

CRAFTSMANSHIP

LOW VOLTAGE MOTORS

Toshiba Motors Rank #1 in Customer Evaluation

The Event

What makes certain manufacturers' motors last longer than others? What exactly in the design and construction of these motors sets them apart from the competition? Can there really be a vast difference in how these motors are made?

The Great Plains Technical Services (GPTS) Motor Evaluation Event attempted to answer these questions. GPTS, which is located in Mandan, North Dakota, hosted 120 customers ranging from plant managers to maintenance personnel from a variety of industries, including power generation, food processing, and oil & gas.

GPTS provided fully assembled induction motors (TEFC, 10HP, 1800RPM, 215T frame) from several motor manufacturers, and attendees performed hands-on motor teardowns in order to perform thorough motor evaluations. The event provided attendees the opportunity to see how each motor was built and assembled. In conjunction with the motor teardown, customers evaluated and scored each motor on the quality of its construction materials and parts.

The Criteria

Customers were asked to score each motor with respect to five categories using the evaluation criteria below:

- Bearings
- Seals
- Fans & shrouds
- Windings
- Conduit box

Each customer then ranked each motor based on his or her observations.

- 1. Bearings:** Customers looked at and compared bearing (drive end and non-drive end) sizes on all motors, distinguishing differences between 6200 & 6300 series. Bearing retainers were examined on their ability to hold bearing and grease. End-bell physical durability and rabbet fits, if present, were also graded in this category.
- 2. Seals:** Motor seals were graded on type of seal, durability of material, and ingress protection rating.
- 3. Fans & shrouds:** Customers removed the fans, noting the ease or difficulty of removal and installation. Fans were inspected for durability and air flow generated by size. Physical durability of fan shroud was also graded.
- 4. Windings:** Customers inspected the windings for blocking and rigidity of coils, stray wires crossing coils or touching phase-to-phase and phase-to-ground, and varnish coat.
- 5. Conduit box:** Customers inspected conduit boxes for metal type used, seals provided and space available for terminal connections. They also took into account the number of leads versus volume provided.

Based on GPTS's previous experience with the majority of motor failures being mechanical, bearings were weighted double in the evaluation process. The maximum scale for bearings was 10 points with all other areas getting a maximum of 5 points for a total of 30 points. (continued)



CRAFTSMANSHIP

The Outcome

GPTS calculated the overall score and average for each category for each manufacturer. Toshiba's motor scored a final score of 29 out of 30 points, which was the highest score among all motors in the event. (The overall average score for all manufacturers was 18 out of 30 points.) This event showcased Toshiba's excellent quality as Toshiba's motor earned a total score that was more than 50% higher than the overall average score of all other manufacturers.

"Great Plains Technical Services strives to provide excellence to our customers, and that includes the motors we sell," said Joe Schumaker, Reliability Manager, Great Plains Technical Services. "Every time we compare various brands, we invite our customers to get into the different motors to compare and make up their own minds as to which manufacturer has the highest quality and craftsmanship. It is no surprise that Toshiba is always at the top of this list, and that is why we sell and recommend Toshiba motors."

About Toshiba International Corporation

TIC is a Toshiba America Inc. (TAI) Group Company, a wholly owned subsidiary of Toshiba Corporation. TIC is headquartered in Houston, Texas and employs approximately 1,400 people. TIC provides application solutions to a wide range of industries including industrial, power systems, and transmission and distribution systems. For more information about TIC, please visit www.toshiba.com/tic.

About the TIC Motors & Drives Division

The TIC Motors & Drives division, which offers a full range of motors, adjustable speed drives, and motor controls, is anchored by a totally integrated manufacturing process; research and development, design, engineering, production and manufacturing, and after-market service and support are all commanded under one single roof. With the capability to test products together as a complete system before sending out into the field, TIC ensures the highest level of quality, performance, and reliability.

