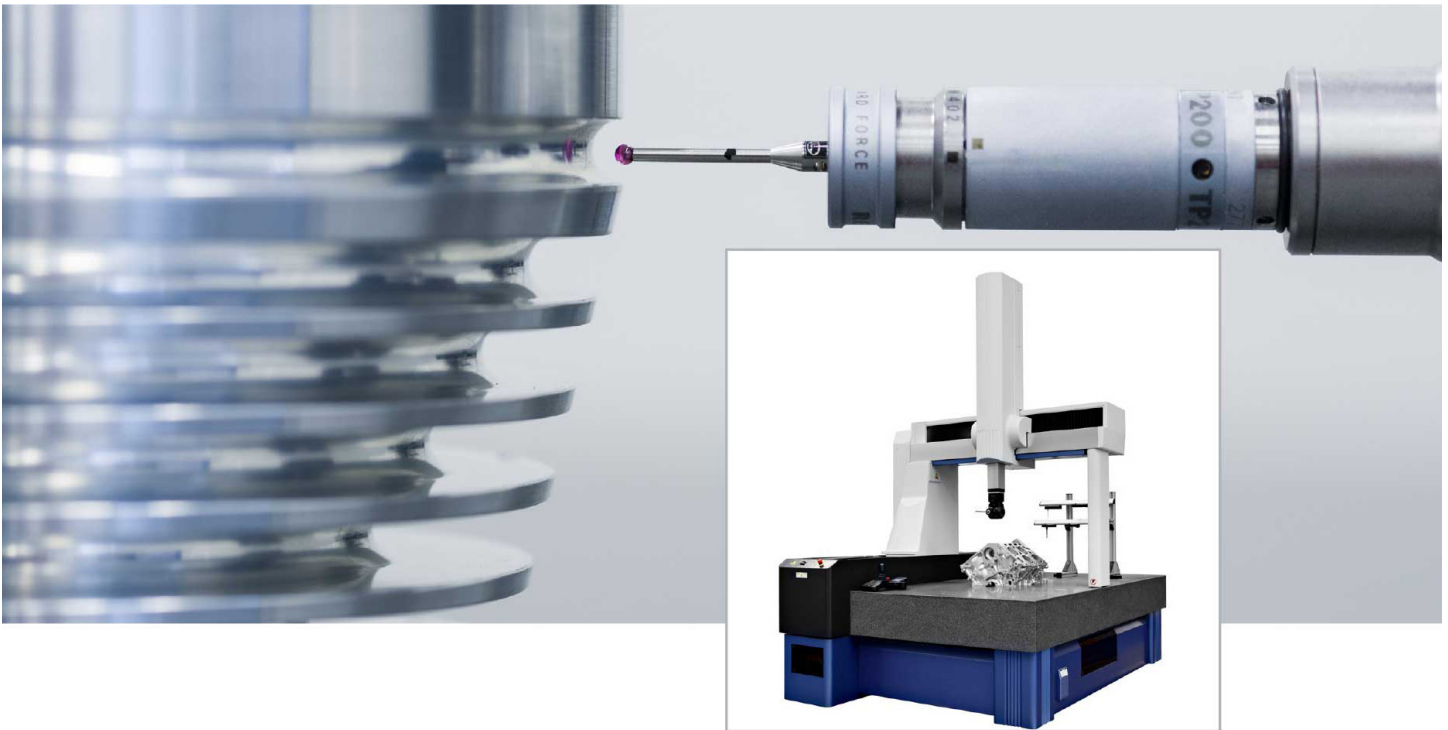


HKP Brush Motors Facilitate Precision Movements for Coordinate Measuring Machines (CMMs)



Coordinate measuring machines (CMMs) are precision measurement devices used in manufacturing and quality control processes to determine the dimensions, distances, angles, and shapes of physical components with precise accuracy.

CMMs play an important role in ensuring the quality, accuracy and consistency of manufactured parts across a wide range of industries, including automotive, aerospace, medical devices, and precision engineering. They provide valuable insights into the dimensional integrity of components. They help manufacturers maintain high standards of product quality and performance.

CMM's are useful in the following ways:

- To measure three dimensional, XYZ coordinates
- For Geometric Dimensioning and Tolerancing (GD&T) analysis – which evaluates the shape, size, orientation, and

location of a given feature on a part. This analysis helps to ensure that manufactured parts meet design requirements and quality standards.

- Inspection & Verification – CMMs can identify deviations from intended dimensions, allowing for corrective actions to be taken.
- Reverse Engineering – physical objects can be measured and digitized to create CAD models. This process is useful for reproducing parts without access to the original design data.
- Automated Inspection – routines can be programmed to perform repetitive measurement tasks with minimal human intervention.
- Data Analysis & Reporting – measured data is processed to create reports that are used for process improvements and Quality Assurance.

Motion Requirements:

Today, many CMM's not only deploy scanning probes, but they also feature automatic mechanical arms and automatic loading systems. These systems leverage multiple Brush motors with tachometers to power the X, Y and Z movements. Accurate movement for a CMM's moving parts is essential to facilitate the precision measurements and the analysis that CMMs are designed to provide. One of the advantages of the HKP brushed motor is the smoothness of the commutator, which plays an important role in extending the lifetime of the motor.

Application Challenges:

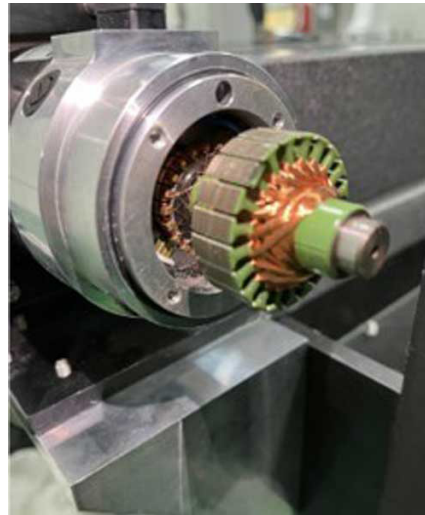
- Motors must work smoothly at lower speeds
- Position accuracy should reach 2µm
- For the tachometer, Lower peak to peak ripple frequency
- Strong liner output performance (Speed – torque)
- Seamless integration of the Brush motor and tachometer is required
- Strong anti-interference capabilities are also required
- Continuous service life of more than 3 years.

Preferred Motion Solutions:



DC054B with Tachometer and Pulley:

HKP's DC054B series brush commutated DC motor is a 54 mm diameter unit that is offered in 7 different lengths with



continuous output torques of 0.071 to 0.35 Nm.

The brush (in a brush DC motor) connects current to a set of coils. When energized, these coils produce a magnetic field. This magnetic field causes the rotor to turn, orienting the rotor to magnets mounted on a stator (the stationary portion

of an electric motor). The force created by the magnetic field disconnects energized coils and then energizes the next set – producing a recurring, rotating, mechanical on-off cycle that results in rotational motion.

Features:

- Speeds up to 6,000 RPM possible
- DC bus voltage up to 80 Vdc
- Eight standard windings – Special windings available
- 2 pole stator with ceramic magnets
- 7 slot skewed armature cogging reduction
- Sintered bronze bearings – ball bearings available
- Copper graphite brushed – RFI suppression available

For more information, [click here](#) or Contact Us Today.

Headquarters

Haydon Kerk Motion Solutions, Inc
Haydon Products Division
1500 Meriden Road
Waterbury, CT 06705 USA

+1 800 243 2715 (Toll Free)

+1 203 756 8724 (Fax)

+1 203 756 7441 (International)

info.haydonkerk@ametek.com

www.HaydonKerkPittman.com

Locations

Waterbury, CT
Milford, NH
Harleysville, PA
New District, Changzhou, China
Jiuting, Shanghai, China

Bouguenais, France

Pegnitz, Germany

Bangalore, India

Suwon-city, Gyeonggi-do, Korea

Penang, Malaysia

Reynosa, Tamaulipas, Mexico