

# 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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## 200RT Series Rotary Tables

### Features

- Highly repeatable indexing (12 arc-sec)
- Load capacities to 200 lbs
- 360 degrees continuous travel
- Performance tested worm gear drive
- Selectable table sizes and drive ratio
- Dual race angular contact support bearing

### Quality Design and Construction

The 200RT Series Rotary Tables are designed for precise motor-driven rotary positioning and indexing. These tables are designed to function independently or in conjunction with linear tables used in the high-precision and precision automation applications. Their low profile design minimizes stack height in multi-axis configurations and enables them to fit in many places where other motorized rotary devices cannot.

Models are available in 5, 6, 8, 10, or 12 inch diameters and are offered with four gear ratios making it convenient to match size, speed, and load requirements. They can be selected in either English or metric mounting. They are found in virtually all industries where intermittent part indexing, part scanning, skew adjustment, or precise angular alignment is required.

At the heart of these tables is a rugged main support bearing which is comprised of two preloaded angular contact bearing races. It is designed for high load capacity and smooth, flat rotary motion. The drive is a precision worm gear assembly which is preloaded to remove backlash. The top and base are constructed of high quality aluminum with an attractive black anodized finish. The top and bottom mounting surfaces are precision ground to assure flatness.

### High Performance Direct Drive Rotary Tables

Parker's DM1004 direct drive brushless servo motor tables offer an alternative to the 200RT series for high throughput precision indexing.

Visit our website for complete information.



### Options and Accessories

#### Motor Couplings

A wide range of coupling styles and bores are available to match motor requirements. Bellows-style couplings, offering the lowest windup are required for all precision grade tables, 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 and a maximum shaft length of 0.85".

#### Home Sensor

The Home sensor provides a fixed reference point to which the table can always return. This is a mechanical reed switch which is mounted the body of the rotary table and is activated by a magnet imbedded on the table top.

#### Rotary Encoders

High resolution, high accuracy rotary encoders can be added for direct positional feedback of the table top position. Rotary encoders can be mounted directly to the base of the rotary table. The encoder input shaft is then coupled directly to the rotary table top, supplying positional feedback of the table top, with no drive train errors. They can be supplied with or without a base housing which encloses and protects the encoder.

#### Seals

Custom designed sealed units are offered to prevent excessive wear or internal damage resulting from dust and contaminates.

#### Motors, Drives & Controls

Micro-step motors with drives are available for direct mounting to the rotary tables. Motion controllers can also be added to provide systems with seamless connectivity.



## 200RT Common Characteristics

|   | Units      | Precision    | Standard      |
|---|------------|--------------|---------------|
| Positional Repeatability (unidirectional) | arc-min    | 0.2          | 0.5           |
| Duty Cycle                                | %          | 50           | 50            |
| Table Runout (Max.)                       | in (µm)    | ±0.001 (±25) | ±0.003 (±75)  |
| Concentricity                             | in (µm)    | ±0.001 (±25) | ±0.005 (±127) |
| Wobble                                    | arc-sec    | 30           | 60            |
| Input Velocity (Max.)                     | revs./sec. | 15           | 15            |

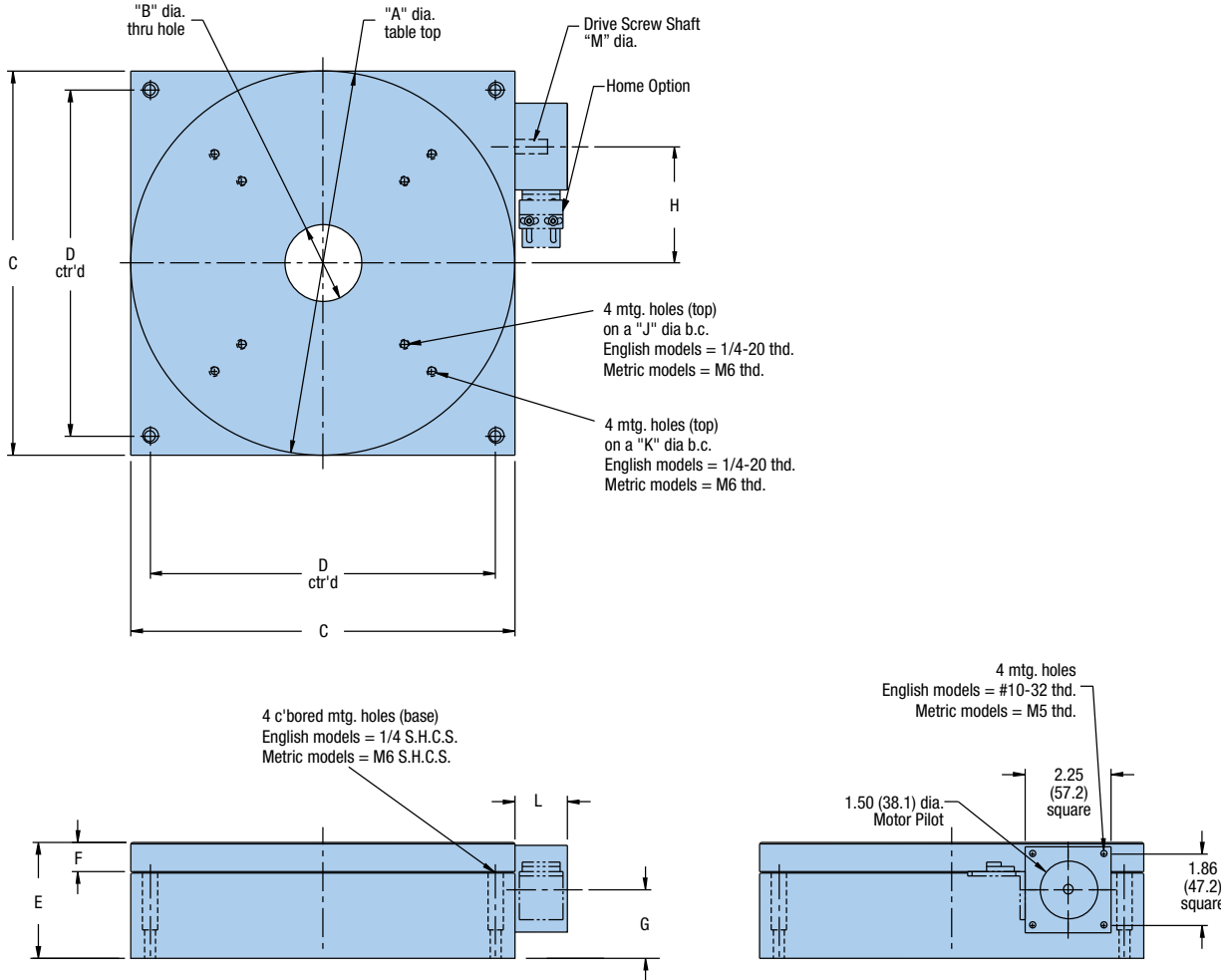
## Travel Dependent Characteristics

| Table Diameter inches | Drive Ratio | Load Capacity lbs (kgf) | Accuracy arc-min |          | Output Torque in-lb (N-m) | Inertia 10 <sup>-3</sup> -oz.-in-sec <sup>2</sup> (10 <sup>-6</sup> kg-m-sec <sup>2</sup> ) | Input Breakaway Torque (max.) oz.-in (N-m) | Running Torque (max) oz-in (N-m) | Weight lb (kgf) |             |
|-----------------------|-------------|-------------------------|------------------|----------|---------------------------|---|--|----------------------------------|-----------------|-------------|
|                       |             |                         | Precision        | Standard |                           |   |  |                                  | Standard Top    | Total       |
| 5.0                   | 180:1       | 25 (11)                 | 3                | 10       | 25 (2.8)                  | 0.14 (0.102)  | 22 (0.16)                                  | 20 (0.13)                        | 0.67 (0.3)      | 6.0 (2.7)   |
| 5.0                   | 90:1        | 25 (11)                 | 3                | 10       | 25 (2.8)                  | 0.15 (0.112)  | 22 (0.16)                                  | 20 (0.13)                        | 0.67 (0.3)      | 6.0 (2.7)   |
| 5.0                   | 36:1        | 25 (11)                 | 5                | 12       | 25 (2.8)                  | 0.24 (0.173)  | 22 (0.16)                                  | 20 (0.13)                        | 0.67 (0.3)      | 6.0 (3.6)   |
| 6.0                   | 180:1       | 150 (68)                | 3                | 10       | 40 (4.5)                  | 0.16 (0.112)  | 22 (0.16)                                  | 20 (0.13)                        | 0.91 (0.42)     | 8.0 (2.7)   |
| 6.0                   | 90:1        | 150 (68)                | 3                | 10       | 40 (4.5)                  | 0.20 (0.132)  | 22 (0.16)                                  | 20 (0.13)                        | 0.91 (0.42)     | 8.0 (3.6)   |
| 6.0                   | 45:1        | 150 (68)                | 5                | 12       | 40 (4.5)                  | 0.29 (0.204)  | 22 (0.16)                                  | 20 (0.13)                        | 0.91 (0.42)     | 8.0 (3.6)   |
| 8.0                   | 180:1       | 150 (68)                | 3                | 10       | 40 (4.5)                  | 0.24 (0.163)  | 28 (0.19)                                  | 25 (0.18)                        | 2.23 (1.01)     | 15.0 (6.8)  |
| 8.0                   | 90:1        | 150 (68)                | 3                | 10       | 40 (4.5)                  | 0.66 (0.459)  | 28 (0.19)                                  | 25 (0.18)                        | 2.23 (1.01)     | 15.0 (6.8)  |
| 8.0                   | 36:1        | 150 (68)                | 5                | 12       | 40 (4.5)                  | 0.90 (0.642)  | 28 (0.19)                                  | 25 (0.18)                        | 2.30 (1.05)     | 15.0 (6.8)  |
| 10.0                  | 180:1       | 200 (90)                | 3                | 10       | 190 (21.5)                | 0.74 (0.530)  | 33 (0.22)                                  | 30 (0.21)                        | 5.26 (2.30)     | 29.0 (13.1) |
| 10.0                  | 90:1        | 200 (90)                | 3                | 10       | 190 (21.5)                | 1.02 (0.734)  | 33 (0.22)                                  | 30 (0.21)                        | 5.26 (2.30)     | 29.0 (13.1) |
| 10.0                  | 45:1        | 200 (90)                | 5                | 12       | 190 (21.5)                | 2.13 (1.53)   | 33 (0.22)                                  | 30 (0.21)                        | 5.26 (2.30)     | 29.0 (13.1) |
| 12.0                  | 180:1       | 200 (90)                | 3                | 10       | 190 (21.5)                | 0.99 (0.713)  | 33 (0.22)                                  | 30 (0.21)                        | 7.67 (3.49)     | 32.0 (14.5) |
| 12.0                  | 90:1        | 200 (90)                | 3                | 10       | 190 (21.5)                | 1.59 (1.12)   | 33 (0.22)                                  | 30 (0.21)                        | 7.67 (3.49)     | 32.0 (14.5) |
| 12.0                  | 45:1        | 200 (90)                | 5                | 12       | 190 (21.5)                | 3.83 (2.75)   | 33 (0.22)                                  | 30 (0.21)                        | 7.67 (3.49)     | 32 (14.5)   |

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

**200RT Series Dimensions**

Dimensions - inches (mm)



**English Units**

| A    | B     | C    | D   | E        |        | F        |        | G    | H    | J   | K    | L    | M     |
|------|-------|------|-----|----------|--------|----------|--------|------|------|-----|------|------|-------|
|      |       |      |     | Standard | Option | Standard | Option |      |      |     |      |      |       |
|      |       |      |     | (T2)     | (T3)   | (T2)     | (T3)   |      |      |     |      |      |       |
| 5.0  | 1.0   | 5.0  | 4.0 | 1.8      | 2.42   | 0.38     | 1.00   | 1.11 | 1.66 | 3.0 | 4.0  | 1.38 | 0.188 |
| 6.0  | 1.75  | 6.0  | 5.0 | 2.0      | 2.62   | 0.38     | 1.00   | 1.23 | 2.04 | 4.0 | 5.0  | 1.38 | 0.25  |
| 8.0  | 1.75* | 8.0  | 6.0 | 2.5      | 3.12   | 0.50     | 1.00   | 1.57 | 2.04 | 4.0 | 6.0  | 1.38 | 0.25  |
| 10.0 | 2.0   | 10.0 | 9.0 | 3.0      | 3.62   | 0.75     | 1.00   | 1.81 | 3.03 | 6.0 | 8.0  | 1.38 | 0.25  |
| 12.0 | 2.0   | 10.0 | 9.0 | 3.0      | 3.62   | 0.75     | 1.00   | 1.81 | 3.03 | 8.0 | 10.0 | 2.38 | 0.25  |

\*On the 8.0" (203,2) diameter table with 36:1 ratio, this dimension is 1.0" (25,4).

**Metric Units**

| A     | B     | C     | D   | E        |        | F        |        | G    | H    | J   | K   | L    | M    |
|-------|-------|-------|-----|----------|--------|----------|--------|------|------|-----|-----|------|------|
|       |       |       |     | Standard | Option | Standard | Option |      |      |     |     |      |      |
|       |       |       |     | (T2)     | (T3)   | (T2)     | (T3)   |      |      |     |     |      |      |
| 127.0 | 25.4  | 127.0 | 100 | 46.0     | 61.5   | 9.6      | 25.0   | 28.1 | 42.1 | 75  | 100 | 35   | 4.76 |
| 152.4 | 44.5  | 152.4 | 125 | 50.8     | 66.5   | 9.6      | 25.0   | 31.4 | 51.8 | 100 | 125 | 35   | 6.35 |
| 203.2 | 44.5* | 203.2 | 175 | 63.5     | 79.2   | 12.7     | 25.0   | 39.8 | 51.8 | 100 | 150 | 35   | 6.35 |
| 254.0 | 50.8  | 254.0 | 225 | 76.2     | 91.9   | 19.0     | 25.0   | 45.9 | 76.9 | 150 | 200 | 35   | 6.35 |
| 304.8 | 50.8  | 254.0 | 225 | 76.2     | 91.9   | 19.0     | 25.0   | 45.9 | 76.9 | 200 | 250 | 60.4 | 6.35 |

\*On the 8.0" (203,2) diameter table with 36:1 ratio, this dimension is 1.0" (25,4).



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:** 2 08 01 RT M S H1 C1 M1 E1 T1

**① Series**

2

**② Table Diameter**

- 05 5 in, 125 mm
- 06 6 in, 150 mm
- 08 8 in, 200 mm
- 10 10 in, 250 mm
- 12 12 in, 300 mm

**③ Gear Ratio**

- 01 180:1, Available on all dia.
- 02 90:1, Available on all dia.
- 04 45:1, Available on 6", 10" and 12" dia. only
- 05 36:1, Available on 5" and 8" dia. only

**④ Table Style**

RT

**⑤ Mounting**

- E English
- M Metric (800CT only)

**⑥ Grade**

- S Standard
- P Precision

**⑦ Home**

- H1 No home switches
- H2 Magnetic home switches

**⑧ Motor Coupling**

- C1 No coupling
- C2 0.25 in bore, helix, aluminum
- C3 0.25 in bore, helix, stainless steel (not available on 205 model)
- 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 (not available on 205 model)
- C7 0.375 in bore, bellows, required for precision grade

**⑨ Motor Mount**

- M1 23 frame size

**⑩ Encoder**

- E0 No encoder
- E8 Ring encoder – 314,880 post quad. counts/rev
- E9 Ring encoder – 3,148,800 post quad. counts/rev

**⑪ Table Top**

- T1 No top
- T2 Standard top
- T3 Oversized top (raises height to clear NEMA 23 motor)

Screw Driven Tables