

High Speed Belt Driven Rotation Stage

URB100CC



The belt-driven URB100CC rotation stage offers exceptional rotational speed for its price.

Small Footprint

The unique belt-drive design protrudes below the stage such that the foot print is minimized and still allows for open access to the load.

Belt Drive

The URB100CC's belt drive provides significantly higher rotation speeds of up to 720 °/s without sacrificing life span as compared to a typical worm gear. The elasticity of the belt also functions as the preload which eliminates backlash and improves bi-directional repeatability.

Proprietary Ball Bearing

Like the URS series, the URB100CC features a proprietary 4pt contact ball bearing. The unique and low-profile, 2-piece design provides exceptional stiffness and high reliability while minimizing wobble and eccentricity.

Encoder Feedback

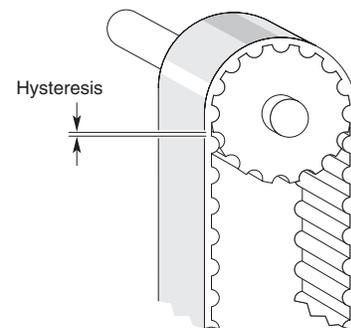
The high speed, URB100CC utilizes a motor mounted 2000pt rotary encoder to maintain excellent speed stability and position repeatability. In addition encoder feedback, this rotary stage is capability of positioning to step as small as 0.02° MIM.

Metrology Report Included at No Additional Cost

Newport guarantees specification values which are measured and recorded following ASME B5.57 and ISO 230-2 standards. The typical performance values are two times better than the guaranteed specifications.



- Belt driven version of URS series offers higher rotation speeds without sacrificing life time expectancy
- 720 °/s maximum speed
- Most economical for its high speed
- Designed for high speed with small footprint
- Economic motor mounted rotary encoder with 0.01° resolution



DESIGN DETAILS

Base material	Hardened steel with Aluminum body
Bearings	Large diameter 4-contact point ball bearing
Drive mechanism	Belt drive with 18:1 reduction ratio
Feedback	Motor mounted rotary encoder, 2,000 cts/rev, index pulse
Limit switches	Two independently adjustable optical limit switches, enabled/disabled by external switch
Origin	Optical, fixed at position 0°, Typical 0.015° repeatability
Motor	DC servo motor
Cable	3 m long cable included

SPECIFICATIONS

Travel Range (°)	360 continuous ⁽¹⁾
Minimum Incremental Motion (°)	0.02
Uni-directional Repeatability ⁽²⁾ , Typical (Guaranteed) (°)	±0.0025 (±0.0075)
Bi-directional Repeatability ⁽³⁾ , Typical (Guaranteed) (°)	±0.015 (±0.047)
Accuracy ⁽³⁾ , Typical (Guaranteed) (°)	±0.05 (±0.1)
Maximum Speed (°/s)	720
Maximum acceleration (°/s ²)	1300 (with of 0.025 kg.m ² inertia)
Wobble ⁽³⁾ , Typical (Guaranteed) (μrad)	±15 (±25)
Eccentricity ⁽³⁾ , Typical (μm)	±40
MTBF	20000 h at 25% load and with a 30% duty cycle

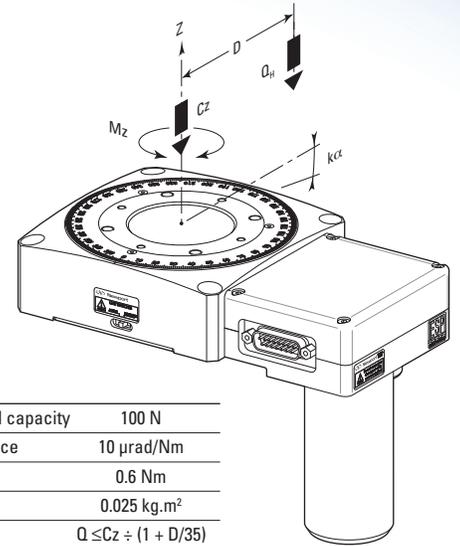
¹⁾ With disabled limit switches.

²⁾ To minimize drive chain hysteresis affecting repeatability, Newport recommends always approaching positions from the same direction of motion.

³⁾ For the definition of Typical and Guaranteed specifications see "Motion Basics Terminology & Standards" Tutorial at www.newport.com



LOAD CHARACTERISTICS AND STIFFNESS



Cz,	Normal centered load capacity	100 N
Kα,	Transversal compliance	10 μrad/Nm
Mz,	Maximum torque	0.6 Nm
Jz,	Maximum Inertia	0.025 kg.m ²
Q,	Off-center load (N)	$Q \leq Cz \div (1 + D/35)$
Where D = Cantilever distance (mm)		

RECOMMENDED CONTROLLERS/DRIVERS

Model	Description
XPS-D	1- to 8-axis universal high-performance motion controller/driver
XPS-DRV11	Universal digital driver card for stepper, DC and direct motors
XPS-RL	1- to 4-axis universal high-performance motion controller/driver
XPS-DRV01	PWM drive module for DC brush and stepper motors, 3 A/43 V max.
ESP301	1- to 3-axis motion controller/driver
SMC100CC	Single-axis DC motor controller/driver

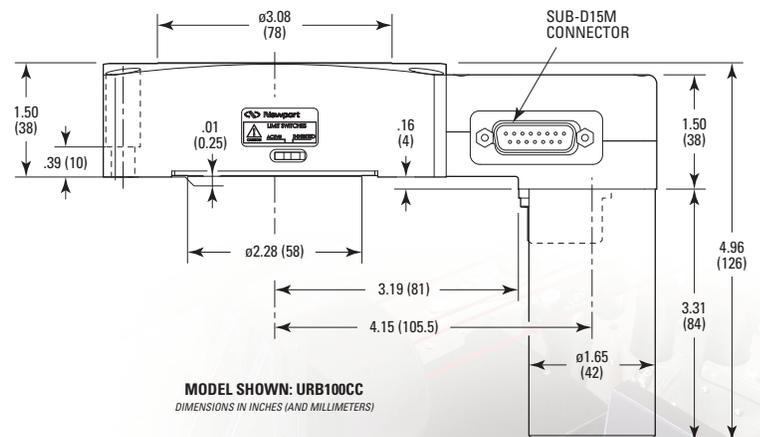
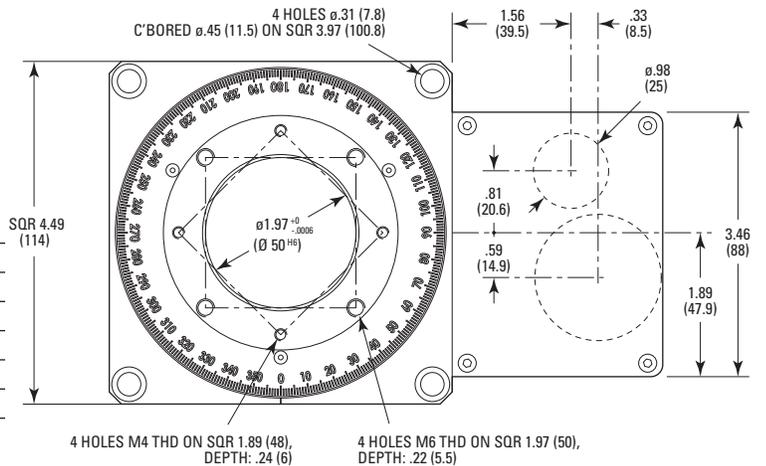
ORDERING INFORMATION

Model	Description
URB100CC	Belt Drive Rotation Stage, 360°, DC Servo Motor

ACCESSORIES

Model	Description
URSBK	90° Mounting Bracket, URS75, URS100, URS150 Rotation Stages
M-URS100TP	Solid Top Mounting Plate, URS100 Series, M6 Threaded Holes

DIMENSIONS



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