

Fireproof Sealing Methods for Bridge Excavation Holes



Overview

Voids And Fire Sealants Seal voids effectively to avoid the risk of fire spread and improve building safety for occupants. Discover ROCKWOOL's fire sealant.

Key Takeaways

Fireproof sealing of bridge excavation holes can be achieved using intumescent sealants, modular fire-blocking sections, and certified cable/pipe penetration systems to ensure fire resistance and structural safety.

Key Fireproof Sealing Methods



1. **Intumescent Sealants** Intumescent sealants expand when exposed to high temperatures, filling gaps and preventing the passage of flames, smoke, and hot gases. Products like Promat PROMASEAL® Intumescent Acrylic Sealant are suitable for sealing small gaps in bridge structures, offering up to 240 minutes of fire resistance. They adhere to most construction materials and can be overpainted after curing, making them versatile for various substrates and joint configurations .

2. **Modular Fire-Blocking Sections** Lightweight, modular fire-blocking sections are designed for cable and conduit penetrations in bridges. These systems use intumescent blocks, fireproof cloth, and metal frames to create a double barrier. The fire-blocking material expands under heat to seal cavities, maintaining performance even at high temperatures. Modular designs allow easy addition or removal of cables without damaging the structure, supporting standardized cable layouts and long-term maintenance .

3. **Cable and Pipe Penetration Seals** Certified penetration seals, such as those from Roxtec or ZAPP-ZIMMERMANN, protect against fire, gas, and water ingress. These systems can be installed in core-drilled holes, welded or bolted frames, and are suitable for both rigid and flexible walls or floors. They are tested according to standards like UL 1479 and EN 1366, ensuring reliable fire resistance and operational safety. Modular designs allow for future cable changes without compromising fire protection .

Installation Considerations

- Ensure clean, dry, and grease-free surfaces before applying sealants or modular systems.
- Maintain clearances from combustible materials (typically 100mm) to prevent ignition near penetrations .
- For high-temperature environments or areas with significant joint movement, select silicone-based sealants or reinforced modular systems.
- Fireproofing should be applied on both sides of the penetration if fire risk exists from multiple directions.
- Modular systems should be certified and tested for the specific fire rating required (e.g., 2 hours for bridge applications) to comply with safety standards .

Benefits

- **Enhanced fire safety:** Prevents fire spread through excavation holes and penetrations.
- **Structural integrity:** Maintains load-bearing capacity during high-temperature events.
- **Flexibility and maintenance:** Modular systems allow easy cable or pipe modifications without compromising fire protection.

- Compliance: Meets international fire-resistance standards, ensuring regulatory adherence. By combining intumescent sealants, modular fire-blocking sections, and certified penetration seals, bridge excavation holes can be effectively fireproofed, ensuring both safety and long-term durability in critical infrastructure projects .

Article Content

Passive fire protection system with fire-proof cable and pipe seals ...

The fire-resistant penetration sealing system secures an efficient fire barrier. It is tested and approved by certifying

fire protected section, Fireproof cable accessories, fireproof cable ...

The product's upper cover and fireproof fiber cloth are designed to be openable, making it easier to add or subtract cables and more

How to effectively fire seal pipe and cable penetrations

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Passive fire protection system with fire-proof cable and pipe seals ...

Roxtec cable and pipe entry seals provide certified protection against multiple hazards – including smoke and fire. The

Fireproof plugging construction process for cable trench mixed through hole

Problems solved by technology Method used Benefits of technology Problems solved by technology In the prior art,

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

