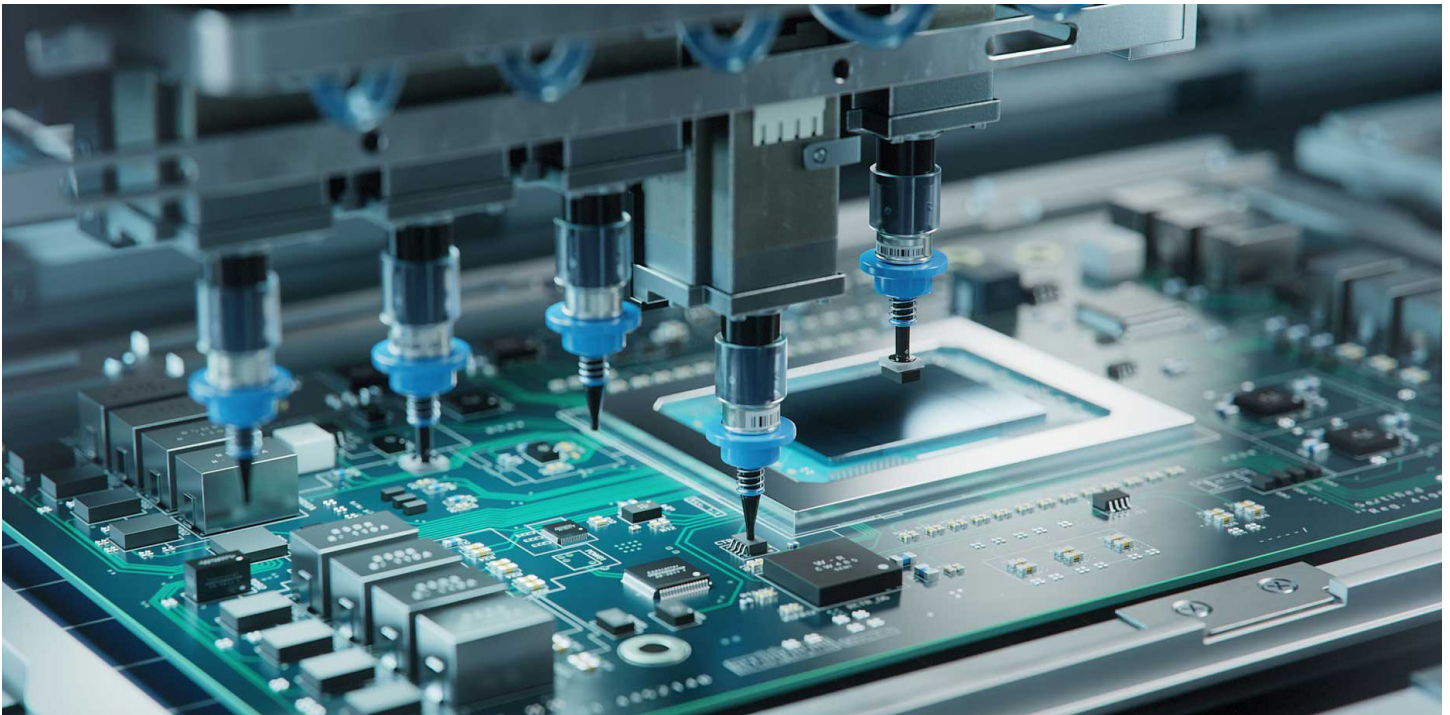


HKP Stepper Motor Actuators, Lead Screws and Linear Rails Provide Precise Motion Solutions to Printed Circuit Board (PCB) Assemblies



Printed Circuit Boards (PCBs) are essential components of virtually all electronic devices, from smartphones and computers to medical devices and industrial equipment. They provide the structural and electrical framework necessary for the operation of modern electronics.

PCBs serve as the platform for connecting and supporting electronic components. They bring several critical functions to electronic devices:

1. Mechanical Support - for mounting electronic components such as integrated circuits, resistors, capacitors and connectors.
2. Electrical Connections – copper conductive pathways provide the circuitry necessary for electricity to flow through electronic devices.
3. Signal Transmission – PCBs facilitate communication

between components, such as a microprocessor and memory chips.

4. Power Distribution – Power from batteries or external power supplies is carried along the PCB and distributed to components in the correct voltage and current.
5. Miniaturization – PCBs provide a space-efficient and compact layout for devices.
6. Standardization – PCBs simplify manufacturing processes by providing a standard platform for mounting components.
7. Customization – PCBs can be tailored to meet a designer's specific requirements.

Assembling PCBs requires high speed, repeatable performance and high precision. Multiple axes of linear motion, sometimes configured into X-Y assemblies, must pick up components from multiple locations and precisely place them onto the board.

Application Challenges:

- High speed
- High resolution for fine positioning
- Strokes up to 1 meter
- High duty cycle (>90%)

Preferred Motion Solutions:

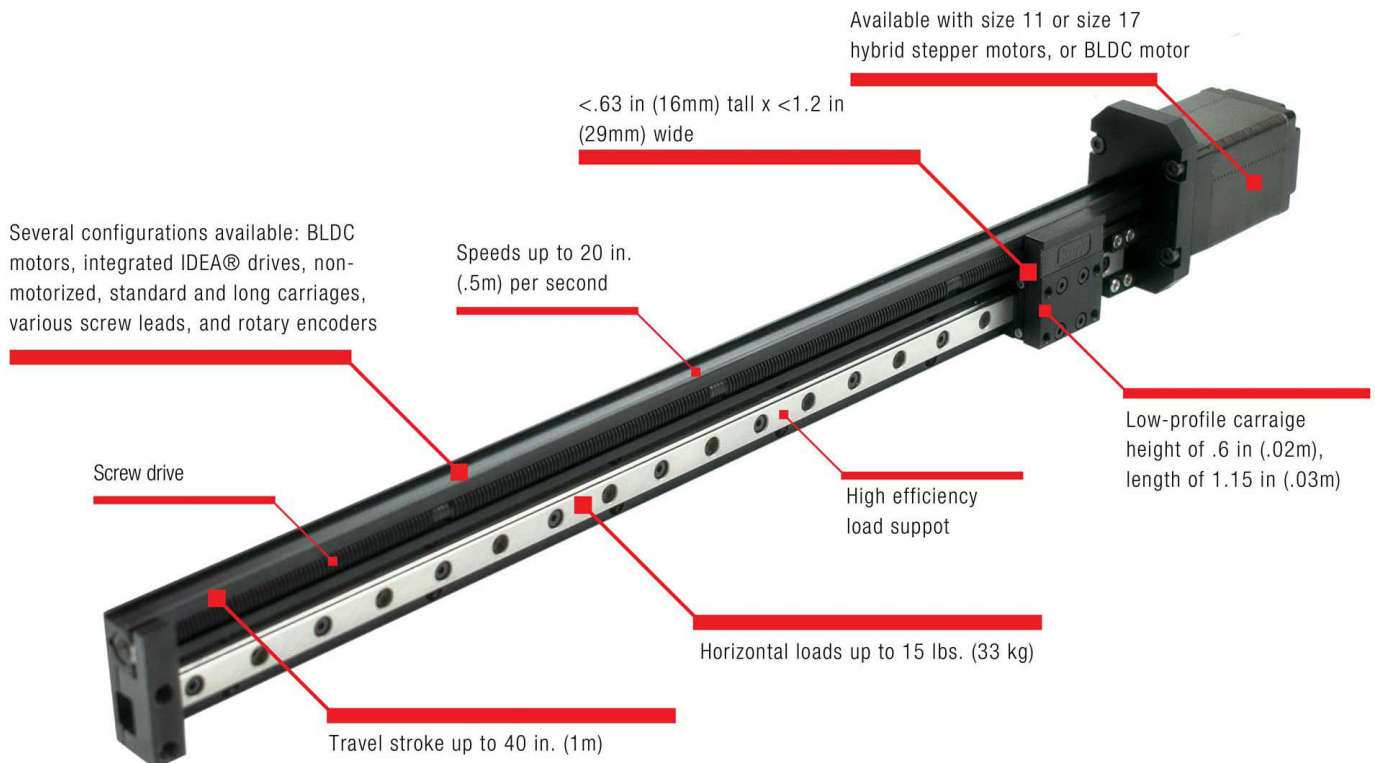
Linear Rails:

HKP's motorized linear rails offer exceptional linear speed, accurate positioning and long life in a compact assembly.

Specifically designed for PCB and Lab Automation applications that require high-speed point-to-point motion, HKP linear rails combine a patented screw support system with a ball bearing profile rail. The motorized EGS04 Linear Rail is available with different sized hybrid stepper motors, and with an integrated IDEA Drive. Standard carriage options are designed for horizontal loads up to 67 N (15 lbs.), and a long carriage option is available for higher loads. HKP rails can be customized in stroke length, motor type, step angle, operating voltage and encoder, to deliver:

- Low profile
- High Speed Capabilities
- Efficient, stiff load support.

EGS LINEAR RAIL



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Lead Screws:

A lead screw is a threaded screw that helps to create motion by moving a load along its surface. When paired with a motor/actuator, a lead screw is used to push and pull the stroke. HKP lead screws are self-adjusting, maintenance-free and require no lubrication. Providing maximum accuracy, high reliability, smooth and quiet operation, HKP lead screw assemblies deliver precise linear motion control.

HKP's patented ZBX Series anti-backlash assembly is a preferred choice for applications requiring precise positional accuracy and repeatability, with minimum cost. The self-lubricating ZBX unit offers exceptional torque consistency and repeatability when traversing in either direction. The inherent damping qualities of the ZBX design make it ideally suited for PCB applications requiring noise or vibration control.



Stepper Motor Actuators:

A stepper motor is an electric motor that rotates a shaft by performing steps in a fixed number of degrees. This feature allows stepper motors to know the exact angular position of the

shaft by simply counting the number of steps that have been performed, without the need for a sensor. HKP actuator lines, which integrate lead screws with stepper motors, are offered in a wide range of sizes, custom designs and special engineering requirements, such as screw diameters and leads, lengths and mounting features.

To learn more about the motion control solutions used to make PCBs Contact Us Today.

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