

# How the right finish was the best start

This is a story about a group of young and talented bicycle frame builders. Idealists they were, this group that wanted to form a democratically-controlled and employee-owned company where every staff member could contribute to and enjoy the rewards of producing a finely-crafted product.

This is also a success story. The group faced and won their share of entrepreneurial conflicts: Agreement on the company name, a fair and equitable employee ownership program, lack of start-up funds, lack of space, maxed-out charge cards. And strangely enough, shot peening has been a contributor to its victories.

There were six founding members of Independent Fabrication (IF) in 1995. Most of the group had worked for a mountain bike manufacturer; all were passionate about bike building and wanted to build a different kind of manufacturing company. They started IF in Boston—a city rich in universities and colleges where biking is a way of life for its students, athletes and techies.

The company's goal was to establish a leadership position in steel frames and then diversify into titanium. IF was structured to give customers a wide range of colors and options and a precision-crafted frame that could compete with the finest bikes in the world. The first mountain bike frame, the Deluxe, was completed five months after the inception of the company and before the group had determined a name for the company. In 2000, IF was successfully marketing the steel frame product line and was ready to develop a titanium frame for the "Ti Crown Jewel".

The Ti Crown Jewel was based on the proven geometry of IF's steel bike frame. The design and engineering team, with feedback from riders, developed three prototypes. With limited space in the factory, the IF staff was concerned that the usual methods of polishing and/or brush finishing ti frames would fill the air with dust particles and contaminate the paint



Photography by Mike Morris/Intensapiets.com

Independent Fabrication sponsors a racing team with members worldwide racing in all disciplines: road racing, mountain and cyclocross. The bike photographed above is a shot peened Crown Jewel titanium frame IF bike.

department. One of IF's welders made the suggestion that IF consider shot peening the ti bikes. When they looked into the shot peening option, they discovered that the contamination issues of brush finishing and polishing could be avoided. The unique finish from shot peening would distinguish the frames from other high end ti frames. One of the prototypes was shot peened and IF was impressed with the results. The crew celebrated that they could also be true to their environmental responsibilities and that they would not have to employ a "dirty and possibly unhealthy" process. As IF learned more about shot peening, they discovered that they would also strengthen the welded joints in the titanium frames.

However, not everyone in the company saw shot peening as the only answer. Arguments to offer alternative finishes similar to the competition's were bounced against the argument that if the engineering characteristics of the shot peened finish were superior, how could IF offer, in good conscience, a lesser finish?



Some saw the shot peen finish as an opportunity to differentiate the IF titanium road bike in the marketplace. "If all the high end titanium bikes were lined up, it would be hard to tell one from the other when viewed at 20 feet," it was argued. "The shot peen finish was distinctive and would stand out in the crowd."

This debate raged for weeks within the company and became more intense as a crucial trade show, the InterBike, approached. Shot peening was unknown in the industry and the shot peened finish looked different from any other finish. How do you help the marketplace appreciate this unknown process and recognize it as a benefit?

Shot peening was researched by the IF staff and a handout was prepared for the show but up until the last minute, the company hadn't decided if it would display alternate finishes at the show. An all-day, all-night attempt to brush finish one of the prototypes right before the show ended in failure and only the shot peened titanium frames were introduced at Interbike.

IF was delighted with the reception the Ti Crown Jewel received. Most people understood their choices and appreciated the benefits of shot peening. The Ti Crown Jewel was also perceived as providing good value relative to the other products on the market. Orders flooded in. It was the right finish and a good start for the Ti Crown Jewel. And, typical for a new company, the number of orders exceeded the ability to get them to customers in timely fashion. What was most gratifying, however, was that even those customers who expressed frustration at the delayed delivery of their new Ti Crown Jewel, called, wrote and e-mailed that the bike was well worth the wait.

However, this isn't a fairy tale—IF has taken some hits from a competitor because of its shot peened frames. As far as they know, IF is the only company shot peening frames. The process isn't widely understood within the industry and is often confused with blast cleaning. IF's understanding and appreciation for shot peening is impressive and they do a thorough job of explaining the process at their web site and in their printed marketing materials. The company is also pleased with their decision to have their shot peening outsourced at the Metal Improvement Company (MIC) in Wakefield, Massachusetts. At MIC, IF's titanium frames are peened along side of parts for the space shuttle and F14 jet engine rotors.

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**Kevin Tower, Manager of Technical Services with Metal Improvement Company, enjoys working with the IF staff. "I like visiting their shop, it's fun to go there. IF is a young, growing company—it's a great success story," says Kevin.**

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The moral of our story is a bit of wisdom paraphrased from the IF web site: "If shot peening is good enough for improving connecting rods and valve springs for racing car and motorcycle engines, turbine blades for jet engines, highly stressed landing gear parts for fighter planes and aerospace parts for NASA, it's good enough for the fabrication of welded titanium bike frames."

**Editors Note:** Thank you to Matt Bracken, President of IF. We appreciate his enthusiasm and helpfulness in making this article possible.

## Want the best? Buy a shot peened bike!

Are you in the market for a mountain, road or race bike? IF has a bike for everyone, whether you want to feel the kid-like joy of a single speed bike or you need a road bike that's custom designed and crafted just for you. Visit the IF web site at [www.ifbikes.com](http://www.ifbikes.com) for more information on their product line or contact Matt Bracken at [matt.bracken@ifbikes.com](mailto:matt.bracken@ifbikes.com). Independent Fabrication, 86 Joy Street, Somerville, MA 02143. (617) 666-3609

