



100BT Series

Features

- Nonrecirculating linear ball bearing for smoothest linear translation
- Precision ground leadscrew drive for accurate, repeatable positioning of ± 0.00012 in (bidirectional)
- Selectable drive screw leads to match speed and resolution requirements
- Travels up to 12 inches

Quality Design and Construction

The 100BT Series Linear Tables incorporate a non-recirculating linear ball bearing system to produce extremely smooth linear translation with excellent straightline and flatness accuracy. The drive mechanism is a precision ground leadscrew which is pre-loaded to provide highly precise positional accuracy and repeatability. Offered in English or Metric versions, these tables are utilized in high to ultra high-end applications requiring accurate positioning over a relatively short distance at slow to moderate speeds and accelerations. In addition to the precision grade models, this series is also offered in standard grade models which permit cost savings to be realized in less demanding applications.

Table housings are constructed of high quality aluminum alloy and are protected with a black anodized surface finish. The top and bottom mounting surfaces are precision ground to assure flatness. The low-profile design and lightweight construction make the 100BT well suited for multi-axis applications. These tables are designed for use in clean environments and are typically found in the semiconductor, aerospace, instrumentation, and scientific industries. Typical applications include: Parts Inspection, Vision Systems, and Gauging. Scanning and Crystal Growing are also popular uses for these tables since they require extremely smooth and very precise motion.



Screw Driven
Tables

Options

Motor Couplings

A wide range of coupling styles and bores are available to match motor requirements. Bellows-style couplings are required for all precision grade tables and have the lowest torsional windup, while the aluminum and stainless steel helix couplers offer good windup characteristics and high durability at a lower cost.

Motor Mount

The motor mount is designed for an industry standard NEMA 23 motor flange with shaft lengths between 0.65 and 0.85 inches.

Limit and Home Switches

All styles of the 100BT series can be equipped with mechanical reed switch or optical sensor type limit and home switch assemblies. The limit switches provide a signal when the table approaches its end of travel which is used to command the motor to stop. The Home sensor provides a fixed reference point to which the table can always return.

Linear Encoders

This option mounts to the side of the table and is used to give direct positional feedback of the carriage. English resolution of 0.0001 inch and Metric resolution of 0.001 mm are available.

Z Axis Brackets

Brackets for vertical mounting of these units are offered as a standard accessory.

Note: Refer to www.parkermotion.com or contact a Parker applications engineer for additional detailed information pertaining to any of these options or accessories.

Common Characteristics

	Units	Precision	Standard
Performance:			
Positional Repeatability (bidirectional)	x 0.001 in (µm)	±0.12 (±3.0)	±0.47 (±12)
Life @ rated Load Capacity	x 1 million in (km)	10 (254)	10 (254)
Duty Cycle	%	75	75
Acceleration (Max.)	in/sec ² (m/sec ²)	48 (1.2)	24 (0.6)
Maximum Screw Speed	rps	25	25
Motor Sizing:			
Leadscrew Diameter 105BT	in (mm)	0.375 (9.5)	0.375 (9.5)
Leadscrew Diameter 106BT	in (mm)	0.500 (12.7)	0.500 (12.7)
Drive Screw Efficiency	%	30	30
Breakaway Torque (Max.)	oz-in (N-m)	16.5 (0.117)	16.5 (0.117)
Running Torque (Max.)	oz-in (N-m)	15.0 (0.106)	15.0 (0.106)
Coefficient of Friction - Linear Bearing		0.003	0.003

Travel Dependent Characteristics

Model Number	Load Capacity*								Positional Accuracy x 0.001		Straightness & Flatness Accuracy x 0.001		Input Inertia		Carrriage Weight		Table Weight	
	Travel		Normal		Inverted		Axial		in (µm)	in (µm)	10 ⁻³ oz-in- sec ²	10 ⁻⁵ kg- m ²	lbs (kgf)	lbs (kgf)	lbs (kgf)	lbs (kgf)		
	in (mm)	lbs (kgf)	lbs (kgf)	lbs (kgf)	lbs (kgf)	lbs (kgf)	lbs (kgf)	lbs (kgf)										
Precision Grade Specifications																		
105002BT	2.0 (50)	60 (27)	30 (13)	28 (13)	0.6 (16)	0.16 (4)	0.31 (0.22)	2.4 (1.1)	4.0 (1.8)									
106004BT	4.0 (100)	100 (45)	50 (23)	55 (25)	0.6 (16)	0.32 (8)	0.767 (0.54)	5.1 (2.3)	7.2 (3.3)									
106006BT	6.0 (150)	110 (50)	55 (25)	55 (25)	0.9 (24)	0.48 (12)	0.978 (0.69)	7.2 (3.3)	10.2 (4.6)									
106008BT	8.0 (200)	120 (54)	60 (27)	55 (25)	1.3 (32)	0.6 (16)	1.175 (0.83)	9.2 (4.2)	13.2 (6.0)									
106010BT	10.0 (250)	130 (59)	65 (29)	55 (25)	1.6 (40)	0.6 (16)	1.368 (0.97)	11.1 (5.0)	16.0 (7.3)									
106012BT	12.0 (300)	140 (64)	70 (32)	55 (25)	1.9 (48)	0.6 (16)	1.561 (1.10)	13.0 (5.9)	19.1 (8.7)									
Standard Grade Specifications																		
105002BT	2.0 (50)	60 (27)	30 (13)	28 (13)	0.8 (20)	0.4 (10)	0.31 (0.22)	2.4 (1.1)	4.0 (1.81)									
106004BT	4.0 (100)	100 (45)	50 (23)	55 (25)	0.8 (20)	0.8 (20)	0.767 (0.54)	5.1 (2.3)	7.2 (3.3)									
106006BT	6.0 (150)	110 (50)	55 (25)	55 (25)	1.2 (30)	1.2 (30)	0.978 (0.69)	7.2 (3.3)	10.2 (4.6)									
106008BT	8.0 (200)	120 (54)	60 (27)	55 (25)	1.6 (40)	1.6 (40)	1.175 (0.83)	9.2 (4.2)	13.2 (6.0)									
106010BT	10.0 (250)	130 (59)	65 (29)	55 (25)	2.0 (50)	2.0 (50)	1.368 (0.97)	11.1 (5.0)	16.0 (7.3)									
106012BT	12.0 (300)	140 (64)	70 (32)	55 (25)	2.4 (60)	2.4 (60)	1.561 (1.10)	13.0 (5.9)	19.1 (8.7)									

*For moment load calculations, refer to the technical reference section of Parker's web site www.parkermotion.com

Refer to www.parkermotion.com for additional technical information.

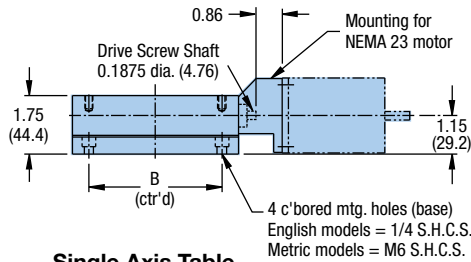
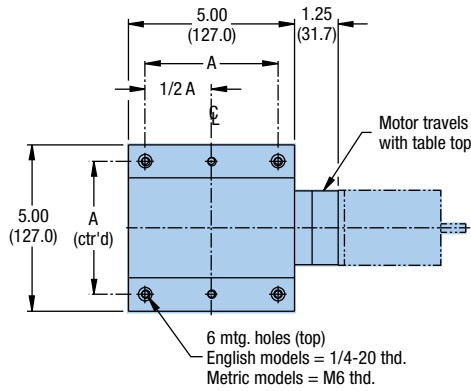




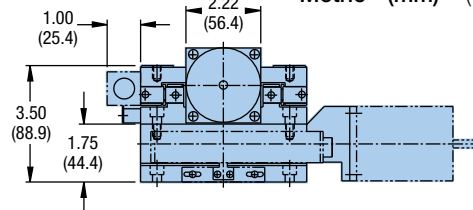
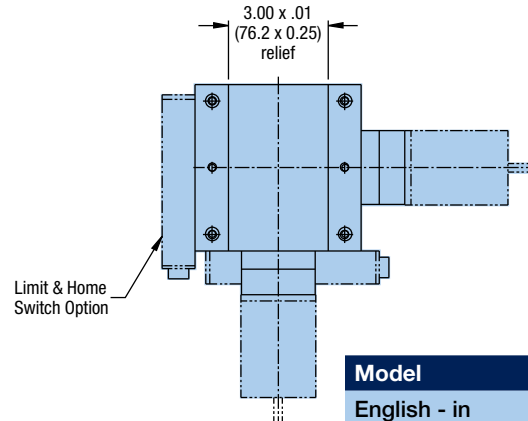
100BT Series Dimensions

Dimensions – in (mm)

105002BT



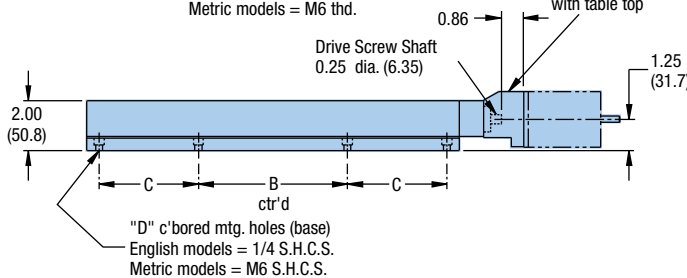
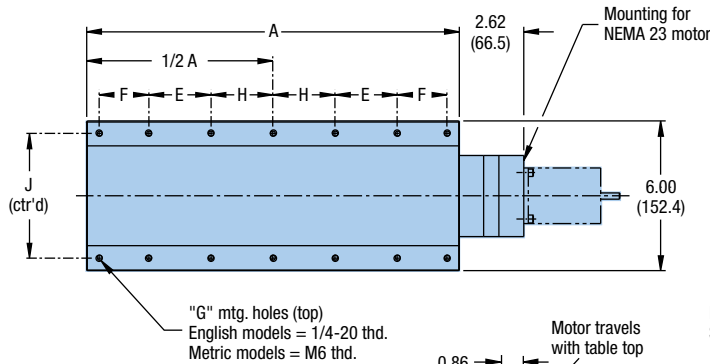
Single Axis Table



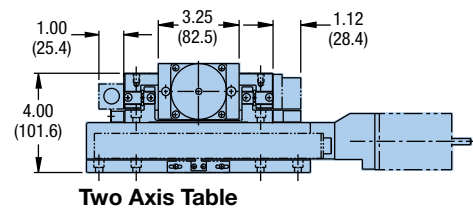
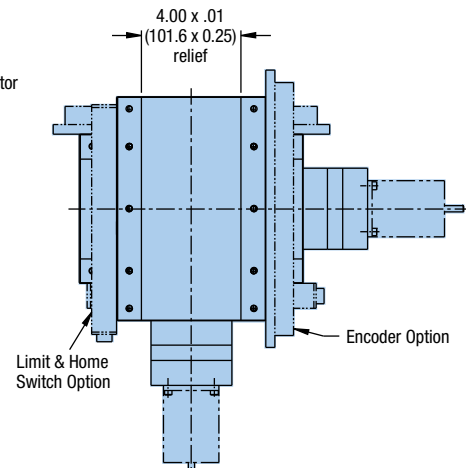
Two Axis X-Y Table

Model	A	B
English - in	4.00	4.00
Metric - (mm)	(100.0)	(100.0)

106000BT



Single Axis Table



Two Axis Table

English Models- in Metric Models (mm)

Model Number	Travel	A	B	C	Quantity D	E	F	Quantity G	H	J
106004	4 (100)	6 (152.4)	5 (125.0)	—	4	—	—	6	2.5 (62.5)	5 (125.0)
106006	6 (150)	9 (228.6)	5 (125.0)	1.5 (37.5)	8	1.5 (37.5)	—	10	2.5 (62.5)	5 (125.0)
106008	8 (200)	12 (304.8)	5 (125.0)	3 (75.0)	8	2.5 (62.5)	—	10	2.5 (62.5)	5 (125.0)
106010	10 (250)	15 (381.0)	6 (150.0)	4 (100.0)	8	2.5 (62.5)	2 (50.0)	14	2.5 (62.5)	5 (125.0)
106012	12 (300)	18 (457.2)	7 (175.0)	5 (125.0)	8	5 (125.0)	1 (25.0)	14	2.5 (62.5)	5 (125.0)

Fill in an order code from each of the numbered fields to create a complete model order code.

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

Order Example:

1 06 008 BT M P D1 L3 C1 M1 E1

① **Series**

1

② **Table Width**

05 5 in, 125 mm
06 6 in, 150 mm

③ **Table Travel**

002 2 in, 50 mm (105 only)
004 4 in, 100 mm
006 6 in, 150 mm
008 8 in, 150 mm
010 10 in, 250 mm
012 12 in, 300 mm

④ **Table Style**

BT Ball bearing

⑤ **Mounting**

E English
M Metric

⑥ **Grade**

S Standard
P Precision

⑦ **Drive Screw**

D1 0.02 in lead (50 pitch)
D2 0.10 in lead (10 pitch)
D3 0.20 in lead (5 pitch)
D4 1.0 mm lead
D5 2.0 mm lead
D6 5.0 mm lead
D7 0.1 in lead (ACME) for vertical applications, motor up (available on 106 only)
D8 0.1 in lead (ACME) for vertical applications, motor down (available on 106 only)

⑧ **Limit/Home**

L1 No limit/home switches
L2 Mechanical/reed switches
L3 Optical sensors

⑨ **Motor Coupling**

C1 No coupling
C2 0.25 in bore, helix, aluminum
C3 0.25 in bore, helix, stainless steel (available on 106 only)
C4 0.25 in bore, bellows, required for precision grade
C5 0.375 in bore, helix, aluminum
C6 0.375 in bore, helix, stainless steel (available on 106 only)
C7 0.375 in bore, bellows, required for precision grade

⑩ **Motor Mount**

M1 23 frame size

⑪ **Encoder**

E1 No encoder
E2 Linear encoder, English, 0.0001 in resolution (available on 106 only)
E3 Linear encoder, Metric, 1.0 µm resolution (available on 106 only)