

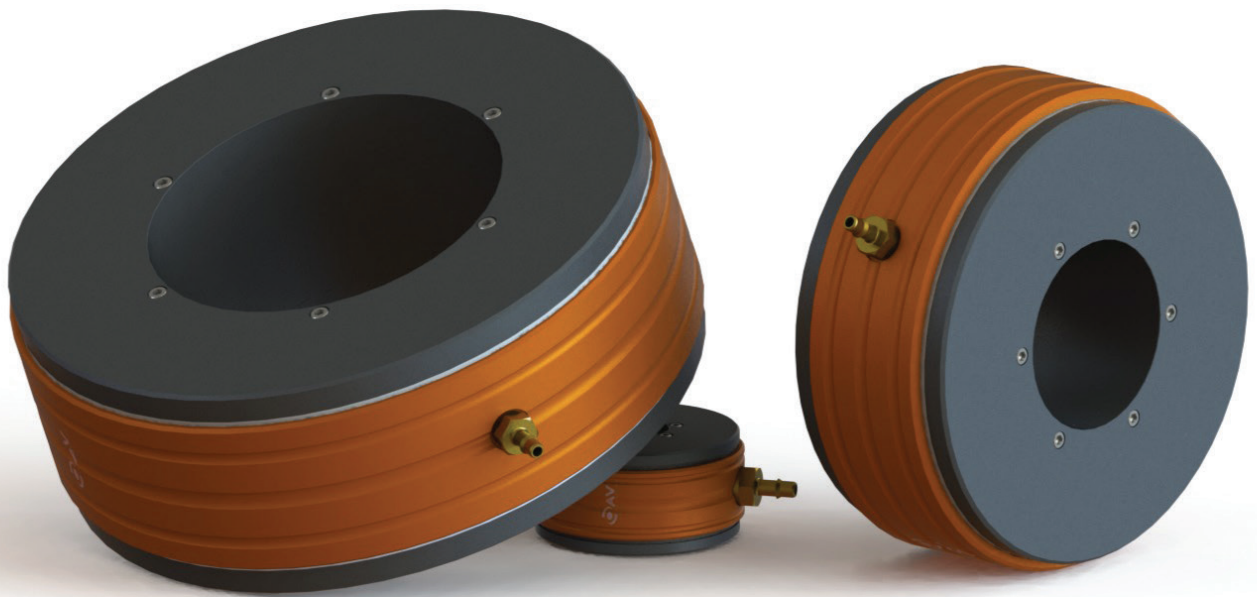
Murat Erturk,
*Chief Executive / Lead Innovation and
Technology at OAV Air Bearings and
Chairman of the Board at OAVCO*





OAV Air Bearings

for nanonewton and micro force control
applications and testing



Micro and nano-scale sensing became of primary importance for efficient characterization of nanostructures such as semiconductors, micro-robotics, biomechanics, CMM machines, and so on. This is one of the major achievements in the air bearing industry, and OAV focuses particularly on the evolution of measurement technologies regarding the requirements for micro-robotics applications, semiconductors, and CMM machines. We had a brief discussion about the latest developments regarding these high-tech air bearings with Murat Erturk, the Chief Executive / Lead Innovation and Technology at OAV Air Bearings and Chairman of the Board at OAVCO.

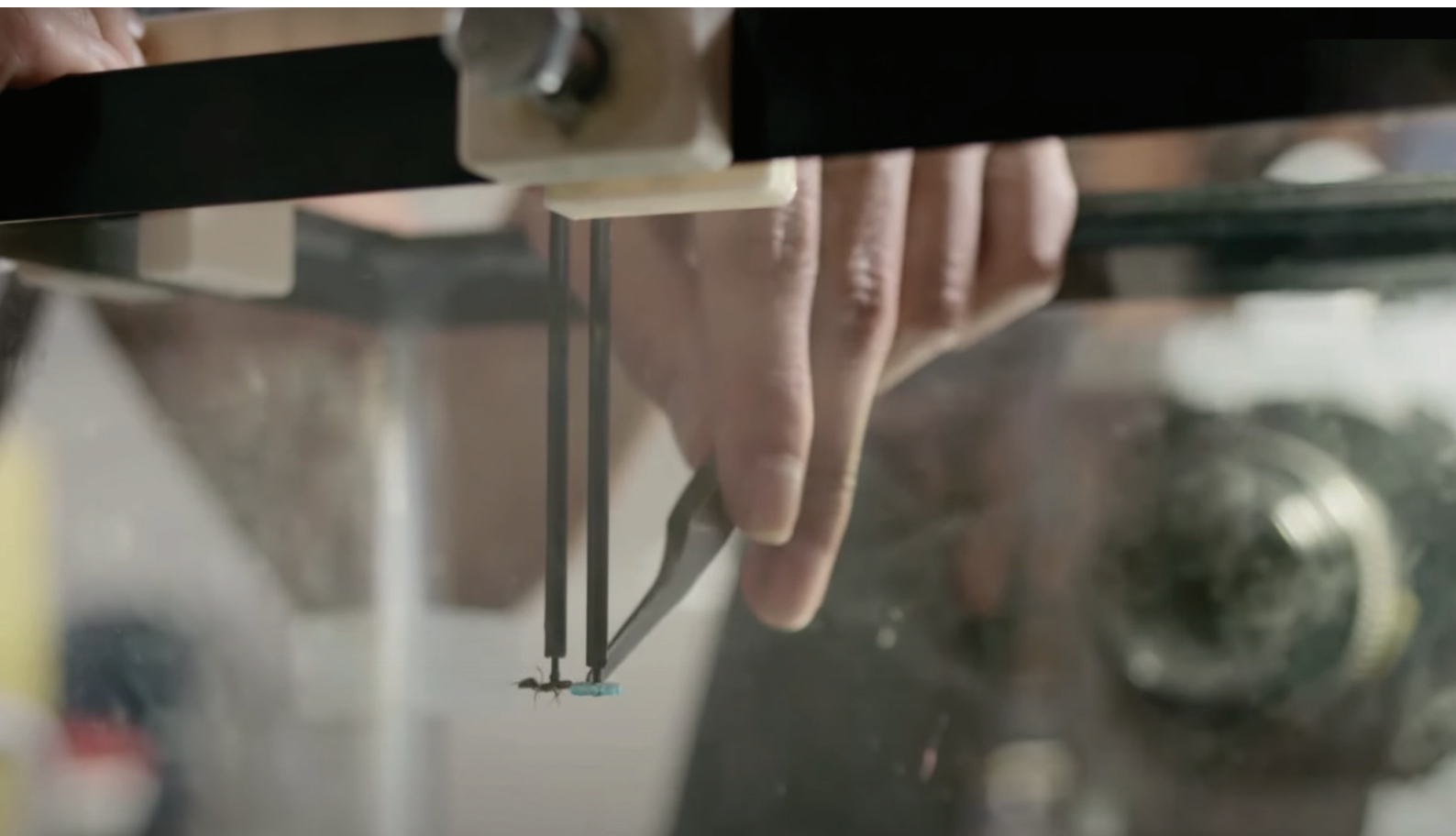
Measuring forces below the micronewton level for the manipulation of highly complex materials, embedding force sensors within microgrippers to increase dexterity and reducing the influence of

external noise to improve measurement resolution are among some of OAV's most recent successes. Generally, a guidance task can be done with or without direct mechanical contact between

the object and the system. Contactless guidance techniques have the advantage of not generating forces of adhesion between the object and the system. OAV Air Bearings are essentially

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frictionless, and when coupled with a direct drive motor or a voice coil, they become ideal for nanonewton and micro force controlled applications. Our current focus is the development of techniques dedicated to measuring and testing physical properties of certain objects.

How are air bearings and nanotechnology changing the world?

Nanonewton and micro force-controlled applications are becoming increasingly common in today's world as technological advancements require refined forms of motion, measurement, and accuracy. Newer and more efficient innovations are necessary to accommodate advancements in technology. Air bearings have become essential in precision coordination at nano levels, which in turn has opened pathways to newer and more innovative advancements. Nano technology requires the manipulation of molecules and atoms

and is critical in creating advancements in many fields including health care, science, energy, and many others. Air bearings play a crucial role in providing for the efficiency in nanoscale technology. Their stability and zero-friction motion allows for the air bearings to provide precision required in many applications. Additionally, the use of air bearings in applications related to the advancement of equipment for metrology and precision at the sub-micron level ensures an extremely low likelihood of error and provides incredible precision.

Nanotechnological applications are becoming increasingly popular in today's world, and many applications rely on air bearings due to their stability, precision, and zero-friction motion at the submicron level.

Here is an interesting case study at www.oavco.com/case-studies. By replacing the traditional roller bearing at the fulcrum

of the dual rigid pendulum test assembly with the OAV Air Roller Bearing, customer was able to overcome the hurdle presented by traditional bearings in collecting quality test data. "friction has a large effect on energy measurement at these scales (micro-joules) ...and...the amount of energy measured using the OAV air bearings is at least six times greater than when we used traditional ball bearings."

OAV Air Bearings are nearly frictionless, and when coupled with a direct drive motor or a voice coil, they become ideal for nanonewton and micro force-controlled applications. OAV's new 100,000 sq ft Motor and Mechatronics Center of Excellence facility is currently focused on serving our customers with applications for micro-forced controlled testing at the nanonewton level.

Visit www.oavco.com for more information.