

Ameridrives

Bauer Gear Motor

Bibby Turboflex

Boston Gear

Delroyd Worm Gear

Formsprag Clutch

Guardian Couplings

Huco

Industrial Clutch

Inertia Dynamics

Kilian

Lamiflex Couplings

Marland Clutch

Matrix

Nuttall Gear

Stieber

Stromag

Svendborg Brakes

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Achieving Linear Motion in Off-Highway Applications



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From heavy-duty performance in construction machinery to the dust-laden environment in agriculture, linear actuators are required to perform in a wide range of situations.

The term “off-highway” covers a wide range of machinery and equipment that operate in harsh working environments where dust, water and even chemicals can be prevalent. Suppliers of components destined to work in these unforgiving applications need to offer high-quality products that are rigorously tested and fit for purpose.

Mourade Vaneckhoutte, Director for Mobile Power Equipment at Altra Industrial Motion Corporation, looks at the challenges faced by components used in off-highway applications...

Throughout this sector, lifting and positioning tasks are performed by actuators that may be powered by hydraulic, pneumatic or electrical energy. The selection of the most appropriate design is affected by a number of factors; in many cases, the electric actuator has many advantages.

Design Integration

For original equipment manufacturers (OEMs), the process of designing new equipment is very complex and involves a huge amount of resources. In most cases, third-party suppliers will be required to contribute their expertise to the process and ensure that their components integrate with the overall design.

Warner Linear has been helping OEMs in the off-highway sector for many years to find the best solution for their design specifications. Linear actuators are well-suited to the demanding applications that are so often encountered in this area.

From the outset, linear actuators offer extremely efficient operation; a high-performance electric motor combined with a high-efficiency gear train, hardened (as standard), and a high-quality ball screw and ball nut drive. The products are extremely durable and require very little maintenance, which makes them ideally suited to off-road applications.

Durability Through Design

The standard designs provide load capacities from 200 – 21,000 N (45 – 4,800 lbs.) and are usually specified for heavy-duty applications. The overall construction of the actuators is designed to minimize any maintenance requirements and to reduce their life-time costs, improve productivity and perform in harsh operating conditions.

One of the major design features are the seals that have enabled all of Warner Linear's actuators to have an ingress protection rating of IP69K when static and IP66 when dynamic. The lesser known IP69K rating ensures that equipment is suitable for wash down with high-pressure, high-temperature water.

Of equal importance is the range of options and configurations that can be specified to make every component a perfect fit. From mounting and end fitting variations to the addition of limit switches and position sensors, the flexibility of the design process means that every detail can be optimized to a particular application.

Working closely with OEM designers, Warner understands that actuators play a crucial role in the performance of off-highway equipment and by building a direct line of communication, it is possible to realize the best solution. Through a better understanding of the application, it is possible to create the most durable and cost-effective component.

Comprehensive Testing

This is supported by the comprehensive design and testing facilities that are applied to all products, including custom designs. In-house testing includes repetitive cycle testing, dual-load life cycling, high-pressure washdown, lift testing and thermal shock submersion.

In addition, Warner can provide material analysis as well as noise and vibration evaluations. Using a combination of computer-aided testing and field testing provides OEMs with the necessary assurances of long-lasting reliability.

From heavy-duty performance in construction machinery to the dust-laden environment in agriculture, linear actuators are required to perform in a wide range of situations. Having the design flexibility and manufacturing capabilities to create prototypes quickly is very advantageous; offering short lead times and lean manufacturing performance means OEMs are assured of high-quality components as they require them.



Warner Linear's actuators have an ingress protection rating of IP69K when static and IP66 when dynamic.

About Altra Industrial Motion

Altra is a leading global designer and manufacturer of quality power transmission and motion control products utilized on a wide variety of industrial drivetrain applications. Altra clutches and brakes, couplings, gearing and PT component product lines are marketed under the industries' most well known manufacturing brands. Each brand is committed to the guiding principles of operational excellence, continuous improvement and customer satisfaction. Highly engineered Altra solutions are sold in over 70 countries and utilized in a variety of major industrial markets, including food processing, material handling, packaging machinery, mining, energy, automotive, primary metals, turf and garden and many others.

Altra's leading brands include Ameridrives, Bauer Gear Motor, Bibby Turboflex, Boston Gear, Delroyd Worm Gear, Formsprag Clutch, Guardian Couplings, Huco, Industrial Clutch, Inertia Dynamics, Kilian, Lamiflex Couplings, Marland Clutch, Matrix, Nuttall Gear, Stieber, Stromag, Svendborg Brakes, TB Wood's, Twiflex, Warner Electric, Warner Linear and Wichita Clutch.



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