

# Clutch/Brakes for Lawn & Garden Equipment



 **Warner Electric**<sup>®</sup>  
Altra Industrial Motion



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# What makes Warner Electric Clutch/Brakes so superior to other brands?

## Warner Electric's BBC-II Offers:

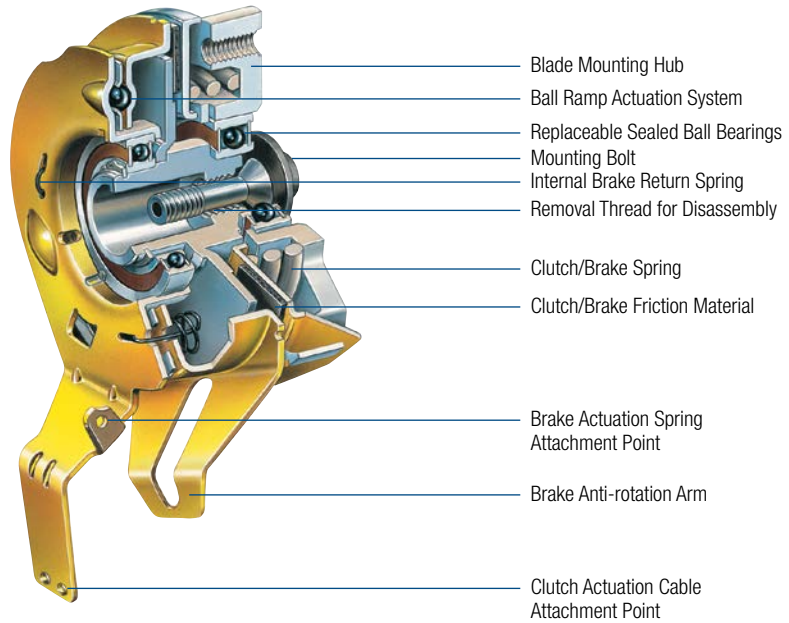
- Meets required ANSI/OPEI B71.1 standards
- 2 second blade stop capability
- Proven application through 7 HP / 21" blade diameters
- Two piece subassembly for quick installation
- Bolt which mounts hub to crankshaft is integral to unit
- Available with integral key or keyway
- Disassembles for ease of service
- Heavy-duty for residential and commercial applications
- Assembly/installation time dramatically reduced over competing designs
- No adjustment required
- Zinc/clear dichromate plating improves corrosion resistance

## Warner Electric's MagStop® Offers:

- Permanent Magnet Braking System
- Proven application through 37 HP / 96" decks
- 60–250 lb.ft. nominal static torque, depending on the model
- Preassembled — one piece for quick installation
  - "D" drive mounting system provides means for crankshaft restraint while tightening mounting bolt to proper torque
  - Integral key
- Maintenance-free — no adjustment
- Zinc/clear dichromate plating enhances corrosion protection and product appearance

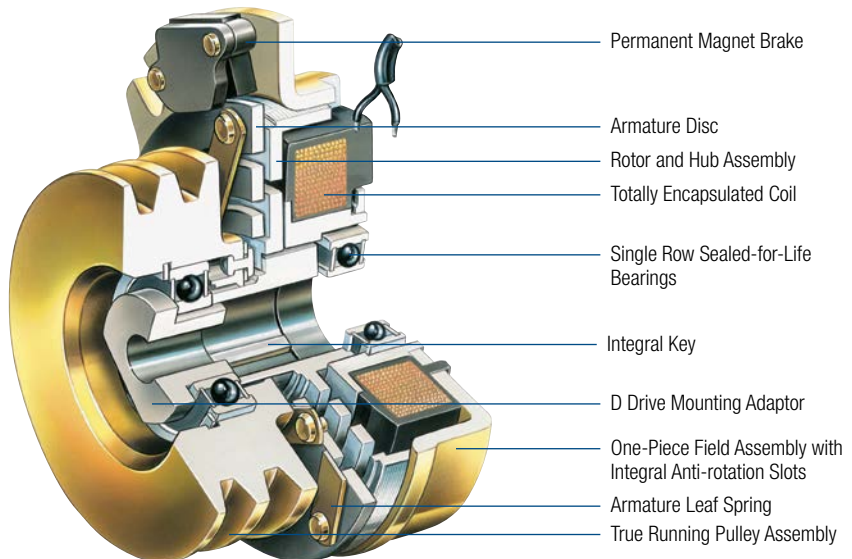
## Blade Brake Design

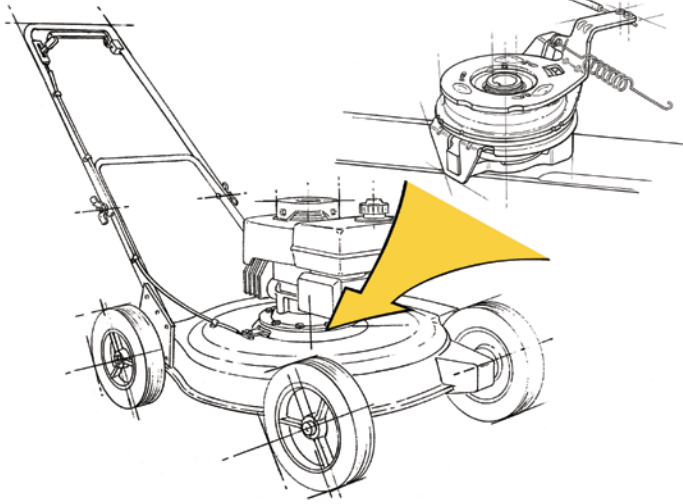
Blade Brake Clutches (BBCs) are engaged by actuating the operator presence lever and pushing the blade engagement handle. This action rotates the ball ramp mechanism, causing three small internal springs inside of the clutch/brake to lift the brake plate clear of the friction disk, assuring drag free, quiet operation. As the brake plate is released from the friction disk, a heavy coil spring at the base of the unit pushes the friction disk against the rotating input hub which is bolted to the engine's crankshaft. The clutch is then engaged and the blade rotates. Releasing the operator presence lever causes the loaded brake spring to rotate the ball ramp mechanism in the opposite direction, which forces the brake plate against the outer portion of the friction disk, releasing the clutch and braking the blade to a stop.



## Permanent Magnet Design

The MagStop clutch/brakes combine an electric friction clutch with a permanent magnet brake. Electric current applied to the clutch coil draws the armature to the rotating rotor, engaging the clutch and rotating the blade through the pulley. Stopping current flow to the coil causes the armature leaf springs to pull the backside of the armature (which acts as the braking surface) into contact with the permanent magnet braking surfaces so the braking torque generated by those magnets can stop the blade within three to seven seconds, depending on the application.



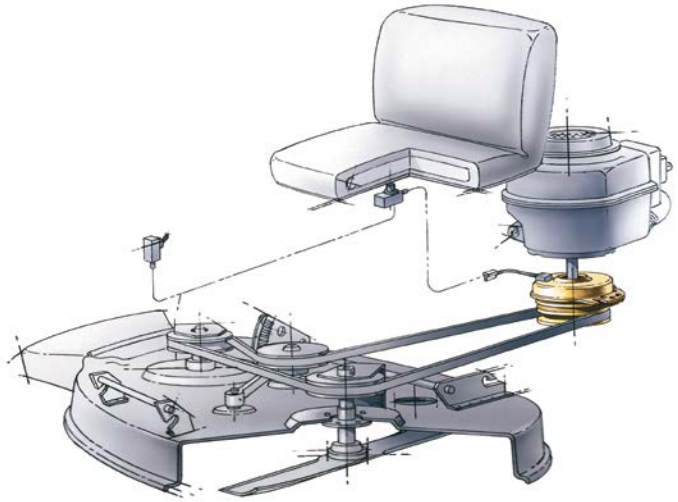


## Maintenance-free Blade Brake Clutches for walk behind mowers

Warner Electric's Blade Brake Clutches (BBCs) are designed to provide operator safety through blade control on walk behind mowers. When the operator presence lever on the mower control handle is released, the BBC brakes the mower blade to a stop within two seconds.

## MagStop PTO clutch/brakes for riding mowers provide engineered efficiency

Warner Electric's patented MagStop PTO clutch/brakes combine permanent magnet brake technology with an electric clutch to achieve high torque and maintenance-free operation in a compact package. MagStop is equally at home on either residential or commercial riding mowers with power ratings through 37 HP.



### Full Line Overview

SERIES NUMBER	SERIES NAME	AVAILABLE TORQUE	CURRENT DRAW RANGE	AVAILABLE BORES*	PULLEY GROOVE AVAILABILITY	EXISTING PULLEY DIAMETERS**	ELECTRICAL CONNECTION	MOUNTING
5217-XX	RMS	60 & 80 ft.lb.	1.6 to 3.97 amps	1"	A, A/B, B	5.2 to 7.48"	Integral	Standard & Reverse
5219-XX	TG	105 & 125 ft.lb.	3.25 to 4.23 amps	1", 1-1/8"	A, A/B, B, 3V, 5L, 5V, HA	2.893 to 7.3"	Integral & Lead Wire	Standard & Reverse
5218-XX	CMS	175 & 200 ft.lb.	4.85 to 5.53 amps	1", 1-1/8"	A, A/B, B, 3V, 5L, 5V, HA, 8M, GT2	3.35 to 7.345"	Integral & Lead Wire	Standard & Reverse
5228-XX	CMS 250	225 & 250 ft.lb.	6.65 to 6.86 amps	1", 1-1/8", 1-1/4", 1-7/16"	A, A/B, B, C	6.121 to 7.153"	Integral & Lead Wire	Standard & Reverse
5227-XX	GT 300	300 ft.lb.	6.0 to 7.0 amps	1", 1-1/8", 1-1/4", 1-7/16"	A, B, C Flange	4.75 to 9.34"	Screw Terminal	Standard & Reverse

\* Other clutch bores may be available depending on application and yearly volume

\*\* Other pulley or flange configurations available depending on application and yearly volume

### CMS 250 Performance Specifications

<b>LIFE</b>	• B <sub>10</sub> life of 25,000 cycles at 2000 hours
<b>APPLICATION SIZE ENGINE</b>	• Up to 37 HP
<b>DECK</b>	• Commercial applications up to 96" decks • Stop deck in less than 7.0 seconds for a minimum of 10,000 cycles
<b>ENVIRONMENT</b>	• Ambient – 40°F to +200°F • Bearing operating temperatures – 40°F to +350°F
<b>OPERATING SPEED</b>	• Input speeds up to 3600 rpm
<b>ELECTRICAL SPECIFICATIONS</b>	• System voltages of 12.0 to 14.0 volts with a steady state current between 6 to 7 amps

### CMS 250 Key Features

#### Integral Key

- Reduced material and labor costs
- Lower Part count
- Full length key to engage with D-drive spacer

#### D-Drive Spacer

- Lower Part count
- Easier assembly (no loose washer) and removal (for service)

#### Integral Connector

- Lower cost
- Minimizes clutch damage in case of belt failure
- No chance of ground drive pulley cutting into lead wire



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## Commercial Mowers



The CMS 250 Series Commercial MagStop clutch/brakes are designed for heavy-duty mowers with up to 96" decks and engines up to 37 HP. Rugged design for continuous duty and long life.



**CMS 250 Clutch/Brakes**



Featuring a high 300 ft.lb. torque capacity, GT 300 PTO clutch/brakes are rated to 40 HP. Units are simple to install and easy to operate.



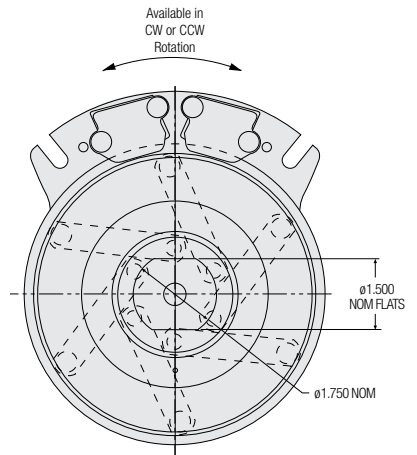
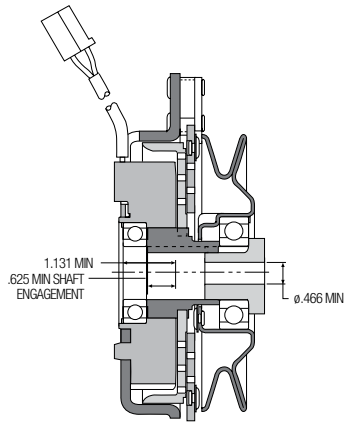
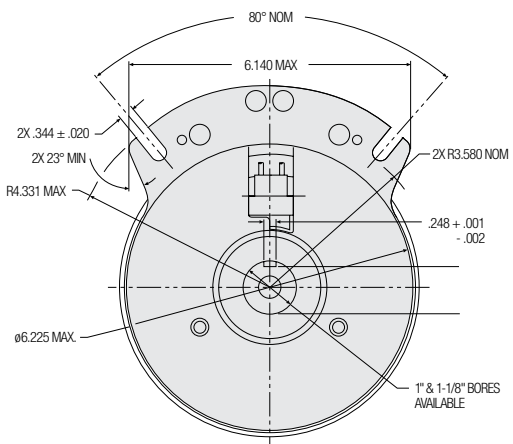
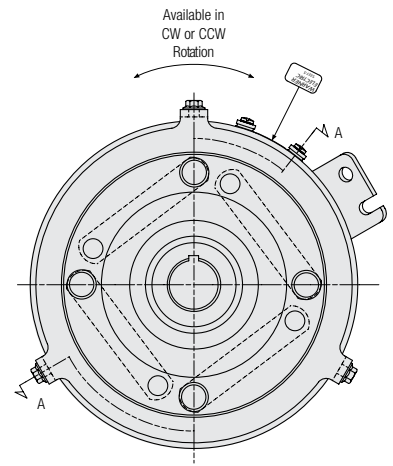
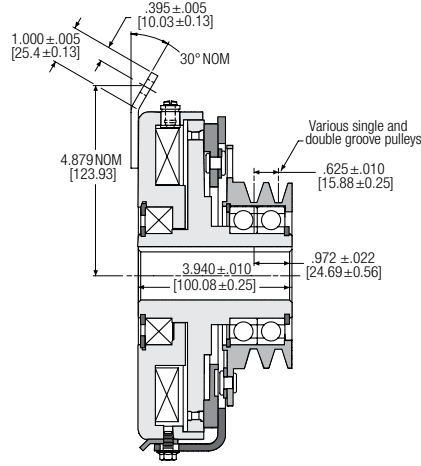
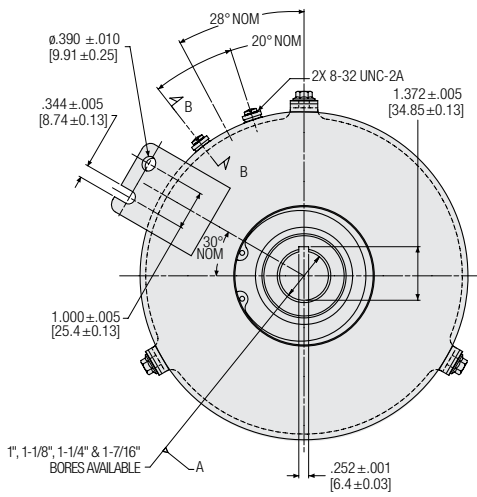
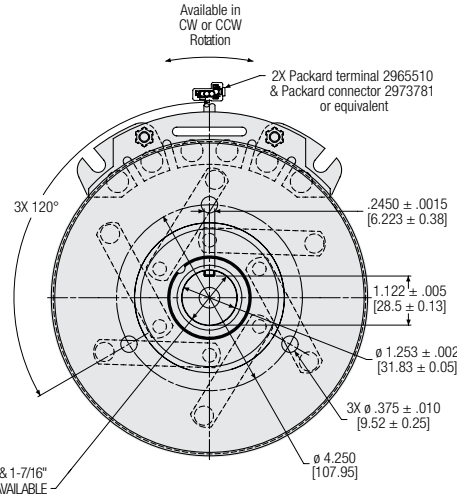
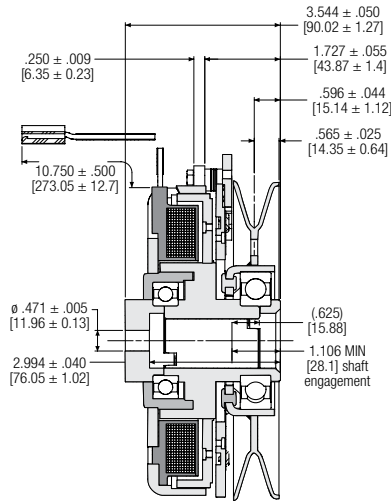
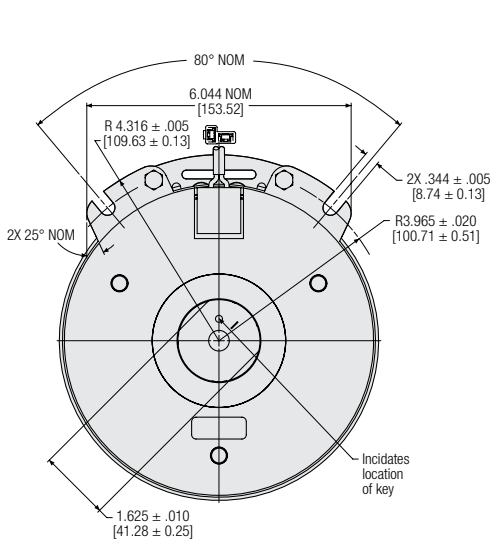
**GT 300 Clutch/Brakes**



Commercial MagStop clutch/brakes for heavy-duty mowers for large grounds maintenance requirements. Rugged design for continuous duty, long life, and two frame sizes.



**Commercial MagStop Clutch/Brakes**





## Garden Tractors



TG2000 incorporates the extended duty features of Warner Electric's Commercial MagStop clutch/brakes into a design specifically for tractors, ZTR's and wide area mowers in this class.



**TG2000 Clutch/Brakes**

## Lawn Tractors



Residential MagStop (RMS) clutch/brakes for mower decks and other implements controlled by a dashboard switch. No belt tighteners or mechanical linkage, simple electrical connection. Adjustment and maintenance free.



**RMS Clutch/Brakes**

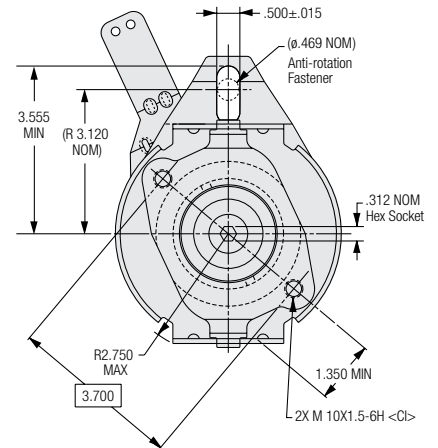
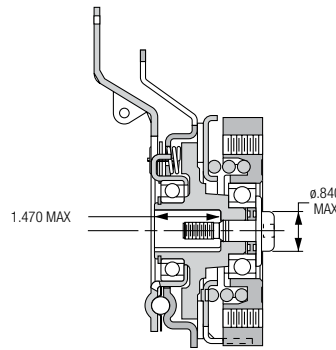
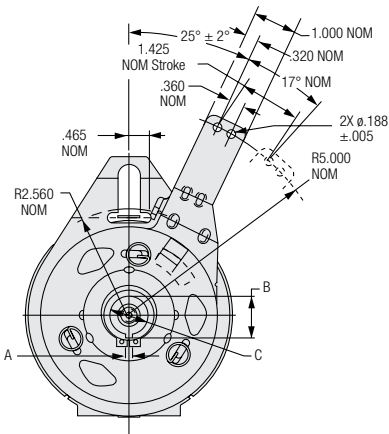
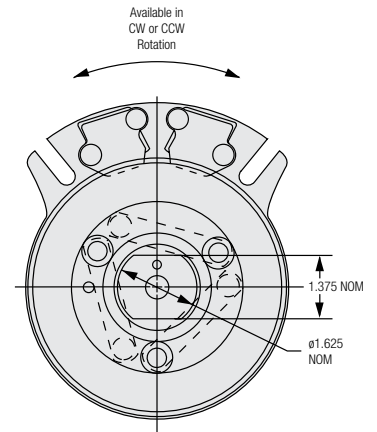
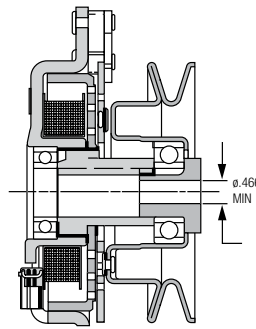
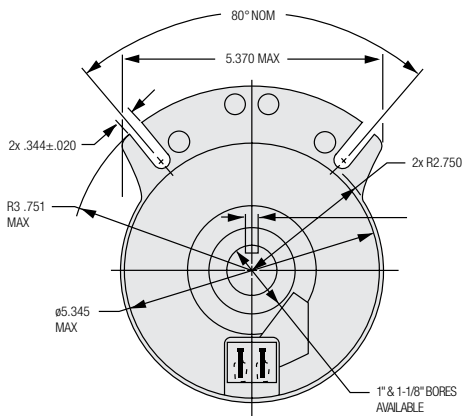
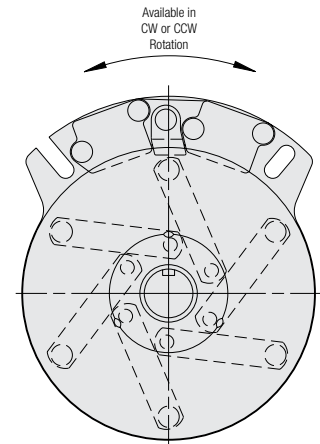
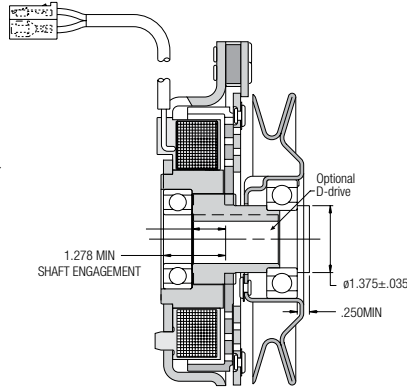
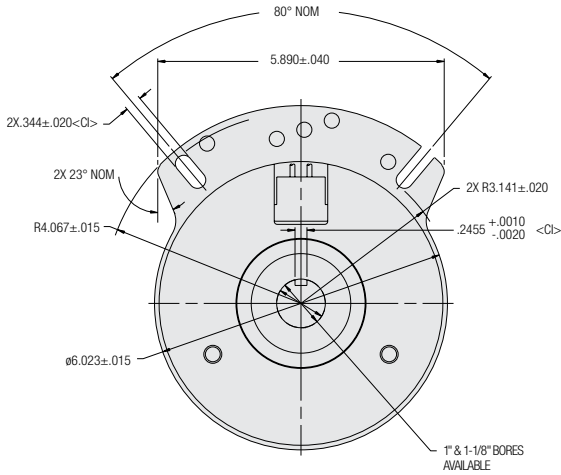
## Walk Behind Mowers



BBC-II clutch/brake allows motor to continue running while blade is stopped. Cable operated. No adjustment, maintenance free.



**BBC-II Clutch/Brakes**



# Altra Industrial Motion

## Warner Electric Facilities

### North America

#### USA

31 Industrial Park Road  
New Hartford, CT 06057 - USA  
860-379-1252

*Electromagnetic Clutches  
and Brakes*

449 Gardner Street  
South Beloit, IL 61080 - USA  
815-389-3771

4578 East Park 30 Drive  
Columbia City, IN 46725 - USA  
260-244-6183

*Precision Electric Coils and  
Electromagnetic Clutches and  
Brakes*

#### Customer Service

1-800-825-6544

#### Application Support

1-800-825-9050

### Europe

#### France

7, rue Champfleu, B.P. 20095  
St Barthelemy d'Anjou - France  
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and Brakes*

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#### Application Support

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### Asia Pacific

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#### China

+86 21 5169-9255

#### Hong Kong

+852 2615 9313

#### Singapore

+65 6487 4464

#### Taiwan

+886 2 2577 8156

#### Thailand

+66 2322 5527

## The Brands of Altra Industrial Motion

### Couplings

**Ameridrives**  
[www.ameridrives.com](http://www.ameridrives.com)

**Bibby Turboflex**  
[www.bibbyturboflex.com](http://www.bibbyturboflex.com)

**Guardian Couplings**  
[www.guardiancouplings.com](http://www.guardiancouplings.com)

**Huco**  
[www.huco.com](http://www.huco.com)

**Lamiflex Couplings**  
[www.lamiflexcouplings.com](http://www.lamiflexcouplings.com)

**Stromag**  
[www.stromag.com](http://www.stromag.com)

**TB Wood's**  
[www.tbwoods.com](http://www.tbwoods.com)

### Geared Cam Limit Switches

**Stromag**  
[www.stromag.com](http://www.stromag.com)

### Electric Clutches & Brakes

**Inertia Dynamics**  
[www.idicb.com](http://www.idicb.com)

**Matrix**  
[www.matrix-international.com](http://www.matrix-international.com)

**Stromag**  
[www.stromag.com](http://www.stromag.com)

**Warner Electric**  
[www.warnerelectric.com](http://www.warnerelectric.com)

### Linear Products

**Warner Linear**  
[www.warnerlinear.com](http://www.warnerlinear.com)

### Engineered Bearing Assemblies

**Kilian**  
[www.kilianbearings.com](http://www.kilianbearings.com)

### Heavy Duty Clutches & Brakes

**Industrial Clutch**  
[www.indclutch.com](http://www.indclutch.com)

**Twiflex**  
[www.twiflex.com](http://www.twiflex.com)

**Stromag**  
[www.stromag.com](http://www.stromag.com)

**Svendborg Brakes**  
[www.svendborg-brakes.com](http://www.svendborg-brakes.com)

**Wichita Clutch**  
[www.wichitaclutch.com](http://www.wichitaclutch.com)

### Belted Drives

**TB Wood's**  
[www.tbwoods.com](http://www.tbwoods.com)

### Gearing

**Bauer Gear Motor**  
[www.bauergears.com](http://www.bauergears.com)

**Boston Gear**  
[www.bostongear.com](http://www.bostongear.com)

**Delroyd Worm Gear**  
[www.delroyd.com](http://www.delroyd.com)

**Nuttall Gear**  
[www.nuttallgear.com](http://www.nuttallgear.com)

### Overrunning Clutches

**Formsprag Clutch**  
[www.formsprag.com](http://www.formsprag.com)

**Marland Clutch**  
[www.marland.com](http://www.marland.com)

**Stieber**  
[www.stieberclutch.com](http://www.stieberclutch.com)

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