

GE Energy

# Arc Vault™

Arc Flash Protection System

Breathe easy.



imagination at work

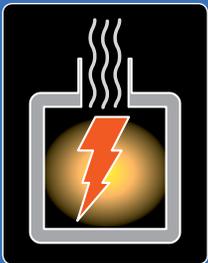


# Are You Really Protected Against an Arc Flash . . . Or Are You Just Betting It Will Never Happen?

It doesn't take much to unleash an arc flash— but the consequences can be devastating. A wrench slipping from a worker's hand can produce a disastrous explosion that can maim or kill employees, destroy equipment, and disrupt a facility for weeks.



The flash itself can generate temperatures of 35,000 degrees, capable of severely burning anyone within 10 feet. Beyond that, the explosive expansion of air and metal in the arc path produces pressures that can easily exceed hundreds or even thousands of pounds per square foot and send equipment and molten metal hurtling through the air at 700 miles per hour.



The main line of defense against arc flashes is to prevent them, but when flashes do occur, most electrical systems are ill prepared to contain them. That's because the traditional techniques used to handle flashes are rudimentary. Traditional arc-resistant switchgear is designed not to eliminate the flash, but to muffle it, exhausting its energy through a chimney or plenum. It provides no protection for equipment. Even worse, its effectiveness can be severely compromised if a cabinet door is open or a panel is off— as it is likely to be during routine maintenance.

# Stop Arc Flash in Its Tracks . . . With the Fastest Arc Flash Containment Technology Available

GE's innovative Arc Vault takes a different approach. It doesn't exhaust the arc flash; it extinguishes it. Arc Vault can stop an arcing fault in less than eight milliseconds, a fraction of the time that traditional systems need to stop a flash.



When it comes to arc flash protection, the faster a flash is eliminated, the less destructive energy it generates. Arc Vault cuts the energy released by the flash, reducing the potential for serious injury and minimizing stress on transformers, circuit breakers, and other equipment. In many cases, you'll be operational within a working day. And Arc Vault protects your people and your equipment whether the cabinet doors are open or closed.



A product of GE's Global Research organization, Arc Vault is typical of the kind of breakthrough products you've come to expect from GE. It is innovative, reflecting our industry leadership in arc flash protection, yet reliable. Over the last five years, we've subjected the Arc Vault to GE's rigorous development and testing process to make sure it performs under the most demanding conditions.

[geindustrial.com/arcvault](http://geindustrial.com/arcvault)



**See Arc Vault in action**  
Arc Vault's ability to control an arc flash in an equipment room is stunning. Arc Vault protection provides: w

# Manage the Fault, Not the Flash

Arc Vault gives you a choice. Rather than trying to manage the tremendous energy unleashed by an arc fault, you now can manage the fault itself, containing, isolating, and dissipating it in as little as 8 milliseconds.

Because it cuts off the energy at its source, Arc Vault is much more effective than traditional arc-resistant switchgear at minimizing the danger and controlling the damage of arc faults.

## GE Arc Vault provides these critical advantages:

- It helps reduce work-related injuries even when panel doors are open during routine maintenance.\*
- It decreases stress on equipment due to an arc flash, cutting downtime to as little as a single day.
- It reduces energy by 63% or more compared to a bolted fault that would occur with a crow bar system.
- It eliminates the need to install exhaust chimneys or plenums.
- It can be retrofitted on most existing low-voltage equipment.

\* Under normal conditions, the doors should remain closed.

## There's a Better Way to Protect Your Facility: Reduce the Hazard.

When you opt for traditional arc-resistance switchgear, you're conceding the possibility that an explosion will occur in your facility.

This means constructing equipment to contain the explosion, installing chimneys and plenums to exhaust heat and energy, and still requiring your maintenance staff to wear cumbersome PPE.

When you choose Arc Vault, you limit the incident energy released by an arc fault to 1.2 cal/cm<sup>2</sup>\*\* . You don't have to turn your equipment room into a bunker. And you'll have the peace of mind of knowing that Arc Vault will stop an arc fault before it becomes a destructive blast.

### Less Is More

Heavy HRC3 and HRC4 PPE can interfere with manual dexterity, leading to the kind of accidents that are linked to arc flashes. Reducing the hazard to 1.2 cal/cm<sup>2</sup> is the better solution.



arc fault that would otherwise destroy  
Witness the dramatic difference  
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# Maximizing Uptime to Maximize Protection

Thanks to straightforward testing procedures, you can be sure that your Arc Vault system is always ready for an emergency. In the event of an arc flash event, restoring Arc Vault to service means switching out just the containment device. Your low voltage switchgear can be operational again within a working day.



When activated, Arc Vault continuously monitors current and voltage to identify an arc flash.



When an arc flash occurs, the arc is diverted by creating a secondary arc fault, not a bolted fault as in crow bar systems.



At the same time, the system opens an upstream circuit breaker, eliminating the fault condition and de-energizing the system.

## Ready to Retrofit and Integrate

Arc Vault provides superior arc flash protection virtually anywhere there's low-voltage equipment. You can scale the suppression for such variables as the number of sources, and main-tie-main configurations.

And since you can retrofit most existing switchgear with Arc Vault, you protect your original investment along with your facility.

\*\* In accordance with IEEE 1584, at 18" from the arc event, in a 480V 65kAIC system.



## Out-of-the-Box Thinking

Traditional arc-protection systems leave too much to chance. If a panel door happens to be open, the force of the blast will be exhausted into the equipment room. At GE, we take a different approach. By actively managing the fault itself—

*We provide substantially better protection for workers and equipment.*

## Inside-the-Box Protection

By any measure, Arc Vault is the fastest arc flash containment technology in the industry. It can stop an arc fault in its tracks in just 8 milliseconds and reduces incident energy to less than 1.2 cal/cm<sup>2</sup>\*\*.

*Arc Vault limits incident energy to below the threshold that would cause a second-degree burn.*

## It's What You Expect from GE

Arc Vault sets the new standard for arc fault protection, but that's not the whole story. It also saves you money. By reducing downtime, decreasing switchgear damage, and the ability to be added as a retrofit, it enables you to maximize your return on your existing equipment.

*Arc Vault is another way GE uses technology to add value to your business.*



Find out more about Arc Vault  
[www.geindustrial.com/arcvault](http://www.geindustrial.com/arcvault)

Neither this brochure nor any of its contents are intended to be, and should not be considered to be, a replacement for proper safety training or a promise or guarantee of specific product performance. Please contact your GE Representative for a more thorough discussion of GE's offerings.

# GE Service and Support— an integral part of the Total Arc Vault Solution



## Five Steps to Arc Flash Prevention

GE combines Arc Vault product technology with experienced engineering services to provide our customers project-wide solutions to the safety and financial risks posed by arc flash energy.

1

### Arc Flash Study

GE field engineers will conduct a rigorous arc flash hazard analysis at your facility, using advanced data collection techniques and specially designed software. They can focus on the entire system or a specific subsection.

2

### Report and Recommendations

Based on their analysis, our field engineers will prepare a report detailing the incident energy potential of each piece of equipment during an arc flash, the exact PPE required for this environment, and the most effective configuration of Arc Vault equipment for your situation.

3

### Installation and Commissioning

Once you've reviewed and approved the recommendations, GE field engineers can install your Arc Vault system, modify existing equipment for retrofit, and test and validate the installation for start-up.

4

### Ongoing Support and Maintenance

With hundreds of field engineers operating from offices around the world, GE can develop a maintenance plan, perform routine service checks, and provide emergency support and service in the event of an arc flash.

5

### Training

GE offers on-site customer training sessions on the operation and maintenance of the Arc Vault system. In addition, GE offers safety-training courses that provide insight and understanding into the risks inherent to electrical equipment and systems.

#### GE Energy

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imagination at work

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