

New Innovations in Motion Control

Nexen designs braking solution with zero backlash up to the full holding torque in a rigid, easy to install product

Matthew Jaster, Senior Editor

Previous discussions with engineers at Nexen examined the challenges and increased complexity of components for machine designers in industrial machinery.

“Historically, Nexen Group’s product offerings were mechanical and pneumatic solutions, including clutches, brakes, torque limiters, and coupling products for industrial machinery that needed to control power transmission,” said Justin Zollner, design engineer at Nexen. “As Nexen expanded into precision motion control applications, the need for zero backlash drive solutions became increasingly important. In addition, many motion control applications are limited to only electric drive solutions. These two overlapping needs were the driving force of the Evolve Electric Servomotor Brake line.”

Functional Safety

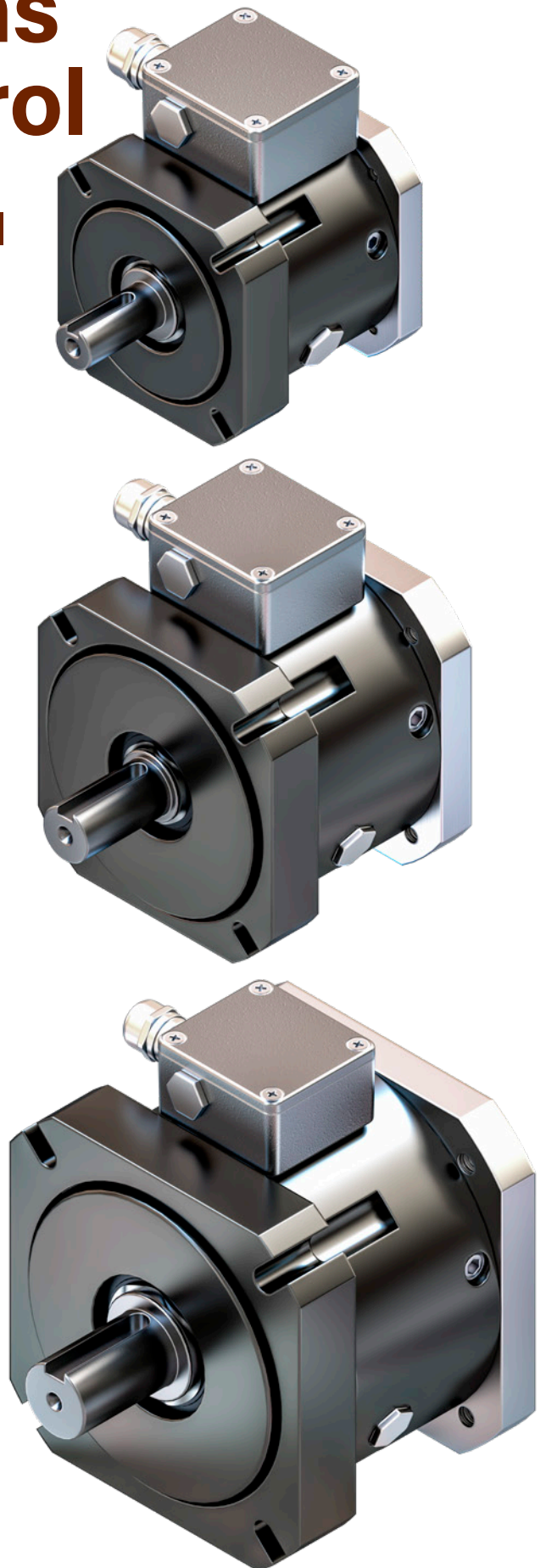
System stiffness and rigidity, in addition to torque requirements, are primary factors in selecting a servo system brake solution. Functional safety is becoming a key factor in the decision-making process, which focuses the system designer on a solution’s B10 and B10d ratings to ensure it meets the overall design intent.

Functional safety is about reducing the risk of human injury or death posed by the use of machinery in the face of operator error or mechanical failure. Building functional safety requires the design and fabrication of protective features that mitigate against the threat of worker injury. Protection systems should be designed to respond to human errors, hardware failures, operational or environmental stress.

Nexen understands that functional safety standards and industry requirements are evolving. The focus is to provide more safety focused components for machine builders. Functional safety is, in fact, becoming more prevalent. The need for monitoring and diagnosing problems thru internal machine trouble shooting will be vital as factories become more and more automated.

Sizing and Selecting a Brake Solution

Nexen engineers collaborate with customers to size and recommend solutions using all the products in Nexen’s extensive catalog, including the newly released Evolve line.



Nexen's Evolve Electric Servomotor Brake Specifications

- 100 mm, 125 mm and 155 mm frame sizes available
- Easily mounts between a servo/stepper motor and a gearbox
- Spring engaged – electrically released
- Two friction interfaces for increased torque
- Zero Backlash via flex disc and rotor
- Double Row Angular Contact Bearing
- Shaft with integrated clamp collar
- 24 VDC standard coil
- Fast delivery times
- Made in the USA

“If a customer cannot find the exact solution on our website, Nexen engineers will help select the appropriate product. A custom solution can be discussed and engineered if a product is not currently available in Nexen’s group catalog,” Zollner said.

The Evolve Electric Servomotor Brake line is spring engaged and electrically released, engineered with a double-sided friction interface for increased torque capacity. The double row angular contact bearing delivers overhung load capacity and rigidity allowing machine builders and OEMs to design a more robust machine. The brakes can easily be configured to match the motor and gearhead mating interfaces.

Manufactured in Webster, WI., the Evolve Electric Servomotor Brake has fast delivery times, allowing for minimal downtime in designing and maintaining machines.

“The application challenge required a zero-backlash stand-alone product that could be incorporated into an existing system. The Evolve line was engineered and sized to fit with most manufacturers’ standard motor offerings. The Evolve servomotor brake can be incorporated into a system using the existing servomotor and gear reducer with minimal effort,” Zollner said.

The Evolve series of servomotor brakes is set to be leading-edge brake solution offering high-end rigidity, torque, and zero backlash in a very simple-to-install and reliable package. Fewer parts equal a much more reliable product that machine builders and maintenance staff can rely on.

“Robotics, machine tools, assembly, and packaging will be the biggest users of the Evolve servomotor brake.

However, any axis that is driven by a servomotor is an excellent candidate for benefiting from the new Evolve servomotor brake,” Zollner added.

Enhanced Website Options

Nexen Group works with customers to design a product that meets their application needs.

“We have an extensive catalog of standard products. Still, we also do a lot of custom designs and manufacture those products to meet the needs of engineers, machine builders, and maintenance workers,” Zollner said.

Additionally, the Nexen Group launched a new website in 2023, designed to offer an intuitive, user-friendly experience with improved navigation, search, and responsiveness while allowing customers to see the full range of products. It allows engineers, repair technicians, and specifiers to easily find the Nexen product that is needed for their application and processes.

Features include:

- Look ahead navigation. Significantly reduces the number of clicks it will take to find the necessary Nexen product.
- Product selection tool. Enhanced filtering options make it easy to narrow down products for an application or design.
- Streamlined store and checkout. Registered users can easily order products and see past orders.
- Full documentation library. Complete sets of CAD drawings (PDF, STEP, and DXF), technical data sheets, and user manuals for every product are available for download.
- Contacting Nexen Group. Easily connect with Nexen’s engineers to help with a design, product, or custom configuration.

Additional Capabilities

After numerous customer requests for a Nexen electric servomotor brake, the company answered these requests by designing a brake with zero backlash for precision holding, low inertia, and a double-sided friction rotor that creates two friction interfaces for increased torque capacity.

Zollner said the Evolve platform will be introduced into various configurations and solutions for different applications.

“In the near future, the Evolve servomotor brake will be incorporated into many different Precision Motion Control products that Nexen Group offers. This will give machine builders and maintenance personnel an additional trusted Nexen product that they can incorporate into their processes.”

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