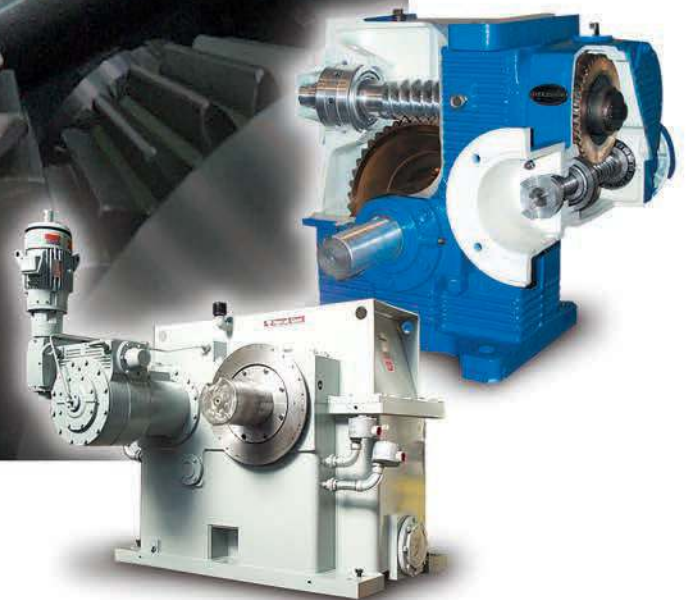


## Repair and Rebuild Services



 **Nuttall**<sup>®</sup>  
Gear

 **Delroyd**<sup>®</sup>  
Worm Gear

## Innovation and Excellence...

### The Tradition Continues

#### Our History

The RD Nuttall Company was founded by Mr. RD. Nuttall in 1887 with one gear cutter, five men and a combined capital of \$500.

From this modest beginning, the company grew and prospered, and over the next 42 years made numerous contributions to the gear industry. It was Nuttall that developed flexible gearing for transportation applications, forced feed lubrication for large industrial enclosed gear drives, and manufactured the first integral type gearmotor. And it was Nuttall that made one of the most significant contributions to the field of gear engineering single helical gears.

In 1928, Westinghouse Electric Corporation purchased the business from Mr. Nuttall. Although the name changed, the original commitment to excellence did not. Nuttall was known for its innovation and engineering, for it was our company that developed the modern form of the gearmotor which is used by gear manufacturers all over the world today.

February 1983 signified yet another step forward in Nuttall Gear's history. At that time, we once again became a privately held corporation, continuing the tradition of leading the industry in technology - such as pioneering the use of ion-nitriding for heat treating, and the use of our M<sup>v</sup>\G SP-1 60, the ultimate machine available to confirm gear quality.

In 2004, Nuttall Gear became part of the Altra Industrial Motion group of companies.

While there have been corporate changes over the years, some things never change, like your need for durable, dependable gears, and our commitment to excellence in both product and service.



# The service division of Nuttall Gear / Delroyd Worm Gear...

## Provides Comprehensive Services

designed to keep your rotating machinery in operation. Our extensive experience in gear drive applications, combined with the total manufacturing and design capabilities of Nuttall/Delroyd, enables us to provide you with a single, comprehensive source for improving your productivity, and offers you a cost-effective repair solution for

### any manufacturer's gear drive:

- Allen Gear
- Amarillo
- Brad Foote
- Chemineer
- Cleveland Gear
- Cone Drive
- D.O. James
- David Brown
- Delaval
- Delroyd Worm Gear
- Falk
- Farrel
- Foote-Jones
- General Electric
- Holroyd
- Flender
- Hansen
- Horsburg & Scott
- Lightnin
- Link-Belt
- Lufkin
- Maag
- Marley
- Mixco
- Nuttall Gear
- Philadelphia Gear
- Renk
- Renold
- Rexnord
- Sterling
- Sumitomo
- Western
- Westinghouse\*
- WestTech
- Wilson Gear
- Winsmith

*\* Nuttall Gear is the sole authorized repair center for Westinghouse gear drives. We maintain all original drawings and specifications.*



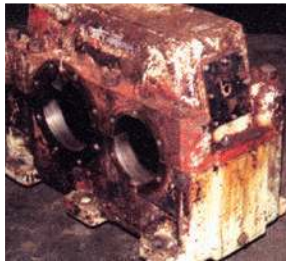
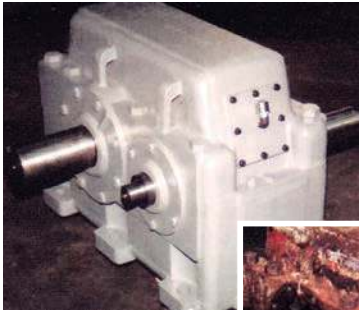
## Over 100 Years of Excellence in Products and Service



## REPAIR AND REBUILD

Comprehensive services include the inspection, remanufacturing and repair of all manufacturers' helical and worm gear drives. With our Maag SP160 gear checker, gears are measured and charted for lead, profile, spacing, runout, and composite accuracy. Precise measurements of housings are achievable with use of computer controlled coordinate measuring machine. Contact checks of mating gears can be verified in the housing, or on our precision contact checking stand. In addition to our general machining capabilities, we have in-house heat treatment facilities, spray welding and dynamic balancing equipment.

## ALL COMPLETE REBUILDS INCLUDE NEW FACTORY WARRANTY



## REDESIGN AND RERATE

Nuttall's strong application and design engineering experience has earned us a reputation for producing high-quality and unique helical and worm gear drives. Reverse engineering, ratio changes and drive configuration changes are available for all manufacturers' gear drives. Increased ratings are often achieved with changes in gear geometry, heat-treating processes, improved gear accuracy, or thermal capacity.

## SYSTEM ANALYSIS

Nuttall's engineers can develop mathematical models to perform a torsional system study. This system study can be used to determine the natural frequencies of the system for comparison to the forcing frequencies of the components. Coincident frequencies can produce system resonance resulting in severe overload. A change in components can often eliminate system resonance.

## QUALITY ASSURANCE

From inspection and teardown to reassembly and complete unit testing, each step is planned and executed within the requirements of our Quality Management System. Our program was designed to meet the strict requirements of the nuclear industry as well as the world recognized standards established by ISO9001:2000. Documented traceability for materials, processes, and testing is part of the Quality Management System that applies to all service work.

## FIELD SERVICE

Nuttall field service engineers can be provided for a wide range of services:

### MAINTENANCE

Such as routine lubrication service or end-play adjustments.

### INSPECTIONS

Evaluate the condition of the gears, shafts, bearings and seals.

### TROUBLE SHOOTING

Root cause analysis for vibration, noise, premature gear wear and oil leaks.

### REPAIRS

Short-term emergency repairs and long-term, permanent repairs can be made on site.

### REBUILDS

Replace or upgrade original components.

### TORQUE MEASUREMENTS

Record actual torque under actual operating conditions using telemetry (transmitter & receiver).

### TRAINING SEMINARS

Covers all phases of repair and rebuild in a hands-on program: inspection, teardown, reassembly and testing.

**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 Dynatorx**

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

**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**

*Geared 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*  
Vejrstrup, Denmark  
**+45 63 255 255**

**Twiflex Limited**

*Caliper Brakes and Thrusters*  
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)



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

2221 Niagara Falls Boulevard  
Niagara Falls, NY 14304 - USA  
716-298-4100  
Fax: 716-298-4101



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

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Niagara Falls, NY 14304 - USA  
716-298-4100  
Fax: 716-298-4101