

***Ameridrives***

***Bauer Gear Motor***

***Bibby Turboflex***

***Boston Gear***

***Delroyd Worm Gear***

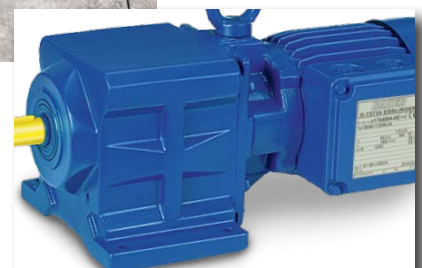
***Formsprag Clutch***

***Marland Clutch***

***Nuttall Gear***

***TB Wood's***

# Power Transmission Solutions for the Wastewater Market



# Power Transmission Solutions for the Wastewater Market

## ALTRA INDUSTRIAL MOTION PROVIDES POWER TRANSMISSION SOLUTIONS FOR WASTEWATER APPLICATIONS

As industry leaders in electromechanical power transmission products, the companies of Altra Industrial Motion have been helping wastewater equipment manufacturers and treatment facilities worldwide achieve great success by increasing their efficiency while at the same time reducing their costs and their downtime. Altra engineered power transmission products are installed in a wide array of applications including headworks, clarifiers, aeration equipment, and sludge treatment equipment.

Altra companies provide full drive train solutions for the wastewater industry, with a comprehensive offering of couplings, gear motors, speed reducers, torque-limiting devices, and belted drives to meet the specific needs of the wastewater industry. Designed to prevent corrosion and damage from temperature and humidity, Altra products withstand the harsh environment of the wastewater industry while providing exceptional personnel safety and equipment protection.



The companies of Altra Industrial Motion offer advanced technologies together with exceptional engineering capability. We analyze every application in order to optimize the best solutions for our customers. This approach allows us to provide multiple options to solve the same application challenge, with either high quality solutions or cost-conscious choices.

To help wastewater facilities control inventories, Altra teams work hard to achieve short lead times and on-time deliveries. Our products are designed to reduce downtime throughout wastewater processing plants by meeting the requirements for long service intervals, easy maintenance and fast interchanges.

For more information about application specific power transmission solutions for the wastewater market from Altra Industrial Motion, including case studies and literature, visit:

**[www.AltraWastewater.com](http://www.AltraWastewater.com)**

## ALTRA OFFERS A FULL DRIVETRAIN SOLUTION TO KEEP WASTEWATER TREATMENT FACILITIES RUNNING EFFICIENTLY... WORLDWIDE.



### Couplings

For over 150 years, the industry-leading brands of Altra Couplings have been providing innovative solutions to meet the varied requirements of the wastewater industry. Highly engineered Altra coupling products represent the latest in coupling technology, featuring superior design and exceptional quality to ensure long-lasting performance. Altra couplings can be found on motor/pump drivetrains and many other applications throughout wastewater facilities such as clarifier drives and aeration blowers.

**Ameridrives • TB Wood's**



### Gear Motors and Enclosed Gearing

As the leading innovator of worm and helical gear and gear motor technologies, Altra continues to improve product performance by developing innovative features, designs and custom engineered solutions to meet the demands of the wastewater market. Providing unmatched reliability and versatility, these products have been used in wastewater facilities for years and can be found on bar screens, grit collectors, sand separators, screw conveyors, clarifier drive units, sediment and aeration tank scraper/skimmer blades, sludge augers, agitators and mixers, and pumps.

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



### Overload Clutches and Torque Limiters

Altra provides positive engagement overload clutches and modular torque limiters with up to 95% torque setting accuracy. These products are often utilized on applications such as clarifiers and cross collectors with chain drives.

**Bibby Turboflex • Boston Gear**



### Overrunning Clutches and Backstops

Altra brands offer a broad range of both sprag and ramp and roller overrunning clutches and backstops utilized in pump applications in wastewater treatment facilities. CECON overrunning clutches are often used when a pump is driven by two power sources. Backstopping clutches are used to prevent pump impellers from rotating backwards (backflow) when the pump motor is off and back pressure is present.

**Formsprag Clutch • Marland Clutch**



### Belted Drives

An extensive offering of V-belt and synchronous drives (up to 108" / 2.75m in diameter) has been utilized in wastewater facility pump drive applications for years. TB Wood's integrated foundry and machine process provide superior response time on stock and made to order products. TB Wood's has continued to innovate its products and services in order to add value to their wastewater customers.

**TB Wood's**



# Preliminary Treatment Headworks

## Grit Collectors

Gear motors are used to drive a wide variety of vertical shaft grit removal systems and inclined screw-style grit washing equipment.

**Bauer Gear Motor** BF Series parallel shaft gear motor and BK Series helical bevel gear motor

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 700 Series worm reducers, 800 Series and 2000 Series helical reducers



## Screw Conveyors

Screw Conveyors are used to move coarse, fine and compacted sludge, grit, and solids from the preliminary water treatment process to landfill transport trucks. Heavy duty gearmotors are used to drive the augers. Torque limiters are often incorporated in the drive trains.

**Bauer Gear Motor** BF Series parallel shaft gear motors

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 700 Series worm reducers, 800 Series and 2000 Series helical reducers

**Boston Gear** Centric® ORC, WOR Overload Clutches

**Delroyd Worm Gear** DVM double worm gear speed reducers

**Formsprag Clutch** Model HSB backstopping clutches

**Nuttall Gear** Moduline inline helical speed reducers



Source: HUBER SE

## Main Pumping Station

The massive pumps that lift incoming raw sewage to a height that allows gravity flow through the initial stages of treatment are sometimes positioned on a lower level, beneath the large motors that drive them. U-joints or disc couplings are often used to connect the motors to the pumps. Steel or composite tubular spacers can be supplied.

**Ameridrives** U-Joints

**TB Wood's** Form-Flex® vertical composite shaft couplings





## Bar Screens

High portions of solids in the water can cause damage to the plant equipment. Slowly rotating bar screens and rakes with scraper arms are used to filter out the larger solids and transport the waste onto the screw conveyor. Bauer Gear Motor and Boston Gear Centric overload clutches are utilized in drivetrains for this equipment.

**Bauer Gear Motor** BF Series parallel shaft gear motors

**Boston Gear** Centric® Model WOR and ORC overload clutches

**Boston Gear** 700 Series worm reducers, 800 Series and 2000 Series helical reducers



Source: HUBER SE

## Sand Separators

Sand separators are often utilized in wastewater facilities to remove slurry sand and other (heavy) mineral deposits out of the water. Multiple gearmotors are used to power the various screw drives within the machine.

**Bauer Gear Motor** BF Series parallel shaft gear motor and BK Series helical bevel gear motor

**Boston Gear** 700 Series worm reducers, 800 Series and 2000 Series helical reducers

**Boston Gear** Centric® Model WOR and ORC overload clutches

# Primary Treatment Clarifiers



## Rectangular Primary Sedimentation Tanks

Bauer Gear Motor and TB Wood's couplings are popular choices for use on rotating flight bar (scraper/skimmer) drives in rectangular primary clarifying tanks.

Torque limiters can also be used on the clarifier drivetrain, installed on the gear motor and a sprocket to the conveyor drive chain that pulls the flight bars through the tanks. Without a torque limiter, in the event of obstruction within the tank, the drive chain can "slip a sprocket" causing an overload situation and potential chain breakage.

**Bauer Gear Motor** BK Series helical bevel gear motors

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 2000 Series and 800 Series helical speed reducers

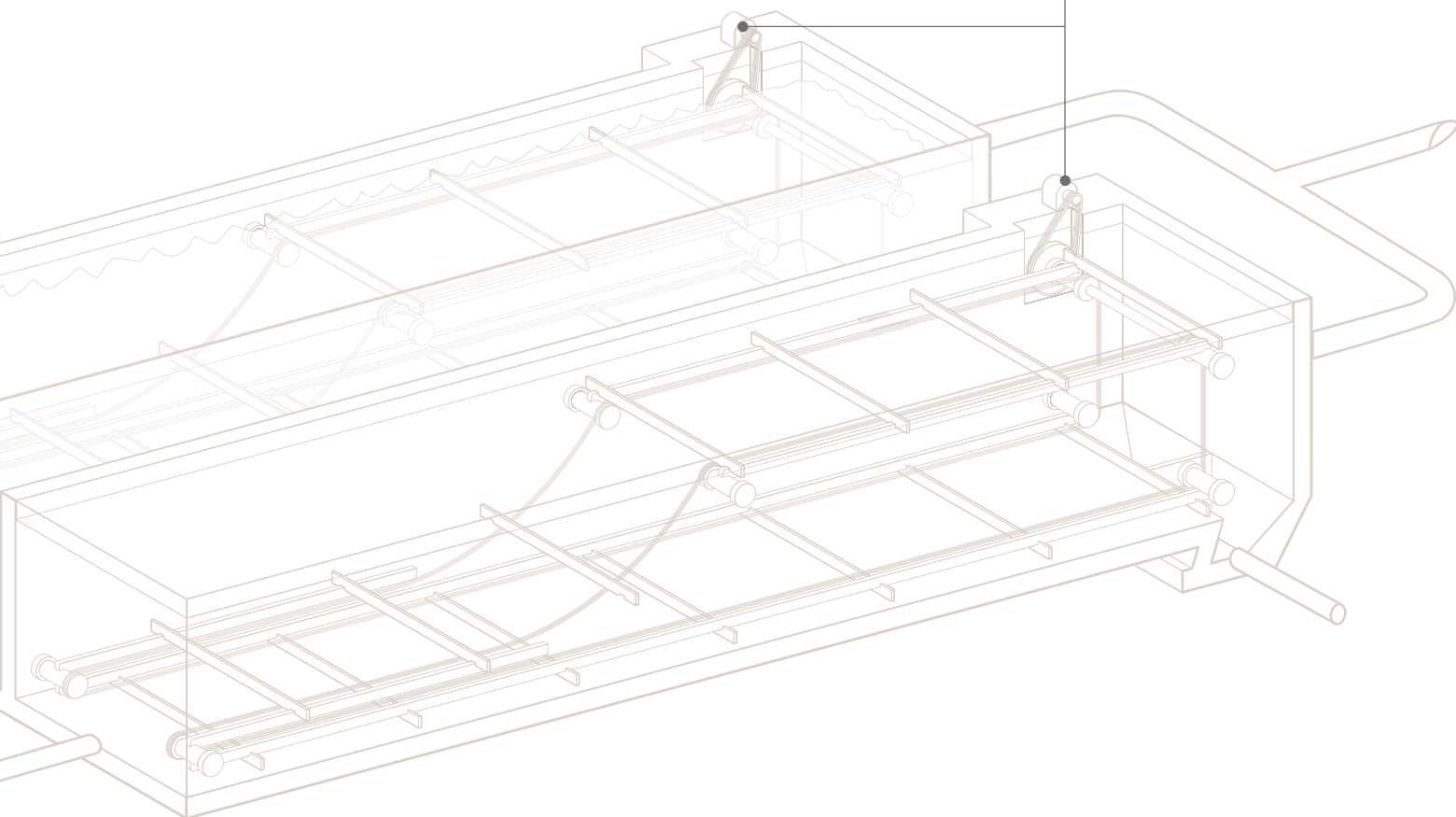
**Boston Gear** 700 Series double reduction gearboxes

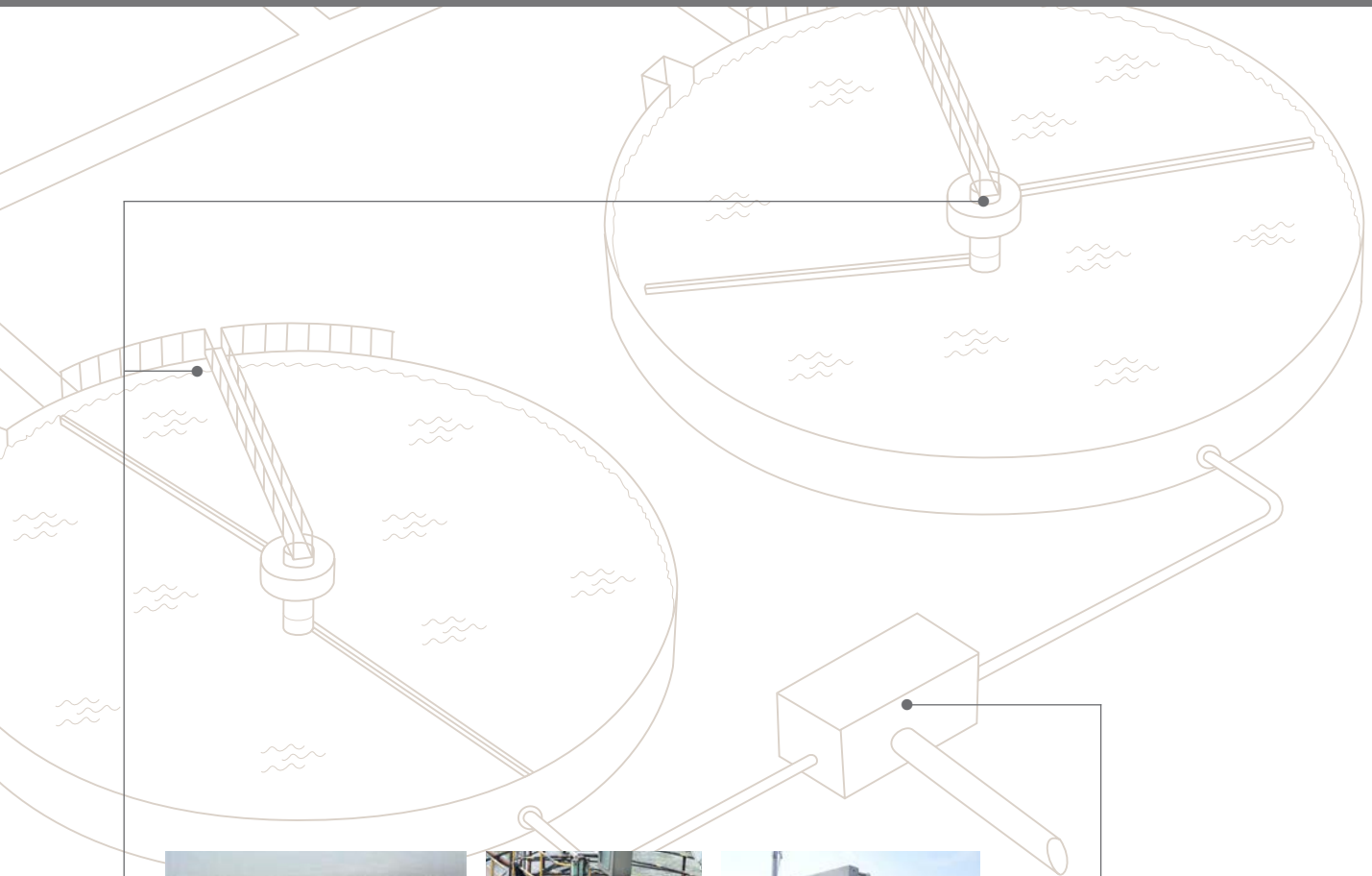
**Boston Gear** Centric® Model WOR overload clutches

**Delroyd Worm Gear** DVM double worm and DDVM triple worm reduction vertical shaft speed reducers

**Nuttall Gear** TDS horizontal and WSV vertical parallel helical gear boxes

**TB Wood's** Dura-Flex® couplings





## Circular Primary Sedimentation Tanks

Bauer Gear Motor and Boston Gear enclosed speed reducers are utilized in the common power trains that drive both the bottom sludge scrapers and upper grease and oil skimmers in circular clarifiers. Units provide reliable performance in this very slow rotation, continuous duty application.

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.

Overload clutches or torque limiters are frequently installed to prevent the massive amount of torque generated, due to the slow rotation speed of the skimmers/ scrapers, from damaging the drive mechanism. Bibby Turboflex and Boston Gear Centric torque limiters are designed to protect drivetrain components by releasing the excess torque buildup, preventing an undesirable repair situation. These stainless steel and nickel plated products withstand tough wastewater processing applications.

**Bauer Gear Motor** BK Series helical bevel gear motors

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 2000 Series and 800 Series helical speed reducers

**Boston Gear** Centric® Model WOR and ORC overload clutches

**Delroyd Worm Gear** DVM double worm and DDVM triple worm reduction vertical shaft speed reducers

**Nuttall Gear** TDS horizontal and WSV vertical parallel helical gear boxes



## Clarifier Tank Sludge Removal Pumps

TB Wood's elastomeric couplings and Boston Gear helical speed reducers are often found in these drive trains, positioned between the motor and pump.

**Boston Gear** 800 Series helical speed reducers

**Formsprag Clutch** Model HSB backstopping clutches

**TB Wood's** Sure-Flex Plus® and Dura-Flex® elastomeric couplings



# Secondary Treatment



## Aeration Tank Blowers

High-speed couplings and clutches are utilized on large capacity centrifugal blowers, powered by continuous-duty drive motors which can be rated over 700HP. In smaller facilities, grid, gear or elastomeric couplings can be used on sets of lower horsepower motors and blowers to infuse air into aeration tanks.

**Ameridrives** Torsiflex-i and Amerigear® couplings

**Delroyd Worm Gear** DVM double worm and DDVM triple worm reduction vertical shaft speed reducers

**Marland** CECON clutches

**Nuttall Gear** TDS horizontal and WSV vertical parallel helical reducers

**TB Wood's** G-Flex grid couplings and Dura-Flex® elastomeric couplings

## Surface Aerators

Depending on aerobic tank designs, various types of aerators are used to maximize the amount of air infused into the water.

All models are equipped with drive systems that can utilize Bauer gear motors.



**Bauer Gear Motor** BG Series helical gear motors

**Boston Gear** 2000 Series and 800 Series helical reducers



## Secondary Clarifiers

Circular and rectangular secondary sedimentation tanks are similar to primary clarifiers. Drive trains utilize gear motors, speed reducers and torque limiting devices.

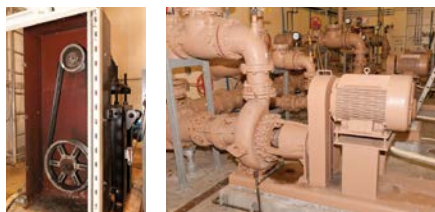
**Bauer Gear Motor** BK Series helical bevel gear motors

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 2000 Series and 800 Series helical speed reducers

**Boston Gear** Centric® Model WOR and ORC overload clutches





## Transfer Pumps

Belted drives are often found on large pumps that transfer water from the primary clarifiers to the aeration tanks. Speed reducers and torque limiters can also be utilized.

**Boston Gear** 2000 Series and 800 Series helical reducers

**Formsprag Clutch** Model HSB, SB and FRB backstopping clutches

**TB Wood's** Premium V-Belts and sheaves, QT Power Chain® II Carbon belt drive system

## Rotating Biological Contactors

Helical bevel gear motors are used for this single direction, continuous-duty drive application where wastewater comes in contact with a biological medium in order to remove pollutants. In some cases, frequency converters are incorporated.



**Bauer Gear Motor** BG Series helical gear motors

**Boston Gear** 2000 Series helical reducers



## Agitator/Mixers

To accelerate the growth of the micro-organisms by getting more air into the liquid, some facilities utilize vertical agitator systems that operate continuously. Agitators run in a dry area, allowing for low maintenance costs. Very high axial and radial loads have to be considered when choosing a gear motor size. In some applications, submersible agitators are used. These models are optimally suited for simultaneous operation with compressed air aeration systems.

**Bauer Gear Motor** BG Series helical gear motors

**Boston Gear** 2000 Series helical reducers

**Delroyd Worm Gear** Model P and HP helical worm mixer drives



## Sludge and Microorganism Pumps

Grid couplings are often used on pumps that move sludge from secondary clarifiers to thickeners, then digesters. Couplings are also required on pumps that move microorganisms, which settle at the bottom of tanks, back to the biological reactor for reuse.

**Formsprag Clutch** Model HSB, SB and FRB backstopping clutches

**TB Wood's** G-Flex Grid couplings

**TB Wood's** Sure-Flex Plus® and Dura-Flex® elastomeric couplings

# Sludge Processing



## Sludge Digester Pumps

Elastomeric couplings are used on positive displacement pumps that recirculate sludge from digester to heat exchanger to maintain desired temperature.

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 2000 Series and 800 Series helical reducers

**Formsprag Clutch** Model HSB and HB backstopping clutches

**TB Wood's** Sure-Flex Plus® and Dura-Flex® elastomeric couplings

## Sludge De-Watering Augers

Gear motors are used to drive inclined screw feed conveyors in the sludge de-watering process. Couplings and torque limiters are often incorporated in these drive trains.



**Bauer Gear Motor** BF Series parallel shaft gear motors

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 700 Series worm reducers, 2000 Series and 800 Series helical reducers

**Boston Gear** Centric® WOR and ORC overload clutches

**TB Wood's** G-Flex Grid couplings



## Sludge Pumps

Helical speed reducers and elastomeric couplings are used on pumps found throughout sludge treatment processes.

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 2000 Series and 800 Series helical reducers

**Boston Gear** 800 Series helical speed reducers

**Boston Gear** Centric® WOR and ORC overload clutches

**Formsprag Clutch** Model FRB and RSCI backstopping clutches

**TB Wood's** Sure-Flex Plus® and Dura-Flex® elastomeric couplings

## Sludge Thickeners

Gear motors are used to drive disc, screw and belt type sludge thickeners. Torque limiters can also be incorporated on drive trains.

**Bauer Gear Motor** BF Series parallel shaft gear motors

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**Boston Gear** 700 Series worm reducers, 2000 Series and 800 Series helical reducers



Source: HUBER SE

View video at:

<https://p.widencdn.net/ay3zag/V-0002-BGM>



## Gas Compressors

Various types of elastomeric couplings and torque limiters can be utilized on compressor equipment that processes methane gas generated in the anaerobic digesters.

**Bibby Turboflex** Series JSE1-0100, -0200 & -0400 torque limiters

**TB Wood's** Sure-Flex Plus® and Dura-Flex® elastomeric couplings

## ALTRA MARKET WEBSITES

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

### Forklifts

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

Request P-7637-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Turf and Garden

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

Request P-1698-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Mobile Off-Highway

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

Request Literature at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Oil and Gas

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

Request P-8453-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Mining and Aggregate

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

Request P-1763-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Aerospace and Defense

[www.Altra-Aerospace-Defense.com](http://www.Altra-Aerospace-Defense.com)

Request P-1717-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Wind

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

Request P-1960-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Food and Beverage

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

Request P-7665-BBG at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Tidal

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

Request P-7013-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Elevators

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

Request P-1733-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Packaging Machinery

[www.Altra-Packaging.com](http://www.Altra-Packaging.com)

Request Literature at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)



### Energy

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

Request P-1908-C at  
[www.AltraLiterature.com](http://www.AltraLiterature.com)





## A Global Footprint to Support Customers Around the World

- ★ Altra Headquarters
- Altra Manufacturing Facilities
- Light Manufacturing, Assembly, Regional Warehouse
- ▲ Altra Shared Services and ECB Technology Center

## The Brands of Altra Industrial Motion

### Couplings

**Ameridrives**  
www.ameridrives.com

**Bibby Turboflex**  
www.bibbyturboflex.com

**Guardian Couplings**  
www.guardiancouplings.com

**Huco**  
www.huco.com

**Lamiflex Couplings**  
www.lamiflexcouplings.com

**Stromag**  
www.stromag.com

**TB Wood's**  
www.tbwoods.com

### Geared Cam Limit Switches

**Stromag**  
www.stromag.com

### Electric Clutches & Brakes

**Inertia Dynamics**  
www.idicb.com

**Matrix**  
www.matrix-international.com

**Stromag**  
www.stromag.com

**Warner Electric**  
www.warnerelectric.com

### Linear Products

**Warner Linear**  
www.warnerlinear.com

### Engineered Bearing Assemblies

**Kilian**  
www.kilianbearings.com

### Heavy Duty Clutches & Brakes

**Industrial Clutch**  
www.indclutch.com

**Twiflex**  
www.twiflex.com

**Stromag**  
www.stromag.com

**Svendborg Brakes**  
www.svendborg-brakes.com

**Wichita Clutch**  
www.wichitaclutch.com

### Belted Drives

**TB Wood's**  
www.tbwoods.com

### Gearing

**Bauer Gear Motor**  
www.bauergears.com

**Boston Gear**  
www.bostongear.com

**Delroyd Worm Gear**  
www.delroyd.com

**Nuttall Gear**  
www.nuttallgear.com

### Overrunning Clutches

**Formsprag Clutch**  
www.formsprag.com

**Marland Clutch**  
www.marland.com

**Stieber**  
www.stieberclutch.com



www.altramotion.com