

# Screw Driven automation tables

Precise multi-axis positioning systems play an integral part in today's semiconductor, computer peripheral, solar power, flat panel, life sciences, lab automation, biomedical and electronics industries. The demands for tighter specifications, improved throughput and consistent quality have become increasingly stringent. Because of the complexity associated with these systems, many manufacturers insist on a single source supplier to eliminate multiple vendor design incompatibilities and delivery conflicts. With over forty years' experience as a global leader in the development of products and technology, Parker provides the most advanced, easy to integrate high-precision electromechanical systems.

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## 100CT & 800CT Cross Roller Tables

### Features

- Twice as strong as the same size ball bearing table
- Non-recirculating bearing design for the smoothest linear translation
- Leadscrew drive for smooth motion or ballscrew drive for 100% duty cycle
- Highly repeatable positioning ( $\pm 0.00005"$ )
- Precision ground top and bottom mounting surfaces

### Quality Design and Construction

The 100CT and 800CT linear tables employ a non-recirculating cross roller bearing system to provide smooth linear translation of heavier loads where mechanical disturbance cannot be tolerated. They are offered in two styles – the 100CT and 800CT.

The 100CT is a low profile light duty cross roller table. It is similar in size and shape to the 100BT ball bearing table and utilizes the same pre-loaded leadscrew drive. It is designed to fit those applications whose load requirements exceed the 100BT and whose duty cycle is less than 75%.

The 800CT is a rugged table rated at 100% duty cycle. It has a larger cross roller bearing system and an efficient (90%) ballscrew drive, and should be considered in high to ultra high-end applications that require accurate positioning over a relatively short distance at slow to moderate speeds and accelerations.

### 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 radial windup, while the aluminum and stainless steel helix couplers offer good windup characteristics and high durability at a lower cost.

#### Motor Mounts

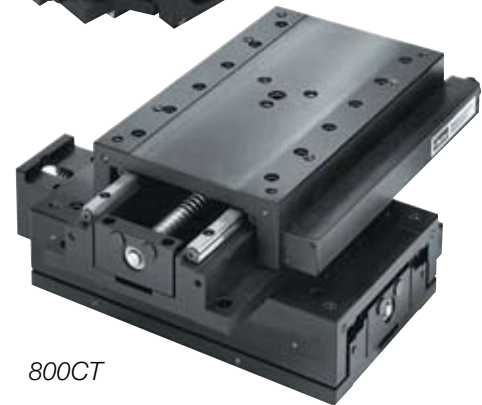
The motor mount is designed for an industry standard NEMA 23 motor flange with shaft lengths between 0.65 and 0.85 inches.

#### Limit and Home Switches

All styles can be equipped with either mechanical reed switch or optical sensor type limit and home switch assemblies. The limit switches provide a signal when the table is approaching 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.



100CT



800CT

#### 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-Brackets

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

**Note:** Refer to [www.parkermotion.com](http://www.parkermotion.com) or contact a Parker applications engineer for additional detailed information pertaining to any of these options or accessories.



## 100CT & 800CT Common Characteristics

	Units	100CT		800CT	
		Precision	Standard	Precision	Standard
<b>Performance</b>					
Positional Repeatability (bidirectional)	x 0.001 in (µm)	± 0.12 (± 3.0)	± 0.47 (± 12)	± 0.05 (± 1.3)	± 0.2 (± 5)
Life @ rated Load Cap.	x 1 million in (km)	10 (254)	10 (254)	100 (2540)	100 (2540)
Duty Cycle	%	75	75	100	100
Acceleration (Max.)	in/sec <sup>2</sup> (m/sec <sup>2</sup> )	4.8 (1.2)	24 (0.6)	96 (2.4)	96 (2.4)
Maximum Screw Speed	rps	25	25	50	50
<b>Motor Sizing</b>					
Ballscrew Diameter	in (mm)	0.50 (12.7)	0.50 (12.7)	0.625 (15.9)	0.625 (15.9)
Drive screw Efficiency	%	30	30	90	80
Breakaway Torque (Max.)	oz-in (N-m)	16.5 (0.117)	16.5 (0.117)	17.6 (0.12)	26.4 (0.19)
Running Torque (Max.)	oz-in (N-m)	15 (0.106)	15 (0.103)	16.0 (0.11)	24.0 (0.17)
Coefficient of Friction - Linear Bearing		0.003	0.003	0.003	0.003

Screw Driven Tables

## 100CT Travel Dependent Characteristics

Travel in (mm)	Load Capacity lbs (kgf)			Accuracy x 0.001 in (µm)		Input Inertia** 10 <sup>-3</sup> oz.-in.- sec. <sup>2</sup> (10 <sup>-5</sup> kg-m <sup>2</sup> )	Carriage Weight lbs (kgf)	Total Weight lbs (kgf)
	Normal	Inverted	Axial	Positional	Straightness			
<b>Precision Grade</b>								
4 (100)	200 (90)	100 (45)	55 (25)	0.6 (16)	0.32 (8)	0.79 (0.56)	5.4 (2.4)	7.6 (3.4)
6 (150)	220 (100)	110 (50)	55 (25)	0.9 (24)	0.48 (12)	1.02 (0.72)	7.4 (3.4)	10.5 (4.8)
8 (200)	240 (108)	120 (54)	55 (25)	1.3 (32)	0.64 (16)	1.22 (0.86)	10.5 (4.8)	13.6 (6.2)
10 (250)	260 (118)	130 (59)	55 (25)	1.6 (40)	0.64 (16)	1.43 (1.01)	11.6 (5.3)	16.7 (7.6)
12 (300)	280 (128)	140 (64)	55 (25)	1.9 (48)	0.64 (16)	1.63 (1.15)	13.5 (6.1)	19.8 (9)
<b>Standard Grade</b>								
4 (100)	200 (90)	100 (45)	55 (25)	0.8 (20)	0.8 (20)	0.79 (0.56)	5.4 (2.4)	7.6 (3.4)
6 (150)	220 (100)	110 (50)	55 (25)	1.2 (30)	1.2 (30)	1.02 (0.72)	7.4 (3.4)	10.5 (4.8)
8 (200)	240 (108)	120 (54)	55 (25)	1.6 (40)	1.6 (40)	1.22 (0.86)	10.5 (4.8)	13.6 (6.2)
10 (250)	260 (118)	130 (59)	55 (25)	2.0 (50)	2.0 (50)	1.43 (1.01)	11.6 (5.3)	16.7 (7.6)
12 (300)	280 (128)	140 (64)	55 (25)	2.4 (60)	2.4 (60)	1.63 (1.15)	13.5 (6.1)	19.8 (9)

\*For moment load calculations, refer to the technical section of Parker's web site [www.parkermotion.com](http://www.parkermotion.com)

\*\*Input Inertia based on 0.2 inch lead ballscrew.

## 800CT Travel Dependent Characteristics

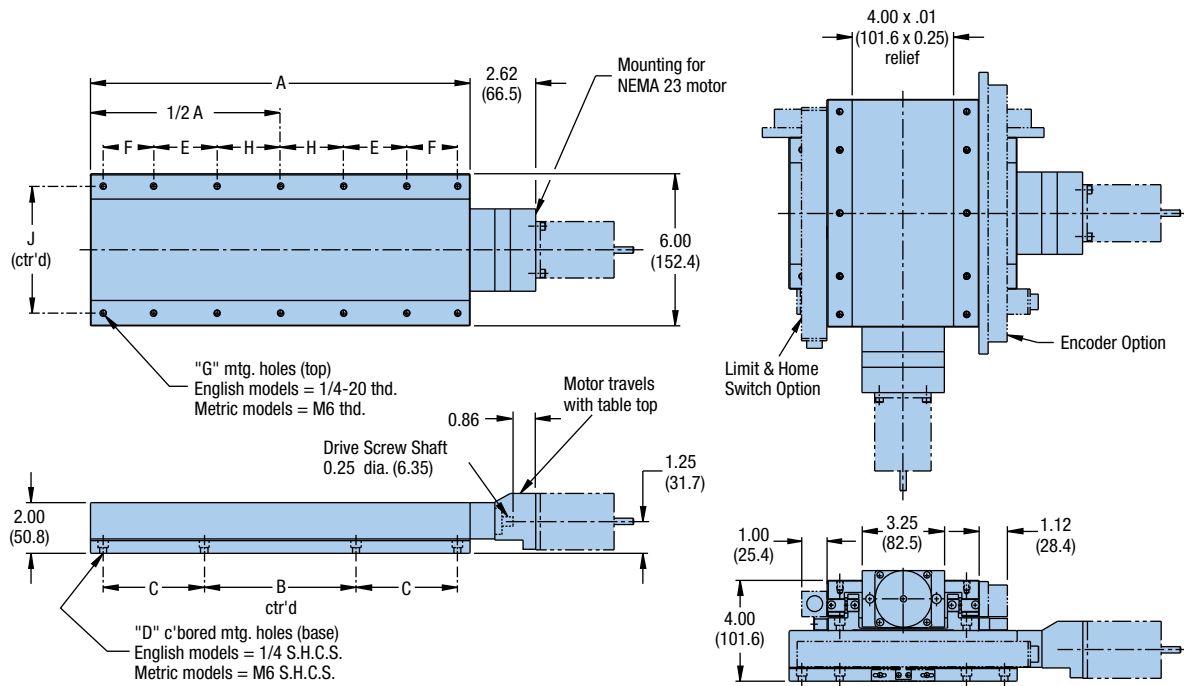
Travel in (mm)	Load Capacity* lbs (kgf)			Accuracy x 0.001 in (µm)		Input Inertia** 10 <sup>-3</sup> oz.-in.- sec. <sup>2</sup> (10 <sup>-5</sup> kg-m <sup>2</sup> )		Carriage Weight lbs (kgf)		Total Weight lbs (kgf)	
	Normal	Inverted	Axial	Positional	Straightness	6" Wide	8" Wide	6" Wide	8" Wide	6" Wide	8" Wide
<b>Precision Grade</b>											
4 (100)	200 (90)	100 (45)	200 (91)	0.32 (8)	0.32 (8)	2.33 (1.65)	2.38 (1.68)	5.4 (2.5)	7.2 (3.3)	12.4 (5.6)	16.6 (7.5)
6 (150)	220 (100)	110 (50)	200 (91)	0.48 (12)	0.48 (12)	2.73 (1.93)	2.80 (1.98)	6.6 (3.0)	9.2 (4.2)	14.6 (6.6)	20.0 (9.1)
8 (200)	240 (108)	120 (54)	200 (91)	0.60 (15)	0.64 (16)	3.14 (2.22)	3.23 (2.28)	7.6 (3.5)	10.8 (4.9)	15.8 (7.2)	23.3 (10.6)
10 (250)	260 (118)	130 (59)	200 (91)	0.60 (15)	0.80 (20)	3.55 (2.51)	3.64 (2.57)	8.7 (3.9)	12.5 (5.7)	19.8 (8.6)	26.7 (12.1)
12 (300)	280 (128)	140 (64)	200 (91)	0.60 (15)	0.96 (24)	3.95 (2.79)	4.06 (2.87)	10.0 (4.5)	14.1 (6.4)	21.6 (9.8)	30.0 (13.7)
<b>Standard Grade</b>											
4 (100)	200 (90)	100 (45)	200 (91)	0.60 (15)	0.32 (8)	2.33 (1.65)	2.38 (1.68)	5.4 (2.5)	7.2 (3.3)	12.4 (5.6)	16.6 (7.5)
6 (150)	220 (100)	110 (50)	200 (91)	0.9 (23)	0.48 (12)	2.73 (1.93)	2.80 (1.98)	6.6 (3.0)	9.2 (4.2)	14.6 (6.6)	20.0 (9.1)
8 (200)	240 (108)	120 (54)	200 (91)	1.0 (25)	0.64 (16)	3.14 (2.22)	3.23 (2.28)	7.6 (3.5)	10.8 (4.9)	15.8 (7.2)	23.3 (10.6)
10 (250)	260 (118)	130 (59)	200 (91)	1.0 (25)	0.80 (20)	3.55 (2.51)	3.64 (2.57)	8.7 (3.9)	12.5 (5.7)	19.8 (8.6)	26.7 (12.1)
12 (300)	280 (128)	140 (64)	200 (91)	1.0 (25)	0.96 (24)	3.95 (2.79)	4.06 (2.87)	10.0 (4.5)	14.1 (6.4)	21.6 (9.8)	30.0 (13.7)

\*For moment load calculations, refer to the technical section of Parker's web site [www.parkermotion.com](http://www.parkermotion.com)

\*\*Input Inertia based on 0.2 inch lead ballscrew.

106CT Dimensions

Dimensions - inches (mm)



English Models

Model No.	Travel	A	B	C	Quantity D	E	F	Quantity G	H	J
106004	4 in	6 in	5 in	—	4	—	—	6	2.5 in	5.00 in
106006	6 in	9 in	5 in	1.5 in	8	1.5 in	—	10	2.5 in	5.00 in
106008	8 in	12 in	5 in	3 in	8	2.5 in	—	10	2.5 in	5.00 in
106010	10 in	15 in	6 in	4 in	8	2.5 in	2 in	14	2.5 in	5.00 in
106012	12 in	18 in	7 in	5 in	8	5 in	1 in	14	2.5 in	5.00 in

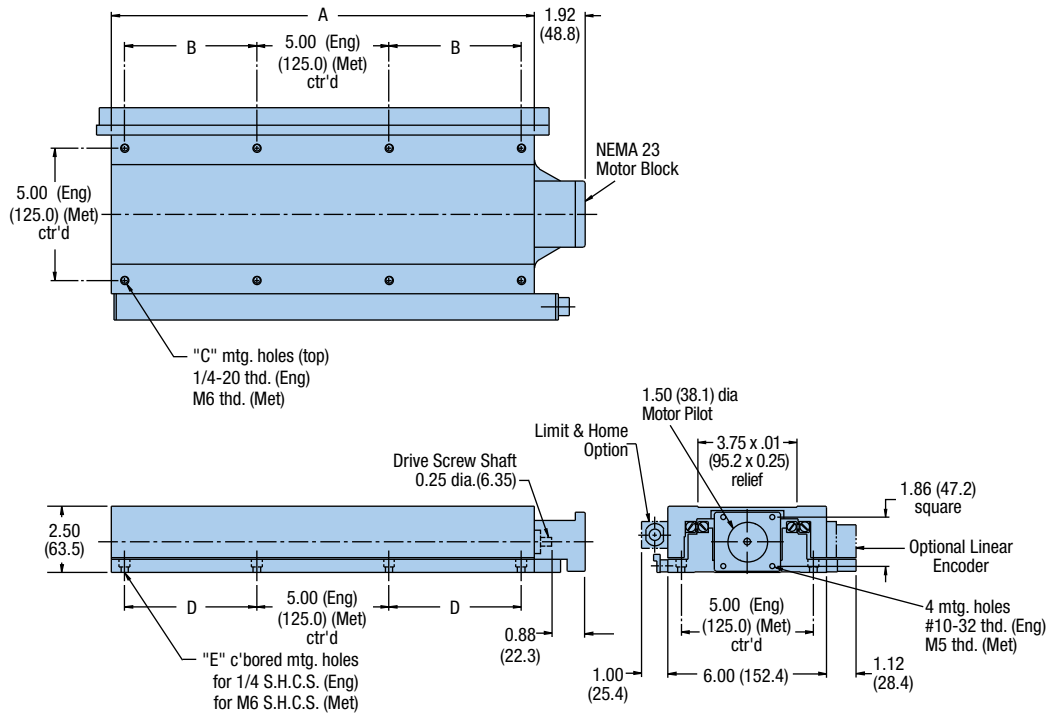
Metric Models

Model No.	Travel	A	B	C	Quantity D	E	F	Quantity G	H	J
106004	100 mm	152.4 mm	125.0 mm	—	4	—	—	6	62.5 mm	125.0 mm
106006	150 mm	228.6 mm	125.0 mm	37.5 mm	8	37.5 mm	—	10	62.5 mm	125.0 mm
106008	200 mm	304.8 mm	125.0 mm	75.0 mm	8	62.5 mm	—	10	62.5 mm	125.0 mm
1060010	250 mm	381.0 mm	150.0 mm	100.0 mm	8	62.5 mm	50.0 mm	14	62.5 mm	125.0 mm
1060012	300 mm	457.2 mm	175.0 mm	125.0 mm	8	125.0 mm	25.0 mm	14	62.5 mm	125.0 mm



## 806CT Dimensions

Dimensions - inches (mm)



Screw Driven Tables

### English Models

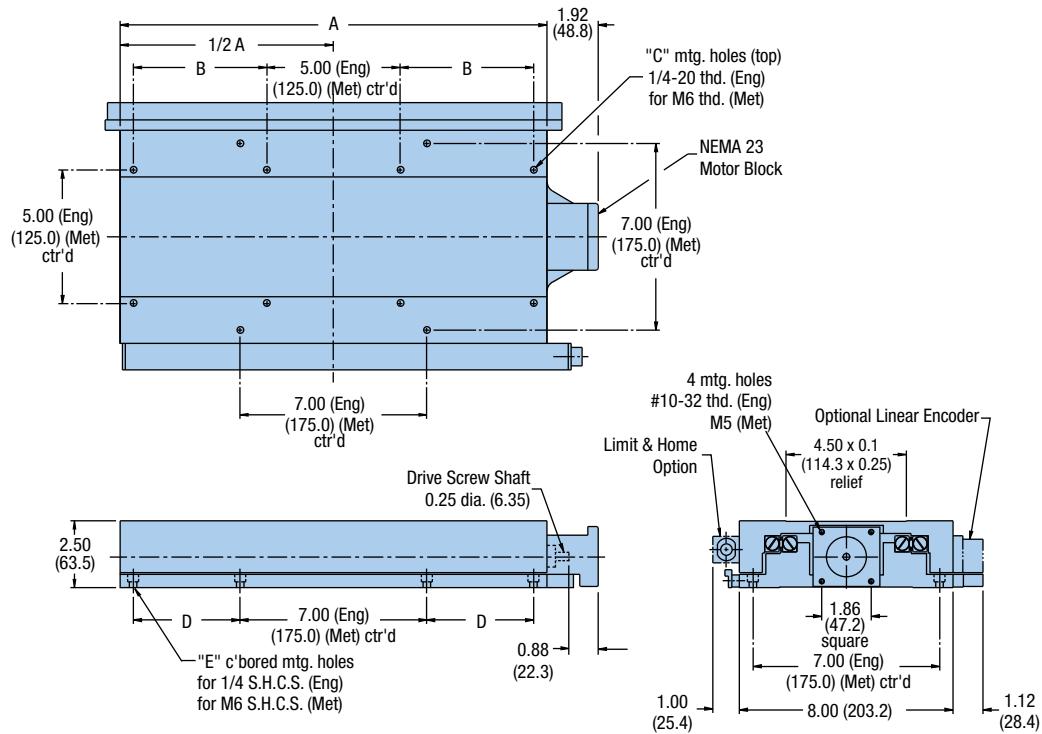
Model	Travel	A	B	C	D	E
806004CT-E	4.0	8.0	—	4	—	4
806006CT-E	6.0	10.0	2.0	8	2.0	8
806008CT-E	8.0	12.0	3.0	8	3.0	8
806010CT-E	10.0	14.0	4.0	8	4.0	8
806012CT-E	12.0	16.0	5.0	8	4.0	8

### Metric Models

Model	Travel	A	B	C	D	E
806004CT-M	100	203.2	—	12	—	4
806006CT-M	150	254.0	—	12	50	8
806008CT-M	200	304.8	75	16	75	8
806010CT-M	250	355.6	100	16	100	8
806012CT-M	300	406.4	125	16	125	8

808CT Dimensions

Dimensions - inches (mm)



English Models

Model	Travel	A	B	C	D	E
808004CT-E	4.0	8.0	—	4	—	4
808006CT-E	6.0	10.0	2.0	8	2.0	8
808008CT-E	8.0	12.0	2.0	8	2.0	8
808010CT-E	10.0	14.0	4.0	8	4.0	8
808012CT-E	12.0	16.0	5.0	8	5.0	8

Metric Models

Model	Travel	A	B	C	D	E
808004CT-M	100	203.2	—	12	—	4
808006CT-M	150	254.0	—	12	50	8
808008CT-M	200	304.8	75	16	50	8
808010CT-M	250	355.6	100	16	100	8
808012CT-M	300	406.4	125	16	125	8



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:** 8 08 006 CT M P D2 L1 C2 M1 E2

① **Series**

1 100CT  
8 800CT

② **Table Width**

06 6 in, 150 mm  
08 200 mm (800 series)

③ **Table Travel**

004 4 in, 100 mm  
006 6 in, 150 mm  
008 8 in, 200 mm  
010 10 in, 250 mm  
012 12 in, 300 mm

④ **Table Style**

CT Cross roller bearing

⑤ **Mounting**

E English  
M Metric (800CT only)

⑥ **Grade**

S Standard  
P Precision

⑦ **Drive Screw**

**100CT Series Designators**

D1 0.02 in lead (50 pitch)  
D2 0.10 in lead (10 pitch)  
D3 0.20 in lead (5 pitch)  
D4 1 mm lead  
D5 2 mm lead  
D6 5 mm lead  
D7 0.1 in lead (ACME)  
for vertical applications, motor up  
D8 0.1 in lead (ACME)  
for vertical applications, motor down

**800CT Series Designators**

D1 0.20 in lead ballscrew  
D2 5 mm lead ballscrew

⑧ **Limit/Home**

L1 No limit/home switches  
L2 Magnetic limit/home switches  
L3 Optical limit/home switches

⑨ **Motor Coupling**

C1 No coupling  
C2 0.25 in bore, helix, aluminum  
C3 0.25 in bore, helix, stainless steel  
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  
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  
E3 Linear encoder, metric, 1 µm resolution