Case study

M 01-24 7000-14-ENG V2

Challenging convention with FLS FerroCer Impact Wear Panels

Developer of FerroCer® Impact wear panels Danny Baric looks beyond the common wisdom to create an innovative, long-lasting modular wear panel.

"The combination of these materials is a radical concept for most customers. But once they see and feel the design, and understand what they can do for their mine, they will often decide to give FerroCer a chance."

Danny Baric
Product Manager for Wear and Thermal at FLSmidth Australia

Turning challenges into success with FerroCer

Danny Baric, Product Manager for Wear and Thermal at FLSmidth in Australia, works directly with mines to ensure FerroCer will solve their specific challenges. "St. Ives gold mine wanted to extend the production cycle of their feed chute from 6 to 12 weeks so that its shutdown cycle was aligned with the shutdown cycle of the rest of the plant. Over 34 weeks later, FerroCer is still going strong and hardly showing any wear."

It's not just the wear life that attracts maintenance managers to FerroCer – their agile modular design, small size and light weight also makes an impact on customers. "Everyone in mining knows that safety is always in focus, and everyone's looking for ways to ensure safe working enviroments," says Danny. "FerroCer wear panels are so light compared to typical steel wear liners, which are large, heavy and bulky. The wear on the maintenance workers' bodies to lift and install these is immense. I may have underesti- mated how important the lightweight modular design of FerroCer would be in terms of safety. But I'm really glad that customers can realize this important benefit as well."

Everyone said the two materials would never work in wear panels – ceramic and ductile iron. Rubber and steel have been the dominant wear-panel materials for decades, but they were failing to deliver to the increasing wear standards of the mining industry. In the early 90s, ceramic began to be used, but the consensus was that it was too brittle and cracked too easily. The industry needed a new wear panel solution that could reduce unplanned shutdowns and keep production on schedule.

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Curiosity breeds innovation

Danny Baric is the Product Manager for Wear and Thermal at FLSmidth. Based in Perth, Australia, he has been working in the mining industry for 30 years. Trained as a journalist in his home country of the former Yugoslavia, Danny had no mining experience when he began working at a company specializing in rubber wear protection. “When I first came to Australia, my English wasn’t good enough to do journalism, so I took this job instead.” But he brought his journalistic curiosity into the job, and began to develop a unique understanding of how materials behave. “I was spending a lot of time with different materials, and observing how their properties affect their environment and vice versa. At the same time, I had a sort of fascination with some of the strongest shapes from nature, such as the Dragon tooth, which inspired the shape of FerroCer.” Danny was determined to bring his growing knowledge of natural shapes and materials to his mining customers to help them solve some of their wear challenges.

A radical pairing

In 2013, Danny began working at FLSmidth. He was tasked immediately with developing a new kind of wear panel that was more robust and resistant than rubber and steel – a wear panel that could keep FLSmidth customers up and running longer, helping them reduce maintenance costs, increase production and ultimately reduce cost per tonne. “Ceramic has a reputation for being brittle, but it’s also extremely hard,” Danny explains. “I was convinced that if we found the right shape for the ceramic and the right steel to support it, that these two materials together could make a wear panel that could last at least 3 times longer than rubber or steel.”

In fact, Danny’s FerroCer Impact wear panels have lasted more than 10 times longer than steel. They are installed in a gold mine and a nickel mine in Australia, where they well outlasted their rubber or steel predecessors and greatly impressed the maintenance managers at the mine. “The combination of these materials is a radical concept for most customers. But once they see and feel the design, and understand what they can do for their mine, they will often decide to give FerroCer a chance.”

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