

## Taniq develops reinforcement for outside hose

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DELFT, Netherlands (Aug. 24, 2009)—Fiber reinforcement firm Taniq B.V. is looking for partners to help it industrialize a technology it has developed for charge air hoses used on trucks, tractors and other commercial vehicles.

Taniq dubs the technology its “bag in a box” concept, where the reinforcement is on the outside of the bellowed hoses. That compares with the traditional construction, which has a rubber inner liner, a reinforcement layer and a protective rubber cover.

The company has been working on developing the technology after several hose manufacturers in the market asked the Delft-based firm if it had the capability, according to Taniq Managing Director Siebe Nooij.

“If you can place the reinforcement on the outside, you can then come up with a completely new product concept,” he said.

The advantages of such a concept are that the hoses—even complex-shaped hoses—can be made using fully automated processes such as injection molding for rubber hoses or extrusion-blow molding for thermoplastic ducts, according to Taniq. The reinforcement structure would then be applied over these pre-made hoses afterward.

“If you’re looking purely at the reinforcement, you can reach certain pressure with less material,” Nooij said. “It gives more flexibility, increases ease of production and saves on labor costs. You can make both components in an automated way and assemble them.”

The key question that Taniq had to answer in the development process was how to get the reinforcement to stay put when in use. “Traditional reinforcement technology doesn’t allow you to place the reinforcement on the outside,” he said. “The fibers would not stay in place under pressure. With our technology, the fibers want to stay in place.”

Taniq found that by calculating the right combination between the product shape and the orientation of the fibers over that shape, it could reach a force equilibrium. The firm said the functionalities of the rubber and reinforcement structure are separated so they can be used more efficiently.

“Using Taniq’s technology, the fiber structure takes up all the forces, so the rubber hose is solely used for fluid containment,” Nooij said. “This means that you can apply dry fibers on the rubber surface, and when you pressurize the hose the fibers will maintain their positions.”

The reinforcement will move slightly when the hose is not pressurized, but those small movements will be corrected automatically once the hose is pressurized because the fiber is designed to move back to its optimal position, the company said.

Taniq currently is exploring production concepts for the technology, Nooij said, including building the reinforcement and pulling it over an existing hose; having a pre-made hose and having the fiber wound around it; and having a pre-made net and making the hose on the inside, such as with blow molding.

Most of the firm’s customers aren’t familiar with automated winding equipment and prefer a customized production solution that can be implemented in their process, he said. Taniq can provide an integral solution, including the implementation of customized winding equipment.

Nooij said now that Taniq has proven that the technology works, it wants to partner with a hose manufacturer to get it put into use. Taniq doesn’t look to mass-produce the reinforcement. It focuses its business on licensing technology for others to make, and also sells production equipment to make the reinforcements.

He sees this as an opportunity for hose companies already in the market using traditional technology as well as for others making different types of hose products to enter a new market. It also could enable smaller hose companies that buy calendared reinforcement sheets to make their own reinforcement.