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Mining

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**COLORADO SCHOOL OF MINES EDUCATION
CONSTRUCTION INDUSTRY TRENDS
PRODUCING AGGREGATE FROM WASTE
COAL — REASONS FOR OPTIMISM**



Miller Electric's Big Blue Air Pak.

Welder offered for underground coal mines

Miller Electric has introduced its new Big Blue Air Pak, a welder/generator/air compressor. The unit's turbocharged Deutz 2011 diesel engine produces 48-kW (65-hp) at 1,800 rpm. The engine creates a welding output of 45 to 750 amps (600 amps/44 V at 40% duty cycle). And the unit has an optional 20 kW (27 hp) of generator power. A belt-driven, Ingersoll-Rand rotary screw compressor produces 689 kPa (100 psi) at 1.7 m³/min (60 cfm; 100% duty cycle). The Big Blue Air Pak has nearly twice

the welding and air compressor power of previous designs. So it can air-carbon-arc-gouge with a 13-mm- (0.5-in.-) diam carbon at high altitudes. The unit performs the duties of a welder, a generator and an air compressor. This helps to reduce transportation costs and saves space on service and repair rigs. The machine has been approved by the U.S. Mine Safety Health Administration for use in underground coal mines.

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Smaller ac drives make them adaptable, flexible

ABB's ACS 800 Drive low-voltage ac drive product line combines greater performance, programming power and flexibility in a smaller design. This makes it easy to use the drive across a range of industrial applications and markets, including mining. All units are designed in a bookshelf style. They range from 165-mm- (6.5-in.-) wide, low-horsepower designs up to freestanding 447-kW (600-hp) units that measure 350 mm (13.78 in.)



ABB's ACS 800 Drive low-voltage ac drive

wide. The new drives include ABB's open-loop Direct Torque Control technology. This technology eliminates the need for installing encoders. And it enables the drives to calculate the state (torque and flux) of the motor 40,000 times per second, making the motor controllers tripless.

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Training idlers reduce conveyor misalignment

Arch Environmental Equipment's Tri-Return training idler reduces conveyor misalignment, wear and spillage. The concave arrangement of the Tri-Return's three idler rolls on a center pivot keeps the belt on track. The design incorporates three idler rolls. This means the belt is supported by six bearings vs. two as found in a standard, single, flat roll. The center roll is horizontal and the two outer rolls are at a descending angle. This allows the Tri-Return training idler to fit the full cup of the belt. This de-

sign allows the Tri-Return to automatically correct misalignment. The trainer rolls are covered in

rubber to reduce buildup, increase the life of the rolls and speed reaction time. The Tri-Return training idlers can replace existing return idlers with low maintenance and simple installation.



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Arch Environmental Equipment's Tri-Return training idler.