G-LSQ Series Datasheet

- 150, 300 or 450 mm travel per axis
- Up to 330 mm/s speed or 100 N thrust depending on lead screw choice
- Customizable - add another Zaber stage for a Z-axis
- Designed for use with X-MCB2 Series two-axis stepper motor controllers
- Custom versions available

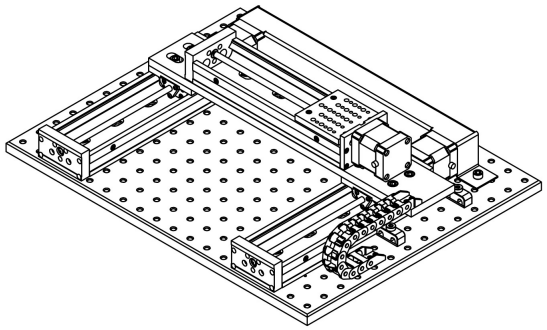
Overview

Zaber's G-LSQ Series gantry systems are based on the robust and fast LSQ Series linear stages. These systems offer a complete turn-key solution including the X-MCB2 controller, power supply, and all the accessories needed to operate the system. They are available pre-assembled on a custom breadboard, or as separate components, ready to be integrated into your own set-up. The G-LSQ Series gantries are designed for multi-axis applications where heavier loads require the additional support of two lower axis stages or where access is required to the area under the system. A coupled lead screw design provides high stiffness for quick and precise response. These gantries will support loads up to 18 kg and can move at speeds up to 330 mm/s.

Drawings

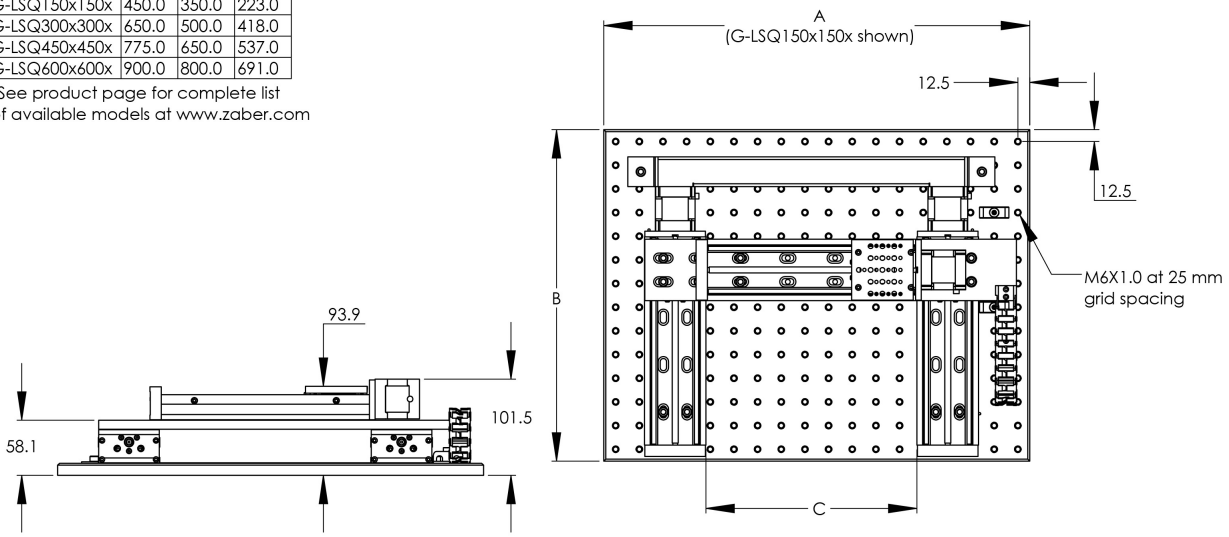
ZABER

G-LSQ Gantry Stage
dimensions in mm



Model Number*	A	B	C
G-LSQ150x150x	450.0	350.0	223.0
G-LSQ300x300x	650.0	500.0	418.0
G-LSQ450x450x	775.0	650.0	537.0
G-LSQ600x600x	900.0	800.0	691.0

*See product page for complete list of available models at www.zaber.com



DWG 1113 R01

Specifications

Specification	Value	Alternate Unit
Built-in Controller	No	
Recommended Controller	X-MCB2 (48 V) Included	
Encoder Type	None	
Maximum Centered Load	180 N	40.4 lb
Guide Type	Roller Bearing	
Vertical Runout	< 24 µm	< 0.000945 "
Horizontal Runout	< 26 µm	< 0.001024 "
Pitch	0.075 °	1.309 mrad
Roll	0.04 °	0.698 mrad
Yaw	0.03 °	0.523 mrad
Maximum Current Draw	1200 mA	
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	1200 mA/phase	
Motor Winding Resistance	3.3 ohms/phase	
Inductance	2.8 mH/phase	
Motor Rated Power	9.6 Watts	
Motor Connection	D-sub 15	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic home sensor	
Axes of Motion	2	
Mounting Interface	M6 threaded holes and 8-32 threaded holes	
Vacuum Compatible	No	
Operating Temperature Range	0 to 50 °C	
Stage Parallelism	< 100 µm	< 0.003937 "
RoHS Compliant	Yes	
CE Compliant	Yes	

Part Number	Microstep Size (Default Resolution)	Travel Range	Accuracy (unidirectional)	Repeatability
			45 µm	< 2 µm

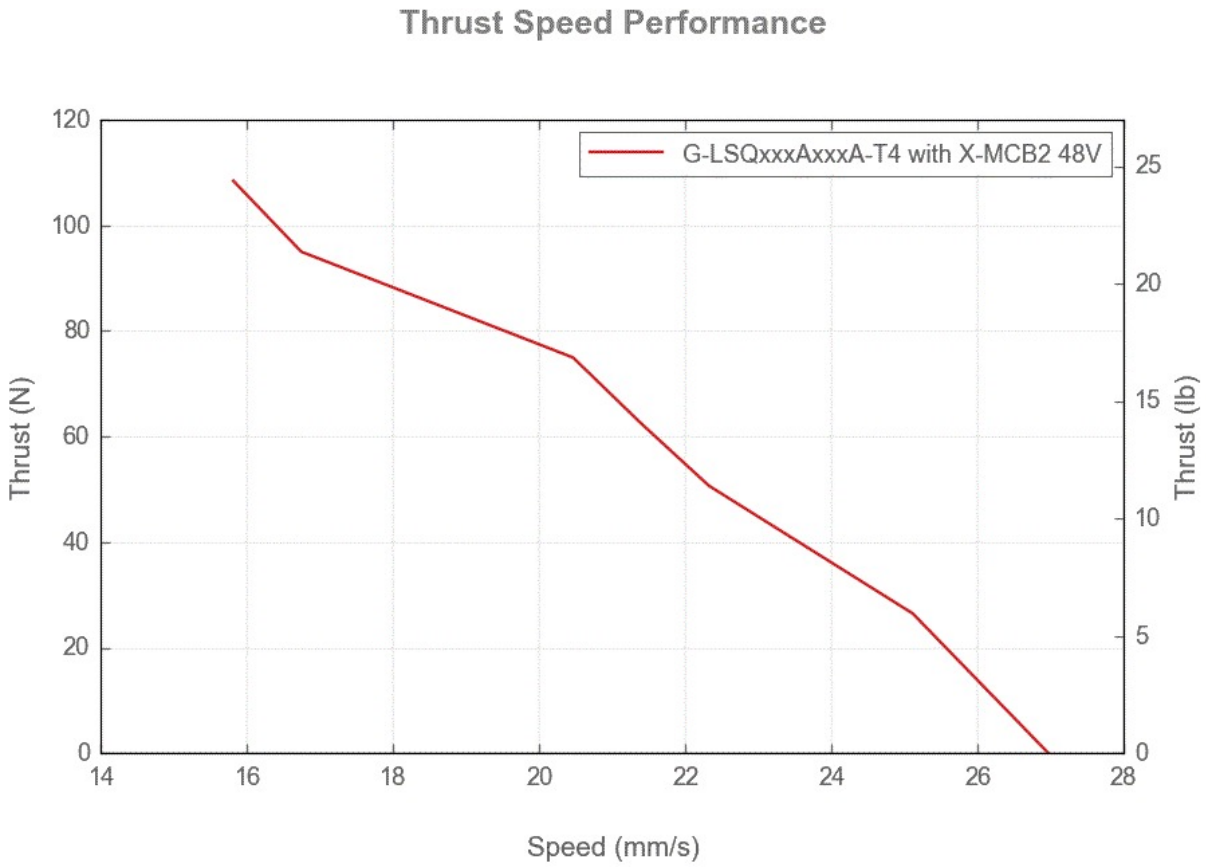
Part Number	Microstep Size (Default Resolution)	Travel Range	Accuracy (unidirectional)	Repeatability
G-LSQ150A150A-T4	0.09921875 µm	150 x 150 mm	(0.001772 ")	(< 0.000079 ")
G-LSQ150B150B-T4	0.49609375 µm	150 x 150 mm	50 µm (0.001968 ")	< 2 µm (< 0.000079 ")
G-LSQ150D150D-T4	1.984375 µm	150 x 150 mm	100 µm (0.003937 ")	< 4 µm (< 0.000157 ")
G-LSQ300A300A-T4	0.09921875 µm	300 x 300 mm	90 µm (0.003543 ")	< 2 µm (< 0.000079 ")
G-LSQ300B300B-T4	0.49609375 µm	300 x 300 mm	65 µm (0.002559 ")	< 2 µm (< 0.000079 ")
G-LSQ300D300D-T4	1.984375 µm	300 x 300 mm	145 µm (0.005709 ")	< 4 µm (< 0.000157 ")
G-LSQ450A450A-T4	0.09921875 µm	450 x 450 mm	135 µm (0.005315 ")	< 2 µm (< 0.000079 ")
G-LSQ450B450B-T4	0.49609375 µm	450 x 450 mm	75 µm (0.002953 ")	< 2 µm (< 0.000079 ")
G-LSQ450D450D-T4	1.984375 µm	450 x 450 mm	185 µm (0.007283 ")	< 4 µm (< 0.000157 ")

Part Number	Backlash	Maximum Speed	Minimum Speed	Speed Resolution
G-LSQ150A150A-T4	< 9 µm (< 0.000354 ")	23 mm/s (0.906 "/s)	0.00093 mm/s (0.000037 "/s)	0.00093 mm/s (0.000037 "/s)
G-LSQ150B150B-T4	< 13 µm (< 0.000512 ")	120 mm/s (4.724 "/s)	0.00465 mm/s (0.000183 "/s)	0.00465 mm/s (0.000183 "/s)
G-LSQ150D150D-T4	< 73 µm (< 0.002874 ")	330 mm/s (12.992 "/s)	0.0186 mm/s (0.000732 "/s)	0.0186 mm/s (0.000732 "/s)
G-LSQ300A300A-T4	< 9 µm (< 0.000354 ")	23 mm/s (0.906 "/s)	0.00093 mm/s (0.000037 "/s)	0.00093 mm/s (0.000037 "/s)
G-LSQ300B300B-T4	< 13 µm (< 0.000512 ")	120 mm/s (4.724 "/s)	0.00465 mm/s (0.000183 "/s)	0.00465 mm/s (0.000183 "/s)
G-LSQ300D300D-T4	< 73 µm (< 0.002874 ")	330 mm/s (12.992 "/s)	0.0186 mm/s (0.000732 "/s)	0.0186 mm/s (0.000732 "/s)
G-LSQ450A450A-T4	< 9 µm (< 0.000354 ")	23 mm/s (0.906 "/s)	0.00093 mm/s (0.000037 "/s)	0.00093 mm/s (0.000037 "/s)
G-LSQ450B450B-T4	< 13 µm (< 0.000512 ")	120 mm/s (4.724 "/s)	0.00465 mm/s (0.000183 "/s)	0.00465 mm/s (0.000183 "/s)
G-LSQ450D450D-T4	< 73 µm (< 0.002874 ")	330 mm/s (12.992 "/s)	0.0186 mm/s (0.000732 "/s)	0.0186 mm/s (0.000732 "/s)

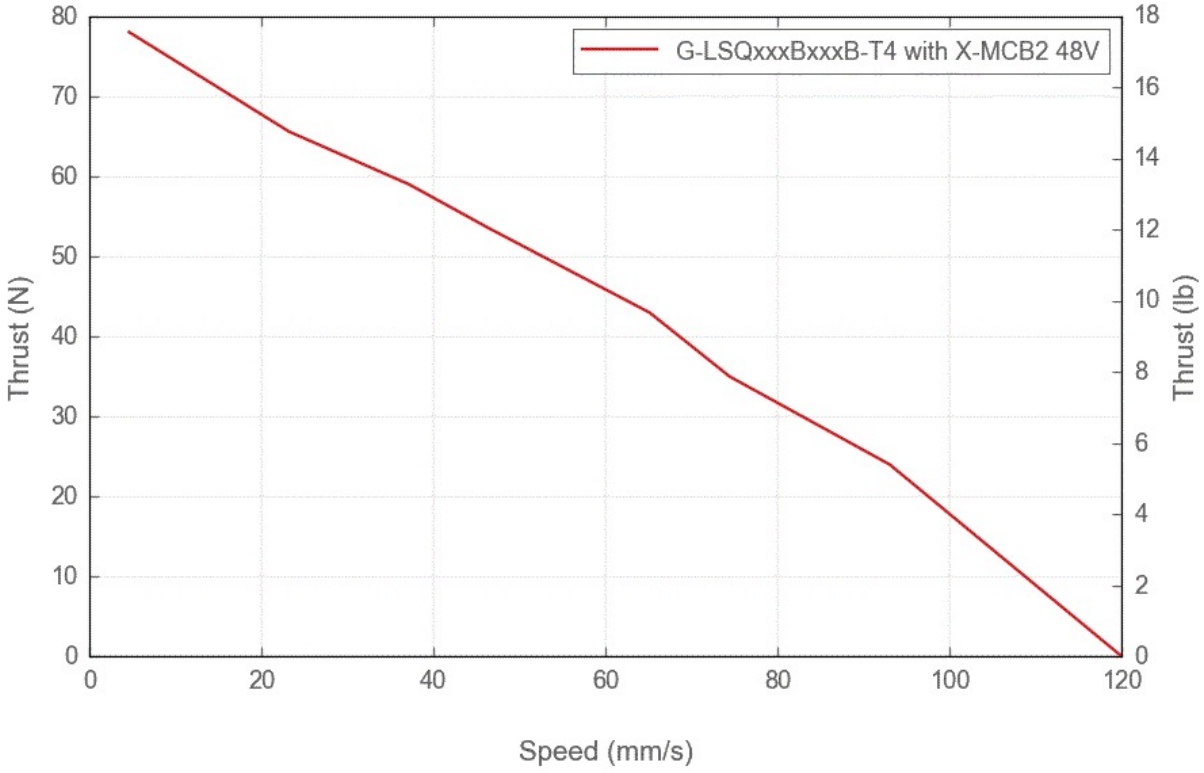
Part Number	Peak Thrust	Maximum Continuous Thrust	Maximum Cantilever Load	Linear Motion Per Motor Rev
G-LSQ150A150A-T4	140 N (31.4 lb)	100 N (22.4 lb)		1.27 mm (0.050 ")
G-LSQ150B150B-T4	70 N (15.7 lb)	70 N (15.7 lb)		6.35 mm (0.250 ")
G-LSQ150D150D-T4	10 N (2.2 lb)	10 N (2.2 lb)	800 N-cm (1132.9 oz-in)	25.4 mm (1.000 ")
G-LSQ300A300A-T4	140 N (31.4 lb)	70 N (15.7 lb)		1.27 mm (0.050 ")
G-LSQ300B300B-T4	70 N (15.7 lb)	70 N (15.7 lb)		6.35 mm (0.250 ")
G-LSQ300D300D-T4	10 N (2.2 lb)	10 N (2.2 lb)	800 N-cm (1132.9 oz-in)	25.4 mm (1.000 ")
G-LSQ450A450A-T4	140 N (31.4 lb)	140 N (31.4 lb)		1.27 mm (0.050 ")
G-LSQ450B450B-T4	70 N (15.7 lb)	100 N (22.4 lb)		6.35 mm (0.250 ")
G-LSQ450D450D-T4	10 N (2.2 lb)	10 N (2.2 lb)	800 N-cm (1132.9 oz-in)	25.4 mm (1.000 ")

Part Number	Weight
G-LSQ150A150A-T4	10.41 kg (22.950 lb)
G-LSQ150B150B-T4	10.41 kg (22.950 lb)
G-LSQ150D150D-T4	10.41 kg (22.950 lb)
G-LSQ300A300A-T4	17.51 kg (38.603 lb)
G-LSQ300B300B-T4	17.51 kg (38.603 lb)
G-LSQ300D300D-T4	17.51 kg (38.603 lb)
G-LSQ450A450A-T4	25.62 kg (56.482 lb)
G-LSQ450B450B-T4	25.62 kg (56.482 lb)
G-LSQ450D450D-T4	25.62 kg (56.482 lb)

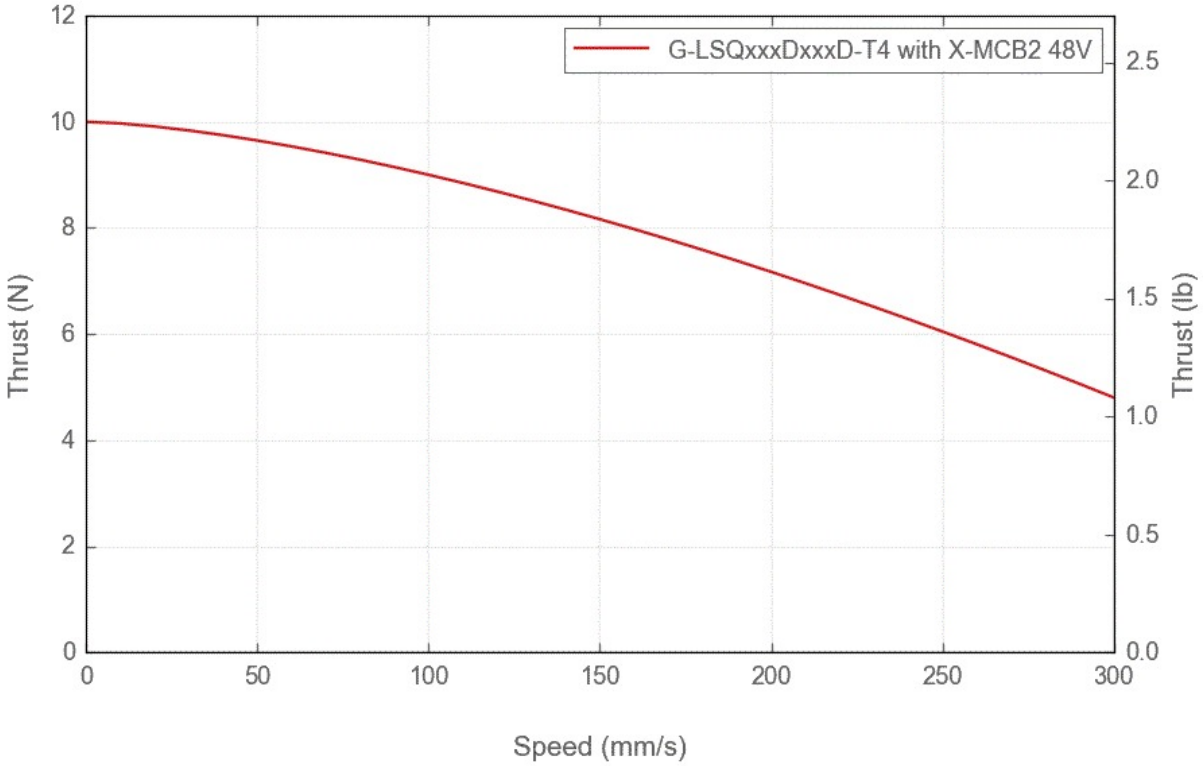
Charts


Thrust Speed Performance
G-LSQxxxAxxxA-T4 with X-MCB2 48V
Thrust (N)
Thrust (lb)
Speed (mm/s)
120
100
80
60
40
20
0
25
20
15
10
5
0
14
16
18
20
22
24
26
28

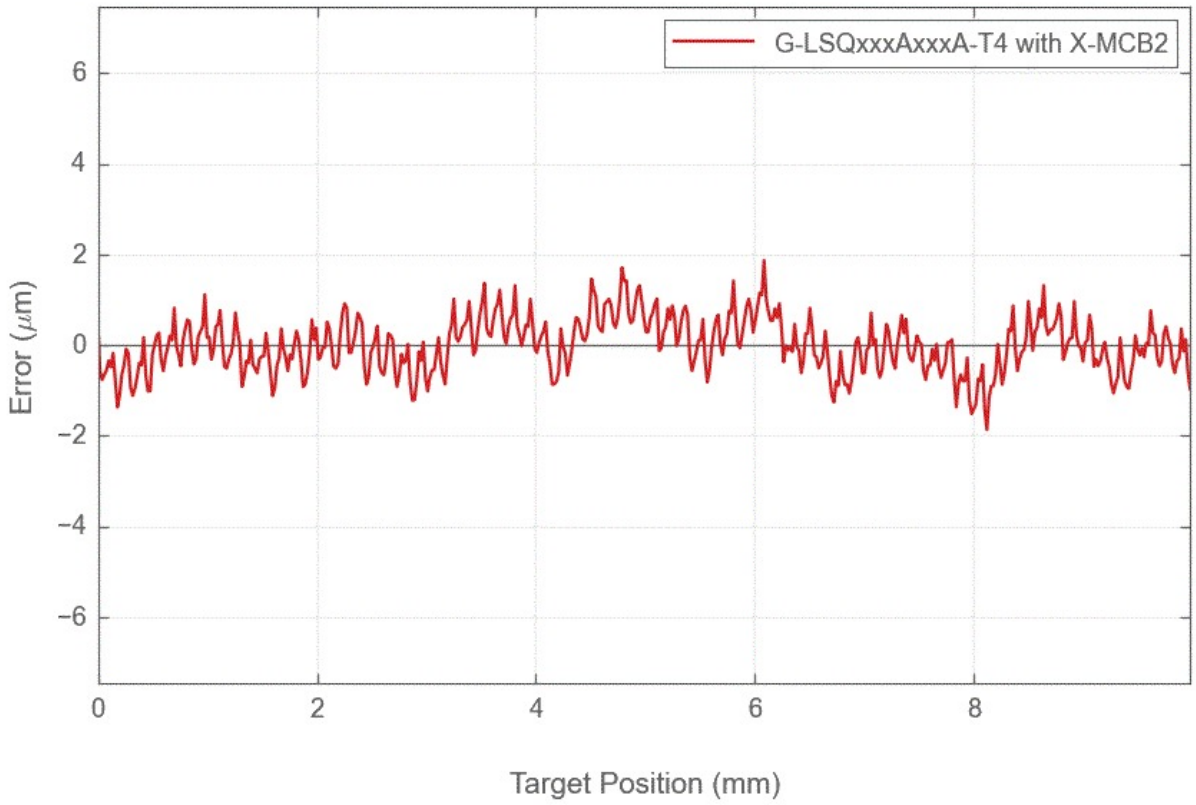
Thrust Speed Performance



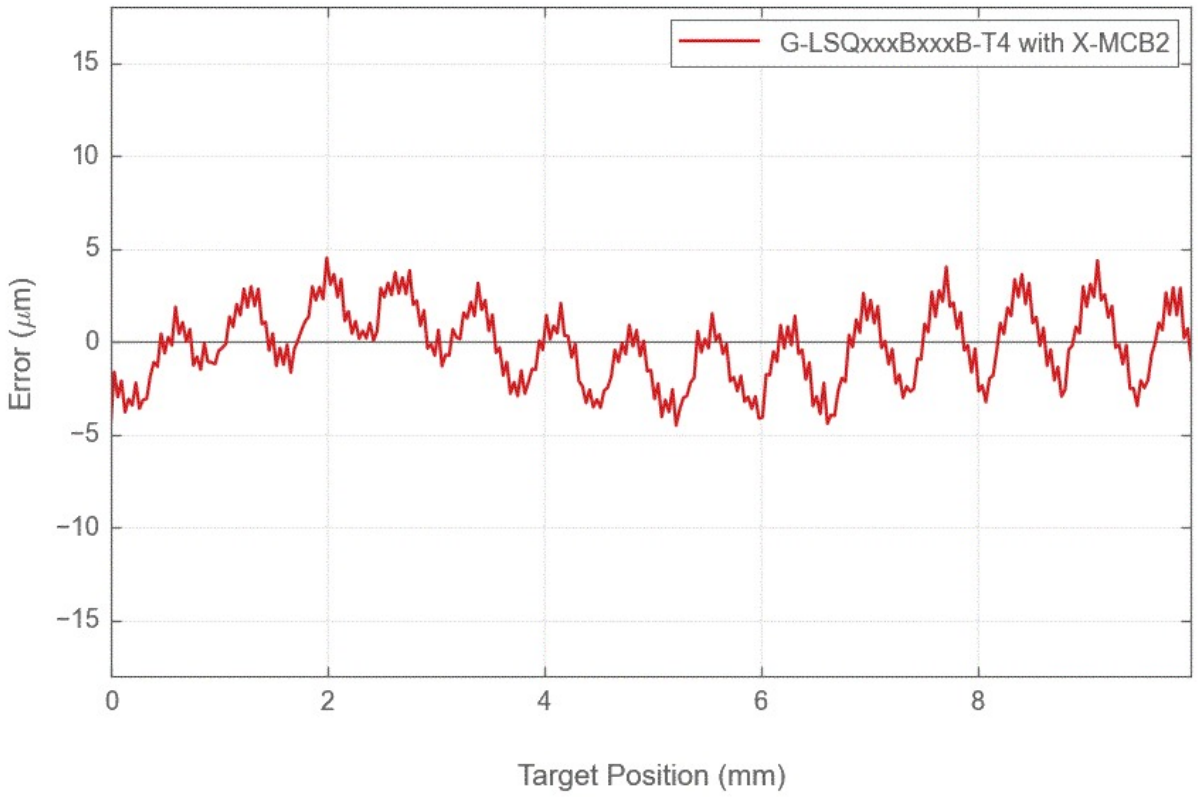
Thrust Speed Performance



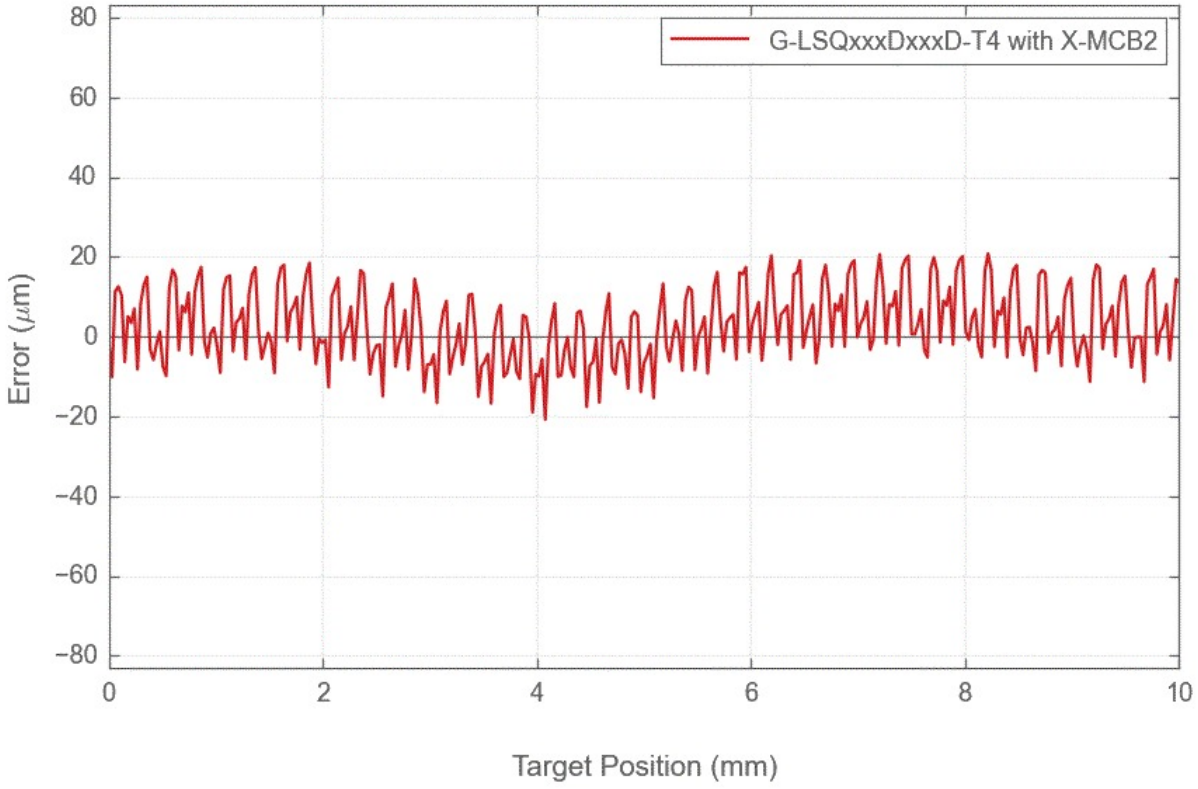
Typical Accuracy



Typical Accuracy



Typical Accuracy



LSQ Linear Bearing Lifetime