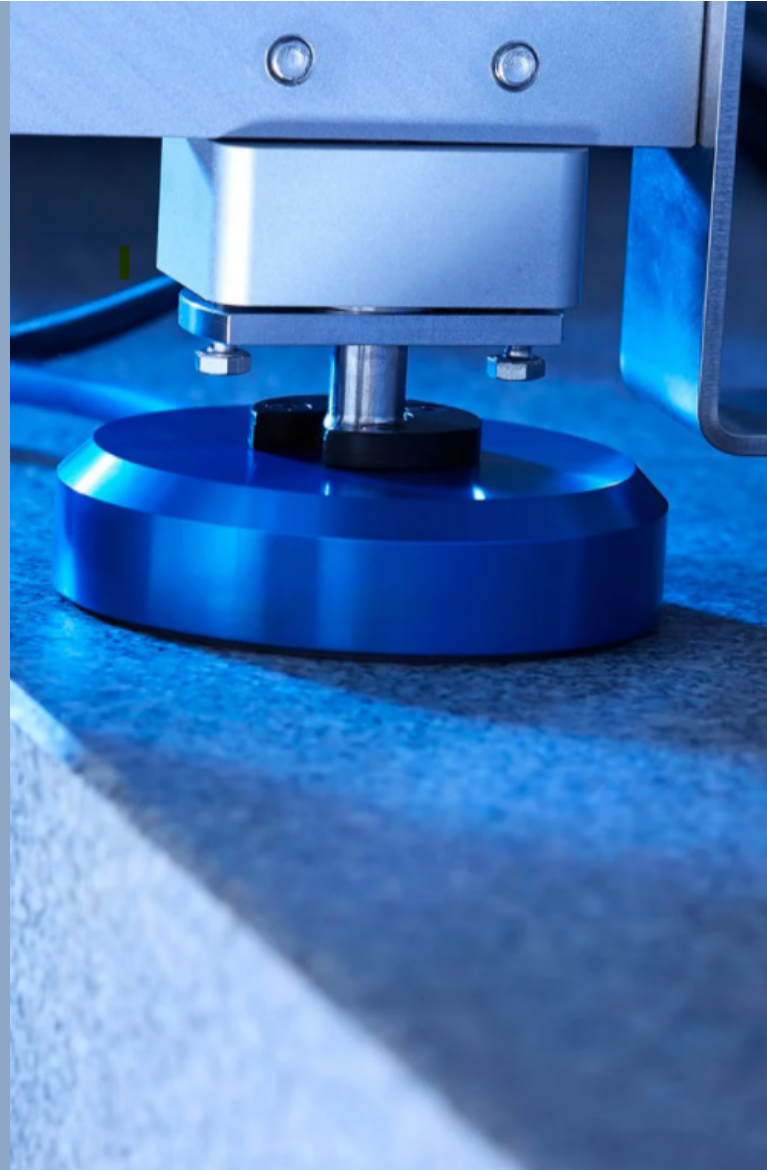


Air Bearings



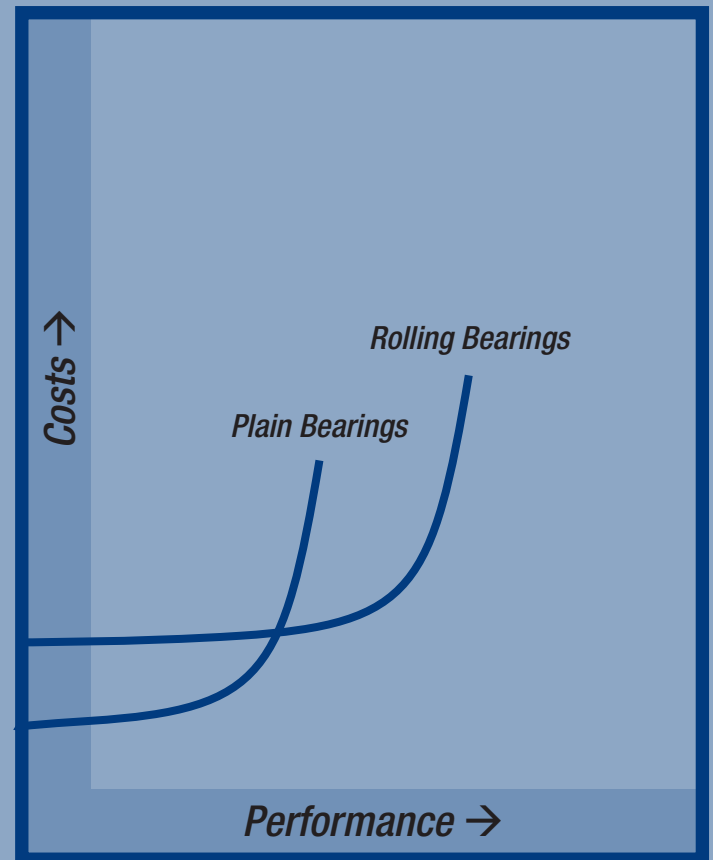
Understanding Air Bearings

Applying the **right bearing technology** is a constant challenge for mechanical engineers and systems architects.



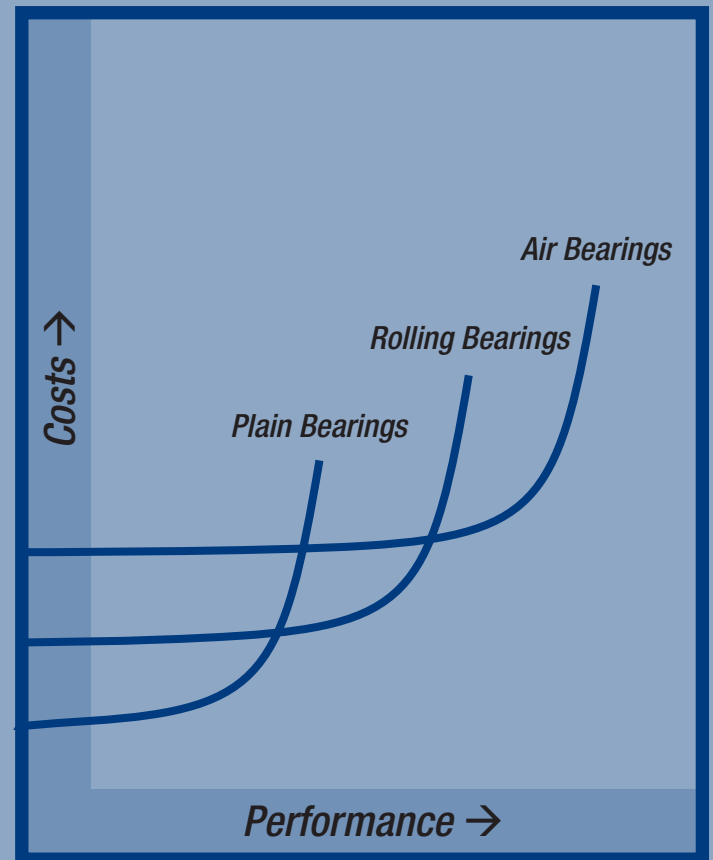
Understanding Air Bearings

Rolling element bearings developed in the last century were a revolutionary improvement over plain bearings that had been pushed to their limits in applications like electric motors and automobile wheels.



Understanding Air Bearings

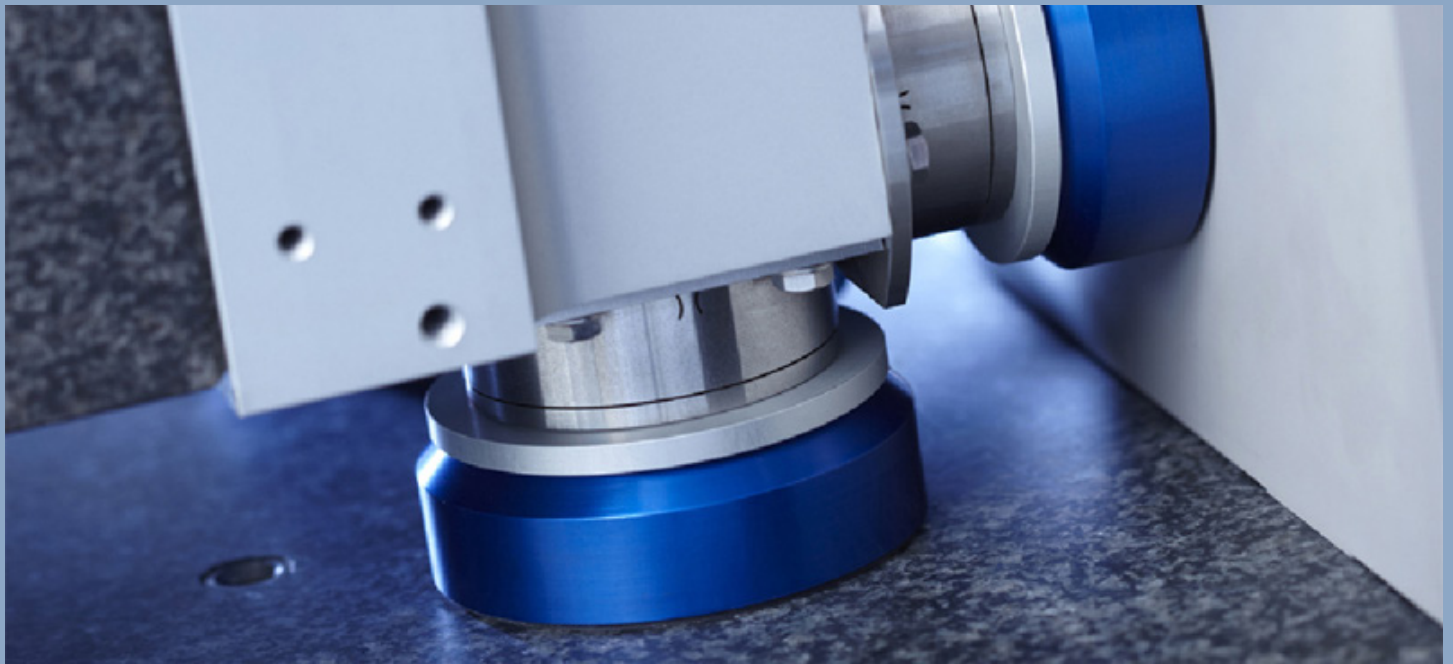
Non-contact air bearings represent the next logical step in bearing design. The many technical advantages such as near **zero friction and wear, high speed and high precision capabilities, and no oil lubrication requirements** are powerful advantages for today's machine designers.



Understanding Air Bearings

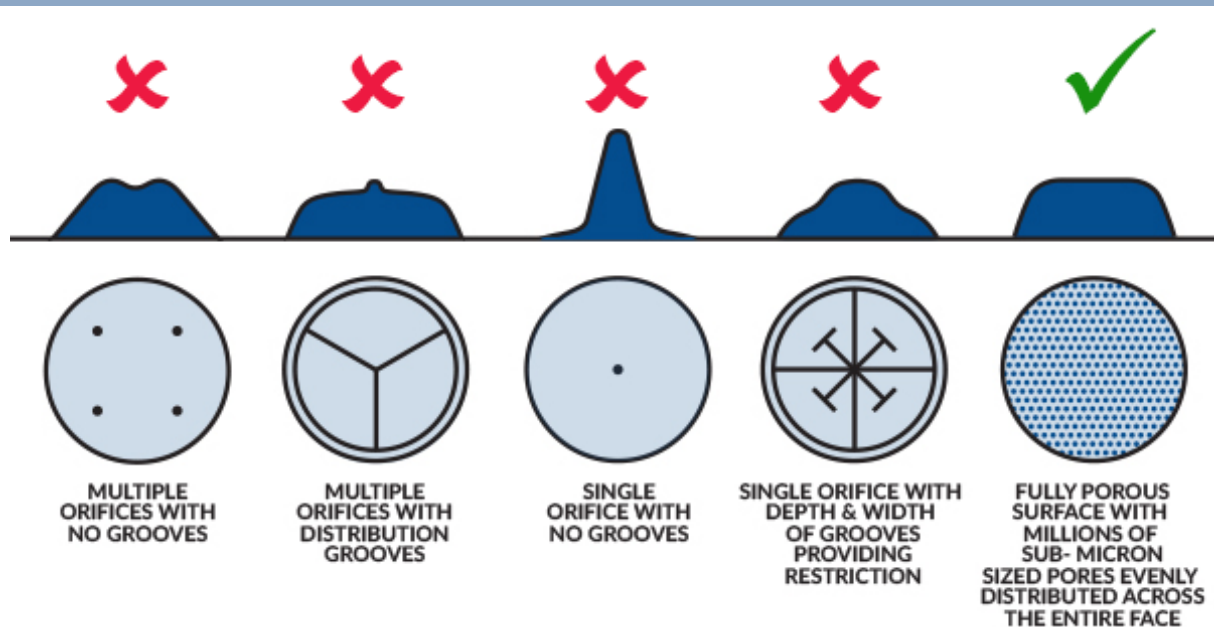


Unlike contact roller bearings, air bearings utilize a **thin film of pressurized air** to provide a **zero friction load bearing interface** between surfaces that would otherwise be in contact with each other.



Understanding Air Bearings

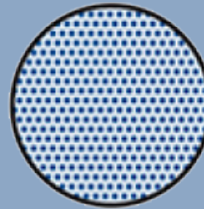
An ideal air bearing supplies air pressure equally across the face of the bearing, while automatically restricting and damping airflow at the same time. Unlike orifice air bearings, **porous media air bearings** check all boxes.



Understanding Air Bearings

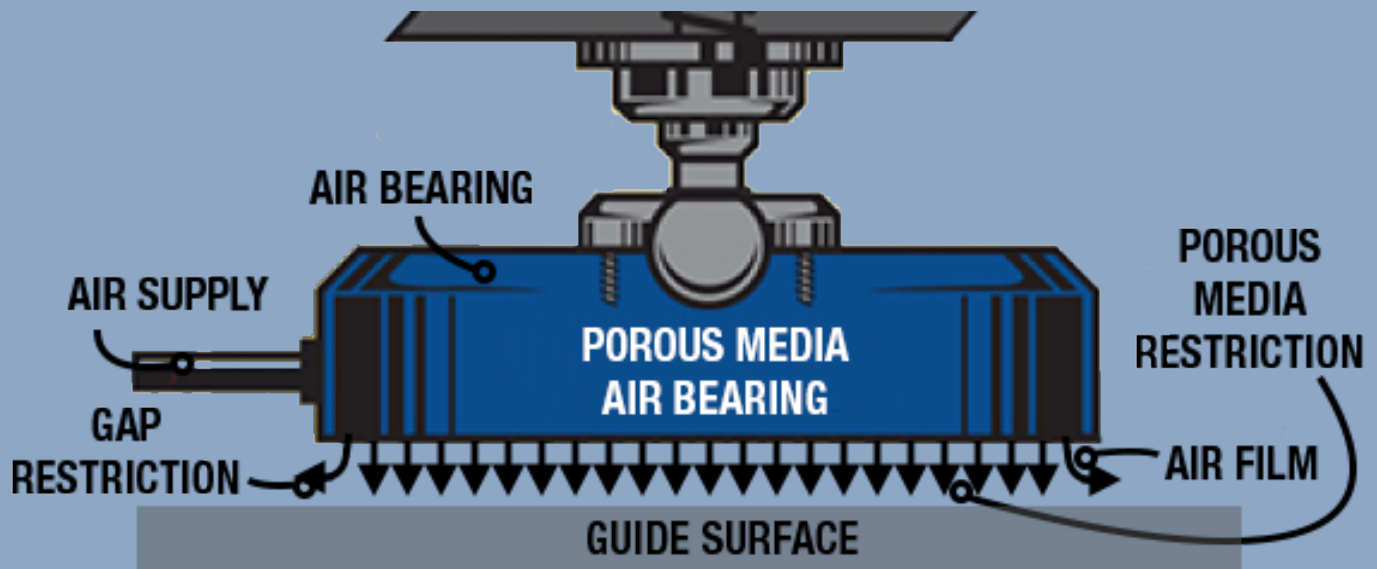
Porous media air bearing:

By diffusing air through millions of sub-micron holes in the carbon, a perfectly even pressure gradient is created, which simultaneously resists changes to the volumetric flow of air, resulting in a damping effect that creates a naturally stable air bearing.



Understanding Air Bearings

To reduce flying height and air consumption and to obtain a higher stiffness, air pressure is supplied to the **gap with restriction**. This air bearing compensation is used to optimize the bearing with respect to lift, load, and stiffness for particular applications.



Understanding Air Bearings

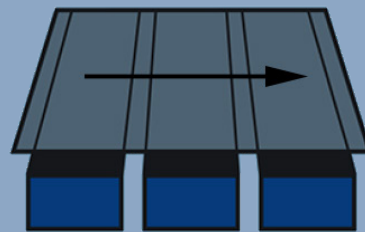
Air Bearings are used in a **variety of applications** including: Coordinate Measuring Machines, Precision Machine Tools, Semiconductor Wafer Processing, Medical Machines, Optical Lens Production Equipment, Digital Printers, Lithography, Precision Gauging, Diamond Turning Machines, Materials Testing Machines, Crystal Pulling, Rotary Tables, Spindles, and Friction Testing.



LINEAR MOTION



ROTARY MOTION



NON- CONTACT HANDLING



SEALING & BALANCING

Understanding Air Bearings



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