

## Safety information

Roxtec recommends that all installations are performed without facility operation. Follow national regulations and installation codes. Any action affecting the routed service should be performed according to manufacturer recommendations.

## General information

Installation and maintenance:

For European member countries of CENELEC, standards EN 60079-14 and EN 60079-17 shall be considered. For countries members of IECEx, standards IEC 60079-14 and IEC 60079-17 shall be considered. For other countries, applicable national regulation shall be considered.

The products fulfill the following standards:

EN IEC 60079-0:2018 (IEC 60079-0:2017)  
EN 60079-7:2015/A1:2018 (IEC 60079-7:2015/A1:2018)  
EN 60079-31:2014 (IEC 60079-31:2013)

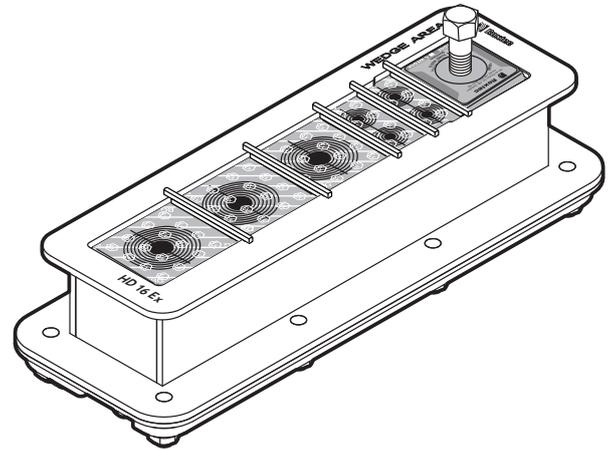
CSA Std. C22.2 No. 18.3-12  
CSA Std. C22.2 No. 94.2-15  
CAN-CSA C22.2 No. 60079-0: 15  
CAN-CSA C22.2 No. 60079-7: 16  
CAN/CSA C22.2 No. 60079-31: 15

UL Standard 514B, 6th Ed.  
UL Standard 50E, 2nd Ed  
UL 60079-0 - 6th Ed.  
UL 60079-7 - 5th Ed  
UL 60079-31 - 2nd Ed

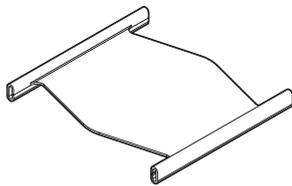
The cable transit devices are intended for use with permanently installed circular cross-section cables, with or without armoring or braided screen. Cable transit devices may also be used with permanently installed cables of types TECK90 according to standard C22.2 No. 131-07, ACWU according to standard UL4, MC according to standard UL1569 and ACIC cables according to CSA C22.1-06 CEC, UL 444, UL 1685, UL 13, UL2250, IEC 61158-2.



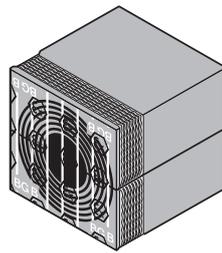
## Installation instructions Roxtec HD 16 Ex with Roxtec CX BG™ modules



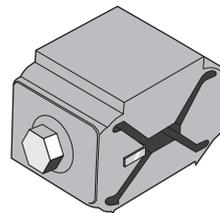
## Components



Stayplate Ex



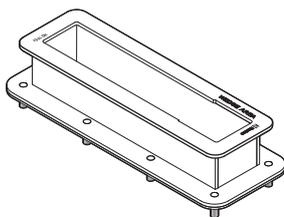
CX BG modules



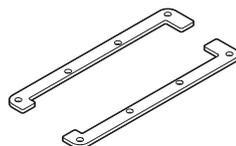
Compression unit  
C Wedge 40 Ex AISI 316



Assembly gel Ex



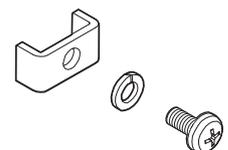
HD 16 Ex frame including gasket



Counter frame



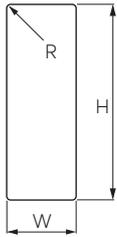
Nuts



Fasteners for protective  
bonding conductor

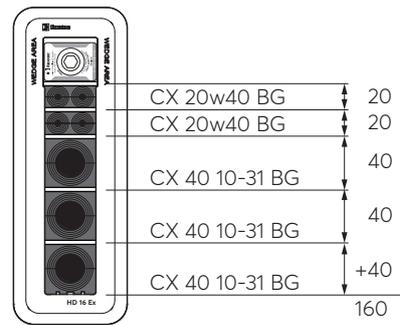
## Aperture

Max wall/cabinet thickness: 4 mm.



R: max 3.  
 H: 216 +1.0  
 -0.5  
 W: 64 +1.0  
 -0.5

## Packing space



The sum of module heights must be 160 mm.

## Roxtec CX BG™ modules

The range of the modules indicates the smallest diameter of the exposed cable shield to the largest diameter of the cable jacket. Modules with core can be used as spare parts.

Module	Number of cables/pipes	For cable/pipe diameter a-b (mm)	Total braid cross-section/cable sq mm	Approx. Eqv. AWG
CX 20 BG	1	0+4-13.5	8	8
CX 20w40 BG	2	0+3.5-15.5	4*	11*
CX 30w40 BG	1	0+10.0-24.0	13	6
CX 40 10-31 BG	1	0+9.5-31.0	21	4
CX 40 BG	1	0+21.5.0-33.5	21	4

## Roxtec CX BG™ solid modules

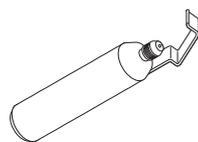
Module
CX 10w40/0 BG
CX 20/0 BG
CX 40/0 BG

\* Per cable.

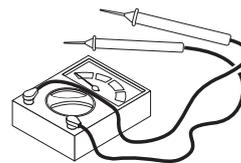
## Tools



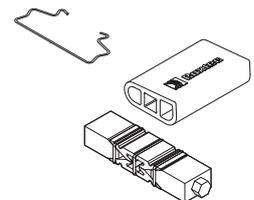
10 and 13 mm spanner  
(not included)



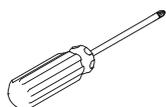
Cable stripper tool.  
Recommended by the cable manufacturer  
(not included)



Continuity tester  
(not included)

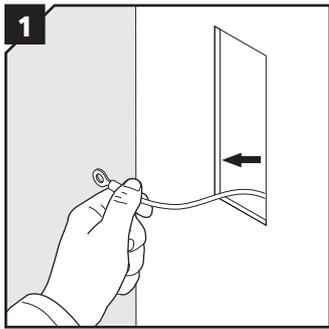


Roxtec installation tools  
(not included)

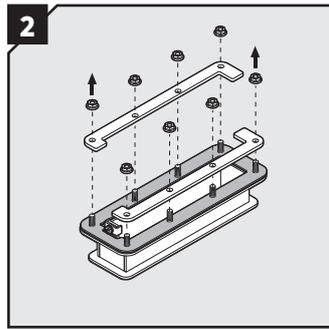


Cross-slotted screwdriver  
(not included)

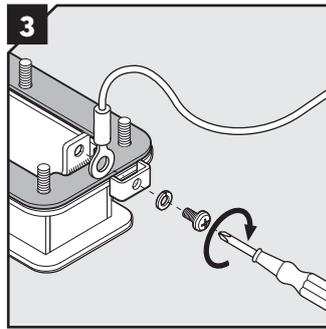
## Installation of HD 16 Ex frame



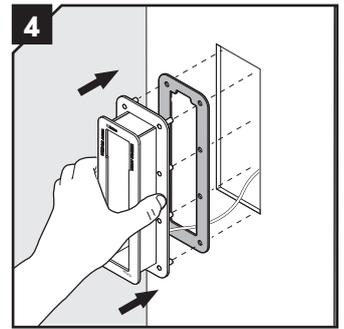
Route the protective bonding conductor through the aperture.



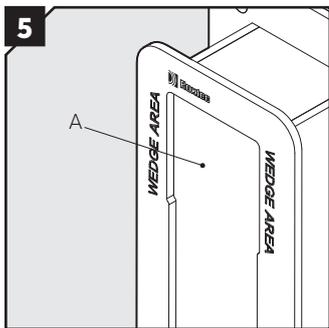
Remove all nuts and the two parts of the counter frame.



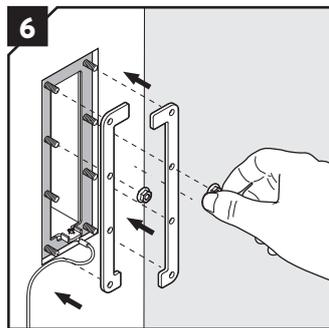
Attach a protective bonding conductor to the frame earthing terminal.



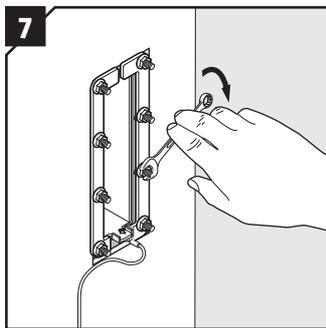
Insert the HD 16 Ex frame from the outside of the cabinet. Ensure that the gasket is placed between the frame and the cabinet.



Observe the intended wedge area (A) without stopping edges.



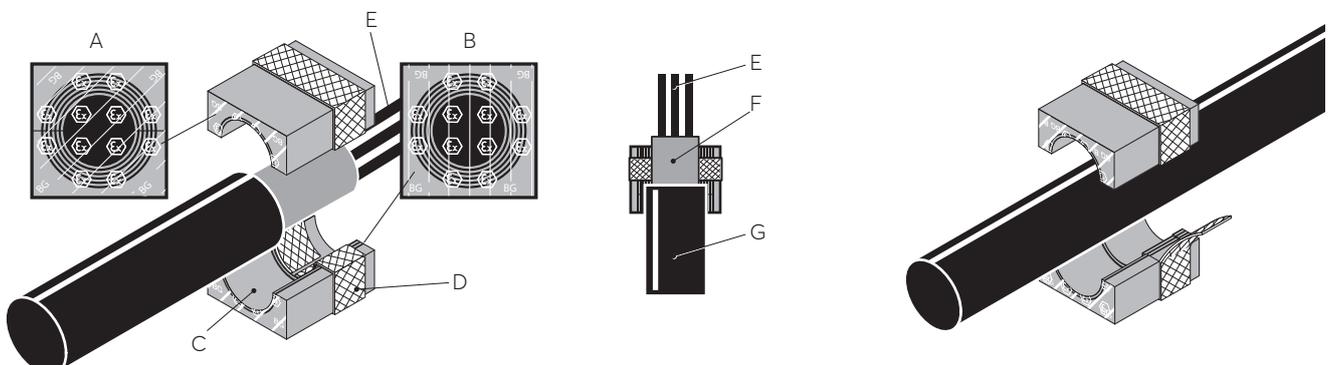
Attach the two parts of the counter frame from the inside of the cabinet.



Tighten the nuts crosswise in small steps. Recommended torque 4 Nm. Do not overtighten the nuts.

## Installation of Roxtec CX BG™ modules

Integrated environmental sealing system for bonding and grounding applications. For use with armored/shielded jacketed cables including smooth and corrugated cables such as interlocked and continuous welded metal clad cables or wired and braided cables. For approvals, see [www.roxtec.com](http://www.roxtec.com).



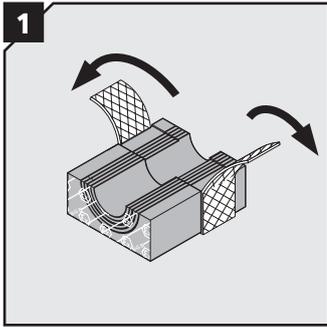
Cable position in a CX BG module

- A. Environmental side
- B. Termination/interior side
- C. Removable layers
- D. Module braid
- E. Conductors
- F. Cable armor/shield
- G. Cable jacket

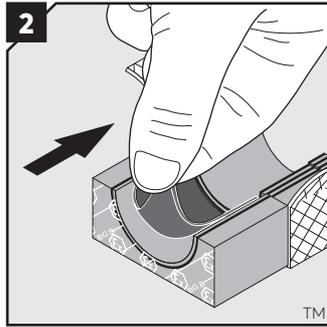
**Note:** For non-armored and non-shielded cables, the jacket is not removed and no bonding or grounding is achieved.

See page 7 - 11 for cable preparation alternatives.  
For non-armored/shielded cables go to step 3b on the next page.

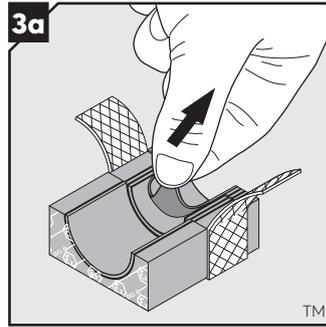
# Installation of Roxtec CX BG™ B modules



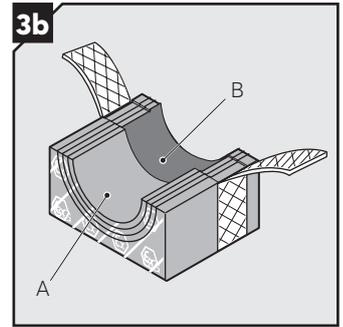
Remove the core and fold out the braid on modules that are to hold cables or pipes.



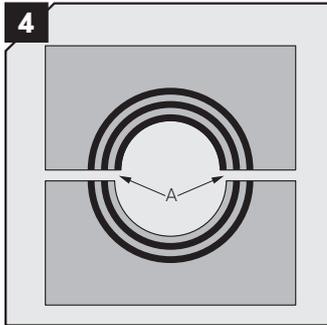
Adapt layers on the environmental protection side to the cable jacket.



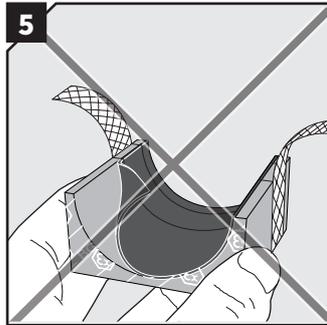
Adapt layers on the termination side to the cable armor.



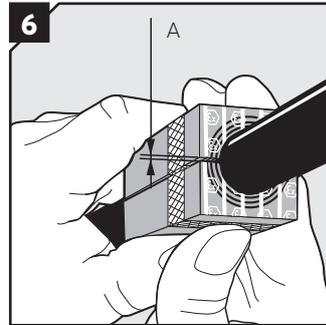
**For non-armored/shielded cables.** Adapt the section corresponding to the cable outer jacket (A). Adapt the braid section (B) on both module halves by removing one layer more than on the cable jacket section.



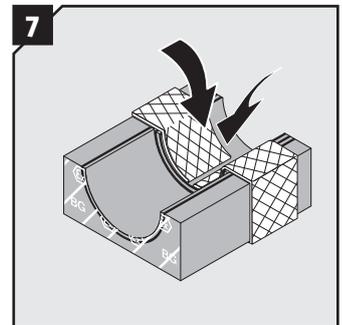
The number of layers may not differ (A) by more than one between the corresponding module halves.



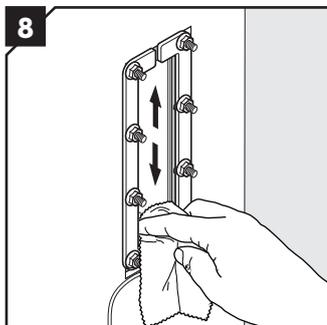
Do not remove the last layer.



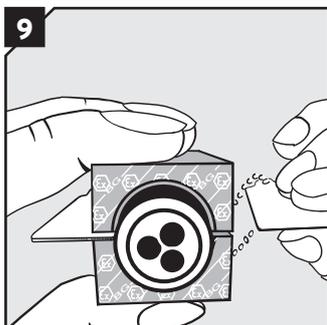
Achieve a 0.1-1.0 mm (A) gap between the two halves when held against the cable or pipe.



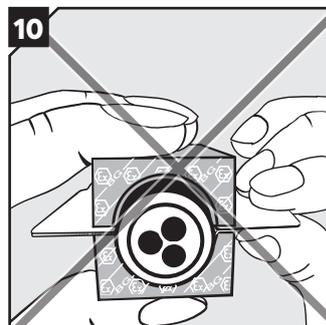
Fold the braid tightly inside the module.



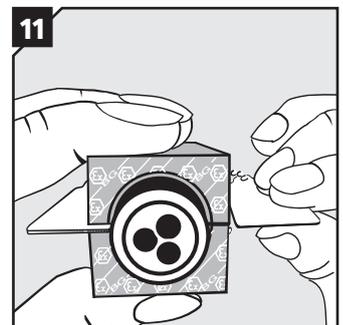
Make sure that the inside surfaces of the frame are free from dirt or dust.



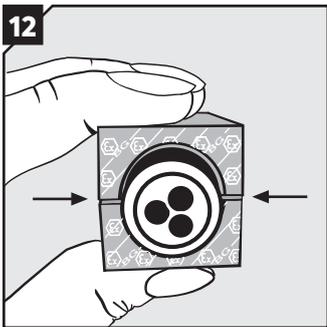
Measure the gap with the Ex Gap Gauge by holding blade one in one gap and checking the other with blade two.



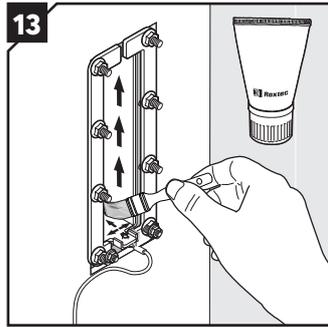
If the gap is too big, the gauge will slip in easily.



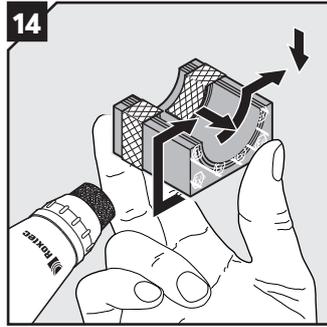
If the gap is correct, there will be no room for blade two.



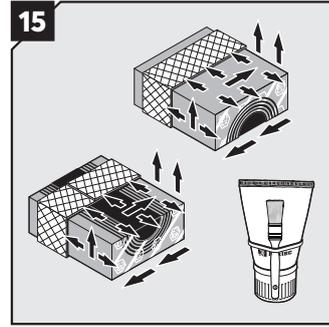
When checking without the gauge, there shall be a visual gap.



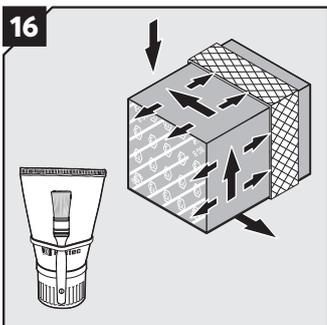
Lubricate the inside surfaces of the frame all around with Roxtec Assembly Gel Ex, especially into the corners. Lubricate the area that will be in contact with the braid sparsely.



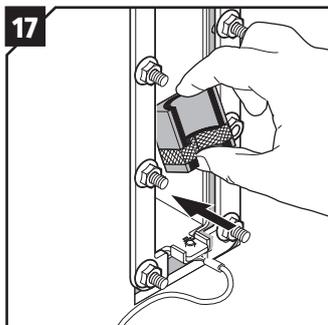
Lubricate all modules for the frame thoroughly, both the inside and the outside surfaces. Avoid excess lubricant on the braid.



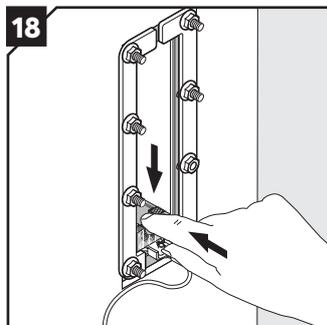
Lubricate the sealing surfaces of the spare modules. Do not remove the core.



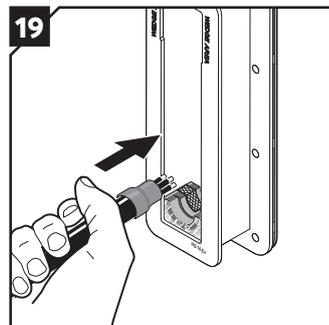
Lubricate the sealing surfaces of the solid modules.



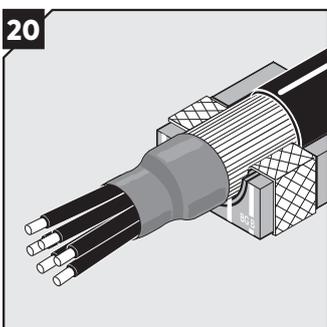
Insert the modules from the back side of the transit according to your installation plan. Start with the largest modules.



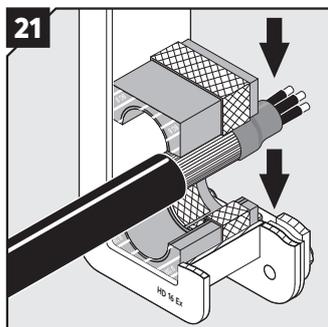
Push the modules in place. Ensure that the module rests against the stopping edge at the front.



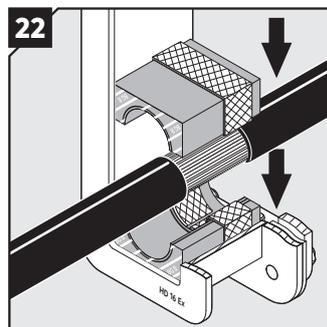
Insert the cables through the frame.



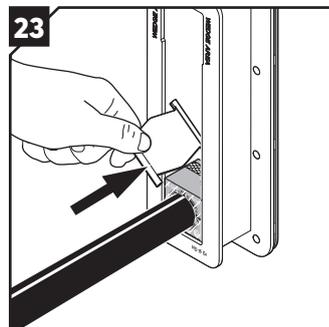
When placing cables in modules, the cable armor shall be visible outside the module at the termination side.



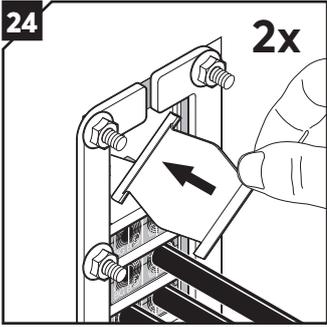
Place cables, according to your packing plan, in the module halves. Place corresponding module halves on top.



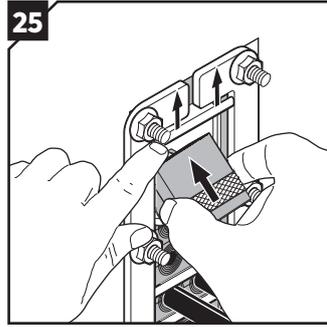
For pass-through cables, cable armor shall be visible on the termination side.



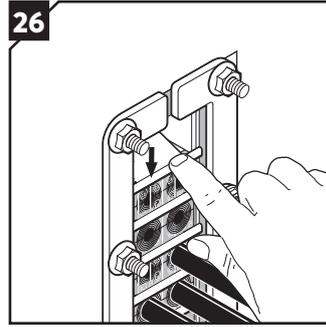
Insert a stayplate on top of every finished row of modules.



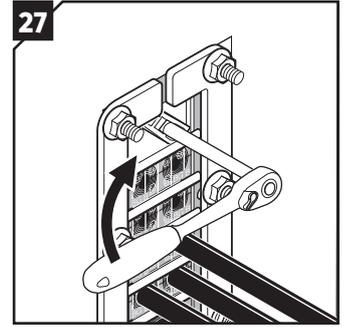
Before inserting the final row of modules, insert two stayplates.



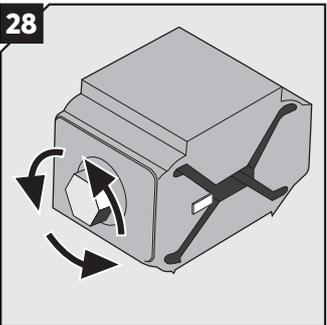
Lift the upper stayplate and insert the last module underneath it.



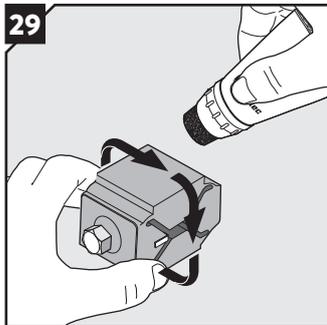
Drop the stayplate on top of the last row of modules. Make sure the combinations of modules equal the 160 mm packing space.



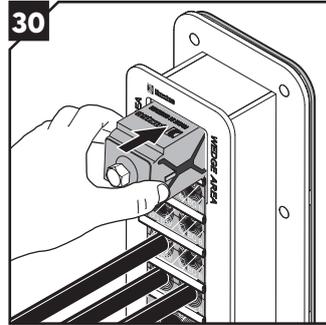
Use a Roptec pre-compression tool to make space for the compression units if required.



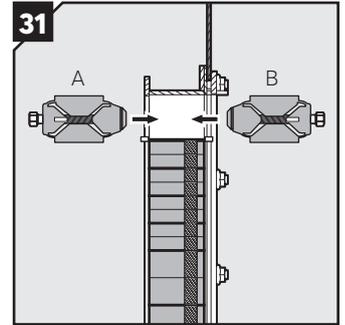
Turn the screw of the compression units counter-clockwise to full stop.



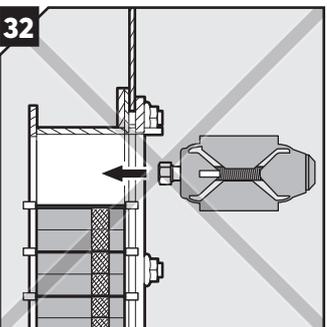
Lubricate the compression units on all sides with Roptec Assembly Gel Ex.



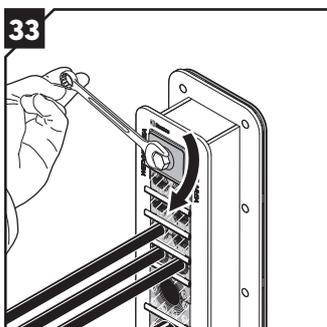
Insert the compression unit until full stop.



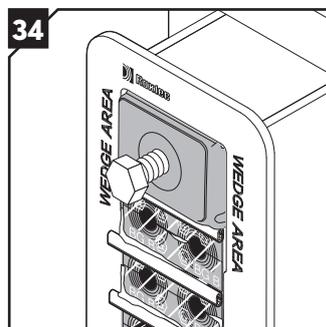
The compression units can be placed with the screwhead facing the inside (B) or the outside (A) of the frame.



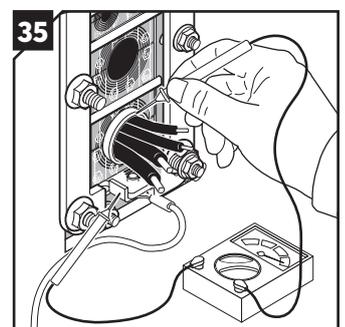
Do not insert the compression unit with the screwhead facing the frame.



Tighten the screw of the compression units until full stop. Do not exceed 20 Nm.



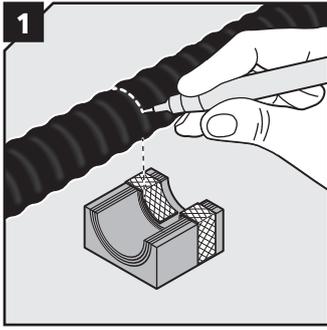
Visible excess assembly gel is a sign of good compression. Make sure that all modules are placed correctly and fully inserted after compression.



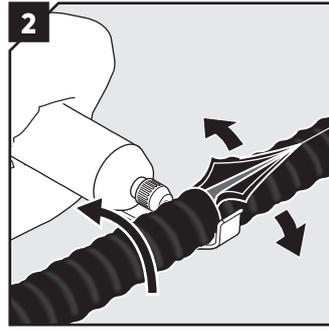
Verify earth continuity from each cable armor to the earth lug using a suitable instrument.

## Preparation of metal clad and Teck cable

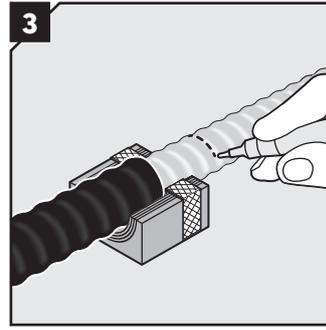
Finishing of interlocked and continuous welded armor.



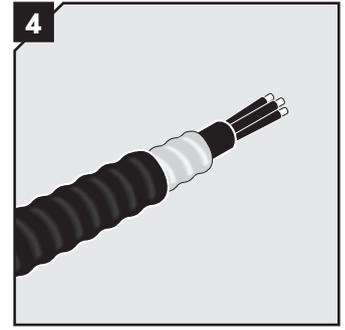
On the cable, mark where outer jacket is to be removed.



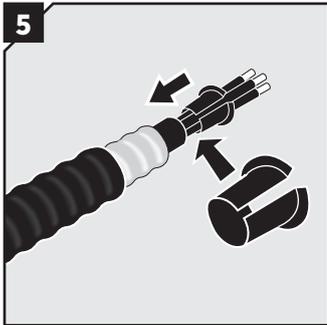
Remove the outer jacket with a tool recommended by the cable manufacturer. Make sure not to damage the cable armor. Remove any protection tape or plastics.



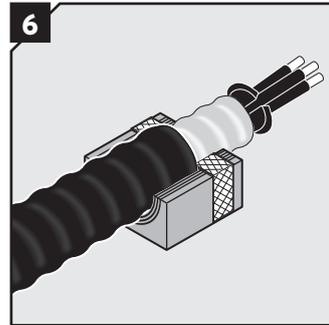
On the armor, mark with a pen where the armor is to be cut. The armor shall extend outside the module after installation.



Cut the cable armor at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cables.



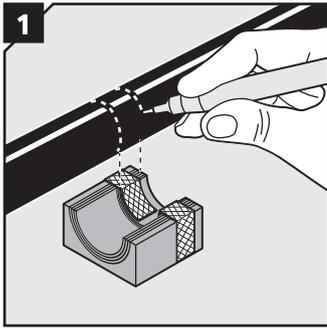
When required for inner conductor protection, fit an anti-short bushing or similar at the end cut of the cable armor.



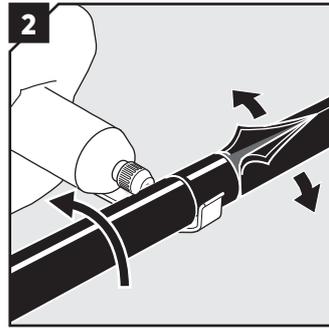
Make sure that the armor extends beyond the edge of the module and that the anti-short bushing is in place where applicable.

## Preparation of SWA cable alternative 1

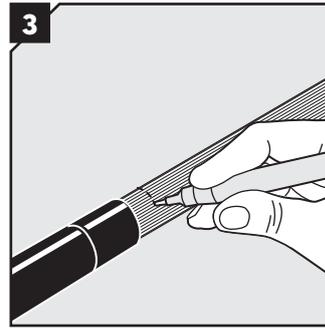
Finishing the end of cable armor with piece of cable jacket.



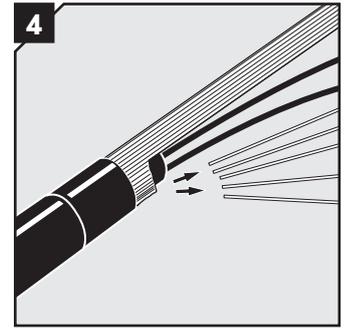
On the cable, make two marks where the outer jacket is to be cut.



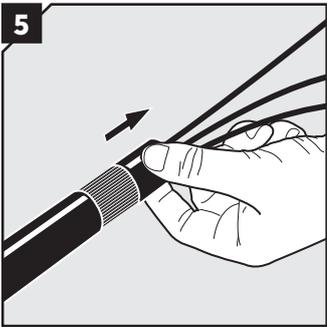
Cut the outer jacket at the two marks with a tool recommended by the cable manufacturer. Make sure not to damage the cable armor. Remove excess jacket.



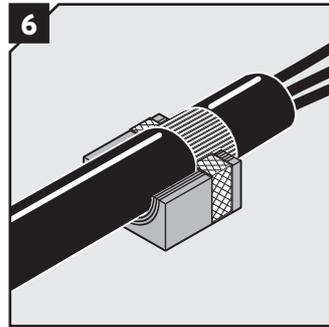
Mark where the armor is to be cut. The remaining armor shall accommodate both the braid of the module and the piece of cable jacket as shown in step 6.



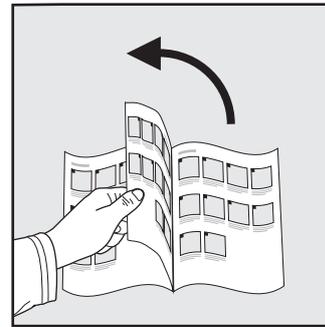
Cut the armor at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cables.



Pull the piece of cable jacket away to cover the end of the armor. The exposed armor shall accommodate both the braid and the remaining rubber of the module.



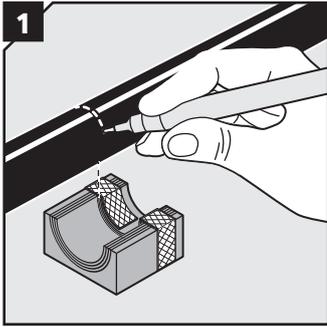
Make sure that the piece of cable jacket is completely outside the module.



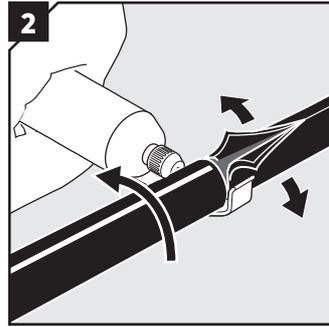
See next page for alternative 2.

## Preparation of SWA cable alternative 2

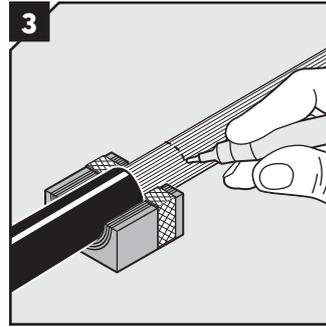
Finishing the end of cable armor with shrink tube or tape.



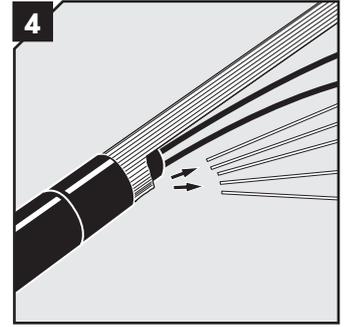
On the cable, mark where outer jacket is to be cut.



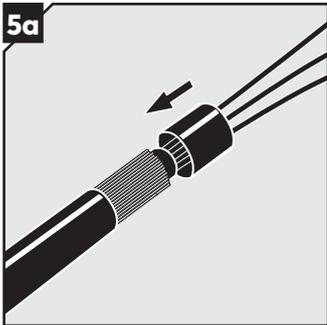
Cut the outer jacket at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cable armor.



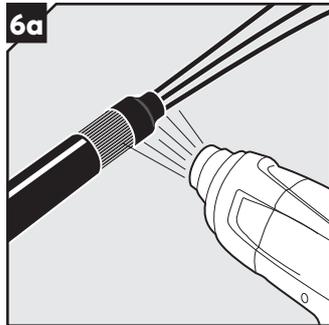
Mark where the armor is to be cut. The remaining armor shall accommodate both the braid of the module and the piece of shrink tube as shown in step 7a or 7b.



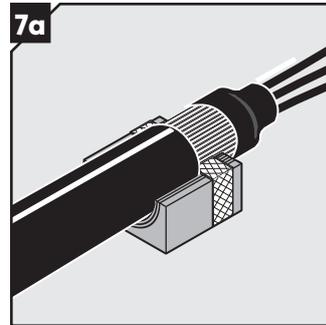
Cut the armor at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cables.



Cover the end of the armor with a piece of shrink tube.

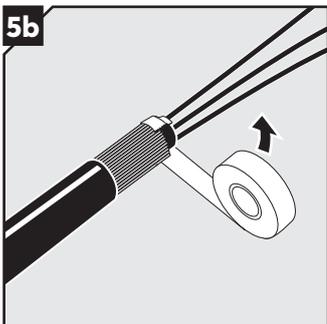


Use a hot air gun to shrink the tube.

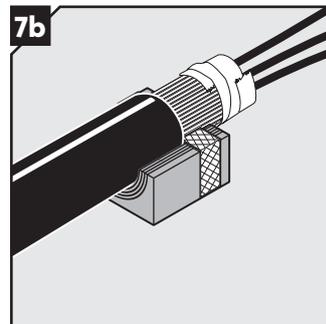
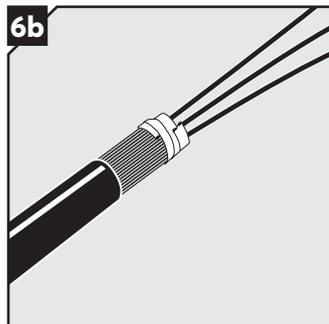


Make sure that the shrink tube is completely outside the module.

## Alternative



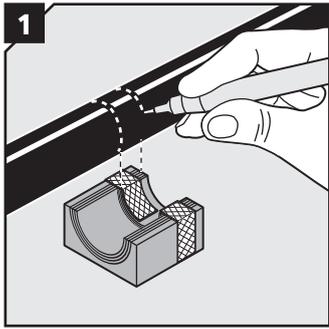
Secure the end of the armor with tape.



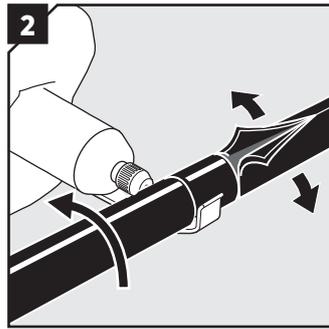
Make sure that the tape is completely outside the module.

## Preparation of braided cable alternative 1

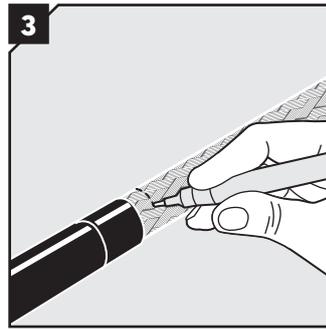
Finishing the end of cable armor with piece of cable jacket.



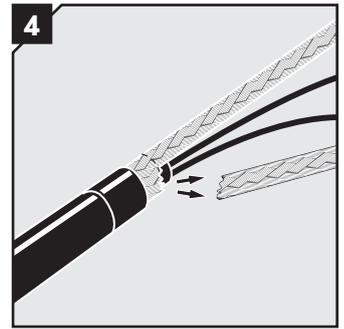
On the cable, make two marks where outer jacket is to be cut.



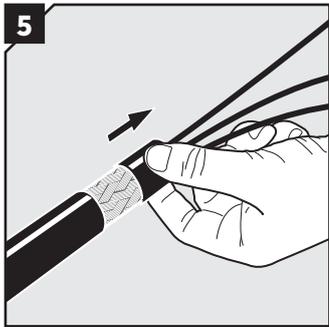
Cut the outer jacket at the two marks with a tool recommended by the cable manufacturer. Make sure not to damage the cable braid. Remove excess jacket.



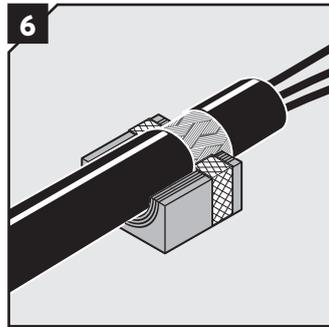
Mark where the cable braid is to be cut. The remaining cable braid shall accommodate both the braid of the module and the piece of cable jacket as shown in step 6.



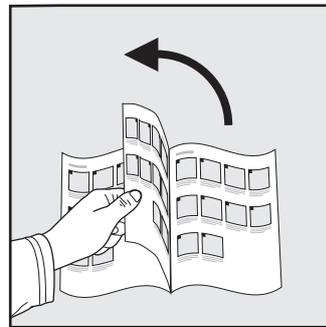
Cut the braid at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cables.



Pull the piece of cable jacket away to cover the end of the cable braid. The exposed cable braid shall accommodate both the braid and the remaining rubber of the module.



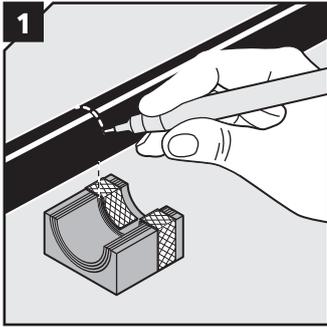
Make sure that the piece of cable jacket is completely outside the module.



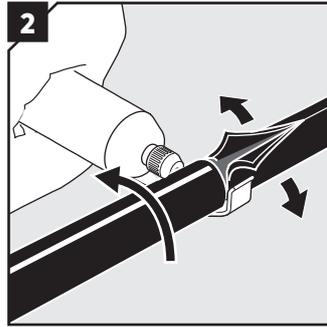
See next page for alternative 2.

## Preparation of braided cable alternative 2

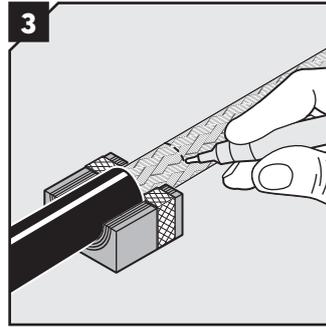
Finishing the end of cable braid with shrink tube or tape.



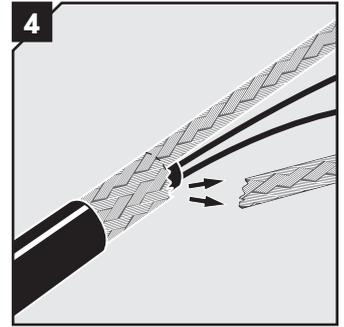
On the cable, mark where outer jacket is to be cut.



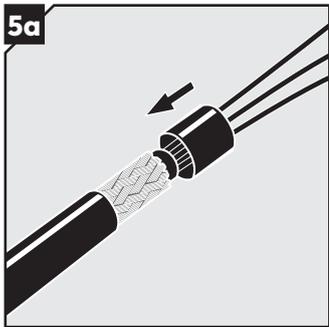
Cut the outer jacket at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cable braid.



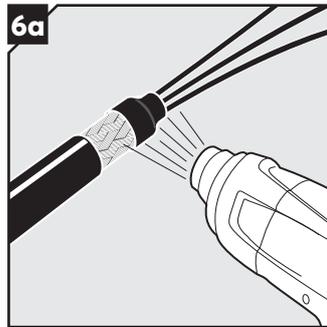
Mark where the braid is to be cut. The remaining cable braid shall accommodate both the braid of the module and the piece of shrink tube as shown in step 7a or 7b.



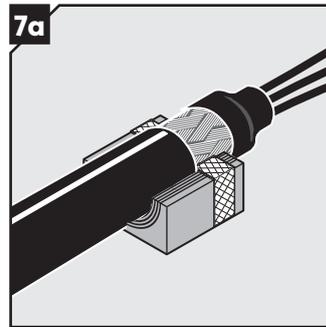
Cut the cable braid at the mark with a tool recommended by the cable manufacturer. Make sure not to damage the cables.



Cover the end of the cable braid with a piece of shrink tube.

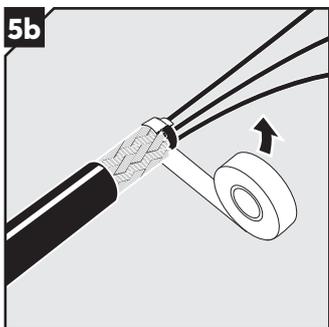


Use a hot air gun to shrink the tube.

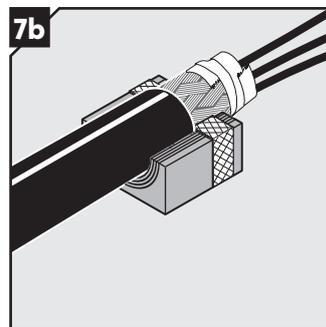
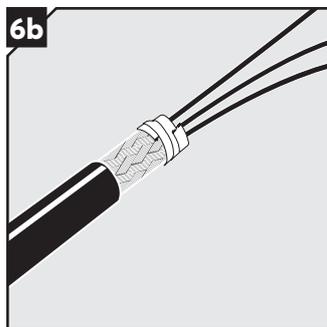


Make sure that the shrink tube is completely outside the module.

## Alternative

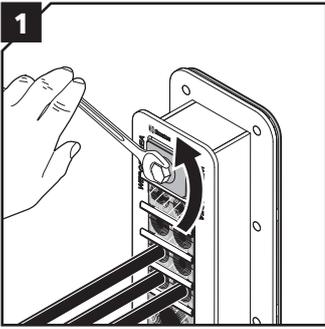


Secure the end of the cable braid with tape.

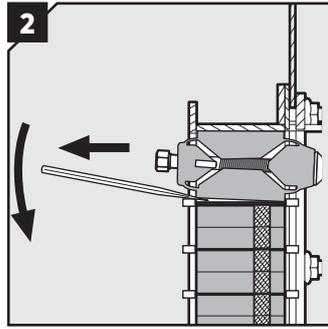


Make sure that the tape is completely outside the module.

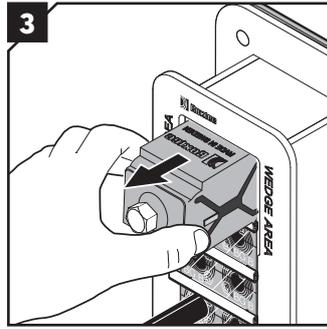
## Disassembly and reinstallation



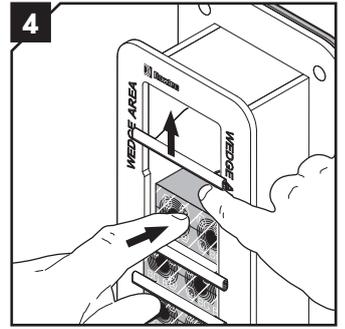
1 Untighten the screw of the compression unit.



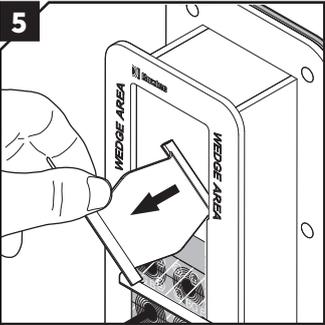
2 Insert a flat tool between the compression unit and the stayplate to simplify removal of the compression unit.



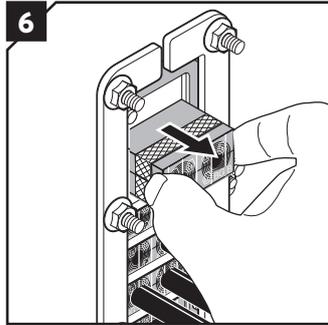
3 Remove the compression unit.



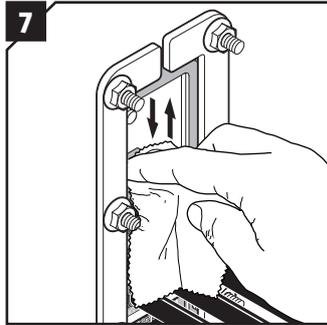
4 Lift the stayplate and push out the upper module from the front side.



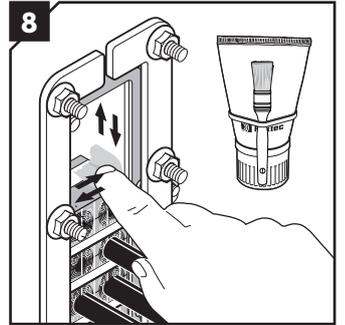
5 Remove the stayplate.



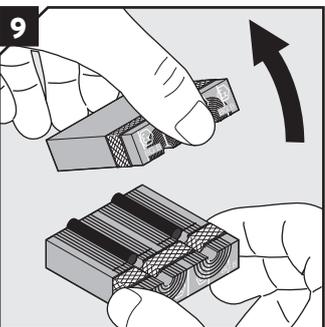
6 Continue to remove the modules by pulling them out from the backside of the frame.



7 The inside surfaces of the exposed packing space shall be clean and conductive.



8 Lubricate the inside surfaces, especially in the corners.



9 Separate the module halves and continue the reinstallation from step 1 on page 4.







## Frame labels

Year of manufacture → XXXX



## Note

- An incorrectly adapted module shall be replaced (layers shall not be reused).
- Temperature range -60 to +80°C.
- You find EC Type Examination certificate at [www.roxtec.com](http://www.roxtec.com), or contact your local Roxtec supplier.
- To be used with: Ex parts.
- Permitted Roxtec module types: CX and CX BG. This instruction is applicable for CX. Do not mix different module types in the same packing space.
- Cables shall go straight through the frame.

The following conditions for safe use shall be considered according to the EC Type Examination certificate and the IECEx Certificate of Conformity:

- For maintaining the explosion protection, the installation instructions that accompany the products shall be considered.
- Only cable for fixed installation is permitted for the cable entry.
- For optimum reliability, wait 24 hours or longer after installation before exposing the cables/pipes to strain or pressure.
- The cables shall have sufficient clamping to ensure that no pulling or twisting will be transmitted to the terminals.
- Cable transit devices must be installed in accordance with the applicable local electrical code and final acceptance is subject to inspection by the local authority having jurisdiction.

## Disclaimer

\*The Roxtec cable and pipe 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.

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