

DRT-100™ Rotary Table

Features

- **Speeds to 10 revolutions per second**
- **2 micro-radian (0.4 arc-second) resolution**
- **No gear wear, torque variations, or backlash**
- **Ultra-stiff 4 point contact ball bearing**
- **25mm through-bore**



Direct Drive Rotary Table

Danaher Precision Systems' DRT-100 Rotary Stage is an ultra-compact, direct drive rotary table that establishes a new level of price, performance, and compactness. Its direct drive technology eliminates the gear wear, torque variations, and backlash conventional rotary tables encounter. Speed, resolution, and repeatability are also increased by a factor of ten or more over gear driven rotary tables. Despite its high level of performance, the DRT-100 Stage is very compact, with body dimensions of 105mm x 105mm x 65mm. Its 25mm through-bore allows convenient routing of optical beam paths or vacuum/pneumatic lines.

The DRT-100 Table offers a standard resolution of 20 micro-radians (~4 arc-seconds, or 0.0011 degrees); due to its direct drive technology, the repeatability is +/- 1 count, or +/- 20 micro-radians. Speeds

to 10 revolutions per second, and accelerations to 400 revolutions per second², permit rapid point-to-point moves. Settling times are minimized due to the direct drive design, which allows high servo bandwidths to be achieved. Unlike other direct drive rotary tables, the electronic interface is completely standard, with digital A Quad B encoder outputs, a standard three phase brushless motor, and three digital Hall commutation sensors. This allows the DRT-100 Stage to be driven by any commercial motion controller/amplifier that can drive standard three phase brushless motors. The ultra-stiff 4 point contact ball bearing provides a high degree of axial and torsional stiffness, and a once per revolution index sensor allows a unique home location to be defined.

DRT-100 ROTARY TABLE SPECIFICATIONS

Specification

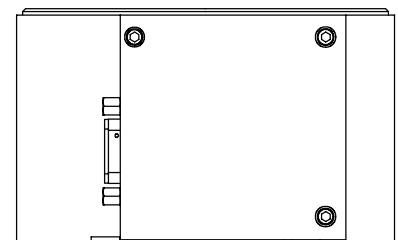
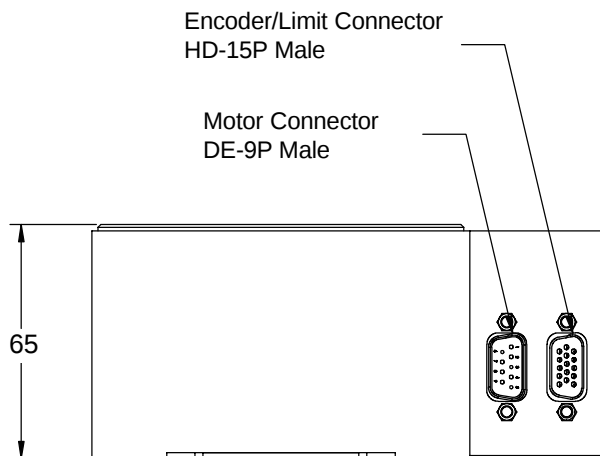
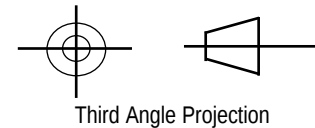
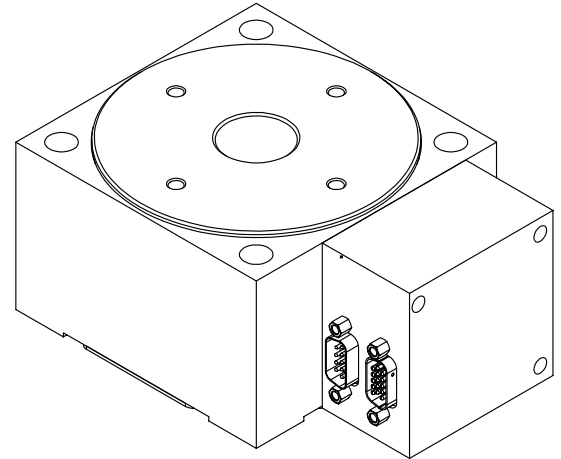
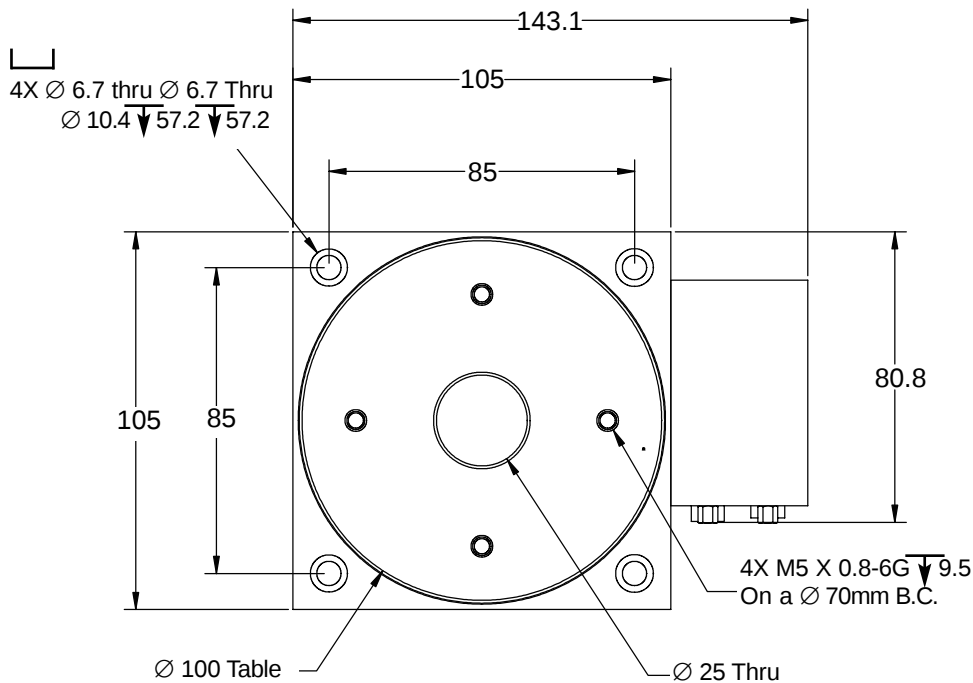
Table Diameter	100 millimeters
Through-bore Diameter	25 millimeters
Accuracy (uncompensated)	+/- 875 micro-radians (+/- 180 arc seconds)
Accuracy (sine compensated)	+/- 88 micro-radians (+/- 18 arc seconds)
Resolution	Standard: 20 micro-radians (4 arc-seconds) Optional: 2 micro-radian (0.4 arc seconds)
Bi-directional Repeatability	+/- 20 micro-radians
Maximum Speed	10 rev/sec (3.15 MHz) at 4 arc second resolution
Maximum Acceleration	400 rev/sec ²
Axial Motion	< 5 microns
Radial Motion	< 5 microns
Tilt Motion	< 100 micro-radians
Axial Load Capacity	400 N (40 kgf)
Radial Load Capacity	200 N (20 kgf)
Moment Load Capacity	5 N-m
Axial Stiffness	0.9 x 10 ⁷ N/m
Radial Stiffness	0.9 x 10 ⁷ N/m
Torsional Stiffness	8.0 x 10 ⁴ N-m/radian
Total Mass	2.3 kg
Rotational Inertia	8.85 x 10 ⁻⁴ kg-m ²
Torque Constant	0.418 N-m/Amp
Motor Constant	0.159 N-m/√Watt
Back-emf Constant	0.418 V/rev/sec
Coil Resistance	6.92 Ohms
Coil Inductance	7.5 mH
Continuous Current	2.4 Amps
Peak Current	6.5 Amps
Motor Continuous Torque	1.00 N-m
Motor Peak Torque	2.73 N-m
Bearing Torque	0.23 N-m
Available Continuous Torque	0.77 N-m
Available Peak Torque	2.5 N-m



DRT-100™ Rotary Table

DANAHER

DRT-100 ROTARY TABLE SPECIFICATIONS



Moving The World, One Nanometer At A Time.™

- Cleanroom compatible option available.
- 9,9; 9,15; 3,15,9 pin configurations available.

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7C RAYMOND AVENUE • SALEM, NH 03079

603.893.0588 • Fax: 603.893.8280

800.227.1066 • www.NEAT.com

