



Non-Motorized Linear Air Bearing Slides

RAB Series

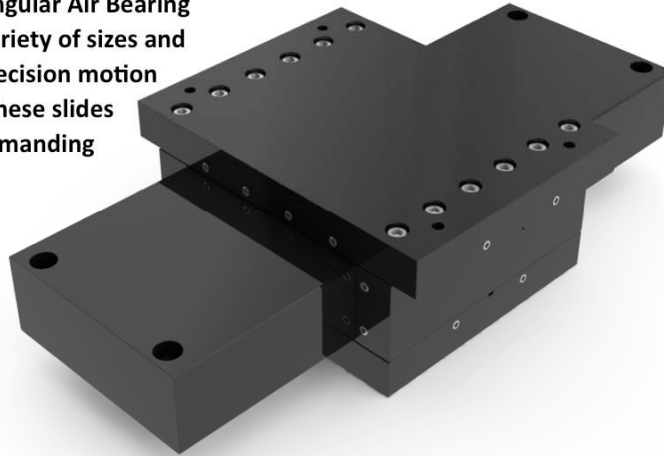
RAB Series Linear Rectangular Air Bearing Slides are offered in a variety of sizes and load capacities. Ultra-precision motion and smoothness make these slides perfect for a range of demanding applications.

Features:

- Table Size up to 12 x 12 in
- Travel up to 36"
- 1700 lbs max load
- Straightness/Flatness to $\pm 50 \mu\text{m}$
- Repeatability to $\pm 2 \mu\text{m}$
- Stictionless/Frictionless
- Zero-maintenance - no lubrication
- Cleanroom compatible
- Ultra-Precision Unibody Air Bearing Construction
- Axes can be stacked for XY operation or operate vertically

Applications:

- Positioning
- Scanning
- Metrology
- Inspection
- Calibration
- Clean Rooms



Overview

If your application requires smooth, precise linear motion our RAB series linear rectangular air bearings are right for you. These bearings can easily replace ball bearing and crossed roller bearing slides and are simple to integrate and use. They offer better straightness, angular deviation and repeatability than ball bearing slides, especially for travel lengths over 4".

Dynamic and Static Performance

Because air bearings are inherently frictionless they do not exhibit breakaway or running friction, even under their maximum loading. Finally, the totally noncontact, clean nature of air bearings means that they are virtually maintenance free and their accuracy won't degrade over time due to wear. Designed to meet the demanding needs of precision production facilities, these systems are equally suited to laboratory environments where flexibility and ease of use are critical.

Slide Mounting

Accurate mounting surfaces are critical to proper operation of the air bearing slide. Because this is an end supported slide, the two mounting surfaces at each end of the sliderbar need to be flat and coplanar or the straightness and accuracy of the slide will be compromised. Mounting surface flatness must be 0.0001" between the mounting surfaces. For the highest accuracy, we recommend having Nelson Air integrate the bearing onto the mount for testing and adjustment. Nelson Air can also provide accurate mounting surfaces made from granite, aluminum and cast iron.

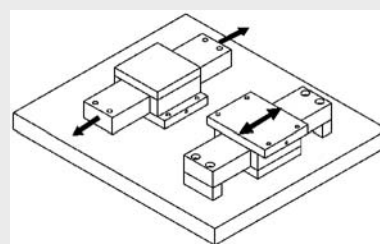
Customization and Systems

RAB Air Bearing Slides can be modified with a variety of options to suit any application. These modifications range from custom mounting hole patterns to integration of multiple axes for XY positioning. Fully preloaded air bearings allow these slides to operate in any orientation and a pneumatic counterbalance can be fitted for vertical operation.

Options and Accessories:

- Protective Bellows
- XY Multi-Axis Assemblies with precision alignment
- Pneumatic Counterbalance for vertical operation
- Rotary axes for direct integration
- Granite Bases and vibration isolation stands
- Air Handling Assemblies and Fittings

Nelson Air prides itself on providing high quality positioning solutions for its customers. Please contact us for more information.



Flexible Design: Depending on the application, you can design your system to have the air bearing carriage or the slider bar move.

Nelson Air Corp.

precision air bearing positioning

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> Stage Specifications

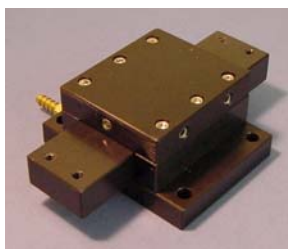
Model	Slider Bar	Carriage		Travel	Load Capacity	
	Width x Height	Length	Weight	Standard Lengths	Normal	Transverse
RAB1	1.00 x 0.50 in	2.00 in	0.4 lbs	2, 4, 6, 8 in	30 lbs	15 lbs
RAB1S	1.00 x 1.00 in	2.00 in	0.5 lbs	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 in	30 lbs	30 lbs
RAB2	2.00 x 1.00 in	3.00 in	1.4 lbs	2, 4, 6, 8, 10, 12 in	90 lbs	45 lbs
RAB2S	2.00 x 2.00 in	3.00 in	1.7 lbs	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 29, 30, 32, 34, 36 in	90 lbs	90 lbs
RAB3	3.00 x 1.25 in	4.00 in	3.0 lbs	2, 4, 6, 8, 10, 12, 14, 16, 18 in	180 lbs	80 lbs
RAB4	4.00 x 1.5 in	5.00 in	5.3 lbs	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 in	290 lbs	110 lbs
RAB6	6.00 x 1.75 in	7.00 in	10.0 lbs	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 29, 30, 32, 34, 36 in	600 lbs	180 lbs
RAB10	10.00 x 3.00 in	12.00 in	45.0 lbs	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 in	1700 lbs	500 lbs

Note: Load Capacity Listed is at 60 psi. Max operating pressure is 80 psi. Load Capacity at 80 psi is 1.33 times the listed capacity.

> Accuracy Specifications

Option		A1	A2	A2
Maximum Travel		12 in	24 in	36 in
Repeatability		±2 μin	±2 μin	±2 μin
Straightness and Flatness	Local	±10 μin/in	±20 μin/in	±25 μin/in
	Maximum Deviation	±50 μin	±100 μin	±200 μin
Pitch/Roll/Yaw	Local	0.25 arc-sec/in		
	Maximum	±1.0 arcsec	±2.0 arcsec	±3.0 arcsec

Note: Accuracy specifications are dependent on load, travel, bearing size and forces on the bearing. Please consult Nelson Air for application specific accuracy numbers.

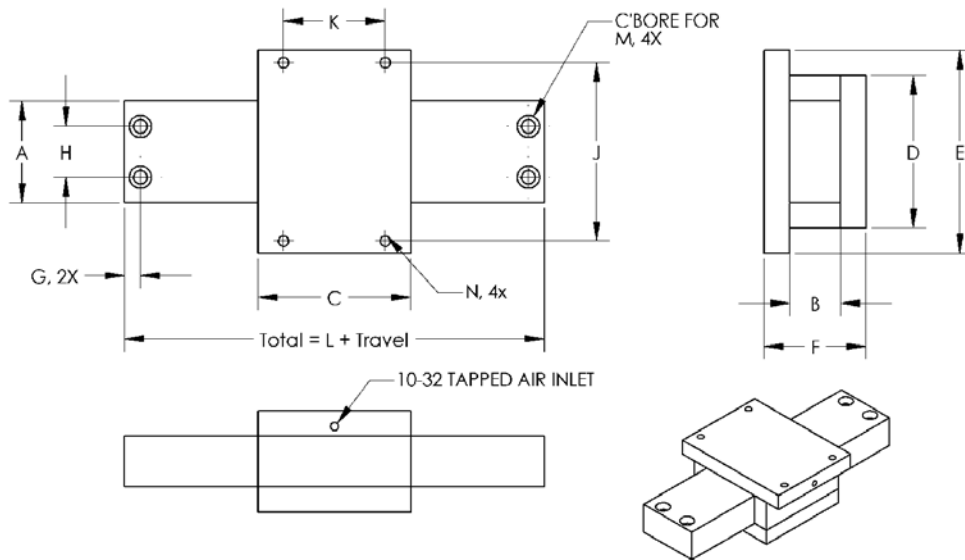


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> RAB Dimensions



Model	A	B	C	D	E	F	G	H	J	K	L	M	N
RAB1	1.000	0.500	2.000	1.750	2.500	1.250	0.188	0.625	2.125	1.500	2.750	#6 SHCS	#8-32
RAB1S	1.000	1.000	2.000	1.750	2.500	1.750	0.188	0.625	2.125	1.500	2.750	#6 SHCS	#8-32
RAB2	2.000	1.000	3.000	3.000	4.000	2.000	0.313	1.000	3.500	2.000	4.250	1/4 SHCS	1/4-20
RAB2S	2.000	2.000	3.000	3.000	4.000	3.000	0.313	1.000	3.500	2.000	4.250	1/4 SHCS	1/4-20
RAB3	3.000	1.250	4.000	4.250	5.250	2.500	0.313	1.500	4.750	3.000	5.250	1/4 SHCS	1/4-20
RAB4	4.000	1.500	5.000	5.500	5.500	3.000	0.313	3.000	4.750	3.250	6.250	1/4 SHCS	1/4-20
RAB6	6.000	1.750	7.000	7.500	7.500	3.250	0.313	5.000	6.750	5.000	8.250	1/4 SHCS	1/4-20
RAB10	10.000	3.000	12.000	12.000	12.000	5.500	0.313	9.000	11.000	9.500	13.250	1/4 SHCS	1/4-20

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