RSB Series Datasheet

- Speeds up to 1,200 rpm
- Continuous 360° rotation stage
- Multiple motor configurations
- Designed for use with an X-MCC Series stepper motor controller or any 2-phase stepper motor controller
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral

RSB Series Overview

Zaber's RSB motorized rotation stages feature a compact footprint, low profile, and a load capability of up to 50 kg. With a maximum speed of 1,200 rpm, these rotation stages are ideal for the rapid positioning of light loads to within a fraction of a degree.

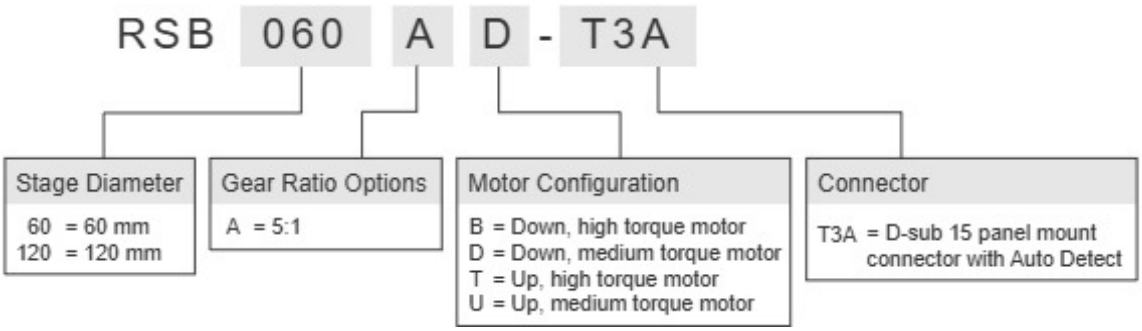
There are two motor configurations available: up and down. Motor up configurations allow flush mounting of the device to a flat surface, and motor down configurations allow for full 360° movement of loads that extend past the edge of the stage top.

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 RSB.

For more information visit: https://www.zaber.com/products/rotary-stages/RSB

RSB Series Part Numbering & Options



RSB Series Drawings

- RSB060.png (Drawing for the RSB060)
- RSB120_B&T_configs.png (Drawing for the RSB120 B&T configs)
- RSB120_D&U_configs.png (Drawing for the RSB120 D&U configs)

RSB Series Specifications

Microstep Size (Default Resolution)	**0.005625° (98.173 µrad)**
Built-in Controller	No
Recommended Controller	X-MCC (48 V) Recommended
AutoDetect	Yes
Range	360°
Repeatability	< 0.001° (< 0.017 mrad)
Minimum Speed	0.003434°/s (59.934 µrad/s)
Speed Resolution	0.003434°/s (59.934 µrad/s)
Encoder Type	No
Angular Motion Per Motor Rev	72°
Motor Connection	D-sub 15
Default Resolution	1/64 of a step
Mechanical Drive System	Synchronous belt
Limit or Home Sensing	Magnetic home sensor
CE Compliant	Yes
Vacuum Compatible	No

Part Number	**Accuracy (unidirectional)**	**Backlash**	**Maximum Speed**	**Maximum Continuous Torque**
RSB060AD-T3A	0.2° (3.490000 mrad)	< 0.1° (< 1.745 mrad)	7200°/s (1200 rpm)	230 N-cm (325.7 oz-in)
RSB060AU-T3A	0.2° (3.490000 mrad)	< 0.1° (< 1.745 mrad)	7200°/s (1200 rpm)	230 N-cm (325.7 oz-in)
RSB120AB-T3A	0.28° (4.886000 mrad)	< 0.25° (< 4.362 mrad)	5400°/s (900 rpm)	750 N-cm (1062.1 oz-in)
RSB120AD-T3A	0.28° (4.886000 mrad)	< 0.25° (< 4.362 mrad)	3000°/s (500 rpm)	250 N-cm (354.0 oz-in)
RSB120AT-T3A	0.28° (4.886000 mrad)	< 0.25° (< 4.362 mrad)	5400°/s (900 rpm)	750 N-cm (1062.1 oz-in)
RSB120AU-T3A	0.28° (4.886000 mrad)	< 0.25° (< 4.362 mrad)	3000°/s (500 rpm)	250 N-cm (354.0 oz-in)

Part Number	Maximum Centered Load	Maximum Moment (Transverse)	Stage Top Dimension	Radial Error Motion
RSB060AD-T3A	200 N (44.9 lb)	410 N-cm (580.6 oz-in)	60 mm (2.362")	+/- 4 µm (+/- 0.000157")
RSB060AU-T3A	200 N (44.9 lb)	410 N-cm (580.6 oz-in)	60 mm (2.362")	+/- 4 µm (+/- 0.000157")
RSB120AB-T3A	500 N (112.1 lb)	2000 N-cm (2832.2 oz-in)	120 mm (4.724")	+/- 3 µm (+/- 0.000118")
RSB120AD-T3A	500 N (112.1 lb)	2000 N-cm (2832.2 oz-in)	120 mm (4.724")	+/- 3 µm (+/- 0.000118")
RSB120AT-T3A	500 N (112.1 lb)	2000 N-cm (2832.2 oz-in)	120 mm (4.724")	+/- 3 µm (+/- 0.000118")
RSB120AU-T3A	500 N (112.1 lb)	2000 N-cm (2832.2 oz-in)	120 mm (4.724")	+/- 3 µm (+/- 0.000118")

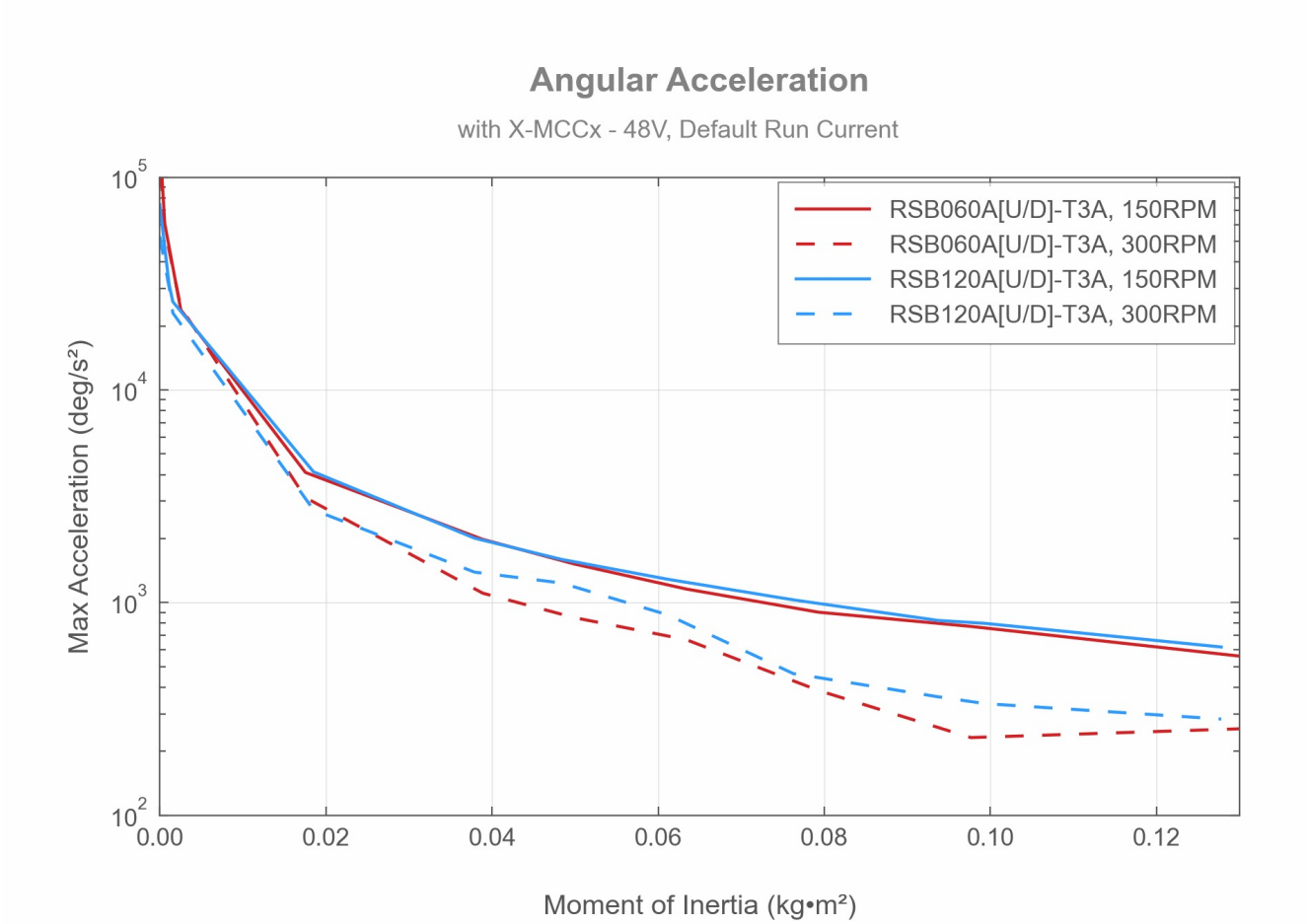
Part Number	Axial Error Motion	Tilt Error Motion	Bearing Plane Offset	Motor Type
RSB060AD-T3A	< 4 µm (< 0.000157")	+/- 0.0033° (+/- 57.60 µrad)	16.37 mm (0.644")	Stepper (2 phase)
RSB060AU-T3A	< 4 µm (< 0.000157")	+/- 0.0033° (+/- 57.60 µrad)	16.37 mm (0.644")	Stepper (2 phase)
RSB120AB-T3A	< 3 µm (< 0.000118")	+/- 0.0014° (+/- 24.43 µrad)	20 mm (0.787")	Stepper (2 phase)
RSB120AD-T3A	< 3 µm (< 0.000118")	+/- 0.0014° (+/- 24.43 µrad)	20 mm (0.787")	Stepper (2 phase)
RSB120AT-T3A	< 3 µm (< 0.000118")	+/- 0.0014° (+/- 24.43 µrad)	20 mm (0.787")	
RSB120AU-T3A	< 3 µm (< 0.000118")	+/- 0.0014° (+/- 24.43 µrad)	20 mm (0.787")	Stepper (2 phase)

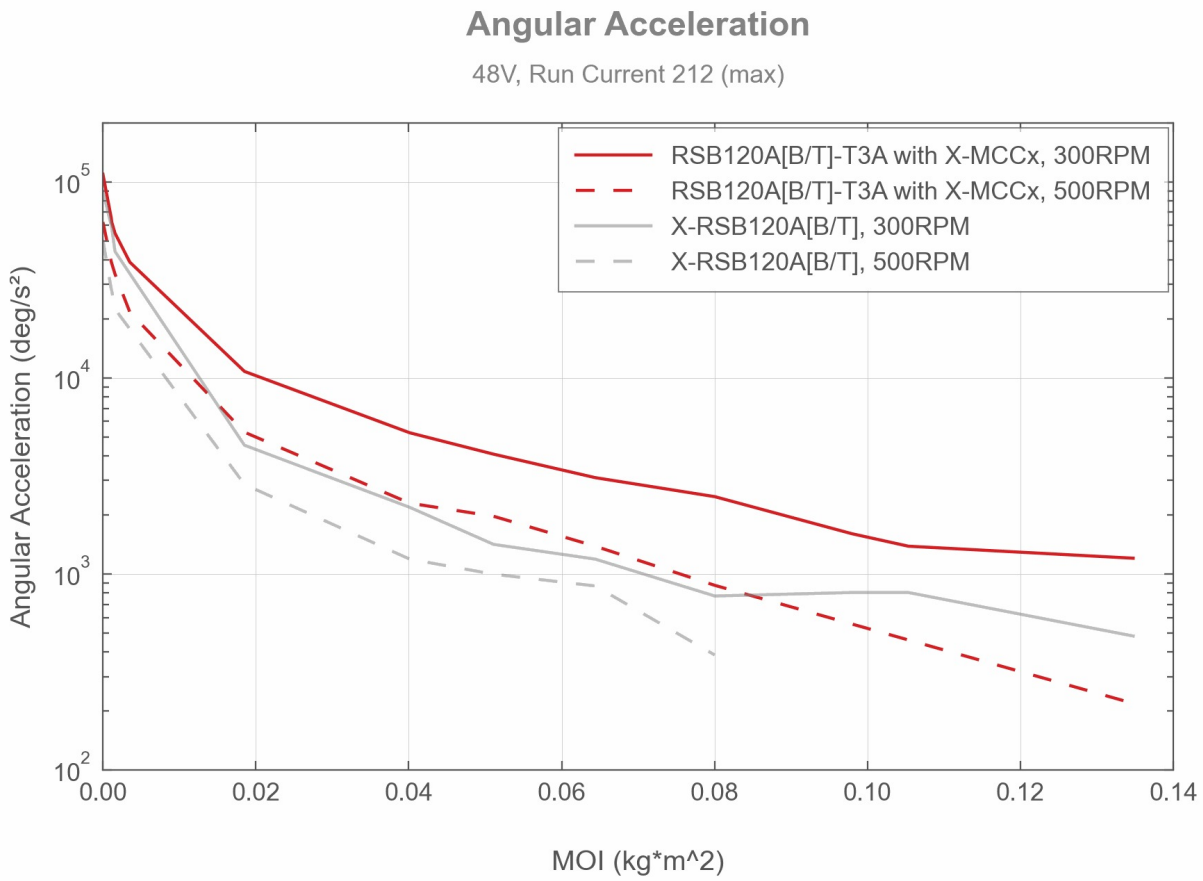
Part Number	Motor Rated Current	Motor Winding Resistance	Inductance	Mounting Interface
RSB060AD-T3A	2300 mA/phase	1 ohms/phase	2.2 mH/phase	M6 and #8-32 threaded holes
RSB060AU-T3A	2300 mA/phase	1 ohms/phase	2.2 mH/phase	M6 and #8-32 threaded holes
RSB120AB-T3A	3000 mA/phase	0.53 ohms/phase	2 mH/phase	Kinematic with M2.5 and M6 threaded holes
RSB120AD-T3A	2100 mA/phase	2.9 ohms/phase	7.2 mH/phase	Kinematic with M2.5 and M6 threaded holes

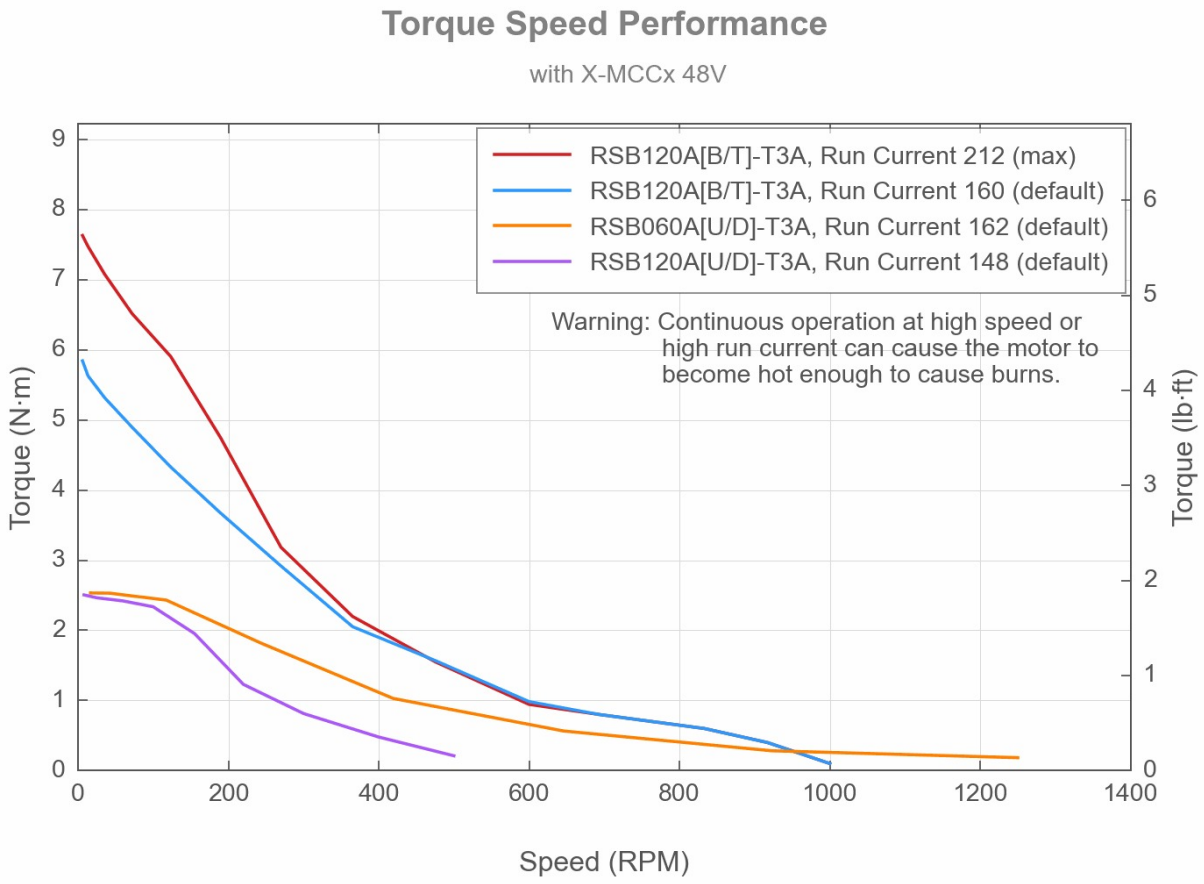
Part Number	Motor Rated Current	Motor Winding Resistance	Inductance	Mounting Interface
RSB120AT-T3A	3000 mA/phase	0.53 ohms/phase	2 mH/phase	
RSB120AU-T3A	2100 mA/phase	2.9 ohms/phase	7.2 mH/phase	Kinematic with M2.5 and M6 threaded holes

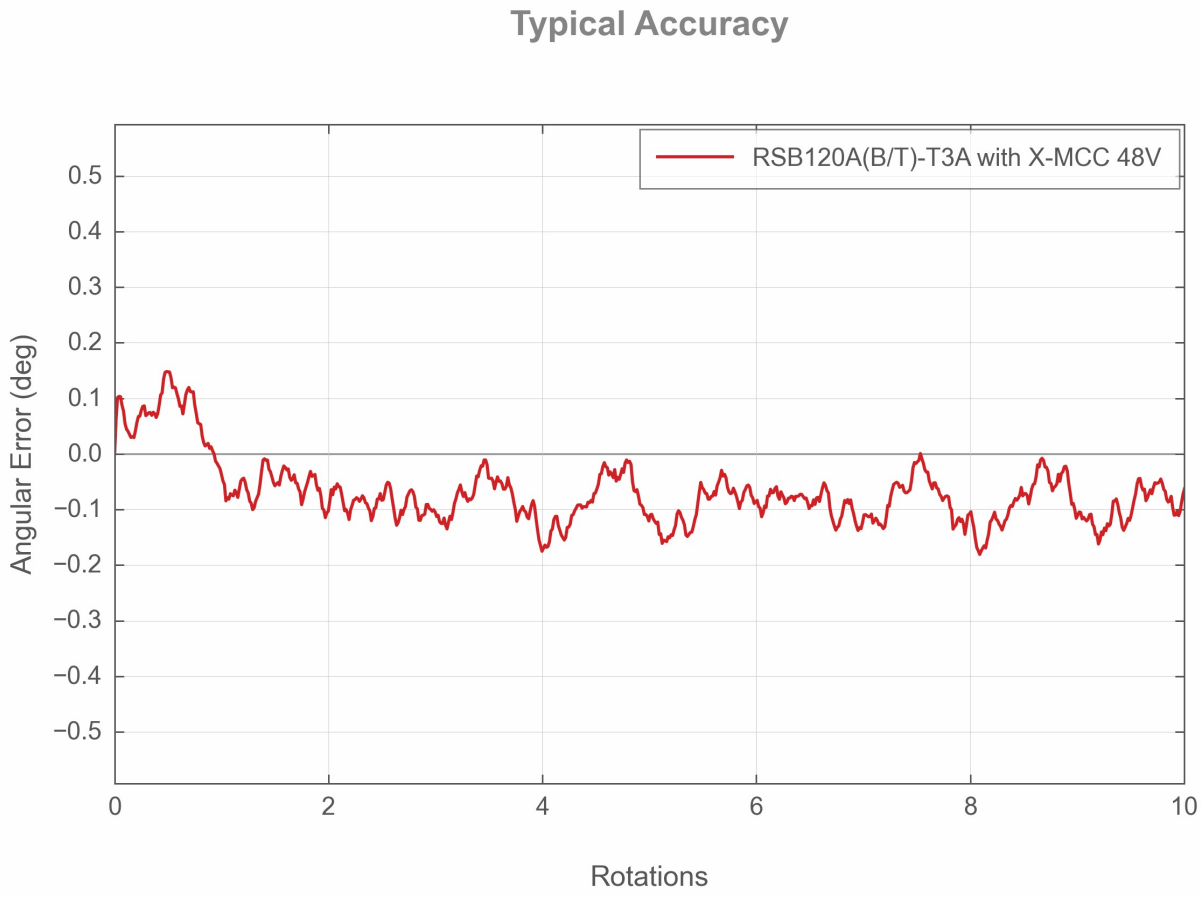
Part Number	Weight
RSB060AD-T3A	0.78 kg (1.720 lb)
RSB060AU-T3A	0.78 kg (1.720 lb)
RSB120AB-T3A	2.0 kg (4.409 lb)
RSB120AD-T3A	2.00 kg (4.409 lb)
RSB120AT-T3A	2.0 kg (4.409 lb)
RSB120AU-T3A	2.00 kg (4.409 lb)

RSB Series Charts




Angular Acceleration
48V, Run Current 212 (max)
RSB120A[B/T]-T3A with X-MCCx, 300RPM
RSB120A[B/T]-T3A with X-MCCx, 500RPM
X-RSB120A[B/T], 300RPM
X-RSB120A[B/T], 500RPM
Angular Acceleration (deg/s²)
10^5
10^4
10^3
10^2
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
MOI (kg*m^2)


Torque Speed Performance
with X-MCCx 48V
RSB120A[B/T]-T3A, Run Current 212 (max)
RSB120A[B/T]-T3A, Run Current 160 (default)
RSB060A[U/D]-T3A, Run Current 162 (default)
RSB120A[U/D]-T3A, Run Current 148 (default)
Warning: Continuous operation at high speed or high run current can cause the motor to become hot enough to cause burns.
Torque (N·m)
Torque (lb·ft)
Speed (RPM)
0
1
2
3
4
5
6
7
8
9
200
400
600
800
1000
1200
1400



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