The Brands of Altra Motion
A Global Footprint to Support Customers Around the World

Altra Headquarters
Altra Engineering & Service Centers
Altra Manufacturing Facilities

Couplings
Ameridrives
www.ameridrives.com
Bibby Turboflex
www.bibbyturboflex.com
Guardian Couplings
www.guardiancouplings.com
Huco
www.huco.com
Lami/Twiflex Couplings
www.lamitwiflexcouplings.com
Stromag
www.stromag.com
TB Wood's
www.tbwoods.com
Linear Systems
Thomson
www.thomsonlinear.com

Geared Cam Limit Switches
Stromag
www.stromag.com
Engineered Bearing Assemblies
Kilian
www.kilianbearings.com
Electric Clutches & Brakes
Matrix
www.matrix-international.com
Stromag
www.stromag.com
Warner Electric
www.warnerelectric.com
Deltran
www.thomsonlinear.com
Belted Drives
TB Wood's
www.tbwoods.com

Heavy Duty Clutches & Brakes
Twiflex
www.twiflex.com
Stromag
www.stromag.com
Svendborg Brakes
www.svendborg-brakes.com
Wichita Clutch
www.wichitaclutch.com

Gearing & Specialty Components
Bauer Gear Motor
www.bauergears.com
Boston Gear
www.bostongear.com
Delroyd Worm Gear
www.delroyd.com
Nuttall Gear
www.nuttallgear.com

Engine Braking Systems
Jacobs Vehicle Systems
www.jacobsvehiclesystems.com
Precision Motors & Automation
Kollmorgen
www.kollmorgen.com
Miniature Motors
Portescap
www.portescap.com
Overrunning Clutches
Formsprag Clutch
www.formsprag.com
Marland Clutch
www.marland.com
Stieber
www.stieberclutch.com

Power Transmission Solutions for the Mining Industry
ALTRA MOTION PROVIDES POWER TRANSMISSION SOLUTIONS FOR UNDERGROUND MINING, SURFACE MINING, AND PROCESSING APPLICATIONS

From heavy-duty brakes for draglines and electric rope shovels to caliper brakes and disc couplings on winders and ventilation fans, a wide array of Altra products keeps mining operations running smoothly worldwide.

The companies of Altra Motion are industry leaders in braking, engaging, overrunning, gearing, and load transmitting products. Whether a power transmission coupling is required or a highly engineered torque limiting device is needed, Altra Motion has the expertise and the knowledge to design, manufacture, and market reliable products with the lowest cost of ownership.

ALTRA MOTION
AVAILABLE WHERE YOU NEED US, WHEN YOU NEED US

Whether you need complete units or genuine replacement parts, choose the brands known in mines around the world.

Mining products from Altra Motion can be found throughout the world with locations in China and Asia Pacific, Australia, Europe, South America, South Africa, and North America. Our sales associates and application engineers are well trained to understand your product needs and recommend the right power transmission solution for your specific application.

Trained and authorized distributor partners are also strategically located around the globe in major cities, ports, and mining regions to help meet your needs.

For detailed information about application-specific power transmission solutions from Altra Motion including case studies, literature, and service manuals, visit

www.AltraMining.com
ALTRA PRODUCTS KEEP MINES RUNNING SMOOTHLY... WORLDWIDE

Clutches and Brakes
As the largest provider of clutches and brakes for draglines and shovels, Altra offers expertise in acceleration and deceleration of heavy-duty drive systems. Altra is an industry leader in braking and engaging products for many mining applications including grinding mills, conveyors, mine hoists, coal pulverizers, stackers/reclaimers, longwall miners, shuttle cars, haulers, and railed vehicles.

*Industrial Clutch • Matrix • Svendborg Brakes • Twiflex • Wichita Clutch*

Belted Drives and Couplings
An extensive offering of V-belt and synchronous drives (up to 108" / 2.75m in diameter) has been heavily utilized in underground and processing applications for years – including crushers, conveyors, cooling towers, pumps, flotation cells, fans, and compressors. Pioneering many technological innovations to keep in step with changing mining requirements, Altra’s engineered couplings (grid, gear, flywheel, and universal joints) have become the preferred solution in a variety of demanding mining operations such as draglines, shovels, stackers/reclaimers, crushers, grinding mills, processing equipment, shuttle cars, and conveyors.

*Ameridrives • Bibby Turboflex • Guardian Couplings • TB Wood’s*

Overrunning Clutches
Offering the broadest range of both sprag and ramp-and-roller overrunning clutches and backstops, Altra brands are the world’s leading authorities for applications requiring overrunning clutches and backstops, such as conveyors, pumps, fans, and redundant drive systems. Available for both high-speed and low-speed operations. Bore sizes, up to 23.5" (600mm) and torque ranges up to 1.2M lb.ft. (1.6Nm).

*Formsprag Clutch • Marland Clutch • Stieber*

Enclosed Gearing and Geared Motors
As the leading innovator of worm and helical gearing and gear motor technology, Altra continues to improve product performance by developing innovative features, designs, and custom-engineered solutions to meet unique market requirements. Providing unmatched reliability and versatility, these products have been used by the mining industry for years and can be found in draglines, shovels, continuous miners, stackers/reclaimers, crushers and sizers, sedimentation tanks and flotation cells, underground vehicles, fans and mine cooling systems, and conveyors. Worm gears up to 48" center distance and helical gearing up to 6M in.lbs. (675kNm) continuous. Energy efficient geared motors are available in a wide range of styles and sizes.

*Bauer Gear Motor • Boston Gear • Delroyd Worm Gear • Nuttall Gear*

Overload Clutches and Torque Limiters
Altra provides positive engagement overload clutches, centrifugal soft-start clutches, and modular torque limiters with up to 95% torque setting accuracy. These products are often utilized in longwall and continuous miners, ventilation fans and compressors, crushers, grinding mills, coal pulverizers, sedimentation tanks, and conveyors.

*Bibby Turboflex • Boston Gear*
**Electric Rope Shovels and Draglines**
Industrial Clutch heavy-duty brakes and Twiflex caliper brakes are used for controlled engagement and emergency stopping on rope hoists and bucket drag winches. Industrial brakes are also used to “park” the tracks and for controlled engagement for swing, propel, and crowd motion applications.

Ameridrives and Bibby gear couplings are used to connect motors to large Nuttall helical speed reducers on hoist and drag drivetrains. Those same couplings are also found on swing, propel, and crowd motion drives.

Boston Gear helical gear drives are found on rope threaders. Formsprag overrunning clutches and backstops are used to prevent reverse rotation of cooling fans. TB Wood’s and Bibby grid couplings along with Guardian flywheel couplings are used on hydraulic power units in auxiliary systems.

**Rotary Blast Hole Drills**
Heavy-duty brakes by Industrial Clutch are used to lock the spindle in the case of an emergency stop, providing reliable and repeatable performance. Ameridrives and Bibby gear couplings are used for low-speed, high-torque hoist, lift, and drill movements.

TB Wood’s and Guardian elastomeric couplings are used to connect the hydraulic pump to the main drive. These couplings provide great vibration dampening and excellent misalignment capabilities.

**Ameridrives** Grid Couplings, Gear Couplings and Amerigear Spindles
**Boston Gear** Series 2000 Inline Helical Gear Drives
**Formsprag Clutch** FSO Overrunning Clutches and LCB200 Backstops
**Guardian Couplings** Flywheel Couplings
**Industrial Clutch** LKB Spring Set, Air Released Brakes
**Nuttall Gear** Speed Reducers
**Twiflex** GMR-SD Spring Applied, Air Released Caliper Brakes

**Ameridrives** Gear Couplings
**Guardian Couplings** Shaft-to-Shaft and Flywheel Couplings
**Industrial Clutch** LKB Spring Set, Air Released Brakes
**TB Wood’s** Dura-Flex® Elastomeric Couplings
Mine Haul Trucks

Large, rigid-frame haul trucks utilize Matrix multi-plate brakes mounted within the rear wheels. These spring-applied, hydraulically-released brakes are sealed and oil-cooled. The axles are connected to the transmission using power-dense U-joints.

Ameridrives U-joints
Matrix SAE Hydraulically-Actuated, “Bolt-On” Brakes
Surface Mining Operations

Crushers

High-capacity TB Wood’s V-Belt sheaves are used to increase torque between the motor and the crusher. They are used when a redundant system is present or when the primary mover is a tandem drive. On a direct drive system, or a combination of belted and direct drive systems, high-torque gear couplings are used.

To prevent reverse rotation, Formsprag overrunning clutches are used on the rotor portion of cone or gyratory crushers. Bibby and Boston torque limiters are often found on the “anti-spin” of bowl type crushers to maintain product uniformity.

Wichita PTOs and clutches, along with Nuttall speed reducers and Guardian couplings are also utilized on crusher drivetrains.

Ameridrives Grid Couplings and Gear Couplings
Bauer Gear Motors BF Series Parallel Shaft Gear Motors and BK Series Helical Bevel Gear Motors
Bibby Turboflex Bibbigard® Torque Limiters & Rotofluid Couplings
Boston Gear Centric® Series CCC Overload Clutches
Formsprag Clutch Overrunning Clutches
Guardian Couplings Shaft-to-Shaft and Flywheel Couplings
Nuttall Gear Moduline Concentric Speed Reducers
TB Wood’s V-Belt Sheaves
Wichita Clutch PTOs and EM Series Clutches

Inclined, Declined, and Overland Conveyors

Inclined and overland conveyors use backstops to protect against roll back under load. Formsprag, Marland, and Stieber high-speed backstopping clutches are utilized on the conveyor’s enclosed gear drive. Low-speed, high-torque holdbacks are mounted close to the drive pulley/head shaft.

Twiflex and Svendborg spring-applied caliper braking systems are used to limit drift time or to prevent belt run-away in the event of a power failure on overland and declined conveyors. Svendborg’s SOBO® iQ soft braking control technology reduces wear on equipment and provides consistent stopping times or distances.

Nuttall helical and Delroyd worm gearing solutions are typically used on main drives and, in the case of an inclined conveyor, a high-speed backstop may be added. TB Wood’s and Bibby grid couplings along with Guardian curved jaw couplings connect the drive motor to the speed reducer input shaft. Bibby and Ameridrives gear couplings with rigid special overhung moment are used for connecting the head pulley to the motor gearbox drive package. Bibby torque limiters are used to prevent catastrophic failure associated with a sudden spike in torque.

Altra Couplings Grid Couplings and Gear Couplings
Bauer Gear Motors BF Series Parallel Shaft Gear Motors and BK Series Helical Bevel Gear Motors
Bibby Turboflex Bibbigard® Torque Limiters & Rotofluid Couplings
Boston Gear 700 Series Worm Gear Drives
Delroyd Worm Gear Gearing
Formsprag Clutch Backstoppers, Holdbacks & Overrunning Clutches
Guardian Couplings Curved Jaw Brake Disc Couplings
Marland Clutch Backstoppers & CECON Clutches
Nuttall Gear Moduline Concentric and Type TDS Parallel Shaft Speed Reducers
Stieber Releasable Backstops
Svendborg Brakes Caliper Disc Brakes, SOBO® iQ Braking Controls & Hydraulic Power Units
TB Wood’s V-Belt Drives
Twiflex Spring Applied, Hydraulic or Air Released Caliper Brakes
Wichita Clutch AirMaKKs & LI-SSB Clutches
Ball and SAG Mills

Wichita SV Ball Mill Clutches are specifically designed for mill applications and are the product of choice on geared mills. The high-heat dissipation clutches enable smooth starts and a means to disconnect the prime mover from the main drive.

High-capacity Ameridrives and Bibby gear couplings, along with TB Wood’s and Bibby grid couplings, are used on geared mills to connect the motor to the speed reducer and the gear drive to the pinion gear. Boston Gear centrifugal clutches are used to help soft-start heavy inertia loads. Bibby torque-limiting modules are tamper-proof and are designed to be integrated into many types of mill systems. Guardian Quik Joint pipe couplers are used on environmental/dust control systems.

Twiflex and Svendborg caliper disc brakes are typically grouped together to multiply braking force for reliable emergency stopping on gearless mills. Models found on geared mills are used to stop and hold the inertia.

Ameridrives Grid Couplings and Gear Couplings
Bibby Turboflex Bibbigard® Torque Limiters
Boston Gear Centric® Series CCC Overload Clutches
Guardian Couplings Shaft-to-Shaft Couplings & Quik Joint Pipe Couplers
Svendborg Brakes Caliper Disc Brakes and Hydraulic Power Units
Twiflex Spring-Applied Modular Caliper Brakes
Wichita Clutch Grinding Mill Clutch
Utility Vehicles, Shuttle Cars, and Locomotives

Matrix hydraulic brakes and Ameridrives gear spindles provide reliable performance on all types of mining vehicles including loaders, haulers, shuttle cars, and personnel carriers. Ameridrives Power Transmission U-joint shafts are often mounted between the traction motors and the wheel assemblies.

Twiflex spring-applied, air-released caliper brakes are used for holding on shuttle locomotives. These brakes are installed on the wheel axle and gearbox input shaft. Matrix customized, spring-applied, oil-cooled wheel brakes with service, E-stop and parking functions are also used on locomotives. Spring-applied, electromagnetically-released parking brakes are found on smaller, battery-powered locomotives.

Engine-mounted Guardian couplings connect to gearboxes or hydraulic pumps. Matrix spring-applied, hydraulically-released integrated brakes are mounted on the main gear box between the wheels and the motor on shuttle cars.

Ameridrives Gear Spindles, Gear Couplings and U-Joints
Guardian Couplings Shaft-to-Shaft and Flywheel Couplings
Matrix SAE Hydraulically-Actuated “Bolt-On” Brakes and Custom Design Integrated Wheel Brakes
Twiflex GMRSD Spring Applied, Air Released Brakes, MX Series Hydraulically Released Brakes and MXEA Electric Brakes
Longwall and Continuous Miners

Bibby tamper-proof, positive engagement torque-limiting modules and Boston Gear centrifugal friction clutches provide protection against sudden torque spikes and high inertia starting loads. These components are used on shearsers and hauling drives to prevent premature wear and catastrophic failures.

Matrix spring-applied, hydraulically-released brakes are used to “park” the shearer at any given position. TB Wood’s and Guardian couplings are utilized on hydraulic pump drives. Nuttall speed reducers are used on the drive of the armor-faced conveyor, the shearer’s haulage system and “scooping” arms.

Bibby Turboflex® Bibbigard® Torque Limiters
Boston Gear® Centric® Torque Limiters and Series CCC Overload Clutches
Guardian Couplings Shaft-to-Shaft, Flywheel and Curved Jaw Brake Disc Couplings
Matrix® Series 56P Multi-Disc Brakes
Nuttall® Type TDS Parallel Shaft (inclined) Speed Reducers
TB Wood’s® Dura-Flex® and Sure-Flex® Plus Elastomeric Couplings

Sizers and Feeder Breakers

TB Wood’s and Bibby grid couplings, positioned between the motor and speed reducer, are designed to provide protection against damaging effects of shock loads and vibration on sizers and feeder breakers.

Rugged Nuttall enclosed gearing solutions are used to drive the crushing roller and to power the feeding conveyor. Ameridrives and Bibby gear couplings transmit very high torque from the output shaft of the reducer to the main and conveyor drives.

Wichita and Bibby fluid couplings are a good choice when soft starting, along with shock load protection capabilities, is needed. Boston Gear centrifugal clutches provide similar protection on breakers. Ameridrives Power Transmission U-joints are sometimes used when high misalignment is present. TB Wood’s elastomeric couplings and belted drives are routinely utilized on this equipment.

Ameridrives® Grid Couplings, Gear Couplings and U-Joints
Bibby Turboflex® Rotofluid Couplings
Boston Gear® Centric® Centrifugal Clutches
Nuttall® Gear Moduline Concentric Speed Reducers
TB Wood’s® Dura-Flex® and Sure-Flex® Plus Elastomeric Couplings; V-Belt & Synchronous Drives
Wichita Clutch® Mesur-Fil® Fluid Couplings

www.AltraMining.com
**Winders, Hoists, and Elevators**

Twiflex and Svendborg mounted caliper brakes are grouped together to multiply braking force for reliable positioning (low speed to bring to rest), holding/parking, and emergency stopping. Svendborg’s SOBO® iQ control technology provides soft and predictable braking sequences on deep underground mine winders and hoists.

Grid, shaft-to-shaft and high-torque capacity gear couplings from Ameridrives, Bibby, Guardian and TB Wood’s transmit torque between the drive motor and the speed reducer, and between the speed reducer and the hoist drum.

**Altra Couplings** Grid Couplings and Gear Couplings  
**Bauer Gear Motors** BF Series Parallel Shaft Gear Motors and BK Series Helical Bevel Gear Motors  
**Guardian Couplings** Shaft-to-Shaft Elastomeric Couplings  
**Svendborg Brakes** Caliper Disc Brakes, SOBO® iQ Braking Controls and Hydraulic Power Units  
**Twiflex** Spring Applied Hydraulic Caliper Brakes

**Fans & HVAC Systems**

TB Wood’s belted drives are used on fans when the motor shaft is parallel and offset to the fan shaft, or when it is powered by two prime movers. When the fan design requires the motor to be mounted in-line with the fan shaft, high-performance Ameridrives, Bibby, Guardian, and TB Wood’s couplings are used. Nuttall speed reducers are sometimes attached to the main drives.

Wind-milling of the fan is prevented by using a Formsprag backstop. Formsprag overrunning clutches are used when a redundant drive system is present. To avoid premature drive system wear, Boston Gear centrifugal friction clutches are installed to assist on start up. Spring-applied caliper braking systems from Twiflex and Svendborg provide reliable stopping and holding performance.

**Ameridrives** Turboflex GC Couplings  
**Bibby Turboflex** Turboflex HP Couplings  
**Boston Gear** Centric® Series CCC Overload Clutches  
**Formsprag Clutch** FSO & HSB Overrunning Clutches and LCB200 Backstops  
**Guardian Couplings** Curved Jaw Brake Disc Couplings  
**Nuttall Gear** Speed Reducers  
**Svendborg Brakes** Caliper Disc Brakes and Hydraulic Power Units  
**TB Wood’s** Form-Flex® Couplings, Floating Shaft Couplings & V-Belt Drives  
**Twiflex** Spring Applied, Air Released Caliper Brakes
Stacker/Reclaimers

The bucket wheel is driven by an electric motor connected to a helical gear reducer via a high-speed coupling. The boom is raised and lowered by a hoist that utilizes Twiflex and Svendborg caliper brakes for holding and emergency stopping. The machine moves forward and backward via a set of tracks controlled by electric motors, speed reducers, caliper brakes, and Ameridrives gear spindles.

Industrial Clutch brakes, positioned on the drive end opposite of the motor, are used for controlled engagement and high-energy stops. Ameridrives, Bibby, Guardian, and TB Wood’s couplings are used to connect the motor to the speed reducer on take-away and discharge conveyors, tracks, and bucket wheel rotation drives. Boston Gear enclosed helical gearing is found on rope threader drivetrains.

These massive machines require large cooling fan systems that often utilize Formsprag high-speed backstops to prevent reverse rotation.

- **Ameridrives** Gear Spindles, Grid Couplings and Gear Couplings
- **Bibby Turboflex** Rotofluid Couplings
- **Boston Gear** Series 2000 Inline Helical Gear Drives
- **Formsprag Clutch** Overrunning Clutches
- **Guardian Couplings** Curved Jaw Brake Disc and Shaft-to-Shaft Couplings
- **Industrial Clutch** LKB Spring Set, Air Released Brakes
- **Svendborg Brakes** Caliper Disc Brakes and Hydraulic Power Units
- **Twiflex** Spring Applied, Air Released Caliper Brakes

Railcar Positioners & Dumpers (Wagon Tipplers)

Ameridrives and Bibby gear couplings transmit torque from the rotating dumper barrel’s primary mover to the helical gear drive and from the gear drive to the load on wagon tipplers. Twiflex and Svendborg caliper brakes provide superior positioning, holding, and emergency stopping performance on the car dumper rotation drive.

Bibby torque limiters are utilized on railcar positioners that move and feed strings of cars in and out of the wagon tippler without the need for a locomotive.

- **Ameridrives** Grid Couplings and Gear Couplings
- **Bibby Turboflex** Torque Limiters
- **Svendborg Brakes** Caliper Disc Brakes and Hydraulic Power Units
- **Twiflex** Models VKSD & VM3-SPS Caliper Brakes
Pumps and Compressors

Pump packages utilize high horsepower TB Wood’s V-belt drives to connect the motor to the pump shaft. The belted drive can also be designed with an optimal speed reduction ratio to increase torque to the pump.

For direct drive pump systems, a variety of TB Wood’s, Bibby, Guardian, and Ameridrives couplings or Ameridrives U-joints transmit power from the motor to the pump shaft. When pumps are connected to a common manifold, Formsprag overrunning clutches can be used on each pump to protect it and the other power transmission components from counter-rotation of the impeller and reverse fluid flow.

Bibby torque limiters, Marland clutches, and Nuttall speed reducers are often incorporated on larger pump drivetrains.

Ameridrives Turboflex GC Couplings, Grid Couplings and U-Joints
Bauer Gear Motors BG Series Helical Gear Motors
Bibby Turboflex Turboflex HP Couplings and Bibbigard® Torque Limiters
Formsprag Clutch Overrunning Clutches
Guardian Couplings Flywheel and Shaft-to-Shaft Elastomeric Couplings
Marland Clutch CECON Clutches
Nuttall Gear Moduline Concentric Speed Reducers
TB Wood’s Dura-Flex®, Sure-Flex® Plus, Form-Flex® and Floating Shaft Couplings; V-Belt Drives
Sedimentation Tanks
Boston Gear enclosed speed reducers along with a variety of TB Wood’s, Bibby, and Guardian couplings are often utilized in the common powertrains that drive both the bottom scrapers/agitators and upper skimmers in circular tanks. In many cases, the chain drive is located above the center of the tank. However, some round clarifier designs position the drive units on outer perimeter tank rim tracks. Boston Gear and Bibby overload clutches and torque limiters are frequently installed to prevent the massive amount of torque generated from damaging the drive mechanism, due to the slow rotation speed of the skimmers/scrapers and potential jams.

Ameridrives Grid Couplings
Bauer Gear Motors BK Series Helical Bevel Gear Motors
Bibby Turboflex Torque Limiters
Boston Gear Centric® Torque Limiters, Series CCC Overload Clutches and Series 2000 Inline Helical Gear Drives
Guardian Couplings Shaft-to-Shaft Elastomeric Couplings
TB Wood’s Dura-Flex® and Sure-Flex® Plus Elastomeric Couplings

Belt Filter Press
TB Wood’s synchronous belted drives are used to power the filtering medium pressure rolls via a Boston Gear enclosed gear drive.

Boston Gear Series 2000 Inline Helical Gear Drives
TB Wood’s Synchronous Belted Drives

Flotation Cells
TB Wood’s large diameter and high HP belted drives connect the main drive motor to the agitator shaft. In the case of larger capacity flotation cells, TB Wood’s, Bibby and Guardian couplings can be used on the agitator drivetrain. Bibby mechanical torque limiters are often utilized to protect the main drivetrain from damage due to sudden overload caused by jams.

Ameridrives Couplings Grid Couplings
Bibby Turboflex Torque Limiters
Guardian Couplings Shaft-to-Shaft Elastomeric Couplings
TB Wood’s Dura-Flex® and Sure-Flex® Plus Elastomeric Couplings; V-Belt Drives and MTO Sheaves
The website offers the worldwide mining and aggregate marketplace convenient, 24-hour access to the Altra brands, products and applications critical to virtually every operation in the mining process.

The website is organized by 15 mining application categories ranging from shovels and draglines to conveyors, crushers, winders and hoists, and more.

Within these categories are the features and benefits of each Altra product solution that can be applied to improve efficiency, productivity, and safety in the mining operation. Each product contains a web link to one of the 16 Altra brands that support the mining industry, where engineers can access detailed product specifications.

The website also contains a Mining Solutions Video, Case Studies, a Literature Portal and information on Altra’s Replacement Program for clutches and brakes – from Industrial Clutch, Wichita Clutch and Twiflex as well as its Rebuild Program for backstops from Formsprag Clutch and Marland Clutch.
ALTRA MARKET WEBSITES

See how the brands of Altra Motion are dedicated to providing better ways to solve power transmission applications.

Forklifts
www.AltraForklifts.com
Request P-8634-C at www.AltraLiterature.com

Turf and Garden
www.AltraTurfandGarden.com
Request P-1698-WE at www.AltraLiterature.com

Mobile Off-Highway
www.AltraMobileOffHighway.com
Request Literature at www.AltraLiterature.com

Oil and Gas
www.AltraOilandGas.com
Request P-8453-C at www.AltraLiterature.com

Mining and Aggregate
www.AltraMining.com
Request P-1763-C at www.AltraLiterature.com

Aerospace and Defense
www.Altra-Aerospace-Defense.com
Request P-1717-C at www.AltraLiterature.com

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www.AltraWind.com
Request P-1960-C at www.AltraLiterature.com

Food and Beverage
www.AltraFoodandBeverage.com
Request P-7665-BBG at www.AltraLiterature.com

Tidal
www.AltraTidal.com
Request P-7013-C at www.AltraLiterature.com

Elevators
www.AltraElevators.com
Request P-1733-C at www.AltraLiterature.com

Packaging Machinery
www.Altra-Packaging.com
Request Literature at www.AltraLiterature.com

Energy
www.AltraEnergyOilandGas.com
Request P-1908-C at www.AltraLiterature.com

Forklifts
www.AltraForklifts.com
Request P-8634-C at www.AltraLiterature.com

Turf and Garden
www.AltraTurfandGarden.com
Request P-1698-WE at www.AltraLiterature.com
The Brands of Altra Motion

<table>
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<tr>
<th>Couplings</th>
<th>Ameridrives</th>
<th><a href="http://www.ameridrives.com">www.ameridrives.com</a></th>
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| Heavy Duty Clutches & Brakes | Twiflex | www.twiflex.com |
|                              | Stromag | www.stromag.com |
|                              | Svendborg Brakes | www.svendborg-brakes.com |
|                              | Wichita Clutch  | www.wichitaclutch.com |
| Gearing & Specialty Components | Bauer Gear Motor | www.bauergears.com |
|                               | Boston Gear     | www.bostongear.com |
|                               | Delavan         | www.delavan.com |
|                               | Delroyd Worm Gear | www.delroyd.com |
|                               | Nuttall Gear    | www.nuttallgear.com |

| Engine Braking Systems | Jacobs Vehicle Systems | www.jacobsvehiclesystems.com |
|                       | Kollmorgen         | www.kollmorgen.com |
|                       | Miniature Motors   | www.portescap.com |
|                       | Portescap          | www.portescap.com |
|                       | Formsprag Clutch   | www.formsprag.com |
|                       | Maryland Clutch    | www.maryland.com |
|                       | Stieber            | www.stieberclutch.com |