

# MTB SERIES

## Belt Driven Linear Actuators

MT 42, 55, 80

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

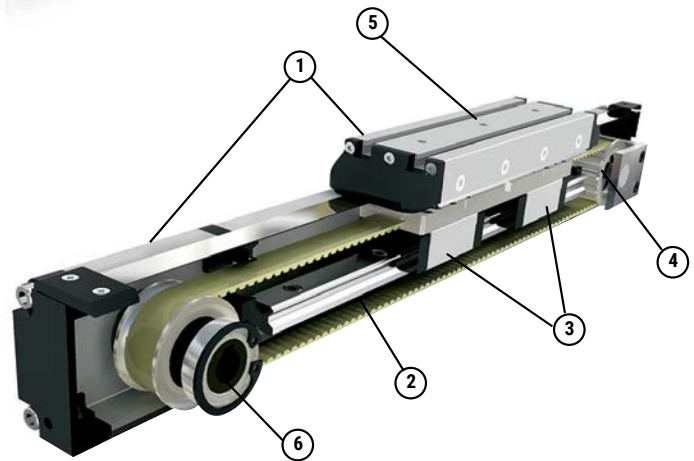


### Features and Benefits

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

### Key Features

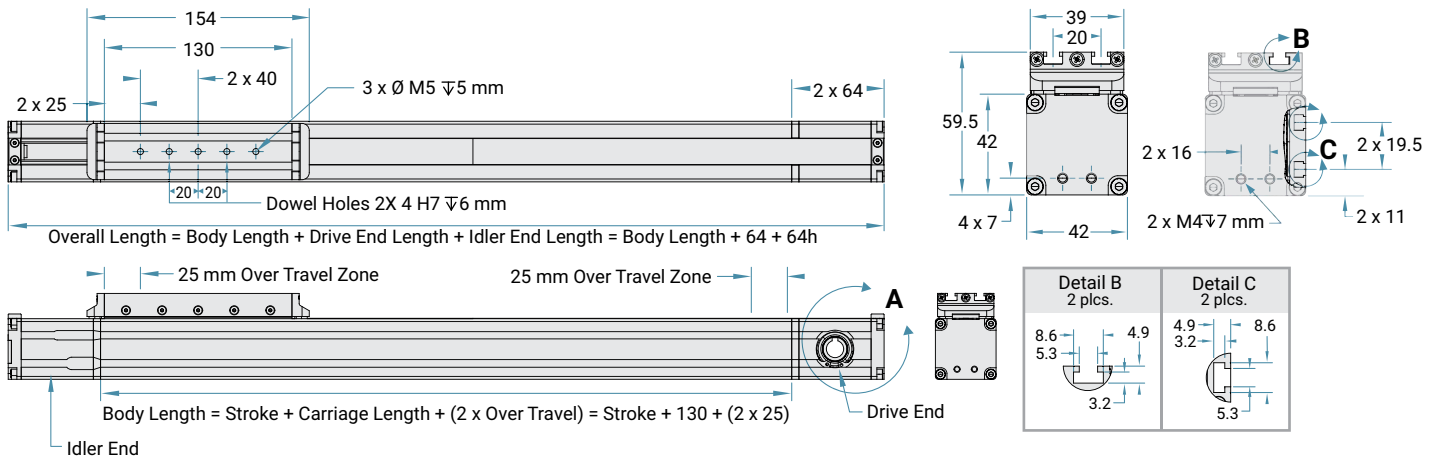
- 1- Anodized aluminum housing and carriage
- 2- Steel reinforced belt capable of handling high loads
- 3- Ball guided rail system
- 4- Adjustable belt tension
- 5- T-slots for mounting and sensor mounting
- 6- Multiple drive configurations



### 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. 25 mm 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 10 mm may be specified for special applications.

## MTB 42 Dimensional information

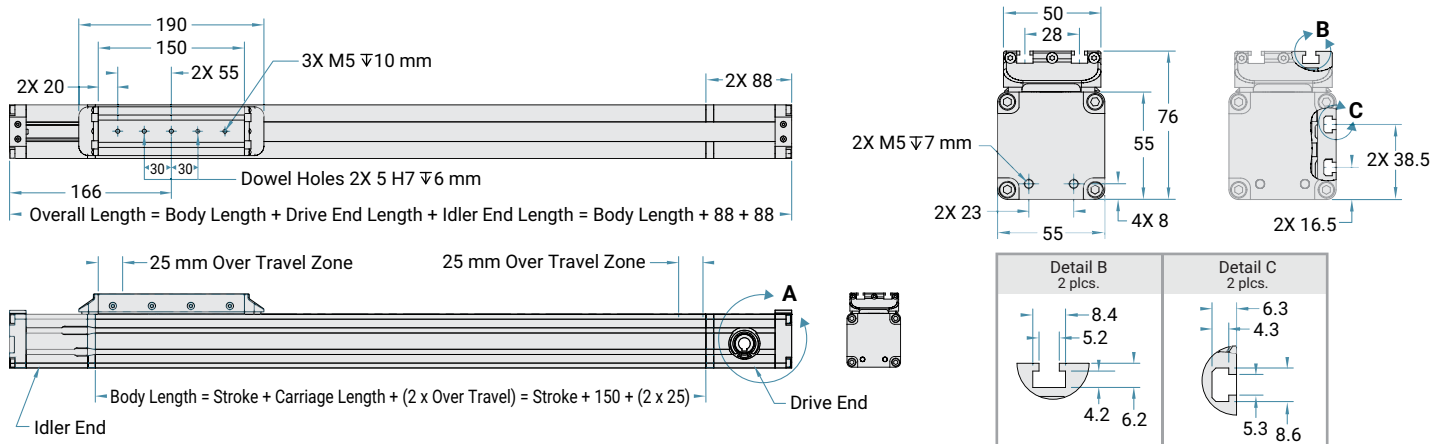


### Ordering Information

Example: MTB-042D-1000-12B12

MTB	042	X	-	XXXX	-	XX		XX	-	X	-	X
Series	Size mm (Base and Height)	System Type*		Body Length**		Shaft Diameter		Shaft Type		Carriage**		Guidance Type
MTB Belt Driven Unit	42 x 42	D = Driven N = Undriven		2,000 mm (max.) Must include 50 mm over-travel  For lengths greater than 1,500 mm consult factory		00 = No shaft (undriven system) 10 = 10 mm 12 = 12 mm		F = Female hollow (10) L = Left Male (12) R = Right Male (12) B = Both Male (12) 0 = No shaft (undriven system) LW = Left Male w/o Keyway RW = Right Male w/o Keyway BW = Both Male w/o Keyway		1 Standard 2 3 4		2 = Profile rail w/2 runner blocks per carriage

## MTB 55 Dimensional information

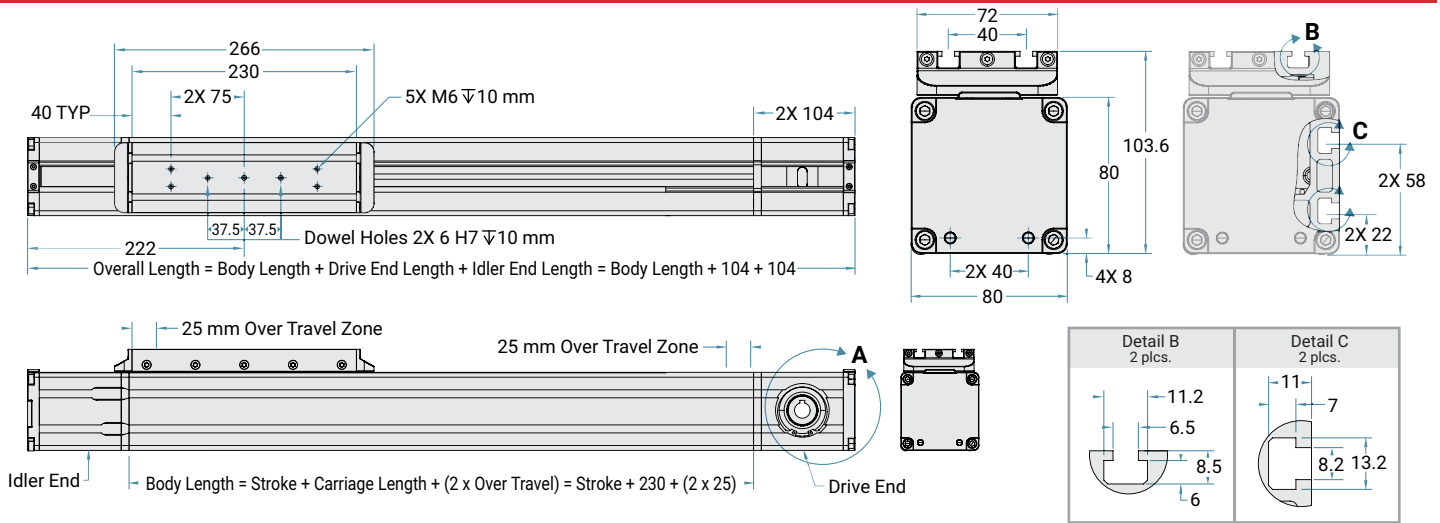


### Ordering Information

Example: MTB-055D-1000-12F12

MTB	055	X	-	XXXX	-	XX		XX	-	X	-	X
Series	Size mm (Base and Height)	System Type*		Body Length**		Shaft Diameter		Shaft Type		Carriage**		Guidance Type
MTB Belt Driven Unit	55 x 55	D = Driven N = Undriven		6,000 mm (max.) Must include 50 mm over-travel  For lengths greater than 1,500 mm consult factory		00 = No shaft (undriven system) 12 = 12 mm 14 = 14 mm 16 = 16 mm		F = Female hollow (14) L = Left Male (16) R = Right Male (16) B = Both Male (16) 0 = No shaft (undriven system) LW = Left Male w/o Keyway RW = Right Male w/o Keyway BW = Both Male w/o Keyway		1 Standard 2 3 4		2 = Profile rail w/2 runner blocks per carriage

## MTB 80 Dimensional information

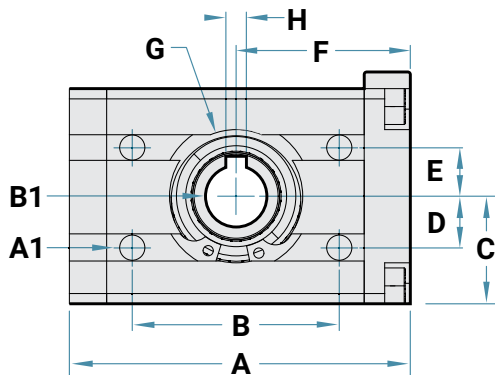


### Ordering Information

Example: MTB-080D-1000-19F12

<b>MTB</b>	<b>080</b>	<b>X</b>	<b>-</b>	<b>XXXX</b>	<b>-</b>	<b>XX</b>	<b>XX</b>	<b>-</b>	<b>X</b>	<b>-</b>	<b>X</b>
<b>Series</b>	<b>Size mm (Base and Height)</b>	<b>System Type*</b>		<b>Body Length**</b>		<b>Shaft Diameter</b>	<b>Shaft Type</b>		<b>Carriage**</b>		<b>Guidance Type</b>
MTB Belt Driven Unit	80 x 80	D = Driven N = Undriven		6,000 mm (max.) Must include 50 mm over-travel  For lengths greater than 1,500 mm consult factory		00 = No shaft (undriven system) 16 = 16 mm 19 = 19 mm	F = Female hollow (16,19) L = Left Male (19) R = Right Male (19) B = Both Male (19) 0 = No shaft (undriven system) LW = Left Male w/o Keyway RW = Right Male w/o Keyway BW = Both Male w/o Keyway		1 Standard 2 3 4		2 = Profile rail w/2 runner blocks per carriage

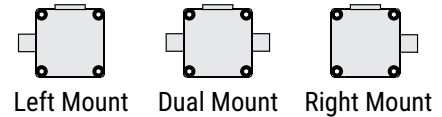
### Detail A - Drive End



MTB Size	A mm	B MAX	C mm	D mm	E mm	F mm	G
<b>MTB 42</b>	64	42	21	10	9.5	34	2 x Ø30 H7∇1.5 mm
<b>MTB 55</b>	88	55	25	8.5	13.5	48.5	2 x Ø32 H7∇1.5 mm
<b>MTB 80</b>	104	71	41	19	17	54	2 x Ø55 H7∇2 mm

#### Male Shaft Type Options:

As viewed from drive end with carriage on top



MTB Size		A1		B1		H	
		Square Nut Included	Female mm	Male mm	Female Dia. Bore Width	Keyway Width	
<b>MTB 42</b>	12H7 +0.018/-0 Dia. X 18 mm length	M5 DIN526	Ø 10	Ø 12	10H7 -0/+0.018	3N9 -0.004/-0.029	
<b>MTB 55</b>	16H7 +0.018/-0 Dia. X 18.5 mm length	M5 NIN557	Ø 12 Ø 14	Ø 16	12H7 -0/+0.018 14H7 -0/+0.018	4N9 -0.030/+0 5N9 -0.030/+0	
<b>MTB 80</b>	19H7 +0.021/-0 Dia. X 30 mm length	M8 DIN557	Ø 16 Ø 19	Ø 19	16H7 -0/+0.018 19H7 -0/+0.018	5N9 -0/+0.030 6N9 -0/+0.030	

\* No belt or motor mount, contact manufacturer for "N" version.

\*\* Contact manufacturer for other options and availability.

Profile rail will be segmented for lengths over 1 m.

042 Common Drive Combinations

12B - 40%    12R - 20%    10F - 10%  
12F - 20%    12L - 10%

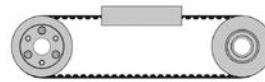
055 Common Drive Combinations

12F - 40%    16B - 20%    16L - 10%  
14F - 20%    16R - 10%

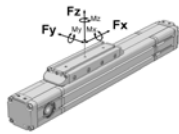
080 Common Drive Combinations

19F - 50%    19R - 10%    16F - 10%  
19L - 20%    19B - 10%

## Technical Data



Size	mm	42 x 42	55 x 55	80 x 80	in	1.65 x 1.65	2.17 x 2.17	3.15 x 3.15	
Max. Speed	m/s	3	3	3	in/s	118.11	118.11	118.11	
Max. Stroke Length	mm	2,000	6,000	6,000	in	78.74	236.22	236.22	
Min. Stroke Length	mm	100	100	100	in	3.94	3.94	3.94	
Pulley Drive Ratio	mm	90	120	160	in	3.54	4.72	6.30	
Number of Pulley Teeth		18	24	32		18	24	32	
MAX RPM		2,000	1,500	1,125		2,000	1,500	1,125	
Base Weight	Kg	1.60	4.80	6.00	lb	3.53	10.58	13.20	
Add for 100 mm or 3.94 in of Stroke	Kg	0.25	0.37	0.90	lb	0.55	0.816	1.98	
Max. Load	Fx	N	460	820	1,650	lbf	103	184	370.93
	Fy	N	1,560	1,850	4,500	lbf	351	416	1,011.64
	Fz	N	1,560	1,850	4,500	lbf	351	416	1,011.64
Max. Moments	Mx	Nm	20	25	80	lbf-in	177	221	708
	My	Nm	55	120	450	lbf-in	487	1,062	3,983
	Mz	Nm	55	120	450	lbf-in	487	1,062	3,983
Moment of Inertia	Ix	cm <sup>4</sup>	12	36	183	in <sup>4</sup>	0.29	0.86	4.39
	Iy	cm <sup>4</sup>	15	45	226	in <sup>4</sup>	0.36	1.08	5.42
Max. Radial Load on Input Shaft	N	220	300	300	lbf	49.5	67.4	67.4	
No Load Torque	Nm	0.8	1	1.1	lbf-in	7.1	8.9	9.7	



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

$$\frac{F_{y_A}}{F_y} + \frac{F_{z_A}}{F_z} + \frac{M_{x_A}}{M_x} + \frac{M_{y_A}}{M_y} + \frac{M_{z_A}}{M_z} \leq 1$$

## Accessories (Available upon request.)



Mid Section  
Mounting Bracket



End Cap  
Mounting Bracket



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