MATERION

Case Study

ToughMet® 3 Alloy

Materion Partners with voestalpine to Provide Manufacturing Customer with Reliable Bushings and Pins

Materion's ToughMet 3 alloy outperforms conventional materials when used in extremely harsh environments. It has been proven to extend equipment life and reduce downtime when used in manufacturing equipment applications.

PROFILE: voestalpine Hungary

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COMPANY OVERVIEW

voestalpine is a leading global steel and technology group with a unique combination of materials and processing expertise. voestalpine Hungary needed a solution for one of the world's leading spring manufacturers which produces components for automobiles, hard-disk drives, industrial machinery and equipment, and security solutions.

CHALLENGE

voestalpine Hungary was asked by a customer to help find a solution for an ongoing issue in the company's spring coiling equipment used in the development of automotive suspension springs. The previous bushing and pin material the company had been using in the equipment was lasting a maximum of one week only, resulting in significant equipment downtime for the facility.

The frequent component failure was a result of galling and wear between the steel bushings and pins used in the equipment. Oftentimes, there was such severe galling that the pin and bushing were seized together, making it nearly impossible to separate the two pieces. Because the equipment runs 24 hours per day, seven days a week, this frequent and unplanned bushing failure led to unpredictable downtime and significant productivity issues.

SOLUTION

Steel-on-steel bushing and pin stuck together due to extreme galling.

To create a solution, voestalpine partnered with Materion to provide a bushing material that could resist galling in this challenging environment. Materion supplied ToughMet 3 AT110 alloy, a high-strength, non-galling material that offers low friction and minimal wear. The bushings were manufactured with ToughMet alloy and voestalpine utilized their Vanadis 60 steel for the pins.

The combination of ToughMet 3 bushings with the Vanadis 60 pins consistently lasted for 12 weeks in the manufacturing equipment, compared with the unpredictable weekly replacements that had been previously needed. This significantly reduced downtime and enabled voestalpine's customer to improve overall productivity. Following the success of this project, the company developed plans to implement this same solution at each of the company's factories across the globe to prevent unexpected equipment maintenance.

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