

Power Transmission Solutions for the Aerospace and Defense Markets

Formsprag Clutch

Ameridrives Couplings

Wichita Clutch

Twiflex Limited

Warner Electric

Boston Gear

Industrial Clutch

Warner Linear

Stieber Clutch

Inertia Dynamics

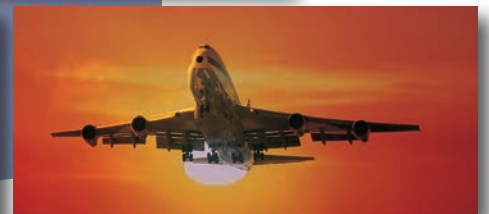
Bibby Turboflex

Kilian Manufacturing

Delroyd Worm Gear

Nuttall Gear

*Ameridrives Power
Transmission*



Expertise in Solutions for the Aerospace and Defense Markets

The companies of Altra Industrial Motion are dedicated to finding new and better ways of handling some of the most demanding electro-mechanical power transmission applications in the Aerospace and Defense Markets.



With instantly recognized industry-leading brand names, the companies of Altra Industrial Motion provide custom engineered electro-mechanical power transmission solutions to the Aerospace and Defense markets' top customers by applying the latest technologies in design, materials and manufacturing, and by thoroughly analyzing customer applications and calling upon extensive application experience. The result is a family of premier power transmission products that feature extraordinary performance and reliability, long life and outstanding value.

For over five decades, the Aerospace and Defense markets of the Americas, Europe, and Asia-Pacific have drawn upon the innovative products, application expertise and unrivaled creativity of the companies of Altra Industrial Motion. Whenever design criteria demand extra performance and proven reliability, the electro-mechanical power transmission products of Altra Industrial Motion meet the challenge anywhere around the world.

Altra Industrial Motion understands the unique requirements of international Aerospace and Defense markets and has in place the systems and processes to assure uninterrupted supply of product for both military and commercial applications. Because many Aerospace and Defense applications are considered flight safety and mission critical, we know and have established the systems and procedures necessary to support success.

- ISO 9001:2008
- AS9100 rev. C
- Customer delegated inspection
- Continuous improvement through the Altra Business System (ABS)

Solutions for Commercial and Military Fixed Wing Aircraft

Your project may be a commercial mainline passenger transport, a cargo jet, or a regional jet. Or your project may be a military fighter jet or cargo-lifter. No matter the fixed wing aircraft type, **Altra Industrial Motion** has the expertise and creativity to solve your electro-mechanical power transmission challenges.

- **Formsprag Clutch** can offer a solution when a purely mechanical, one-way or bi-directional clutch or backstop is needed, such as in air turbine starters, auxiliary power unit (APU) starters, and accessory gearboxes.
- If an electric clutch or brake is the favored technology for the application, **Formsprag Clutch** can meet your requirements with a custom clutch or brake for control and holding in applications including seat positioning, control surfaces, landing gears, and weapons positioning and loading.
- **Kilian Manufacturing** keeps things moving smoothly throughout fixed wing aircraft with its entirely custom-machined, rolling bearings and cargo roller products.



Solutions for Commercial and Military Rotary Wing Aircraft

Helicopters continue to prove their value in many useful ways from Emergency Medical Services to Off Shore Energy, from Search and Rescue to Air Support and Attack. Many of the major rotary wing aircraft manufacturers globally, trust only **Altra Industrial Motion** for assuring the right product to meet their needs.

- **Formsprag Clutch** is the overrunning clutch supplier of choice in all helicopter market segments for critical applications in main drives and accessories.
- **Formsprag Clutch** can provide the necessary electric clutch and brake for flight controls, actuation systems for weapons, radars, and optical systems.
- If main power transmission gears are the need, **Boston Gear** has the experience in providing custom gear solutions.
- **Ameridrives Couplings** high-performance, diaphragm couplings meet the requirements for a number of tailrotor couplings and other critical drive applications.





Solutions for Naval Surface Combatants, Support Ships, and Submarines

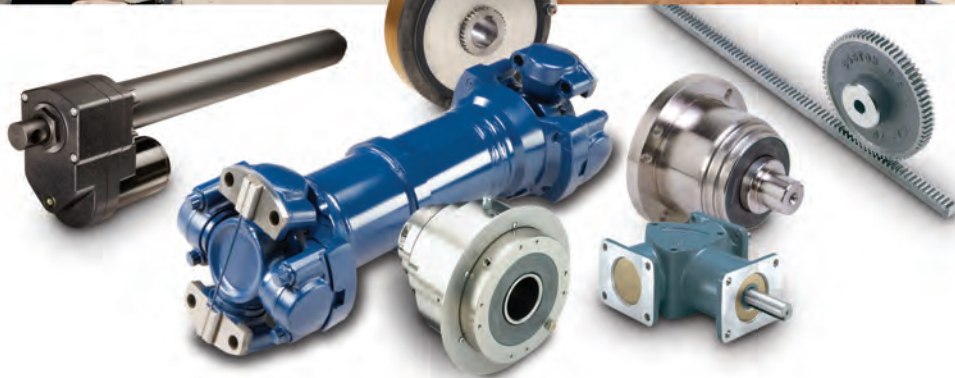
Naval ship requirements are some of the most demanding around. That's no problem for the companies of **Altra Industrial Motion** who have been meeting and exceeding the stringent requirements of the Naval and Marine markets for many years.

- **Ameridrives Couplings** high-performance diaphragm and gear couplings, as well as **Bibby Turboflex** disc couplings are well known in main propulsion drive layouts.
- **Ameridrives Power Transmission** universal joints, as well as **Bibby Turboflex** disc and **Ameridrives** Ameriflex couplings, can provide the necessary connection between engines and water jet drives.
- **Wichita Clutch** clutches and brakes and **Twiflex Limited** caliper brakes have wide-spread applications as part of the main propulsion drives, as well as on aircraft platform lifts, compressor drives, and all sorts of ship deck equipment, including hoists, winches, cranes, and anchoring and mooring drives.
- **Delroyd Worm Gear** and **Nuttall Gear** offer a variety of gearing options for various drives, propulsion-related systems, elevators, hoists, anchor, mooring, storage, and ladder winch drives.
- If an electric clutch or brake is the requirement, **Inertia Dynamics** can provide a systems solution having successfully met the requirements of a number of custom clutch and brake applications on some of the most demanding weapons loading and munitions handling systems ever produced for a naval ship.
- **Formsprag Clutch** has proven its abilities with successful mechanical bi-directional holding backstops on boat davits.

Solutions for Land-based Combat and Support Vehicles, Towed Equipment, and Mobile Systems

Land forces are the largest component of most of the world's militaries. Since nations rely on their land forces and equipment as the primary means of defending their sovereignty, the equipment these forces use must be some of the most reliable and technically proven available. **Altra Industrial Motion** has helped defend homelands by providing products that get that job done.

- **Boston Gear** has been helping power turret drives for US forces with enclosed gear drives, while providing overload clutches, loose gears, and related components for expandable mobile shelter systems as well as winches and other mobile trailer systems.
- **Ameridrives Couplings** gear couplings, as well as **Ameridrives Power Transmission** universal joints drive various wheeled and tracked vehicle systems, including a number of amphibious landing vehicles.
- **Twiflex Limited** couplings have been successfully applied in the drivetrains on a variety of United Kingdom MOD vehicles.
- **Inertia Dynamics** and **Warner Electric** have solved numerous applications for custom-engineered clutches and brakes on turret and gun positioning drives, radar antenna holding, and other systems.
- **Warner Linear** supplies the actuation required for many ground systems including door assist and seating maneuverability mechanisms.
- Both **Formsprag Clutch** and **Stieber Clutch** can provide the solutions you need for mechanical, bi-directional holding brakes on turret and gun drives.



<p>Electromagnetic Clutches and Brakes</p> <p>Warner Electric <i>Electromagnetic Clutches and Brakes</i> New Hartford, CT - USA 1-800-825-6544 <i>For application assistance: 1-800-825-9050</i></p> <p>St Barthelemy d'Anjou, France +33 (0) 2 41 21 24 24</p> <p><i>Precision Electric Coils and Electromagnetic Clutches and Brakes</i></p> <p>Columbia City, IN - USA 1-260-244-6183</p> <p>Matrix International <i>Electromagnetic Clutches and Brakes, Pressure Operated Clutches and Brakes</i> Brecht, Scotland +44 (0) 1356 602000 New Hartford, CT - USA 1-800-825-6544</p> <p>Inertia Dynamics <i>Spring Set Brakes; Power On and Wrap Spring Clutch/Brakes</i> New Hartford, CT - USA 1-800-800-6445</p> <p>Formsprag Clutch <i>Electromagnetic Clutches and Brakes, Spring Set Brakes, Pressure Operated Clutches & Brakes</i> Warren, MI - USA 1-800-348-0881 – Press #1 <i>For application assistance: 1-800-348-0881 – Press #2</i></p>	<p>Couplings</p> <p>Ameridrives Couplings <i>Mill Spindles, Ameriflex, Ameridisc</i> Erie, PA - USA 1-814-480-5000</p> <p><i>Gear Couplings</i> San Marcos, TX - USA 1-800-458-0887</p> <p>Bibby Turboflex <i>Disc, Gear, Grid Couplings, Overload Clutches</i> Dewsbury, England +44 (0) 1924 460801 Boksburg, South Africa +27 11 918 4270</p> <p>TB Wood's <i>Elastomeric Couplings</i> Chambersburg, PA - USA 1-888-829-6637 – Press #5 <i>For application assistance: 1-888-829-6637 – Press #7</i></p> <p><i>General Purpose Disc Couplings</i> San Marcos, TX - USA 1-888-449-9439</p> <p>Ameridrives Power Transmission <i>Universal Joints, Drive Shafts, Mill Gear Couplings</i> Green Bay, WI - USA 1-920-593-2444</p> <p>Huco Dynatork <i>Precision Couplings and Air Motors</i> Hertford, England +44 (0) 1992 501900 Chambersburg, PA - USA 1-888-829-6637</p> <p>Lamiflex Couplings <i>Flexible Couplings, Bearing Isolators, and Coupling Guards</i> São Paulo, SP - Brasil +55-11-5679-6533</p>	<p>Heavy Duty Clutches and Brakes</p> <p>Wichita Clutch <i>Pneumatic Clutches and Brakes</i> Wichita Falls, TX - USA 1-800-964-3262 Bedford, England +44 (0) 1234 350311</p> <p>Twiflex Limited <i>Caliper Brakes and Thrusters</i> Twickenham, England +44 (0) 20 8894 1161</p> <p>Industrial Clutch <i>Pneumatic and Oil Immersed Clutches and Brakes</i> Waukesha, WI - USA 1-262-547-3357</p> <p>Gearing</p> <p>Boston Gear <i>Enclosed and Open Gearing, Electrical and Mechanical P.T. Components</i> Charlotte, NC - USA 1-800-825-6544 <i>For application assistance: 1-800-816-5608</i></p> <p>Bauer Gear Motor <i>Geared Motors</i> Esslingen, Germany +49 (711) 3518 0 Somerset, NJ - USA 1-732-469-8770</p> <p>Nuttall Gear and Delroyd Worm Gear <i>Worm Gear and Helical Speed Reducers</i> Niagara Falls, NY - USA 1-716-298-4100</p>	<p>Overrunning Clutches</p> <p>Marland Clutch <i>Roller Ramp and Sprag Type Overrunning Clutches and Backstops</i> South Beloit, IL - USA 1-800-216-3515</p> <p>Stieber Clutch <i>Overrunning Clutches and Holdbacks</i> Heidelberg, Germany +49 (0) 6221 30 47 0</p> <p>Belted Drives and Sheaves</p> <p>TB Wood's <i>Belted Drives</i> Chambersburg, PA - USA 1-888-829-6637 – Press #5 <i>For application assistance: 1-888-829-6637 – Press #7</i></p> <p>Engineered Bearing Assemblies</p> <p>Kilian Manufacturing <i>Engineered Bearing Assemblies</i> Syracuse, NY - USA 1-315-432-0700</p> <p><i>For information concerning our sales offices in Asia Pacific check our website www.altramotion.com.cn</i></p>
<p>Linear Products</p> <p>Warner Linear <i>Linear Actuators</i> Belvidere, IL - USA 1-800-825-6544 <i>For application assistance: 1-800-825-9050</i></p> <p>St Barthelemy d'Anjou, France +33 (0) 2 41 21 24 24</p>			

