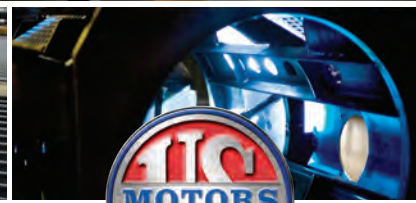


Mena, Arkansas

Nidec Motor Corporation Manufacturing Facility



STOCK AND CUSTOM U.S. MOTORS® BRAND
ELECTRIC MOTORS

Nidec

NIDEC MOTOR CORPORATION

Inside Mena State-of-the-Art Manufacturing Facility

Since 1966, quality U.S. MOTORS® brand stock and custom electric motors have been manufactured by skilled, dedicated employees in the 347,000 square-foot Mena, Arkansas facility. Leading-edge processes, testing methods, and a culture of continuous improvement are at the heart of our mission to provide customers with exceptional, application-specific product and dedicated service before and after the sale.



Raising the Bar on Quality

The Mena facility is ISO9001-2008 certified which means that our manufacturing and quality processes have been optimized to meet international quality standards.

This facility is also one of the few certified by The American Petroleum Institute (API) for production of the API® 547 motor used in the oil and natural gas industries.

This certification is a symbol of our commitment to product development, capital investment and continued compliance with API requirements.

The Mena facility continues to invest extensively in state-of-the-art manufacturing processes which improve quality, speed-to-market and cost effectiveness. Recent upgrades include a 500-ton aluminum rotor die cast system, 1200mm vertical turret late (VTL) for machining large components, CNC processes for producing form wound coils, an induction brazing system for copper bar rotors, robotic frame drilling systems and a precision grinding system for large shafts and rotor assemblies.



3Q6S links improvements in employees productivity and quality to create high quality products and services, supporting our company vision. **Kaizen** is a disciplined approach in using 3Q6S tools to drive continuous improvement through cross functional teams, and a vehicle to transform business objectives into results. This system incorporates 6S+Safety, Lean Enterprise methods, Knowledge Management, Business Process structure, comprehensive Quality Management, and participative Employment Involvement practices.

Employees at this facility undergo customized training classes for core manufacturing skill sets, use of new technology and leadership development through a partnership with the University of Arkansas and Rich Mountain Community College.



Flexible Production Facility

The Mena facility specializes in large vertical and horizontal motor manufacturing. Most of the motors manufactured are customized to specific application requirements. In fact, of the more than 5800 motors manufactured in Mena annually, 70 percent are “engineered-to-order.”

To facilitate quick turn around time and to accommodate unique motor construction features often required by engineered-to-order product, the facility employs high-speed steel fabrication systems and a wide array of Computer Numerical Control (CNC) machining centers to process tight tolerance cast iron, steel and aluminum components.

Nidec Motor Corporation offers its customers all relevant forms of traction motor topologies. The Mena plant produces Interior

Permanent Magnet, Switched Reluctance and Controlled Speed Induction Motors.

Other manufacturing capabilities at the plant ensure the customer receives a quality product manufactured to exacting specifications.

- Optimized die casting methods
- Precision grinding units for premium motor shaft finish
- Precision balancing
- Vacuum Pressure Impregnation (VPI) System
- Clean Room operations
- Sound and vibration labs
- Dynamometer testing
- Witness testing observation booth

Performance Testing

Electric motor testing at this facility adheres to stringent industry standards. Motor performance is tested in accordance with NEMA MG1 and IEEE standards (Test per IEEE 112 method B through 4000 HP)

Dynamometer

- 75–4000 HP motors
- Verifies efficiency, power factor, heat rise, starting current and torque.
- Test horsepower limits: 800 HP @ 50 Hz and 4000 HP @ 60 Hz
- Plant voltage limits: 4000 volt @ 50 Hz and 7000 volt @ 60 Hz

Reed Critical Frequency

- Conducted on isolated large-mass bases for accuracy
- Test to determine the first bending mode lateral frequency of a vertical structure

Water Immersion

- Stator insulation system integrity tested in accordance with API[®] 547 specifications
- Mimics harsh environmental conditions

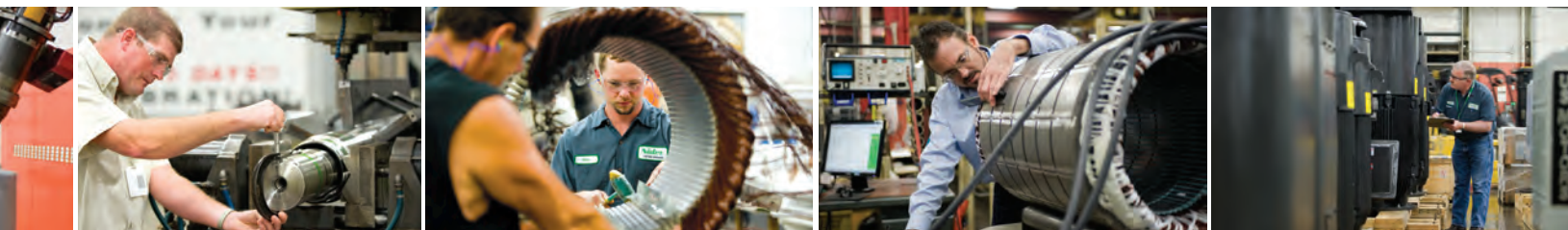


Vibration

- Electrical imbalance
- Mechanical unbalance – motor, coupling, or driven equipment
- Mechanical effects – looseness, rubbing, bearings, etc.
- External effects – base, driven equipment, misalignment, etc.
- Resonance, critical speeds
- Conducted in conformance to API[®] 547 specifications

Other Tests

- Polarization
- Warranty analysis
- Pilot/prototype
- Witness testing
- Sound testing





Mena manufactures more than 5800 motors annually; 70% are highly specified engineered-to-order products



TITAN® Vertical WPII Motor



TITAN® Horizontal TEFC Motor



TITAN® Horizontal WPII Motor



TITAN® Vertical TEFC Motor

Products

- 400–9600 frame integral horsepower vertical and horizontal motors
- 250–5000 HP
- 220–6900V
- Engineered-to-order
- TITAN® motors with API^{®†} 547 monogram
- Switched Reluctance (SR) motors
- Rotors and Stators for Cryogenic Motor Applications
- Induction generators
- Copper, copper alloy and aluminum bar rotors
- Rolling element and hydrodynamic bearings
- Enclosures: ODP, WPI, WPII, TENV, TEFC, TEAAC, TEWAC
- 2–24 poles

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