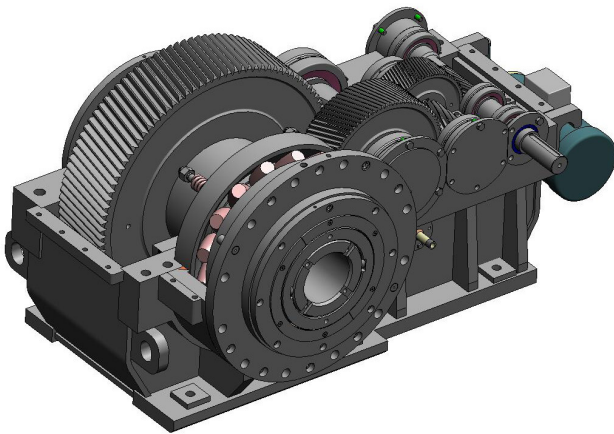




HORSBURGH & SCOTT

TIRE & RUBBER

In the tire & rubber industry, uptime is crucial. Other than planned maintenance, the gearboxes that drive your mixers, extruders, calenders, and other critical equipment need to operate reliably and efficiently 24 hours per day.



Engineering and Manufacturing Capabilities that Meet the Highest Quality Standards:

- We can custom engineer your gearing to the exact specification for the intended application or manufacture to your design
- Our dedicated engineering team utilizes advanced 3D modeling, system analysis, and innovative design tools
- We have the latest technology and equipment in gear cutting, grinding (AGMA 14), carburizing, and induction hardening

Improving the Tire & Rubber industry's most critical gearboxes...

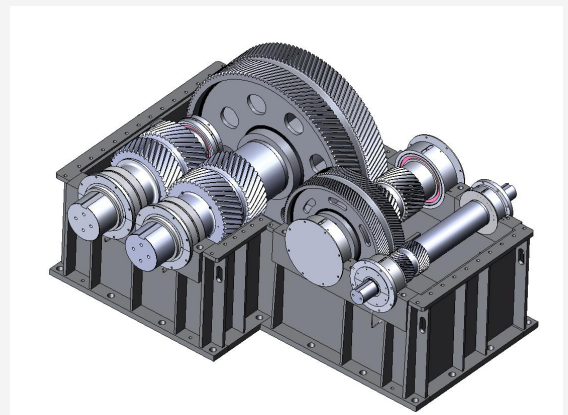
- Mixers • Calenders • Extruders

...we improve Service Factors to meet the harsh demands of your industry



Superior Service to Meet Demanding Needs of Tire & Rubber Plants:

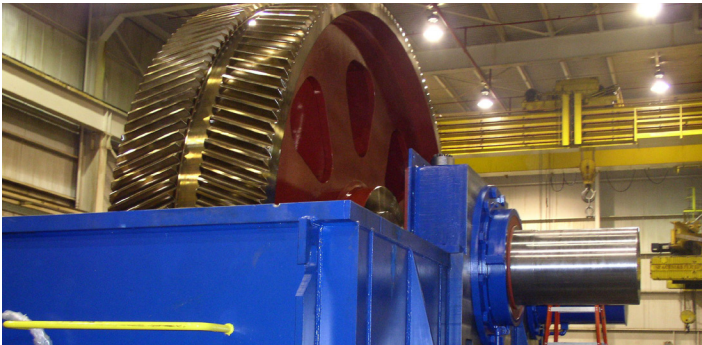
- Dedicated repair and rebuild facility is centrally located in Cleveland, OH
- Trucks are available to pick-up and deliver gearboxes in emergency breakdown situations
- Preventative maintenance and service technicians are available to assist your maintenance professionals
- Remote condition monitoring can be installed on your equipment to detect & diagnose problems before serious damage occurs



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

Main Plant
5114 Hamilton Avenue
Cleveland, OH 44114
216.431.3900

Heat Treat Facility
4629 Hamilton Avenue
Cleveland, OH 44114
216.432.5804

Repair Center
1441 Chardon Road
Euclid, OH 44117
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



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