Stop! Don't Use That Part

Frightening trends in counterfeiting, cloning and reconditioning can jeopardize a water or wastewater plant's reliability, putting facility personnel at risk of harm or death. It is important to be aware of these hazards when dealing with electrical suppliers.

By Grant Van Hemert

What you need to know about electrical components to ensure treatment facility reliability

Counterfeiting occurs when a product is made with the intent of being falsely marketed and sold as a major supplier's product. Counterfeit products appear to be identical to the name brand, often including the product and testing agency labels.

A counterfeit circuit breaker can be one of the most dangerous counterfeit products. It is often hard to detect and can produce serious safety and quality problems that endanger more than equipment.

"Counterfeit circuit breakers are of poor quality and often will not perform the basic protection functions expected of a circuit breaker. As such, they can pose serious health and safety hazards to consumers," said Jim Pauley, Schneider Electric North America's vice president of industry and government relations, and a member of various National Electric Code committees.

These same dangers also apply to a treatment plant, where there is additional risk that a failure could prevent a critical process, such as aeration, from operating until the damaged equipment or building is repaired.

Previous experience with counterfeit breakers from Taiwan, Mexico and Japan has shown that imitation products often have a short-circuit withstand rating, the maximum amount of current a breaker can handle before exploding, that is only 30% to 50% of the 10,000-amp rating of the actual product. Lowering the withstand rate jeopardizes plant reliability and can cause fires. These products are made from inferior materials that may not contain a fault current and are prone to having their contacts weld shut, preventing the breaker from opening.

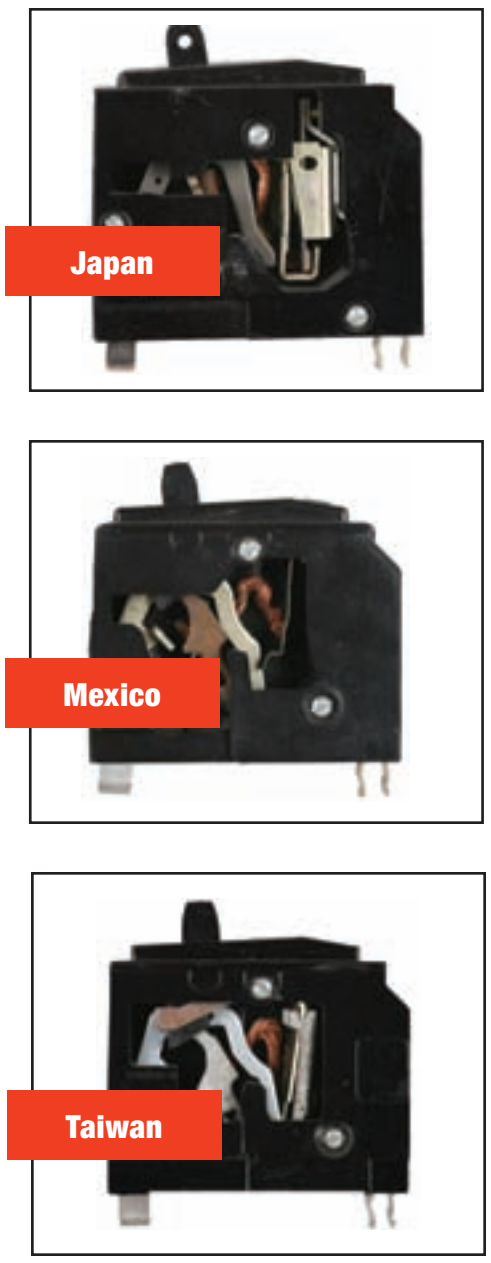

Figure 1: Counterfeit Circuit Breaker Quality Deficiencies

Cloned Products

Cloned products are very close to a name-brand equivalent but do not cross the legal line in branding. Clones appear to be extremely similar, if not identical, to the name-brand preferred product, and the discrepancies are difficult to identify. Ultimately, the labeling and physical makeup of the products give them away as clones.

Clone companies will state that their products are "equivalent" to a name-brand device. Legally, the word carries a different definition than "equal." Equivalent means that two products are very similar but not identical. Usually the differences are due to materials of construction, which usually results in decreased performance. Furthermore, many clone companies are not as concerned about quality as the name-brand company they are emulating. Thus, all the dangers present in counterfeit products can exist here. Even if a product has a testing agency's label, the quality cannot be trusted if the product is not properly labeled with the brand name.

Not all third-party equipment is cloned. Many industrial electrical-solution suppliers use third parties to augment their product lines. Due to the wide variety of configurations, authorization of third parties is very common in the area of automation. If using a third-party module in a programmable automation controller (PAC), check with the manufacturer of the PAC to see if the vendor is authorized.

Reconditioned & Remanufactured Products

There also are risks with reconditioned and remanufactured equipment. These devices have been put into service, rebuilt and then sold on the open market. Before reconditioning, these devices were genuine brand products purchased through the supplier. As a result, they still have the manufacturer's trademarks, labels and ratings even though they are now reconditioned.

Reconditioning is not the same as repairing. In a repair process, a part is removed and replaced with a duplicate of the old part. In reconditioning, components integral to the product are rebuilt and put back into service.

This difference is most apparent in power distribution equipment. For instance, a repair of a motor control center (MCC) may involve replacing it with an exact duplicate. Remanufacturing may involve removing and replacing the bus work, interconnection devices, metal wire ways, sheet metal framing, etc. In a repair, the quality of the original product can be maintained and work is typically done by a maintenance staff person or electrical contractor.

The quality of reconditioned equipment depends on the company performing the work and can vary widely. Since equipment for devices such as programmable controllers, operator interface, power supplies, instruments and variable frequency drives often is remanufactured or resold, it is crucial to examine these devices to ensure quality. One of the best methods is determining who owns the reconditioning company. If it is owned by one of the major industrial electronic solution manufacturers, then the parent company has a vested legal and financial interest in guaranteeing the repair facility delivers a quality product.

Devices such as circuit breakers, switchgear, MCCs, distribution transformers and other distribution devices are too critical to be remanufactured or resold. Companies that resell or remanufacture these devices may not be able to ensure proper quality because they are custom-engineered for a specific facility. When these devices are resold or remanufactured, they may not fit the facility's unique engineering requirements. Thus, these devices may work in day-to-day operation but fail during a high-stress electrical situation.

The nature of water and wastewater projects means that many avenues exist for counterfeit, cloned or reconditioned parts to enter a facility. They may arrive through maintenance staff or from panels supplied by water process equipment manufacturers and system integrators when new systems are commissioned.

Municipalities should consider including a quality form in bid documents. This would require each electronic equipment supplier to vouch for the genuine nature of the devices in the equipment. For instance, the form could ask for the distributor name of each component or another form of verification. In addition, suppliers would have to verify on the document that each component is not counterfeit or cloned.

The reliability of a water and wastewater treatment facility is directly linked to the quality of devices in its electrical distribution equipment and control panels. When a new part arrives or a part is replaced, it is critical that you know the device is suitable for the task. The best way to do this is to know the supplier or repair facility and ensure the replacement part is in compliance with all applicable standards. WWD

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