



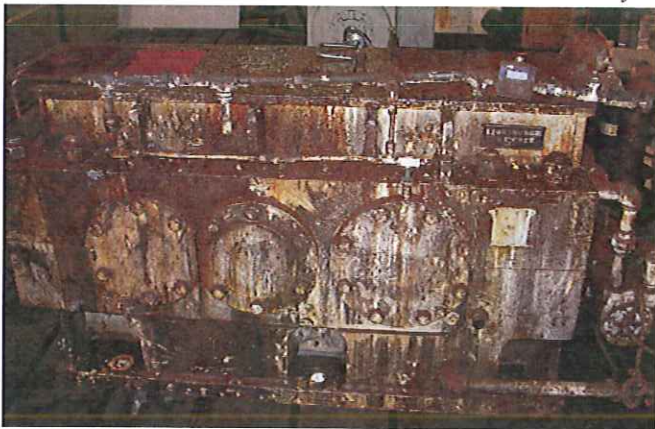
# HORSBURGH & SCOTT

## GEARBOX REBUILD & REPAIR

Whether it's a simple bearing and seal change out or a comprehensive rebuild, Horsburgh & Scott has the expertise to recommend and provide the best overall solution for your application and budget.

### Gearbox Rebuild & Repair Services for Numerous End Markets and Applications:

- Hot & cold mills
- Rolling mills
- Pipe mills
- Coilers & uncoilers
- Shear drives
- BOF drives
- Cranes & winches
- Pulverizers
- Ball, rod & autogenous mills
- Material conveyors
- Railcar dumper drives
- Air pre-heaters
- Wind turbines
- Pump drives
- Calender drives
- Mixers & extruders
- Sugar mills
- Tunnel boring mills
- Rotating kiln drives
- Dredges
- Aerators, clarifiers & agitators
- Elevation screws
- Tainter gates
- Moveable bridges



before

### Dedicated Repair and Rebuild Center:

- 60,000 sq. ft. facility with separate disassembly and cleaning areas
- Cranes to 150 tons
- Up to 300HP test motor for no load spin testing of gear drives
- Bearing ovens, furnaces, presses, bearing pullers, tools, etc



### Capabilities to Meet Customer Needs:

- Equipment evaluations & failure analyses
- Re-ratios and engineered upgrades
- Reverse engineering
- Rebuilds of all brands
- Rush breakdown repairs
- Non-destructive testing
- Preservation and long-term storage



after

COMPANY OVERVIEW

**Manufacturing Capabilities:**

- Gear cutting, including hobbing, shaping, Sykes herringbone, flycutting, Maag shaping (conventional and hardcutting), up to 7.3m
- Form grinders to 6m; AGMA class 14 with internal grinding to 3.5m OD
- Vertical turning to 15.2m with live spindle, shaft turning to 2m diameter, OD grinding to 1.8m diameter. Keyseating to 1.5m stroke with indexable table
- Large welded gear blanks to 6m diameter with furnace stress relieving
- Horizontal Boring Mills to 229mm spindles, 7 axis CNC floor mill with 6.1m index table



**Heat Treat:**

- New Aichelin carburizing and hardening line:
  - 2.0m diameter x 2.5m depth
  - 2.5m diameter x 2.0m depth
- New Saet CNC induction hardening machine up to 5.3m diameter
- Effective case depths for carburizing and induction hardening to 6.4mm
- Stress relieving of component weights to 100,000 lbs
- Process components to 50,000 lbs

<i>Main Plant</i>	<i>Heat Treat Facility</i>	<i>Repair Center</i>
5114 Hamilton Avenue	4629 Hamilton Avenue	1441 Chardon Road
Cleveland, OH 44114	Cleveland, OH 44114	Euclid, OH 44117
216.431.3900	216.432.5804	216.865.0550

**Engineering and Quality Assurance:**

- Engineering analysis and upgrades
- Reverse engineering
- Sophisticated tools and practices to follow rigorous standards, including AGMA, ISO 9001:2008, AASHTO and API
- Zeiss Coordinate Measuring Machine (4 x 4 x 2m)



**Comprehensive Industrial Gearing Repair and Service:**

- Engineering analysis, gearbox evaluations, reverse engineering
- Disassembly and reassembly
- Gear inspection
- Gearbox no-load spin testing
- Global field service
- Installation supervision
- Predictive and preventative maintenance
- Detailed borescope inspections
- Non-destructive testing
- Condition monitoring (vibration, torque, load, temperature, pressure, etc.)
- Real time, remote and networked
- Alarm notification
- Root cause analysis
- Condition assessment & dynamic modeling

**Solutions for Many End Markets and Applications:**

- Metals
- Mining
- Pumps
- Sugar
- Oil & Gas
- Wind Energy
- Tire & Rubber
- Power Generation
- Transportation
- Infrastructure
- General Industrial



[www.horsburgh-scott.com](http://www.horsburgh-scott.com)