

## Powering up off-highway equipment

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Off-highway equipment has always required power transmission components that can withstand heavy-duty operation over long service intervals. However, market developments towards electrification and reduced packaging are pressurising Tier 1 suppliers to innovate. For original equipment manufacturers (OEMs), the leading brands of Altra Industrial Motion Corp. have multiple power transmission solutions to meet these new demands.

### A reliable partner

Off-highway equipment encompasses the agricultural, construction and forestry sectors, including combine harvesters and tractors to excavators and bulldozers. Stromag, Warner Electric, Stieber, Wichita Clutch, Guardian Couplings, Twiflex and Thomson Industries provide leading off-highway OEMs with complete power transmission solutions that deliver robust performance.

Environmental conditions off-highway are challenging, with dust, moisture and chemicals often in contact with equipment. The high mechanical stresses and impacts inherent in these heavy-duty applications also threaten powertrain reliability. With maintenance support often many hours away, choosing a tried and tested power transmission and motion control partner with proven reliability is best.

Altra's leading brands provide access to highly durable clutches, brakes, couplings, linear actuators and more to meet such demands. Complete assemblies are available, ensuring excellent interoperability and reliability. A tailored approach to

each application means optimal suitability too. With these solutions, off-highway equipment can offer the utmost productivity in operation, ensuring that harvests are gathered and construction schedules met. As a result, OEM brand reputation is secure, with a single point of contact available for power transmission and motion control expertise.

### **Going electric**

Electrification is a growing trend across off-highway equipment as the sector moves to a low carbon future. Saving energy to preserve battery life is now all important to maximise range and productivity.

Warner Electric, a global leader in electromagnetic brake technologies, offers innovative braking solutions designed to reduce power consumption on a wide variety of battery-powered construction equipment. This includes excavator slewing drives, track drives on compact track-driven loaders and excavators, traction wheel motors on compact skid steers, wheeled excavators and mobile elevating work platforms (MEWPs). Warner braking technologies are also ideal for many agricultural applications such as autonomous equipment, small tractors and telehandlers.

Electromagnetic clutches from Warner Electric offer OEMs a method to reduce onboard energy consumption. Clutches allow disengagement of auxiliary systems on vehicles such as fans, pumps and compressors, lowering energy usage when these systems are not in use.

With dual powertrains on hybrids, solutions are needed to switch between engines and electric motors. Stromag's 2-in-1 combinations of hydraulic or electromagnetic clutches and flexible torsional dampening couplings provide seamless switching

between power sources in a compact package. A plug-and-play solution, the 2-in-1 allows OEMs to integrate hybridisation into vehicle designs in a more straightforward manner.

### **The right package**

The problem for OEMs with integrating electrified powertrains or new onboard systems is that it is uneconomic to produce an entirely new off-highway vehicle platform to accommodate them. Therefore, the main challenge is to fit these additional systems within existing space available.

This can be achieved by specifying compact power transmission solutions. H-track actuators from Thomson eliminate the need for additional hydraulic or pneumatic systems due to a wire connection, saving real estate onboard the vehicle. Guardian FL Series flywheel couplings are designed to be compact, allowing easy fitment within the engine housing.

By specifying space saving power transmission solutions, OEMs can free up real estate on existing platforms, allowing for electrification to be achieved economically and smoothening the transition.

### **Power density**

However, downsizing components should never be at the cost of performance. With the extraordinary rigours placed on heavy-duty off-highway equipment, downsizing must be conducted while unlocking new advancements.

One solution that provides increased performance within a reduced footprint is Stromag's KHE clutch. The highly compact design provides a 20% improvement in transmittable torque, enhancing power density.

Maximising power density allows smaller components or assemblies to achieve improved performance, ensuring that OEMs can deliver reliability within a reduced package.

### **Global experts**

As well as providing highly robust, innovative and power dense solutions, the leading brands of Altra Industrial Motion Corp. have the global supply and support capabilities to meet the requirements of OEM production.

As established Tier 1 suppliers, the brands can work closely with OEM design and production teams at any stage in the off-highway development process, solving engineering challenges effectively. By providing design expertise throughout prototyping and testing, the speed and ease of development can be increased, improving cost-effectiveness for OEMs.

For manufacturing, large capacity across all brands ensures that tailored solutions can be delivered in the quantities required to match production schedules. Furthermore, brands are experienced in providing on time delivery for key components and assemblies, streamlining manufacturing and promoting productivity.

Responsive global maintenance support is also available for when equipment is in the field. This helps maximise uptime and enhances OEM reputation.

With these capabilities, OEMs can face the multiple power transmission challenges of off-highway equipment with a single, trusted partner.

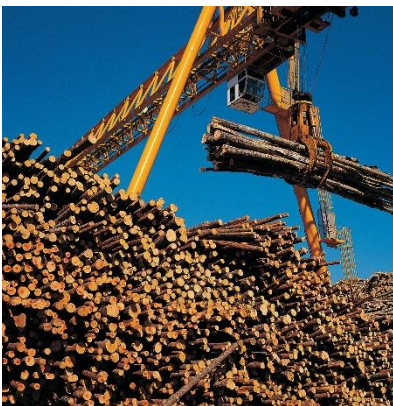
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**Image 3:** Off-highway equipment encompasses the agricultural, construction and forestry sectors. For OEMs within these industries, the leading brands of Altra Industrial Motion Corp. have multiple power transmission solutions to meet new demands.

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## About Altra Industrial Motion Corporation

Altra Industrial Motion Corp. is a premier industrial manufacturer of highly engineered power transmission, motion control and engine braking systems and components. Altra's portfolio consists of 27 well-respected brands including Bauer Gear Motor, Boston Gear, Kollmorgen, Portescap, Stieber, Stromag, Svendborg Brakes, TB Wood's, Twiflex, Thomson and Warner Electric. Headquartered in Braintree, Massachusetts, Altra has approximately 9,100 employees and over 48 production facilities in 17 countries around the world.

For more information, visit [www.altramotion.com](http://www.altramotion.com)

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