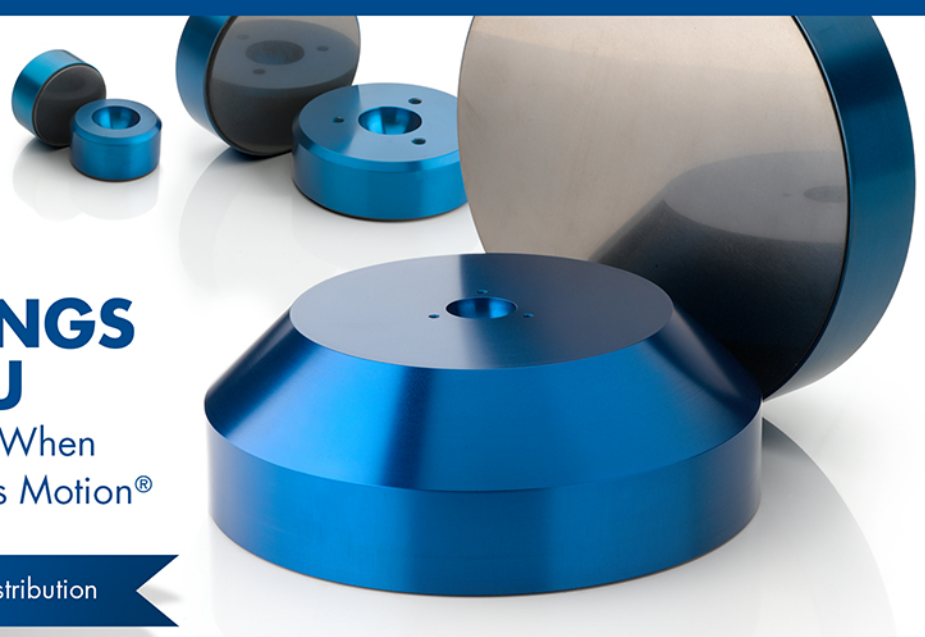
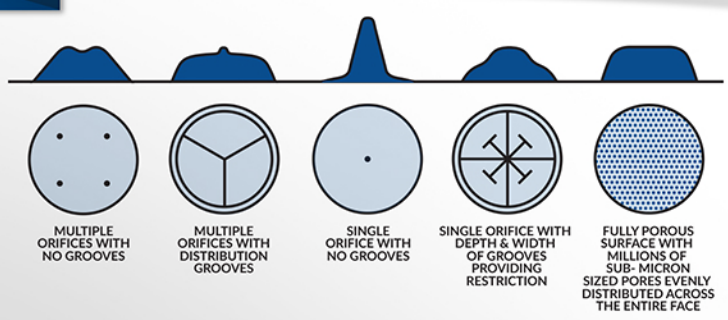
NEWWAY®
air bearings



WHAT POROUS MEDIA AIR BEARINGS CAN DO FOR YOU

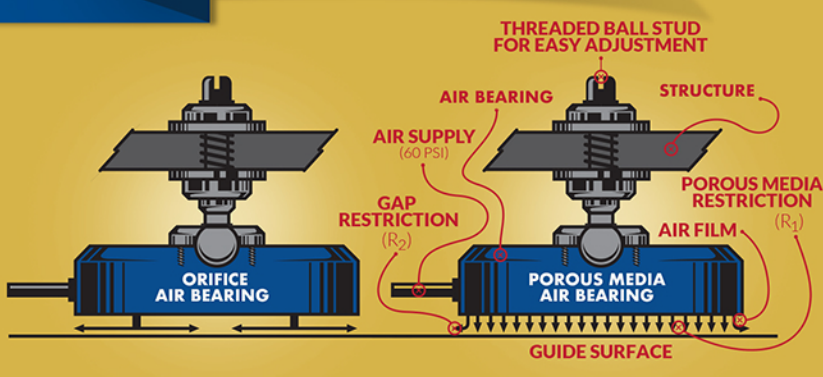
Deliver High-Performance Solutions When You Apply the Benefits of Frictionless Motion®

A COMPARISON: Porous Media vs. Orifice Distribution



Orifice air bearings suffer from uneven pressure gradients, and complex distribution schemes struggle to compensate for the inherent inefficiencies. Porous media bearings distribute air evenly and maintain a near-uniform pressure profile across the entire bearing face.

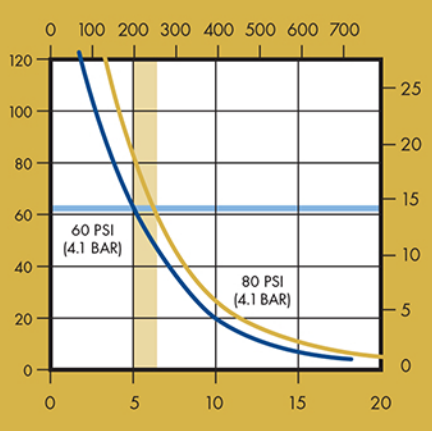
COMPARING TECHNOLOGIES: Lift Force in the Air Gap



When grounded, orifice air bearings have minimal pressurized area to establish initial lift. Complicated fixtures and set up procedures are required to reset the machine, and the ability to effectively preload the bearing is limited. Porous air bearings pressurize the face uniformly even when grounded, inviting novel preload schemes and allowing machines to be restarted with ease.

POROUS MEDIA TECHNOLOGY

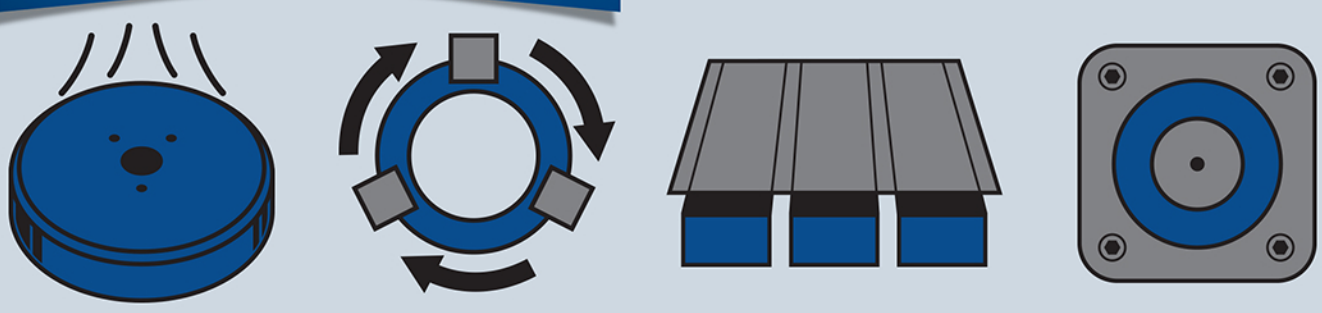
New Way Porous Media™ Technology distributes air evenly through millions of sub-micron sized pores across the entire bearing face. This is easily demonstrated by holding the bearing underwater.



Lift-Load Curves are available for every New Way product, making it easy to specify precisely the right air bearing for your application.

- Ideal Load
- Recommended Operating Range
- 60 PSI
- 80 PSI

AIR BEARING APPLICATIONS



LINEAR MOTION | ROTARY MOTION | NON-CONTACT HANDLING | SEALING & BALANCING

THE BENEFITS OF POROUS MEDIA AIR BEARINGS

ZERO FRICTION
Unlike conventional rolling element bearings, porous media air bearings are non-contact, stiction-free, and provide almost infinite resolution and repeatability.

ZERO WEAR
Rolling element bearings wear over time from mechanical contact, resulting in inconsistent machine performance. With porous media air bearings there is no contact, so no wear, just consistent performance.

STRAIGHTER MOTION
Mechanical point-contacts within rolling element bearings trace any surface and dimensional imperfections into the path of motion. Porous media air bearings float over these imperfections, averaging the surface and eliminating the need to compensate for erratic tracking.

SMOOTH AND SILENT OPERATION
The motion of the balls within a conventional rolling element bearing is noisy and causes velocity ripples. This compromises stability and impacts performance. Without contact or competing forces, porous media air bearings provide smooth, silent motion.

HIGHER DAMPING
Porous media air bearing's squeeze film damping effect delivers high dynamic stiffness and better controllability.

NO LUBRICATION
Porous media air bearings ride on a cushion of air, so unlike conventional rolling element bearings there is no need for lubricants and no accompanying maintenance hassle or lubricant migration issues.

HIGH SPEED
As a result of non-contact and no moving parts, porous media air bearings can typically achieve speeds which are an order of magnitude higher than conventional rolling element bearings.

HIGH ACCELERATION
Porous media air bearings offer a non-contact, high-acceleration solution, in contrast to conventional rolling element bearings which are hampered by the rotational inertia of their moving parts.

PRECISION POSITIONING
Zero static friction and surface averaging effects make porous media air bearings ideal for true nano-precision positioning.

USE OF POROUS MEDIA AIR BEARINGS IS WIDESPREAD

METROLOGY
Where zero friction performance facilitates ultra-precision motion and positioning.

AUTOMOTIVE
Frictionless dynamic testing enables manufacturers to get an 'honest read' on their equipment.

FLAT PANEL DISPLAY
Non-contact glass-handling for automated optical inspection applications.

MEDICAL
Facilitates the high-speed, non-contact rotation of x-ray assemblies for patient imaging.

OPTICS
Ultra-precision positioning and motion, with no lubricants or wear, for demanding optical applications.

OIL AND GAS
Externally-pressurized bearing and sealing solutions for improved reliability and process uptime.

SEMICONDUCTOR
For high speed, short-stroke precision with repeatable sub-micron positioning, in cleanroom environments.

CONVERTING
Active, non-contact handling of flexible substrates during roll-to-roll production, reducing defects and contamination and allowing coating on both sides.

AEROSPACE
Simulation of weightless conditions for the testing of satellite deployment and other mission-critical components.

HIGH-END AUDIO
Precision linear motion maintains stylus perpendicularity for pristine record groove tracking.