



HORSBURGH & SCOTT

POWER GENERATION

In the power generation industry, uptime is crucial, especially in the peak summer months. Gearboxes, amongst other equipment, need to operate dependably and efficiently 24 hours per day. Horsburgh & Scott has been serving the power industry for decades by directly supporting power plants and providing OEMs with superior, customized gearing solutions that can greatly improve equipment lifecycle and operating efficiency.

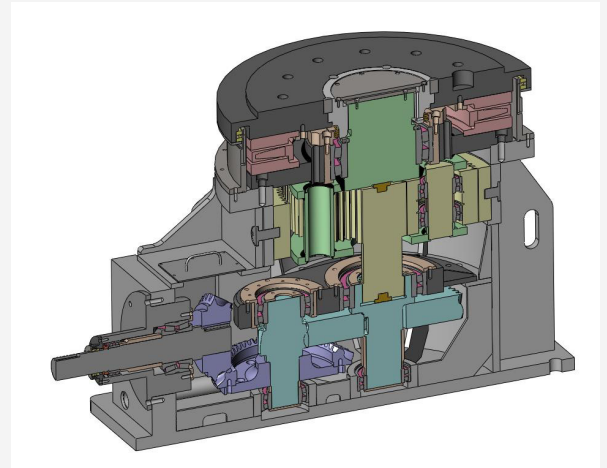


Engineering and Manufacturing Capabilities to Meet Quality Standards:

- We can custom engineer your product to the exact specification for the intended application or manufacture to your design
- Dedicated engineering team with advanced 3D modeling, system analysis, and innovative design tools
- Latest technology in gear cutting and grinding (AGMA 14); newly installed carburizing pit furnaces and induction hardening

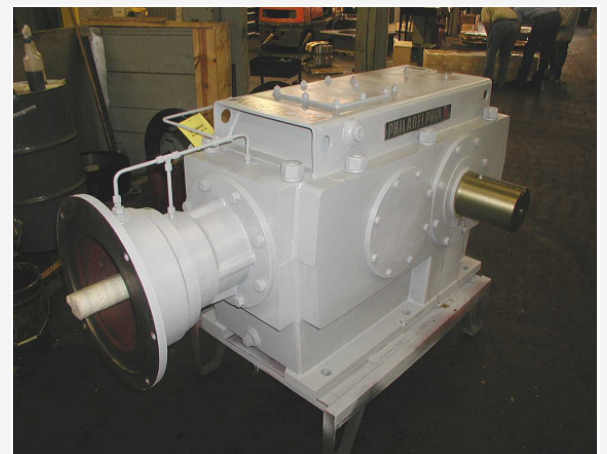
We Offer Solutions for Numerous Applications in Your Facility:

- Conveyor drives
- Coal pulverizers
- Ball mills
- Pump drives
- Railcar dumper drives
- Air pre-heaters
- Winch drives



Superior Service to Meet Demanding Needs of Power Plants:

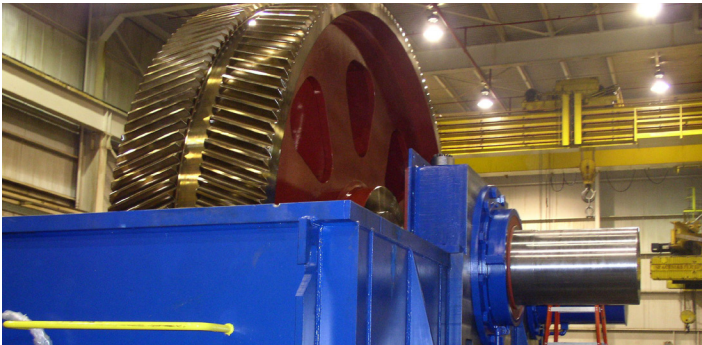
- Dedicated repair and rebuild facility centrally located in Cleveland, OH
- Trucks available to pick-up and deliver gear-boxes in emergency breakdown situations
- Preventative maintenance and service
- Remote condition monitoring technology



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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