

# Tough Tip



**A team effort results in the development of a sustainable carbide saw chain tip for use in harsh environments.**

**By Tom Shearer**



When Indigo Innovators, a St. Mary's, Pa., manufacturer of saw chain, was prepared to go to market in late 2004 with an all-steel replaceable cutter for its .750 (3/4") pitch saw chain, a customer asked if the company could provide a carbide tip for cutting timber in icy or muddy conditions. That request led Indigo to collaborate with General Carbide (GC), a Greensburg, Pa.-based manufacturer of carbide tooling, and resulted in the creation of Chain-Serts™ ([www.chain-serts.com](http://www.chain-serts.com)) carbide-tipped replaceable cutters, for which GC produces the carbide tips.

The product is available in a tough, wear-resistant grade of carbide and has tips that can last 50 times longer than traditional steel inserts. Chain-Serts can be re-sharpened, and do not require a special tool or fastener to wedge a new insert onto the chain, or remove a spent one. Adding to Chain-Serts' appeal is the fact that the product is manufactured using processes that minimize environmental impact.

From the outset of product development activities, Mark Klingensmith, a technical sales manager with GC, has been helping Indigo perfect a replaceable carbide saw chain tip that the company can sell to OEMs, and directly to consumers. The product earned a patent in Canada, and has a patent pending in the United States.

Depending upon a saw chain's length, there are between 20 and 100 carbide tips on any given chain.

"These replaceable cutters are the toughest carbide teeth available," says Dave Szymanski, the president and founder of Indigo Innovators. "That's because they're made using a proprietary high-temp 1800°F brazing process that results in more braze per part and creates a bonding surface for a specially-designed carbide seating on the cutter body." Those features have resulted in the production of tougher, longer-lasting impact-resistant carbide teeth for saw chains used on chainsaws, firewood processors, landing saws, feller bunchers and mechanized harvesters.

## Imagination Has Its Rewards

Indigo Innovator's R&D efforts to construct an innovative saw chain were aided by a \$25,000 Ben Franklin Technology Partners grant in 2003. In that instance, a panel of judges from the Ben Franklin Transformation Program and Clarion University of Pennsylvania's Small Business Development Center deemed the Chain-Serts Inc. business plan most worthy idea among the proposals entered in the contest. The invention also won a History Channel Modern Marvel Invention Award in 2006.


"It is gratifying to win recognition from third parties," says Indigo's Szymanski. "It helps to build our credibility as we enter the market with a product that can transform the efficiency of timber-cutting in harsh conditions."

## Environmental Stewardship in Action

As a company with a deep concern for the environment, Indigo Innovators re-sharpens carbide-tipped cutters, making Chain-Serts "the 'greenest' saw inserts and saw chain on the market," as Szymanski puts it. That's because their design reduces raw material waste and eliminates the need for Indigo to perform environmentally toxic processes.

Specifically, Chain-Serts chain links are made from long-lasting aircraft-quality steel, which means the user needs only to replace the spent cutter. Furthermore, the company's saw chain is not chrome-plated and the rivets will not be cadmium-coated, which also help to improve the product's sustainability.

Regarding the future, later this year Indigo plans to introduce a line of round blades for wood cutting applications, such as stump cutting and chop saws. The company also has long-range plans for producing cutter inserts made of industrial-grade diamonds that will enable chainsaws to cut through stone and concrete.

"If the future is anything like the past, Dave Szymanski and his team at Indigo will continue to set the standard for saw chain innovation," said GC's Klingensmith. 

*Top: General Carbide has helped Indigo Innovators perfect a replaceable carbide saw chain tip that lasts 50 times longer than traditional steel inserts. (Photo courtesy of General Carbide Corporation)*

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