

PBC Linear Uni-Guide Shines in Wafer Manufacturing

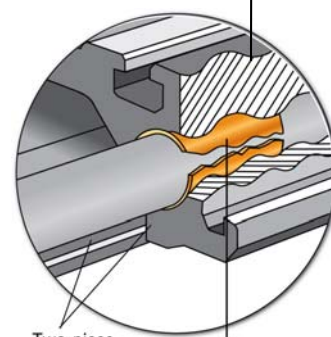
For over 25 years, PBC Linear has developed working relationships with its customers to help them save money and time by customizing PBC Linear products to their needs. From simple pillow block modification to complex linear slides and stages, PBC Linear delivers on its expertise, allowing the customer to benefit with cost savings and rapid time to market! Class 10 clean rooms—the norm for semiconductors and medical automation—are areas where the Simplicity® technologies exceed all expectations. In these surroundings, PBC Linear's proven smooth moving Simplicity technology requires no lubrication, emit small amounts of particulate, and last for years!

This automation company manufactures silicon wafers and handling equipment that is housed and operated in extremely clean environments. Wafers are stacked in a cassette which is housed in a SMIF Pod for safe transport between processes. The SMIF Pods provide a mini-environment (class 1) to prevent contamination and are the temporary home of the wafers during their processing. The SMIF Pods are attached to a Pod elevator which allows the robot servicing the processing tool to horizontally pick and place the wafer into the tool.

Smooth vertical movement of the elevator POD is essential to prevent the wafer in the cassette from vibrating free or out of position for the robot. Either of the aforementioned conditions could have serious consequences. Destroying the batch of wafers could cost hundreds of thousands of dollars. Although the mini-environment protects the wafers, it is necessary that the environment they reside in remain clean (Class 10) to avoid any contamination during the exterior loading and unloading process. Micro processors and other IC Chips computational power become a function of the density of the etching of the individual circuits on the wafer. Cleanliness means denser circuits and more computing power.

The automation company originally came to PBC Linear for a chatter or vibration free linear guide that could function in a contaminant-free manufacturing facility without dispersing particulates or requiring lubrication. With its precision design, simple two-piece assembly, and proven Frelon® J liner, the Uni-Guide was the obvious choice to handle the silicon wafer transport system used in the manufacturing process. With a proven history in similar applications, the Uni-Guide linear slide has a clean track record providing precise linear motion without added lubricants. The customer, however, was also reaching for more; they wanted a turn-key system to act as the heart of the new wafer elevator. PBC Linear's team of seasoned engineers worked with the customer in designing a complete system that upon delivery simply plugs in and functions perfectly with the rest of the machine. As this mutual relationship has developed, PBC Linear not only supplied the slide but also began to supply the motors, drive screws, guards, limit switches—pre assembled and tested.

Assembled in PBC Linear's clean workroom, the specially designed Uni-Guide is subject to critical testing for accurate travel and alignment. Careful measures are taken to ensure the sterile transportation of the Uni-Guide from testing to when it arrives at its destination. PBC Linear has maintained their production and documentation in accordance with the regulations set up by the customer and upheld its reputation as the destination for solutions to the most difficult linear motion applications and has supplied product in a timely fashion world wide.



Two-piece linear guide
Frelon® Liner compound for improved performance

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