

WHAT ARE AIR BEARINGS?

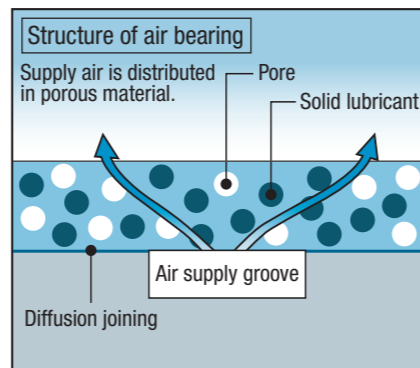
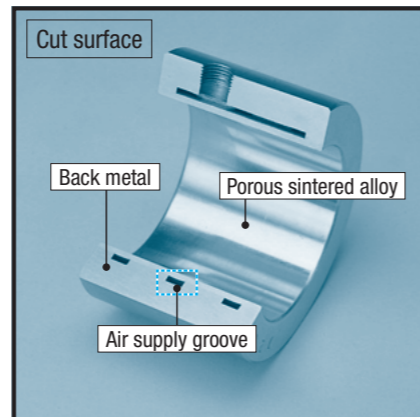
High-Performance and Compact OAB (Oiles Air Bearings) Featuring High Accuracy, High-Speed and Very Low Friction

Air film is produced between the shaft and bearing to achieve non-contact movement. This yields various advantages.

The OAB is free from stick slip caused by solid friction and applicable to high-speed rotation and features high precision due to averaging effect of air. It is applicable to high temperature.

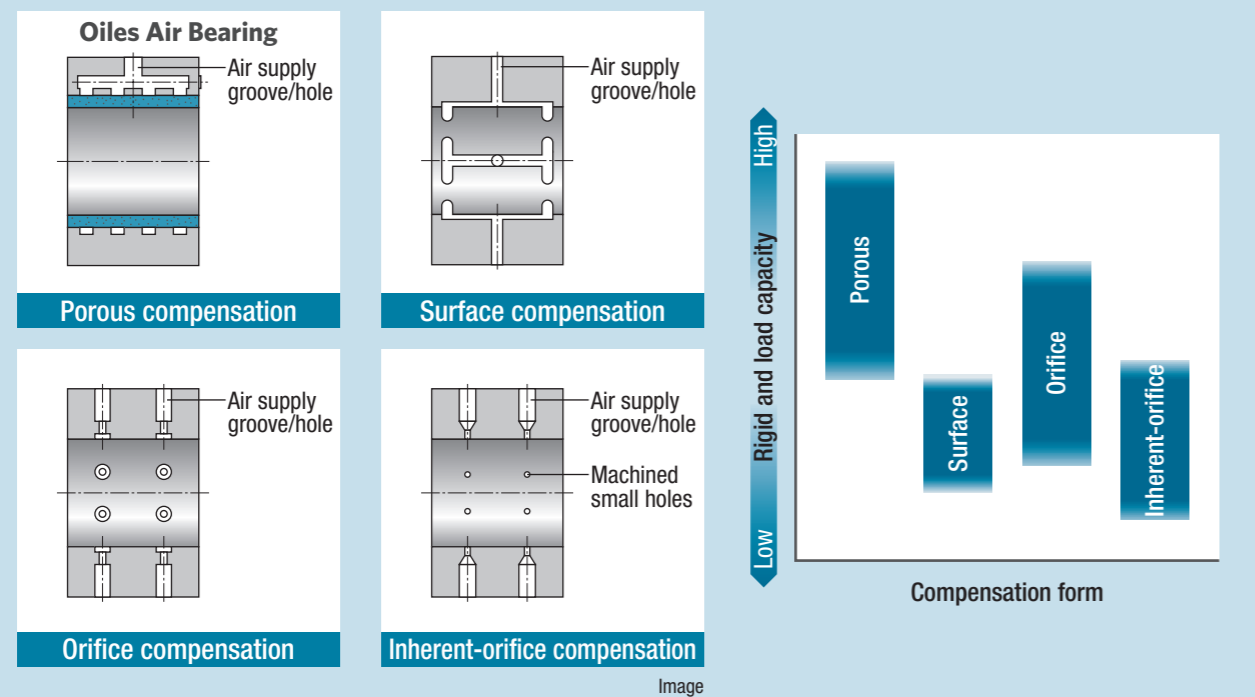
Advantages of OAB (Oiles Air Bearings)

High Performance	Originally developed porous material allows optimum compensation. Demonstrates high load performance and high bearing rigidity.
Customization	<ul style="list-style-type: none"> The flow rate may be adjusted easily by material design. High-rigidity types, high-speed types and other various types may be made according to applications. May be made in various shapes.
Safety	Oil-less bearings are hard to seize even under the solid body contact condition, feature superior safety, and are easy to handle.
Economical	The OAB can reduce the flow rate remarkably in comparison with inherent-orifice or orifice compensations, resulting in air source saving and running cost reduction.
Environment	The OAB is applicable to clean rooms.



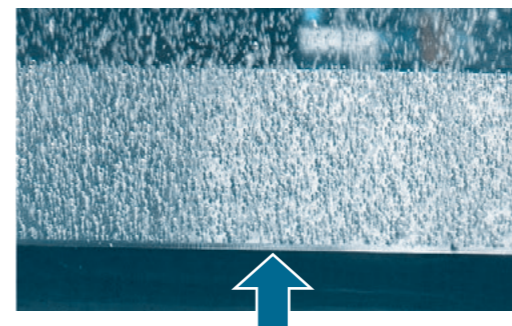
Image

Forms of General Air Bearings



Image

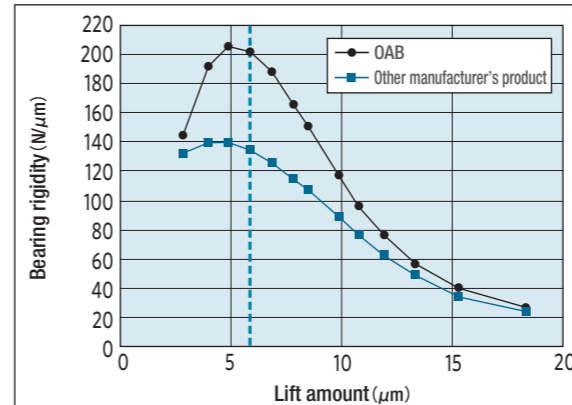
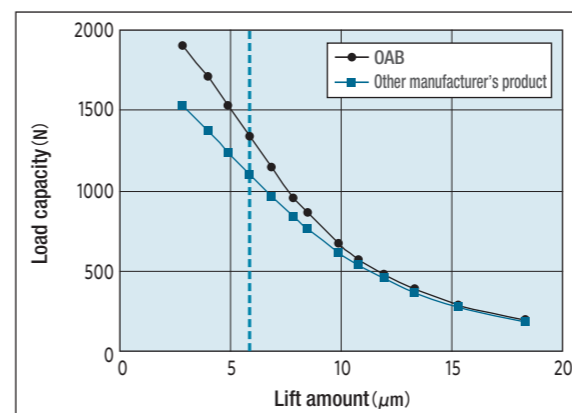
State of supply air blowing in water



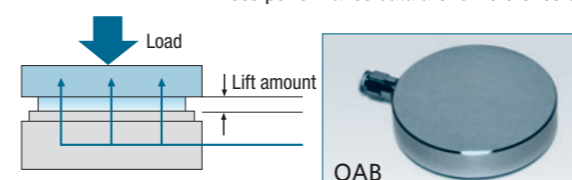
Supply air is obtained uniformly through minute pores all over the bearing surface.

Performance comparison tests with disc bearings and other manufacturers' porous materials

Comparison tests of bearing performance values
 Bearing surface diameter: $\phi 78$ mm
 Supply air pressure (gauge pressure): 0.5 MPa

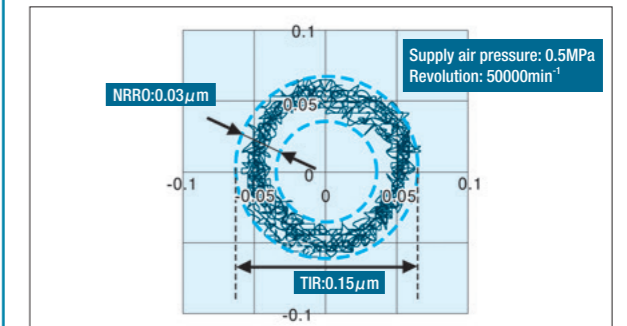


* These performance data are for reference only.



If the lift amount is 6 μm , for example, the Oiles Air Bearing demonstrates approximately 1.5 times as large rigidity and approximately 1.2 times as high load capacity as other manufacturer's product.

Measurement accuracy of rotational fluctuation of air spindle



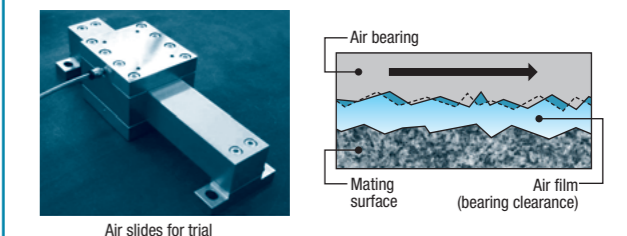
Measured number of turns: 10 turns



State of measurement (Non-contact type electrostatic displacement gauge is used.)

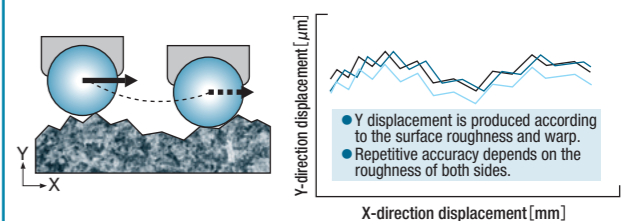
Linearity, vibration and reproducibility of air slide

Averaging effect: Air film averages surface roughness.

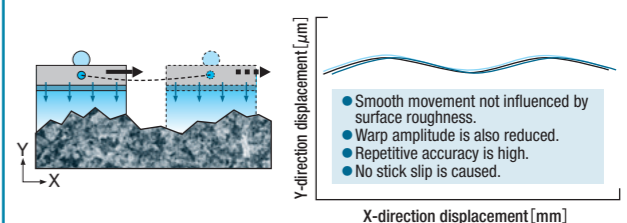


Air slides for trial

Movement of contact type



Movement of non-contact type (air bearing)



Better than contact type slide

➔ Suitable to precision instruments for precision measurement, inspection, etc. requiring high reproducibility.