



Canadian turbocharger manufacturer Rotomaster uses an in-house turbo test stand to ensure its turbochargers operate at high efficiency and can withstand high operating temperatures for sustained periods. Rotomaster's turbocharger line targets a wide range of markets including light-duty and heavy-duty trucks, marine, agriculture, natural gas generators, automotive and high-performance cars and trucks.

(TURBO) CHARGING TOWARD NEW OPPORTUNITIES

Rotomaster targets turbocharger product line toward OEM engine market

BY DAWN M. GESKE

The industry is full of companies that started out by supplying components to the original equipment market and later branched out into the aftermarket. Turbocharger manufacturer Rotomaster is going in the opposite direction.

After nearly a decade as an aftermarket manufacturer of turbochargers, the company has expanded its scope and is now targeting its turbo products to the global OEM engine market. With in-house design, casting and production capabilities, Rotomaster has the capacity for volume production of new turbochargers and turbocharger cartridge assemblies

specified for a range of on- and off-highway engine applications.

"The OEM market will allow Rotomaster to expand our manufacturing capabilities, as there are much larger volumes," said Ron Wiebe, general manager at Rotomaster. "We can use our engineering capabilities to produce new designs and increased efficiencies in the turbocharger market.

"We are fully equipped with an automated turbo test stand where we can perform containment testing, vibration analysis, cycle fatigue testing, endurance testing and compressor mapping."

Rotomaster has used its turbo test

stand to develop turbocharger products designed to meet OEM requirements and able to withstand operating temperatures as high as 1000° to 2000°F for sustained periods of time.

The company has also focused on expanding its turbocharger electronics capabilities. It has electronic engineers on-site dedicated to developing new electronic wastegate systems that can be validated in Rotomaster's own in-house electronics test lab.

The Rotomaster turbocharger line targets a wide range of markets including light-duty and heavy-duty trucks, marine, agriculture, natural gas generators, automotive and high-performance cars and trucks.

The company has been supplying aftermarket turbochargers, turbo cartridge assemblies, components/piece parts, repair kits, pedestals and specialty items since 2001. It currently produces aftermarket replacement products for OEMs such as BMW, Caterpillar, John Deere, Ford and Volkswagen.

The company can also supply customized turbochargers for any engine manufacturer, Wiebe said, capitalizing on its turbocharger research, design and development experience.

"Rotomaster has been providing solutions for customers to extend the life and increase the performance of their turbochargers," said Wiebe. "Our engineering department provides turbo products for customers who are experiencing climate issues and turbo operating environment problems.

"We have many customers who are running turbochargers at different altitudes and need more durable solutions as their rotor assemblies are rotating above normal rpm, therefore causing the turbos to wear out prematurely."

Rotomaster relies on advanced design tools for its turbocharger engineering, including Flow Works, SolidWorks 3D and sophisticated coordinate measuring machine (CMM) technology. This allows the company to develop designs and do flow testing and stress concentration analysis before finalizing the design.



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Rotomaster has a 70,000 sq.ft. manufacturing facility in Vancouver, British Columbia, Canada, and a joint venture in China that produces all its aluminum castings, iron castings, turbine wheel castings and kit components at an ISO 9001-registered facility. A company plant in Turkey provides turbine housing castings while Rotomaster's Vancouver facility performs all machining.

Currently, Rotomaster has the capacity to assemble 50,000 turbochargers/cartridges per year. It carries a \$5 million inventory including parts for other turbocharger products.

While 15% of Rotomaster's sales are made up of turbocharger components (turbine wheels, compressor wheels) and repair kits, it is anticipating the majority of its growth to come from the OEM market and has projected a goal of 100,000 turbochargers/cartridges for 2012.

Rotomaster sells its products primarily through a distributor network. About 60% of its business is U.S. based, with the remainder from growing international sales. "We are now focusing on the European and domestic automotive markets, said Wiebe. "These markets are growing exponentially with the new emission standards and targets for increased fuel economy."

The company maintains a technical support department and recently began a warranty training school for

customers. "The warranty training school updates our customers on the latest technology and empowers our distributors with the ability to make critical warranty decisions," said Wiebe.

More than 150 employees comprise Rotomaster including technical and mechanical engineers and a full manufacturing department. Internal research and development is augmented by the in-house turbo test stand.

A new vibration sorting rig (VSR) that enables Rotomaster to balance any rotating assembly up to 250,000 rpm has been integrated into the assembly line. In the past, Rotomaster balanced turbine and compressor wheels but not complete turbochargers. By balancing the turbocharger as a complete assembly, reliability, durability and quality are improved, said Wiebe. "Today we have higher standards for turbochargers," Wiebe said. "They spin faster and last longer."

The VSR is complemented by three quality-control departments, as well as CNC machining centers and precision measuring equipment including the CMM, which is designed to ensure that product tolerances are maintained to within thousandths of an inch.

Beyond complete turbochargers, Rotomaster offers repair kits. The kits include all necessary wear components needed to rebuild a turbocharger such as thrust collars, thrust bearings, journal bearings, piston rings, snap rings, replacement bolts and new O-rings.

Several new products have recently been added to Rotomaster's aftermarket lineup. New is a Volkswagen 1.9 L TDI (1999-2003) replacement turbocharger assembly, cartridge and wastegate actuators as well as a Super GTP performance turbocharger upgrade for Ford 7.3 L Powerstroke engines (1995 to 2003). This new turbocharger features an upgraded compressor wheel, designed to offer 30% more flow than the stock turbocharger and a 0.84 A/R turbine housing for quicker response, Rotomaster said.

Rotomaster has also developed its own line of Komatsu KTR110 and KTR130 replacement turbochargers. **dp**

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