

OGURA

"What you need in a clutch"®

ON THE MOVE

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OGURA TO EXPAND AEROSPACE PRODUCTION

Kiryu, Japan

The timing is right for Ogura to expand into more aerospace component part production. Ogura's customers are asking for this certification and with more production moving to Ogura's new plants in China and Malaysia, production capacity is available.

The first step is for Ogura to become qualified under the JISQ9100 specification. This standard not only encompasses ISO 9001, the International Standard for General Quality Management, but also has additional requirements for the aerospace industry. The project encompasses all Ogura internal organizations and their personnel that are related to the aerospace industry and/or the requirements for Precision Manufacturing. However, since Ogura does not design aerospace parts, design engineering does not fall under the scope of this specification.

The target is to get this certification by the end of February 2011. This coincides with the current ISO 9001 renewal.

JISQ9100 demands an extremely high level of precision and reliability in manufacturing aerospace parts, which necessitates extreme strict control over every step.

That is why JISQ9100, though it's based on ISO9001, has so many additional requirements.

Overall, this will provide an excellent opportunity for Ogura to improve its current high quality even further. It will also give fast response time for customers requiring quality control records, which should also lead to less frequent audits required by customers. Also, by following these standards, it should simplify the contract processes with other companies in this industry, no matter where they are located in the world.●



Managers going through JISQ9100



OGURA INDUSTRIAL EXHIBITS AT 2010 GIE EXPO

Louisville, KY

At the 2010 GIE Expo in October Ogura Industrial exhibited a wide variety of power take off clutch brakes, electromagnetic clutches and superchargers. Besides Ogura Industrial employees, sales representatives from six different companies also attended the show to meet with customers and to assist in manning both the inside and the outside booths. The Chief Engineer in charge of PTO clutch/brake designs, Mr. Noriyuki Suzuki flew in from Japan to attend the show and get suggestions from customers on future clutch design options.



Ogura booth personnel ready for the show

The outside booth was expanded this year with the addition of Bobby Cleveland's Monster Mower. The supercharged Mini Puller was also on display as well as Bobby Cleveland's racing mower.



Bobby Cleveland's Monster Mower



Supercharged Mini Tractor Puller

Bobby demonstrated the supercharged mower for visitors and also recounted his experience in setting a new land speed world record for a mower at 96.52 mph. Visitors said that anyone going that fast on a mower must be crazy. Bobby agreed stating at times he was scared #\$\$%*less.

Overall the show was more upbeat than 2009. Everyone said that 2010 has been a good year and almost all customers were forecasting increased activity and sales for 2011. ●



Bobby Cleveland demonstrating the Ogura supercharged engine and discussing his new world land speed mower record



Customers could sit on the Monster Mower for a picture



Ogura personnel assisting customers with PTO clutch questions

NEW HYDROGEN PUMP GOES THE DISTANCE

Since the 2010 Olympic and Paralympics Winter Games, the BC Transit's fleet of fuel cell buses has been operating in the Resort Municipality of Whistler, British Columbia. To date, the fleet has accumulated in excess of half a million kilometers.

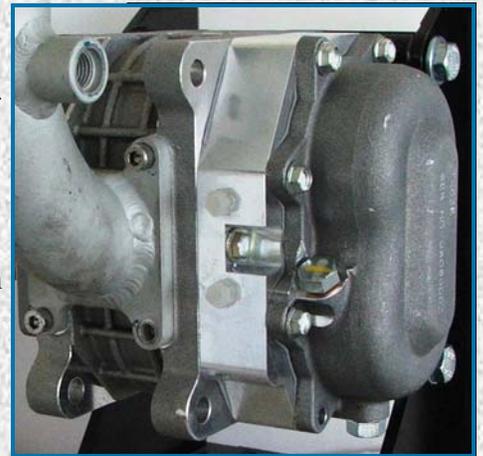
Ballard's heavy duty fuel cell module, the FCvelocity[®]-HD6, delivers enhanced fuel cell durability and improved efficiency at a reduced cost, while offering an industry leading 12,000 hours/five year warranty. To achieve this warranty all components in the fuel cell module have to demonstrate high performance and reliability during the warranty period. The two crucial pieces of the system are the Fuel Cell Stack and the Hydrogen Recirculation Device. The durability and performance of the Fuel Cell Stack depends on the durability and performance of the Hydrogen Recirculation Device.



Hydrogen Bus

The Fuel Cell environment creates new challenges to components and materials and understanding the difference between "traditional" industries and the "fuel cell" industry is important to the success of new designs and applications. In the past 10 years there have been many attempts to develop a Hydrogen Recirculation Device based on existing air compressor designs. However, the presence of chemically aggressive hydrogen and water vapor along with water droplets was found to have very negative effects on the

performance and durability of traditional gas moving devices. In 2006 Ogura and Ballard started to cooperate in the area of Hydrogen Recirculation Device development. The Ogura TX series Air Blower was selected as the platform for the hydrogen



TX Hydrogen Pump mounted in frame

blower. Having a fully operational and efficient motorized H₂ recirculation device is critical to enable the longest range, highest durability and most efficient fuel cell buses ever produced.

The Ogura pump is a positive displacement blower that operates by pulling gas through a pair of smoothly meshing rotors. These rotors are connected to each other by gears and are set 90 degrees from each other. As the rotors turn in opposite directions, gas is trapped in the pockets formed between the rotors and the housing. For every revolution of the rotor, a volume of gas (depending on the device's size), gets pumped from one side to the other.

In this cooperative endeavorment Ballard contributed the hydrogen infrastructure and knowledge of the hydrogen environment, while Ogura provided the hardware and incorporated all necessary material and design changes resulting from the iterative development process. Throughout this joint development activity, a number of brainstorming and design sessions took place, in which engineering teams from both companies met directly in the USA, in Japan and in Canada. The outcome of this cooperation is the TX04U-MA Hydrogen Recirculation Blower, which demonstrates superior performance and exceptional durability even in the presence of water in the hydrogen gas stream. ●

In The News

OGURA SUPERCHARGER DESIGN BENEFITS HIGH-LIGHTED

Machine Design

In the October issue of Machine Design, the Ogura superchargers were featured in the “Scanning for Ideas” section. The article highlighted the features of the Ogura Supercharger, showing how it is more responsive than other types of superchargers in the market. Ogura superchargers have the option of being supplied with, or without, an electromagnetic clutch. The low inertia rotors can be engaged in 200 milliseconds, providing almost an instantaneous response for diesel and gas engines. The ability to turn on and off the supercharger gives boost when needed and also allows the supercharger to be completely disengaged, reducing parasitic loads and increasing fuel economy for gas and diesel engines. •



Ogura Supercharger Article

NEW OGURA HYDROGEN PUMP INCREASE LIFE AND EFFICIENCY FOR BALLARD

Machine Design

In the December 8th issue of Machine Design, an article was published showing how Ogura’s new hydrogen pump has helped Ballard increase its efficiency for fuel cells. The article explains the modifications that were made to Ogura’s existing air pump to allow the pumping of wet hydrogen. The new Ogura hydrogen pump was installed in the fleet of fuel cell buses that Ballard created for the 2010 Olympic Games in Vancouver Canada. Those buses continue to run today and continue to log significant operating hours.

This technology will allow other companies to increase the life and efficiency of their fuel cell system, allowing a better return on their investment and helping to make hydrogen power a reality. •



Ogura Hydrogen Pump Article

MAGNETIC FIELDS HELP TREAT DEPRESSION

Design News

In October, Design News published a story showing how the Ogura spring applied brakes help the Neuronetics Company treat depression. The depression treatment involves highly focused magnetic fields. The patient sits in a chair and undergoes this noninvasive treatment. Positioning of the machine is critical. The Ogura brakes hold the gantry arm and the tower in position when a patient is undergoing treatment. When the treatment is finished the medical technician flips a switch and the device is easily moved out of the way.

Quiet operation and compact size were key decisions in choosing Ogura on this breakthrough technology. •



Design News article