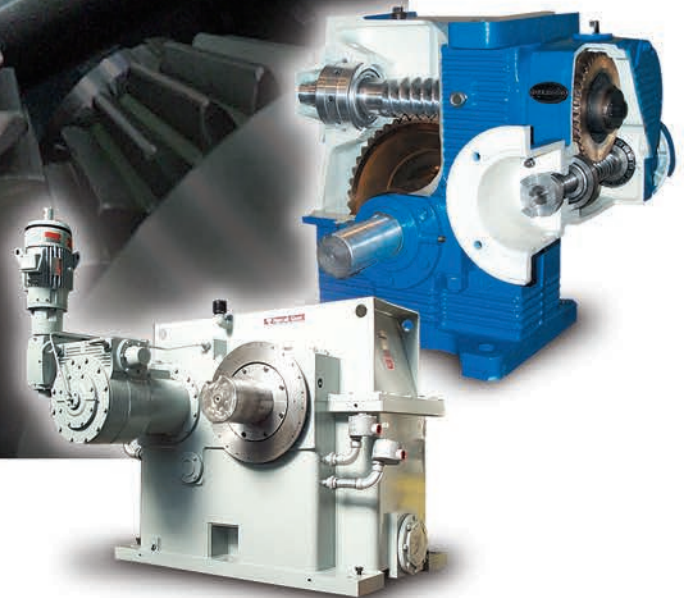


Repair and Rebuild Services



 **Nuttall**[®]
Gear

 **Delroyd**[®]
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^v\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.*



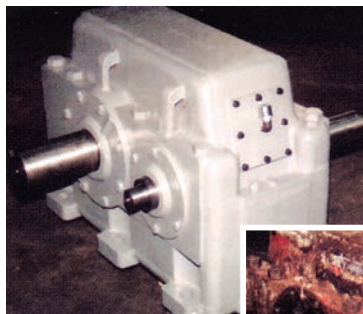
Over 100 Years of Excellence in Products and Service



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



www.nuttallgear.com

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



www.delroyd.com

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