Know How a Linear Stage Contributes to Various Fields by Piezo

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Today, there are hundreds of applications that run thanks to the use of a motorized linear stage. These devices are found in equipment that deals with fields such as microscopy, metrology, scanning, inspection, laser, biotechnology, wafer scribing among other things. There are several attributes based on which one needs to select a stage. To begin with, you need to decide the distance that you want the stage to travel, the minimum rise in motion, the accuracy and precision, exact axis, and repeatability.

This device is usually a small part of a larger motion control system. It performs the task of confining a particular section of the system to a single motion axis. A linear slide is a small component that forms a part of a linear-moving stage. As the name suggests, this component moves in a linear direction.

Apart from this, there are several other components that form part of the linear stage. The platform on the stage is among the most important parts and it is joined with a linear bearing that actually performs the task of restricting the motion of the stage to a single axis.

Most often, such stages are used in applications that call for a high amount of speed, acceleration, accuracy and repeated use over an extended period of time. There are several features that determine a truly world-class stage. Let’s take a look at some of them:

The stage should provide a high amount of accuracy and repeatability.

These stages are based on servo or stepper motors along with cross roller bearings or linear bearings. It is critical that all of these components function flawlessly.

They should also offer ultra-precise trajectory control.

Another important aspect to consider is the amount of friction being created while the stage is in use. Zero-friction linear guiding systems have a number of advantages hence it is advisable to opt for the same.

For very complex applications, there are linear stages that offer sub-micron precision.

There are certain companies that also offer a hybrid linear stage that is a combination of piezo as well as motor stages. They offer great control in terms of speed, distance, resolution and stability.

For stages that need to be used with microscopes, it is prudent to invest in stages that offer a choice of feedback sensors. Check if they feature long life piezo linear actuators. These also feature a linear slide that for precise positioning.

Based on your requirement, you could opt for nano-positioning stage as well as micro-positioning stage. Since a linear stage is a significant investment, it is very critical for you to purchase a well-calibrated system that will meet or exceed your expectations.

About Author:

Technology has always fascinated the technician inside me. And writing about the latest in technologies and mechanisms in usage has been my forte over the last few years. Follow my write

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