



AKRON GEAR & ENGINEERING
 501 Morgan Ave
 Akron, OH 44311

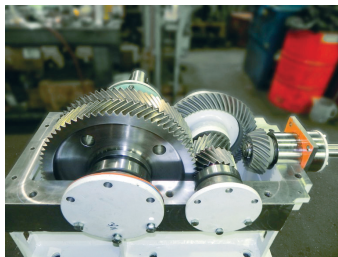
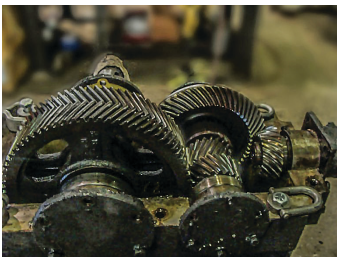
800.258.6608
 Fax: 330.773.9005
 Mon - Fri: 7am - 4pm

GEARBOX REPAIRS & UPGRADES

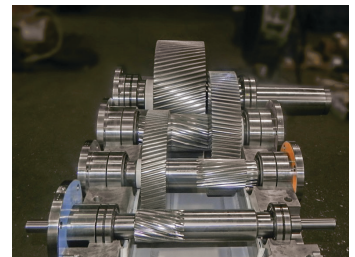
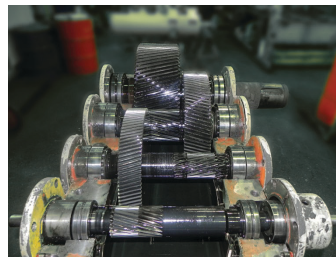
AKRON GEAR IS YOUR ONE-STOP SOURCE FOR ALL OF YOUR GEARBOX NEEDS.

Akron Gear & Engineering evaluates and repairs gearboxes of all makes and models. Included but not limited to parallel shaft, right angle, spiral bevel, multiple input/output, planetary and worm drives, Akron Gear & Engineering certifies each evaluation and repair with extensive test procedures.

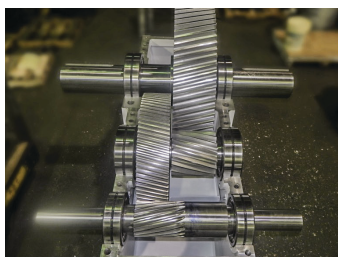
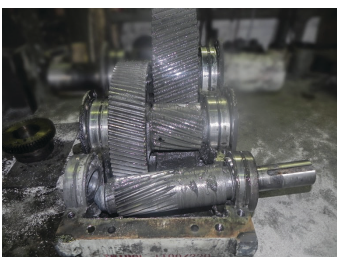
EXAMPLES:



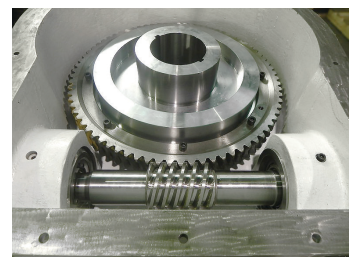
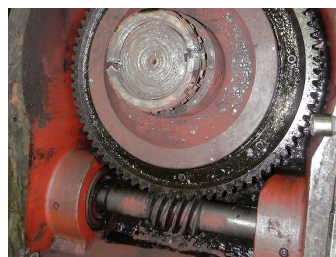
BEFORE & AFTER: HERRINGBONE ▲



BEFORE & AFTER: HELICAL GEARS ▲



BEFORE & AFTER: HELICAL GEARS ▲



BEFORE & AFTER: WORM DRIVE ▲

akrongear.com

If the service you are now receiving from a drive is unreliable, the gear technicians at Akron Gear & Engineering can evaluate your application and provide information that will help avoid costly downtime.

We provide a detailed inspection and failure analysis with each gearbox, which can include recommended upgrades for performance enhancement. Gearbox upgrades from Akron Gear & Engineering add life and reliability and can minimize loss of production.

INVESTING IN TECHNOLOGY TRENDS



Gage Master

- A universal, highly sophisticated, fully comprehensive 3D coordinate measuring device
- Mobile tester for gears including external, internal, spur, helical gears and worm wheels (max. gear diameter approx. 16 m/52 feet)
- No limitation in max. module, number of teeth, helix angle or face width
- Evaluation of profile, lead, pitch and runout data with reports
- Evaluation according to all gear standards and customized standards including DIN, ISO, AGMA 2000, AGMA 2015, JIS, free tolerances, etc.
- Suitable for measuring gears of quality class 5-6 according to DIN 3960/61 (similar to AGMA 2000 grade 10-12)
- Measurement and evaluation in both metric and inch
- Measuring accuracy < 7 micron / 1.000 mm (< 0,0003 inch / 39,37 inch)
- Software for measuring of unknown gears (reverse engineering)
- Measurement of complete gears or gear segments
- CMM software for measuring of gearbox housings, cylinders, cones, bores, spheres, circles and many more
- Gear software certified by the PT (authorized institute of the German government)

Particle & Lubrication Analysis Services

REAL Services USED LUBRICANT ANALYSIS

Sample ID: 019-02704602-BP-18
 Equip. Make: 18-Blower Fan
 Lubricant Type: 68 ISO CDL
 Reservoir Cap: 204 95 LHS
 Machine Code: 20 252 195
 Make Time: 1:57 P (H)

Sample Date: 1/15/2016
 Received Date: 1/15/2016
 Test Date: 1/15/2016
 Prev Sample: 1242003
 Prev Sample: 442001
 No. Samples: 3

CRITICAL

Recommendation(s): Consider Oil to correct LOW viscosity, as well as reduce high levels of Iron, Aluminum, Copper, Oxidation, Nitration, Sulfates and other contaminants. Consider Oil increased from 68 to 100 or 150 ISO Viscosity. Monitor decreased from 500 to 610 Alumin. Sulfates increased from 0.86 to 1.07 Alumin while Sulfates continue to increase from 1.3 to 11.1 Alumin. Viscosity 200 40°C ASTM-D-445.

Parameter	Unit	Value	Limit	Rating
Viscosity @ 40°C	cSt	100	68	2
Water @ 40°C	ppm	50	50	0
Acid Number	mg KOH/g	0.2	0.2	0
Turbidity	NTU	0.1	0.1	0
Iron	ppm	11.1	1.0	2
Aluminum	ppm	610	500	2
Copper	ppm	34	34	0
Nitrogen	ppm	11	11	0
Sulfates	ppm	1.07	0.86	2
Vanadium	ppm	0	0	0
Titanium	ppm	0	0	0
Calcium	ppm	0	0	0
Phosphorus	ppm	0	0	0
Lead	ppm	0	0	0
Antimony	ppm	0	0	0
Magnesium	ppm	0	0	0
Silicon	ppm	0	0	0
Chlorine	ppm	0	0	0
Boron	ppm	0	0	0
Phosphorus	ppm	0	0	0
Lead	ppm	0	0	0
Antimony	ppm	0	0	0
Vanadium	ppm	0	0	0
Titanium	ppm	0	0	0
Calcium	ppm	0	0	0

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REAL Services sample testing includes quality control and cleanliness of Lubricants & Fluids for natural petroleum hydrocarbons, synthetic hydrocarbons, biodegradable nonhydrocarbon fluids, water glycols, emulsions and greases.

- REAL Services' testing and technology works with all types of fluids & lubricants:
- Petroleum Based Oils
 - Synthetic Oils
 - Biodegradable Oils
 - Greases
 - Non-Hydrocarbons
 - Water Glycol Fluids
 - Fire Retardant Fluids
 - Emulsions

3-TIERED RATING SYSTEM

Sample Summary Reports: For quick reference of sample rating & recommendation.

Report Condition Ratings: For quick & easy reference of sample rating and previous sample.

Reference Sample: Data from a virgin reference sample is shown on report for comparison.

Recommendation(s): Clear concise action items and maintenance recommendations.

Report Format: Color and pictorial report format. All data is graphed & trended.

Qualitative Data:

- Particle Size, Shape & Composition
- Severe Sliding Wear
- Cutting/Plowing & Alignment Wear
- Rolling Contact & Bearing Wear
- Gear & Fatigue Wear
- Metallurgical Information
- Metal Oxides & Tempering over 23 other Parameters

Qualitative Data:

- NAS-1638 Particle Count
- ISO-4406 2 Digit Code
- ASTM-D-2983 Viscosity
- Water Contamination
- Equipment Particle Concentration
- Percentage Large Particles
- Various other parameters and testing are available.