INDUSTRIAL FIRE-RATED WIRING SYSTEMS
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, Pentair Thermal Management provides innovative products and turnkey solutions under market-leading brands—Raychem, Pyrotenax, DigiTrace, 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 48 countries uniquely position us to manage the heat needed for projects of any size and scope.

The Pyrotenax brand mineral insulated wiring cables have led the industry for more than 75 years. Able to withstand extreme, harsh environments, 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, Pyrotenax brand Fire-Rated Industrial Wiring is the solution.

Other specialty wiring applications for the 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 Pyrotenax mineral insulated wiring cables an excellent choice for fire-rated, high temperature and hazardous location wiring.
FIRE-RATED SYSTEMS

Industrial facilities often contain volatile hydrocarbons or other hazardous materials that can cause extreme fire conditions resulting in an emergency situation. Pentair Thermal Management 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

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, Pyrotenax cable can be used to prevent the flow of hazardous gases through the wiring system, preventing dangerous potential explosions from upstream ignition sources.
APPLICATIONS

- Fire Pump and Emergency Equipment
- Emergency Lighting
- Control Room Wiring
- Gas Path Block Wiring
- High Heat Area Wiring
- Motor Operated Valves
- Fire Zone Area Wiring
**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.
PETROCHEMICAL

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 Pyrotenax MI wiring cables.

POWER

Continuous high temperature environments accelerate the aging of conventional wiring systems over time, resulting in brittle insulation and premature failure. Pyrotenax MI wiring cables are constructed with inorganic, inert materials for greater system integrity.
PULP AND PAPER
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
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 Pyrotenax wiring cables stops the passage of helium gas at 2000 psi. Factory fabricated 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.
Pyrotenax fire-rated mineral insulated (MI) wiring cables facilitate the controlled shutdown of critical processes and systems in the event of a hydrocarbon flash fire in both nonhazardous and hazardous locations. Pyrotenax MI cables are made of inorganic materials and provide zero smoke generation, zero fuel contribution, and zero flame spread. These fire-rated cables are able to withstand the destructive forces of extreme hydrocarbon fires, providing extended operational control of critical emergency electrical circuits.
**PYROTECNAX SYSTEM 1850**

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.

**PYROTECNAX SYSTEM 2000**

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.

**PYROTECNAX SYSTEM 2200**

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.
MINERAL INSULATED TECHNOLOGY

Using only inorganic materials, 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 Pyrotenax brand, this product has set the standard for fire-rated electrical cables worldwide.

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.

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.

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 PENTAIR THERMAL MANAGEMENT WIRING SYSTEMS

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

It is critical that key pieces of equipment continue to operate during an industrial emergency such as a hydrocarbon fire. 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 Pyrotenax cable makes it an excellent choice for high heat and gas path block applications.

EASE OF INSTALLATION

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

Pyrotenax cables are tested to the most stringent and latest industry fire test standards ensuring reliable performance.
SERVICES & SUPPORT

FIELD AND TECHNICAL SUPPORT

With years of experience, Pentair 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

Pentair 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

The construction of 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 sheath and a compensator to eliminate magnetic fields around the MI cables, 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


Six Sigma

Understanding and satisfying the needs of our customers is important to Pentair 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

Pentair 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.
Pentair Thermal Management is a world leader in heat-tracing, fire-rated and specialty wiring and sensing solutions for the oil & gas, power, food & beverage, chemical, water and other process industries, as well as for the commercial and residential construction markets. Visit our web site to download, print, browse product information, or submit a question.

On our interactive frequently asked questions and answers (FAQ) page, you’ll find questions broken down by markets and product lines. If your question does not appear, simply submit a new question. A Pentair Thermal Management technical expert will answer your question and post it to the web site.
BEFORE YOU BUY, WEIGH THE FACTS:

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.

FOR PROVEN FIRE-RATED SOLUTIONS, LOOK TO THE LEADER.
Visit our web site at www.pentairthermal.com or contact us at 1-800-545-6258.

PENTAIR THERMAL MANAGEMENT NORTH AND SOUTH AMERICAN OPERATIONS