

Fuel zone

Providing a fuel flow measurement system that meets the requirements of the customer isn't always plain sailing, according to supplier Re-Sol

WORDS BY RACHEL EVANS

ABOVE: Engineers are highly trained in a wide range of tasks, including software design for interfaces and microcontrollers

INSET: Every system built undergoes a thorough final quality check before being shipped to the customer

Continuous improvements in fuel economy and engine downsizing are affecting fuel test technologies such as fuel flow measurement. As a result, suppliers like Re-Sol have had to keep pace in this ever-changing market.

The company prides itself on its ability to offer high levels of flexibility in developing fuel flow measurement systems for powertrains, including single-cylinder engines, diesel engines, and fuel injectors.

However, such a task is not always simple and over more than 10 years, experts at Re-Sol have created the building blocks for this know-how. Peter Kaub, founder and CEO of the company, says, "Sometimes customers don't have a specification, they have a dream. They want to be able to test under all sorts of conditions – they want to test up to 80°C, down to -40°C, at a specified pressure – and that means we have to push our knowledge to its limits."

Kaub's tight-knit team of 15 is based in Auburn Hills, Michigan, USA. A tour of the facility begins up-front in the software, mechanical and electrical engineering section of the building. "The focus here is on creating components. If we're doing electronics we will be testing boards or we might be reverse engineering an older product in order to create a new upgraded version. We also build computer interfaces.

"We use NI LabVIEW as the test programming language. We can take input from different meters

and use that to make graphical interfaces such as meters or graphs. It's a very useful tool."

Mechanical computer models are used to show customers how a system can be packaged. "Based on that, we can determine how much we could compress it as well," says Kaub.

Alongside that are the necessary production facilities. Programming takes place using a detailed electrical drawing. "This is very intricate work and it is our specialty putting this all together while making sure we meet national electric codes.

He adds, "Sometimes a component in a system will be behaving strangely and then we have to do more testing and modify things, going back and forth. We also use certain regulators that are made for us and have seen particular effects that require some investigation and improvements."

There's also a calibration lab where Re-Sol's engineers can test regulators and optimize them to obtain the best possible performance. Kaub shows us a system built for a military application that is currently being modified. Meanwhile, analysis of competitor products enables Re-Sol to learn the limitations of existing systems. "That involves calibrating the system and looking at features such as pulsation and temperature."

And to ensure it is constantly delivering what customers need, Kaub spends a large portion of his time in the field, gaining feedback from previous and existing customers. ◀



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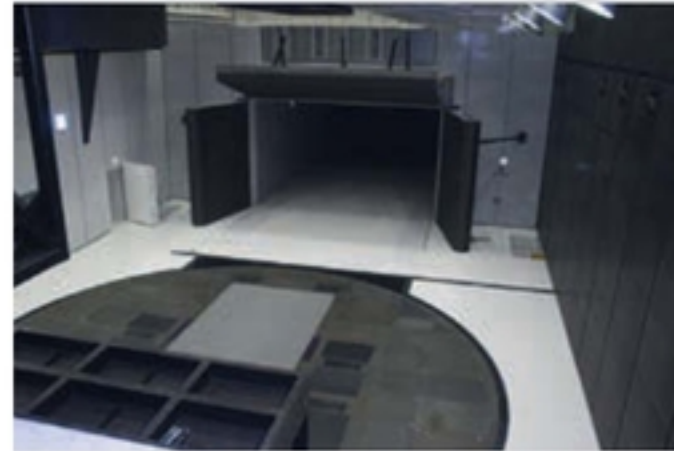
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