MW Components

Switch to Machined Springs Eliminates Significant Down Time, Related Costs for Both Filler and Equipment Manufacturer

Problem

A manufacturer of equipment that produces easy-open ends for beverage cans was being told by its customers that frequent failure of the die springs mounted in the equipment was causing filling production to shut down. Because the springs were located deep inside the equipment, time consuming maintenance was required to replace them. Further, the substantial size and weight of the unit meant that significant labor and heavy moving equipment was required for dismantling to get to the spring location.

The equipment manufacturer had been using multiple-piece, die springs made from a square stainless steel wire with a die tip attached to the end. The two-piece design also meant that there was another spot for a fault to occur.

Because spring failures were unpredictable, its customer's production was constantly at risk. Failure would frequently cause unplanned downtime, which meant significant financial impact.

Between the labor and heavy equipment required to address the failure, coupled with the downtime, the filling operation was being impacted to the tune of tens of thousands of dollars annually. Additionally, the work stoppage also resulted in irate retail customers due to delays in orders being shipped.

Because its equipment had been subjected to spring failure for many years, the equipment manufacturer knew it was time to find an alternative solution. That's when it turned to MW Components.

Solution

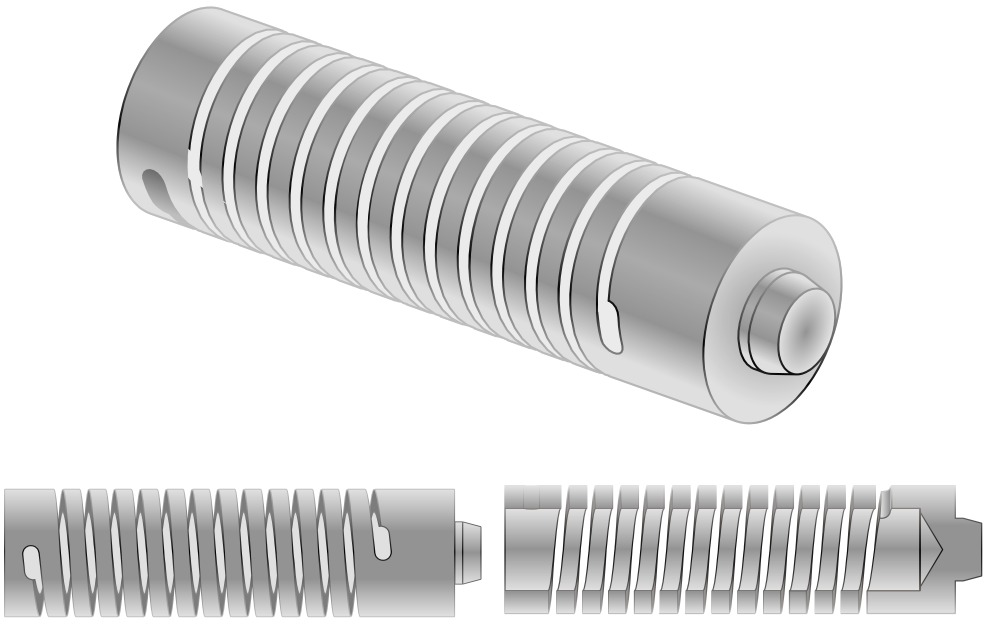
MW Components engineers analyzed the situation and determined that a one-piece machined spring would be the ideal solution for this application.

A machined spring is a single piece of material that is precisely designed and machined to provide precise performance such as compression, extension, torsion, lateral translation and/or lateral bending. The performance characteristics of a machined spring can be tailored to even the most exacting application requirements.

One key benefit of utilizing machined springs is the ability to machine attachment features into the elastic element and provide solutions not easily achieved by other types of springs. This meant an ideal replacement for the two-piece die spring was a one-piece machined spring.

The machined spring engineered by MW Components for this application was custom-designed to perfectly fit into the die cavity. Maraging steel was used for its superior mechanical properties including high fatigue and high yield strength. The single-piece solution also offered more consistent spring rates and longer life yield strength. The single-piece solution also offered more consistent spring rates and longer life.

Additionally, MW Components was able to customize the spring geometry to obtain a constant spring rate for the application, as well as add additional features.



Outcome

With the fabrication and testing process completed, the new machined springs were installed on the filler's equipment. The equipment manufacturer was pleasantly surprised to find there was no failure whatsoever. After three months, during regularly-scheduled quarterly machine maintenance, the springs were examined. No failure. They were checked again at the six month mark, and also at the one year mark. Again, no failure. Reliability had been improved significantly.

As a result, the filler was able to switch to an annual maintenance program, eliminating the three other downtime cycles. The success of the initial installation enabled the equipment manufacturer to offer the same "lasting a full year" maintenance guarantee to its other customers if they also switched to MW Components springs. (Additionally, the manufacturer started installing the springs on all its new builds.)

What had been an ongoing and costly issue for the equipment manufacturer's customers had now disappeared. Their operations are now running smoothly and efficiently. Equally as important, tens of thousands of dollars are now being saved, the manufacturer's reputation has been restored and customer delivery times are being met.

MW Components, located in Santa Maria, California, has mastered the art of creating machined springs. The company has developed proprietary equipment which enables the creation of unlimited geometric versatility for challenging applications. Its staff of product design engineers are experts in creating machined springs for any application.

Summary

Using a reputable supplier whose core competencies match your requirements is critical to finding the right partner.

About MW Components

MW Components is focused on accelerating the entire process of delivering custom, stock, and standard parts to virtually any volume and against demanding deadlines. We work to highly complex tolerances. We help simplify the management of any number of different components. And we take a no-compromise approach to quality. With MW Components you can be sure you'll get the right part to the right specification when and where you need it.

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