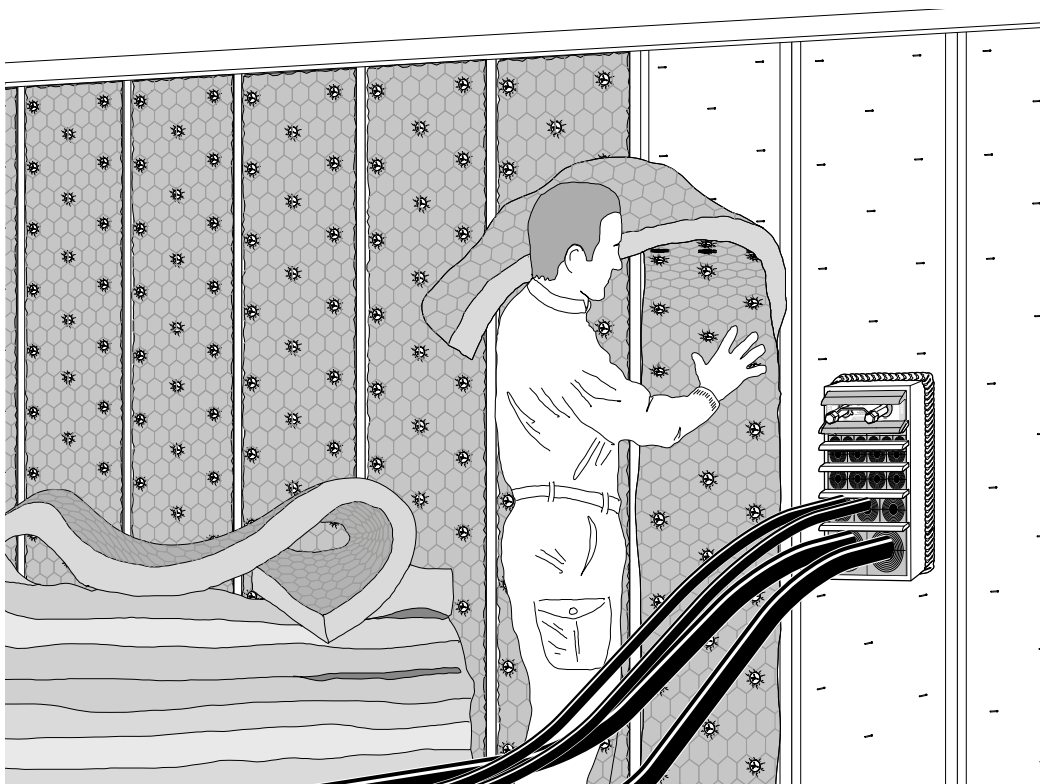


Description and application guidelines

Roxtec insulation guidelines for marine and offshore applications



Prepared for: Roxtec International AB

Date: 2021-01-17

Author: Oskar Erlingsson, Roxtec Group,
Box 540, Karlskrona, Sweden

Abstract

These guidelines are a help for the insulation workers when insulating Roxtec cable/pipe sealing solutions in accordance with Roxtec's valid type approvals. Note that Roxtec also has type approvals where no insulation is required.

For product descriptions and auxiliary information not covered by this guideline, see www.roxtec.com or contact nearest Roxtec representative.

Requirements before insulation work

Check Roxtec's type approvals for the required insulation type, density, thickness and length according to type of structure (steel/aluminum) and fire requirement (A-class, H-class, jet fire, etc).

Glossary

- Structure insulation – Insulation required on the structure itself (bulkhead/deck) to achieve the fire rating for each specific application.
- Transit insulation – Any insulation required on/around the penetration apart from the structure insulation. This is specified in Roxtec's type approvals for each specific application.
- PFP coating – Passive fire protection coating.
- BTB systems – Back-to-back configuration with two barriers.

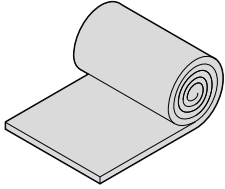
Contents

1. Components and tools	4
1.1 Components	4
1.2 Tools	4
2. Rectangular systems	5
2.1 Without transit insulation	5
2.2 With transit insulation – Collar	6
2.3 With transit insulation – Collar including insulation between cables/pipes	7
2.4 With transit insulation – Wrap	8
2.5 With transit insulation – Insulated partition walls	9
3. Round systems	10
3.1 Without transit insulation	10
3.2 With transit insulation – Collar	11
3.3 With transit insulation – Wrap	12
3.4 With transit insulation – Collar and wrap	13
4. BTB systems	14
5. PFP coating	15
6. General interpretations	16
6.1 A60 approvals interpreted into A0-A30 applications	16
6.2 How to insulate when transits are placed close to each other	17

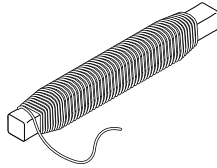
1 Components and tools

1.1 Components

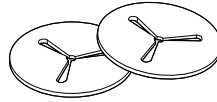
Type may vary depending on application.



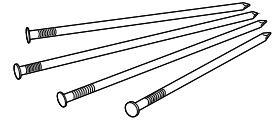
Approved type of insulation sheet or boards



Steel safety wire



Insulation washers



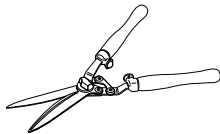
Insulation pins



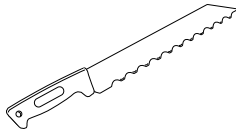
Approved PFP coating (example: Chartek)

1.2 Tools

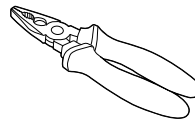
Type may vary depending on application.



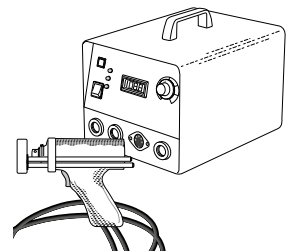
Hedge clippers



Insulation knife



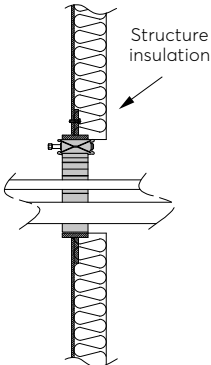
Pliers



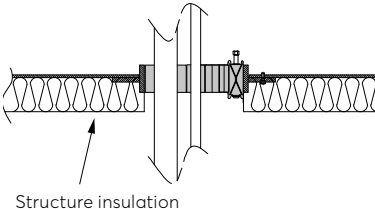
Welding machine for insulation pins

2 Rectangular systems

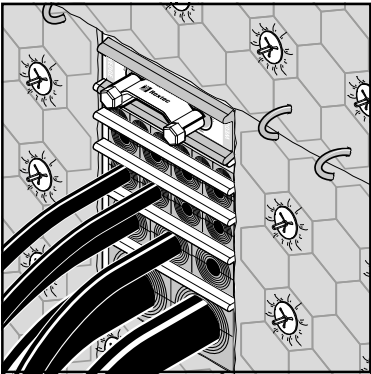
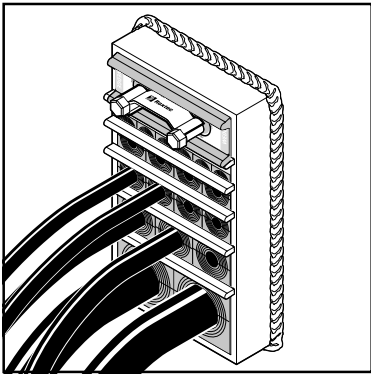
2.1 Without transit insulation



Example of installation in bulkhead

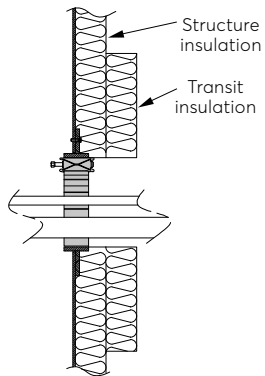


Example of installation in deck

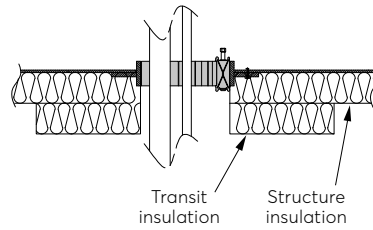


Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.

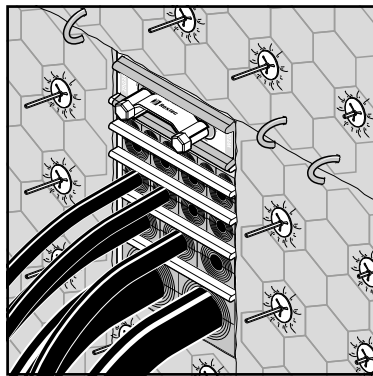
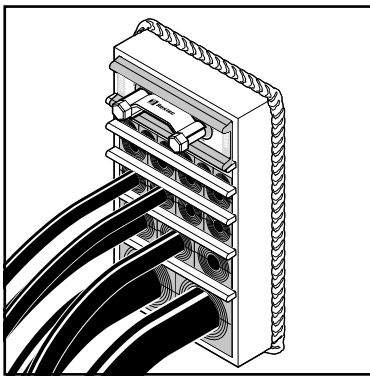
2.2 With transit insulation – Collar



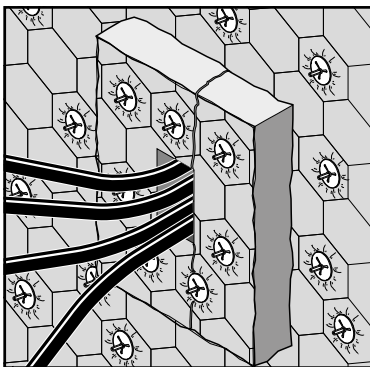
Example of installation in bulkhead



Example of installation in deck

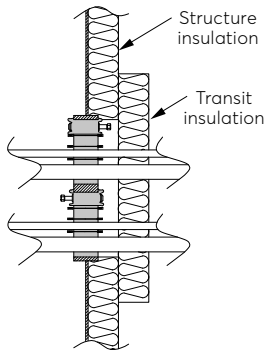


Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.
Note: Apply also longer insulation pins around the transit.

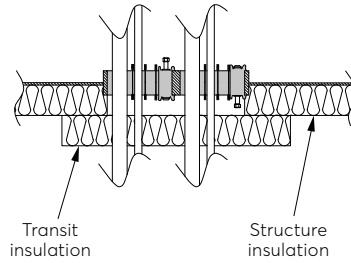


Adjust the transit insulation and install it around the transit. Secure the collar by using longer insulation pins mounted on the structure.

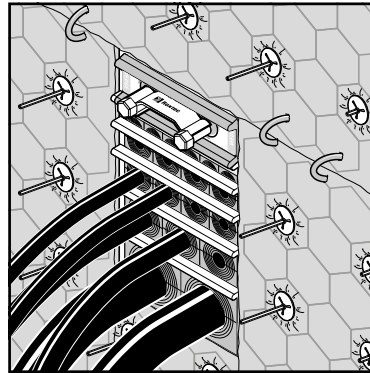
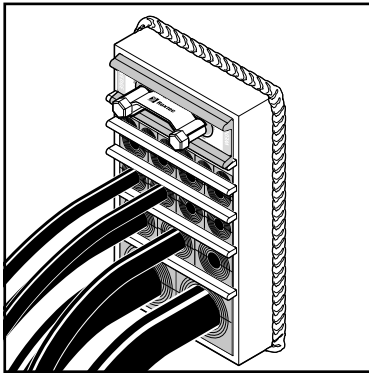
2.3 With transit insulation – Collar including insulation between cables/pipes



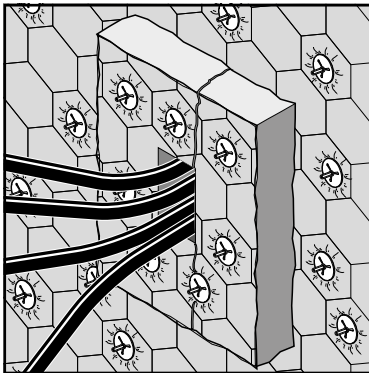
Example of installation in bulkhead



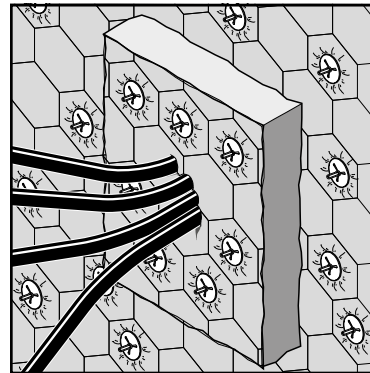
Example of installation in deck



Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.
 Note: Apply also longer insulation pins around the transit.

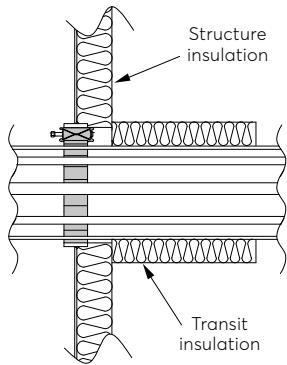


Adjust the transit insulation and install it around the transit. Secure the collar by using longer insulation pins mounted on the structure.

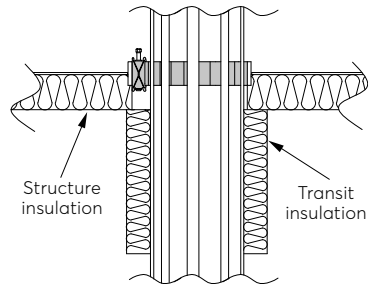


Add pieces of approved insulation in between the cables/pipes and fill the cavity. Secure the insulation in the cavity by using wire mesh and/or steel wire.

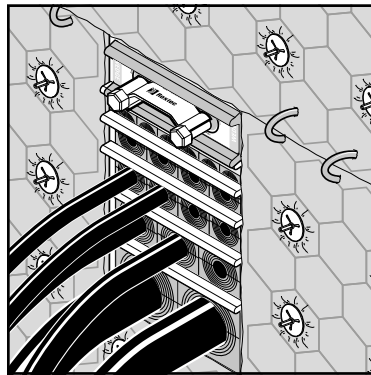
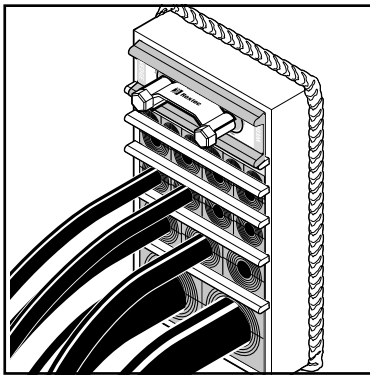
2.4 With transit insulation – Wrap



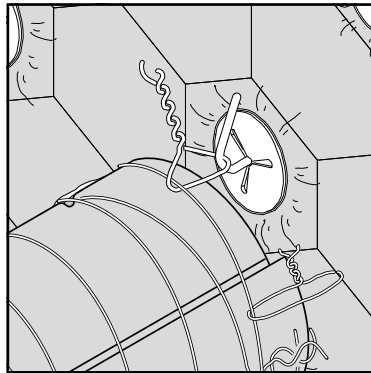
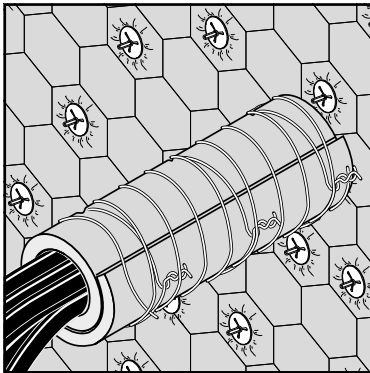
Example of installation in bulkhead



Example of installation in deck



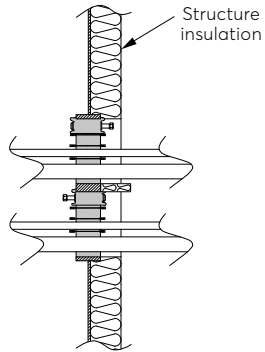
Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.



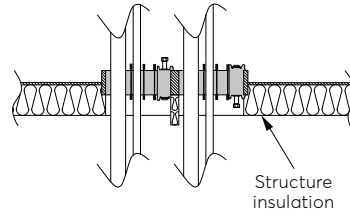
Adjust the transit insulation and install it around the transit. Secure the wrap to the structure by using steel wire.

2.5 With transit insulation – Insulated frame partition walls

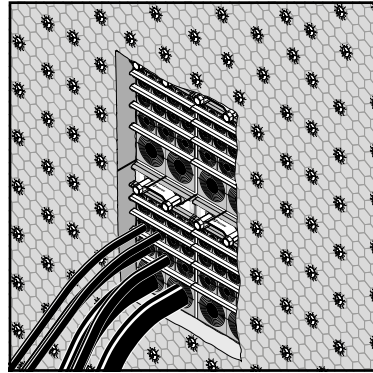
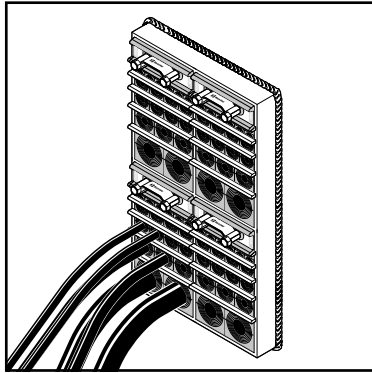
When insulation on frame partition walls in combination frames is required by Roxtec's type approvals.



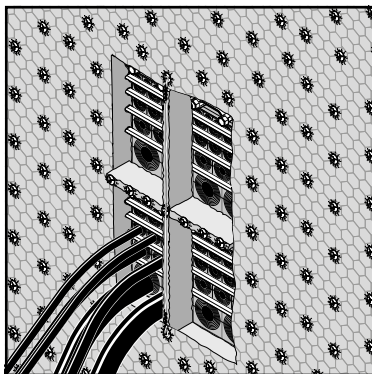
Example of installation in bulkhead



Example of installation in deck



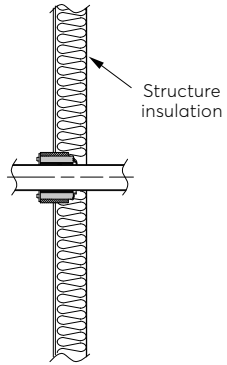
Apply approved structure transit. For details, check insulation manufacturer instructions for structure transit. Note: Apply also insulation pins to the horizontal partition walls in the Roxtec combination frame. If knowing where the stayplates will be mounted, insulation pins may also be applied to the vertical partition wall as long as they don't interfere with each other.



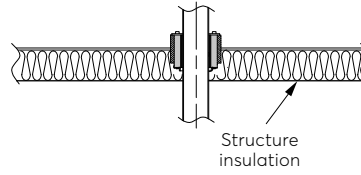
Add pieces of approved insulation along the partition walls and secure it by insulation washers to the insulation pins as well as steel wire where there is lack of pins.

3 Round systems

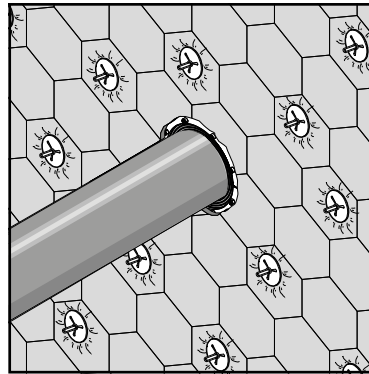
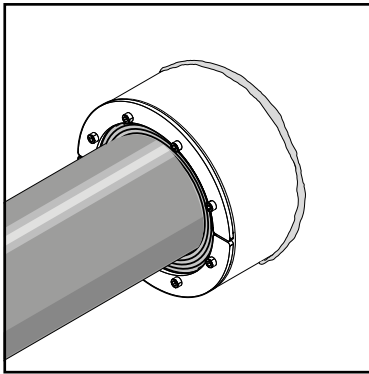
3.1 Without transit insulation



Example of installation in bulkhead

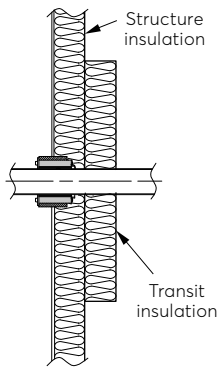


Example of installation in deck

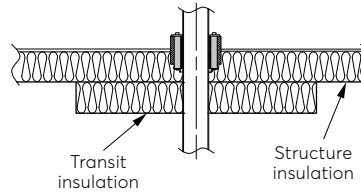


Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.

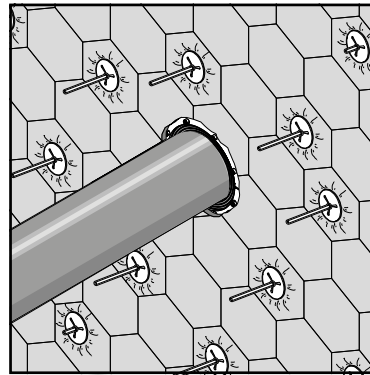
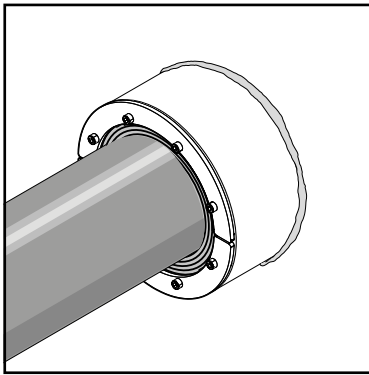
3.2 With transit insulation – Collar



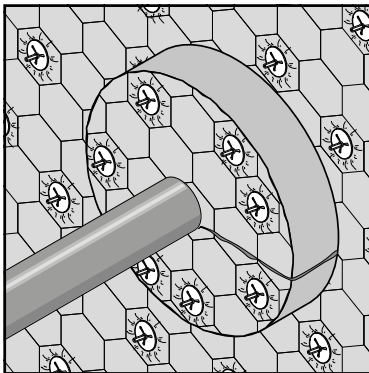
Example of installation in bulkhead



Example of installation in deck

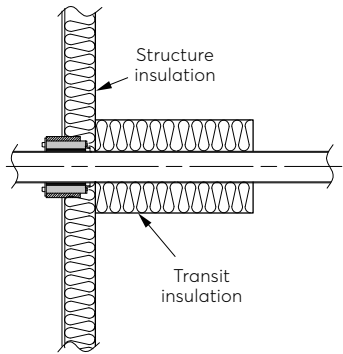


Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.
Note: Apply also longer insulation pins around the transit.

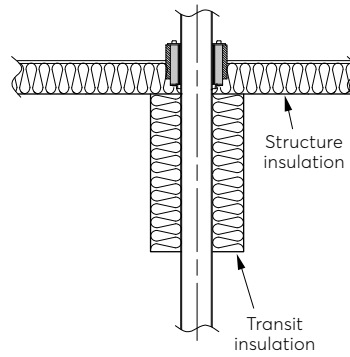


Adjust the transit insulation and install it around the transit. Secure the collar by using longer insulation pins mounted on the structure.

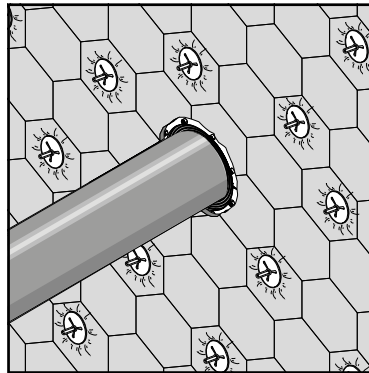
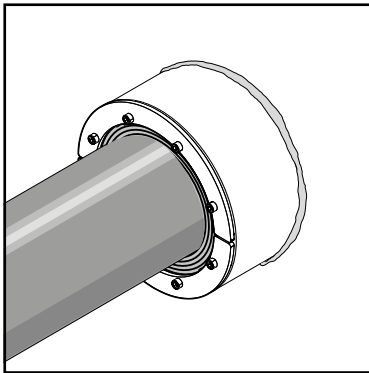
3.3 With transit insulation – Wrap



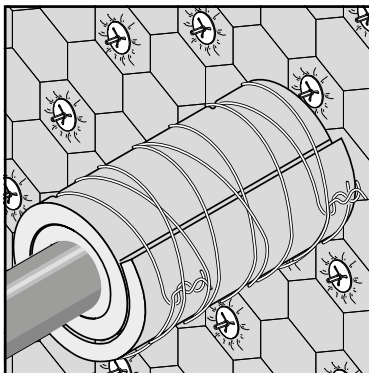
Example of installation in bulkhead



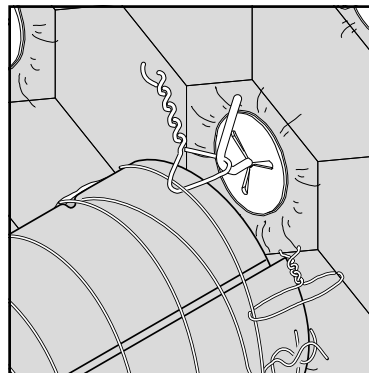
Example of installation in deck



Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.

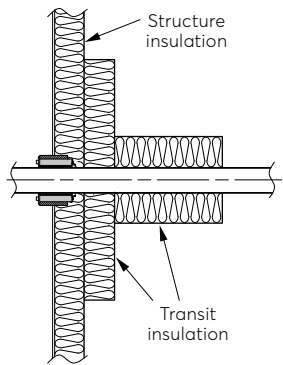


Install the wrap around the transit.

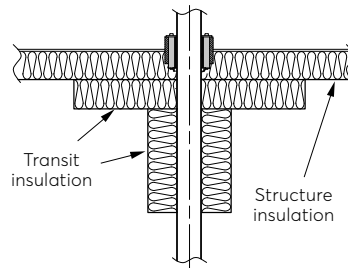


Secure the wrap to insulating pin.

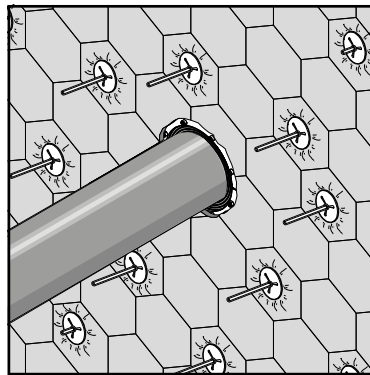
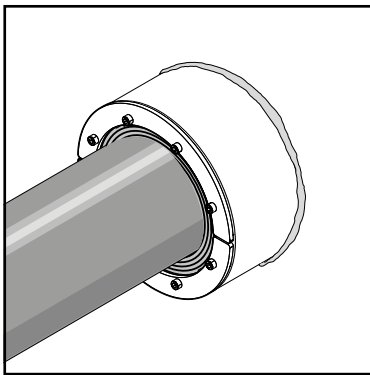
3.4 With transit insulation – Collar and wrap



Example of installation in bulkhead

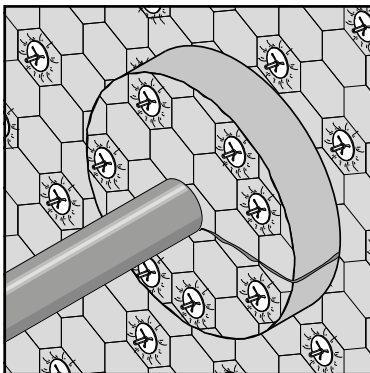


Example of installation in deck

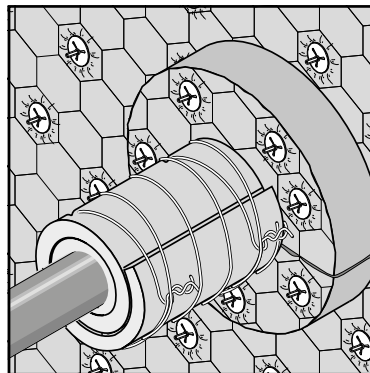


Apply approved structure insulation around the transit. For details, check insulation manufacturer instructions.

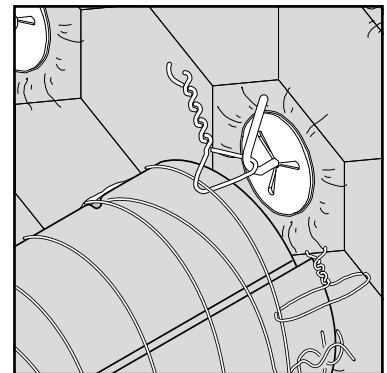
Note: Apply also longer insulation pins around the transit.



Adjust the collar and install it around the transit. Secure the collar by using longer insulation pins mounted on the structure.

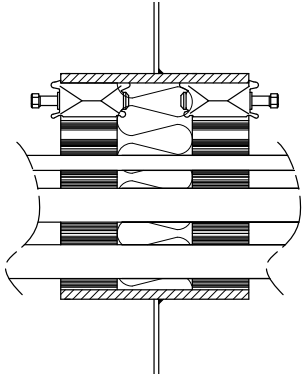


Adjust the wrap and install it around the transit. Secure the wrap to the structure by using steel wire.

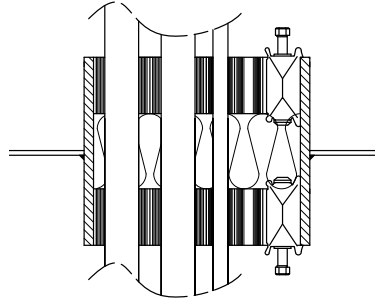


4 BTB systems

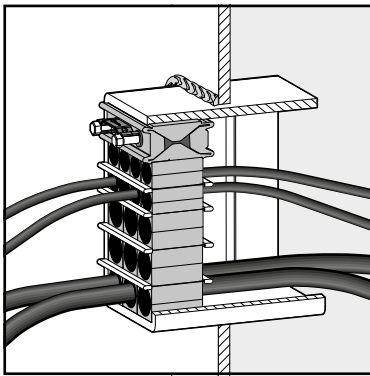
When insulation inside the frame/sleeve between the barriers is required by Roxtec's type approvals.



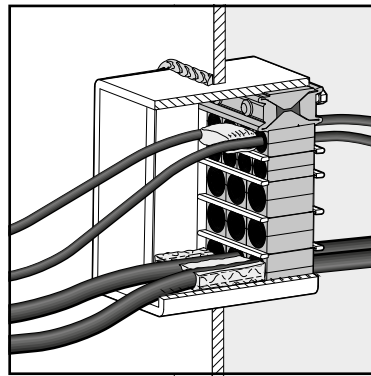
Example of installation in bulkhead



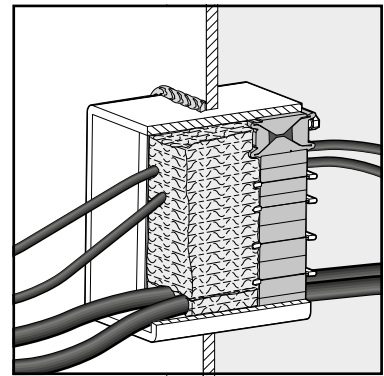
Example of installation in deck



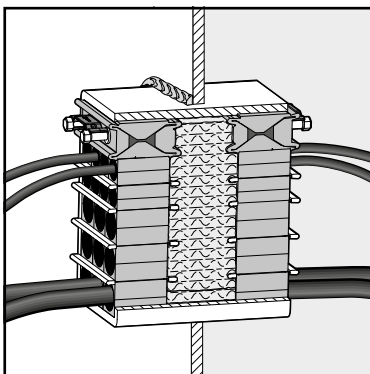
Install the first barrier.



Start insulating the transit from the other side.



Add pieces of approved insulation in between the cables/pipes and fill the cavity.

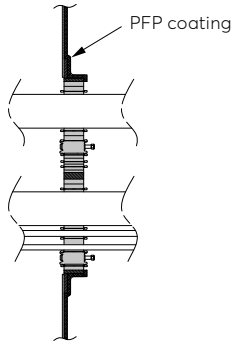


Install the second barrier.

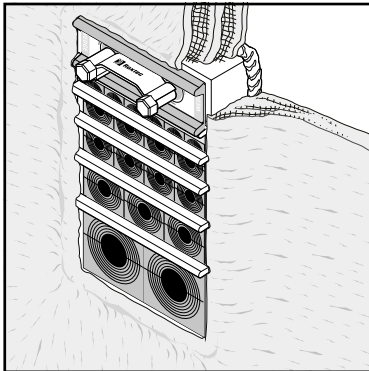
5 PFP coating

When PFP coating is required by Roxtec's type approvals, apply approved PFP coating around the transit according to certificate drawing.

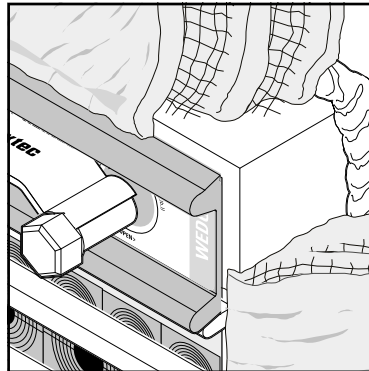
This is normally done by approved installer/trained personnel.



Example of installation of PFP



Overview of PFP coating



PFP coating

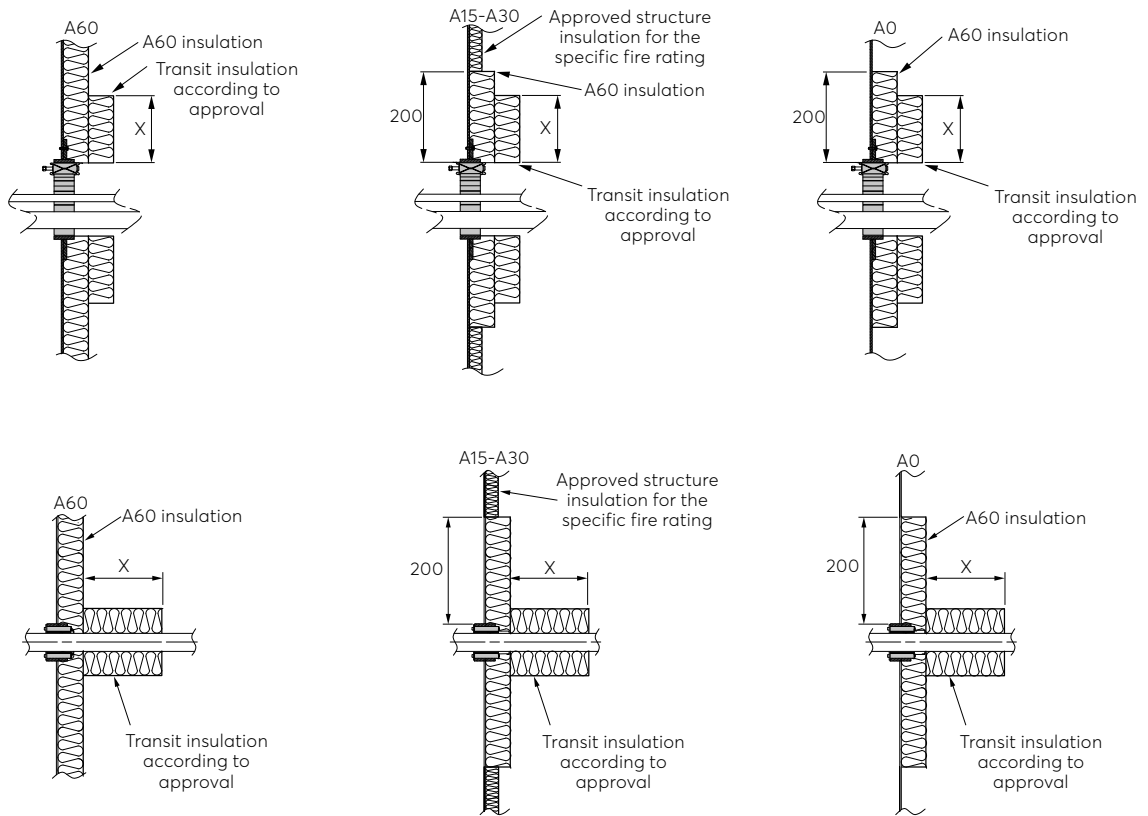
6 General interpretations

6.1 A60 approvals interpreted into A0-A30 applications

Generally approved interpretation of how to apply A60 approvals for A0-A30 applications, if no A0-A30 drawings are available.

When a cable/pipe penetration is approved for use in A60 applications it may also be used in A0, A15 and A30 applications. In such cases, any insulation fitted (on the penetration itself and 200 mm around) will be required to be fitted also for A0, A15 and A30.

Examples:



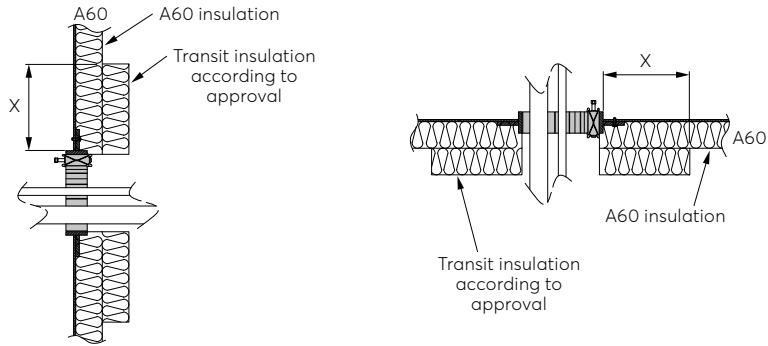
Must be evaluated and approved by class surveyor.

6.2 How to insulate when transits are placed close to each other

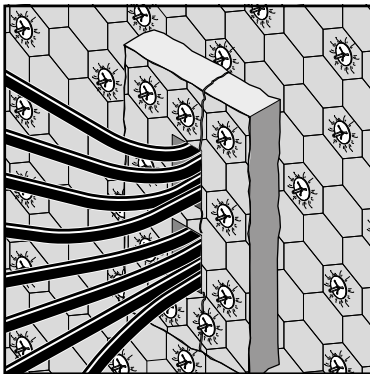
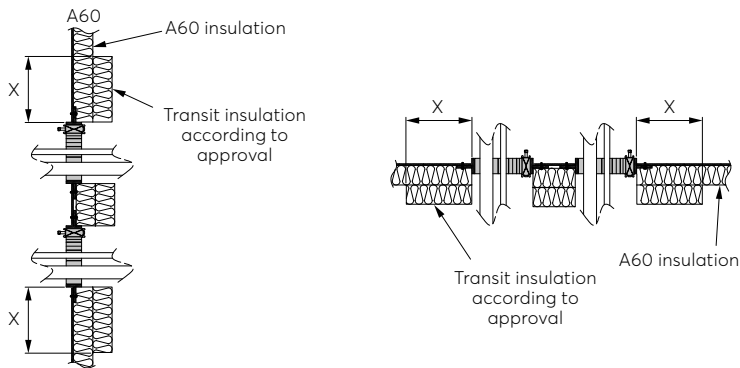
Generally approved interpretation of how to apply insulation when transits are placed close to each other.

When transits are placed close to each other, insulation should still be applied according to Roxtec's type approvals, measured from the combined outer perimeter of the transits including in between the transits.

Examples:



Examples of two transits placed close to each other:



Must be evaluated and approved by class surveyor.

DISCLAIMER

"The Roxtec cable entry sealing system ("the Roxtec system") is a modular-based system of sealing products consisting of different components. Each and every one of the components is necessary for the best performance of the Roxtec system. The Roxtec system has been certified to resist a number of different hazards. Any such certification, and the ability of the Roxtec system to resist such hazards, is dependent on all components that are installed as a part of the Roxtec system. Thus, the certification is not valid and does not apply unless all components installed as part of the Roxtec system are manufactured by or under license from Roxtec ("authorized manufacturer"). Roxtec gives no performance guarantee with respect to the Roxtec system, unless (I) all components installed as part of the Roxtec system are manufactured by an authorized manufacturer and (II) the purchaser is in compliance with (a), and (b), below.

(a) During storage, the Roxtec system or part thereof, shall be kept indoors in its original packaging at room temperature.

(b) Installation shall be carried out in accordance with Roxtec installation instructions in effect from time to time.

The product information provided by Roxtec does not release the purchaser of the Roxtec system, or part thereof, from the obligation to independently determine the suitability of the products for the intended process, installation and/or use. Roxtec gives no guarantee for the Roxtec system or any part thereof and assumes no liability for any loss or damage whatsoever, whether direct, indirect, consequential, loss of profit or otherwise, occurred or caused by the Roxtec systems or installations containing components not manufactured by an authorized manufacturer and/or occurred or caused by the use of the Roxtec system in a manner or for an application other than for which the Roxtec system was designed or intended.

Roxtec expressly excludes any implied warranties of merchantability and fitness for a particular purpose and all other express or implied representations and warranties provided by statute or common law. User determines suitability of the Roxtec system for intended use and assumes all risk and liability in connection therewith. In no event shall Roxtec be liable for indirect, consequential, punitive, special, exemplary or incidental damages or losses."

