Tyco Thermal Controls, a part of Tyco International, provides complete heat-tracing, heat management, and specialized wiring solutions to the industrial, commercial and residential markets. Employing thousands of people around the world, Tyco Thermal Controls is the global heating solutions leader.

Worldwide Approach
With decades of heating experience, operations in 48 countries and a global presence, Tyco Thermal Controls can support your project efforts anywhere, any time. Whether its specialized products or turnkey construction services, Tyco Thermal Controls provides the solution.

The Raychem® Brand
From its beginning as an innovative material science company that developed the process for making self-regulating cable, Raychem grew into a brand recognized around the world for high quality polymer-based products including heating cables, heat-shrinkable tubing, high voltage seals, and many other electrical products.

The Pyrotenax® Brand
For over 50 years, Pyrotenax® brand mineral insulated products have satisfied the unique requirements of the wiring, heating, and temperature measurement industries. Proven products, wide application experience, and broad technical expertise make Tyco Thermal Controls Pyrotenax brand the logical choice.

Tyco Thermal Controls Wiring Systems
Pyrotenax and Raychem brand wiring systems offer a unique combination of both mineral and polymer insulated cables suitable for a variety of commercial applications. Rely on Tyco Thermal Controls wiring systems for the safe operation of critical emergency circuits essential for the safe evacuation of buildings and to continue firefighters’ efforts during an emergency. Other applications include the addition of electrical power due to the expansion or retrofitting of commercial buildings, and the elimination of the effects of electromagnetic interference (caused by high current feeders) on electronic equipment.
Tyco Thermal Controls wiring systems can be found in commercial applications worldwide.

Fire-Rated Systems
High-rise buildings, hospitals, airports, and tunnels are locations where fires can be costly and deadly if the emergency systems in place do not operate properly. Tyco Thermal Controls fire-rated cables will operate for at least 2 hours under fire conditions to allow for the continued operation of life safety equipment and the safe evacuation of the facility.

Service Entrance System
Historic and commercial building retrofits are typical applications where the space for electrical wiring is limited. Tyco Thermal Controls non-fire-rated cables and service entrance systems are small in profile and unobtrusive providing the perfect solution for these applications.

Zero EMI System
High-rise buildings and hospitals are locations where electromagnetic interference on computer screens or other electronic equipment can be a problem. Pyrotechnax Zero EMI® systems virtually eliminate the external magnetic field associated with power and harmonic frequencies.

Tyco Thermal Controls wiring systems around the world...

Rockefeller Center, USA • Riyadh University Hospital, Saudi Arabia • U.S. Capitol Building, USA • Stuttgart International Airport, Germany • NYC Museum of Natural History, USA • Heathrow International Airport, UK • Harvard University, USA • NYU Medical Center, USA • Montreal Metro, CA • Brussels Metro, Belgium • Pentagon Building, USA • Wing Lung Bank, Hong Kong • Yankee Stadium, USA • Buckingham Palace, UK • The White House, USA • Vienna Metro, Austria • Texas Medical Center, USA • Dublin Airport, Ireland • Los Angeles City Hall, USA • Channel Tunnel, UK
Typical Wiring Systems in a High-Rise Building

**Fire-Rated Cables:**
- Power Cables
- Fire Alarm Cables

For all critical life safety circuits fed by the emergency supply including the fire pump, fire alarm system, smoke extraction fans, pressurization fans, and power for the firefighters’ elevator.

**Non-Fire-Rated Cables:**

For the retrofitting of power feeders in locations where space is limited and difficult installation conditions exist.

**Service Entrance Cable Systems:**

For the retrofit of service entrance feeders when additional power is needed and where placement of conventional conductors in concrete is not feasible.

**Zero EMI Cable Systems:**

Replaces bus-duct or other high current feeders and eliminates the magnetic fields associated with both power and harmonic frequencies.

**Normal Power Cables:**

Standard power feeders throughout the building.
**FIRE-RATED SYSTEMS**

Pyrotenax System 1850 is a 2-hour fire-rated, mineral insulated, copper-sheathed power cable for protection of critical life safety circuits.

Raychem MC is a 2-hour fire-rated, flexible polymer insulated power cable for protection of critical life safety circuits.

**NON FIRE-RATED SYSTEM**

Pyrotenax System 500 is a non fire-rated, mineral insulated, copper-sheathed wiring cable for retrofitting feeders in buildings and for ease of installation in tight spaces and difficult runs.

**SERVICE ENTRANCE SYSTEM**

Pyrotenax System 1850-SE is a 2-hour fire-rated, mineral insulated, copper-sheathed service entrance cable system that allow service entrance conductors to be routed inside the building.
Raychem RHW is a 2-hour fire-rated, polymer insulated power cable for protection of critical life safety circuits.

Zero EMI System

Pyrotenax Zero EMI System is a mineral insulated wiring cable system that eliminates electromagnetic interference normally associated with electrical feeders.

Raychem CI is a 2-hour fire-rated, polymer insulated twisted pair fire alarm cable for protection of critical fire alarm circuits.
Innovative Wiring Technologies

MINERAL INSULATED TECHNOLOGY

Using only inorganic materials, copper and magnesium oxide (MgO), 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 two raw materials: copper and magnesium oxide. The seamless copper tube ultimately becomes the cable’s sheath.

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 NEC / CEC Type MI, and is available in 1, 2, 3, 4 and 7 conductor configurations in a range of sizes between 18 AWG and 500 kcmil.

Designed to specified length tolerances, Pyrotenax MI factory terminated cables are ideal for a wide variety of wiring applications including hazardous locations and areas where the space for electrical wiring is limited.

Pyrotenax mineral insulated wiring cable offers unique fire survival properties as well as small size and enhanced ampacity capability.
POLYMER INSULATED TECHNOLOGY

Special copper conductor and polymer insulation materials are used in Raychem power and fire alarm cables to provide exceptional fire resistance. Under fire conditions, the polymer insulation forms a protective barrier ensuring the electrical integrity of the circuit, while the special copper provides mechanical integrity of the conductor.

Raychem polymer insulated cables offer ease of installation and termination. They are manufactured with the highest quality materials, under strict quality conditions, and are fire rated against the stringent North American fire test standards, UL 2196 and ULC S139.

Raychem RHW is NEC Type RHH/RHW (CEC Type R90), and is available in single conductor configuration only, in sizes from 14 AWG to 600 kcmil.

Raychem MC is NEC Type MC and is available in a range of single and multiconductor sizes from 10 AWG to 500 kcmil.

Raychem CI is NEC Type CI. These two-conductor twisted pair cables (shielded and unshielded) are available in 18 through 12 AWG sizes, and offer ease of removal of the outer jacket for quick termination.
## Benefits

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<th>500</th>
<th>1850</th>
<th>1850SE</th>
<th>Raychem*</th>
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<tbody>
<tr>
<td>2-HOUR FIRE RATED</td>
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<tr>
<td>NO CONDUIT REQUIRED</td>
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<td>EASE OF INSTALLATION</td>
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<td>ZERO SMOKE, ZERO FLAME SPREAD</td>
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* Optional in US
Fire Rated
It is critical that circuits involving life safety and firefighting efforts remain operable during an emergency. These circuits provide power for emergency equipment, fire pumps, pressurization fans and fire alarm systems. Pyroteknax and Raychem fire-rated cables will operate for at least 2 hours under fire conditions to allow for the continued operation of life safety equipment and the safe evacuation of the facility.

Ease of Installation
MC: Flexible multi-conductor Raychem MC cables allow “one-pull” installation.

RHW: Polymer insulated Raychem RHW cables offer the ease and familiarity of cable in conduit installation.

CI: The “tubed” jacket of Raychem CI means faster termination.

Single conductor advantages
Single conductor Pyrotenax MI and single conductor Raychem MC cables require no conduit, allowing for as much as 80% space savings over conduit and wire. In addition, the NEC allows both these cable types to be operated at higher ampacities, resulting in significant savings in materials and installation costs, especially in short runs.

Free Air Rating
The inorganic construction of Pyrotenax MI wiring cables means that there is virtually no aging of the cable. This allows Pyrotenax MI wiring cables to operate at higher ampacities than conventional wiring, resulting in significant cost savings in materials and installation (especially in shorter runs).
Installation Services
Tyco Thermal Controls offers complete installation services of wiring systems. With experienced supervision, the services group coordinates all aspects of the installation, and completes the project safely and on time.

Field & Technical Support
With years of experience, Tyco Thermal Controls field service engineers are highly qualified to offer field support, advice, and training at all stages of a project. Backed by expert engineering support, the service is available worldwide.
Expertise in Life Safety Circuits
Tyco Thermal Controls has been intimately involved in the life safety arena for many years. Our engineering expertise is frequently called on 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.
Visit www.tycothermal.com for all the tools and information you need to design, select, and purchase a complete wiring system. Use our Quick Voltage Drop Calculator, or download design software to use off-line. Download, print, or browse product data sheets and installation instructions.

On our interactive frequently asked questions and answers (FAQ) page, you will find questions broken down by markets and product lines.

If your question does not appear, simply submit a new question. A Tyco Thermal Controls technical expert will answer your question and post it to the Web site.

Download Cable Sizing Software
PyroSizer software aids in the design of critical circuits that utilize Pyrotex MI copper cable. Enter basic project conditions on the “Project Default Parameters” screen and then simply apply these parameters to the entire project to minimize keying, and speed up design.
ISO 9001 Certification

Six Sigma
Understanding and satisfying the needs of our customers is important to Tyco Thermal Controls. 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
Tyco Thermal Controls 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.
Tyco Thermal Controls manufactures a wide range of other products specified by architects and engineers for large-scale construction projects. These products include:

**High Temperature Industrial Wiring Systems** Raytenax steel-sheathed MI fire-rated wiring cables provide circuit integrity in both higher temperature environments and hazardous locations.

**Snow Melting Systems** Raychem and Pyrotenax snow-melting systems reduce the potential for safety hazards and lost business by keeping sidewalks, parking garage ramps, driveways, and stairways free of ice and snow.

**Hot Water Temperature Maintenance Systems** Raychem HWAT systems provide commercial buildings with immediate hot water while eliminating the need for a water recirculation system.

**Pipe Freeze Protection Systems** Raychem XL-Trace heat-tracing systems provide freeze protection for metal and plastic pipes in a wide range of applications.

**Roof & Gutter De-Icing Systems** Raychem IceStop Systems prevent ice dams by providing a continuous drain path for melted snow and ice.

Important: All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their particular application. Tyco Thermal Controls makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Tyco Thermal Controls’ only obligations are those in the Tyco Thermal Controls Standard Terms and Conditions of Sale for this product, and in no case will Tyco Thermal Controls or its distributors be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, Tyco Thermal Controls reserves the right to make changes—without notification to Buyer—to processing or materials that do not affect compliance with any applicable specification.

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