

STORAGE SERVICES

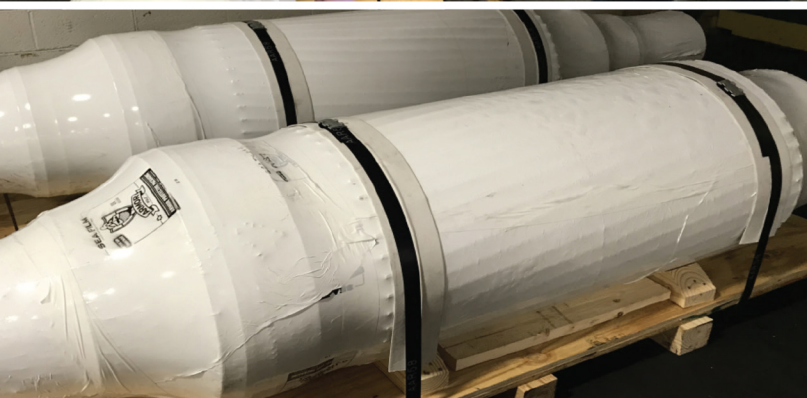


HORSBURGH & SCOTT
DELIVERING THE DIFFERENCE



35,000 SQ FEET AVAILABLE / 75 TON CRANE

- Climate controlled
- Safe
- Clean
- Well lit
- Crane capacity up to 75 tons
- Qualified riggers to ensure proper handling



IN ADDITION, WE OFFER THE FOLLOWING SERVICES TO MEET YOUR LONG TERM STORAGE NEEDS:

- Armor Protective Packaging® for short and long term storage. Armor manufactures rust prevention and rust removal products that are clean, safe, easy and effective.
- Gear box rotation
- Inspection services available



**WE ARE AVAILABLE 24/7/365
TO PULL YOUR PRODUCT AND MAKE
SHIPPING ARRANGEMENTS.**

Horsburgh & Scott offers in house export packaging:
IPPC in accordance with ISPM-15



216.431.3900



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USA

**DELIVERING
THE DIFFERENCE**



HORSBURGH & SCOTT

ADVANCED GEARING CAPABILITIES

IN-HOUSE HARDENING FOR IMPROVED DURABILITY AND RELIABILITY

- **THROUGH HARDENING** - Medium to high carbon steel parts (1045, 1137, 1141 1144, 4130, 4140, 4330v, 4340, 8640, etc.) have enough carbon content to harden without addition of carbon to the surface (case hardening). Hardness is usually specified on Rockwell "C" scale with a minimum spread of 5 points.
- **INDUCTION HARDENING** - A form of heat treatment in which a metal part is heated by induction heating and then quenched. The quenched metal undergoes a martensitic transformation.
- **CARBURIZING** - A heat treatment process in which iron or steel absorbs carbon liberated when the metal is heated in the presence of a carbon bearing material, such as charcoal or carbon monoxide, with the intent of making the metal harder. Capability up to 90 in. OD, and 16 ft. L.

REBUILD, REPAIR, FIELD SERVICE & PREVENTATIVE MAINTENANCE

Rebuilt & Repaired thousands of **GEARBOXES**, and have a library of drawings across **120 BRANDS**.

- Detailed inspections and evaluations
- Dynamic modeling and optimization recommendations
- Emergency breakdown service and repairs
- Spin and load testing
- Equipment evaluation/analysis
- Gear alignment
- Installation and startup supervision
- Lubrication system evaluation
- Nondestructive testing (NDT)
- On-site machining
- Preservation and long-term storage
- FARO Arm
- Rebuilds of all manufacturers
- Re-ratios and engineered upgrades to gears and housings
- Reverse engineering
- Spare OEM parts



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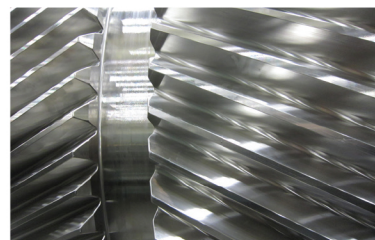
GEAR TEETH PROFILING EXPERTISE

- **CROWNING** - Helps center the tooth contact in the middle of the facewidth, and helps prevent catastrophic tooth breakage.
- **END RELIEF** - Helps prevent end loading in cases of heavy shock or momentary overloading, and helps to prevent heavy loading at the ends of the teeth which could lead to tooth breakage.
- **TIP RELIEF** - Helps promote smooth engagement and disengagement of the meshing gears, and helps prevent tooth breakage.
- **LEAD AND PROFILE MODIFICATIONS** - Helps to promote contact across the entire tooth facewidth when the gear is under load, and provides major improvements in the life of gearing operating under heavy loads.
- **SHOT PEENING**

QUALITY ASSURANCE

Quality-centric individuals and teams have positioned Horsburgh & Scott as one of the **HIGHEST-QUALITY DESIGNERS AND MANUFACTURERS OF INDUSTRIAL GEARING**.

- Engineering analysis and upgrades
- Reverse engineering
- Sophisticated tools and practices to follow rigorous standards, including AGMA, ISO 9001:2008, AASHTO and API
- Gear cutting (AGMA class 10)
- Gear grinding (AGMA class 14)
- Zeiss Coordinate Measuring Machine (4 x 4 x 2m) within 2 micron accuracy
- On-board lead & involute checking
- Specialized metallurgical testing for heat treat
- Nondestructive testing (NDT)



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