



**CONNECT AND PROTECT**

# Industrial Fire-rated Wiring Systems

  
nvent

**PYROTENAX**



## INDUSTRIAL SOLUTIONS

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As the world's largest provider of complete electrical heat management and fire-rated and specialty wiring systems, primarily for the general process, oil and gas, chemical, and power generation industries, nVent Thermal Management provides innovative products and turnkey solutions under market-leading brands—nVent RAYCHEM, PYROTENAX, and TRACER. Our premiere turnkey solutions include full life cycle support—ranging from front-end engineering and installation to maintenance and operation services. Our global experience and office presence in 50 countries uniquely position us to manage the heat needed for projects of any size and scope.

## THE HEART OF OUR SOLUTIONS

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The nVent PYROTENAX brand mineral insulated wiring cables have led the industry for more than 75 years. Able to withstand extreme, harsh environments, nVent PYROTENAX wiring cables provide the most reliable solution for high-temperature applications.

Loss of capital equipment and production time has prompted the development of equipment designed to withstand the destructive forces of a fire. When exposed to fire risk areas, electrical wiring is in jeopardy of failure. To ensure electrical power is available for critical circuit survival when it is needed, nVent PYROTENAX brand Fire-Rated Industrial Wiring is the solution.

Other specialty wiring applications for the nVent PYROTENAX brand include wiring for equipment in continuous high-heat environments as well as in classified area applications where preventing the flow of hazardous gases through the wiring system is required.

Proven products, wide application experience, and broad technical expertise make nVent PYROTENAX mineral insulated wiring cables an excellent choice for fire-rated, high temperature and hazardous location wiring.



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**PYROTENAX**

## FIRE-RATED SYSTEMS

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Industrial facilities often contain volatile hydrocarbons or other hazardous materials that can cause extreme fire conditions resulting in an emergency situation. nVent Thermal Management nVent PYROTENAX fire-rated cables allow operation of critical circuits for an extended period of time as compared to conventional cables when engulfed in extreme fire environments.

## SPECIALTY WIRING SYSTEMS

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nVent PYROTENAX mineral insulated cable technology for special applications includes wiring that can be used in everyday high heat environments, preventing regular costly failure and replacement of conventional wire that is not designed for a high heat environment. Additionally, due to its highly compacted magnesium oxide construction, nVent PYROTENAX cable can be used to prevent the flow of hazardous gases through the wiring system, preventing dangerous potential explosions from upstream ignition sources. .



Petrochemical



Power

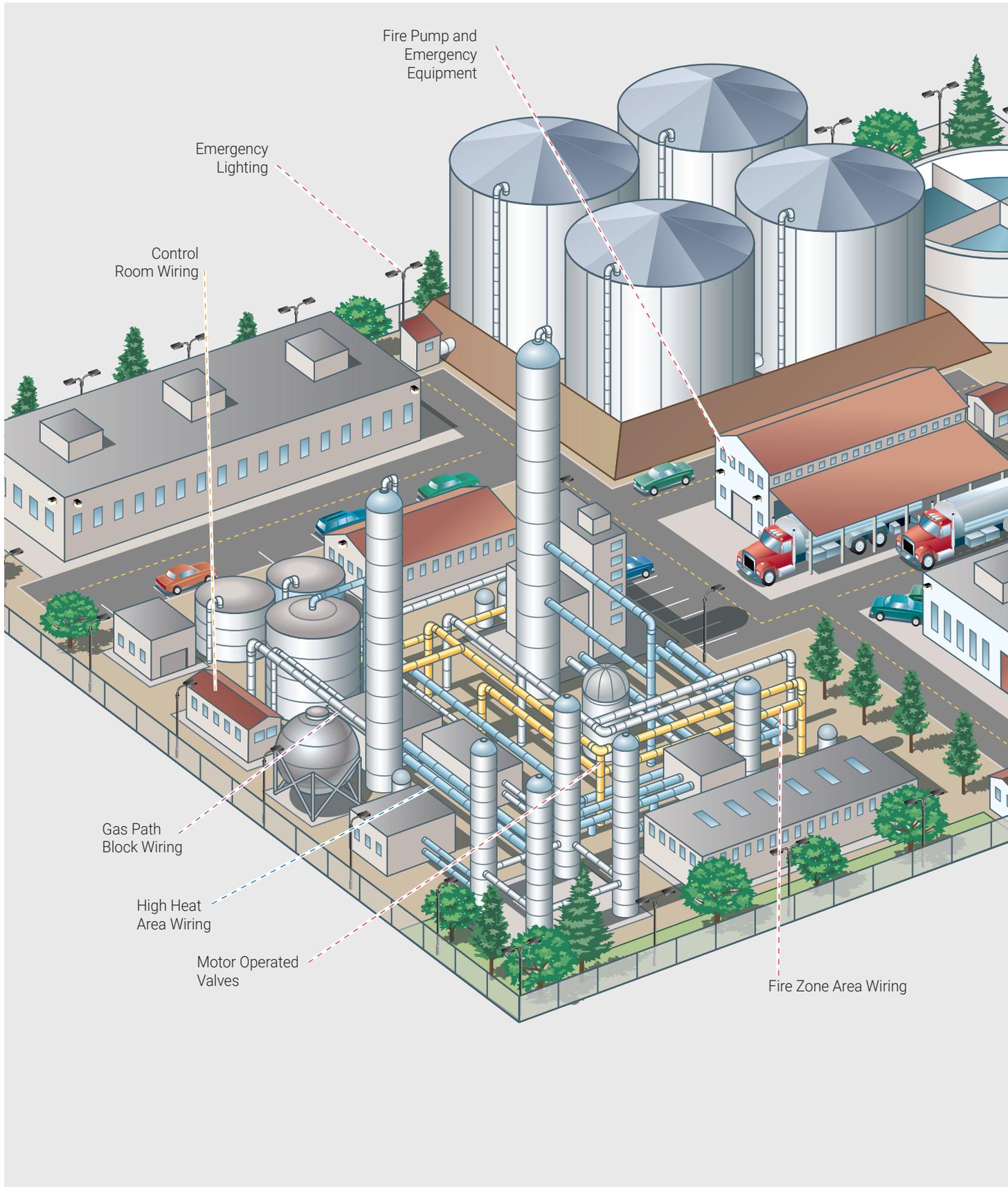


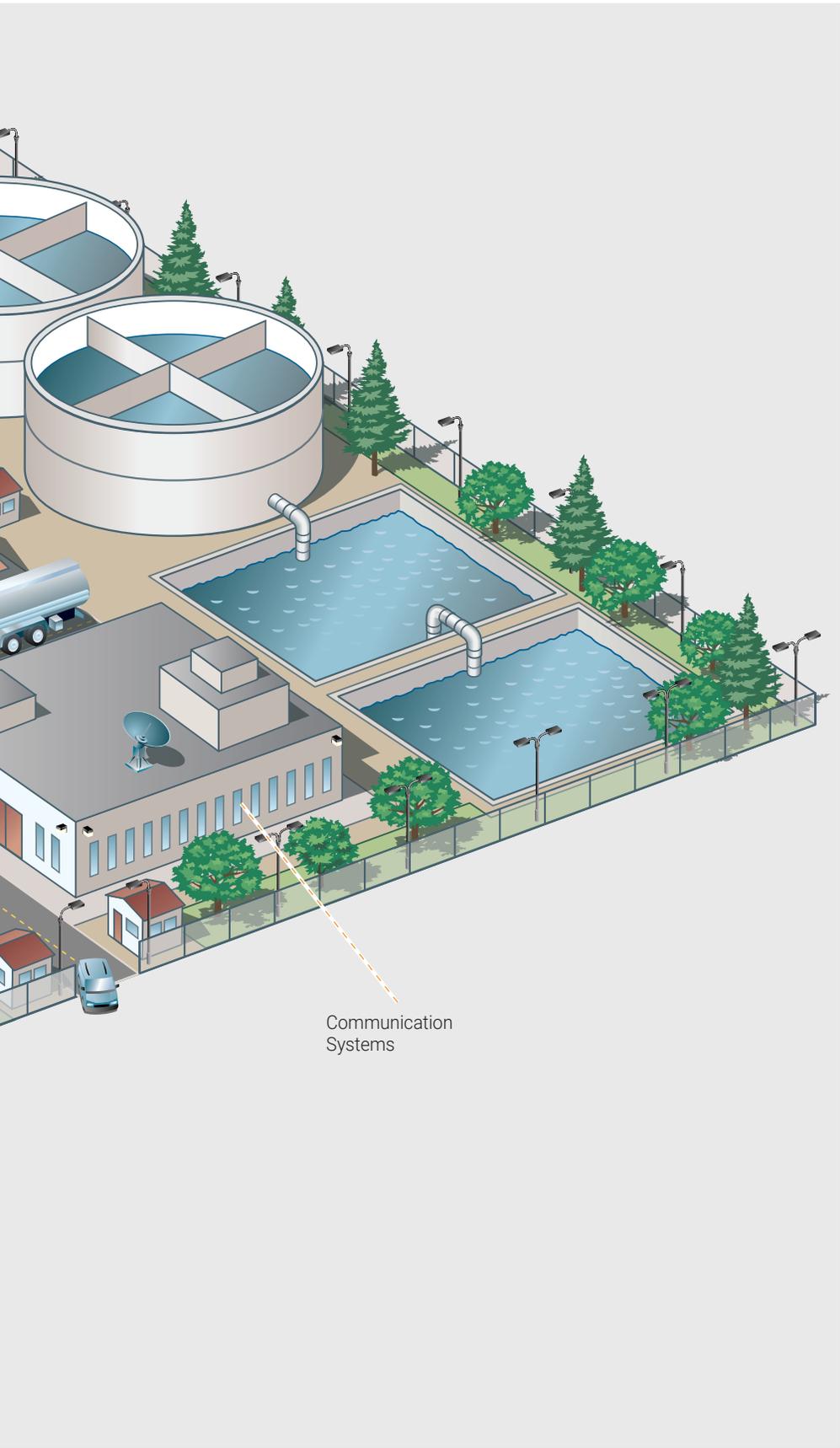
Pulp and Paper



Mines and Manufacturing

# Applications





Communication  
Systems



## TYPICAL WIRING SYSTEMS IN AN INDUSTRIAL FACILITY

### Fire-Rated Cables

Power/Control Cables █

Instrumentation Cables █

For all critical equipment circuits including: motor operated valves, fire pumps, fire alarms, communication systems, emergency lighting and emergency power.

### Gas Path Block Cables █

For preventing the migration of hazardous gases through the wiring system to areas where ignition sources can cause explosions including: control room wiring and wiring that crosses division classification boundaries.

### High Heat Cables █

For wiring runs to equipment operating in continuous everyday high heat environments including: furnaces, boilers and flare stacks

# Industries



## **PETROCHEMICAL**

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The ravages of small fires can rapidly escalate into catastrophic proportions when a refinery shutdown system does not function properly. Conventional wiring can fail in a hydrocarbon fire before critical circuits or emergency actions are taken. To ensure the integrity of power and control wiring to emergency block valves and emergency equipment during a fire, choose nVent PYROTENAX MI wiring cables.

## **POWER**

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Continuous high temperature environments accelerate the aging of conventional wiring systems over time, resulting in brittle insulation and premature failure. nVent PYROTENAX MI wiring cables are constructed with inorganic, inert materials for greater system integrity.





## **PULP AND PAPER**

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The presence of corrosive environments during routine operation or in an upset condition requires additional measures of equipment protection. Independent laboratory reports demonstrate that Alloy 825 provides superior corrosion resistance compared to most of the common stainless steels and resists stress corrosion cracking in both chloride and alkaline environments.



## **MINES AND MANUFACTURING**

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The presence of gases or fumes in hazardous environments requires a system to block the passage of explosive vapors. For example, the compressed MgO insulation in nVent PYROTENAX wiring cables stops the passage of helium gas at 2000 psi. Factory fabricated nVent PYROTENAX MI wiring units do not require gas path seals, have a smaller profile than wire and conduit methods and are a cost-effective method to block the passage of explosive vapors.





## **NVENT PYROTENAX SYSTEM 1850**

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A mineral insulated, copper sheathed cable with solid copper conductors that allows continuous exposure to temperatures up to 482°F (250°C) and can withstand temperature excursions to 1850°F (1010°C) meeting the UL 2196 standard 2-hour fire rating.

## **NVENT PYROTENAX SYSTEM 2000**

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A mineral insulated, Alloy 825 sheathed cable with nickel clad copper conductors that allows continuous exposure to temperatures up to 1238°F (670°C) and can withstand rapid-rise temperature excursions to 2000°F (1093°C) for up to 30 minutes using stringent industrial fire test procedures. The sheath provides durability in areas where corrosives may be present and the nickel-clad copper conductors permit higher current ratings compared with nickel conductors.

## **NVENT PYROTENAX SYSTEM 2200**

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A mineral insulated, Alloy 825 sheathed cable with solid nickel conductors that allows continuous exposure to temperatures up to 1238°F (670°C) and can withstand rapid-rise temperature excursions to 2200°F (1200°C). Using stringent industry standard electrical test procedures, System 2200 can maintain electrical circuit integrity for up to 2 hours of exposure to an intense hydrocarbon fire.



# Wiring Technologies



## PYROTENAX

### MINERAL INSULATED TECHNOLOGY

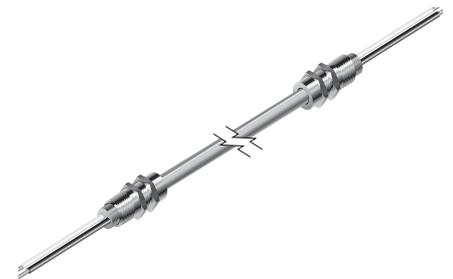
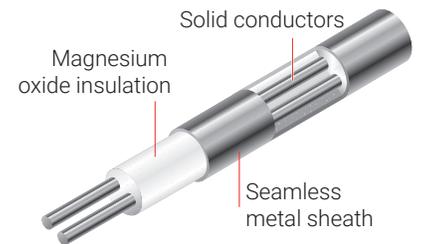
Using only inorganic materials, nVent PYROTENAX Mineral Insulated (MI) wiring cable offers a unique combination of dependability, versatility, and performance. Highly compacted magnesium oxide insulation provides exceptional temperature and electrical performance. Manufactured using a process unique to the nVent PYROTENAX brand, this product has set the standard for fire-rated electrical cables worldwide.

nVent PYROTENAX mineral insulated cable is manufactured from an Alloy 825 or copper sheath, magnesium oxide insulation and either nickel, nickel clad copper or copper conductors.

The result is a tough, durable wiring cable that has been proven to last, even in the most severe environments.

nVent PYROTENAX mineral insulated cable is listed in the NEC/CEC as "Type MI" and is available in 1, 2, 3, 4, 5, 7, 8 and 10 conductor configurations in a range of sizes between 16 and 500 kcmil.

nVent PYROTENAX mineral insulated wiring cable offers unique fire survival properties as well as the ability to survive in continuous high heat environments often found in industrial facilities. Additionally, the highly compacted magnesium oxide insulation layer offers the unique ability to prevent the flow of hazardous gases through the electrical system.



# Reasons to Choose nVent Thermal Management Wiring Systems

FEATURES	System 1850	System 1850 Twisted Pair	System 2000	System 2200
Pressure, mechanical shock resistant	✓	✓	✓	✓
Non-aging, inert materials, corrosion resistant	✓	✓	✓	✓
Zero smoke, zero flame, zero gas	✓	✓	✓	✓
Suitable for confined space/tunnel	✓	✓	✓	✓
No conduit required	✓	✓	✓	✓
Waterproof, submersible	✓	✓	✓	✓
Gas path block	✓	✓	✓	✓
Continuous 482°F (250°C) applications	✓	✓	✓	✓
Continuous 1238°F (670°C) high temp applications			✓	✓
Exposure to 1850°F (1010°C) (UL 2196 fire test)	✓	✓	✓	✓
Exposure to 2000°F (1093°C) fire rating (UL 1709 fire test)			✓	✓
Exposure to 2200°F (1200°C) fire rating				✓
Reduce crosstalk and electromagnetic interference		✓		

## FIRE RATED

It is critical that key pieces of equipment continue to operate during an industrial emergency such as a hydrocarbon fire. nVent PYROTENAX cables have industry leading fire survival times and are the best choice for ensuring control during an industrial emergency.

## SPECIAL APPLICATIONS

The highly compacted magnesium oxide construction of nVent PYROTENAX cable makes it an excellent choice for high heat and gas path block applications.

## EASE OF INSTALLATION

nVent PYROTENAX wiring cables are typically supplied as factory-assembled units complete with terminations at each end, allowing for immediate installation in the field.

## PRODUCT TESTING

nVent PYROTENAX cables are tested to the most stringent and latest industry fire test standards ensuring reliable performance.





# Services & Support

## FIELD AND TECHNICAL SUPPORT

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With years of experience, nVent Thermal Management field service engineers are highly qualified to offer field support, advice, and training at all stages of a project. Backed by expert factory engineering support, the service is available worldwide.

## EXPERTISE ON CRITICAL EQUIPMENT CIRCUITS

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nVent Thermal Management has been at the forefront in the development of critical equipment wiring systems for many years. Our engineering expertise is frequently called upon to consult on critical applications, create technical product standards and to revise national and local codes. Our specialists can help you with your specification needs as well.

## UNIQUE SOLUTIONS

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The construction of nVent PYROTENAX MI wiring cable lends itself to a variety of applications that would be difficult or impossible to solve otherwise. Examples include using the MI cable in nuclear applications, as well as using hollow conductors to allow circulation of coolant to limit temperature rise at high current densities in particle accelerator applications.

### ISO 9001 Certification

nVent Thermal Management maintains an ISO 9001:2015 registered Quality Management System at all cable-manufacturing facilities. The Quality Management System covers all manufacturing and business processes.

### Six Sigma

Understanding and satisfying the needs of our customers is important to nVent Thermal Management. We have a customer-focused, data-driven Six Sigma program to continuously improve the quality and delivery of our products, services, and business processes.

### On Time Delivery

nVent Thermal Management consistently meets customer demands for product delivery. We strive to ship product from stock on the day the order is placed and for 100% on time delivery of all custom manufactured products.



SAI GLOBAL  
ISO 9001  
Quality



# Proven Fire-Rated Solutions

## [VISIT NVENT.COM/PYROTENAX](http://nVent.com/PYROTENAX)

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Our website provides all the latest tools and information you need to design, select, and purchase a complete fire-rated system. Visit our web site to download, print, browse product information, or submit a question.

## **BEFORE YOU BUY, WEIGH THE FACTS**

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### **Greater selection**

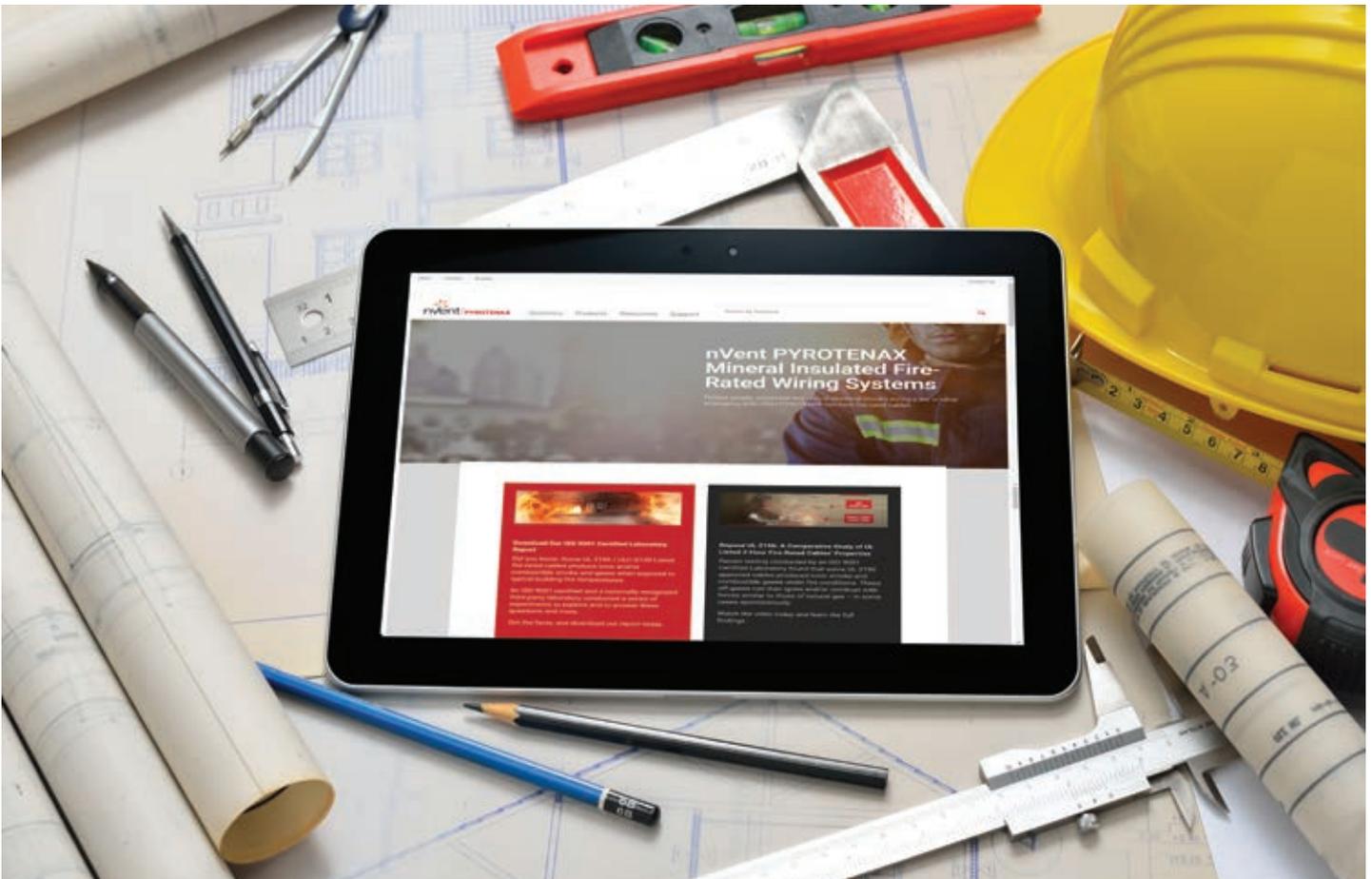
Offering the most complete product line of proven fire-rated wiring technologies to better satisfy your unique needs.

### **More innovation**

As a world leader in fire-rated wiring technologies, design optimization and construction, we invented many of today's industry standards.

### **More manufacturing experience**

Quality-driven manufacturing processes, combined with years of manufacturing self-regulating and mineral-insulated cables gives you products proven to be the most reliable.



We have the capabilities to make the difference in any project, from increasing safety and performance while lowering total installed costs.

We are where you need us, with more than 9000 employees and partnerships with leading wholesalers, we service the globe. We travel the globe to support our customers in their most exigent projects, providing design and installation support where needed.

**500+**  
Patents

**8,800+**  
Global  
workforce

**One nVent**



Positioned to serve  
fast-growing  
economies



Global  
customers



Local capabilities, and  
localized solutions

**130+**  
Manufacturing,  
service, sales and  
distribution centers

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Our powerful portfolio of brands:

**CADDY**

**ERICO**

**HOFFMAN**

**RAYCHEM**

**SCHROFF**

**TRACER**



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