

Firestopping, Repair Procedures and Documentation in NEW & Existing Buildings

**Multiple Cable Transit Devices (MCTs), Silicone Firestop Sealants in
Power (Sub-Stations)**





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AGENDA

- Firestopping – Common applications Solutions in Industrial applications
- Why Mechanical Sealing – Cable Transit systems in Power?
 - Challenges in Energy
 - Traditional Systems – with Silicone Sealants
 - Importance of Mechanical Sealing
- CTS System Components - Approval Landscape and Other Attributes
- Design with Cable Transits
- Cable Coatings
- Key Learnings

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LEVEL OF FIRE PROTECTION REQUIREMENTS



Individual House



Public Building



Industrial Building



Building / Fire Stop regulations:
... depend on the size of the construction
... are more stringent for public and industrial buildings.

FIRESTOPPING – COMMON APPLICATIONS AND SOLUTIONS IN INDUSTRIAL APPLICATIONS

1

Closing penetrations

2

Closing joints

3

Cable protections

4

Mechanical sealing



Cables, tray & ladders Process & utility pipes Large & complex openings



Boards & Coatings

Blocks, Plugs
& Cushions

Foams, Sealants
& Sprays

Collars & Wraps

Devices

Cable Transit



ENERGY SEGMENTS PROJECT'S REQUIRE MORE THAN FIRE RATING ONLY : WATER/GAS TIGHTNESS IS KEY

Onshore & Industry

Offshore

Focus Segments



Critical attributes



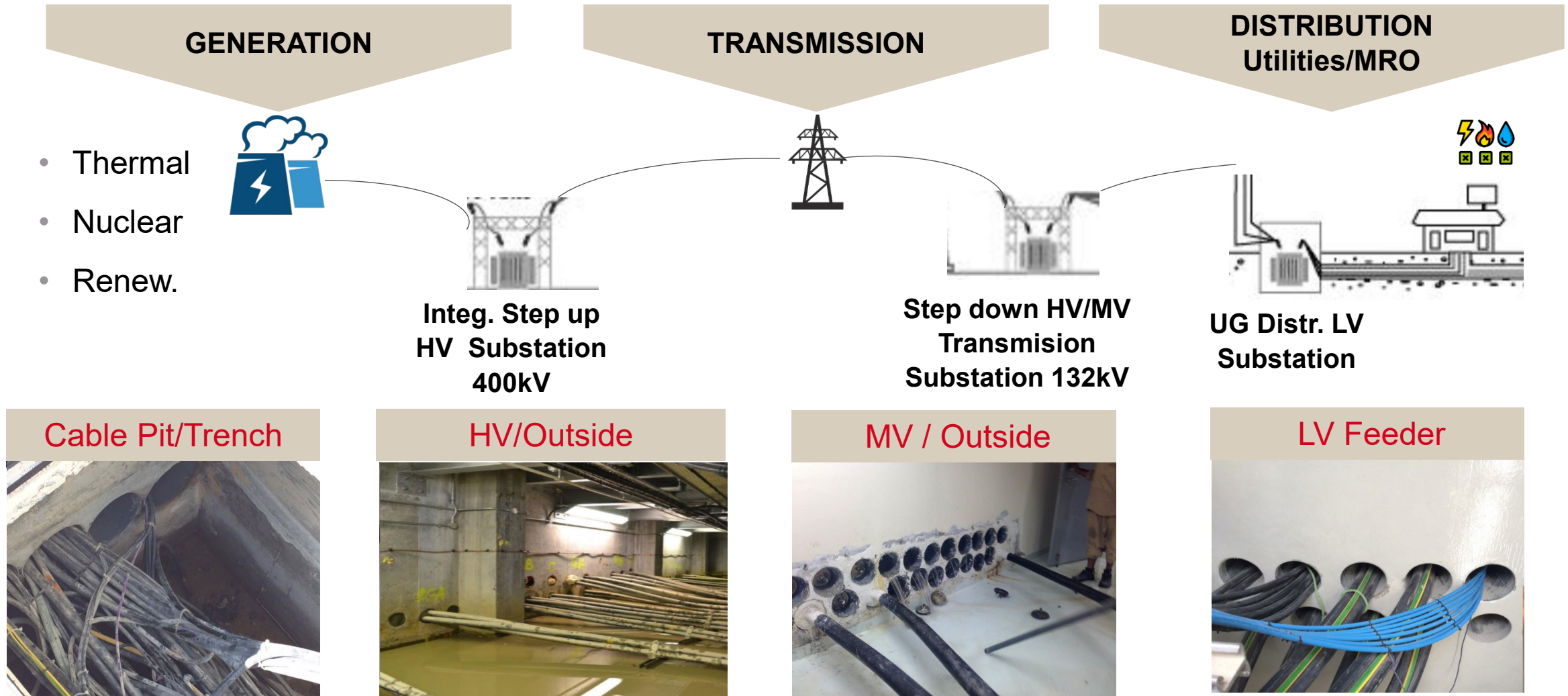
Regulatory bodies



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CHALLENGES IN POWER – SUBSTATION APPLICATIONS



TRADITIONAL APPROACH – SILICONE SEALANT + FIRE SEAL

- Using Silicone sealant as a water barrier in combination with Intumescent sealant as a fire barrier
 - Silicone sealants has excellent weather resistance and water tightness capabilities
 - High Movement Capability
 - High Temperature resistance

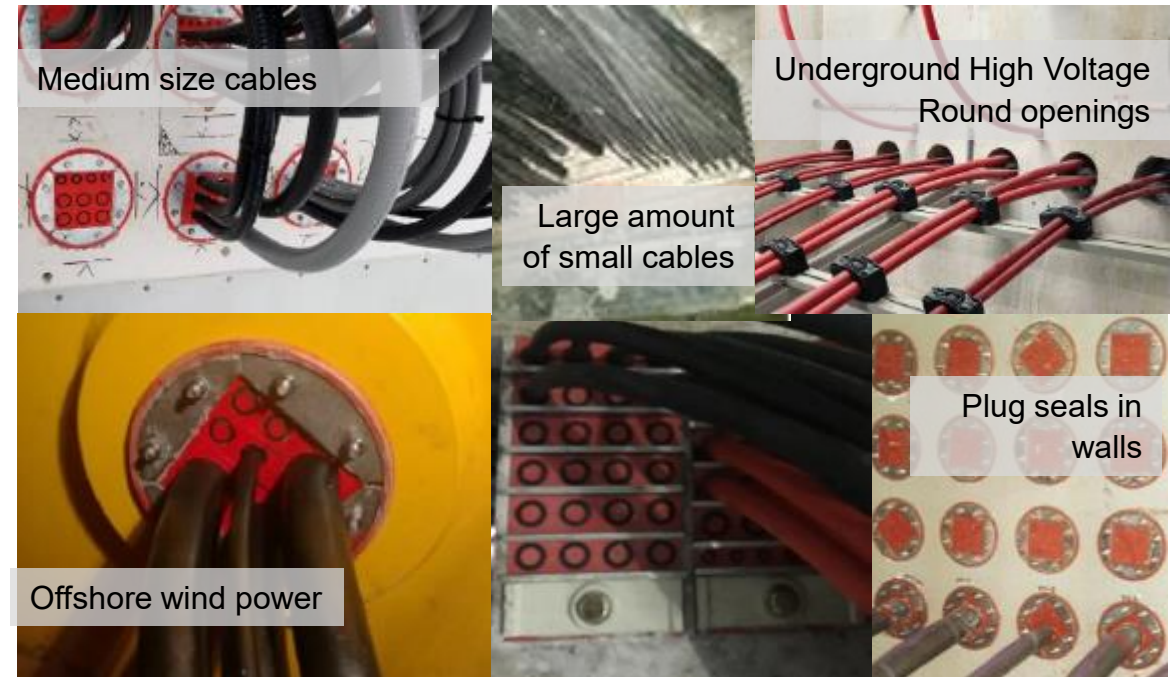


WHY CABLE TRANSIT SYSTEM IN POWER



- Applications are either large cables (HV) through round openings, general cable through wall or cabinet seals (equipment manufacturer)
- Bse material: concrete for ONS, steel for OFS

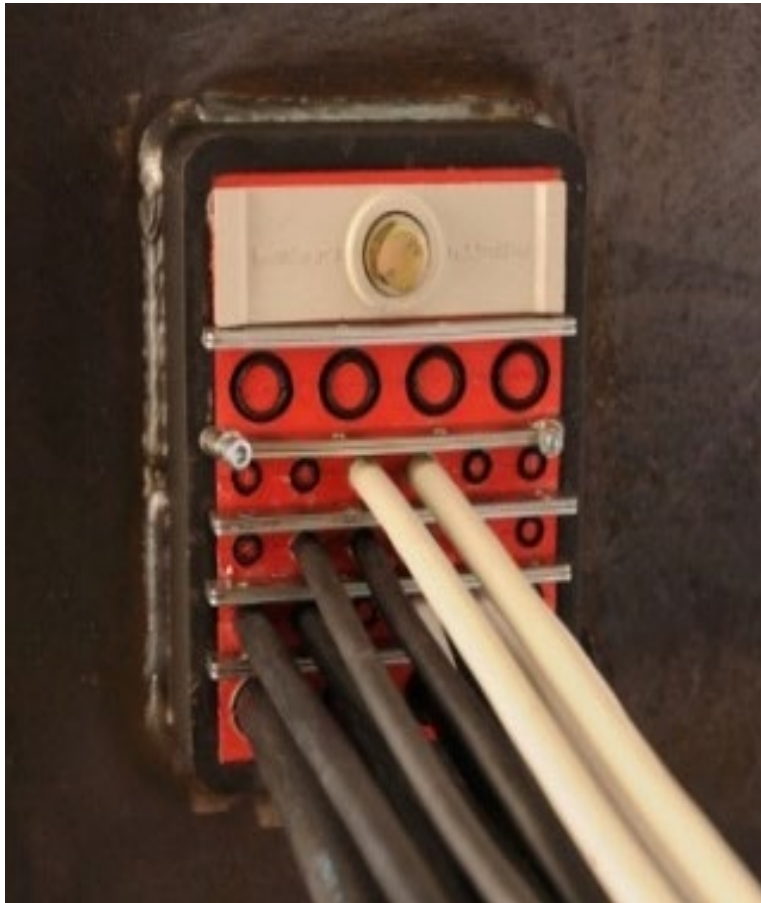
Main reason for cable transits in Power is to protect against **weather and exterior environment** (rain, humidity, dust). Risk of **fire hazard** sometimes also required,



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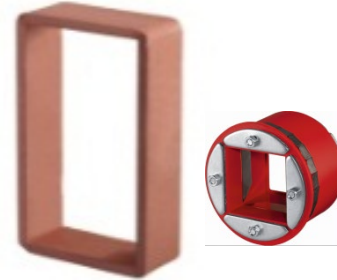
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ALL CABLE TRANSIT SYSTEM ASSEMBLY CONSISTS OF FOUR MAJOR PARTS



Cable Transit Components

1



Frames

2



Cable module

3



Anchor plate & Fixing
Anchor Plate

4



Compression Wedge

ADVANTAGE OF CUSTOMIZATION - NON-STANDARD OPENINGS OR EXCESSIVE CABLE LOAD

Similar installation (Retrofit)

IP68 water tightness

- Suitable for permanent exposure to water

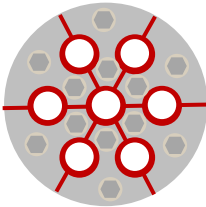
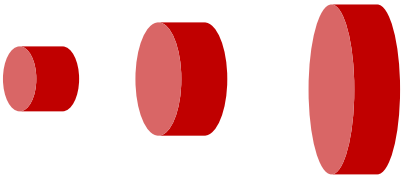


Fire tested

Fits in non-standard openings

Increased cable capacity

Custom Made to Size



QUICK VIDEO

Video



FIRE, WATER & DUST RELEVANT IN ALL SEGMENTS, BUT OTHER ATTRIBUTES CAN BECOME CRITICAL FACTORS



| | Onshore & Industry | Power | ONS O&G | Pharma | DC | Offshore | OFS O&G | Ship build | Wind |
|-----------------------------|--------------------------------|-------|---------|--------|----|----------|---------|------------|------|
| Primary attributes | Fire resistance | ◐ | ◑ | ◐ | ◐ | | ● | ◑ | ◐ |
| | Water/Dust tightness | ● | ◑ | ● | ● | | ◑ | ◑ | ◑ |
| | Gas tightness | ○ | ◑ | ● | ● | | ◐ | ◐ | ○ |
| | Operational Hazards | ○ | ◑ | ◐ | ○ | | ◑ | ○ | ○ |
| Secondary attributes | EMC Protection | ● | ○ | ○ | ◐ | | ◑ | ○ | ◑ |
| | Grounding & Bonding | ● | ◑ | ○ | ○ | | ◑ | ○ | ◑ |
| | Seismic resistance | ◐ | ◐ | ◐ | ○ | | ○ | ○ | ○ |
| | Fungal resistance | ○ | ○ | ◑ | ◐ | | ○ | ○ | ○ |

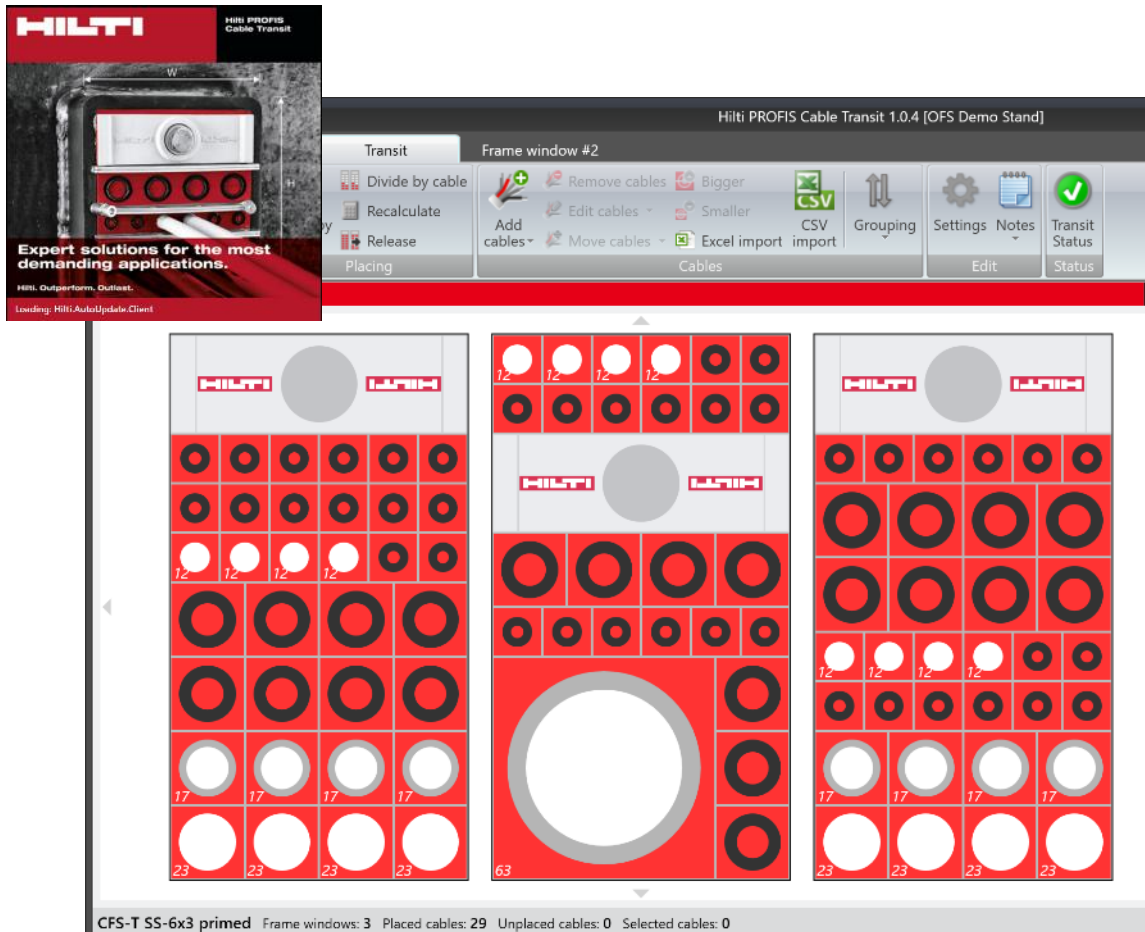
Relevance → ● Very strong ◑ Strong ◐ Limited ◒ Weak ○ Not relevant



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DESIGN SOFTWARE FURTHER MAKES IT EASY



- **Report generation**
- **Cable input tool**
- **Add missing elements**
- **Various hints and information bubbles**
 - Short description of various system (EMC, EX, standard)
 - Short description of which frame types (galvanized, stainless steel,...)

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CABLE COATINGS IN SUB STATIONS



- To Stop the spread of fire by restricting surface spread of flame
- FM 3971, IEC 60331 and IEC 60332 are key Approvals required.
- Indoor and Outdoor applications

Key Question to ask – Area, Approval and Coating Thickness

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KEY LEARNINGS

- Fire Stopping in Energy is much more than fire protection
- Water tightness is Key for Round openings in Sub Stations
- Cable Transits system with Customized Solution is key.
- More Simple system with limited components will bring ease of Installation
- Design software for openings and cable design can simplify everything
- Cable Coating restricts surface spread of flame and do not provide fire rating.

THANK YOU

