


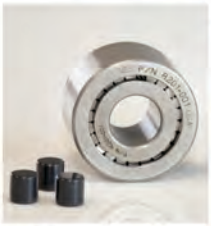







AEROSPACE Bearings

- ISO9001 CERTIFIED
- AS9100 CERTIFIED
- NADCAP CHEMICAL PROCESSING

Napoleon Engineering Services (877) 870-3200

CUSTOM AEROSPACE BEARING MANUFACTURING

Custom Aerospace Bearing Manufacturing

Aerospace bearing manufacturing requires the use of superior quality raw materials and manufacturing processes; the incorporation of extensive design and project review processes; and support for required material and process traceability. To meet these needs, NES offers complete design, development and manufacturing of custom high-precision aerospace ball and roller bearings. The manufacturing process includes close collaboration with an aerospace OEM's in-house engineering team, with full project management support from initial concept through final delivery of NES's US manufactured bearings. Typical bearings utilize 440C, Cronidur® 30, XD15NW, 52100, M50, M50 NiL, Pyrowear® 675, and superelastic NiTiNOL 60 high-life materials and coatings. Supported applications include satellite and UAV arm actuation, antennas, fuel pumps, ram air turbines, rocket engine valves, turbine engines, and rotorcraft transmissions.

Bearing Reverse Engineering Services for FAA-PMA Certification

One of the more comprehensive inspection programs offered by NES is the reverse engineering of Typed Certified aircraft ball and roller bearings for Parts Manufacturing Approval (PMA) certification. Bearing suppliers that were not integrated into an aircraft at the point of original design must obtain an independent PMA from the FAA. PMA bearing reverse engineering is a method for ensuring that commercial aircraft replacement bearings can meet or exceed the same rigorous quality, design and performance standards as those originally specified. To support these requirements, a team of highly experienced NES bearing engineers and technicians perform a thorough physical evaluation of aircraft bearings, using highly specialized equipment and data analysis tools. The end product is an accurate and detailed analysis which provides aircraft bearing suppliers with all of the necessary FAA-PMA certification inspection data, as well as added assurances that the bearing design meets or exceeds supplier standards for form, fit and function.

MADE IN THE USA

High Temperature, Corrosion Resistant, High Fatigue Life, and Dimensionally Unique Bearings

Denali Bearing Solutions

Denali Bearings stand for more than just custom bearings with unique characteristics or features to work in tough applications. Denali Bearings represents our philosophy of retracing the roots of our original bearing manufacturers in the US that placed a tremendous value on service. Where service means picking up the phone in two rings, listening to the customer, making what the application needs through proven engineering and manufacturing solutions, incorporating unique materials, processes and configurations into the design, and having regular communication with the customer about manufacturing status.

DENALI BEARING *Solutions*

- ✓Short Lead Times
- ✓Small & Large Orders
- ✓Unique Materials
- ✓Application Engineering
- ✓Full Product Traceability
- ✓Made in the USA

Napoleon Engineering Services

Custom Engineered Bearings to Fit Your Specific Needs

NES provides custom engineered solutions with shorter lead times and small product runs for a variety of bearing types in need of customization. They include deep groove, angular contact, thrust and self-aligning ball bearings, cylindrical, needle and thrust roller bearings. Having manufacturing capability to produce this wide range of parts in size ranges from 20mm through 350mm outside diameter provides NES with a multitude of options to support the custom bearing user.

Nitinol 60 Non-Corrosive, Super Elastic Bearing Material

Nitinol 60 is a unique material with the highest corrosion resistance capability of any rolling element bearing material available today. Nitinol 60 also possesses super elastic properties providing significantly higher resistance to true brinelling making it of particular interest to the space community due to launch load conditions. The challenge with this material is holding the bearing during machining. Conventional techniques using magnetism are unusable since Nitinol 60 is completely nonmagnetic. As a result NES has developed proprietary work holding techniques for use with its CNC grinding machines. The nonmagnetic characteristics offer another unique product solution for NES application engineers and their customers.

MADE IN THE USA