

EntelliGuard[®] R Retrofill Case Study



Food manufacturers continuously upgrade their processing equipment to meet more stringent sanitary requirements, reduce energy use, and boost productivity, but because downtime is so costly, they often leave core electrical infrastructure unchanged. As a result, they eventually find themselves with over-dutied circuit breakers. EntelliGuard R Retrofills gave engineers from ABB a cost- and time-efficient way to update legacy feeder breakers for a well-established client, bringing its system up to code and giving its existing switchgear a new lease on life.

The Challenge: Making the Most of Existing Equipment

Decades of reconfigurations and improvements to food processing equipment at a well-established food manufacturer had gradually exceeded the capacity of its switchgear. The fault current available at feeder breakers was now above their rating.

Because the switchgear was 30 years old, the company assumed that it would have to shut down its lines and replace its existing circuit breakers and switchgear with new infrastructure. It was not, however, looking forward to the cost or the level of disruption that this work would entail.

The Solution: The EntelliGuard R Retrofill

Field engineers proposed an alternative: use the EntelliGuard R Retrofill to replace the over-dutied 22kAIC feeder breakers with higher-kAIC EntelliGuard G Breakers. This approach would minimize the extent and cost of disruption at the affected substations, while reducing by more than half the costs of the replacement equipment as well as the expense of installing and testing it.

This solution had the added advantage of allowing the client to realize a significant cost savings and retain its UL listing, since its original switchgear was produced by GE. In addition, because they would be working with GE products, GE engineers would be best suited to complete the replacement in a minimum of time, spending just a few hours per cubicle rather than days. GE anticipated that it could finish the whole task over two shifts on a weekend.

EntelliGuard R Retrofill Highlights

EntelliGuard R Retrofill provides a streamlined, cost-effective way to replace legacy circuit breakers with a new EntelliGuard G Breaker:

- It increases short circuit rating on AK25 and AKR30S while maintaining UL approval.
- It can be used as a retrofill for equipment from Allis Chalmers, I-T-E, Westinghouse as well as GE.
- It can include an EntelliGuard TU Trip Unit option, providing superior arc flash protection and selectivity.

By turning to the EntelliGuard R Retrofill, the company is doing more than substituting a higher rated feeder breaker for a lower one. It is getting the added advantage of the superior coordination that the optional EntelliGuard TU Trip Unit would provide. Thanks to its higher levels of selectivity, the EntelliGuard TU Trip Unit can limit disruptions caused by faults to just that equipment affected, minimizing downtime. And the EntelliGuard TU Trip Unit delivers a much higher level of safety and protection than the trip unit in the old breakers.



The Takeaway: Doing More with Existing Equipment

As soon as the food manufacturer realized that the fault current available at its feeder breakers was above their rating, the clock started running. It needed a cost-effective, minimally disruptive solution, and it needed it as quickly as possible.

ABB EntelliGuard R Retrofill breakers address these needs on all counts. They are dramatically less expensive than replacing the switchgear, they can be replaced during regularly scheduled outages, and they require a fraction of the lead time that more comprehensive solutions require.

Equally important, they bring the food manufacturer's switchgear into the 21st century, enabling the company to continue to innovate without fear of disruption to their operation.

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the ABB Inc.

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