

Rocket Engine Turbopumps

Barber-Nichols, Inc. (BNI) is an industry leader in the rapid development and manufacture of robust, economical Rocket Engine Turbopumps. BNI's fully integrated engineering and production facilities allow our highly experienced people to move your program from conceptual design to hardware supply in as little as one year. For more than twenty years Barber-Nichols has been designing and manufacturing high-performance turbines and cryogenic pumps, and since 1996, BNI has designed and manufactured more new liquid rocket engine turbopumps than any other U.S. company.



Select Programs Include:

- Space Exploration Technology's 70,000 Pound Thrust Merlin Engine - Design, Manufacture, & Assembly of the LOX/Hydrocarbon Turbopump
- Northrop Grumman's 30,000 Pound Thrust TR108 Engine - Design, Manufacture, Assembly, & Test of the H₂O₂/Kerosene Turbopump
- NASA's 60,000 Pound Thrust Fastrac Engine – Collaborative Design & Sole Manufacture/Assembly of the LOX/Hydrocarbon Turbopump
- NASA's 60,000 Pound Thrust Bantam Engine - Design, Manufacture, & Assembly of the LOX/Hydrocarbon Turbopump
- Northrop Grumman's 1 Million Pound Thrust TR107 Engine – Collaborative Design of the LOX/Hydrocarbon Turbopump
- Lockheed Martin's Hybrid 300,000 & 60,000 Pound Thrust FALCON Engines - Design of the Core & Upper Stage LOX Turbopumps
- Applied Astronautics' 60,000 Pound Thrust HyFIRE Engine – Design of the LOX/Methane Turbopump
- Air Force Research Laboratory's 40,000 Pound Thrust USET Demonstrator Engine – Collaborative Design of the LOX/LH₂ Turbopump
- Pratt & Whitney Rocketdyne's 745,000 Pound Thrust RS-68 Engine – Manufacture of the LOX/LH₂ Turbine Nozzles



Design & Engineering

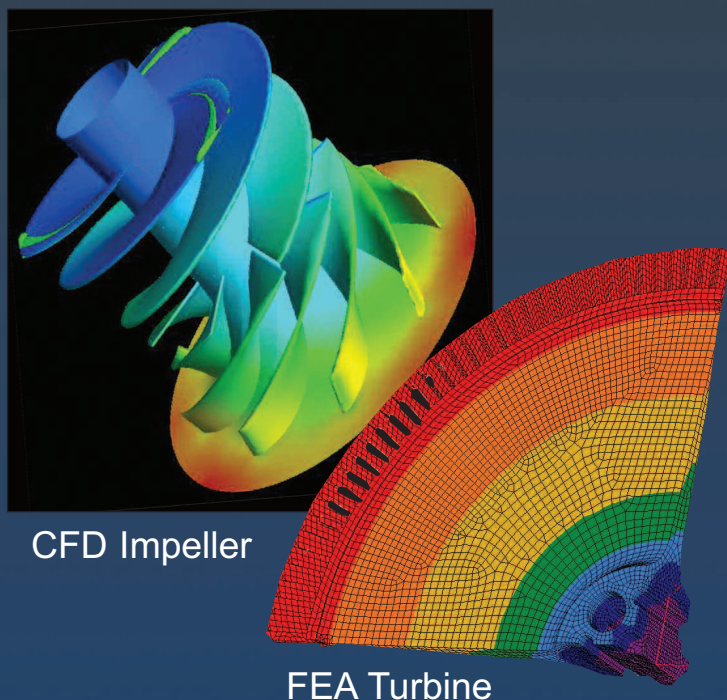
Aerodynamic and hydrodynamic analysis tools, including three-dimensional unsteady CFD, assure performance and result in highly accurate housing loss predictions and LOX tested suction specific speeds of 50,000. Additionally, structural design tools, including FEA and thermal transients, minimize weight and assure mechanical integrity. Next, proprietary rotordynamic design tools and experience with cryogenic seals and antifriction bearings assure the stability of rotating assemblies. Finally, every BNI turbopump is designed with manufacturability and assembly in mind which compresses the development cycle, maximizes reliability, and minimizes cost.



Prototype & Hardware Supply

Barber-Nichols' fully integrated engineering, precision manufacturing, quality inspection, and assembly facilities, at one location, make it possible for BNI to quickly move your project from conceptual design to hardware supply. BNI specializes in SLA Rapid Prototyping and has a full in-house complement of five-axis milling, precision turning, electrochemical machining, and associated support machinery which allows Barber-Nichols to provide complete turnkey hardware. As a result, BNI has greater flexibility when responding to our client's timeline and quality requirements.

BNI is an AS9100 & ISO9001 registered company that has been manufacturing cutting edge turbomachinery and related equipment for the aerospace and defense industries since 1966. Call Barber-Nichols to discuss your challenging turbopump development program needs.



CFD Impeller

FEA Turbine

Barber



Nichols

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