

RST-E Series Datasheet



- Speed up to 60 °/s and torque up to 70 N-m
- Continuous 360° rotation stage
- Up to 300 kg centered load capacity
- 50.8 mm (2") or 101.6 mm (4") aperture
- Encoder position feedback with slip/stall detection and automatic recovery
- Designed for use with an X-MCC Series stepper motor controller or any 2-phase stepper motor controller
- Custom versions available

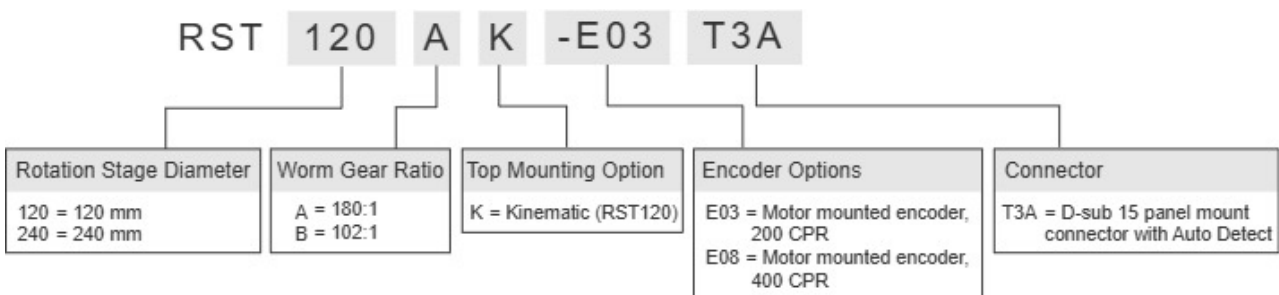
RST-E Series Overview

Zaber's RST-E Series products are motorized rotation stages with built-in motor encoders. Rated for up to 300 kg centered load capacity and up to 70 N-m of torque, they are ideal for high load, angular positioning applications. They have large diameter apertures for a variety of thru-bore applications. RST-E stages are designed for plug-and-play use with any of Zaber's controllers.

The stages are designed to connect directly to our X-MCC Series universal motor controllers, or they can be used with any 2-phase stepper motor controller through the panel mount DB15 connector. Set up is easy with AutoDetect. Once connected, the X-MCC controller will automatically detect and configure the RST-E.

For more information visit: <https://www.zaber.com/products/rotary-stages/RST-E>

RST-E Series Part Numbering & Options



RST-E Series Drawings

- [RST120-E.png \(Drawing for the RST120-E\)](#)
- [RST240-E.png \(Drawing for the RST240-E\)](#)

RST-E Series Specifications

Built-in Controller	
Recommended Controller	X-MCC (48 V) Recommended
AutoDetect	Yes
Range	360°
Backlash	< 0.05° (< 0.873 mrad)
Encoder Type	Rotary quadrature encoder
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Connection	D-sub 15
Default Resolution	1/64 of a step
Mechanical Drive System	Precision Worm Gear
Limit or Home Sensing	Magnetic home sensor
Operating Temperature Range	0-50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Microstep Size (Default Resolution)	Accuracy (unidirectional)	Repeatability	Maximum Speed
RST120AK-E03T3A	0.00015625° (2.727 µrad)	0.16° (2.792000 mrad)	< 0.005° (< 0.087 mrad)	24°/s (4 rpm)
RST240B-E08T3A	0.00027574° (4.812 µrad)	0.075° (1.308750 mrad)	< 0.0015° (< 0.026 mrad)	60°/s (10 rpm)

Part Number	Minimum Speed	Speed Resolution	Encoder Resolution	Maximum Torque
RST120AK-E03T3A	0.000095°/s (1.658 µrad/s)	0.000095°/s (1.658 µrad/s)	200 CPR (800 states/rev)	1000 N-cm (1416.1 oz-in)
RST240B-E08T3A	0.000168°/s (2.932 µrad/s)	0.000168°/s (2.932 µrad/s)	400 CPR (1600 states/rev)	7000 N-cm (9912.8 oz-in)

Part Number	Maximum Continuous Torque	Maximum Centered Load	Maximum Moment (Transverse)	Stage Top Dimension

Part Number	Maximum Continuous Torque	Maximum Centered Load	Maximum Moment (Transverse)	Stage Top Dimension
RST120AK-E03T3A	1000 N-cm (1416.1 oz-in)	500 N (112.1 lb)	2000 N-cm (2832.2 oz-in)	120 mm (4.724")
RST240B-E08T3A	4500 N-cm (6372.5 oz-in)	3000 N (672.8 lb)	20000 N-cm (28322.4 oz-in)	240 mm (9.449")

Part Number	Radial Error Motion	Axial Error Motion	Tilt Error Motion	Bearing Plane Offset
RST120AK-E03T3A	+/- 3 μ m (+/- 0.000118")	< 3 μ m (< 0.000118")	+/- 0.0014° (+/- 24.43 μ rad)	27.1 mm (1.067")
RST240B-E08T3A	+/- 2.5 μ m (+/- 0.000098")	< 4 μ m (< 0.000157")	+/- 0.003° (+/- 52.36 μ rad)	30.75 mm (1.211")

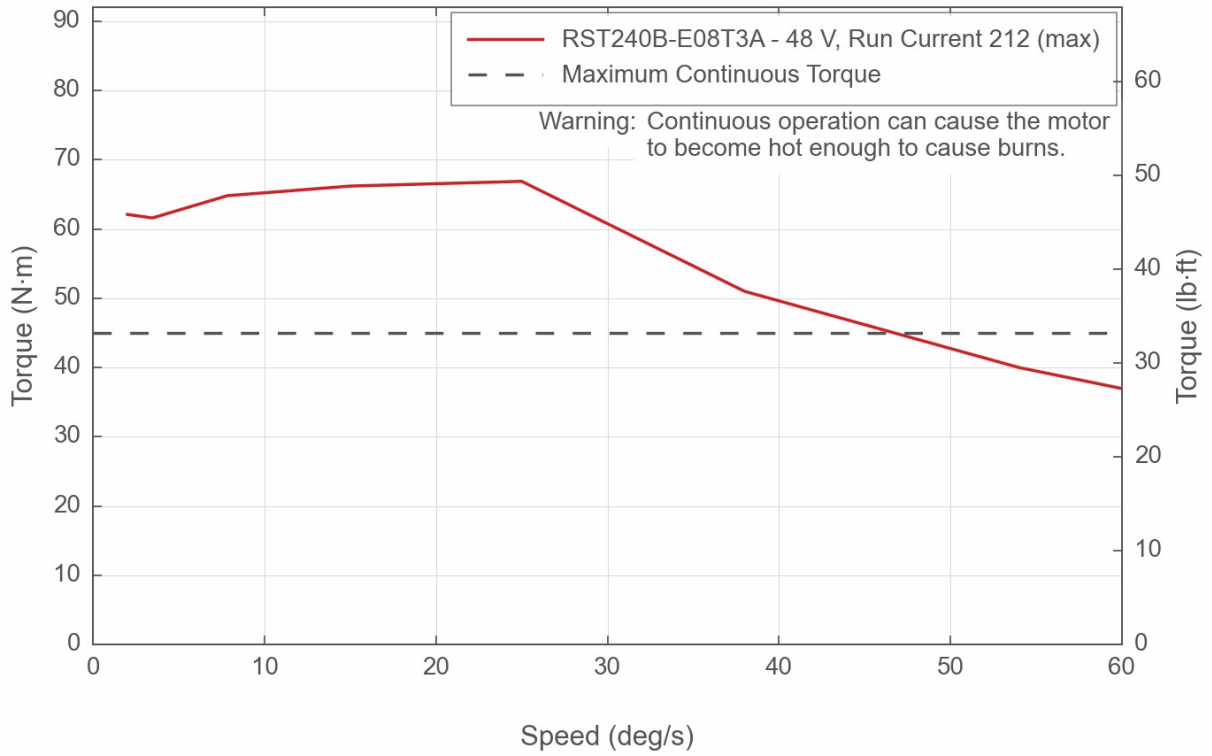
Part Number	Angular Motion Per Motor Rev	Motor Rated Current	Motor Winding Resistance	Inductance
RST120AK-E03T3A	2°	1500 mA/phase	2.4 ohms/phase	6.6 mH/phase
RST240B-E08T3A	3.5294°	3000 mA/phase	0.53 ohms/phase	2 mH/phase

Part Number	Maximum Angular Momentum	Motor Frame Size	Guide Type	Gear Ratio
RST120AK-E03T3A	0.4 kg-m ² /s	17	Preloaded Ball Bearing	180:1
RST240B-E08T3A	1.6 kg-m ² /s	23	Crossed-Roller Bearing	102:1

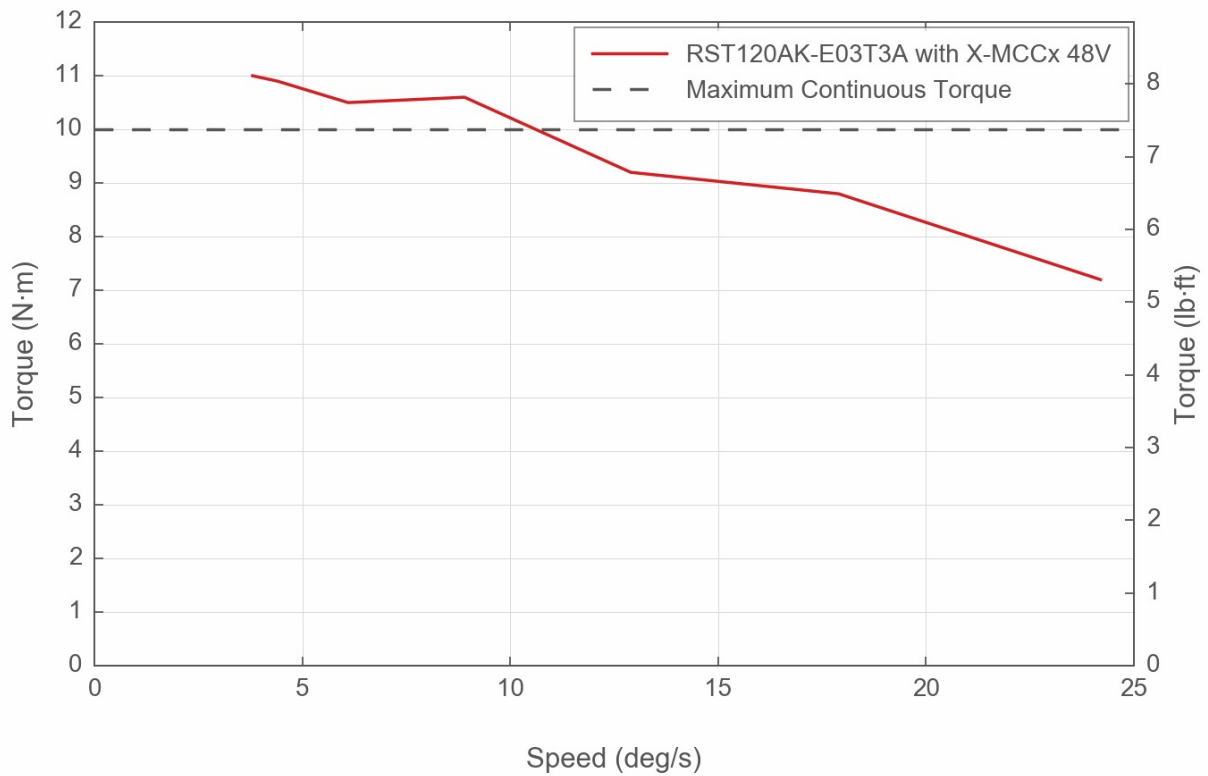
Part Number	Mounting Interface	Weight
RST120AK-E03T3A	Kinematic with M2.5 and M6 threaded holes	2.41 kg (5.313 lb)
RST240B-E08T3A	M6 threaded holes and M8 mounting holes	14.5 kg (31.967 lb)

RST-E Series Charts

Torque Speed Performance



Torque Speed Performance



Contact

Email: contact@zaber.com

Phone (toll free Canada/USA): 1-888-276-8033

Phone (direct): 1-604-569-3780

Fax: 1-604-648-8033

Zaber Technologies Inc.

#2 - 605 West Kent Ave. N.

Vancouver, British Columbia

Canada, V6P 6T7

<https://www.zaber.com>