Crushing expectations with intelligent software solutions

Engine monitoring PLUS+1® software solution for closed circuit crusher

IROCK Crushers in Valley View, OH, needed a smarter machine. But the company didn't want an off-the-shelf software package. They wanted a solution crafted specifically for their TC-15 track impact or closed circuit crusher.

IROCK Crushers TC-15

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So, they turned to Kraft Fluid Systems, a Danfoss Power Solutions distributor. IROCK came to Kraft hoping to resolve stalling issues associated with the TC-15. The engine was not monitored, making it susceptible to overloading and stalling conditions. This often resulting in more than three hours of downtime per incident.

"If the operator tries to do too much, the machine can easily get jammed with the material. This requiring two to three hours of manual labor to get it back up and running," according to Adam Crowder, Territory Manager at Kraft Fluid Systems. Working backward from the problem, the Kraft team identified a way to avoid the engine from stalling.

"We saw that if we could monitor the engine load to cut back the feed rate when the load goes over a certain point, the issue would be eliminated," said Crowder. "The machine would monitor and correct itself."

Crafted by Kraft

The Kraft team got to work developing an engine-monitoring software solution for the Danfoss PLUS+1 controller on the TC-15. Drawing on more than a decade of experience working with Danfoss PLUS+1® software, which enables high performance and machine intelligence. Working closely with IROCK, the team trialed several iterations of the software solution before reaching the final version.

"Kraft has been working with the PLUS+1 platform since its inception. They used that collective knowledge and experience to address IROCK's challenges," said Jake Dewetering, Account Manager of Distribution at Danfoss. "The company was in IROCK's offices frequently, going over functionality, checking on progress — Kraft brought Danfoss solutions directly to them."

Since IROCK incorporates many Danfoss components in their TC-15, the software development and integration was a seamless process. "Danfoss products are developed with PLUS+1 in mind, so integrating with the custom PLUS+1 software solution we created was simple- Everything is made to work together," said Heath Proffitt, Application Engineer at Kraft.

As a long-term distribution partner with Danfoss, Kraft supported IROCK throughout the software development process. They did this with the team of PLUS+1 experts at Kraft. "Danfoss provided the products and tools, but the successful solution was driven from Kraft Fluid Systems. They invested in themselves to be an extension of Danfoss in the market." said Dewetering.

An intelligent solution

The result was a software solution that eliminates human error, ensuring the engine is never overloaded. "Now, when the engine reaches a threshold leading to potential overload, the Danfoss PLUS+1 controller-software automatically derates the feeder speed. Or stops the feeder entirely, to divert horsepower toward the crusher," said Crowder.

The software immediately reduced downtime previously associated with the engine stalling, and it increased throughput. "In the end, we created a smarter, more competitive machine that uses horsepower management to reduce downtime," said Crowder.
IROCK was satisfied with the customized solution for the TC-15. They will continue to turn to Kraft Fluid Systems as it pursues premier product development, service and support.

"Kraft Fluid Systems has been a trusted partner that has yielded mutually beneficial results for years. Their highly trained and competent staff has time and again delivered for IROCK when we needed it most," said Chris Larson, General Manager of IROCK Crushers LLC. "Their best-in-class vendor-managed inventory programs, close proximity, high level of product quality and surety of supply make Kraft Fluid Systems a fantastic partner for IROCK in our endless pursuit of premier product development and service support."