Conveyor Application Notes

Conveyors are commonly found in factories, industrial facilities, warehouses, distribution centers and in a large number of manufacturing workplaces. A top productivity-enhancing tool, conveyor systems are used in almost every manufacturing environment where goods are regularly moved from one location to another. Because of this, conveyor injuries in the U.S. may cost employers millions of dollars each year; however, with the right processes, design and safety considerations, employers can reduce cost and liability.

Conveyors are often driven by variable speed electric motors integrated (hardwired) into complex power systems. As with any electronic equipment they are subject to failure for many possible reasons. To protect people who use electrically-powered conveyors, each conveyor must be equipped with a "Ground Fault Circuit Interrupter" (GFCI) preferably localized at the conveyor location to isolate equipment protection and to test the GFCI prior to equipment use. GFCI's prevent possible electrocution and equipment damage due to electrical malfunction. Once the GFCI trips, the power is interrupted, stopping the conveyor system and making it electrically safe for people and preventing costly equipment damage.

Ground fault protection is an important consideration for virtually all electrical equipment. A Ground Fault is a dangerous electrical condition where current flows unintentionally between a live conductor and ground. This could happen if the power unit or power cables become damaged, wet or a fault exists within the conveyor's sophisticated electrical system. Avoiding electrical accidents and equipment damage are keys to reducing liability and increasing productivity.

Guidelines for electrical safety are:

- Know where the ground fault circuit interrupter is located in the conveyor power system. If there is not a GFCI installed, report this to your safety officer.
- Always test the ground fault circuit interrupter before using the conveyor.
- Always have a qualified electrician check the conveyor for electrical problems after it has tripped a ground fault circuit interrupter.

Why Use Technology Research Corporation (TRC) HD-PRO Series?

TRC engineers designed the HD-PRO models specifically for high current, rugged environments and these models are field-proven in all kinds of tough applications. The entire HD-PRO family (120V/30A to 600V/80A) is designed to trip within 25 milliseconds after ground fault detection at an adjustable selected trip level of 6, 10 or 30 mA.

Before the development of the HD-PRO Series, facilities with high current – high voltage equipment or three phase systems employed expensive ground fault breakers at the source of the branch circuit, or went without ground fault protection, leaving personnel and equipment unprotected.

Circuit breakers can withstand high current levels but have short mechanical lives and were not designed for switching duty. Localized ground faults, with circuit breakers, either shut down the whole branch circuit or were overloaded because the available devices were not portable and were often too costly.

The HD-PRO Series utilizes contactors that are fully rated for motor switching demands. In addition to being far less expensive than three phase breakers, the HD-PRO models protect expensive high current – high voltage equipment at the point of use while offering substantial shock protection for personnel.

TRC is an internationally recognized leader in electrical safety products that protect equipment, prevent electrical fires and protect against electrocution and serious injury from electrical shock.

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