

Systems Miniaturization Addressed with Line of Micro-Seals



With diameters as small as five millimeters and thicknesses down to 40 microns, or the size of a matchstick head, the latest group of seals that Freudenberg-NOK Sealing Technologies (FNST) is introducing to its North America customer base will help solve micro-technology challenges of the most exacting standards.

FNST, the world's largest producer of elastomeric seals and custom molded products, is using its materials expertise, global innovation and market analysis to introduce a line of custom-developed micro-seals that will help customers build increasingly complex systems in tiny packages. The seals are expected to have broad applications in the medical, chemical and even automotive industries, among others.

"Freudenberg has identified miniaturization as an important megatrend of the future," said Steve Koch, market director for FNST Special Sealing Products division. "Micro-seals provide Freudenberg-NOK with an excellent opportunity to expand its sealing technology capabilities to new industries and markets.

"We've been making micro-seals in Europe for more than five years and plan to bring the technology to North America so that we can produce the seals where our customers need them."

Micro-seals designed for the medical and chemical industries must meet stringent specifications and require a specialized rubber-to-metal bond. To date, most rotary micro seals available are made from Polytetrafluoroethylene (PTFE).

Perfluoroelastomer is formulated for stringent environments and, because it is more

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elastic than PTFE, is better suited for longer life. FNST's strong capabilities in molding techniques allow for manufacturing parts with microscopic tolerances. Freudenberg Sealing Technologies in Europe, for example, has successfully manufactured micro-seals that can seal rotating shafts with a diameter of only one millimeter spinning at over 10,000 rpm. These Micro-Simmerrings are available through Simrit, FNST's general industry channel.

Freudenberg currently produces micro-seals at two manufacturing facilities in Europe. The company plans to expand this production to two as yet undisclosed Special Sealing Products Division manufacturing sites in North America in 2013. Timing of a North American manufacturing launch will depend on logistics, such as building clean rooms, setting up manufacturing equipment and assessing demand from customers.

"Small technology applications are growing in every industry," Koch said. "At FNST, we work closely with our customers to develop and deliver the best possible products. We push our limits, and that allow them to push the limits of what they can do to stay ahead of their competition. It takes close customer cooperation to develop these seals."

Freudenberg-NOK Sealing Technologies

www.freudenberg-nok.com [1]

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