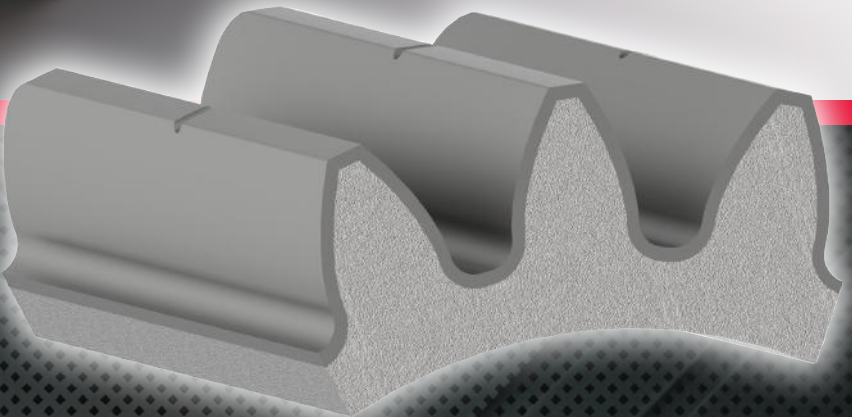
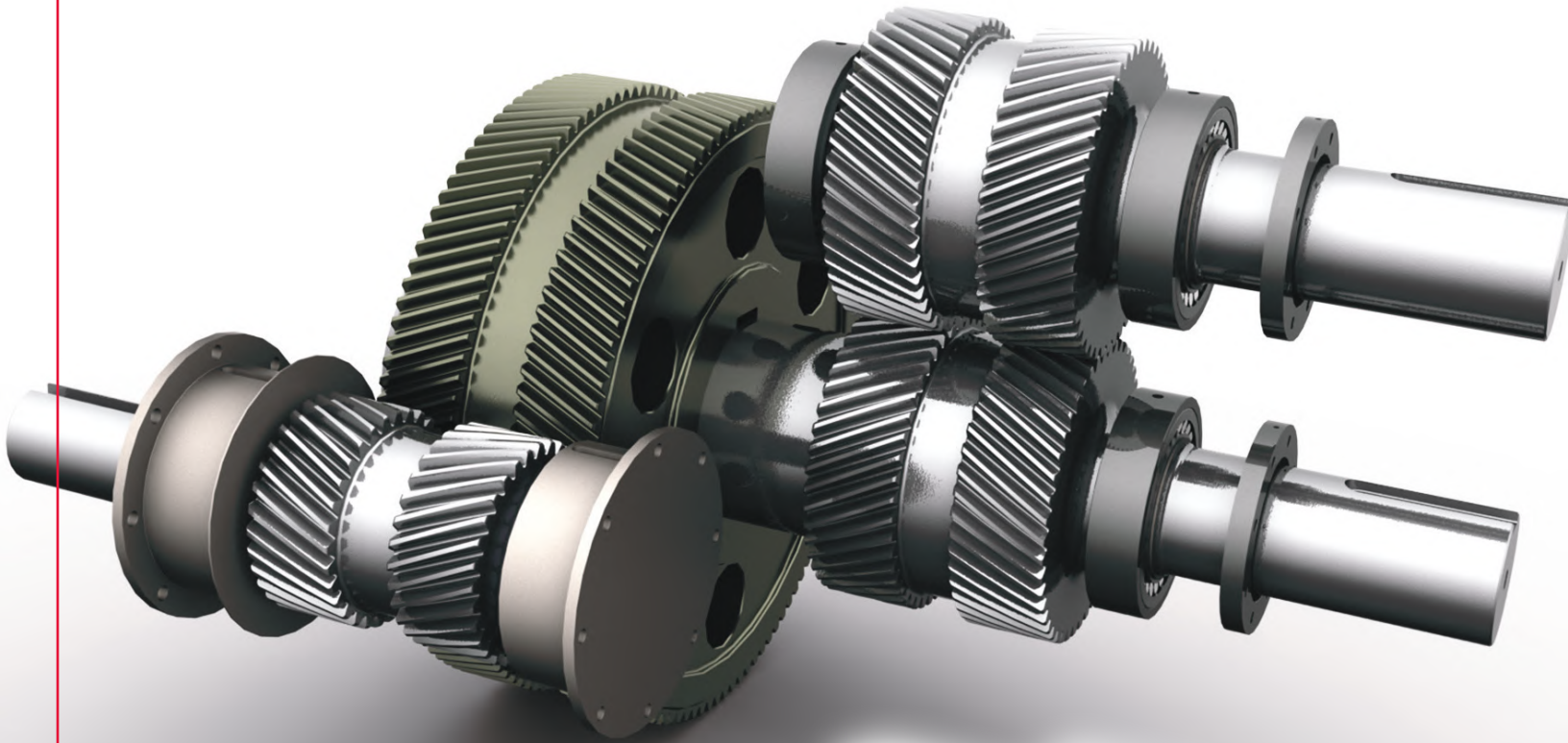


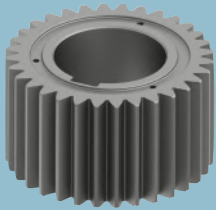
# Xtelk



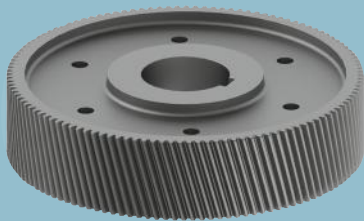
**Engineered for Optimum  
Performance and Long Life**

# Xtek Gear & Gearboxes

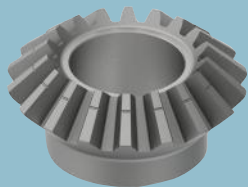
## Xtek Gearing Products



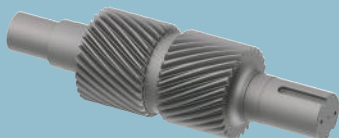
Spur Gearing



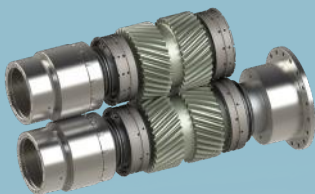
Helical Gearing



Straight Bevels



Double Helical Pinion



Mill Drive Gearing



Complete Gearboxes

### Manufacturing experience and processes that set Xtek apart.

- Carburizing and heat treating specialists with a broad range of heat treat capabilities in house
- All work meets or exceeds OEM specifications
- Product design knowledge to complement a full range of manufacturing
- Application expertise well beyond ordinary machine shops

### Qualifications & Experience

- Over 100 years of Experience
- Over 70 degreed mechanical, metallurgical and service engineers
- Superior heat-treatment
- ISO 9001 + 14001 Certified
- AGMA Member (American Gear Manufacturers Association)
- Solid Modeling
- FEA Analysis
- 3D Scanner for reverse engineering and engineering analysis services

Whether you need a single replacement gear, a set of gears, or a complete gearbox, you need Xtek's expertise in the design, manufacturing and heat treating of those gears. Our experienced engineers use the latest engineering software to evaluate and design the highest quality custom gearing for your application. Couple this with our metallurgical and manufacturing experience of over 100 years, and you get an Xtek quality gear.

We produce gearing for customers worldwide and in a multitude of applications. Xtek manufactures and heat treats both through hardened and carburized gearing. We are a long standing member of the American Gear Manufacturers Association and provide gearing up to an AGMA 15 quality level.



## Advantages of Xtek Custom Gears and Replacement Gearing:

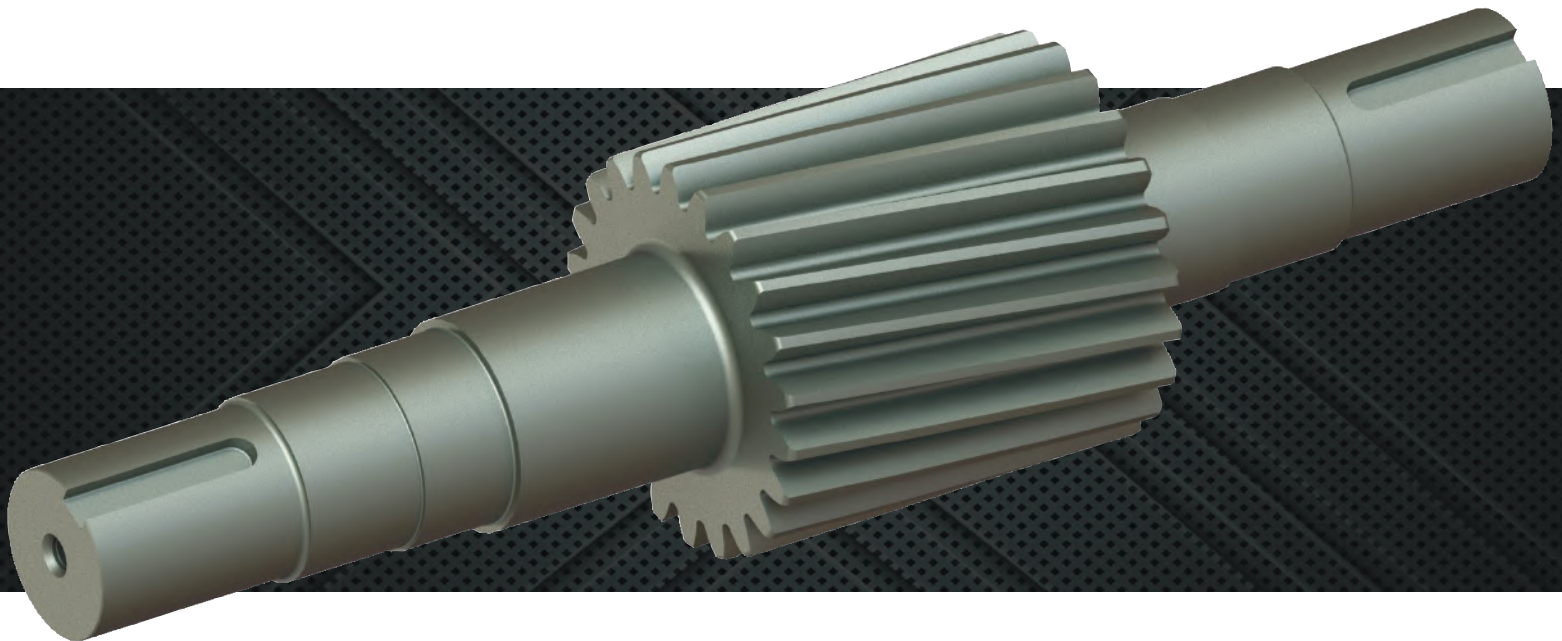
- Material and heat treatment selected to provide the optimum performance in your specific application
- Carburized gearing capable of providing 30-50% more torque than through hardened gearing
- A deep, uniformly carburized case across the entire profile and root provides superior wear and strength properties
- Reverse engineering, design upgrade and failure analysis services are available to assure that your custom gearing requirements are satisfied

## Gearing Capabilities

- Spur, Helical, and Double Helical up to 100 inches
- Straight Tooth Bevel Custom Gearing up to 72 inches
- AGMA Quality 15
- TSP Carburizing to 56 – 62 HRc
- Up to 100,000 pounds
- Reverse Engineering and Finite Element Analysis



3



# Xtek Hardening Processes

Xtek manufacturing excellence has been built from a history of heat treating technology. While Xtek is familiar with many heat treatment options, it is the TSP method of carburization that is most often called upon to solve customer gearing problems.

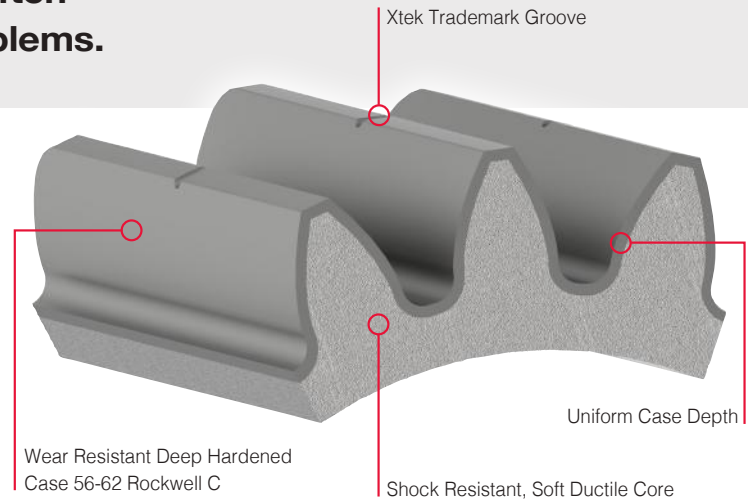
## Hardening Technologies

### ■ Carburizing and Hardening

Providing the optimum combination of high strength and long wear, this treatment creates a hard high carbon layer which protects a much softer lower carbon core. The hardened case produces superior resistance to contact stresses (pitting) and bending stresses (root strength). This significantly extends product life. Due to these properties, carburized gear ratings are higher than gears processed by other heat treating methods.

### ■ Through Hardening

This heat treating process is applied to medium carbon steel components when operating requirements are less rigorous. To achieve through hardening, a gear is through heated above the austenitizing temperature, cooled at a precisely controlled rate, then tempered and stress relieved to obtain the desired metallurgical properties.



## Xtek TSP Advantages

- Provides the best overall solution for strength and durability
- Depth and uniformity of hardness is the best in the industry

Hardening Technique	Nominal Surface Hardness	Case Depth (inches)	Case Depth (mm)	Case Uniformity	Allowable Bending Stress	Allowable Contact Stress
Through Hardening	32 HRc	Contact Hardness	Contact Hardness	No Case	36 ksi	120 ksi
Flame Hardening	50 HRc	0.12 - 0.16	3.0 - 4.0	Poor	22 ksi	170 ksi
4110 Nitrided	56 HRc	0.02 - 0.03	0.5 - 0.7	Excellent	34 ksi	155 ksi
Induction Hardening	50 HRc	0.12 - 0.16	3.0 - 4.0	Fair Contoured	19 ksi	170 ksi
<b>Xtek TSP</b>	<b>60 HRc</b>	<b>0.12 - 0.20</b>	<b>3.0 - 5.0</b>	<b>Excellent</b>	<b>65 ksi</b>	<b>225 ksi</b>

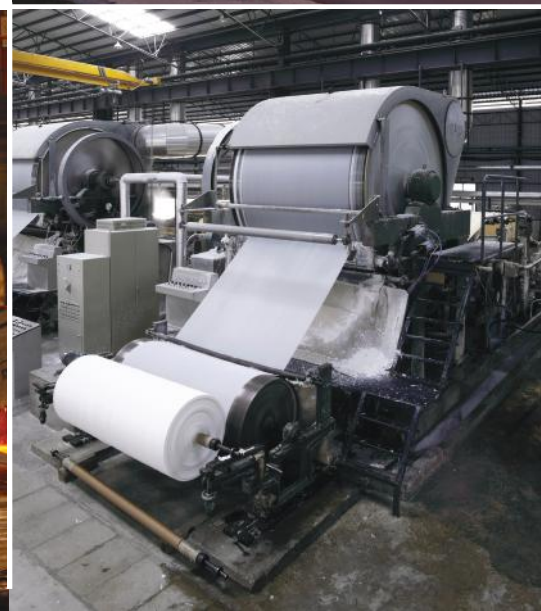
# Industries Served

Xtek provides components for many industries that demand reliable service in critical applications as well as less than ideal operating conditions. The expertise in these industries provide insight and knowledge with foresight to address customer needs as well as unintended outcomes that only come through experience. Often extending the life of existing components that can be crucial in industries around the world Xtek takes pride in customer service being at the front of our customer experience. With a full range of products and services, Xtek can provide improvement suggestions and upgraded components that can reduce down time, and help improve efficiency worldwide in any environment.

- Steel
- Aluminum
- OEM
- Power Generation
- Sea Ports
- Pulp and Paper
- Agriculture
- Food Processing
- Mineral Processing



5



# Xtek Capabilities

Xtek manufacturing quality is a result of talented engineers and designers, coupled with major investments in turning, hobbing, grinding, milling and proprietary design in heat treating equipment. Superior metallurgical knowledge partnered with skilled and dedicated machinists, welders and inspectors assures consistent product accuracy and quality.

## Mill Pinions

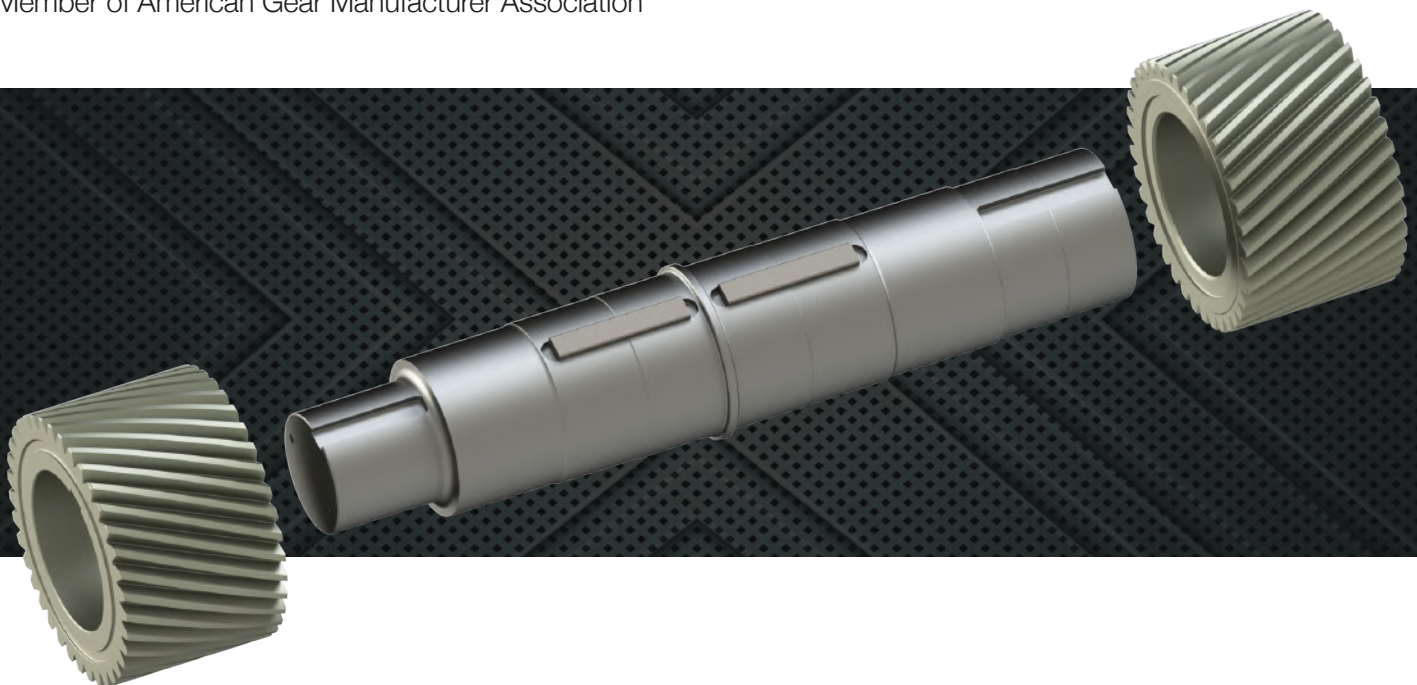
- Manufactured since 1930
- Service gear applications worldwide
- Design based on application knowledge and field experience
- Rated for 20 years of continuous service
- Typically manufactured from DIN 17CrNiMo6 or 18CrNiMo7-6 steel
- Carburized Gearing produced up to 100 inches (2.5m) and 55,000 pounds (25,000 kg)
- Carburized & case hardened to 56 –62 HRc ( $\approx$ 4-6 mm case depth)
- Case depth range of approximately 0.16 - 0.24 inches (4-6 mm)
- Full Gear Inspection Capability
- Overall length up to 200 inches (5,080 mm)
- Overall diameter up to 60 inches (1,550 mm)
- Overall weight up to 55,000 pounds (25,000 kg)
- Solid Forging or three piece Shell-on-Shaft Design
- On-site Installation
- Member of American Gear Manufacturer Association

### Solid Forging Design

- Ground tooth up to AGMA quality level of 15 or “custom fit”
- Most pinions will have a through bore to eliminate centerline defects from the forging process
- Provide more reliability than 3-piece design
- Apex groove is required for tooling and grinding wheel clearance

### Three Piece Design

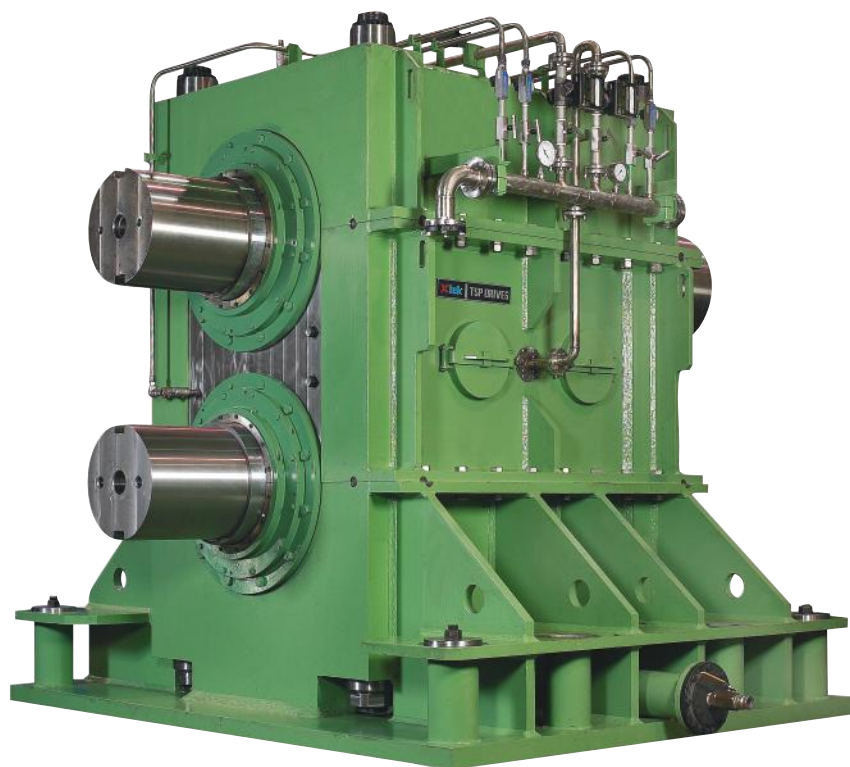
- AISI 4340 Heat treated shaft with 17CrNiMo6 gear shells
- Gear shells are assembled using square keys and interference fit
- Little to no Apex groove needed
- Ground tooth up to AGMA quality level of 15





## Mill Pinion Gearboxes

- Xtek will supply both Xtek designed or original equipment mill pinion gearboxes if drawings are available
- Xtek design developed in part with mill maintenance personnel to reduce or make mill maintenance easier
- Features include 3 piece box design, eccentric bushings and full lubrication system
- Fully designed, manufactured, assembled and tested at Xtek



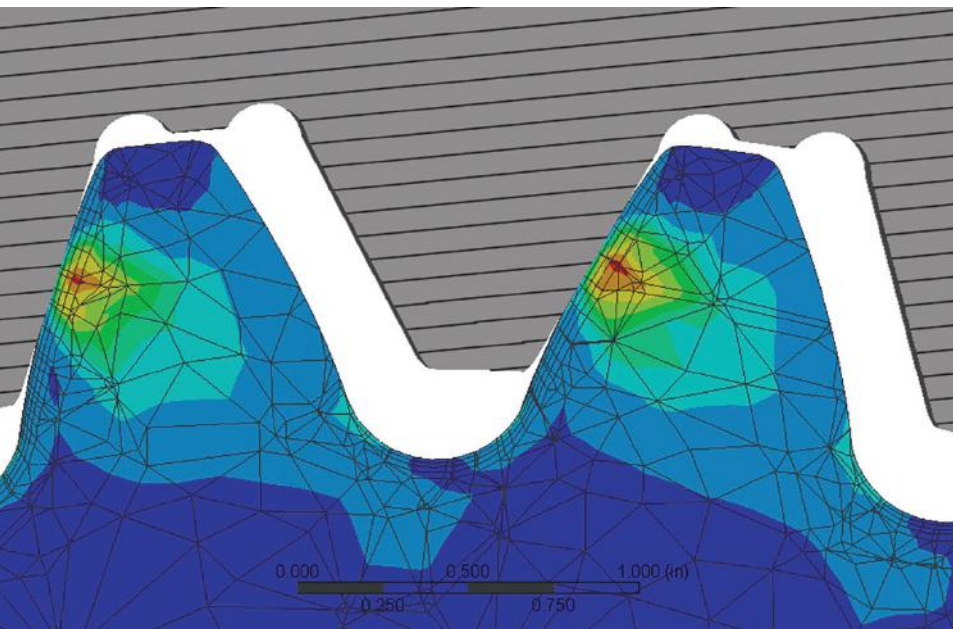
# Xtek Reconditioning Advantages

Many shops can disassemble and reassemble a gearing assembly or industrial gearbox and call it repair. However, few can do it with the resources and quality that Xtek Provides. No matter the original equipment manufacturer or whether or not drawings are available; our service engineers will evaluate each mechanical component and provide a complete analysis and repair plan.

- Engineering analysis including proposed upgrades and the expected improvements in gearing through design and metallurgical expertise
- Gear Contact Pattern Analysis
- Full Gear Rating analysis in accordance with AGMA (American Gear Manufacturers Association) quality standards
- Failure Root Cause Analysis
- No-Load run testing to monitor bearing temperatures, vibration and gear noise
- 3D Scanning for reverse engineering and engineering analysis services
- 8 • On site gearing inspections and engineering support
- Installation support
- Ability in many cases to work with existing OEM gearing and/or within OEM gearbox footprints
- Finite Element Analysis



No-load Test Stand



Finite Element Analysis

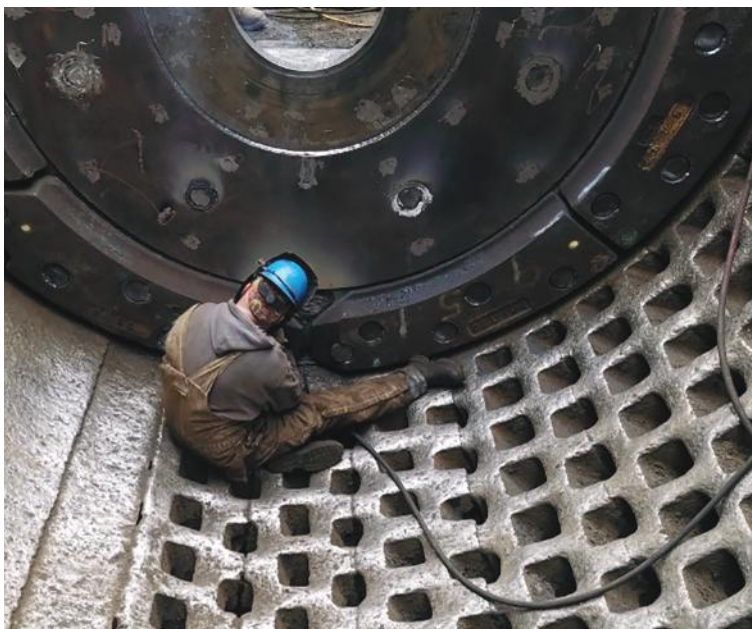


3D Scanning

# Xtek Maintenance Services Group



- Our mobile crews of highly skilled Mechanics, Welders and Machinists can provide on-site labor to perform many different millwright tasks. Some tasks can be 100% completed on-site, while others require removing gearboxes, gear assemblies or other mechanical equipment from service, bringing it back to one of our regional repair centers, making the necessary repairs and reinstalling it.
- We provide on-site machining and alignment services.
- Our crews are regularly scheduled for in-plant outages and unplanned emergency breakdowns with 24/7 support.
- All of our self-sufficient crews travel to job sites in company trucks with well-equipped tool trailers.





**A Trusted  
World Leader  
in Heavy Industry  
Components for  
Over 100 Years.**

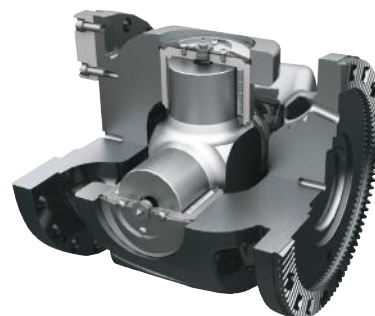
### **Gear Spindle Couplings**



### **Wheel and Wheel Assemblies**



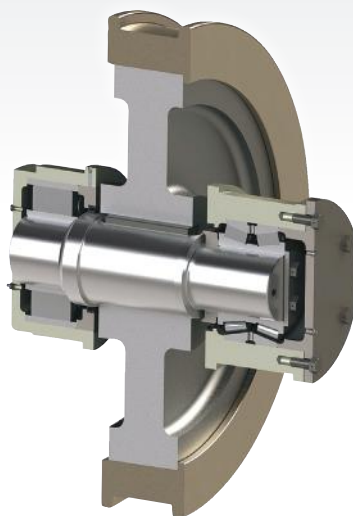
### **Universal Joints**



- World leader in couplings
- All driveshaft products are custom designed for your application
- All wear components TSP carburized to 58-62 HRC
- Reconditioning specialists



- Xtek crane, brake and sheave wheels are the industry's longest lasting wheel products
- Proprietary heat treatment provides industry's best performing wheels
- Emergency breakdown services available



- Xtek manufactures closed-eye, split-eye, and block-type tight joints
- 220mm – 800mm standard sizes, others available upon request and evaluation
- A variety of flange connections are offered including: face key, integral pad, welded, and hirth serrations
- Special customized design features will be evaluated based upon the application





## Rope Drums



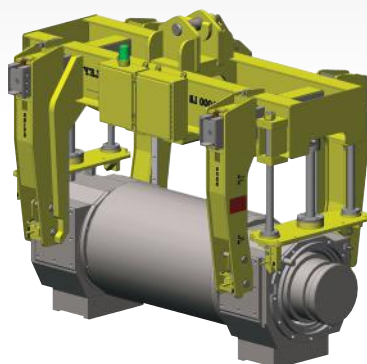
- Design and manufacturing of rope drums, TSP carburized and hardened to 60 HRC minimum
- TSP rope drums increase the life of rope by reducing coefficient of friction between drum and rope
- Xtek is capable of a variety of rope drum heat treatments, based on the application requirements
- Xtek provides numerous rope drum reconditioning services



## Below-the-Hook Lifting Products



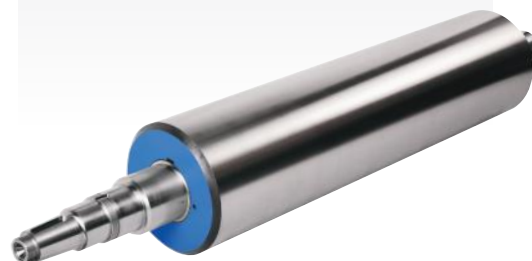
- Design & manufacturing of heavy duty lifting equipment
- Multiple options for handling coil, slab, sheet, ingot, tube and specialty products
- Licensed, professional engineers on staff
- Lifter inspection services
- Repair and retrofitting of all lifter brands



## Bemcalloy™ Pinch Rolls



- Design and manufacturing of pinch rolls that catch the strip and direct it down into the coiler
- Excellent wear and material pick-up resistance
- High strength and resistant to thermal fatigue/thermal shock
- Highly qualified provider of customized pinch roll reconditioning services



**Xtek is employee owned and driven to serve our customers' standard, rush, emergency and breakdown needs.**

**For more details please contact your Xtek sales representative.**

**You may also call us at  
513.733.7800 or  
email [sales@Xtek.com](mailto:sales@Xtek.com).**

**For emergencies, call us 24/7 at  
513.733.7984**



**Solutions in Motion**



All Xtek manufacturing facilities are ISO certified.  
ISO 9001:2008 – ANSI/ISO/ASQ Q9001-2008  
ANSI/ISO 14001:2004

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