Consolidating inventory reduces costs and upgrades safety

By Mike Lang

The fuse protection review

Downsizing. Layoffs. Budget cuts. Belt-tightening. These are all-too-familiar phenomena. The persistently sluggish economy is driving industry to protect profitability by trimming costs while maintaining target productivity and product delivery levels. It's a tightrope walk—one that demands a careful assessment of the plant's assets and systems and a shrewd determination to contribute true value to the organization as a whole.

Increasingly, plants are discovering the benefits of a fuse protection review. By assessing existing protection, consolidating inventories and upgrading circuits to more versatile Class RK1, J and CC fuses with superior current-limiting protection, many plants have found an innovative, low-cost, high-impact means of protecting its profitability and truly important assets: valuable staff members and mission-critical equipment. Executed properly, this process delivers an optimized fuse protection system and establishes a controlled spares system and replenishment routine that ensures the plant continues to reap benefits.

Right solution, right time

Although many plant managers will concede their circuit protection system may not be as well controlled as it could be, some may ask, "What exactly makes now the right time for an overhaul?"

Simply put, the answer is a combination of economic and regulatory forces. Fuse overcurrent protection is often overlooked, but fuses play a critical role in plant electrical systems and manufacturing processes. A properly sized fuse and coordinated system keeps people safe, maximizes productive uptime and wards off costly worker's compensation filings, potential lawsuits and regulatory penalties. By ensuring its overcurrent protection is up-to-date, a plant can make a big impact on its bottom line.

More than that, the overall importance of plant safety has come into sharper focus in recent years. OSHA, for example, is increasingly aggressive in its pursuit of workplace safety violations. In addition, the latest versions of NFPA 70E and IEEE 1584—focusing on arc-flash hazards and the incident energy to which plant personnel may be exposed—emphasize the importance of safety within the plant environment even further. Upgrading circuits to Type "2" current-limiting protection helps improve plant safety significantly and can reduce the risks of arc-flash hazards. When one considers the minimal effort and expense required to conduct the review in conjunction with a trusted local distributor or manufacturer's representative, it's easy to recognize why a fuse protection review is a reasonable

low-cost, high-impact solution for these tough economic times.

Clutter = cost

The survey starts with a visit to the plant's storeroom. The fuse bin inventory reveals the plant's potential for inventory consolidation, cost savings and safety improvements. Most bins contain a dizzying array of fuses, with some dating back to the earliest days of the plant. Prime targets for consolidation and upgrade include older fuses, such as Classes H and K, midget fuses and Class RK5s for protecting mechanical motor starters.

These only provide Type "1" protection. They protect equipment and personnel from explosions and fire, but leave equipment vulnerable to damage from short circuits. Consolidating and upgrading provides the immediate benefits of enhanced protection, reduced downtime and a streamlined inventory.

Accumulated over the years as new equipment was installed and commissioned, the various types and sizes of spare fuses in many plant storerooms contribute to downtime, add unnecessary costs and needlessly jeopardize the plant's circuit protection system. In the worst cases, it's easier for technicians to order new fuses than to sift through their bins searching for the correct replacement. This failure to turnover existing fuse inventory not only adds unnecessary cost, it raises the potential for unintentional protection downgrades that may expose the plant to additional costs in downtime, worker injuries and expensive component replacement.

The fuse protection review helps eliminate these risks and introduces positive changes in workplace and business practices that go straight to the bottom line.

Less is more

Think of it as using a smaller inventory to yield better protection. Consolidating and upgrading can yield as much as a 25-percent inventory reduction, with exceptional cases producing as much as a 50-percent reduction in standing inventory. Uncluttered fuse bins not only minimize confusion and reduce the potential for misapplications, but also simplify reordering and restocking. This alone is an improvement in the plant's fuse protection scheme, but some of the most compelling benefits are the performance advantages fuses featuring modern Type "2" protection have to offer.

Current-limiting, time-delay fuses providing Type "2" (No Damage) protection safeguard critical components from short circuits and promote plant profitability even further. Advanced fuses minimize current flow in a faulted circuit. Instead of repairing and replacing expensive equipment, technicians simply clear the fault, replace the open fuses and get the systems back online. With the increasing use of sensitive electrical components, upgrading the plant's circuits to Type "2" protection is simply a smart thing to do. Furthermore, fuses with permanent, visual open-fuse indicators further reduce downtime and help make life a little easier for today's time- and cost-constrained maintenance departments.

Protecting motor controllers

Electronic motor controllers—drives and soft starters—are ubiquitous. Enhanced control and reduced operating costs account for their rising popularity. While drives enable better control of motor speed, soft starters reduce the power required to start the motor, translating into lower energy costs. To preserve these benefits, the fuse protection review should verify the protection provided for these devices.

First of all, it's important to follow the motor controller manufacturer's recommendation for protection. Then determine if high-speed fuses have been included with the device or if fuses must be supplied separately. Not all electronic motor controllers include high-speed fuses. Always have appropriate spares on hand to prevent the accidental installation of improper fuses. This happens more often than one might think and can jeopardize both the motor controller and the production line's uptime.

Faced with an offline system and scrambling to get it back online, the electrician might inadvertently replace the open fuse with the wrong type or rating. While this may get the line up and running in the short term, it presents a potential hazard that may pop up again at the worst possible moment. Readily available fuse spares reduce the chances that these situations will occur, and the fuse protection review makes certain that the proper spares are always on hand.

Strong relationships prolong benefits

Avoiding accidental protection downgrades and potential pitfalls, such as those surrounding electronic motor controllers, is a matter of awareness and training. Strong business relationships make the difference and should be a part of the fuse protection review. A strong relationship with the local distributor or manufacturer's representative keeps the plant informed about the latest technological developments.

This complementary relationship is crucial to ensuring that the plant enjoys more than just the short-term benefits of a smaller fuse inven-tory and enhanced protection levels. Working with the local distributor, many manufacturer's reps can provide on-site circuit protection and fuse selection training, as well as a safety standard reviews. Ideally, everyone in the value chain is trained: maintenance supervisors, control engineers, safety directors and purchasing agents. This ensures that knowledge of the plant's systems permeates the organization, responsible workplace practices are exercised throughout and the benefits of the fuse protection review are maximized.

The goal of the fuse protection review is to optimize the plant's circuit protection and produce a controlled spares system and replenishment routine. The storeroom fuse bins should be reorganized, and the fuse inventory database updated with minimum and maximum inventory levels for each stock keeping unit. Regular site visits and communications with the local distributor can then make restocking and reordering a breeze. The stronger relationships developed through the course of the fuse protection review can preserve the team's efforts and keep the plant up and running for years to come.

In a tough business climate, plants must look for value more than ever. A fuse protection review delivers exactly that; true value that makes a real difference on the bottom line. This high-impact, low-cost initiative helps to protect the plant's assets—both physical and financial.

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Figures: Ferraz Shawmut

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