FUSE CONTROL PROGRAM

Your guide for how to improve workplace safety, reduce operating costs & achieve code compliance



FERRAZ SHAWMUT IS NOW MERSEN



Get control with Mersen's **Fuse Control**[™] **program**



TABLE OF CONTENTS

Introduction to Fuse Control2
Five major benefits3
Phase 1: Storeroom audit
Phase 2: Consolidation report & plan 6
Phase 3: Implementation
Case Studies10

BENEFITS A VARIETY OF INDUSTRIES

FUSE CONTROL



Food & Bottling

Mersen's Fuse Control program is a powerful combination of circuit protection products and services designed to help you get control of your inventory, operating costs, code compliance and workplace safety.

Developed by Mersen and refined through extensive field research, Fuse Control is a simple program that packs a lot of muscle. It will give you the edge you need to mitigate arc flash hazards, achieve code compliance, eliminate obsolete fuse categories, reduce inventory by 25% or more and offer the highest grade overcurrent protection available. Discover Fuse Control and seize the benefits of fuse selection, training and consolidation to increase operating efficiencies and enhance workplace safety.

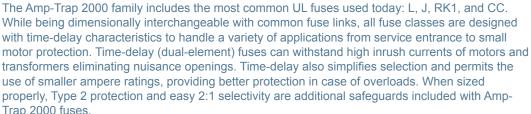


Metal Fabrication

How can one program deliver so many benefits?

It's easy! Let the fuses do the work. The key lies in consolidating your current inventory and installed overcurrent protective devices to one fuse line - Mersen's innovative Amp-Trap 2000® fuse

Amp-Trap 2000 fuses out-perform the traditional fuse. Opening in less than one-quarter cycle at fault currents up to 300kA, Amp-Trap 2000 fuses minimize the let-through currents and energies that flow downstream during faults. Prevent misapplications, mitigate arc flash hazard potential, minimize downtime that can diminish productivity and profit, and provide the best overcurrent protection available in the industry.



Trap 2000 fuses. Mersen can also provide short circuit studies and arc flash mitigation ANALYSIS. CONTACT ELECTRICAL SERVICES FOR MORE

INFORMATION AT ELECTRICALSERVICES.NBY@MERSEN.COM OR 978-465-4980.



Oil & Gas



Waste Water

The five major benefits of Fuse Control™

1 IMPROVED WORKPLACE SAFETY

The explosive energies reached during an arc flash – intense heat, thermoacoustic shock wave, molten metal, shrapnel, blinding light, toxic smoke – can cause severe, often fatal, injuries to workers even several feet away. The fuses we recommend for reducing arc flash energies are UL Listed branch circuit fuses with the highest degree of current limitation — Mersen Amp-Trap 2000® fuses. Amp-Trap 2000 fuses can isolate a faulted circuit before the fault current reaches its maximum value, enabling the fuses to:

- Limit the total energy delivered to an electrical fault
- · Limit thermal and mechanical stresses created by the fault current
- · Reduce both magnitude and duration of the fault current
- · Be easily coordinated in both the overload and short circuit regions

Because this energy reduction lowers the amount of heat generated, the use of these fuses typically minimizes the level of personal protective equipment (PPE) required, allowing personnel to work more easily, efficiently and most importantly, safer.



Arc fault delivered to a circuit without fusing



Arc fault delivered to a circuit protected by Amp-Trap 2000 fuses

DECREASED OPERATING COSTS

The Fuse Control program saves you money in two ways: by streamlining inventory and alleviating product replacement costs with current-limiting Amp-Trap 2000 fuses. Based on user feedback and surveys, the average industry cost for maintaining a storeroom bin is approximately \$200 per year. Let's apply this figure to determine the annual cost savings that can be realized by implementing Fuse Control. For example, say a metal fabrication facility has 100 bins of fuse inventory and with Fuse Control they were able to reduce their inventory by 25%. By applying the following formula we can calculate the annual cost savings:

Number of fuse bins x Percentage of inventory reduced x Cost to maintain fuse bin = Annual savings 100 bins x 25% x 200 dollars = \$5000 Annual savings!

If sized properly Type 2 "No Damage" protection can be achieved when installing current-limiting Amp-Trap 2000 fuses which prevent short circuits from destroying your critical equipment. What does this mean? Basically it means that your motor starter, contactor or variable frequency drive will remain in functional condition if an electrical fault were to occur, saving you product replacement costs and installation time. To make sure your equipment is Type 2 coordinated visit **ep-us.mersen.com** > **Resources** > **Literature** to download our Type 2 No Damage Coordination Guides.

3 REDUCED DOWNTIME ASSOCIATED WITH ELECTRICAL FAILURES

Mersen's innovative SmartSpot® open-fuse indicator is standard on the Amp-Trap 2000 Class J and Class RK1. SmartSpot uses a combination of advanced materials and a unique, solid-body design, which turns an eye-catching red to help you locate an open fuse quickly and safely. SmartSpot eliminates the guessing and allows you to locate the open fuse faster, helping you avoid even more costly downtime. When installed properly Amp-Trap 2000 fuses have a convenient 2:1 coordination ratio. A selectively coordinated system will localize a fault condition, restricting outages only to the equipment affected. By having a coordinated system you will mitigate unnecessary outages, saving you time and money. Contact Mersen Technical Services for more information at technicalservices.nby@mersen.com or 978-465-4853.

4 STREAMLINED INVENTORY

Amp-Trap 2000 fuses have the ability to replace multiple SKU's, reducing your overall inventory by 25% or more. The most common fuses found in today's industrial MRO facilities are the UL Class H, K and RK5. The UL Class H, K and RK5 fuses are dimensionally interchangeable with the Amp-Trap 2000 Class RK1, making them easy to replace with a single class. The Amp-Trap 2000 Class RK1 provides a higher level of safety and performance than the other classes. A Class RK fuse holder should also be installed to prevent users from mistakenly installing Class H or K fuses in the future.

5 Easier electrical code compliance

Being responsible for your workers' safety means being up-to-date on the arc flash hazard regulatory and consensus standards, and integrating them into a comprehensive safety program. The major industry regulations and standards that you should be aware of are OSHA, NFPA 70E®, CSA-Z462, IEEE Standard 1584, and NFPA 70®: National Electric Code®. Amp-Trap 2000 fuses can reduce hazard risk categories allowing for a safer work environment. Mersen can assist you with electrical hazard assessments, including Arc Flash Hazard Analysis and Short Circuit Study.

The three phases of Fuse Control™

Now that you understand the benefits of the Fuse Control program, we can review the proper steps needed to implement a successful consolidation:

- Storeroom Audit and Database Analysis
- · Consolidation Report & Plan
- Implementation

The Fuse Control program will be performed by a Mersen electrical distributor in collaboration with a Mersen regional sales representative, making it effortless for you. Each phase contains its own list of action items and deliverables which allow for a smooth and efficient conversion. There is no time pressure; the phases are performed at a pace that works around your schedule.

Phase 1: The storeroom audit & database analysis

The main goal of phase one is to audit your storeroom and analyze your inventory database in order to gather the necessary information for an accurate consolidation report.

How to get started

The process typically begins with an orientation meeting given by your Mersen sales representative. The goal of the meeting is to inform appropriate personnel within your facility about the benefits of the Fuse Control program. Since the program targets many facets of the organization, it is important to reach out to all personnel.

The orientation meeting can be an informal or formal process depending on your situation. Mersen is here to serve you and to help make the process as efficient and effective as possible. The orientation meeting will usually be hosted by a Mersen sales representative in conjunction with a distributor of your choice. Plant training and seminars can also be part of the meeting if more in-depth training and services are required. Mersen's field engineers are very knowledgeable in all aspects of circuit protection including arc flash, codes and standards and product applications.

Who should be at the table?

- Plant Manager
- Plant Electricians
- Maintenance Personnel
- · Safety Managers / Engineer
- Purchasing Manager
- Inventory Manager
- · Electrical / Facility Engineer

TO LEARN MORE ABOUT FUSE CONTROL, CONTACT US AT:

Phone: 978-462-6662

Email: info.nby@mersen.com

Web: ep-us.mersen.com/solutions/fusecontrol.cfm

"IT'S IMPORTANT
THAT ALL CRITICAL
PERSONNEL HAVE
A VOICE IN THE
PROCESS..."





PERFORMING THE AUDIT

Once you and your organization understand the benefits and are ready to proceed we can start the storeroom audit and database analysis process. The process is very simple and will take up little of your time and resources. Also, did we mention it is free! The fuse inventory and audit analysis are provided to you at no cost.

We will need a full record of your fuse inventory. This information may already be available through your software ordering system. The following information will be required:

Customer Part Number: The part numbers you have assigned to identify the fuses in your inventory

Stock Location (Bin Number): The location number associated with the bin or shelving where the fuse is located

Manufacturer: Name of the manufacturer of the fuse

Manufacturer's Part Number: The fuse manufacturer's part number found on the fuse itself

Part Number Description: The description of the product including voltage and ampere rating. Used to help identify the product in case the part number does not match. May also include dimensions and key words such as "Class J" or "time-delay."

Quantity on Hand: The quantity on hand of each particular part number

Annual Usage: The annual quantity consumed for each part number for the last 12 months

Min/Max Levels: The minimum and maximum inventory levels which will be used to drive your ordering system

Note: Consult your sales representative if this inventory information is not readily available for quidance on how to proceed.

Where applicable, it is also important to audit the fuses you have in service. It is one thing to have the proper Amp-Trap 2000® fuses in stock but that still doesn't help you with fuses that are currently installed. If possible you should perform an audit on fuses that are in service and also replace those fuses with Amp-Trap 2000 fuses. This way you will be fully protected and reap the full benefits of the program immediately.

Submitting the data

Once the audit is complete, the next step is to send the electronic file to your Mersen sales representative. The representative will then work with Mersen applications engineers who will analyze the data using our proprietary Fuse Usage & Storeroom Evaluation software.



"...I LIKE THE FACT THE FUSE
AUDIT AND ANALYSIS WAS
ABSOLUTELY FREE..."

NEED AN INVENTORY TEMPLATE?

Mersen offers several timesaving tools including a free Inventory Audit Template in MS Excel®. Download the handy template from our website at:

ep-us.mersen.com/solutions/ fusecontrol.cfm



Submit data in MS Excel®

Please submit your inventory data electronically using Microsoft® Excel®. You may download an Inventory Audit Template in MS Excel, like the one to the right, from our web site at:

ep-us.mersen.com/solutions/ fusecontrol.cfm

	FERRAZ SHAWMU	4	Customer Name:			Date:			
	MER	seN	City/State:						
	MER		Distributor Name:			1			
37	4 Merrimac St. Nev	vburyport, MA 01950	City/State:			1			
٠.	(978) 46		Only/Outo.			J	Annual		
Itm #		Stock Location (Bin #)	Manufacturer	Mfg Part #	Part Number Description	QOH	1	Min	May
1	Customer Fait #	Stock Location (Bill#)	Manufacturer	ivily Fait#	Part Number Description	QUH	Qty	IVIIII	IVIAX
2									
3									
4									
5									
6									
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Phase 2: The consolidation report & plan

During this phase, a Mersen factory engineer will analyze your data using our proprietary Fuse Usage & Storeroom Evaluation software. This software consolidates the audited inventory list into Mersen Amp-Trap 2000® fuses. The result is a series of valuable reports, which detail the bottom-line benefits of converting to the Fuse Control™ program and Amp-Trap 2000 fuses.

THE SECTIONS OF THE REPORT

The Fuse Control Amp-Trap 2000 Consolidation Report is comprised of the following:

- · Inventory Consolidation Summary
- Inventory Consolidation Detail
- · Class H Fuses Identified in Inventory
- Duplicate Inventory not Upgraded to Amp-Trap 2000
- Follow-up Report

Combined together, these reports will give you a comprehensive view of your potential streamlined inventory and will inform you of how many SKU's you can eliminate as well as what actions you should immediately consider to improve safety in your facility.

Inventory consolidation summary report

The inventory consolidation report (Fig. 1) is a one page document summarizing, for each fuse class, the number of bins you currently have, the number of bins you could have by consolidating to Amp-Trap 2000 fuses, and finally the number of bins you could eliminate. Figure 1 illustrates that for this example the user was able to eliminate 136 bins of inventory reducing the total from 230 bins down to 94 bins. Each Amp-Trap 2000 fuse class is listed in the left-hand column. This will allow you to view the overall breakdown of bins consolidated by each fuse class.

Inventory consolidation detail report

The consolidation detail report (Fig. 2) is a multi-page document which validates how the consolidation summary was derived. It identifies each individual part number and its Amp-Trap 2000 equivalent, along with the end user part number, bin number, annual usage, current inventory, min/max levels and physical inventory. Utilizing annual usage and quantity on hand, we will be able to recommend a stocking quantity suitable for your plant use. It is common to find stocking quantities of two different fuses used for the same application. For example, let's analyze part number A6D15R within Figure 2. We were able to replace four different stocked parts with a single fuse. We were also able to reduce the stocking level by basing the new inventory quantities on the combined annual usage value.



Company Name Analysis #: 012511-003 Date						
Upgrade Callegory	Existing Number Of Bins	Number of Bins with AmpTrap2000	Number of Bins Eliminated			
A2D-R	43	25	18			
A4BQ	58	23	35			
A6D-R	26	12	14			
AJT	35	20	15			
ATDR	57	8	49			
ATOR	11	6	5			
Totals:	230	94	136			

Fig. 1 Inventory Consolidation Summary Report

Amp-Trap 2000 Category Upgrade Fuse Replaced Fuse	Mersen Equivalent	Oustomer Part Number	Sin Number		Annual Usage	Ourset Inventory	Minimum Inventory	Maximum
A2D-R								
A2010R								
FR94-R-10	TRIOR	A18995	WR-3-11		12	10	5	20
FUNR 10ID	TRIORID	A22N73	WR-3-11		- 5	10	5	20
			т	otal	17	20	10	40
A2030R								
FRNRO	TROOR	A18990	WB-3-12		15	s	5	20
NONSO	OE30	A18008	WB-3-12		22	20	10	30
			Т.	otal	37	25	15	50
ASD-R								
A6015R								
FRSR15	TRS15R	A10888	WR-5-1		1	9	5	10
TRS15R	TRS15R	A17999	WR-5-1		12	25	10	30
LPG-RK15	AGD15R	A21662	WR-5-1		2		0	10
NOS15	OF815	A18010	WR-5-1		- 8	2	5	10
			т	otal	23	44	20	90
A6000R								
TRESOR	TRESOR	A18000	WR-5-4		20	10	10	30
			T	otal	20	10	10	30

Fig. 2 Inventory Consolidation Detail Report

Class H fuses identification report

This report identifies and locates Class H fuses in your inventory (Fig. 3). Class H fuses, also known as "renewable fuses," are not the proper fuse to install in 99% of today's applications. The 2005 National Electric Code Article 240.60(D) states that Class H renewable fuses are not permitted in new installations. Mersen recommends immediately eliminating these fuses from your inventory. Class H fuses have significantly lower interrupting ratings and performance capabilities than Class RK1 fuses and can be harmful to your personnel and equipment. The fuses identified in this report are also included in the consolidation details report.

Duplicate inventory report

The duplicate inventory report (Fig. 4) detects equivalent part numbers that are physically stocked in separate bin locations. By locating these part numbers, we can identify how many bins you can eliminate by consolidating like part numbers only. Using Fig.4, let's analyze Mersen part number GGC5. In this example, part number GGC5 is stocked in two separate bin locations. The primary focus of the duplicate inventory report is on those products that will not be upgraded to Amp-Trap 2000® fuses such as glass, semiconductor and special purpose fuses.

Additional information / follow-up report

The follow-up report (Fig. 5) consists of a list of part numbers with missing or invalid information, such as incorrect or incomplete part numbers or descriptions. This report is used to clear up any missing or incorrect information from the audit process. Mersen's Technical Service Department is always available to assist in identifying miscellaneous or unrecognizable products. For assistance, please contact the Mersen Technical Support Team at 978-465-4853 or technicalservices.nby@mersen.com. After the follow-up report has been resolved, we will update the Fuse Control™ report one final time making sure all information is up to date and accurate.



Fig. 3 Class H Fuses Identified in Inventory Report

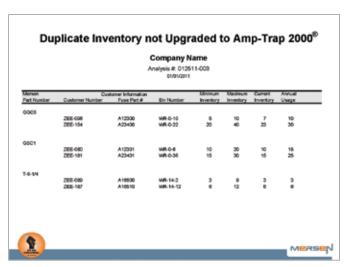


Fig. 4 Duplicate Inventory not Upgraded to Amp-Trap 2000 Report

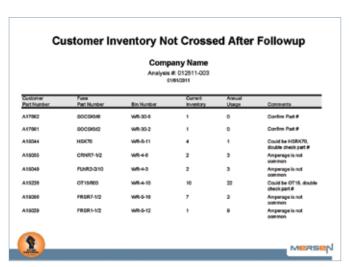


Fig. 5 Follow-up Report

Phase 3: Implementation

Once the Fuse Control™ report has been presented and the benefits of Amp-Trap 2000® fuses are apparent you are ready for the implementation phase.

Update database

Make sure that the inventory and ordering software is updated with the new part numbers and bin locations. The conversion will not work if we do not prevent the system from ordering the obsolete inventory. Customer part numbers, bin locations, min/ max levels, and part descriptions should all be updated. Mersen can work with you and provide you with an electronic list of part numbers and descriptions to upload into your software ordering system. Software updates are critical to the success and longevity of a conversion.

Ordering & delivery

Your Mersen sales representative will quote your conversion order based on your annual usage and min/max levels created by the Fuse Control consolidation report. You may add or subtract line items and adjust quantity levels based on your company's needs. Another benefit of Amp-Trap 2000 fuses is that they are always readily available at Mersen's distribution warehouse, meaning if you do not have inventory we can deliver the fuse 97% of the time when requested. Also check with your local Mersen distributor for their stocking policy and availability. After the purchase order is placed, Mersen will deliver the quoted order according to your requested date. Look for the distinctive Amp-Trap 2000 orange and blue product labels.

Obsolete inventory

Before we can complete the integration of your new Amp-Trap 2000 inventory, we must dispose of the dead inventory. Phasing in new inventory is not recommended. Instead, we recommend disposing of any old, obsolete product which may be hazardous to your people and equipment.

Recycling programs are available from participating Mersen representatives and distributors. Please consult your representative or distributor if you have questions.

Bin labels

After the storeroom has been cleansed of dead inventory, the next step is to re-label your fuse bins. Work with Mersen to create bin labels that will allow you to easily identify the fuse and its location. A free customizable MS Word® bin label template is available on our web site at:

ep-us.mersen.com/FuseControl

ARC COMMANY First 1990A Marrian First No. (1972) Great J. (1974) Great J. (197	Measel	Wessely
wesseh	межьер	MERSEN

Example of Bin Labels. Download a bin label template at: ep-us.mersen.com/FuseControl



"ANOTHER BENEFIT OF AMP-TRAP 2000® FUSES IS THAT THEY ARE ALWAYS READILY AVAILABLE..."



Example of the Consolidation Charts

Consolidation charts

Mersen will also provide cross reference documents and charts to be posted in the fuse storeroom. We make it easy for maintenance electricians and personnel to select the proper Amp-Trap 2000 fuse in cases where there is a need to replace an old fuse that was still in service. Six consolidation charts, one for each major fuse class, are available (see sample chart above).

Training

Mersen also offers personnel training. Whether it's basic fuse training, arc flash training or codes and standards training, Mersen has the expertise. Because safety is everybody's responsibility, our sales representatives are trained to educate not only your staff, but engineers, purchasing agents, storeroom personnel and other plant employees. To schedule a training program contact electricalservices.nby@mersen.com.

TO LEARN MORE ABOUT FUSE CONTROL, CONTACT US AT:

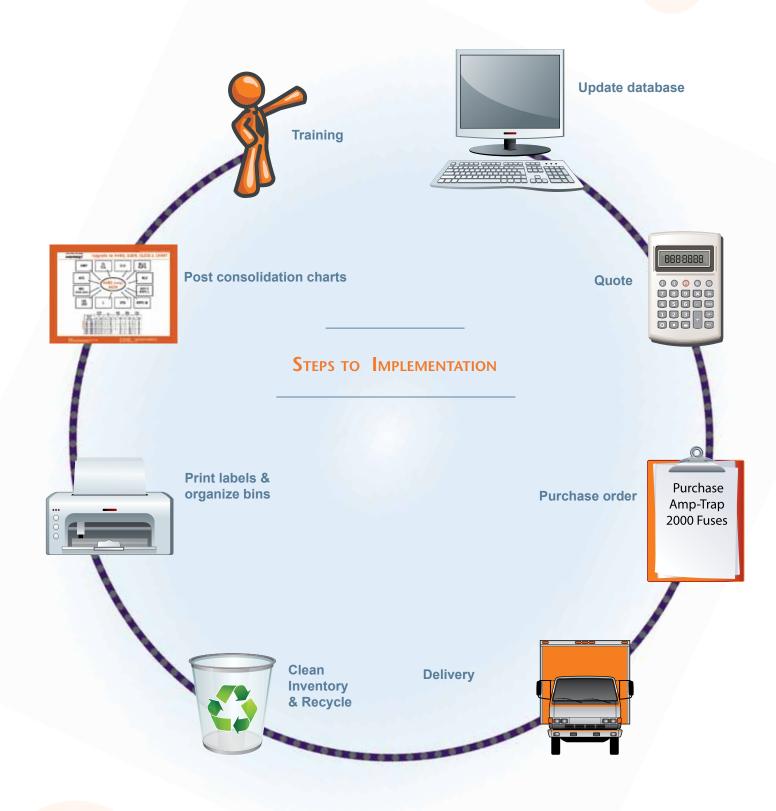
Phone: 978-462-6662

Email: info.nby@mersen.com

Web: ep-us.mersen.com/solutions/fusecontrol.cfm

A SNAPSHOT OF THE IMPLEMENTATION PHASE

The implementation phase is comprised of the seven steps below, starting with "updating your database" and ending with "training" your workers. Each of these steps flow seamlessly from one to the other. Your Mersen sales representative will work closely with you through each step and provide valuable sales and technical support.



CASE STUDIES:

MILLERCOORS DISCOVERS THE POWER OF THE MERSEN'S FUSE CONTROL[™] PROGRAM

MillerCoors is the second largest American style beer maker in the country and an industry leader in brewing and bottling malt beverages. When Nick Zingaro, Electrical Team Leader for MillerCoors, teamed up with Mark Wonderlic, a Mersen Sales Representative, he quickly learned the benefits of the Fuse Control program. Within three months, MillerCoors cut their operation costs and reduced excess inventory by 40% by utilizing Fuse Control and upgrading to Amp-Trap 2000® fuses.

Teaming up for Fuse Control with Mersen was a win-win for MillerCoors of Albany, Georgia. MillerCoors had been actively taking steps toward improving their electrical infrastructure and safety levels and Mersen delivered them a solution that was easy, inexpensive and risk-free. By streamlining their fuse inventory and upgrading to Amp-Trap 2000 fuses, MillerCoors took a giant step forward to providing the safest work environment possible for its employees, a requirement now mandated by OSHA and NFPA regulations.

"The on-site training and cross reference material has also been a big help," said Nick, Electrical Team Leader for MillerCoors.

Amp-Trap 2000 fuses are available in four fuse class families, Class RK1, J, CC and L, and provide the highest degree of arc flash mitigation available on the market today. Amp-Trap 2000 fuses reduce arc energies created by electrical faults as well as arc flash incidents while being dimensionally interchangeable with most fuse products on the market. "These fuses have put us a step ahead of the arc flash curve," said Nick.

"The fuse bins are so much more organized. It makes it very easy to find what we need," adds Nick. "This new set-up has also made it much easier to manage my guys. I have 40 maintenance personnel that work for me. Since making this change I have had zero complaints."

Not only did Fuse Control streamline inventory, but Mersen cleaned the storeroom bins, disposed of dead inventory and re-labeled the new bins leaving a clean and organized look. Cross reference charts and counter mats were also provided to MillerCoors. Fuse Control also contributed to a reduction in operating costs.

"It saved us money and time. With the reduced inventory, I have less part numbers to worry about," said Angela Culliton, Brewing Planner for MillerCoors. "Since implementing this system we have not had any stock-out issues or shortages."

In the end, MillerCoors was able to eliminate 44 of the original 117 fuse bins. All while increasing safety, lowering operating costs and reducing facility downtime. It's easy; just let the fuses do the work.

MAIOR CHICAGO-BASED HOSPITAL SAVES LIVES WITH FUSE CONTROL

A 613-bed, Chicago, Illinois medical center underwent monumental enhancements to its electrical safety and reliability by participating in Mersen's Fuse Control program. Known as one of "America's Best Hospitals" according to U.S. News & World Reports, the medical center realized that their electrical infrastructure is critical and was eager to make improvements. By participating in Fuse Control the medical center not only gained the benefits of the high performance Amp-Trap 2000 fuse family but was also able to eliminate an astronomical 73 fuse bins from their storage room, which calculated out to be a 67% reduction!

Standard benefits such as Type 2 Protection and Selective Coordination, which are delivered by the Amp-Trap 2000 fuse line, are ideal for medical facilities that rely heavily on its electrical infrastructure. The hospital was able to experience these benefits without implementing major changes or retrofits to their electrical system. "This was a no-brainer for us because the fuses are the exact fit and function of what we had installed, but just safer," said the head maintenance electrician at the medical center.

Fuse Control allows the medical center to focus on its patient care mission with the assurance that it is providing the safest method of circuit protection to both the equipment and the personnel in or around the equipment.



Turkey Hill Dairy - Food **Processing**

"I never knew it could be this easy. I was able to reduce inventory, improve safety and reduce costs and I barely lifted a finger." - Dennis Rapp, Turkey Hill Dairy

- Bins Eliminated -42 of 128
- Estimated Annual Dollars Saved - \$9.240

Snap-tite, Inc. - Fluid Components

"I didn't realize how much excess inventory I had. After I made the switch my storeroom was cut in half." - Jay Ciecierski, Snap-tite

- Bins Eliminated 72 of 158
- **Estimated Annual Dollars** Saved - \$15.840

Accuride Corporation – Automotive (Trucking)

"The industry is very competitive. We were able to cut costs and shed excess inventory by using Mersen." - Rich Moore, Accuride

- Bins Eliminated 19 of 97
- **Estimated Annual Dollars** Saved - \$4.180

BrucePac - Food **Processing**

"We have been very satisfied with the results. It was one of the best moves we have made." - Sandra Neal, **BrucePac**

- Bins Eliminated 30 of 62
- **Estimated Annual Dollars** Saved - \$6,600



To learn more about Fuse Control™, contact us at:

Phone: 978-462-6662 Email: info.nby@mersen.com Web: ep-us.mersen.com/solutions/fusecontrol.cfm





A WORLD LEADER

in safety & reliability for electrical power

A GLOBAL PLAYER

Since its foundation in 1892,
MERSEN has built an international
reputation by creating subsidiaries
on all continents. Today with
industrial and commercial plants
scattered in more than 30
countries, agencies

and representatives in more than 70 countries and 250 commercial contacts throughout the world, MERSEN offers its customers everywhere reliable, high technology products and services backed by its expert technicians.

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