

*Warner Electric*

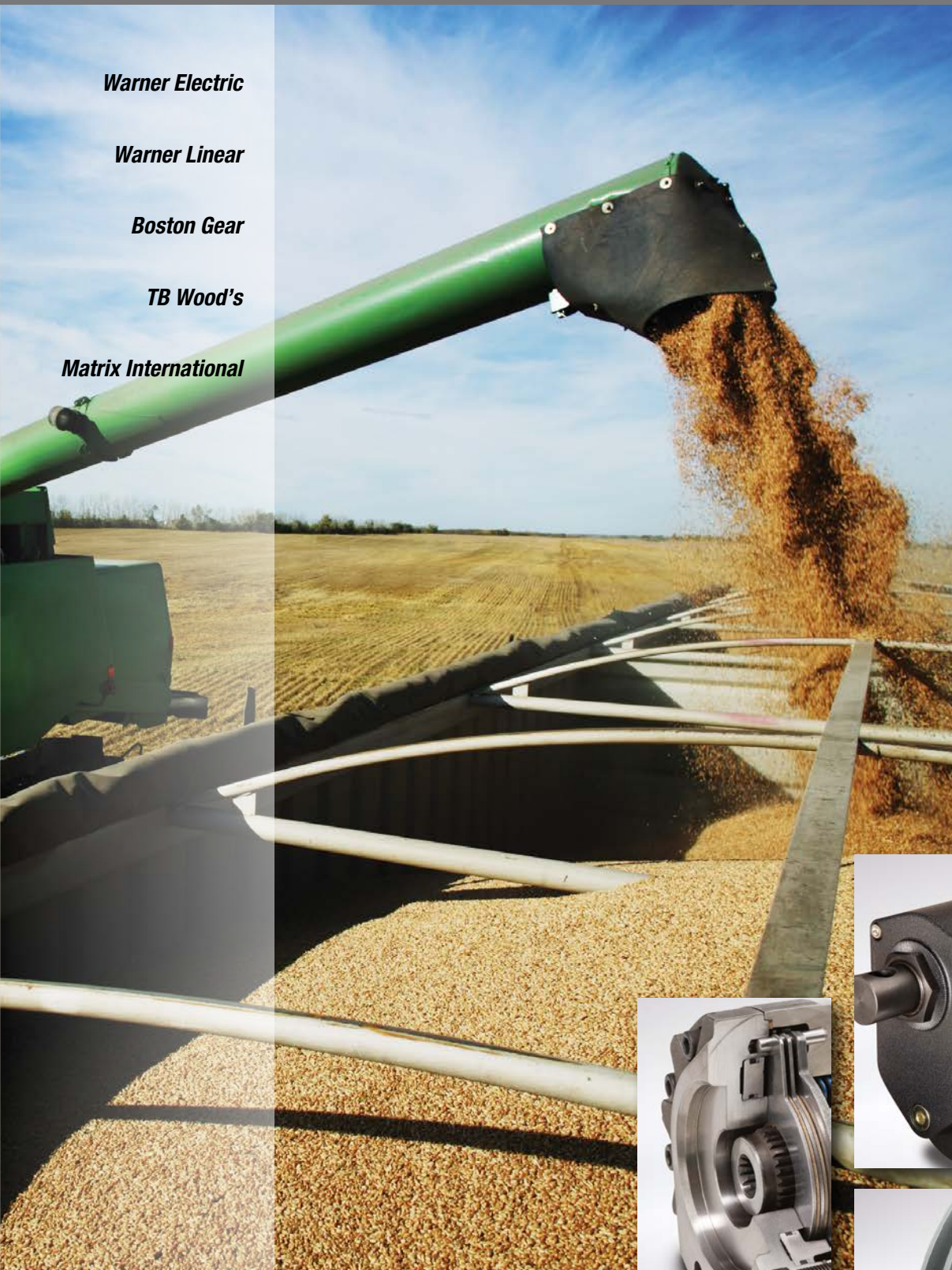
*Warner Linear*

*Boston Gear*

*TB Wood's*

*Matrix International*

# Power Transmission Solutions for the Farm and Agriculture Market



## ALTRA INDUSTRIAL MOTION OFFERS A WIDE ARRAY OF POWER TRANSMISSION PRODUCTS FOR THE FARM & AGRICULTURE MARKET

As the costs for crops continue to rise, the equipment necessary to harvest and cultivate them will come under increasing pressure to perform. As industry leaders in electromechanical power transmission products, the companies of Altra Industrial Motion are uniquely positioned to leverage their products' reputations, reliability and technologies to help farm equipment manufacturers achieve the necessary productivity and efficiency that farmers require.

As a leading multinational designer, producer and marketer of a wide range of power transmission products, Altra offers many critical products utilized in farming applications where reliability and accuracy are necessary to avoid costly downtime and enhance operations and efficiency.



The companies of Altra Industrial Motion are industry leaders in braking, engaging, overrunning, gearing, and load transmitting products. Whether a speed reducer is required or a highly engineered clutch or linear actuator is needed, Altra Industrial Motion has the expertise and the knowledge to design and manufacture reliable products with the lowest cost of ownership.

### Customer Service

Our extensive application knowledge enables us to assist in the selection of the correct type of product design for your equipment. With sales and technical support teams located worldwide, Altra is able to provide an unrivaled level of responsive customer service.

[www.AltraFarmandAg.com](http://www.AltraFarmandAg.com)



## ALTRA INDUSTRIAL MOTION PROVIDES LEADERSHIP THROUGH INNOVATION

Altra Application Engineers have vast experience in providing the right product to meet the exact needs of farm and agriculture applications. From a pump clutch for a hay baler to an electric linear actuator for a sprayer, Altra has the expertise to perfectly match one of the thousands of our standard products to meet your requirements.

If a standard product comes close but just won't do, we will modify it or design a completely custom product to meet your needs precisely.

Altra products can be found hard at work in farm and agriculture applications worldwide including...

- Combines & Harvesters
- Sprayers & Spreaders
- Seeders
- Hay Baling Equipment
- Grain Handling Equipment and Grain Augers
- Tillage Equipment
- Manure Handling Equipment
- Cotton Pickers
- Corn Detasslers
- Choppers
- Mowers
- Pumps and Hydraulic Systems
- Conveyors

For detailed information about application specific power transmission solutions from Altra Industrial Motion including case studies and literature, visit:

[www.AltraFarmandAg.com](http://www.AltraFarmandAg.com)

For over a century, the most important breakthroughs in engineered power transmission products have been driven by our family of companies working together to lead the market forward. Developing innovative technologies is the core principal of Altra Industrial Motion.

With a full complement of mechanical and electrical solutions for every type of application, Altra Industrial Motion stands alone as the industry's most fully committed supplier of power transmission solutions.

- World-class engineering
- Rapid deployment of prototypes
- Superior customer service and application support... worldwide
- A common driving force: the Altra Business System
- Extensive training programs
- Global manufacturing to support local customer needs

Whether you need individual components or engineered packaged systems, choose the brands known throughout the world for quality, innovation and service.

## Clutches and Brakes



### Power Take-Off Clutches *Warner Electric*

Warner Electric Power-Take-Off clutches (PTO) and clutch/brakes provide a means for the operator of agricultural equipment to remotely control the operation of tractor powered implements or other mechanical systems. Grain Augers, for example, incorporate Warner Electric PTO clutches to provide a means to transmit or remove mechanical power from an internal combustion engine to the auger. In addition to this start/stop function many Warner Electric PTO clutches also incorporate a brake to hasten the stopping of rotating elements to increase safety.

- 60 lb.-ft. to 300 lb.-ft. of static clutch torque capacity
- 1", 1 1/8", and 1 7/16" bore sizes standard
- Numerous pulley and flange output options available

#### Typical Applications

- Mowers
- Fan Drives
- Grain Handling Equipment
- Hydroseeders
- Spreaders



### Farm-Line Clutches *Warner Electric*

Warner Electric Farm-Line clutches are heavy-duty, high capacity electromagnetic clutches that allow the operator to remotely control the operation of mechanical systems in agricultural equipment. Self-propelled combines, for example, incorporate Warner Electric Farm-Line clutches to control such systems as grain heads, feed house conveyors, main separator drives, unload augers, debris choppers, etc.

- Sizes range from 8" to 15" diameter
- 250 ft. lbs. to 1800 ft. lbs. of static torque
- Available for rotating shaft mount (PC-Primary Clutch), or stationary mount (SF-Stationary Field Clutch)

The PC design consists of a magnet and armature assembly and requires a brush-holder (available from Warner Electric) to carry current from the power source to the rotating magnet.

The SF design consists of a bearing mounted magnet assembly, or field, a rotor assembly, and an armature assembly. The bearing mounted field does not rotate which eliminates the need for a brush-holder.

Armature assemblies are available in clockwise or counterclockwise rotation, and with either a hub or flat leaf springs for mounting the output device. Hardware to mount the clutch to the shaft, including bearings, may be customer supplied, or Warner Electric will be pleased to work with your engineers to supply a complete, ready-to-mount packaged solution.

#### Typical Applications

- Combines
- Harvesters
- Hay Balers



### Pump Clutches for Hydraulic Systems *Warner Electric*

Warner Electric pump clutches are used to control a variety of accessories driven directly from an engine. Mounting a Warner Electric clutch on a hydraulic pump allows the operator or a control system to engage and disengage the hydraulic system on demand. Allowing the pump to be "off" when not needed increases the life of the pump and increases fuel efficiency.

- 50 lb.-ft. to 200 lb.-ft. static torque capacity
- Various pulley configurations available

#### Typical Applications

- Pumps
- Grass Seeders
- Spreaders
- Under Hood Hydraulics

## Linear Actuators



### Wrap Spring Clutches Warner Electric

Warner Electric offers a complete line of wrap spring clutches and clutch/brakes, which are particularly well suited for performing indexing, positioning and backstopping functions for agriculture machinery. Fast, repeatable and positive action provides identical cycling over a long life.

For precision farming applications, wrap spring clutches can be designed to meet the requirements for the application with modifications such as:

- Special housings to protect from environment
- Low current draw: 12 volt if multiple clutches on one planter
- Integral gearing or sprockets

### Typical Applications

- Seeders
- Planters
- Spreaders



### Brakes Matrix International

SAE Series Hydraulic Brakes are the perfect choice for mobile equipment wheel drives, track drives, winch drives and other hydraulic and motor driven equipment where power off braking is required. SAE brakes are widely used in these mobile equipment applications where failsafe brake operation is essential for parking in the event of a power loss.

These brakes are designed as wet or dry parking brakes. Typically mounted between a hydraulic motor and a reducer, these brakes are designed to release as hydrostatic transmission pump pressure changes.

The SAE brakes with industry standard SAE A, B, C and D input and output flanges enable these brakes to be 'bolted on' to a wide variety of applications. Fully enclosed brakes are suitable for harsh working environments and are available in wet and dry versions with static torque ranging from 50 to 1600 Nm (500 to 14,000 in. lbs.).

- Robust brake construction with high grade castings enables the brake to continuously hold 4,000 psi peak pressures
- Bearing supported shaft ensures alignment for easy assembly
- Close dynamic/static performance for smooth deceleration and E-stop when required
- Once installed, the brakes are fully sealed to keep contaminants out, enabling them to withstand tough environments

### Typical Applications

- Agriculture Vehicles
- Mobile Off-Highway Vehicles
- Utility Vehicles



### Electric Linear Actuators Warner Linear

Completely sealed, designed for tough, high load applications. B-Track linear actuators incorporate high strength, high quality components and are designed to provide years of trouble-free performance in harsh environments. Models feature a ball nut screw drive with integral load holding brake and overload clutch. Efficient power use, compact package size, excellent corrosion protection, rugged spur gearing, synthetic lubricants and high performance motors provide maximum capability and value.

Models available with 2 to 24 inch stroke lengths, up to 2200 lb. load capacity, and up to 2.7 in./sec travel speeds.

- Patented In-line bearing support improves unit efficiency
- Use of o-rings rather than gaskets increases contamination resistance
- Patented In-line design transfers loads to the end fitting via ball bearing screw pivot. Efficient load transfer reduces noise and current draw

### Typical Applications

- Sprayers
- Seeders & Spreaders
- Combines & Harvesters
- Cotton Pickers
- Bale Handling Equipment
- Corn Detasslers
- Straw Choppers

## Gearing



### Open Gearing & Shaft Accessories

#### **Boston Gear**

A complete line of spur, helical, miter, bevel, worms and worm gears can meet virtually any gearing need with superior results.

- Thousands of gears are available for immediate shipment so you get what you need when you need it
- For specialized applications, custom gears can be designed and manufactured
- For increased versatility, we can rebores and modify the keyway of any stock gear in just 24 hours
- All gears are manufactured to the strictest standards for the highest quality product available
- Custom gears designed to meet application requirements

#### **Bearings**

- Mounted self-aligning pillow blocks and flange blocks
- Set screw or eccentric mounting
- Lip sealed for moisture prevention with steel flingers
- Bronze friction type bearings
- Rod Ends
- Naked ball bearings

#### **Universal Joints**

- Cast/forged steel
- Pin and Block, steel and stainless steel
- Available in round, hex, square bores, and solid versions

#### **Typical Applications**

- Combines & Harvesters
- Grain Handling Equipment
- Planting Equipment
- Hay Balers



### Enclosed Gearing

#### **Boston Gear**

Boston Gear offers a wide range of enclosed gear drives to meet the demands of agriculture applications.

- Available in worm gearboxes and bevel gearboxes
- Versions available in aluminum, cast iron and stainless steel housings
- Available in various ratios and shaft configurations
- Sealed from external contamination with options to combat the elements such as temperature extremes, humidity, dirt, and dust
- Hardened gearing provides high torque capacity, long life and compact size with high power density
- Economical and precision products available in round or splined shaft versions
- Standard product available for immediate delivery
- Custom gearboxes designed to meet application requirements

#### **Typical Applications**

- Harvesters
- Planting Machinery
- Tree Shakers
- Grain Handling & Drying Equipment
- Irrigation Systems
- Bulk Seed Tenders



### Centric Torque Limiting & Centrifugal Clutches

#### **Boston Gear**

Trig-O-Matic ORC or HOR series improve machine productivity and limit the transmitted torque during jamming loads

- Available in Automatic/Manual/Semi Auto reset
- Single position detent design
- Torque range: 35-50,000 lb. in.
- Bore sizes: 1/2" to 3-15/16"
- 3 shaft attachment styles
- Sealed from external contamination
- Standard products available for immediate delivery
- Custom clutches designed to meet application requirements
- Centrifugal Clutches provide soft start and soft stopping power during excessive torque loading
- Automatic engagement minimizes operator intervention
- Clutch "soft start" extends acceleration times for heavy inertia loads
- 100% efficient at rated speed
- Provides torque limiting feature for jamming loads
- 50 to 3,000 HP rating
- Available as clutch couplings or in Power Take Off configurations
- Available as round or splined bore configurations
- Custom clutches designed to meet application requirements

#### **Typical Applications**

- Sprayers
- Spreaders
- Harvesters
- Planting Machinery
- Hay Balers

## Belted Drives

## Castings



### V-Belt and Synchronous TB Wood's

TB Wood's has been a leading innovator in belted drives products including a wide variety of successful product ranges for V-Belt and Synchronous drives.

#### V-Belt Drives

- FHP Sheaves
- Integral Sheaves
- Premium V-Belt Drives
- MTO Sheaves
- Variable Speed Sheaves

#### Synchronous Drives

- Timing Drives
- Synchronous Plus – Replacement for chain drives
- QTPCII – Replacement for chain drives

#### Typical Applications

- Combines & Harvesters
- Hay Balers
- Spreaders
- Grain Dryers & Grain Handling Equipment
- Choppers
- Cleaner Drives
- Conveyors

### Made-to-Order (MTO Sheaves) TB Wood's

Recognized in the industry as “Large Sheave” experts with a maximum capacity of 108-inch diameter.

Experienced Application Engineers provide optimum designs and specific application selections.

Integrated foundry with machining enables superior response time for made-to-order products.

Special Made-to-Order capabilities include:

- Specific, special diameters to achieve optimum speeds
- Special hub designs
- High-grade of iron (ductile) for high speeds
- Private-branded sheaves with OEM brands/part numbers

#### Typical Applications

- Combines & Harvesters
- Choppers
- Hay Balers
- Grain Dryers & Grain Handling Equipment
- Spreaders

### Commercial Castings TB Wood's

For generations, TB Wood's has developed the technical expertise to design, mold, and machine gray and ductile iron castings that have held up in some of the most demanding environments. TB Wood's ISO 9001:2008 registered foundry operations are capable of producing parts up to 10,000 pounds per cast part. Complete to print capabilities and quality control procedures (including CMM, gage calibration, and solidification modeling), enable us to satisfy casting requirements quickly and efficiently, on-time and on-budget.

#### Machining

CNC turning (up to 108")  
Milling (up to 64" X 40")  
Drilling & Tapping  
Broaching & Balancing  
Painting & Assembly

#### Molding – Green Sand

Roberts Sinto Automatic

- 20" x 24" mold size, 8"/8" cope/drag mold height
- 100 lb. maximum Herman Automatic
- 34" x 34" flask size, 10"/10" cope/drag mold height
- 350 lb. maximum

#### Molding – No Bake (Furan) Sand

MD4 Semi-automatic

- 60" x 96" mold size
- 24"/24" cope/drag mold height
- 2,000 lb. maximum Floor Molding
- 12' x 10' mold size
- 40" x 40" cope/drag mold height
- 10,000 lb. maximum

#### Process Controls

Hartley Sand Controls – Green Sand  
SPC of Iron Chemistries and Sand Characteristics

#### Typical Applications

- Cast parts for various farm and agriculture equipment

**Belted Drives and Sheaves**

**TB Wood's**

*Belted Drives*

Chambersburg, PA - USA  
**1-888-829-6637** – Press #5

*For application assistance:  
 1-888-829-6637 – Press #7*

**Couplings**

**Ameridrives Couplings**

*Mill Spindles, Ameriflex,  
 Ameridisc*

Erie, PA - USA  
**1-814-480-5000**

*Gear Couplings*

San Marcos, TX - USA  
**1-800-458-0887**

**Ameridrives Power Transmission**

*Universal Joints, Drive Shafts,  
 Mill Gear Couplings*

Green Bay, WI - USA  
**1-920-593-2444**

**Bibby Turboflex**

*Disc, Gear, Grid Couplings,  
 Overload Clutches*

Dewsbury, England  
**+44 (0) 1924 460801**

Boksburg, South Africa  
**+27(0) 11 918 4270**

**Guardian Couplings**

*Engineered Flywheel Couplings,  
 Engine Housings and Pump Mounts,  
 Flexible Shaft Couplings*

Michigan City, IN - USA  
**1-219-874-5248**

**Huco Dynatork**

*Precision Couplings and  
 Air Motors*

Hertford, England  
**+44 (0) 1992 501900**

Chambersburg, PA - USA  
**1-888-829-6637**

**Couplings Cont.**

**Lamiflex Couplings**

*Flexible Couplings, Bearing  
 Isolators, and Coupling Guards*

Cotia, SP - Brasil  
**+55 (11) 4615-6300**

**TB Wood's**

*Elastomeric Couplings*

Chambersburg, PA - USA  
**1-888-829-6637** – Press #5

*For application assistance:  
 1-888-829-6637 – Press #7*

*General Purpose Disc Couplings*

San Marcos, TX - USA  
**1-888-449-9439**

**Electromagnetic  
 Clutches and Brakes**

**Inertia Dynamics**

*Spring Set Brakes; Power On and  
 Wrap Spring Clutch/Brakes*

New Hartford, CT - USA  
**1-800-800-6445**

**Matrix International**

*Electromagnetic Clutches  
 and Brakes, Pressure Operated  
 Clutches and Brakes*

Brechin, Scotland  
**+44 (0) 1356 602000**

New Hartford, CT - USA  
**1-800-825-6544**

**Warner Electric**

*Electromagnetic Clutches  
 and Brakes*

New Hartford, CT - USA  
**1-800-825-6544**

*For application assistance:  
 1-800-825-9050*

Saint Barthélemy d'Anjou, France  
**+33 (0)2 41 21 24 24**

*Precision Electric Coils and  
 Electromagnetic Clutches and  
 Brakes*

Columbia City, IN - USA  
**1-260-244-6183**

**Engineered  
 Bearing Assemblies**

**Kilian Manufacturing**

*Engineered Bearing  
 Assemblies*

Syracuse, NY - USA  
**1-315-432-0700**

**Gearing**

**Bauer Gear Motor**

*Gearred Motors*

Esslingen, Germany  
**+49 (711) 3518-0**

Somerset, NJ - USA  
**1-732-469-8770**

**Boston Gear**

*Enclosed and Open Gearing,  
 Electrical and Mechanical  
 P.T. Components*

Charlotte, NC - USA  
**1-800-825-6544**

*For application assistance:  
 1-800-816-5608*

**Nuttall Gear and  
 Delroyd Worm Gear**

*Worm Gear and  
 Helical Speed Reducers*

Niagara Falls, NY - USA  
**1-716-298-4100**

**Heavy Duty  
 Clutches and Brakes**

**Industrial Clutch**

*Pneumatic and Oil Immersed  
 Clutches and Brakes*

Waukesha, WI - USA  
**1-262-547-3357**

**Svendborg Brakes**

*Industrial Brakes and  
 Brake Systems*

Vejstrup, Denmark  
**+45 63 255 255**

**Twiflex Limited**

*Caliper Brakes and Thrusters*

Wichita Falls, TX - USA  
**1-844-723-3483**

Twickenham, England  
**+44 (0) 20 8894 1161**

**Heavy Duty  
 Clutches and Brakes Cont.**

**Wichita Clutch**

*Pneumatic Clutches  
 and Brakes*

Wichita Falls, TX - USA  
**1-800-964-3262**

Bedford, England  
**+44 (0) 1234 350311**

**Linear Products**

**Warner Linear**

*Linear Actuators*

Belvidere, IL - USA  
**1-800-825-6544**

*For application assistance:  
 1-800-825-9050*

Saint Barthélemy d'Anjou,  
 France  
**+33 (0)2 41 21 24 24**

**Overrunning Clutches**

**Formsprag Clutch**

*Overrunning Clutches  
 and Holdbacks*

Warren, MI - USA  
**1-800-348-0881** – Press #1

*For application assistance:  
 1-800-348-0881 – Press #2*

**Marland Clutch**

*Roller Ramp and Sprag Type  
 Overrunning Clutches  
 and Backstops*

South Beloit, IL - USA  
**1-800-216-3515**

**Stieber Clutch**

*Overrunning Clutches  
 and Holdbacks*

Heidelberg, Germany  
**+49 (0) 6221-30470**

For information concerning our  
 sales offices in Asia Pacific  
 check our website  
[www.altramotion.com.cn](http://www.altramotion.com.cn)

