

# CSK One Way Bearing Clutches



 **Formsprag**<sup>®</sup>  
Clutch

*An Altra Industrial Motion Company*

## Overrunning Indexing and Backstopping Clutches

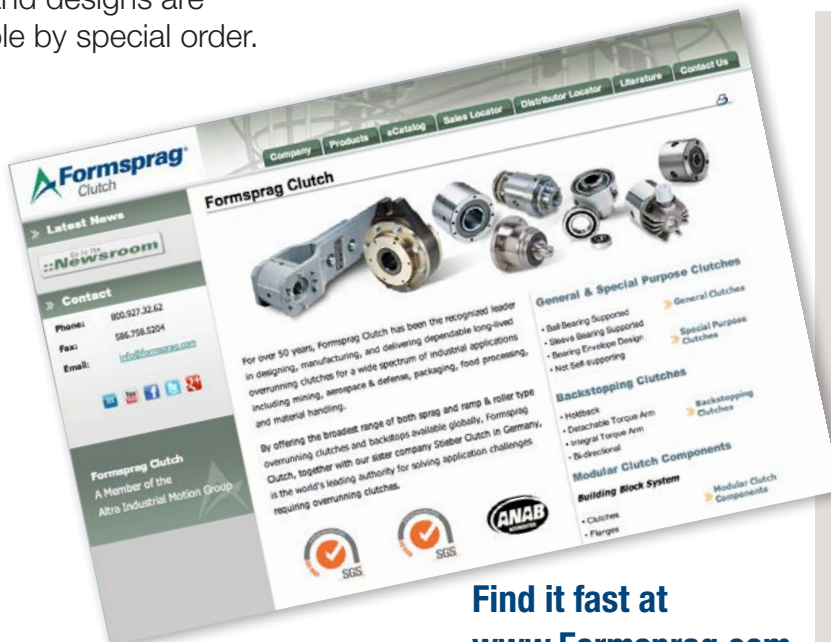
Formsprag and Stieber have been designing, manufacturing and delivering dependable, long-lived, precision power transmission products for over 50 years, providing one of the broadest lines of overrunning clutches in the world.

Formsprag and Stieber overrunning clutches deliver thoroughly proven, dependable power transmission. Careful selection of highest quality materials, precision manufacturing by experienced craftsmen, conscientious assembly, and rigid adherence to detail guarantee a reliable, quality product.

Overrunning clutches handle torque loads up to 700,000 lb.ft. (949200 Nm). Other sizes and designs are available by special order.

### CSK Series Clutches

Bearing envelope (62 series) design sprag clutches for overrunning, indexing and backstopping applications.



Find it fast at  
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## Check Out

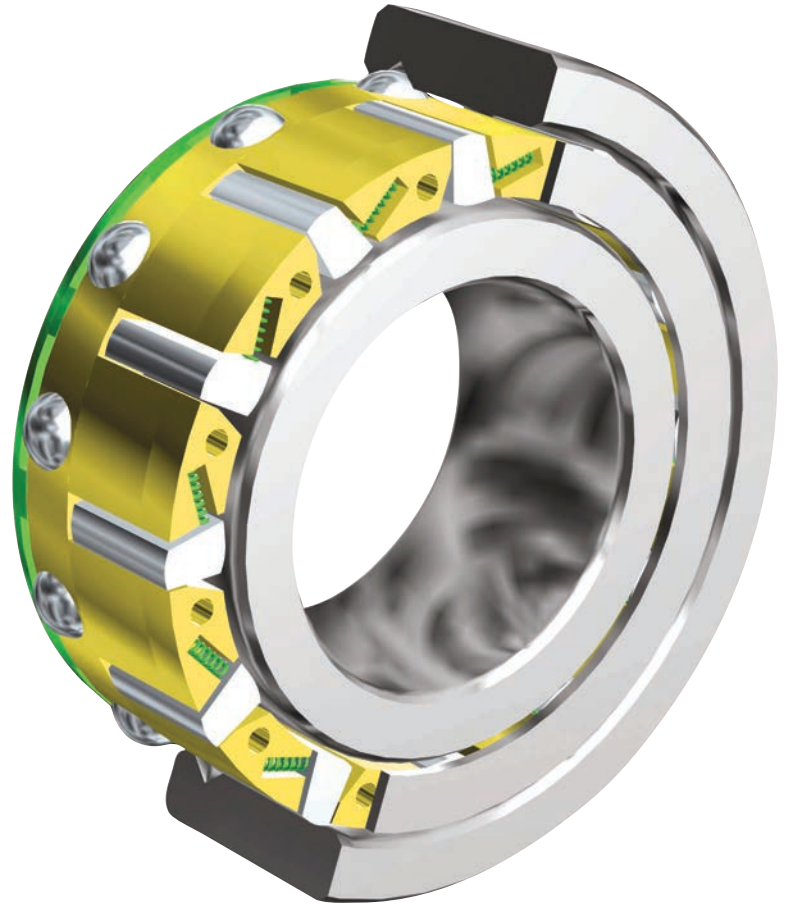
Use our online interactive eCatalog to find what you need just in a few clicks. Input your application requirements using many helpful aids to identify performance criteria, and the right product will power its way to the top of the list.

- Exclusive "Competitor Interchange" feature lets you enter a competitor part number and find the specific replacement Formsprag model
- Fill out the Application Data Form to get assistance in determining your selection
- Submit an online RFQ to the distributor of your choice

## Unique sprag design provides a better way to achieve a higher size for size torque rating!

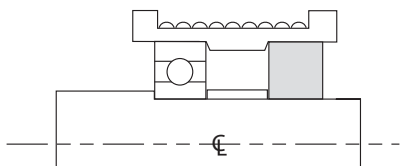
### Design Features

- Four different mounting designs
- Wide bore range of 8 to 40 mm
- Self-contained, compact ball bearing design
- 2RS, lip-sealed design
- No maintenance, grease lubricated for life
- High speed range from 0-15,000 RPM
- Longer wearing life with Formchromed Sprags
- 27 different designs in stock
- Operating temperature range: 21 to 140°F (-6 to 60°C). Special grease available for operating temperatures: -40 to 212°F (-40 to 100°C).
- Outside dimensions same as 6200 Bearing Series



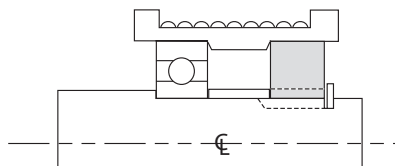
## Three Mounting Configurations

### Press Fit



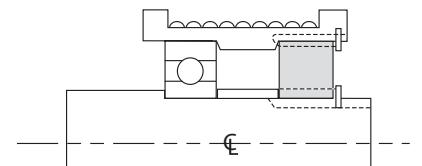
The Model CSK clutches must be mounted with a press fit on both the outer and inner races. The shaft diameter tolerance must be held to a n6. The bore of the housing for the outer race should be a N6 tolerance.

### Keyseating Clutch Bore



The Model CSK..P clutches with a keyseat in the bore must be secured or axially retained on the customer's shaft by customer supplied snap ring, set collar, spacer or step in shaft diameter. The CSK..P outer race is mounted with a press fit into the bore of the housing.

### Keyseat In Clutch OD & ID



The Model CSK..PP clutches have a keyseat on both the outer and inner race. The CSK..PP clutches must be axially restrained by the use of customer supplied snap ring, set collar, spacer, etc.

# CSK Series CSK Advantages

## CSK

Type CSK is a sprag type clutch integrated into a 62 Series ball bearing (except sizes 8 and 40). It is bearing supported, shipped grease lubricated and protected against dust larger than .012" (.3mm) diameter. The use of additional "nylos" type seals is recommended especially when the working temperature exceeds 122°F (50°C).

Oil bath lubrication is also possible if the original grease is first flushed out using a suitable solvent.

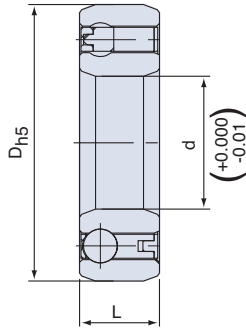
Torque transmission is ensured by a press fit assembly into a rigid outer housing with N6 tolerance, and onto a shaft with n6 tolerance. The initial bearing radial clearance is set at C5, and is reduced if using the press fit as specified.

One race may be glued. If both races are to be glued, performance will be reduced or a C3 bearing clearance will be necessary.

Operating temperature range: 21 to 140°F (-6 to 60°C). Special grease available for operating temperatures: -40 to 212°F (-40 to 100°C).

## CSK..2RS

CSK..2RS clutches are .197" (5mm) wider than a standard 62 Series bearing, as they are equipped with lip seals for washdown applications.



## Dimensions inches (mm)

Size	Bearing Series	CSK			Bore Sizes
		Dh5 in (mm)	L in (mm)	L in (mm)	
8		0.87 (22)	.035 (9)	*.035 (9)	.031 (8)
12	6201	1.26 (32)	0.39 (10)	0.55 (14)	0.47 (12)
15	6202	1.38 (35)	0.43 (11)	0.63 (16)	0.59 (15)
17	6203	1.57 (40)	0.47 (12)	0.67 (17)	0.67 (17)
20	6204	1.85 (47)	0.55 (14)	0.75 (19)	0.79 (20)
25	6205	2.05 (52)	0.59 (15)	0.79 (20)	0.98 (25)
30	6206	2.44 (62)	0.63 (16)	0.83 (21)	1.18 (30)
35	6207	2.83 (72)	0.67 (17)	0.87 (22)	1.38 (35)
40		3.15 (80)	0.87 (22)	1.06 (27)	1.57 (40)

\* CSK8-2RS has only one lip seal on ball bearing side.

## Specifications inches (mm)

Size	Bearing Series	Torque Capacity	Max. Overrunning Speed	Resistance after run-in		Bearing Loads		Shipping Weight	
				CSK..2RS	CSK	CSK	CSK	CSK	CSK..2RS
		lb.ft (Nm)	RPM	lb.in (Ncm)	lb.in (Ncm)	Dynamic lb. (kN)	Static lb. (kN)	lb. (kg)	lb. (kg)
8		2.6 (3.5)	15,000	*0.07 (.8)	0.04 (0.5)	738 (3.28)	194 (0.86)	0.03 (0.015)	0.03 (0.015)
12	6201	8.8 (12)	10,000	0.27 (3.0)	0.06 (0.7)	1373 (6.1)	623 (2.77)	0.09 (0.04)	0.11 (0.05)
15	6202	14.7 (20)	8,400	0.35 (4.0)	0.08 (0.9)	1665 (7.4)	770 (3.42)	0.13 (0.06)	0.15 (0.07)
17	6203	30 (40)	7,350	0.50 (5.6)	0.09 (1.1)	1778 (7.9)	885 (3.8)	0.15 (0.07)	0.20 (0.09)
20	6204	50 (68)	6,000	0.53 (6.0)	0.12 (1.3)	2115 (9.4)	1004 (4.46)	0.24 (0.11)	0.32 (0.145)
25	6205	77 (105)	5,200	0.53 (6.0)	0.18 (2)	2408 (10.7)	1229 (5.46)	0.31 (0.14)	0.39 (0.175)
30	6206	133 (180)	4,200	0.66 (7.5)	0.39 (4.4)	2633 (11.7)	1451 (6.45)	0.46 (0.21)	0.60 (0.27)
35	6207	177 (240)	3,600	0.73 (8.2)	0.51 (5.8)	2835 (12.6)	1638 (7.8)	0.66 (0.3)	0.88 (0.4)
40		284 (385)	3,000	0.89 (10)	0.62 (7)	3497 (15.54)	2756 (12.25)	1.10 (0.5)	1.32 (0.6)

\* CSK8-2RS has only one lip seal on ball bearing side.

The torque ratings are based upon 1 million load cycles at full catalog torque which is a standard in the North American Industrial Market.

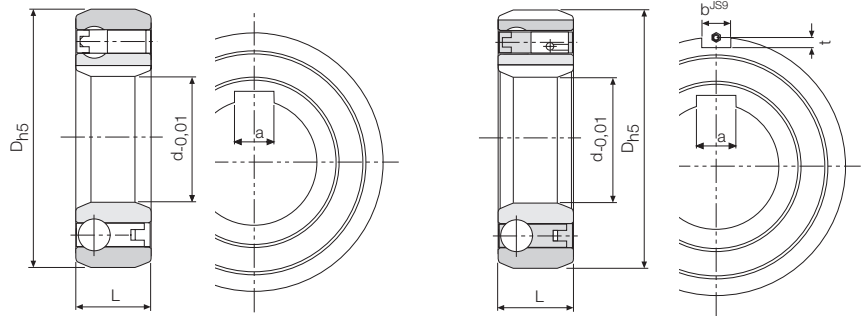
# CSK Series CSK Clutches

## CSK..P

CSK..P has the same construction and outside dimensions as type CSK, but has a keyway on the inner race.

These clutches can be mounted on a shaft to k6 tolerance.

The outer race must be pressed into a rigid housing to N6 tolerance.



**CSK..P**  
Single Keyway

**CSK..PP**  
Dual Keyways

## CSK..2RS

CSK..2RS clutches are .197" (5mm) wider than a standard 62 Series bearing, as they are equipped with lip seals for washdown applications.

## CSK..PP

CSK..PP features a keyway on both the inner and outer race. The recommended mounting tolerances are k6 on the shaft and K6 in a rigid housing. An h6 tolerance on the shaft or H6 in the housing are also acceptable for a light press fit assembly.

Operating temperature range: 21 to 140°F (-6 to 60°C). Special grease available for operating temperatures: -40 to 212°F (-40 to 100°C).

### Dimensions inches (mm)

Size	Bearing Series	L					d		a
		CSK..P		CSK..P2RS		Bore Sizes		Keyseat*	
		Dh5 in (mm)	in (mm)	in (mm)	b in (mm)	t in (mm)	in (mm)	(mm)	
12	6201	1.26 (32)	0.39 (10)	0.55 (14)			0.47 (12)	(4 x 1.8)	
15	6202	1.38 (35)	0.43 (11)	0.63 (16)	0.08 (2)	0.02 (0.6)	0.59 (15)	(5 x 1.2)	
17	6203	1.57 (40)	0.47 (12)	0.67 (17)	0.08 (2)	0.04 (1.0)	0.67 (17)	(5 x 1.2)	
20	6204	1.85 (47)	0.55 (14)	0.75 (19)	0.12 (3)	0.06 (1.5)	0.79 (20)	(6 x 1.6)	
25	6205	2.05 (52)	0.59 (15)	0.78 (20)	0.24 (6)	0.08 (2)	0.98 (25)	(8 x 2)	
30	6206	2.44 (62)	0.63 (16)	0.82 (21)	0.24 (6)	0.08 (2)	1.18 (30)	(8 x 2)	
35	6207	2.83 (72)	0.67 (17)	0.87 (22)	0.31 (8)	0.10 (2.5)	1.38 (35)	(10 x 2.4)	
40		3.15 (80)	0.87 (22)	1.06 (27)	.39 (10)	.12 (3.0)	1.57 (40)	(12 x 3.3)	

\*For keyseat sizes CSK 15–35 use DIN 6885.3. For size 40 use DIN 6885.1 in catalog P-956.

### Specifications inches (mm)

Size	Bearing Series	Torque Capacity	Max. Overrunning Speed	Resistance after run-in		Bearing Loads		Shipping Weight	
				CSK..2RS	CSK	Dynamic	Static	CSK..P	CSK..PP
		lb.ft (Nm)	RPM	lb.in (Ncm)	lb.in (Ncm)	lb. (kN)	lb. (kN)	lb. (kg)	lb. (kg)
12	6201	8.8 (12)	10,000	0.27 (3.0)	0.06 (0.7)	1373 (6.1)	623 (2.77)	0.08 (0.04)	0.11 (0.05)
15	6202	14.7 (20)	8,400	0.35 (4.0)	0.08 (0.9)	1665 (7.4)	770 (3.42)	0.13 (0.06)	0.15 (0.07)
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20	6204	50 (68)	6,000	0.53 (6.0)	0.12 (1.3)	2115 (9.4)	1004 (4.46)	0.24 (0.11)	0.32 (0.14)
25	6205	77 (105)	5,200	0.53 (6.0)	0.18 (2)	2408 (10.7)	1229 (5.46)	0.31 (0.14)	0.39 (0.17)
30	6206	133 (180)	4,200	0.66 (7.5)	0.39 (4.4)	2633 (11.7)	1451 (6.45)	0.46 (0.21)	0.59 (0.27)
35	6207	177 (240)	3,600	0.73 (8.2)	0.51 (5.8)	2836 (12.6)	1638 (7.8)	0.66 (0.3)	0.88 (0.4)
40		284 (385)	3,000	0.89 (10)	0.62 (7)	3497 (15.54)	2756 (12.25)	1.10 (0.5)	1.32 (0.6)

# Overrunning Clutches Application Data Form

For Application Assistance call 1-800-927-3262 or Fax (586) 758-5204

Date \_\_\_\_\_

Company name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Name of contact \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

## Type of equipment

\_\_\_\_\_

## Type of application

- Overrunning  Indexing  
 Backstop  Clutch Coupling

## Maximum torque at clutch

\_\_\_\_\_ pound-feet, or  
\_\_\_\_\_ HP at \_\_\_\_\_ RPM

## Power Source

- Electric motor  Diesel engine  
 Turbine  Air cylinder  
 Gasoline engine

## Load Application

- Smooth  Moderate  Shock

## Lubrication

- Runs in oil  Not accessible  
 Accessible for lubricating

## Type or specification of lubricant

\_\_\_\_\_

## For overrunning or backstop applications

Inner race speed during overrunning \_\_\_\_\_ RPM max.

Outer race speed during overrunning \_\_\_\_\_ RPM max.

If both members are rotating during overrunning, are they rotating in the

- Same direction  Opposite directions

## Time cycle of Formsprag clutch

Drive \_\_\_\_\_ minutes Rest \_\_\_\_\_ minutes

Overrun \_\_\_\_\_ minutes

## For indexing applications

Indexes per minute \_\_\_\_\_ max.

Degrees per index \_\_\_\_\_ max.

## Clutch operating time

\_\_\_\_\_ hours per day

## Shaft diameter (give limits)

\_\_\_\_\_

## Size of keyseat in shaft

\_\_\_\_\_

## Environment

Temperature range \_\_\_\_\_ °F to \_\_\_\_\_ °F

Exposed location? \_\_\_\_\_

Radiation? \_\_\_\_\_

## For non-symmetrical clutches and clutch-couplings

a. Identify the end from which the clutch is viewed

\_\_\_\_\_

b. The (inner, outer) member (drives, overruns) in the (clockwise, counter-clockwise) direction

## Anticipated quantity required

a. For this application

\_\_\_\_\_

b. Annually

\_\_\_\_\_

## Supply a sketch of your installation.

**Note:** A clutch is not a coupling. When necessary to couple two shafts, a coupling must be used with the clutch. Ambient temperature should not exceed approximately 150°F. It is requested that prints of installation be supplied if available.

Completed by \_\_\_\_\_

# The power of one, the strength of many.

## Other product solutions from **Altra Industrial Motion**

Our comprehensive product offering is comprised of nine major categories including electromagnetic clutches and brakes, heavy duty clutches and brakes, overrunning clutches, gearing, engineered couplings, engineered bearing assemblies, linear products and belted drives. With thousands of product solutions available, Altra provides true single source convenience while meeting specific customer requirements. Many major OEM's and end users prefer Altra products as their No.1 choice for performance and reliability.

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



### **Electromagnetic Clutches and Brakes**

Warner Electric  
Inertia Dynamics  
Matrix International



### **Heavy Duty Clutches and Brakes**

Wichita Clutch  
Twiflex Limited  
Industrial Clutch  
Svendborg Brakes



### **Overrunning Clutches**

Formsprag Clutch  
Marland Clutch  
Stieber Clutch



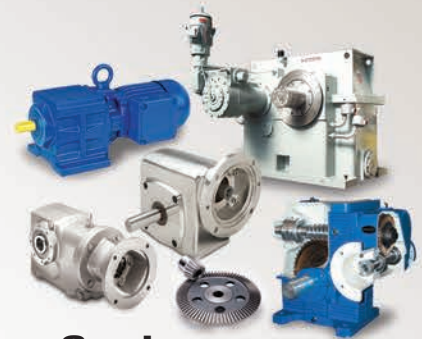
### **Engineered Couplings and Universal Joints**

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Ameridrives Power Transmission  
Bibby Turboflex  
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### **Belted Drives and Sheaves**

TB Wood's



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Delroyd Worm Gear  
Bauer Gear Motor



### **Linear Products**

Warner Linear



### **Engineered Bearing Assemblies**

Kilian Manufacturing



### **Precision Couplings and Air Motors**

Huco Dynatork

All Customer Service phone numbers shown in bold

## Electromagnetic Clutches and Brakes

### 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

### 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

### Inertia Dynamics

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

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

## 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

## Couplings

### Ameridrives Couplings

*Mill Spindles, Ameriflex, Ameridisc*

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

*Gear Couplings*

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

### Bibby Turboflex

*Disc, Gear, Grid Couplings, Overload Clutches*

Dewsbury, England  
+44 (0) 1924 460801

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

### 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

### Ameridrives Power Transmission

*Universal Joints, Drive Shafts, Mill Gear Couplings*

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

### Huco Dynatork

*Precision Couplings and Air Motors*

Hertford, England  
+44 (0) 1992 501900

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

### Lamiflex Couplings

*Flexible Couplings, Bearing Isolators, and Coupling Guards*

São Paulo, SP - Brasil  
+55 (11) 5679-6533

## Heavy Duty Clutches and Brakes

### Wichita Clutch

*Pneumatic Clutches and Brakes*

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

Bedford, England  
+44 (0) 1234 350311

### Twiflex Limited

*Caliper Brakes and Thrusters*

Twickenham, England  
+44 (0) 20 8894 1161

### 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

## Gearing

### 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

### Bauer Gear Motor

*Gearred Motors*

Esslingen, Germany  
+49 (711) 3518-0

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

### Nuttall Gear and Delroyd Worm Gear

*Worm Gear and Helical Speed Reducers*

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

## 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

### Mariand 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

## 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

## Engineered Bearing Assemblies

### Kilian Manufacturing

*Engineered Bearing Assemblies*

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

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