

After years of testing, Seattle nanotech firm Modumental poised for billion-dollar market

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After nearly a decade of field trials and demonstrations, a Seattle-born nanomaterial that is 30 times more corrosion-resistant than traditional galvanized steel is poised to go mass market.

On Wednesday, Seattle-based Modumetal announced a joint venture with a Toyota subsidiary that will use its high-tech galvanizing process to make millions of unusually durable bolts and other fasteners for the oil and [gas industry](#), said CEO and co-founder Christine Lomasney.

It's a coming-of-age moment for Modumetal, which was launched in 2007 to commercialize a novel process in which micro-layers of metals and other materials are sandwiched into products that are much stronger than their conventional metal counterparts.

For example, bolts and other fasteners that are coated with a thin layer of Modumetal's special nano-galvanizing materials can last 30 times longer than conventionally coated fasteners. That's an attractive feature for oil and [gas companies](#) that, with the easy-to-reach petroleum already tapped, are "operating in some of the most extreme environments on the planet," Lomasney said.

But it's one thing to develop a killer product, and another to sell it.

Although Modumetal was already producing small batches of coated fasteners at its factory in Maltby, northeast of Woodinville, large-scale production had to wait until the oil and gas industry was ready to formally approve Modumetal's new parts for widespread use in [oil rigs](#) and other projects, Lomansey said.

That process took eight years. But when approval finally arrived, late last year, demand for Modumetal's fasteners rapidly outstripped production at the Maltby plant.

"It's like the light switch flipped," Lomasney said. "We've gone from being in a state of cultivating the market through specification to dashing to keep up with demand."

Two years ago, in anticipation of that future demand, Modumetal began working with Toyota Tsusho America, a subsidiary of Toyota, on plans for a larger factory in Houston, Lomasney said.

The factory, which is expected to be ready in four to six weeks, will have 10 times the capacity of the Maltby plant, and will be expandable, she said, adding that the Maltby facility will continue to operate after the Houston plant opens.

But in the long run even that increase isn't likely to be sufficient, Lomasney said.

Although the oil and gas industry alone could ultimately be a billion-dollar-market for Modumetal's coating technology, the sector only accounts for less than one% of a total global fastener business that is currently worth around \$500 billion a year, Lomasney said.

The real prizes are the construction business, which uses 3% to 5% of all fasteners, and the automobile industry, which accounts for 40% of total demand, she said.

"These are huge markets," said Lomasney, adding that Modumetal has been field-testing products for both the construction and automotive sectors for several years.

Modumetal's decision to start with the oil and gas industry was partly strategic and partly about timing.

In 2011, when the company's new coating-materials process was ready to

market, the construction business was in a deep recession and not adopting any new technology.

By contrast, the oil and energy sector was both modestly healthier and far more accustomed to adopting new materials in order to find and extract oil and gas from increasingly remote fields, often beneath the surface of the earth where pressure and temperatures can be extremely high.

Lomasney admits she didn't expect to take eight years to win specification approval from the industry, which she likened to the approval process for a new pharmaceutical. "I had a certain optimism about our ability to influence the specification process and to and make it go faster," Lomansey said.

Still, Modumetal's eight-year process was shorter than it could have been: the standard period required to "spec" a new material in the oil gas business is 18 years, she said.

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