

Timken Aerospace Transmissions

- Complete engineering and CAD/CAM capabilities
- Precision CNC machining
- Heat treat, metallurgical and non-destructive inspection
- Gear and transmission technology
- Stringent in-process inspection
- Assembly and testing
- Gear metrology

To learn more about Timken aerospace power transmission solutions, call 860.649.0000 or visit timken.com/aerospace.

TIMKEN

Where You Turn

Timken Aerospace Transmissions



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Bearings • Steel •
Power Transmission Systems •
Precision Components • Seals •
Lubrication • Industrial Services •
Remanufacture and Repair
www.timken.com

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*Power Transmission Design, Manufacture and Repair Technologies
for Aerospace and Defense*

Our values:

- Ethics & Integrity
- Quality
- Innovation
- Independence



Customers have long counted on Timken for superior products at competitive prices. Timken Aerospace Transmissions LLC puts the assets and technology of The Purdy Corporation, founded in 1946, into the hands of skilled, experienced associates. The result is a lean and efficient enterprise that brings increased value over a range of aerospace applications.

We are proud to have the best aerospace companies in the world as our customers. Timken aerospace products take to the skies every day in commercial and military aircraft around the globe. You, too, can trust Timken with critical components to help keep your fleet prepared and your operations in motion.

Sophisticated design

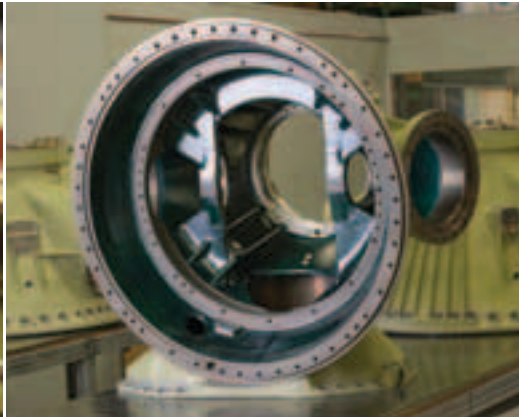
Using either customer-supplied blueprints, data sets and specifications or Timken CAD/CAM models, our manufacturing engineers generate a 3-D wireframe model of your part, tool or fixture. This rigorous process generates models and machine programming designed to ensure repeatability. Our flexible production technology maximizes quality, efficiency and delivery performance.

Precision manufacturing excellence

With machining centers designed to hold exacting tolerances, Timken has the precision machining, assembly and processing required for complex aerospace parts and assemblies. Our commitment to lean manufacturing initiatives, technological advancements and continuous improvement allows Timken to stay at the forefront of the industry.



State-of-the-art technologies for gear and transmission manufacturing



Our gear production facility blends technology and experience to meet the most challenging aerospace gearing and transmission requirements.

We can supply you with:

- AGMA Class 15 spur gears
- Lead and profile gear tooth modifications
- Cylindrical and spiral bevel gearing up to 31.5 inches (800.1 mm) diameter
- Aircraft quality curvic couplings up to 30 inches (762 mm) diameter
- Prototype development

Heat-treat, metallurgical and non-destructive inspection

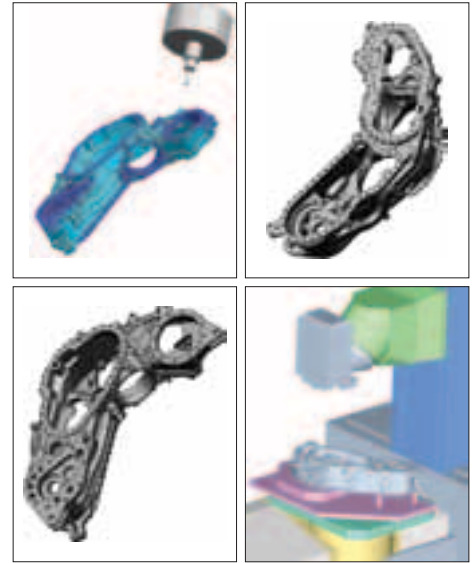
In-house carburizing and hardening is critical to our controlled gear-production process. We design our own quench dies to be used with our quench presses for ring gears and other components up to 28 inches (711.2 mm) in diameter and eight inches (203.2 mm) in height.

In addition to carburizing and hardening, we have the equipment to temper, stress relieve, anneal, normalize, bake and bond materials. This allows us to maintain high quality control over the metallurgical properties of our products, minimize distortion, ensure proper hardness, and retain uniformity of product. Our metallurgical lab is capable of microscopic evaluation and hardness testing, monitoring of all aspects of heat treating, and certifying that the process meets customer requirements. The non-destructive inspection facility is fully equipped to perform all required inspection techniques, including magnetic particle, fluorescent penetrant and nital etch.



Enhanced capabilities

Timken assembles and tests new transmissions, as well as overhauls, repairs and tests transmissions already in service. We provide a full range of components from a single gear to complete, tested transmissions, including the manufacture and calibration of master quality gears and curvic couplings. Timken can manufacture and test complete transmissions for **AH-64 Apache engine nose, intermediate and tail applications**, as well as manufacture the **main rotor transmission**. We also have the capability to manufacture and test on-site the **tail and intermediate gearboxes for the UH-60 Blackhawk and the SH-60 Seahawk** helicopters. DNC machining, including 5-axis high-speed milling equipment, combines precision manufacturing with world-class production.

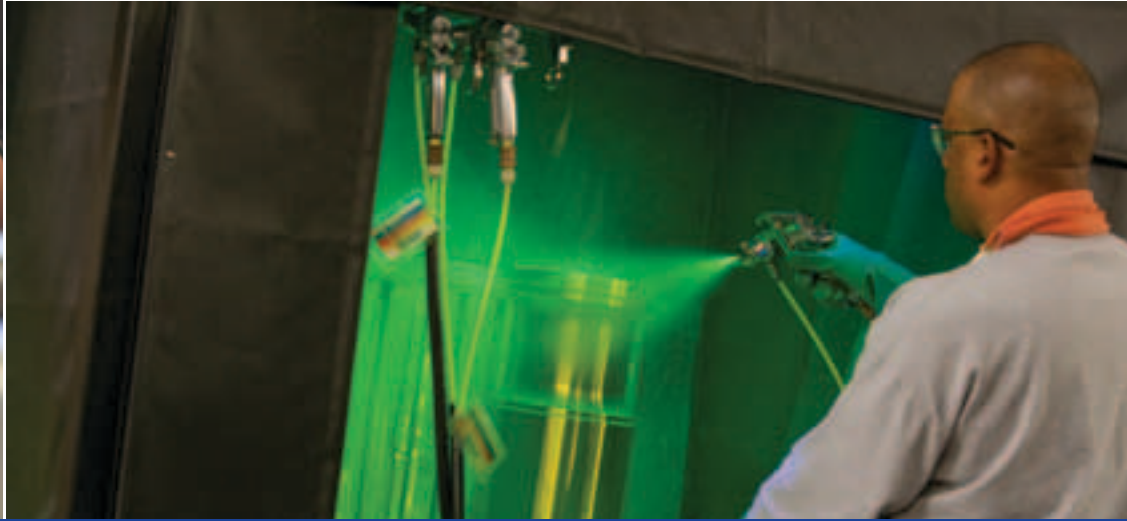




Quality

As an ISO-certified facility, our rigorous inspection procedures meet or exceed the highest industry and customer standards. Timken professionals monitor every aspect of the manufacturing process. Using sophisticated measuring equipment, trained associates inspect all machined parts and assemblies, during and after production, to guarantee conformance to customer drawing requirements and process specifications.

- NadCap certified in heat treating, chemical processing and non-destructive testing
- AS9100 certified
- ISO 9001:2000 registered



Metrology

Timken technicians inspect all parts throughout the manufacturing process and again at completion. A permanent record of all specified dimensions is kept on file. During development in the gear lab, spiral bevel gears are compared to master gear data, and adjustments are made in the machine settings to ensure all gears meet customer requirements. Tape transfers are generated to show the contact pattern between parts we manufacture and customers' master gears. Spur, bevel and helical gears are analytically inspected for tooth geometry, spacing, index and runout on M&M and Zeiss inspection systems.



Innovation

Our strategic commitment to the aerospace industry focuses Timken's global technology resources on enhancing product design and capabilities to meet the latest aviation challenges.



Improved designs

We continually search for ways to enhance the design of both original and replacement parts. Integrating innovative features can improve performance, maintenance and service life, while retaining original form, fit and function.

- Robust engineering and analytical skills
- Full prototype and testing
- Strong application knowledge and experience

Technology centers

Our continuing worldwide investment in innovation gives Timken scientists, metallurgists and engineers advanced resources to drive technology development. We apply this expertise to help improve aerospace system performance.

- Dedicated global network
- Focused research and development
- Materials and metallurgical knowledge and experience



Engineered surfaces

Timken's renowned materials expertise provides unmatched resources for developing proprietary compounds and surface finishes to help improve wear resistance and extend service life in harsh environments.

- Enhanced wear, corrosion and fatigue resistance
- Proprietary technology
- Improved reliability

Extensive rotorcraft capability

The combined aerospace assets of The Timken Company broaden our abilities in drivetrain, engine, gearbox and other flight-critical components.

- Full design, manufacturing, assembly and testing
- Engine and part maintenance, repair and overhaul
- More than 70 years of aerospace knowledge and experience