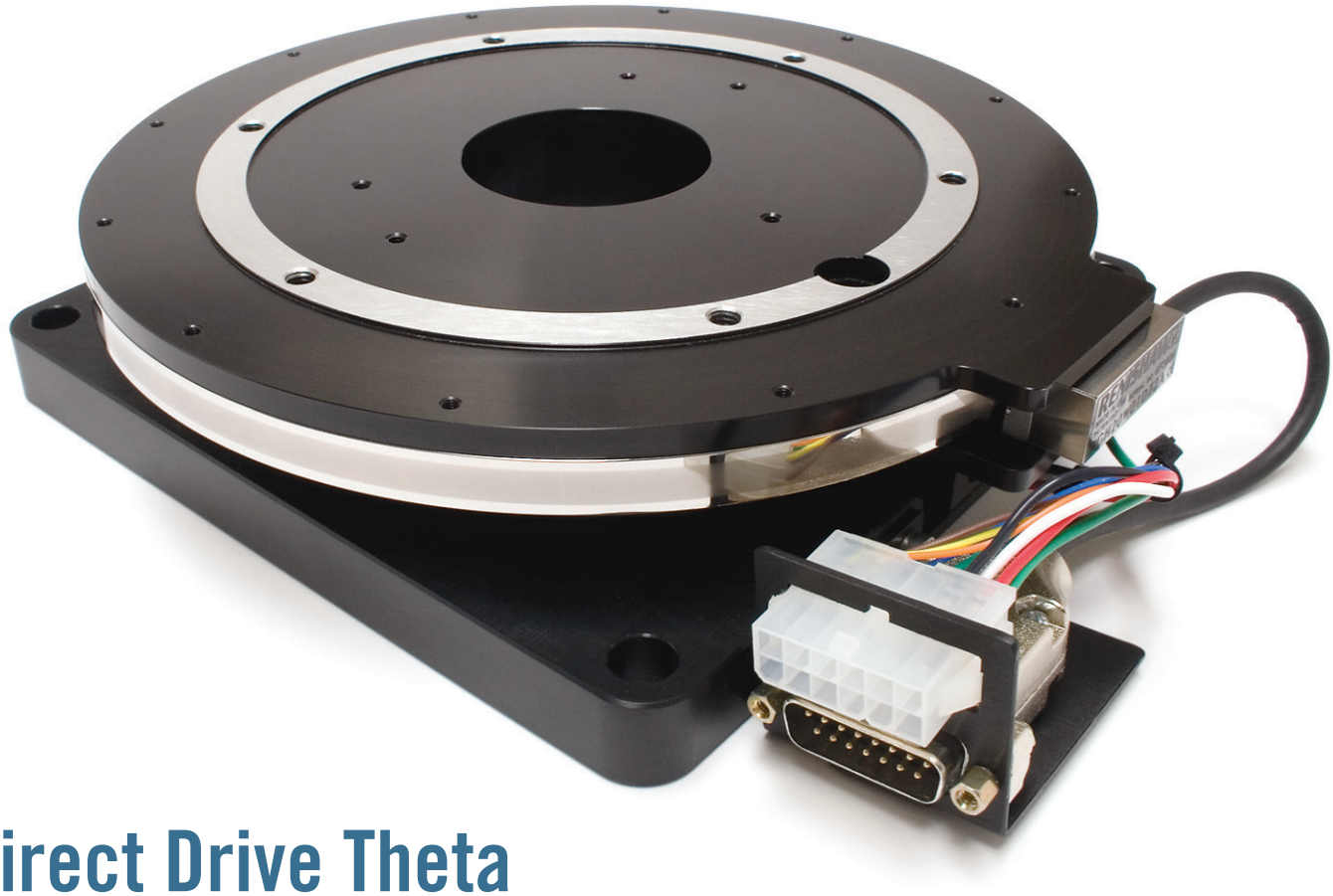
Bell Everman

Embedded Motion Systems

DATA SHEET



Direct Drive Theta

Low-profile stages for precision positioning and metrology.

- **Low Profile, Large Through Holes.** DDT units are available in two sizes, both with ample space in the middle to bring power and utilities to the top of the stage. The DDT 100 offers a 15-mm through hole, and the DDT 200 has a 50-mm through hole. Both units are less than 50 mm tall.
- **Precise Angular Alignment.** DDT rotary stages provide superb angular alignment capabilities. The DDT 100 model has an accuracy of ± 12 arc-sec, while the DDT 200 models have an accuracy of ± 6 arc-sec. Both units have a bi-directional repeatability of ± 1 encoder count.
- **Consistent Motor Tuning.** DDT units have been engineered with extremely fine preload adjustments, which allow users to maintain consistent motor tuning.
- **Ease of integration.** DDT models install with just a four-bolt connection. Top plates can be configured to user specifications. The DDT 200 additionally offers three-point adjustable leveling mounts with mechanism for tip, tilt and elevation adjustments.
- **Rugged.** DDT features anodized aluminum construction with stainless steel hardware.

TECHNICAL SPECIFICATIONS	Direct Drive Theta		
	DDT-100	DDT-200	DDT-200MT
Type	Direct Drive Rotary		
Bearing type	Preloaded duplex angular contact	Kingpost style angular contact	Kingpost style angular contact
Motor type	3-phase brushless		
Through hole	15 mm (0.59 in.)	50 mm (1.97 in.)	50 mm (1.97 in.)
Accuracy (±arc-sec) Deviation from commanded angle.	12	6	6
Kinematic wobble (±arc-sec) Tilt of rotary axis irrespective of table flatness or physical runout of table top.	15	12	10
Kinematic radial runout (µm TIR) In-plane wander of rotational centerline irrespective of table roundness or physical runout of table top OD.	8	8	8
Table top parallelism to base (µm TIR) Total indicated worst-case parallelism top to bottom.	25	25	25
Table top physical runout (µm TIR) Total indicated runout of the top of the rotating table under stationary indicator at the table's outer edge.	20	20	5
Repeatability	Control Dependent, ±1 count possible		
Resolution choices (includes index pulse)	1µm, 0.5µm, 0.2µm, 0.1µm (75-mm ring)	1µm, 0.5µm, 0.2µm, 0.1µm (200-mm ring)	
Table resolution (KCPR) Measured in thousands of pulses per revolution of the table (KCPR).	236.8, 473.6, 1184, 2368	629.8, 1260, 3149, 6298	
Speed limit (RPM) Note that maximum speed for ring encoder units decreases as resolution increases.	178-1273	66-477	66-477
Continuous torque, N-m(motor) RMS torque allowed at table. Assume peak torque to be 3 times RMS torque for no longer than 3 seconds.	0.74	1.07	1.07
Load capacity axial/radial (kN) Load capacity are for L10 rating life of 1 million table revolutions. Load capacity is not equivalent to payload. The ability to servo control a given payload is dependent on inertia, motion profile, duty cycle and control architecture.	6.5/2.6	20.8/7.2	20.8/7.2
Max. moment (N-m) Moment loads are for L10 rating life of 1 million table revolutions.	100	460	460
Rotational inertia (kg-m^2) Rotational inertia of table.	0.0005	0.0052	0.0051
Stage weight (kg, less motor)	1.5	3.6	4.5

Configure and request a quote online at **www.bell-everman.com/direct-drive-theta**.

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