

PIglide HB: Hemispherical Air Bearing

Friction-free, ideal for rotary motion on three axes



A-65x

- Cleanroom compatible
- Low inertia
- Diameter up to 300 mm
- Rotatable in three directions
- Load capacity to 635 kg
- Tip/tilt range to $\pm 45^\circ$
- Operating pressure from 30 psi to 90 psi (207 kPa to 621 kPa)
- Ideal for satellite control and simulation of weightlessness

Overview

The PIglide HB series with spherical air bearings makes unique positioning and simulation applications possible in the fields of research and industry. The bearings offer excellent load capacity and stiffness, and at the same time, inherent friction-free motion on three rotational axes. The spherical bearings, which are often used in research on weightlessness in satellites, are also used in systems for precision chip contacting and optical alignment. Due to the use of spherical bearings at both ends of the drive screw shaft, it is possible to build extremely stiff drive screws. This arrangement allows precision alignment of the drive screw shaft due to the motion of one spherical bearing relative to the other.

Accessories and options

- Air preparation kit
- Custom configurations on request

Specifications

Model	Sphere diameter / mm	Rotation range** / °	Load capacity* / kg	Base mass / g	Sphere mass / g	Moment of inertia*** / g·m ²
A-651	50	±45	15	115	70	0.02
A-652	75	±45	35	235	216	0.14
A-653	100	±45	65	550	475	0.58
A-654	150	±45	160	1350	1475	4.21
A-655	200	±45	265	2500	3350	17.2
A-656	250	±45	405	4000	5525	46.3
A-657	300	±45	635	6500	8100	103

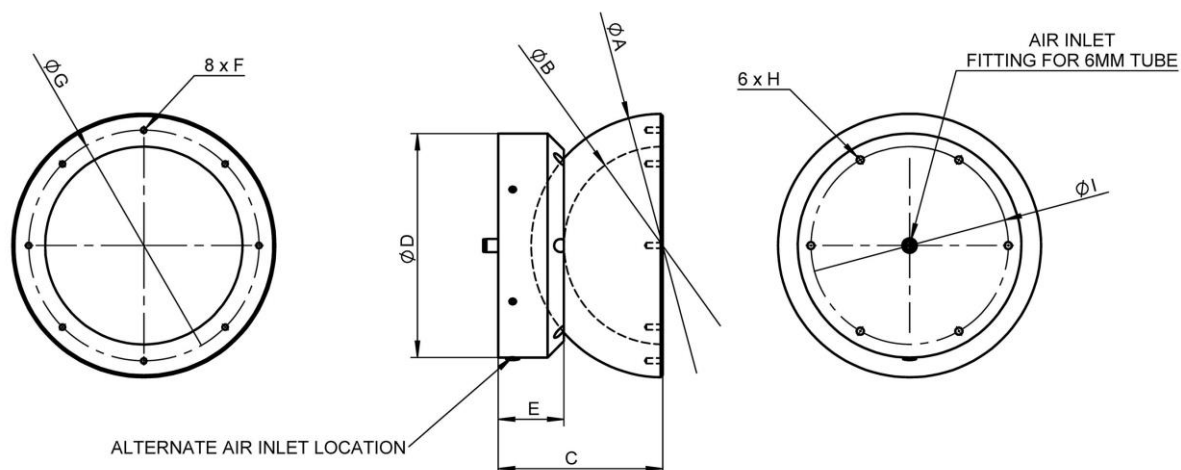
Operating pressure	80 psi (550 kPa) nominal, 90 psi (621 kPa) maximum
Air consumption	< 1.0 SCFM (28 SLPM)
Air quality	Clean (filtered to 1.0 µm or better) - ISO 8573-1 Class 1 Oil free - ISO 8573-1 Class 1 Dry (-15 °C dew point) - ISO 8573-1 Class 3
Materials	Hardcoat aluminum, stainless steel fasteners alternative materials on request

* The specified load capacities assume an operating pressure of 80 psi (550 kPa). For an alternative operating pressure, contact PI for determining other load capacities.

** Other travel ranges on request.

*** Around the center of the sphere.

Drawings and Images



A-65x.045, dimensions in mm

Model	A	B	C	D	E	F	G	H	I
A-651	50	30	42	55	23	M3	38	M3	45
A-652	75	50	55	70	27	M3	60	M3	60
A-653	100	70	70	100	30	M4	85	M4	85
A-654	150	110	95	140	40	M5	125	M5	125
A-655	200	150	125	170	50	M5	175	M5	150
A-656	250	200	150	210	55	M6	225	M6	190
A-657	300	250	175	250	65	M6	275	M6	230

Ordering Information

A-651.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 50 mm diameter

A-652.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 75 mm diameter

A-653.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 100 mm diameter

A-654.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 150 mm diameter

A-655.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 200 mm diameter

A-656.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 250 mm diameter

A-657.045

PIglide HB Hemispherical Air Bearing Module, $\pm 45^\circ$ tip/tilt range, 300 mm diameter

Ask about custom designs!