

If the #1 cause of failure in variable frequency drive and motor control panels is loose connections, and you could *eliminate* loose connections -- wouldn't you?

Contact: Michelle Goeman, Product Manager – Terminal Blocks and Electronic Interface
Phone: (262) 255.6333 ext: 106
Fax: (262) 255.3232
E-mail: info.us@wago.com

In modern plant operations, there are industrial control panels controlling many different applications in a variety of industries, including: Water/Waste Water, Food & Beverage, Material Handling, HVAC, Petrochemical, Shipbuilding and Marine, and many more. Within these industrial control panels there are many connections. If these connections are made with screw terminals, they will come loose over time due to thermal cycling (the heating of the conductors under load), as well as from vibration.

Checking connections and retightening connections is a step in preventative maintenance that many people miss or do incorrectly. Over tightening a screw connection can be damaging to the conductor, so you need to use a calibrated torque driver to maintain the screw connection. And when this step is missed or done improperly, a loose power connection could cause the input fuses to clear, the drive or controller to trip on 'over voltage' fault, or even damage to the power components. With loose control wiring, erratic operation could cause scrap, machine damage or even personal injury.

Regardless of the industry, downtime costs money. To avoid unscheduled downtime, plants will schedule downtime to perform necessary maintenance. Today, plants may use 'predictive maintenance' to determine when maintenance needs to be performed, which can save money as the maintenance tasks are only performed when necessary. For example, controls that monitor temperature can help to determine motor and/or bearing problems... but how do you predict failure from a loose connection? You could do thermal imaging to check for increased temperature at a connection point. However, while you have the control panel open and are going through this expensive process – you could just go through the timely process of retightening all of the connections (with a trained technician and calibrated torque driver)... Or you could eliminate the need for retightening connections by moving to a maintenance free connection technology.

WAGO pioneered the CAGE CLAMP® back in 1977. The CAGE CLAMP® revolutionized the industry by reducing wiring time and eliminating routine maintenance while providing a highly reliable contact that is virtually independent of operator skill. The CAGE CLAMP® is designed to provide dynamic contact and proportional clamping. Proportional clamping is dependent upon the wire size -- the larger the wire, the higher the clamping force. While dynamic contact pressure automatically adjusts for strands settling over time and changes due to temperature cycling.

Now WAGO has expanded the CAGE CLAMP[®] technology to the POWER CAGE CLAMP[®] offering the same safe, vibration proof, gas-tight and **maintenance free** connection for higher current applications, requiring conductors from 2 AWG to 4/0. The POWER CAGE CLAMP[®] features a side-entry design, making them ideal for connecting large conductors in space restricted areas, such as switchgear cabinets. Termination is simple: one twist with a hex wrench (for 2/0 and 4/0 blocks) or screwdriver (for 2 AWG block) activates the spring and clamp. Next, push the locking tab, freeing both hands for conductor manipulation. A simple rotation releases the latch, clamping the conductor in place. In addition to easy operation, the POWER CAGE CLAMP[®] also offers a complete line of accessories, including: comb-style push-in jumpers for commoning, built-in test point and optional test plug adapter for easy testing, a space saving power tap for distribution to additional loads, shock protectors for unused conductor entry points, and many marking options.

WAGO is the worldwide leader in Spring Pressure Connection Technology that eliminates loosed wires as a result of vibration and temperature cycling, as well as provides highly reliable, corrosion-resistant and maintenance free connections. Our complete line includes DIN-rail mount terminal blocks, chassis-mount terminal blocks, PCB-mount terminal blocks, relays, signal conditioners, power supplies, surge suppressors, the WAGO I/O SYSTEM and more.

To eliminate loose connections in your application, visit www.wago.us or contact WAGO at 1-800-DIN-RAIL or at info.us@wago.com.

###