

Armstrong Coal Revives Mines With McLanahan Rotary Breakers



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Sonnie Baird
Armstrong Coal

In 2006, Armstrong Energy was formed and through its 100 percent wholly owned subsidiary, Armstrong Coal, has grown into a leading producer of steam coal in the Illinois Basin region near the Western Kentucky town of Centertown.

In 2007, Armstrong began making preparations and buying equipment to facilitate their planned operations in Muhlenberg and Ohio Counties in Western Kentucky. Today, Armstrong Coal controls more than 300 million tons of proven and probable coal reserves in Western Kentucky and produces approximately 9.5 million tons of coal annually from three surface mines and three underground mines.

Problem

When reviving the mines, officials at Armstrong had many equipment needs, one being an efficient system that could size the coal to their specifications. For one mine, the need was for 2" (5 cm), and for two nearby sites, the need was for 2.5" (6.3 cm) coal.

“We were in need of a system that would size the coal consistently to spec and separate out the quality coal from the unusable rock and other material,” said Sonnie Baird, Director of Coal Preparation for Armstrong. “Rocks and timbers getting into the system can cause downtime and wear and tear on the machines.”

“The system had to be high-efficiency and low-maintenance as we run all day every day,” Baird continued.

Dust was another big concern for Armstrong. Coal mining generates dust, which can build up on the ground and damage the equipment. It’s also unsafe for workers and is regulated by environmental laws.

Solution

Armstrong worked with McLanahan to find the best equipment for processing the different seams of coal mined at the site. McLanahan Regional Sales Manager Scott Burns teamed up with Terry Jones, Branch Manager for Belt Tech – the McLanahan representative in that region.

“Through Terry, we studied the Armstrong situation and reviewed our equipment options,” Burns said. “For efficiency, safety, low maintenance and minimal downtime, we recommended our Rotary Breakers, which Armstrong put into operation in 2009.”



A Rotary Breaker achieves reduction by repeatedly lifting the feed material and dropping it against perforated screen plates. The lifting and dropping crushes soft to medium-hard coal, which then passes through the screen openings into the discharge chute and onto the conveyor system below. This effectively separates the valuable coal from other material like rock, mine timbers or tramp iron.

For the three mine sites, Burns and Jones helped Armstrong select a 9' x 18' (2.7 m x 5.5 m) breaker that reduces 12" (30 cm) run of mine coal to 2" (5 cm) at 500 tons per hour, an 11' x 21' (3 m x 6.4 m) breaker that reduces 8" (20 cm) run of mine coal to 2.5" (6 cm) at 800 tons per hour, and a 12' x 27' (3.6 m x 8 m) breaker that reduces 8" (20 cm) run of mine coal to 2.5" (6 cm) at 1,200 tons per hour.

Burns said the equipment performs a couple of key functions for Armstrong. "A Rotary Breaker not only reduces the coal it's fed quickly and cost-effectively, it also scalps off any undesirable material from the coal, like rock or mining timbers that might wreak havoc down the line in processing the coal at the prep plant."

Burns also noted that other crushers simply reduce the entire feed and pass it on to the prep plant, where separation is more difficult and can also increase the amount of wear and tear on the plant's equipment.

Results

Armstrong officials say they are pleased with the performance of the McLanahan Rotary Breakers.

"McLanahan has been very good to work with," said Baird. "The Breakers run 24 hours a day, seven days a week. They size the coal and hold the dust down; they do their job very efficiently."

The McLanahan Rotary Breaker cylinder is covered by a fabricated steel, sectionalized dust housing to contain fugitive dust. The dust housing has inspection doors that make maintenance simple. Baird finds the Breaker's single motor drive, low horsepower requirements and slow operating speeds excellent features that allow Armstrong to minimize maintenance needs and operating costs.

The Armstrong Dock Facility location features a 116-acre prep site and a 90-acre refuge area. Baird said with the help of McLanahan, the preparation plant runs 362 days a year, with a throughput capacity of 1,200 tons of raw coal per hour and the ability to blend up to five types of coal using a nuclear analyzer. The loading facility is capable of loading 2,500 tons per hour onto barges on the Green River.

"Coal is vital to the future of this country, and it's burning cleaner than ever," said Baird. "It burns about 90 percent cleaner than it did 30 years ago, which I don't think people understand. The price of coal is going down, so we have to consistently work more efficiently at our site. McLanahan's equipment helps us do that."

Armstrong finds the cost of running the Rotary Breaker is small compared to the overall expenses in running the operation. "Our McLanahan Breaker is one of the most efficient pieces of equipment we have on this site," continues Baird. "We have very little upkeep on it – we put the coal in it, and it spits the rock out one end and the coal out the other end. Very efficient."

Another benefit of the McLanahan Rotary Breaker is that it runs quieter and smoother than other breakers. The McLanahan Breaker's cylinder is machined in one set-up on a large lathe. The machining process assures that the cylinder is concentric and wears evenly, reducing bearing maintenance, extending the machine's life and lowering the cost per ton produced.

Baird said in addition to the great products McLanahan offers, he also enjoys the attention to customer service he gets from the team of Burns at McLanahan and Jones at Belt Tech.

"McLanahan has been very good to work with," said Baird. "From their salespeople to their technicians, they're responsive. We call and they come in a timely manner. They did help us get one issue resolved right away, and we haven't had any problems at all with them."

Belt Tech's Jones feels it is McLanahan's commitment to quality and long-term thinking that helps it succeed in the Illinois Basin. Rather than just sell a piece of equipment to a customer, he and Burns are looking to be there for the customer over the long term.

"Both Belt Tech and McLanahan feel that relationships are key, and going forward that's how our businesses have been," says Jones. "We're in it for the long haul, and we don't do things for a one-year stint. We want our customers to know we'll be with them for whatever they need."

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