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## MANUFACTURING

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Horsburgh & Scott has invested in the latest technology and equipment to maintain the reputation of manufacturing quality components to exact specifications. With more than 280,000 sq. ft. of manufacturing space, we can supply custom industrial gears and gear drives in either small job shop or high production quantities.

### Precision Machining and Fabrication:

- Up to 7-axis CNC machining utilizing latest tooling technologies

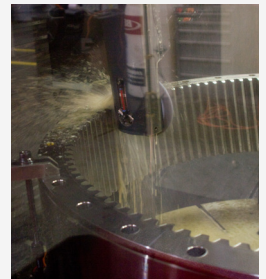
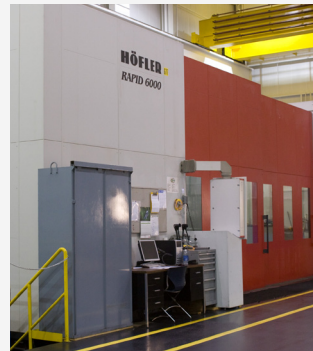


- Multiple machines retrofitted with CNC controls, including internal shaping, shaft hobbing, keyway cutting, and multi-axis milling
- Welded gear fabrications to 6m (237in)
- Horizontal boring mills up to 7-axis with x-y-z travel: 17.5m-5m-2.2m (688in-192in-88in)
- Crane capacity up to 75 tons



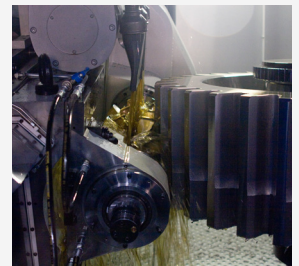
### Latest in Gear and Shaft Grinding:

- External: outside diameter to 6.0m (237in)
- Internal: outside diameter to 3.5m (138in)
- Face width: up to 2.0m (79in)
- Module: up to 40 (0.63 DP)
- ISO grade: up to 4 (AGMA quality 14)



### Latest in Gear Tooth Cutting:

- Spur, helical, double helical, herringbone, internal, and worm gears
- External: outside diameter to 7.3m (287in)
- Internal: outside diameter to 4.8m (189in)
- Face width: up to 1.3m (50in)
- Module: up to 70 (.375 DP)
- ISO grade: up to 8 (AGMA quality 10)



## 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



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