

Case Study: Becker Mining America

Market Served
Mining



"Together, we were able to engineer and deliver a solution that will help our customer support dependable, safe and productive service for years to come."

Greg Sanders, president and chief executive officer

Eaton advances safety and reliability for Becker Mining America

Location:

Midwest, U.S.

Challenge:

Becker Mining America sought a circuit protection solution that could quickly be delivered to support the operation of a customer's conveyance system

Solution:

Eaton W-VACiMB medium-voltage vacuum circuit breakers

Results:

The compact design of Eaton's W-VACiMB breakers allowed Becker to meet its customer's application requirements while enhancing safety and reliability

Background

Becker Mining Systems is the only worldwide supplier of complete energy, automation, communication and transportation infrastructure for the underground mining industry. Its products can be used in all mining operations, including the most demanding explosive atmospheres.

The German-based company has grown to operate subsidiaries in nine countries around the world—its U.S. organization, Becker Mining America, supports mining customers throughout the Western Hemisphere.

For more than 40 years, Becker has turned to Eaton as a preferred supplier of power distribution and control solutions for its medium and low-voltage power systems. Becker also sources Eaton's vacuum interrupter technology as a switching component used in

the company's self-manufactured power vacuum contactor modules.

Recently, Becker was awarded a contract to support an expansion project for a mine in the Midwest, involving building underground power centers and a longwall electrical system. The operation, expected to annually produce more than five million tons of coal starting in 2014, required the utmost in equipment protection to help reduce costly downtime and maximize machine productivity.

Challenge

To meet the needs of the project, Becker required a compact circuit protection solution to protect its customized underground power centers. The breakers needed to support operation of the mine's conveyance systems, which help transport coal from the underground operation to the

mine's surface. The breakers also needed to meet the mine's specific space requirements without sacrificing performance.

"Our electrical equipment is routinely included in one of the last construction phases of the project, which made expedited delivery that much more important," explained Greg Sanders, president and chief executive officer at Becker Mining America. "The faster we could provide an engineered circuit protection solution for our power centers, the faster our customer could begin operations."

Solution

Due to its long-standing relationship, Becker turned to Eaton, which had recently introduced new medium-voltage circuit breakers that were specifically designed for mining applications. The Eaton circuit breakers provided the most

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compact footprint in the industry and could be delivered in six weeks, about half the time of competitive solutions, to help Becker meet the customer's aggressive timeline.

Eaton showed Becker the W-VACiMB breakers, which incorporated its proven vacuum interruption technology.

The Eaton circuit breakers are engineered to operate in a sealed environment with no external arcing, a safety feature for mining applications where hazardous gases may exist. Interruption of the electrical arc in a sealed vacuum chamber is the safest choice for confined-space mine operations.

Alternative technologies using sulfur hexafluoride (SF6) gas can be a very dangerous choice, as a combination of SF6 gas with an electrical discharge produces toxins that can be fatal. Incorporating vacuum interrupters encapsulated in epoxy resin, the Eaton circuit breakers are protected from mechanical impact, vibration and environmental contaminant—increasing durability and performance in a compact footprint.

Furthermore, the newly designed mechanism assembly in the W-VACiMB has less moving parts and requires minimal service during its proven type-tested life of 20,000 operations. The design of the W-VACiMB circuit breakers is

virtually maintenance free, which is extremely important in difficult-to-access underground mining operations.

Results

Convinced of Eaton's support and its commitment to stand behind the W-VACiMB solution, Becker incorporated 30 Eaton mining circuit breakers in its power centers. By using these breakers, Becker was able to integrate the industry's latest circuit protection technology into a compact design that fit the customer's space requirements.

By providing a solution within six weeks, Becker was able to significantly improve delivery time to help its customer maximize profitability.

"Although these circuit breakers were a brand new technology, we were confident in Eaton's ability to deliver a robust and reliable solution based on its circuit protection innovation and experience with mining industry applications," said Sanders. "Together, we were able to engineer and deliver a solution that will support dependable, safe service for years to come."



Eaton W-VACiMB medium voltage vacuum circuit breakers are designed to protect equipment in mining applications

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