Modular Air Bearings Designed Specifically for FPD Manufacturing

New Way Air Bearings now offers a line of three modular air bearing products specifically designed to meet the glass-handling requirements of the Flat Panel Display (FPD) manufacturing process. This line includes flat panel conveyor air bearings for floating glass in high speed applications, low airflow applications, and for applications under or near precision processes. These solutions provide significant advantages over conventional contact bearings or orifice-based air bearings, especially for coating or AOI applications in Gen-9 or higher manufacturing lines. Superior stiffness provides for faster settling time and higher yield, without the scratching or breakage typical of competitive systems. And the larger the glass size, the bigger the advantage.
FPD CONVEYOR AIR BEARINGS
The New Way Product Line

High Speed Conveyor Air Bearing
New Way engineered this High Speed Conveyor Air Bearing to provide improved non-contact control of FPD glass at high process speeds. For the best control, air gaps should be less than 50 microns. New Way applies large amounts of vacuum area for strong downward forces on the glass, maintaining the smaller air gap necessary for higher stiffness and improved damping. The large, attractive forces give excellent flattening ability that helps maintain control of the glass.

Low Airflow Conveyor Air Bearing
New Way’s Low Flow Conveyor Air Bearings provide non-contact control optimized for low airflow requirements. The difficulty with high fly-heights of greater than 50 microns is that they typically result in low air film stiffness (less control) unless they also have correspondingly high pressures and flows. By plumbing most of the porous media face with low pressure air, and with high pressure air only around the vacuum holes, the flow requirements are greatly reduced. The periodic high pressure areas, preloaded by the vacuum, create high stiffness points which stabilize the glass dynamics even at high air gaps and low air consumption.

Porous Media Precision Chuck
New Way Porous Media Precision Chucks are engineered for use under or near precision FPD glass processes. They provide a much higher level of precision, stiffness, and damping than traditional air conveyors. The vacuum holes are designed so that, with air pressure on, the flow through a vacuum hole is the same whether there is glass over it or not. Simple and smart. This also means that as the glass comes on and off the chuck, the vacuum pressures and air gaps remain the same.

The Advantages of Porous Media
Unlike conventional orifice compensation, New Way Porous Media Air Bearings control the airflow across the entire bearing surface through millions of holes in the porous material. Porous carbon has been found to be one of the best materials for this purpose, producing an ideal supply of uniform air pressure across the face of the bearing while automatically restricting and damping the air flow at the same time. The carbon surface also provides greater bearing protection if there is an air supply failure, and allows the bearings to be moved during air failure without damaging the support surface.