

Case Study

Payne & Dolan

Issue date: 15 January 2019

Plug & Play Connectors Make Equipment Moves Easy

Conveyors and other electrically powered processing equipment are easier to move from one site to another at the aggregate operations of a major Wisconsin paving contractor because they recently installed plugs and receptacles that feature a contact technology which helps make power connections durable, safe, and easy. MELTRIC plugs and receptacles incorporate spring-loaded, silver-nickel butt-style contacts that provide consistently superior electrical performance over thousands of operations and are resistant to wear, corrosion, and other factors that contribute to premature failure of pin and sleeve-type devices.

Payne & Dolan, headquartered in Waukesha, Wisconsin, is a leader in producing and providing asphalt pavement services and products. The company owns and manages company-operated asphalt plants and aggregate sources, which gives it control over the product and ensures that its customers will receive the best material for their specific needs.

At one of the company's quarries, power for portable crushers and conveyors is provided by a trailer-mounted 725 kW Cat diesel engine through a power distribution panel. Previously, connections between the panel and mobile equipment were made using pin-and-sleeve connectors. However, they were difficult to connect and disconnect. Master Electrician John Schreurs explains, "Sand gets in the threads, so you can't get them apart without a lot of effort. All it takes is a little bit of fine grit, and you can't use them."

Since converting to the MELTRIC plugs and receptacles, Schreurs has found that connections are easy to handle. He says, "They simply twist and lock, so we don't have to worry about threads at all. The twisting wipes the contacts, so they are self-cleaning, which is a big advantage in our dusty environment."

The quarry produces washed stone and sand, using three portable crushers and two large permanent crushers. Material is transported via several troughed belt conveyors, including a 1000-foot unit, as well as, a 500-foot and several 250-foot conveyors. Jaw crushers and portable conveyors alike are connected to the distribution panel.

Schreurs says, "We add conveyors and keep following the material until we get to the property boundary lines." The ease of disconnecting and reconnecting with the MELTRIC devices speeds up and simplifies the moves, he notes. According to Schreurs, they are used on all the crushers, screens and conveyors at the site except for the few that are hard-wired and not moved. Disconnecting power to equipment is a simple operation that is initiated by pressing a pawl on the MELTRIC receptacle, which causes it to break the circuit and eject the plug to its rest position. Then, a simple quarter-turn of the plug allows it to be easily withdrawn from the receptacle in complete safety, since the circuit is already dead. When the plug and receptacle are separated, a safety shutter prevents access to live parts and a lockout hole on the plug allows it to be easily locked out.



Portable conveyors and crushers at this Payne & Dolan aggregate operation are easier to move as they follow the material source because MELTRIC plugs and receptacles simplify power connections.

Easier Moves for Portable Crushing Plant

Another application is a portable crushing plant the company moves frequently to temporary jobsites. Recently it was set up to crush recycled concrete near a repaving project. "We've moved four times since spring," a company spokesman at the site said in mid-summer. The plant has been used to crush limestone and to provide crushed aggregate at asphalt plants in addition to the concrete. According to the spokesman, it takes about eight hours to set up the plant at a new location. He says the ability to make the many required connections quickly and easily helps get the plant up and running faster than when the troublesome pin and sleeve connectors were used.

In all the company's applications, the MELTRIC plugs and receptacles also provide greater safety due to their deadfront construction and enclosed arc chambers. Easily accessible contacts on the previous connectors had the potential to expose workers or others to live power, so switching to MELTRIC devices also helped to ensure worker safety.



Typical portable conveyor setup includes MELTRIC plug and connector on panel and power cord. Easy twist connection is not affected by grit like the threaded nut on previous pin-and-sleeve connectors.



Closeup shows multiple connections that facilitate ease of moving portable plant components.



Portable crushing plant is moved frequently, so ease of making power connections is important.