Success Story:
Multinational Metals and Mining Company

Market Served:
Construction

Eaton's flat-face color-coded couplings iron out contamination problems at Australian mine

Location:
Australia

Segment:
Mining

Challenge:
Find a coupling solution that would eliminate lengthy dump truck downtime caused by contaminated lubrication lines.

Solution:
Eaton® Hansen™ and Gromelle™ Flat-Face (FF) Series color-coded couplings.

Results:
Eaton's FF Series quick disconnect couplings are now the standard at the mine, as well as at 14 additional mines operated by the company.

"The Eaton color-coded couplings are brilliant! They don't leak!"

Mine lubrication technician

Background

Although 400-ton dump trucks have no problem moving in and out of iron ore mines, the beasts can easily cave when hydraulic fluid gets contaminated, causing hydraulic system failures and ultimately vehicle shutdown.

Such was the case at an Australian mine owned by a multinational metals and mining company that is a mega supplier to the world's iron ore trade. In a single year, the mine reported 214 contamination incidents on its dump trucks, requiring over 300 man-hours and hours of costly downtime and environmental cleanup.

Challenge

The company realized that contaminated lubrication lines — whether due to the dusty, rugged mine environment or operators accidently crossing lubrication lines at lube stations — had become one of its biggest and most expensive problems at the mine and that corrective action was badly needed.

Before anymore time and money were lost due to fixing problems caused by contamination, the company implemented an all-out effort to reduce contamination and called in an Eaton distributor for a coupling solution.

Eaton's distribution partner learned that the mine had a solid list of wants. Maintenance personnel explained that an ideal coupling would be easy to clean and have excellent flow, even when carrying extremely viscous lubricants. They also wanted the coupling to be easily identifiable to the operator in order to avoid improper connections that could mix fluids.

Solution

With all parameters before them, Eaton and the distributor's personnel worked closely together to find an appropriate solution that would provide value

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beyond the customer's original requirements and to conduct test and field trials alongside the customer.

Their first recommendation was Eaton's Hansen and Gromelle Flat-Face (FF) Series quick disconnect couplings offering dry-break connections for contamination-sensitive applications. Unique features of the coupling series that meets or exceeds the ISO 16028 standard include: QPQ finish on the sleeve and plug nose, extra heavy knurling to provide a non-slip grip and a beveled sleeve design with standard locking mechanism to prevent accidental disconnection.

Mine site engineers liked Eaton's FF Series coupling solution, but they wanted more. They envisioned that each coupling half on the trucks would have a unique color that would match the corresponding coupling half on a specific oil dispensing unit, thereby eliminating the risk of an operator mismatching lubricant lines.

With close customer interaction, Eaton added rings to the couplings that were color-coded to allow each connection to be visually matched and to serve as the foundation for a complete lubrication dispensing system. The rings also provided a wide surface area for operators to grip, making it easier to connect and disconnect the couplings. Testing confirmed that the rings would withstand tough duty in the rugged mining environment.

All dump trucks at the mine were then equipped with Eaton's FF Series color-coded couplings, as well as the oil supply pumps at lube stations. Distributor personnel remained at the ready to gain user feedback and work through any additional product improvements.

Results

With all its performance criteria tested and met, the company made the decision to standardize on Eaton's FF Series couplings throughout its entire lubrication system.

The changeover to the Eaton couplings has resulted in important benefits. The mine increased machine uptime by approximately three percent, eliminated contaminated lubricant replacement costs and reduced annual maintenance costs.

The couplings' color-coded rings that can be added on demand have eliminated the mine's use of multiple sizes and styles of couplings to prevent cross connections, thereby reducing fitting inventory costs.

Color-coded rings on Eaton's FF Series couplings allow immediate identification of circuits, helping to reduce the risk of accidental connections.

"We are extremely pleased with the flat-face couplings," said the mine's conditioning monitoring specialist. "It's a true flat-face coupling and better than anything we have seen."

The mine's primary lubrication technician agreed. "The Eaton color-coded couplings are brilliant! They don't leak!"

Because of their endorsement at the mine — which sets the standard for other company mines — Eaton's Hansen and Gromelle FF Series color-coded couplings are now the standard at 14 additional mines operated by the company.