

PIglide RT Rotary Air Bearing Module

Frictionless, Nonmotorized



A-60x

- Motion platform diameter from 50 mm to 300 mm
- Load capacity to 425 kg
- Eccentricity / flatness <200 nm
- Can be mounted vertically or horizontally

Product overview

The PIglide RT series of nonmotorized passive rotary air bearings are designed for accuracy, precision, high stiffness, and ease of use. They can be used in any orientation and are easy to integrate with motors and encoders for complete positioning solutions.

The bearings of the RT series offer superior eccentricity, flatness, and wobble performance. Because they are completely friction-free, they exhibit no breakaway torque and no frictional resistance during operation. They are ideal for use in cleanrooms, require no maintenance or lubrication, and have unlimited lifetime.

Accessories and options

- Encoder for precise acquisition of stage angle during manual operation
- Mounting base for horizontal mounting onto optical table and flat surfaces
- PIglide filter and air preparation kits
- Customized mounting flanges and square housings

Application fields

Optical alignment, metrology, parts inspection, calibration, scanning, torque measurement.

Thanks to the friction-free motion, no particles are formed, which makes PIglide stages ideal for cleanroom applications.

Specifications

Size and loads	Motion platform diameter /mm	Journal length / mm	Load capacity ⁽¹⁾ axial / radial /N	Permissible tip/tilt torque ⁽¹⁾ / N·m	Stiffness axial / radial / N/μm
A-601.025	50	25	134 / 57	0.57	26 / 8
A-602.038	75	38	299 / 132	1.13	57 / 22
A-603.025	100	25	536 / 115	1.70	96 / 18
A-603.050	100	50	536 / 229	4.52	96 / 35
A-604.050	150	50	1206 / 344	22.6	210 / 64
A-604.090	150	90	1206 / 605	36.7	210 / 113
A-605.065	200	65	2144 / 577	39.6	385 / 110
A-605.100	200	100	2144 / 917	67.8	385 / 175
A-607.075	300	75	4244 / 1203	141.3	788 / 204
A-607.175	300	175	4244 / 2789	282.5	788 / 475

⁽¹⁾ Capacities listed assume supply pressure of 80 psi. Please contact PI if other pressures are required.

Performance specifications	Eccentricity ⁽²⁾ / nm	Flatness ⁽²⁾ / nm	Wobble ⁽²⁾ / μrad	Max. velocity ⁽³⁾ / rpm	Moment of inertia / kg·mm ²	Rotating mass / kg	Overall mass / kg
A-601.025	300	100	5	3000	35	0.15	0.4
A-602.038	250	75	4	3000	231	0.4	1.2
A-603.025	175	75	2.5	3000	705	0.7	1.5
A-603.050	175	75	2.5	3000	750	0.8	2.5
A-604.050	100	50	2	3000	4715	2.1	5.4
A-604.090	100	50	2	3000	5050	2.6	8.2
A-605.065	100	50	1.5	2000	17900	4.6	11.6
A-605.100	100	50	1.5	2000	18800	5.3	16.3
A-607.075	75	40	1	1000	181900	19.4	38.1
A-607.175	75	40	1	1000	206700	26.0	59.0

⁽²⁾ Precision specifications are dependent on quality of mounting base, payload, orientation, and external forces on the bearing. For application-specific parameters, please contact PI. Values shown are static (no rotational velocity during measurement).

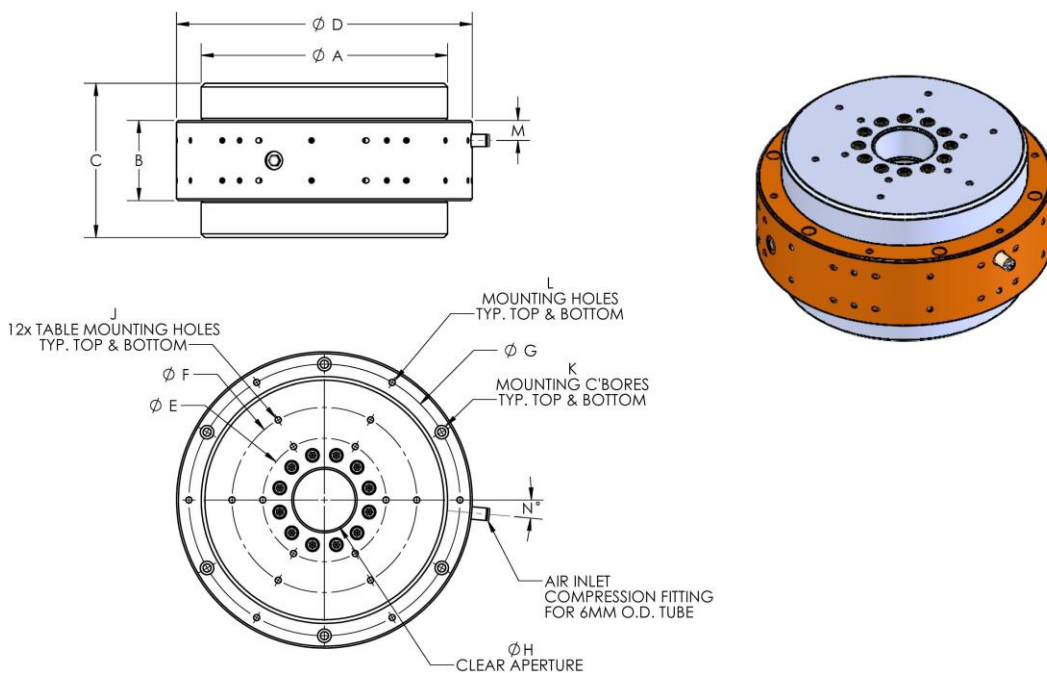
⁽³⁾ Velocity may be limited by the encoder option or payload imbalance. Please contact PI for further details.

Optional encoders	Sensor signal	Sensor resolution / μ rad	Max. velocity / rpm	Reference point switch
A-601.xxxH	A/B quadrature, differential, RS-422, 4 MHz	192	2500	1 / revolution, one count over one step of the encoder, synchronized to output signal
A-602.xxxH	A/B quadrature, differential, RS-422, max. 4 MHz	133	2000	1 / revolution, one count over one step of the encoder, synchronized to output signal
A-603.xxxH	A/B quadrature, differential, RS-422, max. 4 MHz	100	1500	1 / revolution, one count over one step of the encoder, synchronized to output signal
A-604xxxH	A/B quadrature, differential, RS-422, max. 4 MHz	66.4	1000	1 / revolution, one count over one step of the encoder, synchronized to output signal
A-605.xxxH	A/B quadrature, differential, RS-422, max. 4 MHz	50	800	1 / revolution, one count over one step of the encoder, synchronized to output signal
A-607.xxxH	A/B quadrature, differential, RS-422, max. 4 MHz	33.5	500	1 / revolution, one count over one step of the encoder, synchronized to output signal

Miscellaneous	A-60x
Operating pressure	75 to 85 psi (515 to 585 kPa)
Air consumption	< 2.0 SCFM (57 SLPM)
Air quality	Clean (filtered to 1.0 μ m 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 ⁽⁴⁾	Hardcoat aluminum, stainless steel mounting hardware

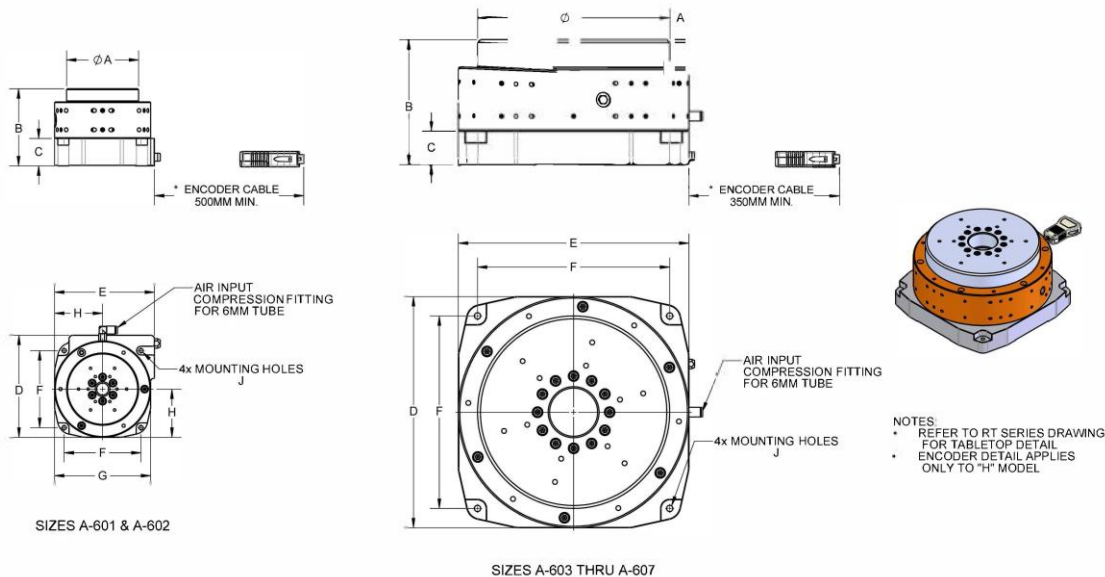
⁽⁴⁾ Alternative stage surface materials, such as stainless steel, are available. Please contact PI for a quote.

Drawings / Images



Model	A	B	C	D	E	F	G	H	J	K	L	M	N
A-601.025	50	25	50	70	25	40	60	8	M3x0.5, 6 DEEP	3x M3 SHCS, 30 LG. MIN	3x M3x0.5, 6 DEEP	6	30
A-602.038	75	38	65	100	30	50	87.5	12.5	M3x0.5, 6 DEEP	3x M4 SHCS, 40 LG. MIN	3x M4x0.7, 8 DEEP	9.5	30
A-603.025	100	25	55	125	50	75	112.5	25	M4x0.7, 8 DEEP	3x M5 SHCS, 30 LG. MIN	3x M5x0.8, 10 DEEP	6	30
A-603.050	100	50	80	125	50	75	112.5	25	M4x0.7, 8 DEEP	3x M5 SHCS, 50 LG. MIN	3x M5x0.8, 10 DEEP	12.5	30
A-604.050	150	50	95	185	75	125	170	40	M5x0.8, 10 DEEP	4x M6 SHCS, 50 LG. MIN	4x M6x1.0, 12 DEEP	12.5	68
A-604.090	150	90	135	185	75	125	170	40	M5x0.8, 10 DEEP	4x M6 SHCS, 90 LG. MIN	4x M6x1.0, 12 DEEP	22.5	68
A-605.065	200	65	125	240	100	150	220	50	M6x1.0, 12 DEEP	6x M6 SHCS, 70 LG. MIN	6x M6x1.0, 12 DEEP	16	5
A-605.100	200	100	160	240	100	150	220	50	M6x1.0, 12 DEEP	6x M6 SHCS, 100 LG. MIN	6x M6x1.0, 12 DEEP	23.5	5
A-607.075	300	75	150	355	150	250	330	75	M6x1.0, 12 DEEP	6x M8 SHCS, 80 LG. MIN	6x M8x1.25, 16 DEEP	17.3	5
A-607.175	300	175	250	355	150	250	330	75	M6x1.0, 12 DEEP	6x M8 SHCS, 150 LG. MIN	6x M8x1.25, 16 DEEP	58.5	5

A-60x.xxx, dimensions in mm



Model	A	B	C	D	E	F	G	I	J
A-601.025 M or H	50	65	26.5	82	74	55	70	35	M3 SHCS, 25 LG. MIN
A-602.038 M or H	75	80	28.5	106	104	80	100	50	M4 SHCS, 30 LG. MIN
A-603.025 M or H	100	65	25	135	125	100	-	-	M5 SHCS, 25 LG. MIN
A-603.050 M or H	100	90	25	135	125	100	-	-	M5 SHCS, 25 LG. MIN
A-604.050 M or H	150	100	27.5	185	185	150	-	-	M6 SHCS, 30 LG. MIN
A-604.090 M or H	150	140	27.5	185	185	150	-	-	M6 SHCS, 30 LG. MIN
A-605.065 M or H	200	130	35	240	240	200	-	-	M6 SHCS, 35 LG. MIN
A-605.100 M or H	200	165	35	240	240	200	-	-	M6 SHCS, 35 LG. MIN
A-607.075 M or H	300	155	42.5	355	355	300	-	-	M8 SHCS, 40 LG. MIN
A-607.175 M or H	300	255	42.5	355	355	300	-	-	M8 SHCS, 40 LG. MIN

A-60x.xxxH and A-60x.xxxM, dimensions in mm

Ordering Information

A-601.025

PIglide RT rotary air bearing module, 50 mm motion platform diameter, 25 mm bearing journal length

A-601.025H

PIglide RT rotary air bearing module, 50 mm motion platform diameter, 25 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-601.025M

PIglide RT rotary air bearing module, 50 mm motion platform diameter, 25 mm bearing journal length, mounting base

A-602.038

PIglide RT rotary air bearing module, 75 mm motion platform diameter, 38 mm bearing journal length

A-602.038H

PIglide RT rotary air bearing module, 75 mm motion platform diameter, 38 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-602.038M

PIglide RT rotary air bearing module, 75 mm motion platform diameter, 38 mm bearing journal length, mounting base

A-603.025

PIglide RT rotary air bearing module, 100 mm motion platform diameter, 25 mm bearing journal length

A-603.025H

PIglide RT rotary air bearing module, 100 mm motion platform diameter, 25 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-603.025M

PIglide RT rotary air bearing module, 100 mm motion platform diameter, 25 mm bearing journal length, mounting base

A-603.050

PIglide RT rotary air bearing module, 100 mm motion platform diameter, 50 mm bearing journal length

A-603.050H

PIglide RT rotary air bearing module, 100 mm motion platform diameter, 50 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-603.050M

PIglide RT rotary air bearing module, 100 mm motion platform diameter, 50 mm bearing journal length, mounting base

A-604.050

PIglide RT rotary air bearing module, 150 mm motion platform diameter, 50 mm bearing journal length

A-604.050H

PIglide RT rotary air bearing module, 150 mm motion platform diameter, 50 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-604.050M

PIglide RT rotary air bearing module, 150 mm motion platform diameter, 50 mm bearing journal length, mounting base

A-604.090

PIglide RT rotary air bearing module, 150 mm motion platform diameter, 90 mm bearing journal length

A-604.090H

PIglide RT rotary air bearing module, 150 mm motion platform diameter, 90 mm bearing journal length, mounting base, with A/B quadrature signal transmission

A-604.090M

PIglide RT rotary air bearing module, 150 mm motion platform diameter, 90 mm bearing journal length, mounting base

A-605.065

PIglide RT rotary air bearing module, 200 mm motion platform diameter, 65 mm bearing journal length

A-605.065H

PIglide RT rotary air bearing module, 200 mm motion platform diameter, 65 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-605.065M

PIglide RT rotary air bearing module, 200 mm motion platform diameter, 65 mm bearing journal length, mounting base

A-605.100

PIglide RT rotary air bearing module, 200 mm motion platform diameter, 100 mm bearing journal length

A-605.100H

PIglide RT rotary air bearing module, 200 mm motion platform diameter, 100 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-605.100M

PIglide RT rotary air bearing module, 200 mm motion platform diameter, 100 mm bearing journal length, mounting base

A-607.075

PIglide RT rotary air bearing module, 300 mm motion platform diameter, 75 mm bearing journal length

A-607.075H

PIglide RT rotary air bearing module, 300 mm motion platform diameter, 75 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-607.075M

PIglide RT rotary air bearing module, 300 mm motion platform diameter, 75 mm bearing journal length, mounting base

A-607.175

PIglide RT rotary air bearing module, 300 mm motion platform diameter, 175 mm bearing journal length

A-607.175H

PIglide RT rotary air bearing module, 300 mm motion platform diameter, 175 mm bearing journal length, mounting base, rotary encoder with A/B quadrature signal transmission

A-607.175M

PIglide RT rotary air bearing module, 300 mm motion platform diameter, 175 mm bearing journal length, mounting base