

# Robotic Motor Solutions



**KOLLMORGEN**

## Rely on Kollmorgen Solutions

We focus on motion so you don't have to.

Our reputation for enabling robotic innovation continues to grow as Kollmorgen motors deliver motion to new robotic applications every year. With over 100 years of industry experience, we've designed tens of thousands of motors and set hundreds of thousands of robotic joints in motion. This background makes us a unique partner who can meet the technical needs of design engineers and the business needs of your global supply chain. When you're building your brand, failure is not an option. Kollmorgen frameless motors in your robot let you focus on what matters most.



## Optimized Capabilities

Modified fit and performance - every time.

Kollmorgen motors are optimized for fit and performance with industry standard harmonic gearing. We offer millions of standard product variations, as well as the local expertise to customize standard motors and produce the best fit inside your robotic joint.

## Smaller, Lighter & Faster Robots

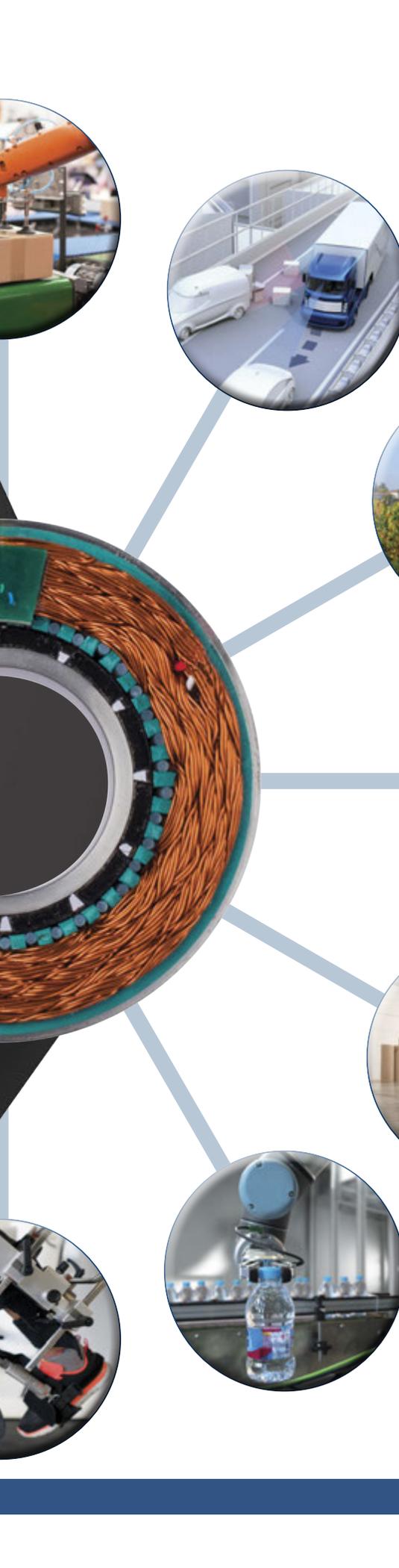
Decreased footprint. Increased precision.

Power-dense motors provide a lighter weight and smaller system for improved performance and precision within a compact footprint. Lower cogging torque and minimized poling provide a smoother velocity motion profile to optimize control. Our industry advanced servo motors mean that you can move your ideal robotic arm or system from design to reality and ultimately, to market.

## Speed to Market

Reduce your design time. Expand your market availability.

Kollmorgen sets the bar for helping robotic innovators shorten design cycles and get their product to market. Our range of standard, configurable motors – from frameless motors to housed servo and stepper motors - enable quick prototyping and rapid go-to-market strategies.



## Industrial Articulated Robots

Across all applications, industrial and manufacturing robots have become smaller and lighter, enabled by Kollmorgen motors with greater torque density.

## LIDAR and Autonomous Vehicles

Advanced sensing technology and artificial intelligence (AI) have made autonomous vehicles feasible. Kollmorgen technology can be found in a wide range of applications from steering, to locomotion, to LIDAR, as well as test vehicles across the country. Our wide range of standard products coupled with our ability to modify designs enables smaller, more compact and lighter systems.

## Intralogistics, Material Handling and AGV

The world of traditional robotics and AGV is overlapping into smarter, more dynamic and more versatile robots. Artificial intelligence (AI) is advancing with more natural navigation without expensive external sensing markers or reflectors. Kollmorgen's technology is found in a variety of applications including underwater ROV's, drone systems delivering lifesaving materials, agricultural robots, security robots, independent AGV and intralogistics systems, nuclear handling systems and security systems

## Surgical Robotics & Automation

Surgical robots require precise control of multi-axis motion, with coordination across all controls, robotic arms, cameras and instruments. They require complete motion solutions that integrate components designed to work together within the most demanding applications and space constraints. These are Kollmorgen's signature strengths.

## Mobile Robots

Mobile robotics take many forms with a wide range of autonomy operating on land, sea and air. These remote and unmanned vehicles are able to operate in difficult environments. Our expertise in Aerospace and Defense markets started in the 1950s when we worked with MIT to develop stabilizing platforms for inertial guidance systems. Today's customers rely on our high torque density and product longevity to ensure mission success.

## Collaborative Robots

Collaborative robots (cobots), manufacturing robots and robotic arms are designed to learn and adapt to new tasks as if they are human coworkers. Kollmorgen offers the industry's most advanced servo motors in configurations and torque ranges that ensure safe operation through controlled, precise motion.

*Because Motion Matters.*

# Kollmorgen Standard Solutions

## TBM™ Series Frameless Motors

Kollmorgen's TBM Direct Drive Frameless Brushless Motor technology is optimized for robotic joint applications that require high power in a small, compact package with minimized weight and inertia. Integrating a TBM into your robotic joint can enable a smaller, more powerful robot in a compact footprint. Our optimized solution options can help you differentiate your next robotic design.

- Three frame sizes
- Multiple stack lengths per frame size
- Multiple windings per frame/stack combination
- Hall sensor option
- Multiple thermal sensors options
- Stainless Steel yokes for maximum corrosion protection
- RoHS Compliant
- Short lead time
- Webtool resource for Performance Curve Generation
- Ideal design for modular machines and flexible manufacturing Systems

## KBM™ Series Frameless Motors

The KBM™ Frameless Brushless Motors are high performance motors that can be directly embedded into your robotic application eliminating excess bulk and weight. With a large selection of standard motors—plus our ability to quickly and cost-effectively incorporate optimized modifications—you can choose an exact-fit motor that provides the highest performance in the most compact space.

- Fully encapsulated stator windings
- Windings are rated at 100°C rise over a 40°C ambient while using 155°C (class F) insulation materials
- PTC thermistor (avalanche-type) overload protection
- Fail-safe bands over rotor magnets
- RoHS compliant
- UL and CE agency facilitation
- Optimizations include rotor hub dimensions, stack length, diameter, mounting features, windings, insulation, connection type and much more
- Hall sensor option

## AKM® Servo Motors

Kollmorgen offers the industry's most advanced servo motors in configurations and torque ranges to meet virtually any robotic specification. Our AKM servo motor has high performance and efficiency that allows you to design a smaller and more compact manufacturing robot. AKM Servo Motors offer unprecedented choice and flexibility, such as optional 24 volt and 48 volt windings, and optimized modifications for an exact fit into your robotic design.

- 8 frame sizes, 28 frame/stack combinations
- Speeds up to 8,000 RPM
- 24, 48, 75 VDC; 120, 240, 480 VAC windings
- A wide variety of feedback devices, mountings and seals
- Direct mate to most Kollmorgen servo drives
- Windings are rated at 100°C rise over a 40°C ambient while using 155°C (class F) insulation materials
- cURus, CE Compliant, UL Recognition



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## About Kollmorgen

Kollmorgen is a leading provider of motion systems and components for machine builders. Through world-class knowledge in motion, industry-leading quality and deep expertise in linking and integrating standard and custom products, Kollmorgen delivers breakthrough solutions that are unmatched in performance, reliability and ease-of-use, giving machine builders an irrefutable marketplace advantage.

For assistance with your application needs in North America, contact us at: 540-633-3545, [support@kollmorgen.com](mailto:support@kollmorgen.com) or visit [www.kollmorgen.com](http://www.kollmorgen.com) for a global contact list.



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Our expertise makes us a unique motion partner who understands the business and technical needs in robotics. Kollmorgen offers highly configurable products such as AKM® & AKD® servo motors and drives, KBM™ & TBM™ frameless motors, and stepper motors & drives. We also offer machine design and manufacturing expertise to help you optimize your robot.

Find out more at [www.kollmorgen.com/robotics](http://www.kollmorgen.com/robotics)

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