

Airglide Ultra Precise Air Bearing Stage



Dover Motion

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Features

- :: Industry leading straightness
- :: < 1 um accuracy
- :: Velocity stability < 0.5%
- :: Air bearing and brushless linear motor for maintenance free operation
- :: Travel available from 100 mm to 1,000 mm

Description

The Dover Airglide series air bearings stage combines the ultimate in performance, reliability and value. The stage design uses ultra precision air bearing ways providing extremely smooth motion, clean operation, and reliability. Its brushless linear servo motor allows for high speeds with no maintenance, making it ideal for use in high throughput applications.

These units can be setup as an individual axis with travels from 100 mm up to 1,000 mm or stacked as an XY assembly. Additional vacuum and signal lines can also be made

available on the stationary base plate.

The Airglide also includes high flex cabling with standard termination points for single and XY configurations. This cabling system can greatly simplify external wiring for convenient integration.

A linear encoder is standard and available in several resolutions and accuracy grades.

Dover offers complete control packages, low profile Z-theta assemblies, and optional wafer chucks.

Single Axis Air Bearing Stage Specifications

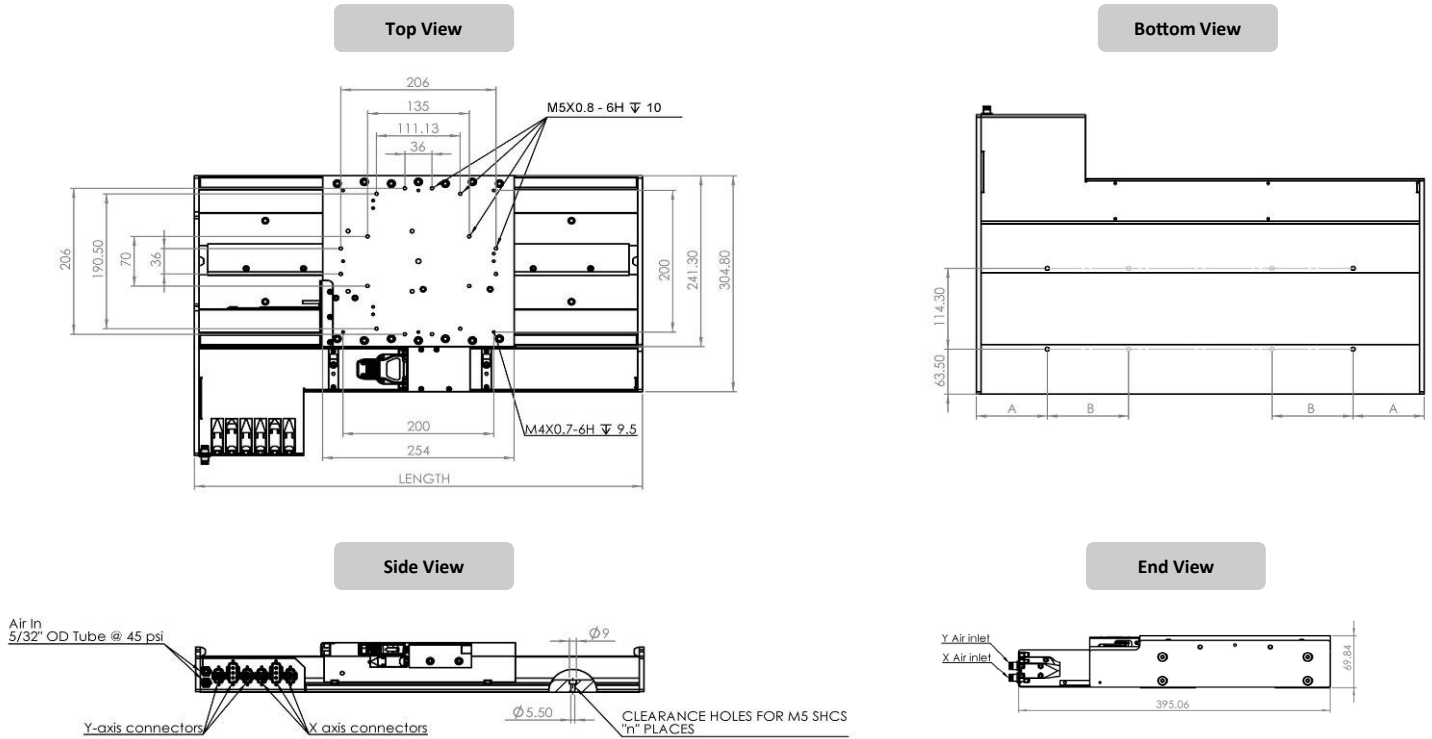
Model	AG-150	AG-200	AG-250	AG-300	AG-350	AG-400
Travel (mm)	150	200	250	300	350	400
Positional Accuracy ($\pm \mu\text{m}$) ^{1,2}	1.5	1.75	2	2.25	2.5	2.5
Bi-directional Repeatability ($\pm \mu\text{m}$) ¹	0.25	0.25	0.25	0.25	0.25	0.25
Load Capacity (kg) ³	40	40	40	40	40	40
Pitch (\pm arc-seconds)	2	2.25	2.5	3.75	3.75	3.75
Yaw (\pm arc-seconds)	2	2.25	2.5	3.75	3.75	3.75
Flatness ($\pm \mu\text{m}$)	0.75	1.0	1.25	1.5	1.75	1.75
Straightness ($\pm \mu\text{m}$)	0.75	1.0	1.25	1.5	1.75	1.75
Maximum Acceleration (m/s^2) ⁴	5	5	5	5	5	5
Maximum Velocity (mm/s) ³	1,000	1,000	1,000	1,000	1,000	1,000
Fundamental Motor Constant (N / $\sqrt{\text{Watt}}$, 130°C)	7.8	7.8	7.8	7.8	7.8	7.8
Back-emf Constant (V/m/s)	13.8	13.8	13.8	13.8	13.8	13.8
Coil Resistance (25°C, Ohm)	3.1	3.1	3.1	3.1	3.1	3.1
Continuous Current (130°C, Amps)	4.5	4.5	4.5	4.5	4.5	4.5
Peak Current (Amps)	14.2	14.2	14.2	14.2	14.2	14.2
Continuous Force (130°C, N) ⁵	76	76	76	76	76	76
Peak Force (N) ⁴	240	240	240	240	240	240
Continuous Power Rating (Watts) ⁵	131	131	131	131	131	131

¹0.1 um resolution encoder. ⁵ With slope correction

³Please contact our Applications Engineers for loads exceeding 40kg.

⁴Maximum acceleration and velocity is encoder and load dependent. ⁵ Higher power motor available upon request.

Dimensions



Model	Travel	Length	Mount Hole Locations		
			A	B	n
AG-200	200	495	44.3	108	8
AG-250	250	545	69.3	-	4
AG-300	300	595	94.3	-	4
AG-400	400	695	144.3	-	4

Measurements in mm

Contact factory for other travel length dimensions

Wiring

X Encoder /Lim HD15-M		
Pin	Color	Function
1	NC	NC
2	Blue	Limit +
3	Green	Limit -
4	NC	NC
5	NC	NC
6	Red	+ 5Vdc
7	Violet	A
8	Yellow	/A
9	Black	B
10	Blue	/B
11	Red	Z
12	Green	/Z
13	White	Home
14	Black	Ground
15	-	Shield

X Motor DA3-M		
Pin	Color	Function
1	Red	Coil A
2	White	Coil B
3	Black	Coil C
Case	-	Shield

X Halls DE9-M		
Pin	Color	Function
1	White	+ 5Vdc
2	Green	Hall A
3	Yellow	Hall B
4	Blue	Hall C
5	Violet	Hall Gnd
6	Red	Therm +
7	Black	Therm -
8	NC	NC
9	-	Shield