

(1) Anodized aluminum housing and carriage
(2) Steel reinforced belt capable of handling high loads
(3) Ball guided rail system
(4) Adjustable belt tension
(5) T-slots for mounting and sensor mounting
(6) Multiple drive configurations



TECHNICAL DATA

Size		mm	80 x 80	in	3.15 x 3.15
Max. Speed		m/s	3	in/s	118
Max. Stroke Length		mm	6000	in	236
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	160	in	6.30
Number of Pulley Teeth		32			
Max RPM		1150			
Base Weight		Kg	5.9	lbf	13.00
Add for 100 mm or 3.94 in of Stroke		Kg	0.49	lbf	1.08
Max. Load	**Fx**	N	1650	lbf	371
	Fy	N	4500	lbf	1012
	Fz	N	4500	lbf	1012
Max. Moments	**Mx**	Nm	80	lbf-in	708
	My	Nm	450	lbf-in	3983
	Mz	Nm	450	lbf-in	3983
Moment of Inertia	**Ix**	cm^4	183	in^4	4.39
	Iy	cm^4	226	in^4	5.42
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	300	lbf	67.4
No Load Torque		Nm	1.1	lbf-in	9.7

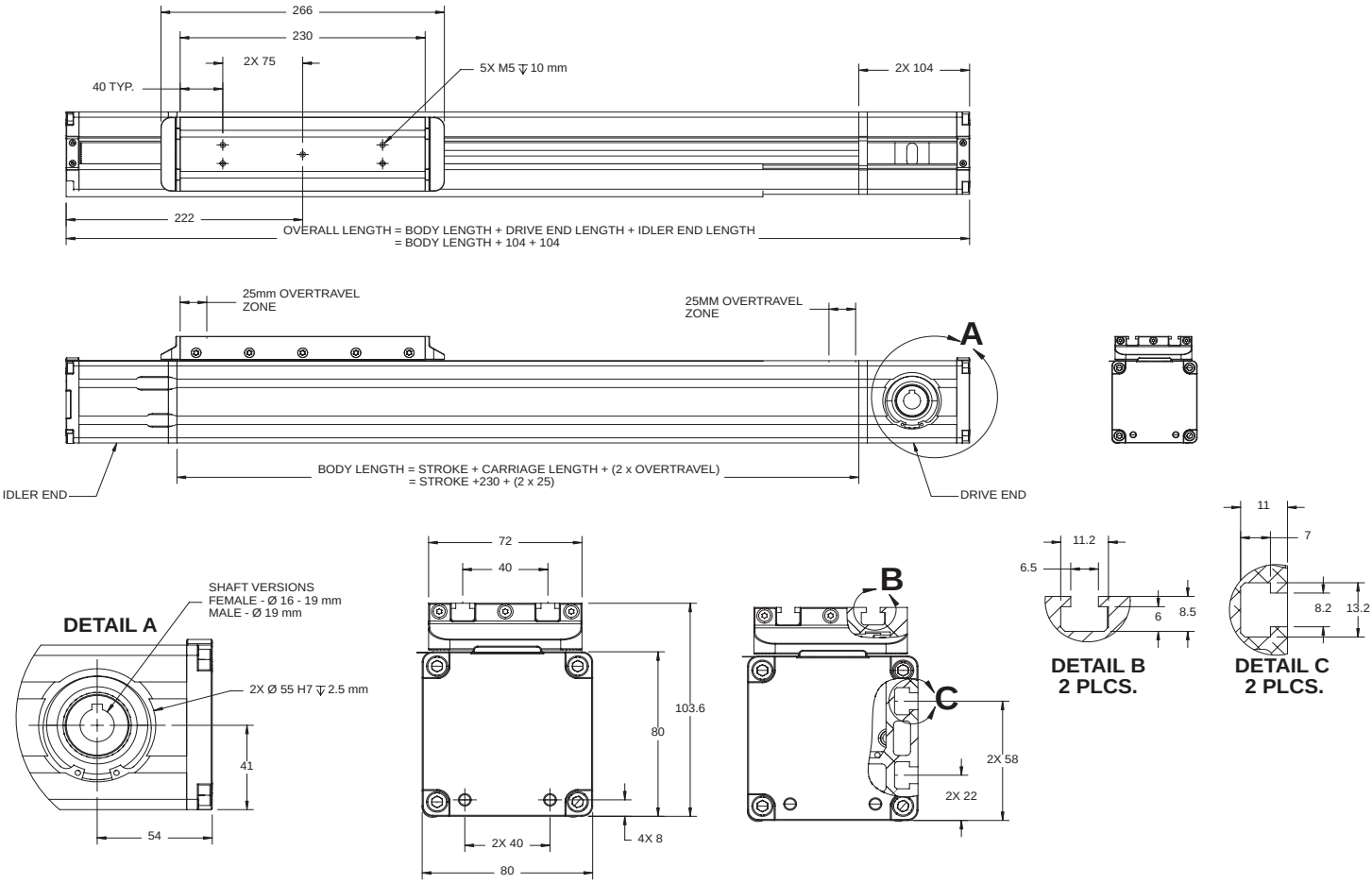


For combined loads, the combined loading cannot exceed the following formula.

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

NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the extrusion.
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. 25 mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.

DIMENSIONAL INFORMATION



ACCESSORIES - (Available upon request.)

Mid Section Mounting Bracket

End Cap Mounting Bracket

Motor Mounts/ Coupling Housing

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTB080D-1000-16F12

MTB	080	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length**	Shaft Diameter	Shaft Type	#Carriage**	Guidance Type
MTB Belt Driven Unit	**80** mm x **80** mm	**N** - Undriven **D** - Driven	**6000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **16** = 16mm **19** = 19mm	**0** = No shaft (undriven system) **F** = Female hollow (16,19) **L** = Left Male (19) **R** = Right Male (19) **B** = Both Male (19)	**1** **2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

**No belt or motor mount, contact manufacturer for "N" version.*
***Contact manufacturer for other options and availability.*

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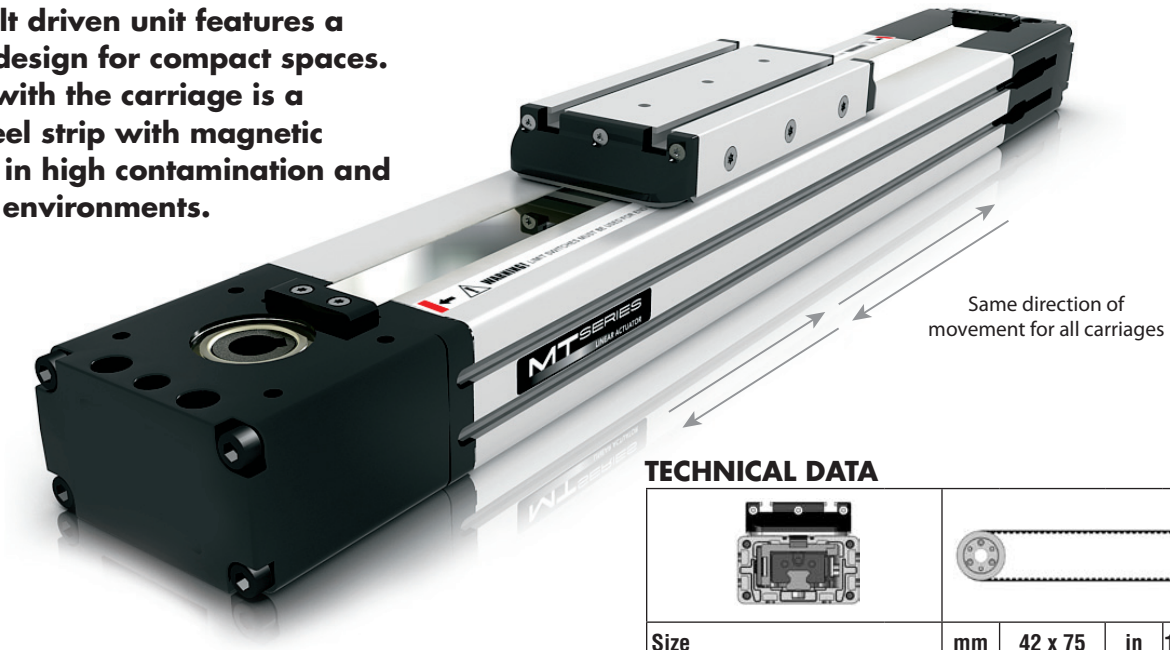
PBC LINEAR
A PACIFIC BEARING CO.

MT Series

MTC 42 BELT DRIVEN LINEAR ACTUATOR

The MTC belt driven unit features a flat profile design for compact spaces. Integrated with the carriage is a stainless steel strip with magnetic seals. Ideal in high contamination and clean room environments.



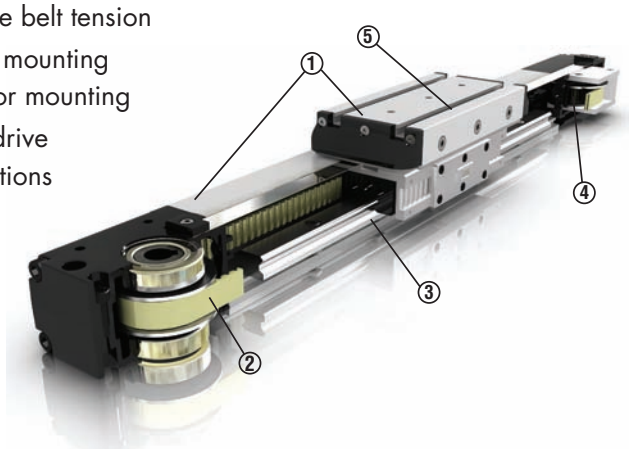
Same direction of movement for all carriages

FEATURES & BENEFITS

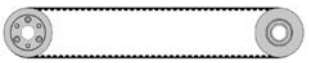
- High Acceleration, Speed & Rigidity
- Long Travel Length
- Low Friction, Noise & Vibration
- Strong yet Lightweight & Corrosion Resistant

KEY FEATURES

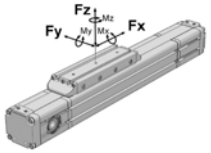
(1) Anodized aluminum housing and carriage
(2) Steel reinforced belt capable of handling high loads
(3) Ball guided rail system
(4) Adjustable belt tension
(5) T-slots for mounting and sensor mounting
(6) Multiple drive configurations



TECHNICAL DATA



Size		mm	42 x 75	in	1.65 x 2.95
Max. Speed		m/s	3	in/s	118
Max. Stroke Length		mm	3000	in	118
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	130	in	5.12
Number of Pulley Teeth		26			
Max RPM		2000			
Base Weight		Kg	2.7	lbf	5.94
Add for 100 mm or 3.94 in of Stroke		Kg	0.50	lbf	1.10
Max. Load	Fx	N	615	lbf	138
	Fy	N	1275	lbf	287
	Fz	N	1275	lbf	287
Max. Moments	Mx	Nm	18	lbf-in	159
	My	Nm	110	lbf-in	974
	Mz	Nm	110	lbf-in	974
Moment of Inertia	Ix	cm^4	28	in^4	0.67
	Iy	cm^4	37	in^4	0.89
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	250	lbf	56.2
No Load Torque		Nm	1.0	lbf-in	8.85

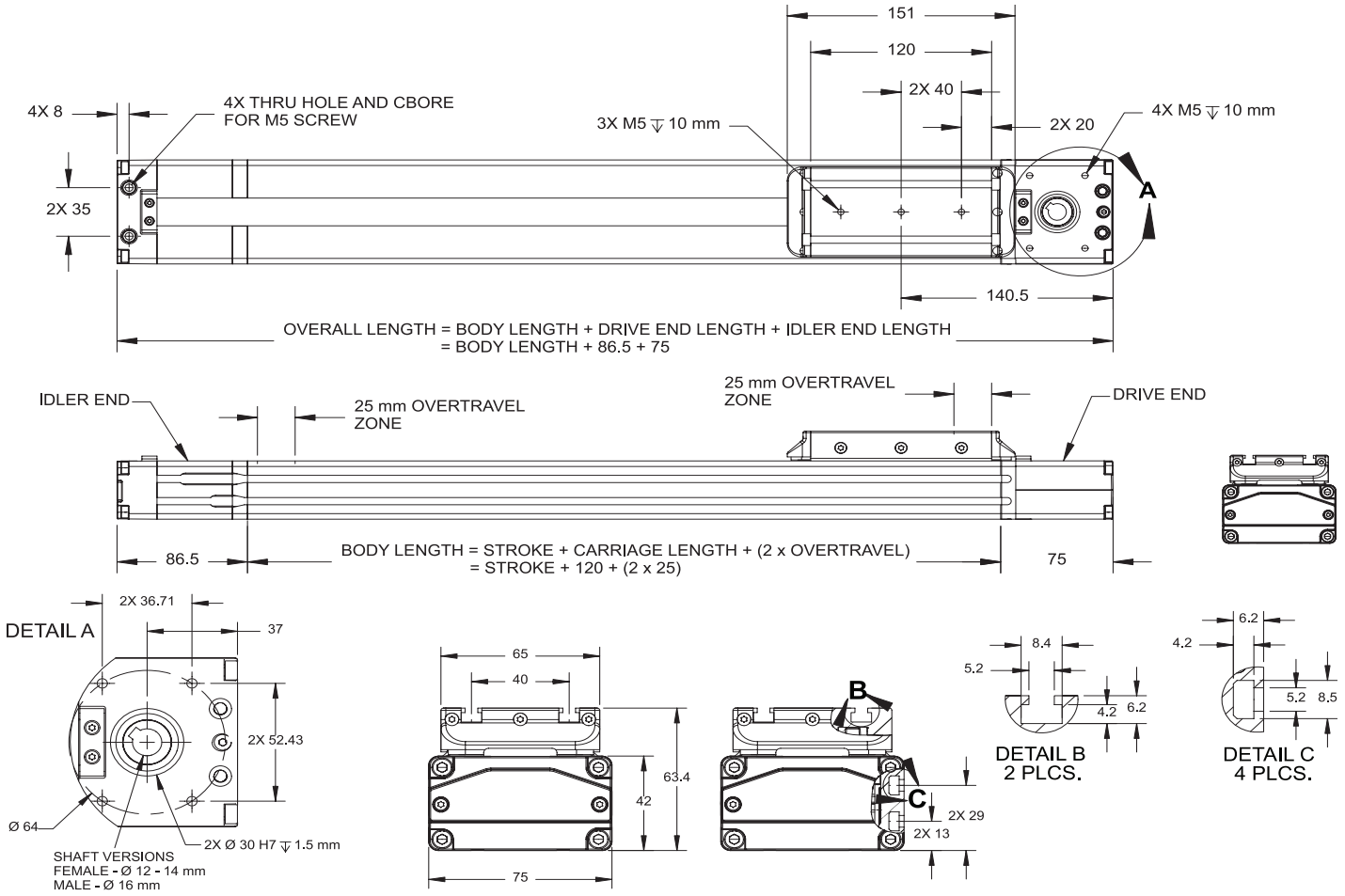


For combined loads, the combined loading cannot exceed the following formula.

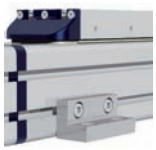
$$\frac{Fy_A}{Fy}+\frac{Fz_A}{Fz}+\frac{Mx_A}{Mx}+\frac{My_A}{My}+\frac{Mz_A}{Mz} <= 1$$

NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the extrusion.
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. 25 mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.

DIMENSIONAL INFORMATION

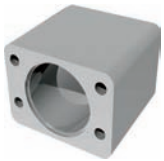


ACCESSORIES - (Available upon request.)



Mid Section Mounting Bracket

End Cap Mounting Bracket



Motor Mounts/ Coupling Housing

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTC042D-1000-12F12

MTC	042	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length**	Shaft Diameter	Shaft Type	#Carriage**	Guidance Type
MTC Belt Driven Unit	**42** mm x **42**mm	**N** - Undriven **D** - Driven	**6000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **12** = 12mm **14** = 14mm **16** = 16mm	**0** = No shaft (undriven system) **F** = Female hollow (12, 14) **L** = Left Male (16) **R** = Right Male (16) **B** = Both Male (16)	**1** **2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

**No belt or motor mount, contact manufacturer for "N" version.*
***Contact manufacturer for other options and availability.*

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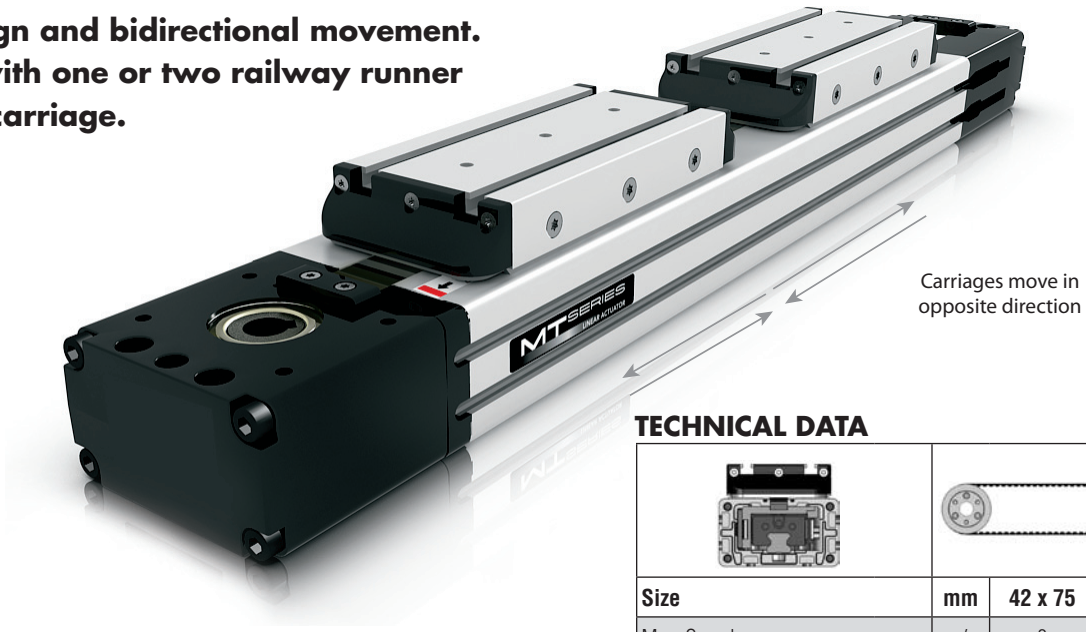
PBC LINEAR
A PACIFIC BEARING CO.

MT Series

MTD 42 BELT DRIVEN LINEAR ACTUATOR

The MTD belt driven unit features a flat profile design and bidirectional movement. Available with one or two railway runner blocks per carriage.

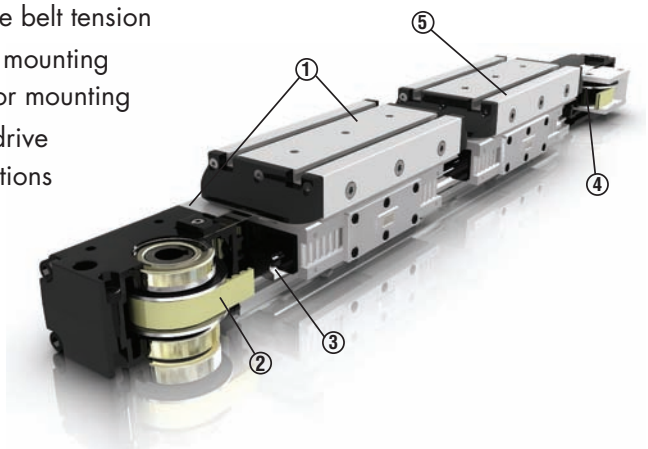


FEATURES & BENEFITS

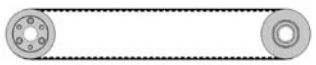
- High Acceleration, Speed & Rigidity
- Long Travel Length
- Low Friction, Noise & Vibration
- Strong yet Lightweight & Corrosion Resistant

KEY FEATURES

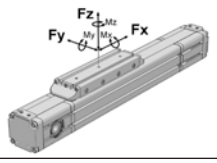
(1) Anodized aluminum housing and carriage
(2) Steel reinforced belt capable of handling high loads
(3) Ball guided rail system
(4) Adjustable belt tension
(5) T-slots for mounting and sensor mounting
(6) Multiple drive configurations



TECHNICAL DATA



Size		mm	42 x 75	in	1.65 x 2.95
Max. Speed		m/s	3	in/s	118
Max. Stroke Length		mm	3000	in	118
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	130	in	5.12
Number of Pulley Teeth		26			
Max RPM		2000			
Base Weight		Kg	3.7	lbf	8.14
Add for 100 mm or 3.94 in of Stroke		Kg	0.50	lbf	1.10
Max. Load	**Fx**	N	615	lbf	138
	Fy	N	1275	lbf	287
	Fz	N	1275	lbf	287
Max. Moments	**Mx**	Nm	18	lbf-in	159
	My	Nm	110	lbf-in	974
	Mz	Nm	110	lbf-in	974
Moment of Inertia	**Ix**	cm^4	28	in^4	0.67
	Iy	cm^4	37	in^4	0.89
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	250	lbf	56.2
No Load Torque		Nm	1.4	lbf-in	12.4

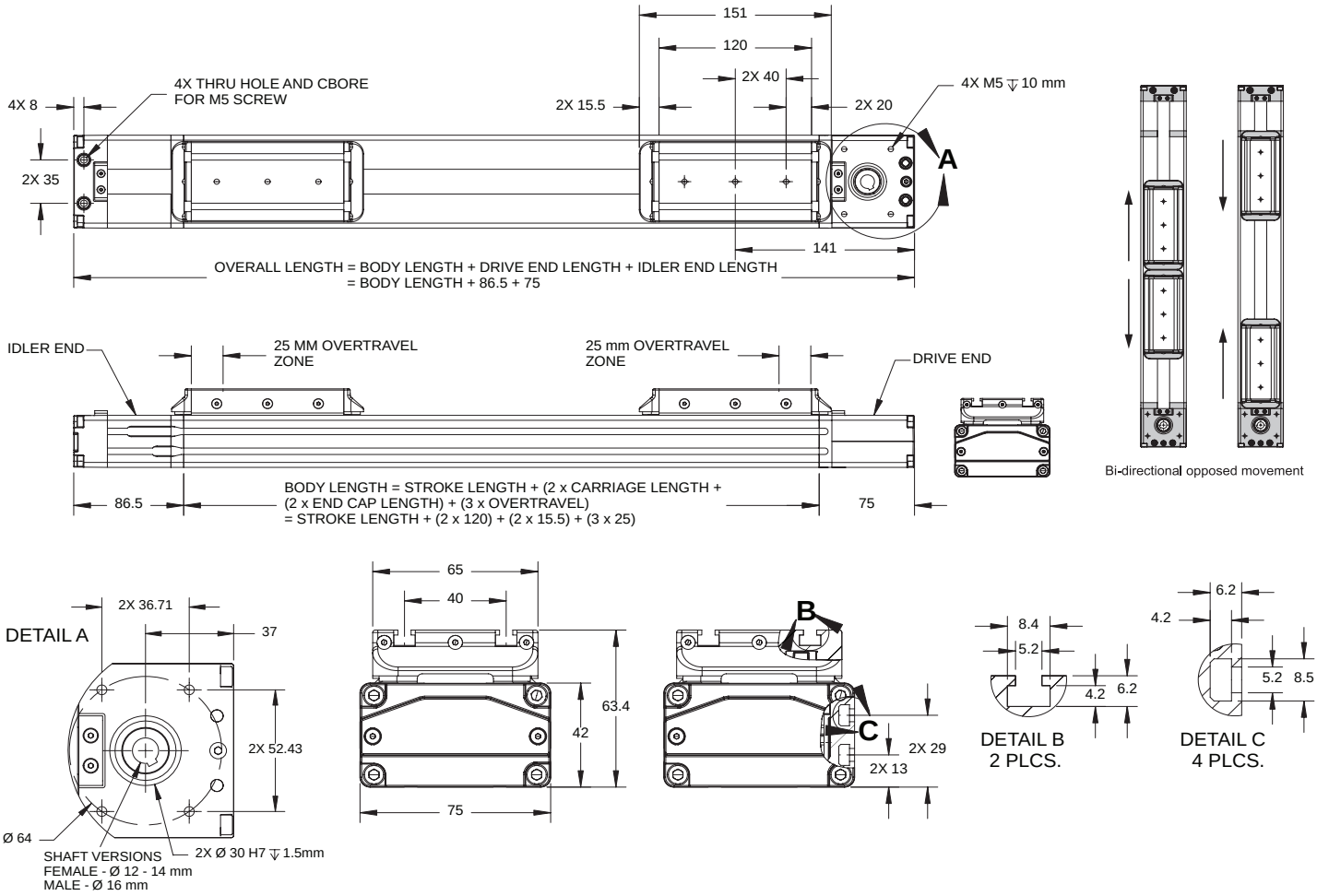


For combined loads, the combined loading cannot exceed the following formula.

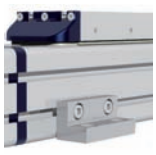
$$\frac{Fy_A}{Fy}+\frac{Fz_A}{Fz}+\frac{Mx_A}{Mx}+\frac{My_A}{My}+\frac{Mz_A}{Mz}<=1$$

NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the extrusion.
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. 25 mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.

DIMENSIONAL DATA

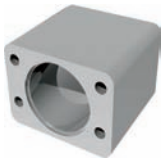


ACCESSORIES - (Available upon request.)



Mid Section Mounting Bracket

End Cap Mounting Bracket



Motor Mounts/ Coupling Housing

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTD42D-1000-12F22

MTD	042	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length**	Shaft Diameter	Shaft Type	#Carriage**	Guidance Type
MTD Belt Driven Unit	**42** mm x **42**mm	**N** - Undriven **D** - Driven	**6000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **12** = 12mm **14** = 14mm **16** = 16mm	**0** = No shaft (undriven system) **F** = Female hollow (12, 14) **L** = Left Male (16) **R** = Right Male (16) **B** = Both Male (16)	**2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

**No belt or motor mount, contact manufacturer for "N" version.*
***Contact manufacturer for other options and availability.*

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For technical & application information call **1-888-777-1465**

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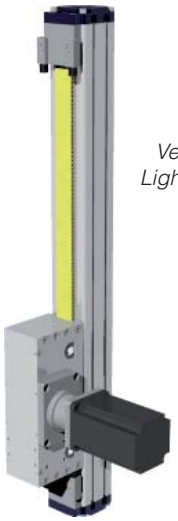
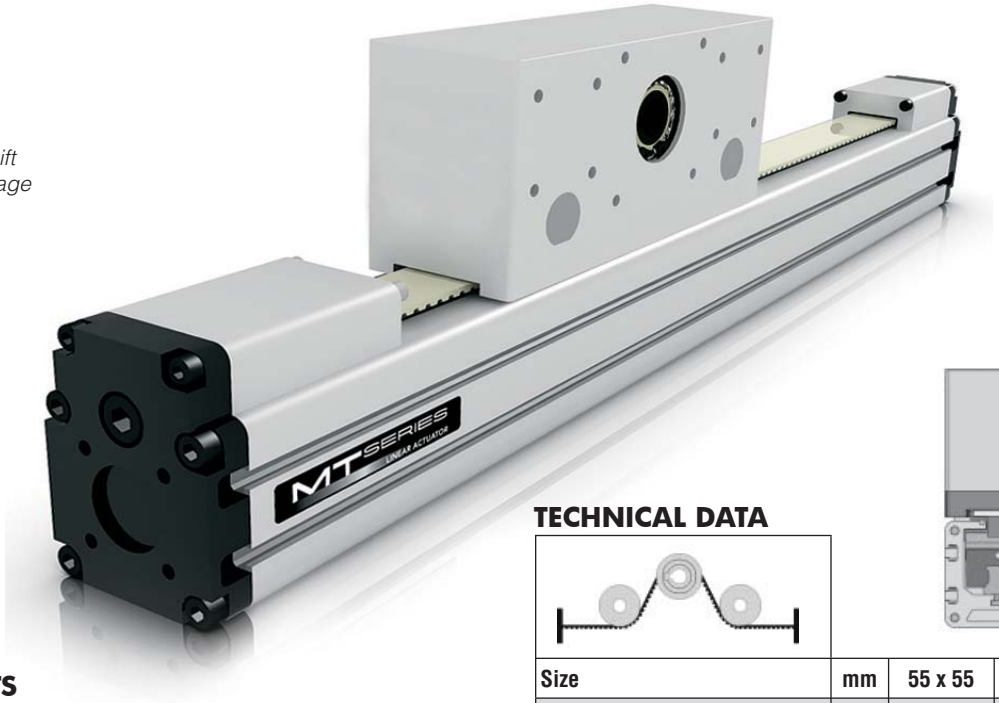
PBC LINEAR
A PACIFIC BEARING CO.

MT Series

MTE BELT DRIVEN LINEAR ACTUATOR



Vertical Lift
Light Carriage

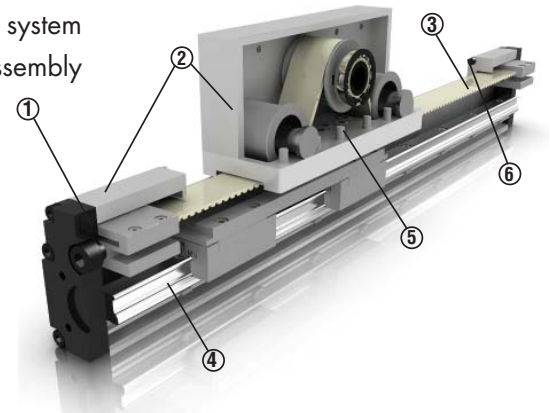


FEATURES & BENEFITS

- High Acceleration, Speed & Rigidity
- Long Travel Length
- Low Friction, Noise & Vibration
- Ideal for Vertical Applications

KEY FEATURES

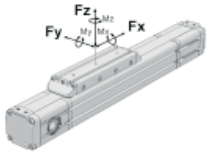
(1) Adjustable belt tension
(2) Anodized aluminum housing and carriage
(3) Steel reinforced belt capable of handling high loads
(4) Ball guided rail system
(5) Motor mount assembly
(6) Rubber buffer



NOTE:
1. Moment arms for calculating moments should be measured from the centerline of the extrusion.
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. 25 mm is the recommended over-travel; although a minimum of 10mm may be specified for special applications.

TECHNICAL DATA

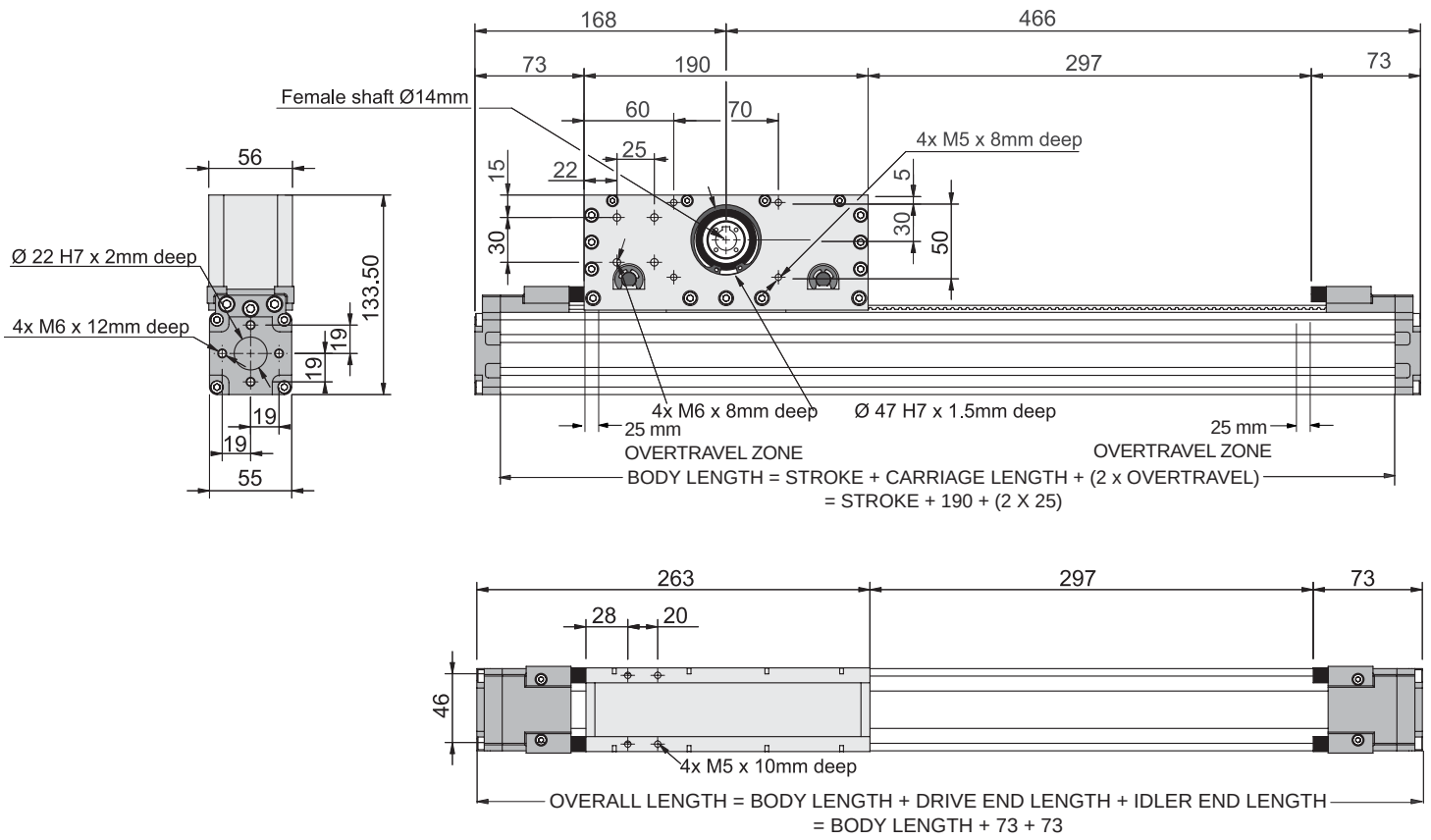
Size		mm	55 x 55	in	2.17 x 2.17
Max. Speed		m/s	1	in/s	39
Max. Stroke Length		mm	1000	in	39
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	130	in	5.12
Number of Pulley Teeth		26			
Max RPM		460			
Base Weight		Kg	3.9	lbf	8.6
Add for 100 mm or 3.94 in of Stroke		Kg	0.3	lbf	0.66
Max. Load	**Fx**	N	800	lbf	180
	Fy	N	3300	lbf	742
	Fz	N	3300	lbf	742
Max. Moments	**Mx**	Nm	40	lbf-in	354
	My	Nm	220	lbf-in	1947
	Mz	Nm	220	lbf-in	1947
Moment of Inertia	**Ix**	cm^4	36	in^4	0.86
	Iy	cm^4	46	in^4	1.10
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	200	lbf	45
No Load Torque		Nm	1.0	lbf-in	8.85



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 DATA



ACCESSORIES - (Available upon request.)

Mid Section Mounting Bracket

End Cap Mounting Bracket

Motor Mounts/ Coupling Housing

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTE055D-1000-14F12

MTE	055	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length**	Shaft Diameter	Shaft Type**	#Carriage**	Guidance Type
MTE Belt Driven Unit	**55** mm x **55**mm	**N** - Undriven **D** - Driven	**1000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **14** = 14mm	**F**= Female Hollow (14) **L** = Left Male **R** = Right Male **B** = Both Male	**1** **2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

**No belt or motor mount, contact manufacturer for "N" version.*
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PBC LINEAR
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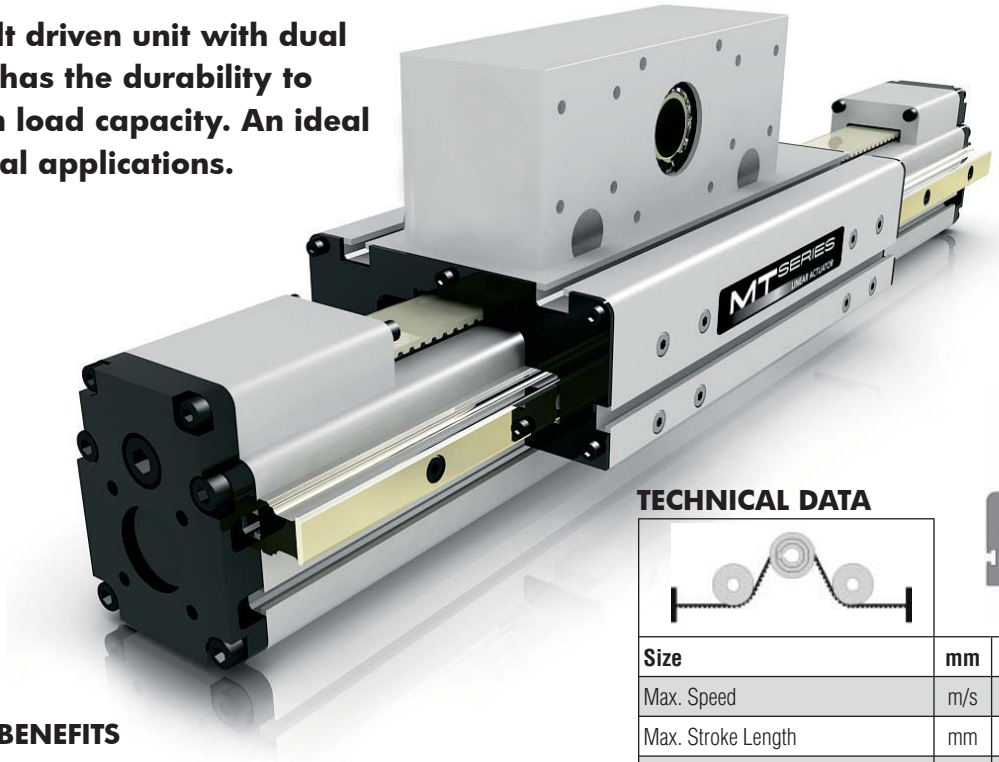
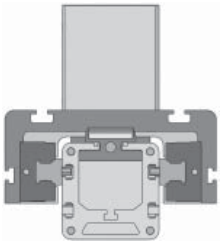
MT Series

MTF Belt Driven Linear Actuator

The MTF belt driven unit with dual rail system has the durability to handle high load capacity. An ideal fit for vertical applications.



Vertical Lift
Strong Carriage

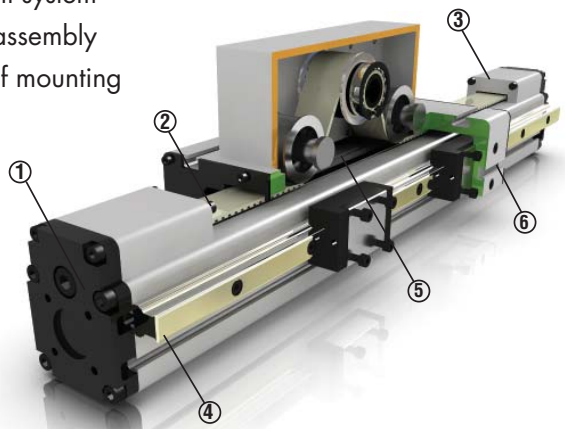


FEATURES & BENEFITS

- High Load Capacity - (2) ball guided rail system
- Low Friction, Noise & Vibration
- Ideal for Vertical Movement

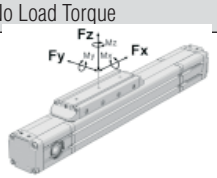
KEY FEATURES

(1) Adjustable belt tension
(2) Steel reinforced belt capable of handling high loads
(3) Anodized aluminum housing and carriage
(4) Ball guided rail system
(5) Motor mount assembly
(6) T-slots - ease of mounting



TECHNICAL DATA

Size		mm	55 x 55	in	2.17 x 2.17
Max. Speed		m/s	1	in/s	39
Max. Stroke Length		mm	1000	in	39
Min. Stroke Length		mm	100	in	3.94
Pulley Drive Ratio		mm	130	in	5.12
Number of Pulley Teeth		26			
Max RPM		460			
Base Weight		Kg	5.1	lbf	11.2
Add for 100 mm or 3.94 in of Stroke		Kg	0.51	lbf	1.12
Max. Load	**Fx**	N	800	lbf	180
	Fy	N	7800	lbf	1753
	Fz	N	7800	lbf	1753
Max. Moments	**Mx**	Nm	265	lbf-in	2345
	My	Nm	480	lbf-in	4248
	Mz	Nm	480	lbf-in	4248
Moment of Inertia	**Ix**	cm^4	36	in^4	0.86
	Iy	cm^4	46	in^4	1.10
Repeatability		mm	± 0.05	in	± 0.002
Max. Radial Load on Input Shaft		N	200	lbf	45
No Load Torque		Nm	1.2	lbf-in	10.6



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

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

NOTE:

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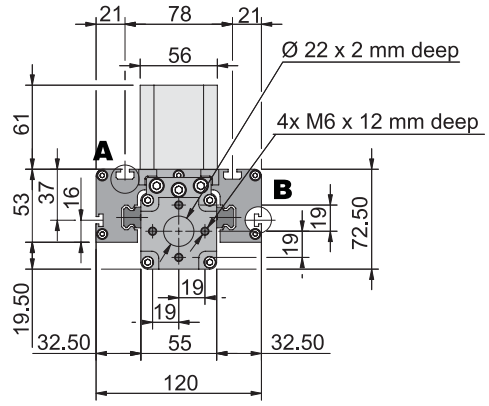
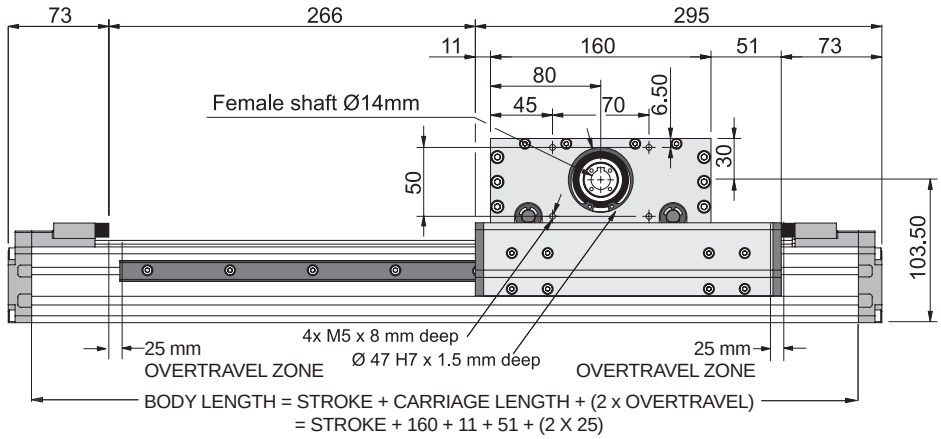
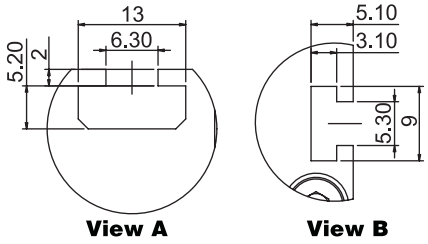
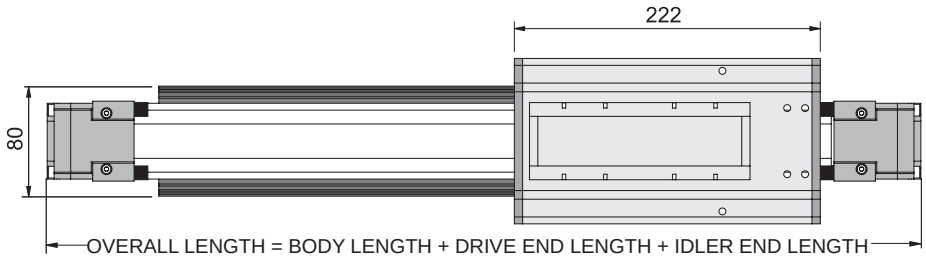
DIMENSIONAL DATA









ACCESSORIES - (Available upon request.)

Mid Section Mounting Bracket

End Cap Mounting Bracket

Motor Mounts/ Coupling Housing

Coupling

Flange Plate

Stub Shafting

ORDERING INFORMATION

EXAMPLE: MTF055D-1000-14F12

MTF	055	D	-	XXXX	-	X	X	X	X

Series	Size (mm) *(Base x Height)*	System Type*	Body Length	Shaft Diameter	Shaft Type**	#Carriage**	Guidance Type
MTF Belt Driven Unit	**55** mm x **55**mm	**N** - Undriven **D** - Driven	**1000 mm (max.)** *Must include 50mm over-travel*	**00** = No shaft (undriven system) **14** = 14mm	**F**= Female Hollow (14) **L** = Left Male **R** = Right Male **B** = Both Male	**1** **2** **3** **4**	**2** = Profile rail w/2 runner blocks per carriage **Future Option** **C** = CRT/IVT - V-wheel roller **G** = GST - Gliding polymer

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