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## Hayes rolls with Kuhl

### \* Northville wheelmaker gains worldwide rights

Being one of the world's leading suppliers of automotive wheels has its advantages. Case in point: last month Hayes Lemmerz was awarded exclusive worldwide rights to Kuhl Wheel technology.

The technology enables a carmaker to realize a 20 percent weight savings of up to 40 pounds per car over conventional steel wheels – and at a substantial cost reduction. The U.S. patent on Kuhl Wheel technology was issued in March 2000.

After months of negotiating with Epilogics, the California company licensing the lightweight wheel, Hayes was given nonexclusive rights to the technology in 1999, and then last month received exclusive rights.

According to Wayne Higashi, president of Epilogics in Los Gatos, California, the new wheel will eventually replace conventional steel wheels. By 2003 the wheel should be ready for Ford and General Motors to place on their vehicles. Other car companies are also being contacted about the new wheel and its advantages.

Epilogics presented the wheel to various car manufacturers, and vehicle designers were impressed when they saw a prototype in motion. But as they pondered the marketability of the new wheel their attention shifted from the practicality of the lightweight wheel to its appearance.

"When the wheel is in motion, the center section of the wheel seems to disappear, which allows for greater flexibility in wheel trim design over the conventional wheel," Higashi said. "Styling people said they can make these snazzy looking wheel coverings and put it on our lower cost models."

Higashi added that Kuhl's technology, combined with Hayes Lemmerz's leading global wheel technologies, will provide OEM customers optimal wheel options for each vehicle.

John Kinsler, vice president of engineering for fabricated wheels at Hayes, said, "We feel it has great potential, both for the industry and the consumer. The impact right now is on steel wheels. But down the road, maybe a couple of years, it could impact the aluminum wheels as well because of its styling flexibility."

In deciding upon who would be granted the exclusive rights to the technology, Higashi said it was pretty simple: "Go with the biggest company and the one with the resources to protect the patent."

Higashi calls the deal a win-win situation. "Hayes will benefit because they are the sole supplier. And since this wheel will ultimately replace steel wheels, Hayes could also license it out to others."

However, the huge benefit to the Epilogics Group is not having to worry about who will enforce the patent.

"We probably will never have to go far onto the legal battlefield over this," he said. "We're a small company with little resources to protect a patent. But with Hayes having the exclusive license, they're compelled to defend and protect it."

### The history of the lightweight steel wheel

According to Higashi, a series of well-timed events led up to Hayes receiving the exclusive rights to Kuhl Wheel technology.

The inventor, Georg Braunschweiler, conceived of the idea in 1996. He went to the Epilogics Group with his invention a year later, asking for their help with the commercialization process. On June 25, 1997, the inventor and Higashi formed Kuhl Wheels.

Higashi said his responsibility was to get the patents filed and then market it to OEMs and wheel companies.

"We actually licensed Hayes to a nonexclusive license in 1999. Then we started on our first OEM project for the Fiat Puento car, mostly in Europe," he said.

Epilogics completed their first prototype after they bought the tooling. Higashi said they were under the gun to prove it could be done. "At first, wheel manufacturers told us it would be impossible. But we knew it would be as strong as a steel wheel, and at the same time more lightweight and cheaper," Higashi said.

Braunschweiler owns a couple of steel fabrication manufacturing plants in Germany. Auto companies buy his equipment to straighten their coils of steel. The company also makes large brake trusses and veneering for wood materials.

In the mid-1990s, however, his business experienced a downturn and his factories were running below capacity. Looking for ways to buoy his business, Braunschweiler went to his customers and asked them what product they would like to have.

"One of the things they were looking for was a lightweight steel wheel," Higashi said. "He went back to his drawing board and come up with the concept for the Kuhl Wheel technology."

The Kuhl Wheel design integrates the hub and spokes into a one-piece stamping. Using standard steel rims, these wheels with significantly less than conventional steel wheels, Higashi explained.

### **Marketing the idea**

Once Braunschweiler had the concept, he needed a way to market his idea. Years earlier, he and Higashi had become friends when they worked on another Braunschweiler project called the Infinitely Variable Transmission (IVT), which is a combination automatic/manual transmission.

"We became famous with that by developing prototypes for Roger Penske in the early 1990s. He was going to put one in his CART cars," Higashi said. "Later, we licensed the transmission to another company."

From that project and friendship, Braunschweiler contacted Higashi with his new wheel design.

"We had about 15 people working for us at that time," Higashi said. "Our revenues were a couple of million dollars a year. Braunschweiler's companies approach a \$100 million a year."

The two men formed Kuhl and raised the money to market the wheel. Their first big presentation was with Hayes Lemmerz.

"They listened but didn't seem very interested," Higashi said. "We decided that we had to convince their customers that they needed this wheel and Hayes would have to... come along."

According to Higashi, Ford Motor Company expressed some interest. "they helped fund the project and told us they wanted to work with Hayes on it."

A meeting was set up with Kuhl, Hayes and Ford. "Ford basically told Hayes, we're interested in this wheel," Higashi said. "Are you going to do something on this?"

Hayes felt the wheel would be a waste of time to develop, but because of Ford's clout, they had to make a decision.

Higashi didn't give up. Knowing Ford was interested gave him incentive to keep plugging along. Higashi made more contacts at Ford and even went to GM, Chrysler, and some European and Japanese car manufacturers.

"Ford was the only car company seriously interested in our wheel," Higashi said. "We all met again in March 1999, and Hayes was willing to make a deal with us. A contract was signed with Hayes in May."

### **An exclusive licensing agreement**

Around the same time, Fiat showed strong interest in the wheel and gave Kuhl Wheels \$200,000 to develop a prototype. According to Higashi, Fiat wanted to demonstrate to everyone it was possible to make a lightweight steel wheel.

Hayes also began getting enthusiastic about the possibilities of a lightweight steel wheel; they put the wheel in a booth during the SAE International Congress last year.

Shortly after that, Hayes said they would like to pursue an exclusive license with the Epilogics Group and asked them what it would take.

"We had to have a reasonable shot at meeting our business objectives," Higashi said. "We were limiting ourselves by going exclusive, so we had to proceed cautiously with our requests. We signed the contract this past September."

The deal is set on a per-wheel royalty basis, according to Higashi.

While Epilogics waits for the wheel to go into production, they can legally market the wheel to carmakers Hayes doesn't have contracts with. Recently, Higashi has made contact with Nissan, Toyota and Honda.

"Hayes has agreed to pay us when they go into production. There are no guarantees in this, but it is a win/win situation if they are successful. I believe they will make it happen."

***By Nathan Menoian, IBJ***