

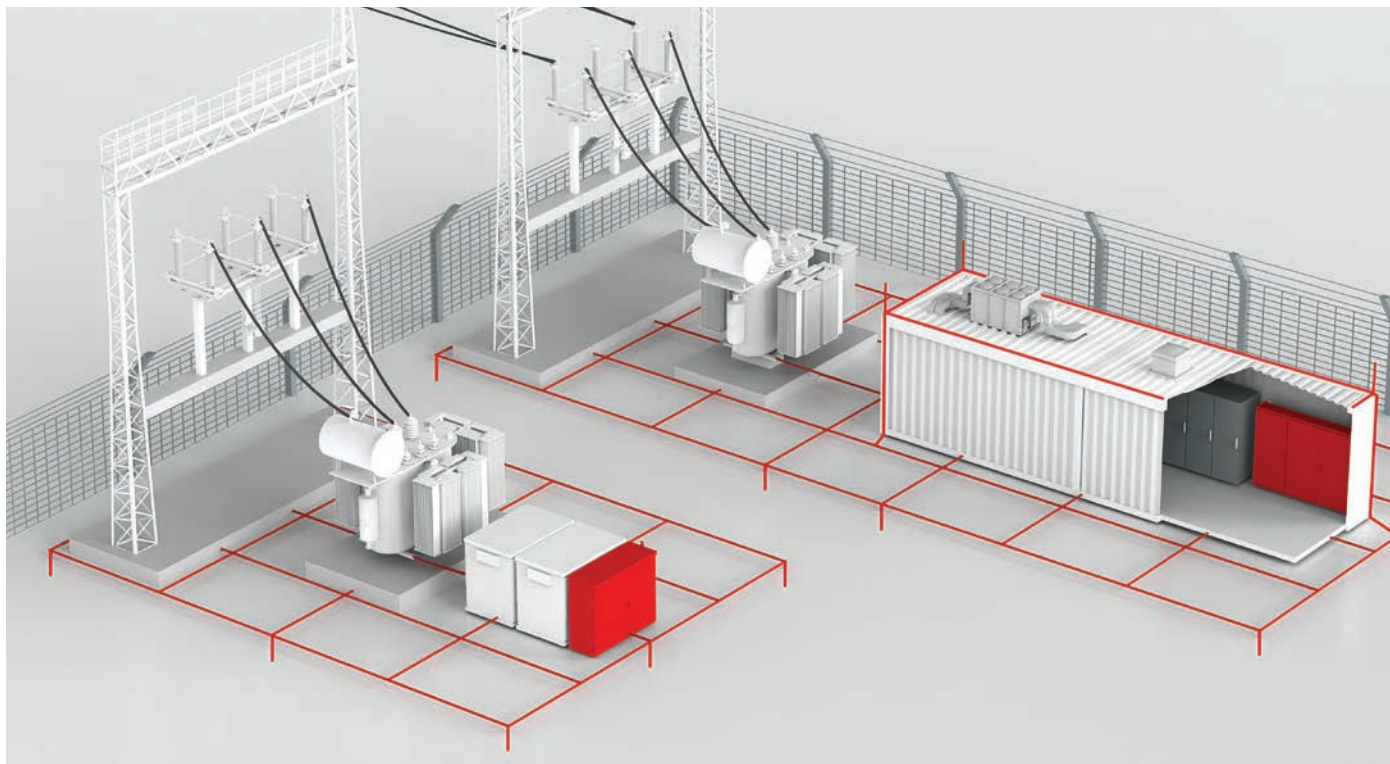


CONNECT AND PROTECT

nVent Electrical and Fastening Solutions for Energy Storage



How nVent Improves Energy Storage



nVent is the leading provider of power connection, grounding and bonding solutions for energy storage applications compliant with UL 9540 or the IEC 62933 series of standards.

Demand is increasing and transmission lines cannot support all generated electricity. That's why nVent EFS supports customers with more advantages including:

TRUSTED PARTNER IN ENERGY STORAGE



Safety and Reliability

nVent offers premium solutions, containing features that maximize performance and service life. These products meet key performance and safety standards throughout the world.



Lower Cost of Implementation

nVent products are designed as a custom, easy-to-shape solution for your labor saving challenges with features that reduce inefficiencies to save cost on material and skilled labor.



Design Flexibility

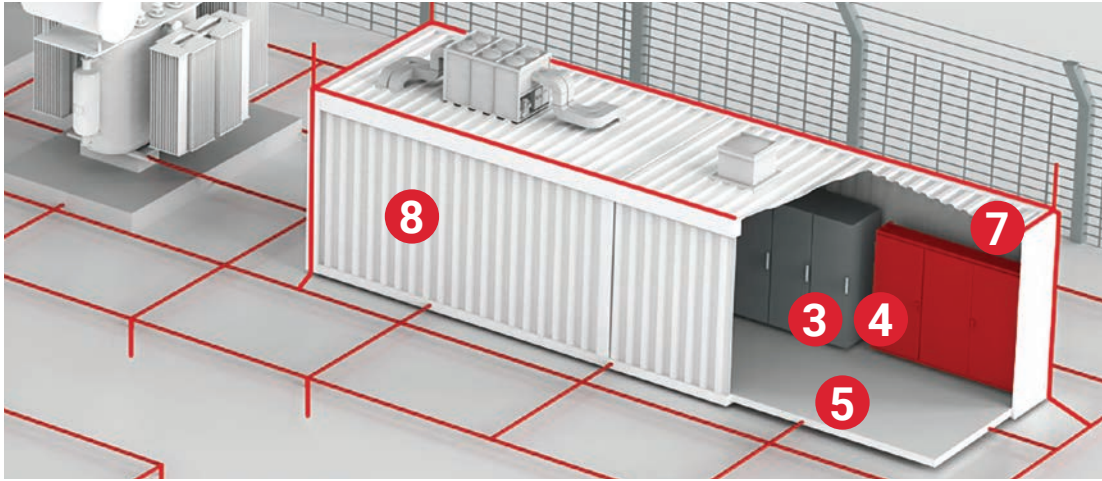
Space within an energy storage is critical. With nVent ERIFLEX solutions, you have flexibility to design more compact panels while fitting more core components into electrical panels.



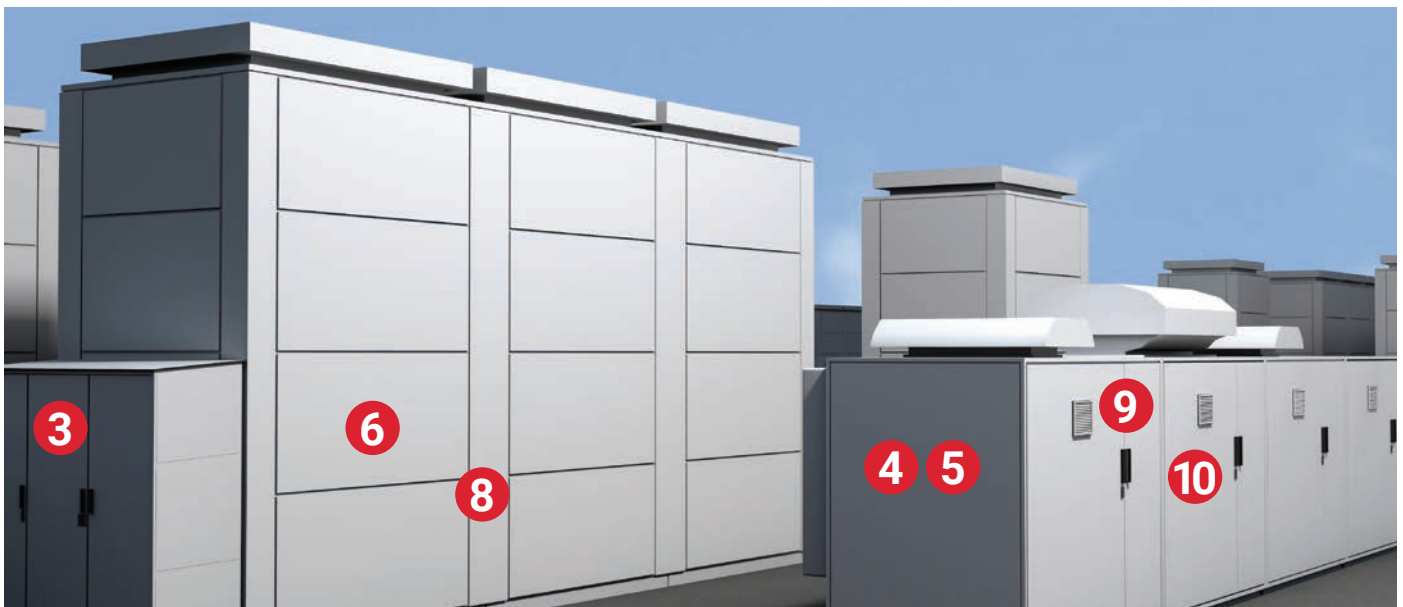
See more information and assets about nVent Energy Storage solutions at:
<https://www.nVent.com/en-us/ERIFLEX/energy-storage-and-battery-system-electrical-connections>.

Energy Storage System Arrangements

TYPICAL LAYOUT OF A BATTERY-BASED CONTAINERIZED/INDOOR ENERGY STORAGE SYSTEM



TYPICAL LAYOUT OF A BATTERY-BASED OUTDOOR/STANDALONE ENERGY STORAGE SYSTEM



Whether you are on the DC side or on the AC side of your energy storage system (up to 1000 VAC and 1500 VAC), a wide range of nVent solutions can be used in the following subsystems:

- 1 Battery to battery and battery to BPU with nVent ERIFLEX Flexible Conductors
- 2 Connections inside BPU/BMS using nVent ERIFLEX Flexible Conductors
- 3 Full range of nVent ERIFLEX products inside DC aggregator
- 4 Full range of nVent ERIFLEX products inside power conditioning system
- 5 Full range of nVent ERIFLEX products inside LV switchgear and transformer (LV side)
- 6 nVent ERIFLEX Flexbus System between LV switchgear and transformer (LV side)
- 7 Full range of nVent ERICO surge protection devices for power and data communication circuit
- 8 Full range of nVent ERICO grounding and bonding solutions for indoor and outdoor uses
- 9 Full range of nVent HOFFMAN cooling and thermal management products
- 10 Full range of nVent HOFFMAN non-metallic, stainless steel, and mild steel enclosures to protect critical components

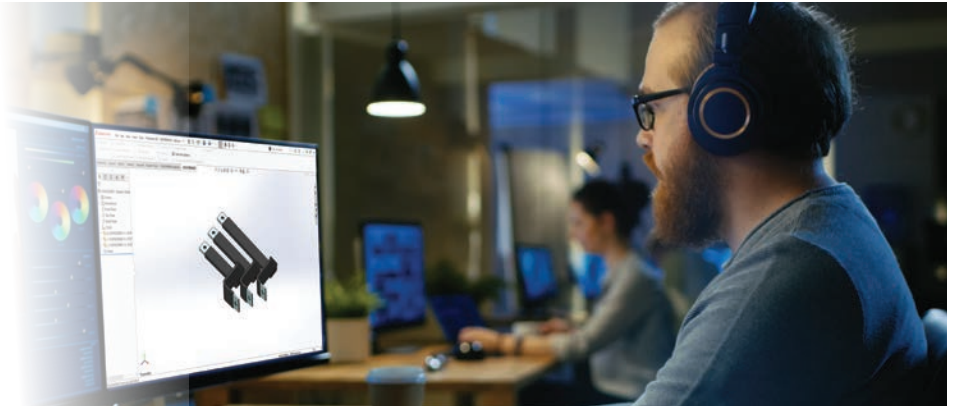
Electrical Connections Solutions for Energy Storage

Application



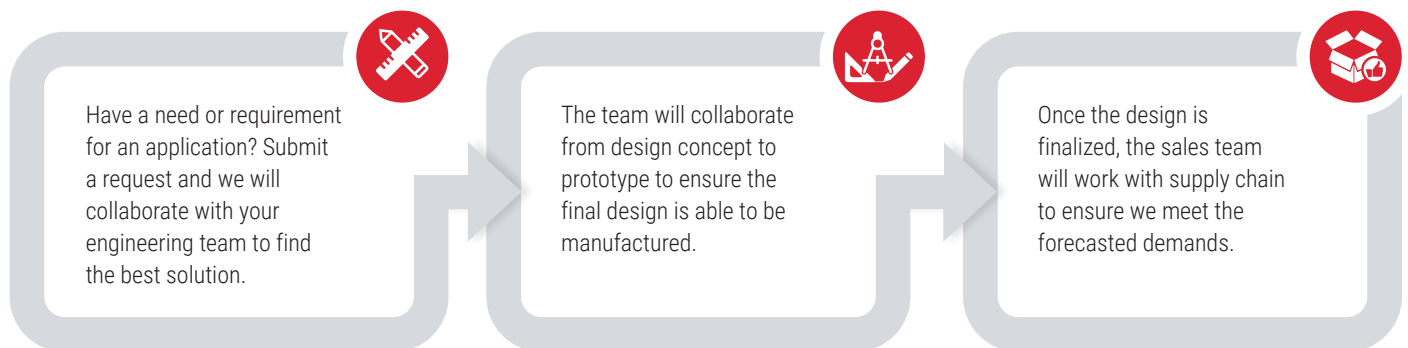
nVent ERIFLEX Customized and Engineered Solutions

nVent ERIFLEX offers the necessary products and engineering support needed to specify and build a complete range of solutions for energy, transportation, construction and applications where low voltage power storage and transmission are critical. Our engineering team brings years of experience and expertise to every project, and will be with you from start to finish to advise on:



DESIGN FLEXIBILITY, IDEATION AND PROTOTYPING

Work with the nVent team to build a customized, compact low voltage power distribution panel solution that is safe, reliable, enables design flexibility and lowers the cost of implementation.



SUPPORTING CUSTOMERS FROM DESIGN TO MANUFACTURING TO ONGOING MAINTENANCE

nVent ERIFLEX offers worldwide, high-volume manufacturing of these customized product solutions, with local warehouse stocking in your region. Not only will the team help with engineering and ordering, but will also remain on the project through installation and ongoing maintenance.

For upfront and ongoing training on nVent ERIFLEX, our team offers lunch and learns, engineering webinars and virtual presentations regarding nVent product offerings and benefits. In addition, our technical team can be on-site to perform application specific training.

nVent ERIFLEX Certifications

- nVent ERIFLEX Flexibar Advanced: IEC 61 439-1 and UL 67 / UL 758
- nVent ERIFLEX IBS/IBSB Advanced: IEC 61 439-1 and UL 67 / UL 758
- Full nVent ERIFLEX product range is compliant with RoHS and CE

nVent ERIFLEX Advanced Technology Certifications

- Halogen-free: IEC 60754-1 and/or UL 2885 standards
- Low smoke: UL 2885 and IEC 60754-2
- Flame retardant: IEC 60695-2-11 Glow Wire test 960°C and/or UL 94-V0
- UV resistance: UL 2556 and UL 854

Low Voltage Power Distribution and Grounding Connections



Space Savings



Time Savings



Safety and Reliability

We deliver low voltage power distribution solutions that reduce total installed cost and increase design flexibility. Our deep knowledge of global end-user applications provides you a wide range of safe and reliable products suited for practically any electrical system need.



Low-Voltage Power Connection System

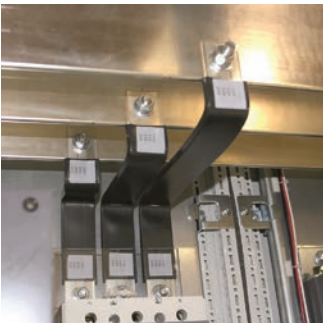
nVent ERIFLEX Flexbus System

The all-new nVent ERIFLEX Flexbus System provides a patented connection solution between two pieces of electrical equipment. This unique concept offers faster installation and reduces total installation cost without additional design study, a specialized workforce or expensive tools.

- Flexible insulated copper-plated, aluminum flat braid
- Better current/ampacity than cable due to skin effect
- More flexible than cable
- No bending radius to respect
- Ready-to-use from one side with direct connection on busbar or circuit breaker palm

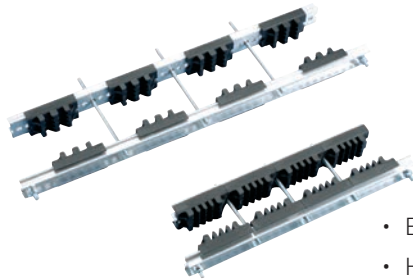
Please check availability of nVent ERIFLEX Flexbus in your region.

FLEXIBAR ADVANCED



- Available in standard sizes or made-to-order configurations
- Low smoke, halogen-free and flame retardant insulation
- Direct connection for easy installation
- Low profile, light weight and flexible
- High ampacity

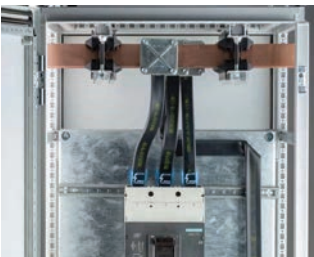
NVENT ERIFLEX LOW VOLTAGE INSULATORS



- Efficient performance
- High dielectric withstanding voltage
- Halogen-free

NVENT ERIFLEX POWER BRAIDS AND SHUNTS

nVent ERIFLEX IBSB Advanced



- Replaces conventional wire
- Low-smoke and halogen-free
- Integral palms for easy installation
- Complies with key standards

nVent ERIFLEX Power Shunt



- Ready-to-Use
- Customizable solid palms
- Flexible

NVENT ERIFLEX POWER AND DISTRIBUTION BLOCKS



- Primary DIN mounted output/input device for a range of applications
- Multiple connection types with up to four cables

NVENT EARTHING AND GROUND BARS



Grounding and Bonding Solutions – Protected from the Ground Up



Space Savings



Time Savings



Safety and Reliability

Grounding, equipotential bonding, surge protection and lightning protection are all interdependent disciplines. Reliable protection of property and personnel demands a systematic approach to minimizing threats caused by transients. nVent ERICO can help you design a comprehensive protection plan from the ground up.

NVENT ERICO GROUNDING AND BONDING

nVent ERICO offers a comprehensive product offering of grounding and bonding products that are reliable, easy to install and provide critical protection including:

- Ground Rods
- Ground Enhancement Material
- Grounding Connectors – Exothermic and Mechanical
- Theft-deterrent Grounding Solutions

nVent ERICO Ground Rods



- Manufactured straighter with a harder steel core, making installation easier
- Continuous electro-plating process over the steel core that results in a permanent molecular bond that provides decades of reliable performance

nVent ERICO GEM Ground Enhancement Material



- Low-resistance, non-corrosive, carbon-based superior conductive material that improves grounding effectiveness, especially in areas of poor conductivity
- Key in situations where ground rods can't be driven or where limited land area makes adequate grounding difficult with conventional methods

nVent ERICO Cadweld Exothermic Welding Systems



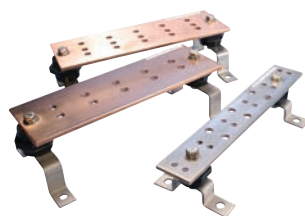
- Exothermically welded connections engineered to provide a permanent, molecular bond that will not loosen or corrode
- Has a current carrying capacity equal to or greater than that of the conductor and will withstand repeated fault currents without failing during operation

Theft-Deterrent Grounding Conductors



- Outer strands comprised of tinned copper bonded steel for corrosion resistance and theft deterrence
- Inner copper stranding is tinned for superior corrosion resistance

nVent ERICO Grounding Busbar



- Provides a convenient, single-point grounding and bonding location
- Conductors are welded to the bar using a Cadweld exothermic connection or are mechanically fastened by using lugs

nVent ERICO Hammerlock Ground Clamp



- Grounding connector connects the grounding conductor to the ground rod
- Machined from highly conductive copper, providing a low-resistance connection designed to withstand ground fault currents and lightning transients

Full Lightning Protection Systems and Surge Protective Devices



NVENT ERICO LIGHTNING PROTECTION

The comprehensive nVent ERICO Lightning Protection Solution product offering improves safety and provides critical protection while being reliable day in and out. All lightning protection products offer design flexibility to solve your challenges.

nVent ERICO System 1000 (ESE Standard System)



- Complies with NFC 17-102

nVent ERICO System 2000 (Conventional Protection)



- Easy to select and configure
- Complies with Key Standards: UL®96 and NFPA®780

nVent ERICO System 3000 (Collection Volume Method (CVM))



- Efficient air terminal placement in accordance with the Collection Volume Method (CVM)
- Advanced lightning protection system
- Cost-efficient

nVent ERICO ESE Air Terminal Remote Testing System for Use with System 1000



- Offers on-demand insight to the status and performance of your air terminal system
- No additional costly software, hardware, monitoring or interface systems required
- Fully hands-off, autonomous monitoring
- Solar-powered for sustainability
- Easily identifiable color-coded LED alerts, visible up to 50 meters away
- Remote capability for ensuring operation and complete protection at any time



NVENT ERICO SURGE PROTECTIVE DEVICES

Surge protection devices for power distribution, discrete signals (inputs and outputs) and communication (data and RF) equipment that offers:

- Efficient, compact design
- Reliable performance
- Critical protection
- Key standard compliance

nVent ERICO Power Protection



The first stage of defense is the installation of primary protection devices at the main supply service entrance, followed by secondary protection at distribution branch panels and at point-of-use applications.

nVent ERICO Specialized Power Protection



Some applications require more specialized SPDs to reduce noise, resolve harmonic distortion and provide maximum protection in the most extreme environments.

nVent ERICO Data and Signal Surge Protection



Lightning or induced surges can destroy or compromise signal communication systems and data. Data and signal surge protection devices are designed to provide transient protection for equipment from induced surges in a compact design.

nVent ERICO LPSD 4.0 Design Solution Lightning Protection System Design (LPSD) 4.0 software includes



- Increased velocity and reduced design lead-time
- Conventional and active system design capability
- Complete submittal package, including drawings, BOM, component cut sheets and risk assessment
- Capable of accepting and returning 3D project models in AutoDesk Revit and SketchUp compatible formats

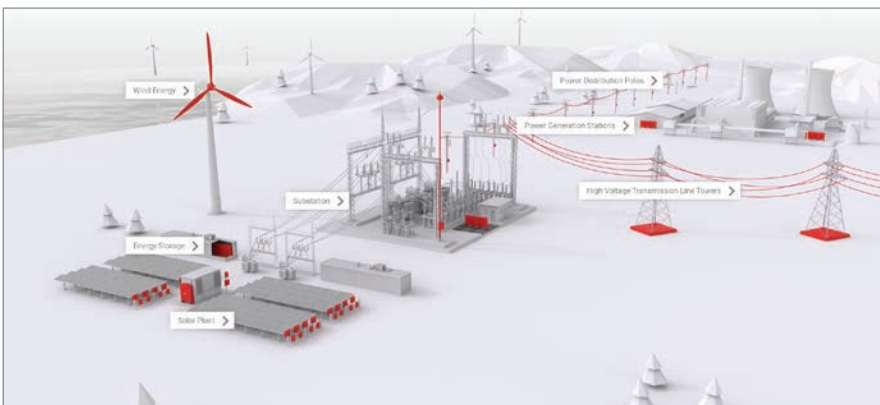
Learning Tools and Resources



RESOURCES

Find more resources for understanding energy storage electrical and fastening requirements at [nVent.com](https://www.nVent.com). There are many tools to assist you including:

- **Free Webinars** to help your teams learn about the latest technology, industry trends and best practices to increase productivity. Topics include Energy Storage, Power Distribution, Surge Protection, Global Standards and more.
- **nVent Training Center** virtual access allowing your teams to learn the complete nVent brand portfolio at their convenience including ERICO and ERIFLEX products.

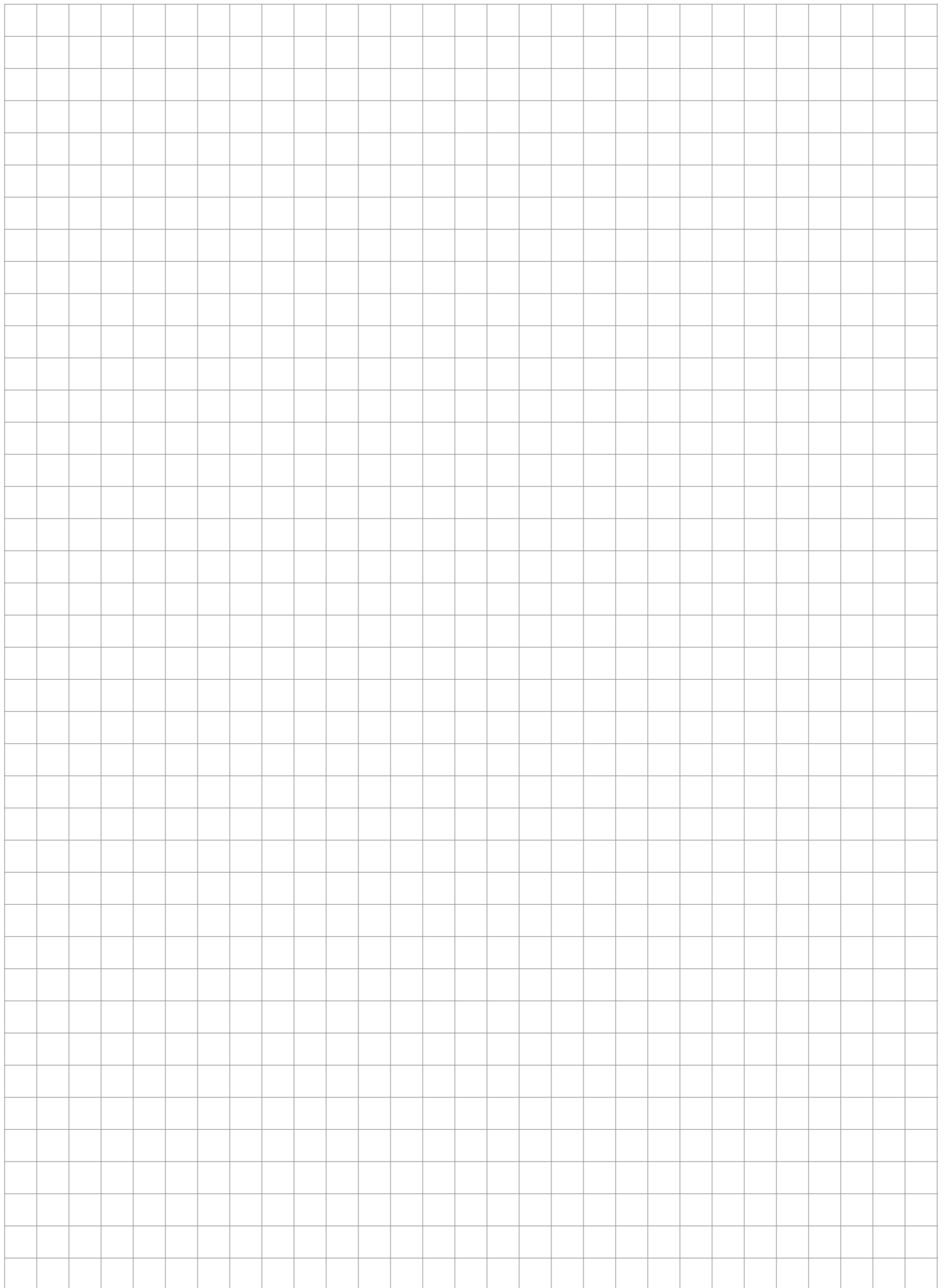


Interactive Application Maps allowing you to drill down into detailed nVent products and solutions for energy storage installations.

With a focus on commercial and utility energy storage, nVent EFS connects and protects critical infrastructure. We're ready to work with you!



Visit
<https://www.nVent.com/en-us/eriflex/energy-storage-and-battery-system-electrical-connections> to get started.



Our powerful portfolio of brands:

CADDY ERICO HOFFMAN RAYCHEM SCHROFF TRACER



nVent.com