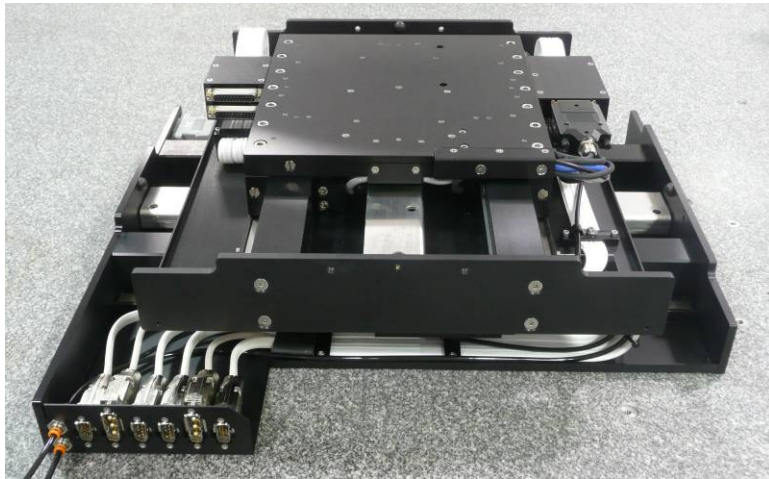




# Airglide Ultra Precise Air Bearing System



## 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 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, and routed to the top 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 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 ( $\pm \mu\text{m}$ ) <sup>1</sup>          | 2      | 2      | 2                           | 2.5    | 3      | 3      |
| Bi-directional Repeatability ( $\pm \mu\text{m}$ ) <sup>1</sup> |        |        | 0.4                         |        |        |        |
| Load Capacity (kg) <sup>2</sup>                                 |        |        | 40                          |        |        |        |
| Pitch ( $\pm$ arc-seconds)                                      | 1      | 1      | 2                           | 2      | 3      | 3      |
| Yaw ( $\pm$ arc-seconds)  |        |        | 1.5                         |        |        |        |
| Flatness ( $\pm \mu\text{m}$ )                                  | 0.75   | 0.75   | 0.75                        | 0.75   | 1      | 1      |
| Straightness ( $\pm \mu\text{m}$ )                              |        |        | 0.5                         |        |        |        |
| Maximum Acceleration ( $\text{m/s}^2$ ) <sup>3</sup>            |        |        | 5                           |        |        |        |
| Maximum Velocity ( $\text{mm/s}$ ) <sup>3</sup>                 |        |        | 1,000                       |        |        |        |
| Fundamental Motor Constant (130°C)                              |        |        | 7.8N / $\sqrt{\text{Watt}}$ |        |        |        |
| Back-emf Constant (V/m/s)                                       |        |        | 13.8                        |        |        |        |
| Coil Resistance (25°C, Ohm)                                     |        |        | 3.1                         |        |        |        |
| Continuous Current (130°C, Amps)                                |        |        | 4.5                         |        |        |        |
| Peak Current (Amps)   |        |        | 14.2                        |        |        |        |
| Continuous Force (130°C, N) <sup>4</sup>                        |        |        | 76                          |        |        |        |
| Peak Force (N) <sup>4</sup>                                     |        |        | 240                         |        |        |        |
| Continuous Power Rating (Watts) <sup>4</sup>                    |        |        | 131                         |        |        |        |

<sup>1</sup> 0.1 um resolution encoder.

<sup>2</sup> Please contact our Applications Engineers for loads exceeding 40kg.

<sup>3</sup> The maximum acceleration and velocity is encoder and load dependent.

<sup>4</sup> Higher power motor available upon request.

**Dover**

**(800) 227-1066**

[service@dovermotion.com](mailto:service@dovermotion.com)

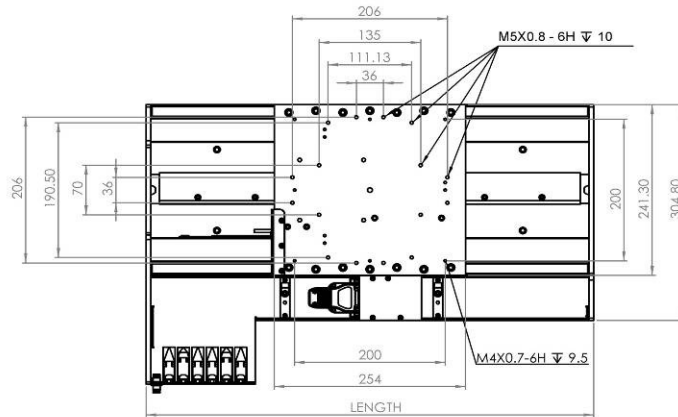
[www.dovermotion.com](http://www.dovermotion.com)



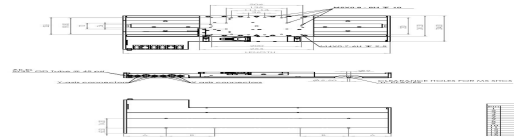
# Airglide Ultra Precise Air Bearing System

## Dimensions

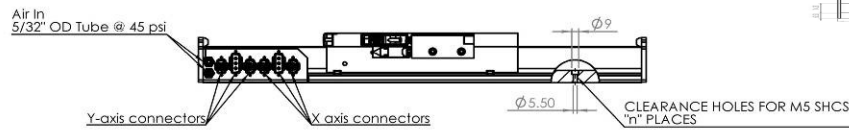
Top View



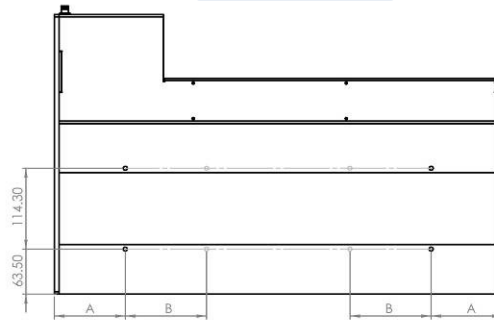
End View



Side View



Bottom View



| 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 Information

| 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   |