

# *Centerline Inc*

- ❏ **Spindle Repair**
- ❏ **Precision Machining and Grinding**
- ❏ **New Spindle and Accessories Sales**
- ❏ **Maintenance Training Programs**
- ❏ **Spindle Engineering and Manufacturing**

***Precision Spindle Engineering***  
***2110 N Ash – Ponca City, OK 74601***  
***800 696 2865 – [info@centerline-inc.com](mailto:info@centerline-inc.com)***  
***[www.centerline-inc.com](http://www.centerline-inc.com)***



# Spindle Repair



## Spindle Types

*Centerline repairs belt driven, motorized, high frequency milling spindles, lathe spindles, grinding spindles*



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# Balancing

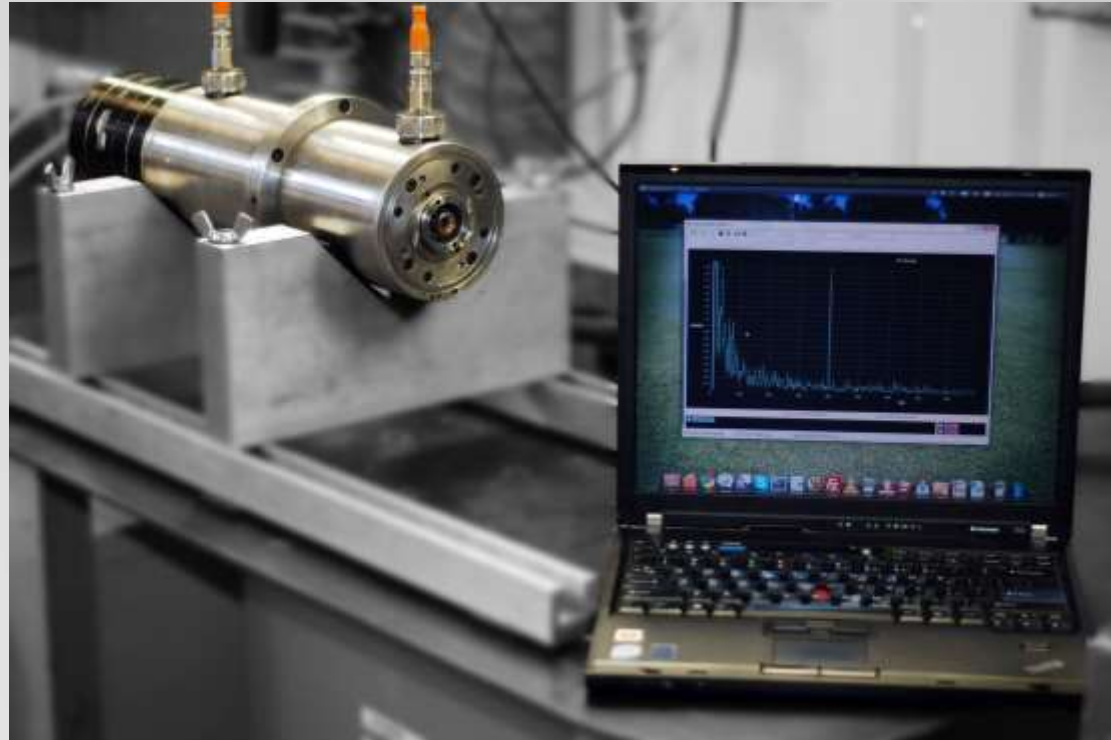
- ❏ ***Dynamic and Static balance to G0.4 quality standard.***
- ❏ ***State of the Art equipment to balance from less than 1/2lbs to 200lbs rotating mass.***
- ❏ ***Balancing full assemblies***



# *Analysis*

© *Vibration Analysis*

© *Failure Analysis*



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# New Sales



## SycoTec

*High Frequency Spindles, Drives and Accessories*



## Alfred Jäger

*High Frequency Spindles, Drives and Accessories*



## Henninger

*Speeders, Angle Heads, Center Grinders, Tool and Work Holding Solutions*



## Ortlieb

*Tool and Work Holding Solutions*



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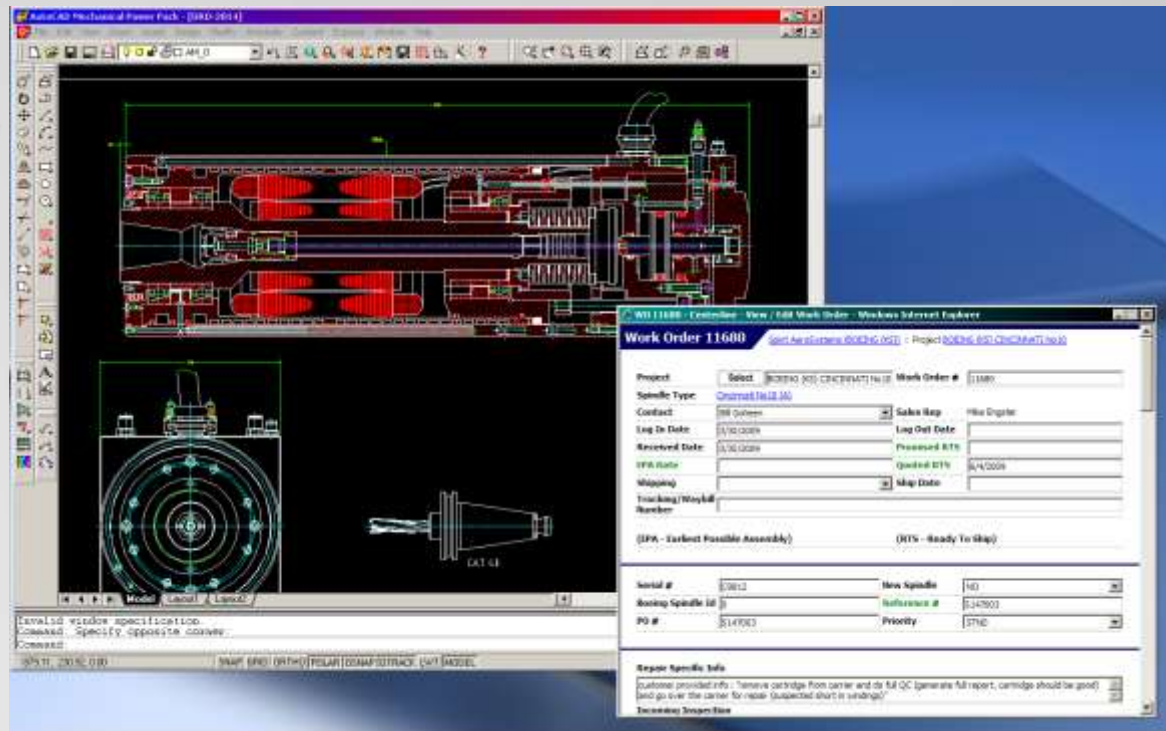
# Engineering and Historical Data

## Improve Performance

*Application Specific Improvements, re: increase stiffness, improve finish, run faster, improve sealing system. Identify problems and engineer solutions. Centerline uses AutoDesk's AutoCAD for engineering and archiving technical drawings.*

## Track History

*Centerline's custom spindle repair software systems keep track of critical repair details including incoming and final QC inspection spindle performance data.*



# Equipment

## **Spindle Repair**

*Clean Assembly Room, Presses to 150 tons, Highest Precision Instruments and Measuring Equipment . Spindle Repair Master Technicians and Apprentice system assures unmatched quality*

## **Spindle Testing**

*Full Quality Control Testing Stations including full electrical, lubrication, pneumatic and hydraulic capabilities*

## **Balancing/Vibration Analysis**

*Highly skilled technicians using Schunk, Hoffmann, IFM, and IRD equipment*

## **Machining**

*Lathes, mills, and extremely skilled operators holding the tightest tolerances*

## **Grinding**

*ID, OD taper grinding on Two Kellenberger 1000U Universal Precision Grinders, G&N Surface Grinder, Henninger Center Grinder, and extremely skilled operators holding the tightest tolerances*



# Manufacturing

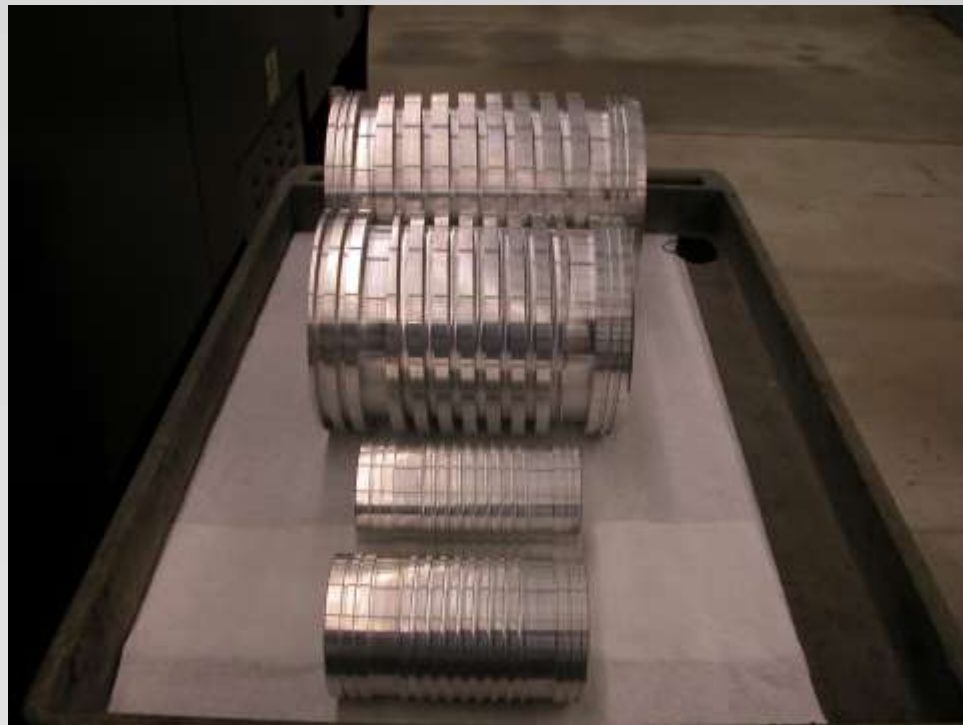
## **Spindle Repair Support**

*Centerline's manufacturing capabilities provide parts for repair when the OEM is out of stock, too expensive, part is no longer available, and/or lead time and/or cost is prohibitive.*

## **Custom Manufacturing**

*Diverse, specialized and capable equipment range makes Centerline a unique and highly qualified manufacturing option in the machine tool spindle industry as well as any other industry requiring the utmost in quality.*

## **Our specialty lies in high precision cylindrical parts.**





# Manufacturing Range



## Up to

*Turnings 60 inches between centers up to 16 inches diameter, Grinding up to 36 inch lengths and up to 12 inches diameter, Milling at 30 x 20 x 20 (X-Y-Z)*



## Tolerances/Precision

*In our Temperature controlled environment 5 $\mu$ m (0.0002in) tolerances on an ID/OD diameter after grinding are common.*



# *Customer References*

## **United States - Mexico**

-  ***Vought Aircraft***
-  ***Triumph Aerostructures***
-  ***Spirit Aerosystems***
-  ***Boeing***
-  ***UTC Aerospace***
-  ***Pratt & Whitney***
-  ***Aisin Automotive***
-  ***Apex Tool Group***
-  ***Regal Cutting Tools***
-  ***Kennametal***
-  ***Fiat Chrysler (FCA)***
-  ***Robert Bosch***
-  ***Thyssenkrupp***
-  ***Martinrea Honsel***
-  ***Nexteer***
-  ***Faist Alucast***
-  ***Varel International***
-  ***Kolbenschmidt de MX***
-  ***VCST de Mexico***
-  ***FAG Schaeffler***

