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It has been over five decades since the hexapod was first used for the purpose of motion control and since then, it has found unending applications across various industry sectors. This device is also often referred to as the Stuart platform. You would typically find them being used in microscopy, precision optics, metrology, medical instruments and even the aerospace sector.

These structures essentially operate on the principle of parallel kinematics. This means that they have six different degrees of motion that can operate parallel to each other, but can be precisely controlled. Their base is fixed and the six legs rise up from this base. The struts support the top platform which is entirely mobile. The length and angle of each of these struts is entirely adjustable, allowing for different heights and angles of tilting.

For a hexapod to function properly, it is important to ensure that all the six struts are in optimum working condition. The failure of even one strut could affect the overall operations of the device. There are several desirable attributes offered by this device that make it a preferred device:

â€¢ As compared to stacked translational stages and rotation stages, hexapods offer higher levels of accuracy and precision.

â€¢ This device can offer multiple degrees and lengths of movement. And each strut or leg can be maneuvered according to a specific requirement.

â€¢ For precision motion control in fields such as microscopy, cell biology, metrology etc, hexapods are highly preferred. They provide the user with predictable as well as repeatable motion. The fact that this device can be entirely computer controlled adds to its desirability.

â€¢ It is also very handy in places where space and weight constraints exist. It can be designed in a manner that helps to save a lot of space, but still deliver cutting-edge performance.

â€¢ Hexapods are driven by identical linear actuators, making them very easy to control. So all six struts can give you the exact same degree of movement.

â€¢ It offers enhanced stability as compared with the other types of traditional stages. This stems from the fact that a hexapod is based on a very simple design. In the long run this device also turns out to be more economical.

â€¢ Another important aspect is that these devices demonstrate much lower inertia in comparison with serial kinematics stacked stage. Besides, there is no accumulation of position errors.

â€¢ Overall, it can be said that a hexapod shows better dynamic behavior and a higher stiffness. Moreover, everything can be controlled with software commands, making it a time-saving affair.

While there's no doubt that the precision motion control market is highly competitive, it is important to make purchases only from a reputable manufacturer who can give you great after sales support too.

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