

Z-Elevator Vertical Motion Units

Features

- Low profile with no cantilevering
- 0.5" and 1" travel versions
- Excellent straightness and repeatability
- Anti-backlash friction nut



Vertical Motion Stages

Our Z-Elevator Stages provide a very compact, accurate means of achieving vertical motion. Precision, non-recirculating ways in each of the four corners keep pitch and yaw below 15 arc-seconds over full travel. This way configuration provides very straight, smooth, and repeatable motion which is needed to satisfy demanding wafer inspection, scanning, and probing applications. Both 0.5 inch and 1.0 inch travel versions are available with collapsed heights of only 2.874 inches and 3.150 inches respectively. The users load is not cantilevered; it is fully supported by an 8" x 8" top plate. Our Z-Elevator Stages incorporate a 23 frame motor (either step-

per or servo), coupled to a leadscrew which drives a cam-follower along a wedge. The wedge ratio is 2.5:1 for the ZE-5 and 1.25:1 for the ZE-10. This design provides high resolution, while our anti-backlash friction nut ensures excellent repeatability. Each stage includes precision Hall-effect limit switches, which terminate on convenient, locking D sub-mini connectors. The pitch of the leadscrew, the ratio of the wedge mechanism, the motor, and the controller together determine the resolution in our Z-Elevator stages. Please see page 55 for calculation details.

SPECIFICATIONS		ZE-5™ Z-Elevator		ZE-10™ Z-Elevator	
Travel (inches)		0.5		1.0	
Positional Accuracy (µm) ¹		15		20	
Bidirectional Repeatability (µm)		3			
Flatness & Straightness (µm)		5		10	
Pitch & Yaw (arc-seconds)		15			
Load Capacity (kg)		10			
Maximum Leadscrew Speed (rps)		15			
Mass (kg)	Moving	2.3		2.7	
	Total	7.4		9.1	

CONFIGURATIONS (Apply to both of the above models) ²						
Leadscrew	Lead (inch)	0.50	0.40	0.20	0.10	0.02
	Z Resolution (inches $\times 10^{-6}$) ³	100	80	40	20	4
	Lead (mm)	3	2	1.4		
	Z Resolution (µm) ³	0.6	0.4	0.28		
Motor	Stepper (oz-in)	400 step/rev.				
		200 step/rev.	118	53	100	others available others available
	Servo		brush	brushless		
OPTIONS						
Encoder	Rotary (counts/rev.)	2000	4000			

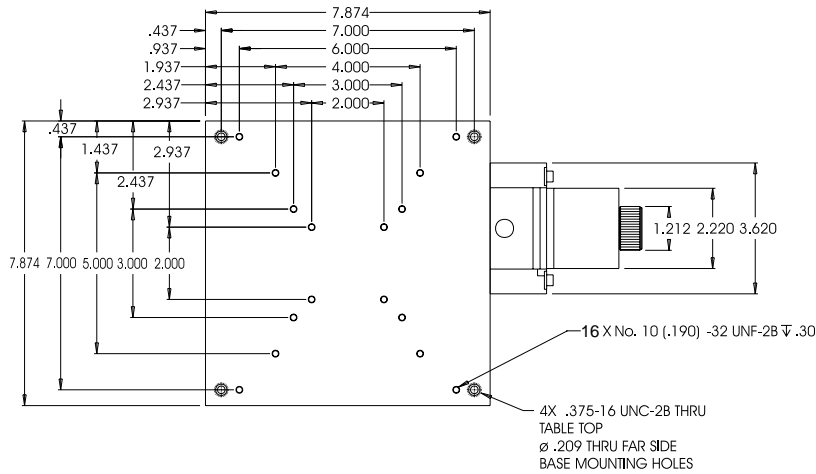
¹With 2 point slope correction.

²Standard configuration is highlighted.

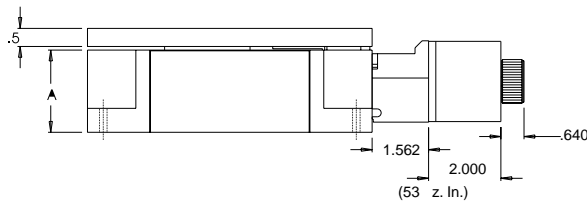
³Z resolution assuming ÷ 10 microstep drive and standard 200 step/rev. stepping motor.

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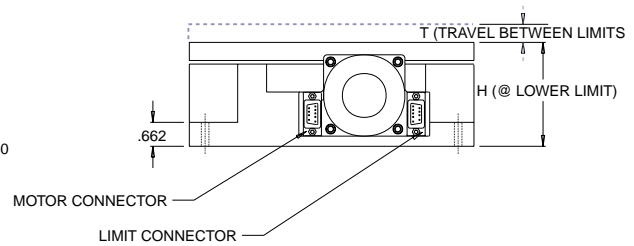
Top View



Side View



End View



Third Angle Projection
Note: All Dimensions in Inches

MODEL	TRAVEL T	HEIGHT H	A
ZE-050-SM	0.50	2.874	2.274
ZE-100-SM	1.00	3.150	2.615

Note: All dimensions are in inches.

For Further Information Contact

Heason Technologies Group Ltd

Tel: +44(0)1403 755800

Fax: +44(0)1403 755810

Email: sales@heason.com

Freephone 0800 374903 www.heason.com

Heason
Technologies Group