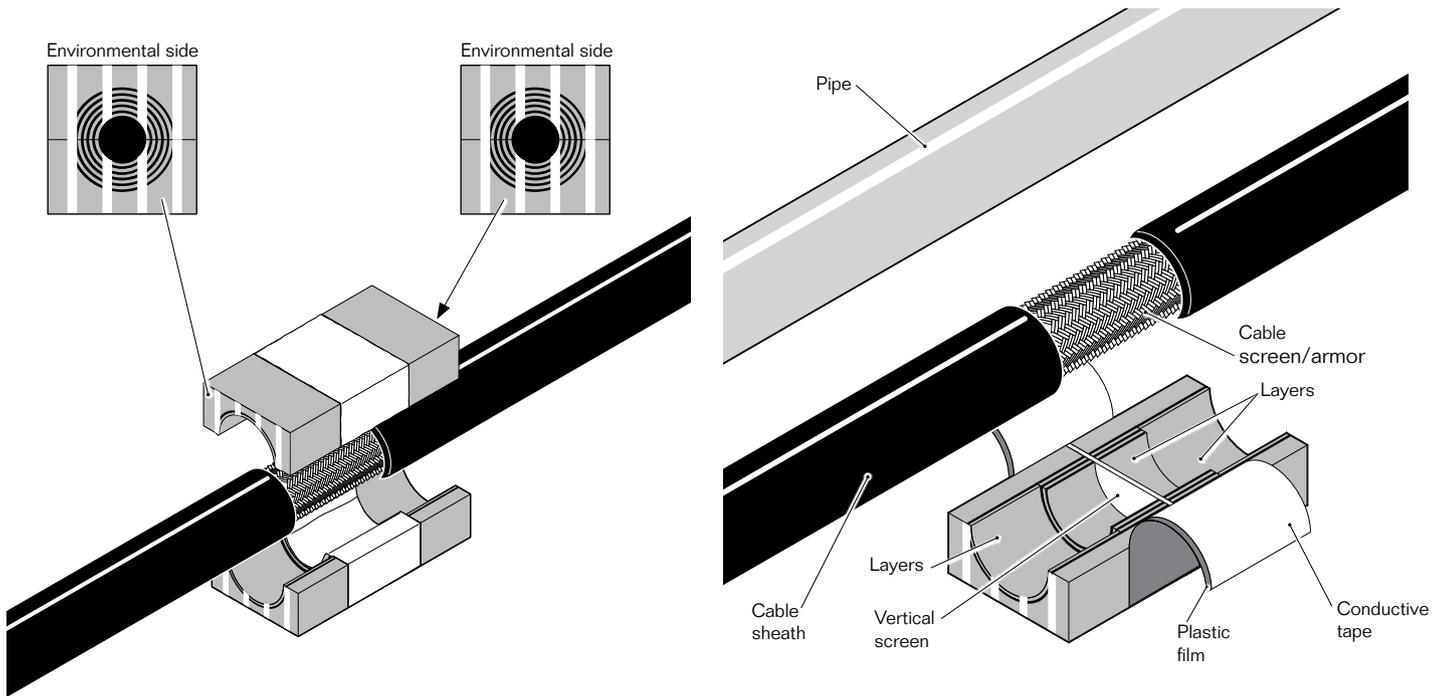


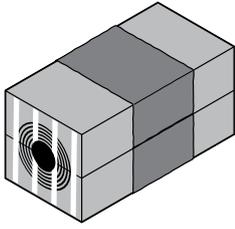


Installation instructions  
Roxtec RM ES

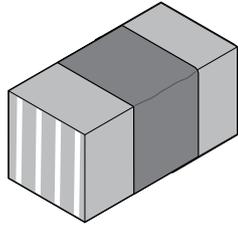


Integrated environmental sealing system for shielded applications. Both sides provide environmental protection.  
For use with armored/shielded cables. For approvals, see [www.roxtec.com](http://www.roxtec.com).

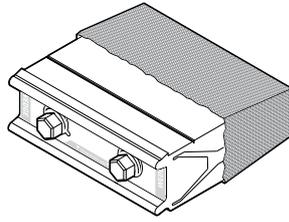
## Components



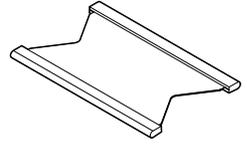
Roxtec ES module



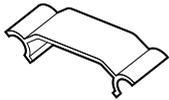
Roxtec solid ES module



Roxtec ES Wedge



Roxtec Stayplate



Roxtec Wedge Clip



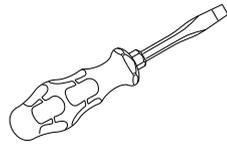
Roxtec Lubricant

## Recommended tools

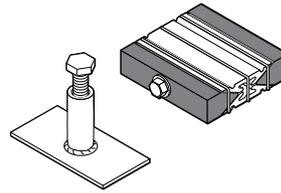
(Not included)



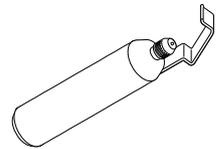
13 mm spanner



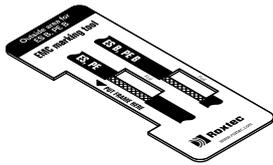
Screwdriver



Pre-compression tools



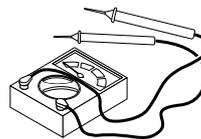
Cable stripper



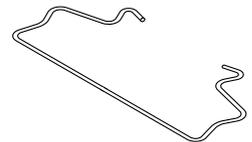
EMC marking tool



Protective goggles

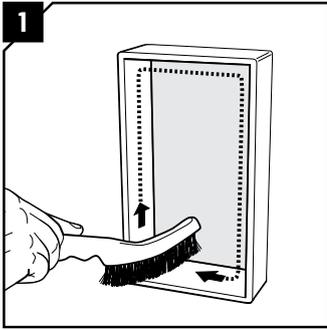


Continuity tester



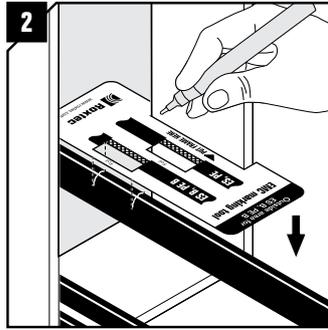
Stayplate clip

# Installation

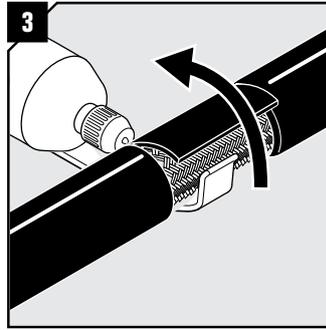


Clean the frame from dirt, paint etc. to secure good electrical conductivity.

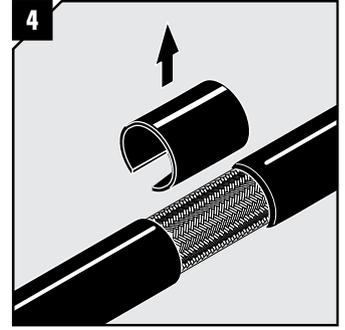
**For pipes:** continue from step 6.



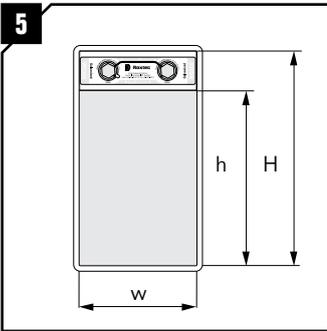
Hold the cable in its final position and mark where the cable sheath is to be removed using the guide.



Cut and remove the outer sheath to expose the shield or armor of the cable.



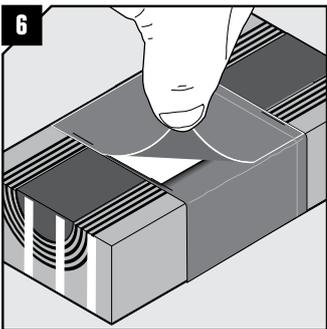
Remove the outer sheath and any plastic foil. Make sure the cable screen/armor/pipe is clean and conductive.



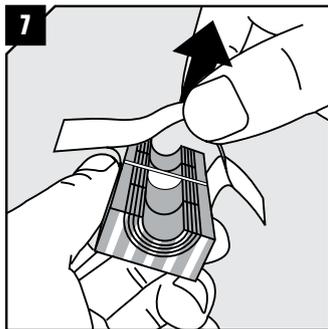
Measure your frame height (H) and check the corresponding packing height (h) in the table. Consider your packing height when inserting the modules.

## Packing space

Frame size	Frame height (H)	Frame width (w)	Packing height (h)
1	101	60	60
2	101	120	60
3	160	60	120
4	160	120	120
5	218	60	180
6	218	120	180
7	278	60	240
8	278	120	240

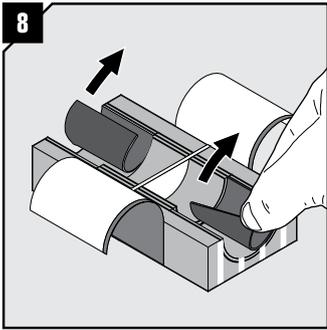


Lift the conductive tape.

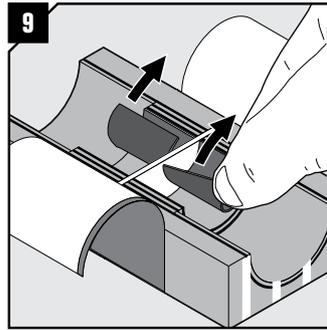


Remove the protection paper from the modules and fold back the tape.

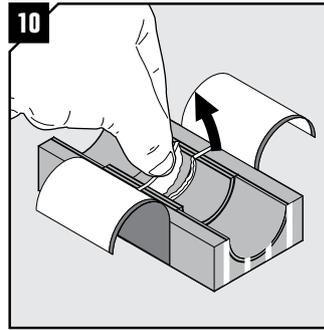
**Note:** This must also be done on all spare modules.



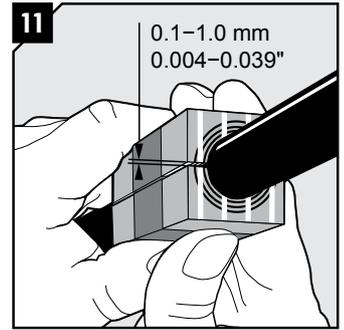
Adapt layers on both module halves to fit the outer sheath of the cable/pipe. **NOTE:** The number of layers may not differ by more than one between the halves.



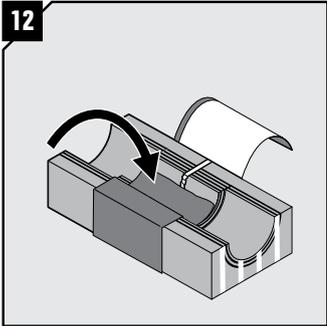
Adapt layers on both module halves to fit the screen/armor of the cable. **NOTE:** The number of layers may not differ by more than one between the halves.



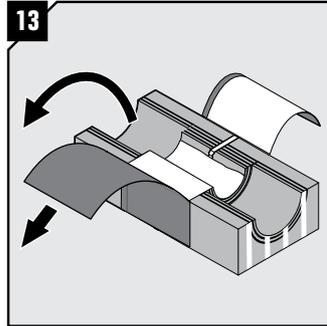
Adapt the vertical screen (conductive barrier) to match the height of inner layers using your fingers.



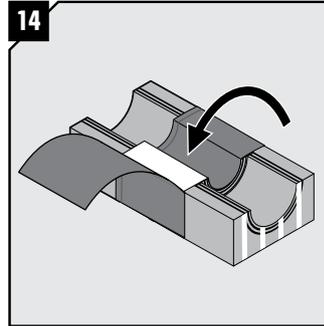
Test with a cable. Achieve a gap of 0.1-1.0 mm between the module halves. If not, repeat 8-10. The halves may not differ by more than one layer. Make sure the screen/armor is in good contact with the tape.



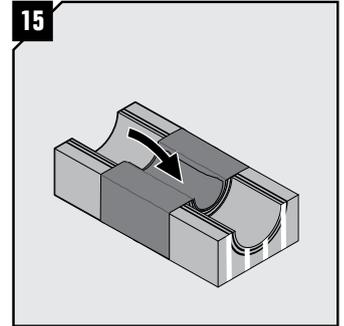
Fold the adhesive tape tightly inside the module half from one side.



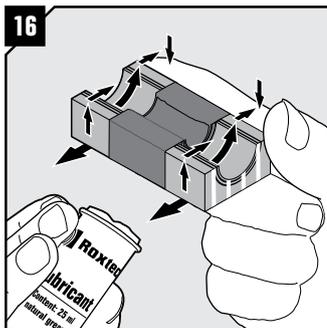
Separate the plastic film from the conductive tape and fold it to the side.



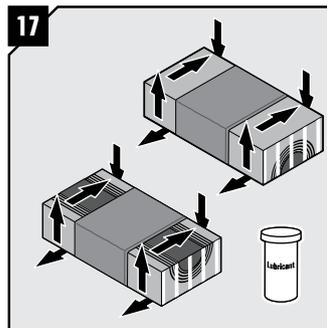
Fold the tape on the other side tightly inside the module half.



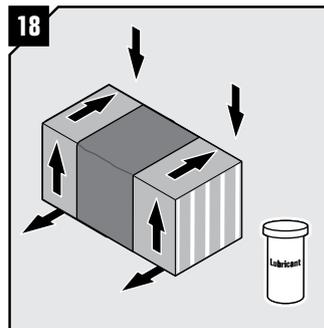
Fold the plastic film back inside the module half.



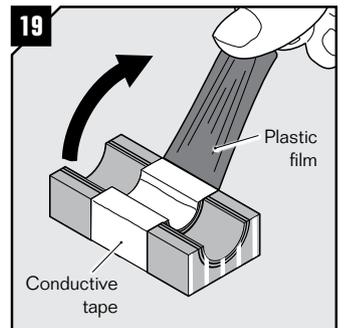
Lubricate all modules used for cables/pipes with Roxtec Lubricant on inside and outside rubber surfaces only. Do not lubricate the plastic film.



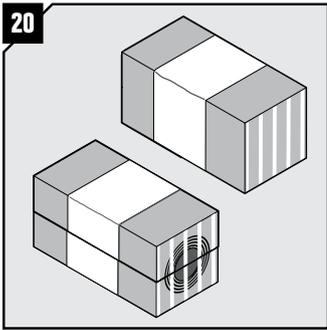
Lubricate all spare modules for the frame thoroughly, both the inside and the outside surfaces. Do not remove the core.



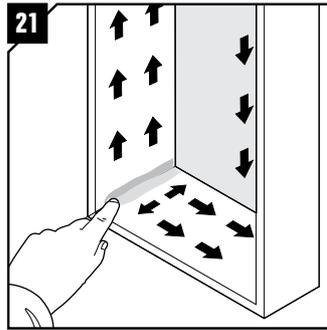
Lubricate solid modules on the sealing surfaces only.



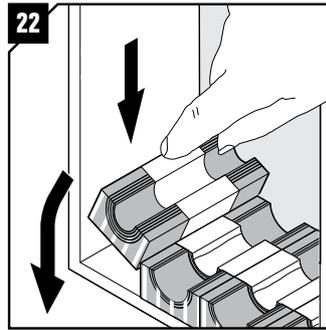
Remove the plastic film! Keep the tape clean.



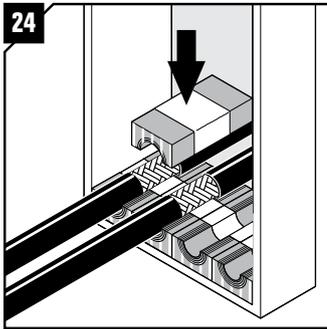
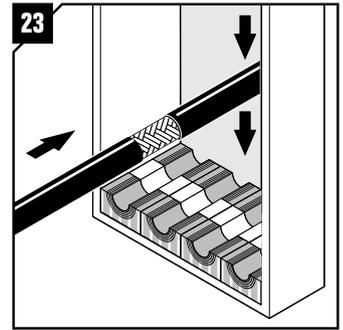
**Note:** Plastic must be removed also on solid and spare modules.



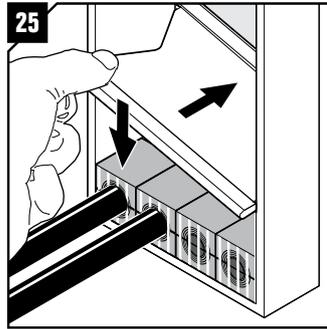
Lubricate the whole frame and especially its corners. Lubricate the area that will be in contact with the tape sparsely.



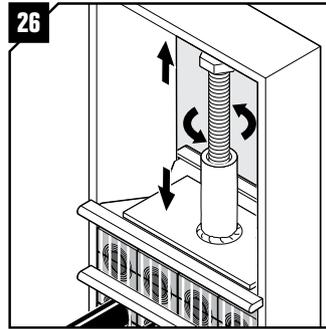
Place cables, according to your transit plan, in the module halves.



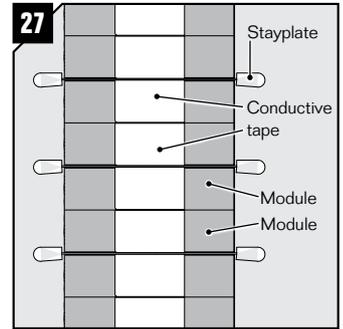
Place corresponding module half directly on top.



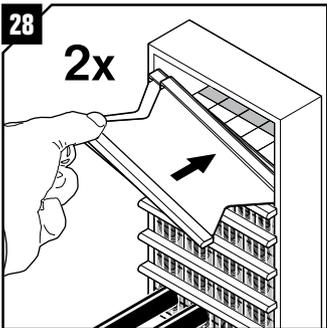
Insert a stayplate on top of every finished row of modules. Make sure the stayplate is clean.



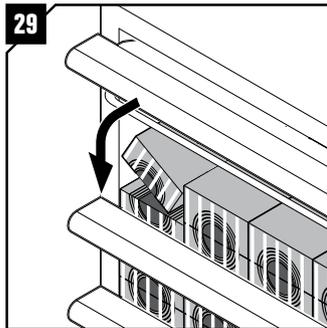
To simplify installation, the use of an optional pre-compression tool on every second module row is recommended. Roxtec installation tools are available.



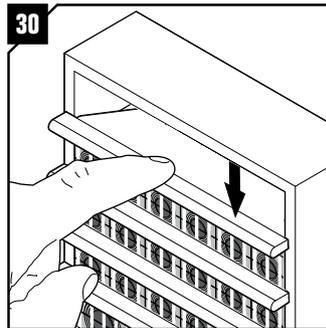
Ensure that the modules are secured within the stayplate edges.



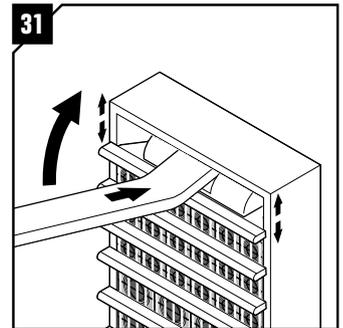
Before inserting the final row of modules, insert two stayplates.



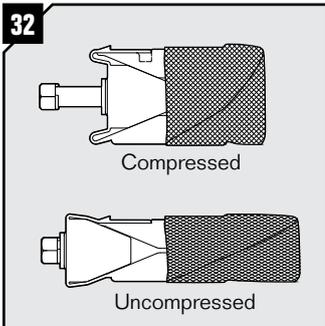
Separate the two stayplates and insert the final row of modules between the stayplates. Avoid damaging the conductive tape.



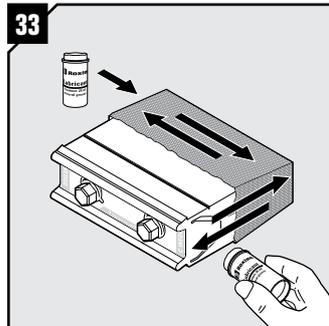
Drop the upper stayplate on top of the modules.



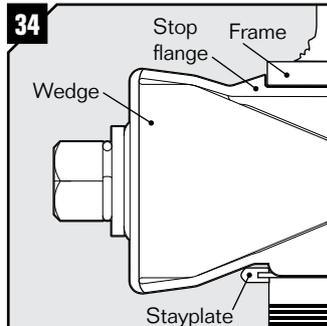
If there is not enough room for the wedge, insert the optional Roxtec pre-compression tool and pre-compress.



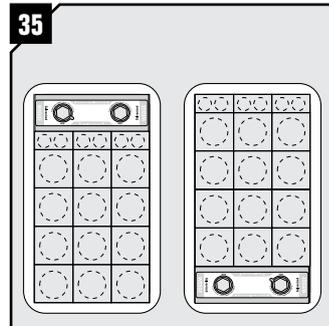
Ensure that the ES wedge is fully uncompressed by untightening the screws of the wedge before inserting it.



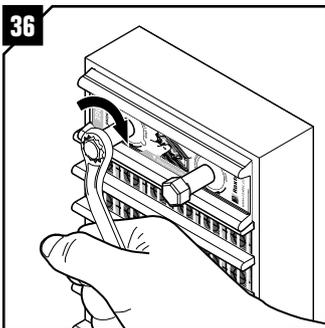
Lubricate both short sides of the wedge and all sides of the net thoroughly.



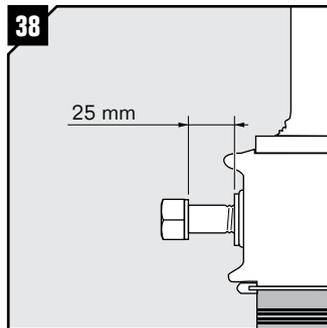
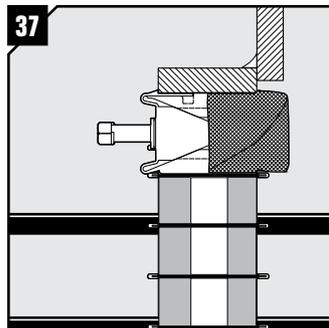
Orientate the wedge so the face marked "Stayplate this side" faces a stayplate. Insert the wedge to the stop flange. Ensure that the wedge is accommodated and secured by the stayplate.



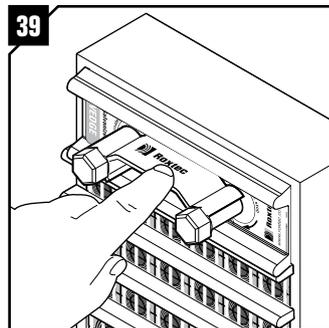
Optional wedge positions.



Tighten the screws alternately until full mechanical stop, approx 20 full revolutions per screw. Do not exceed 20 Nm (15 ft.lb.).

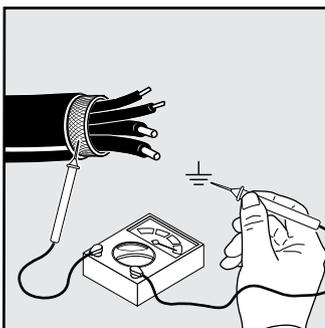


25 mm of the screws shall be exposed.



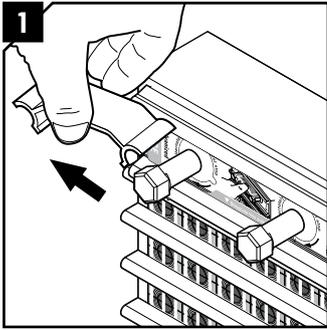
Attach the wedge clip to the ES wedge screws to complete the installation.

## Earth continuity test

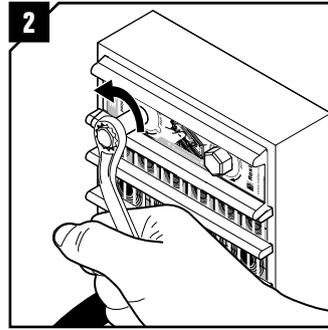


**Optional:**  
Verify earth continuity from each cable screen/armor to earth. Use a suitable instrument.

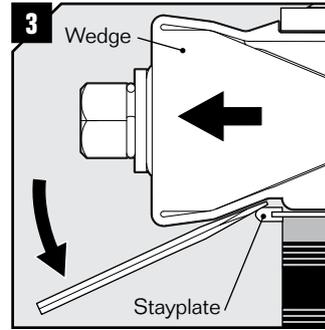
## Disassembly



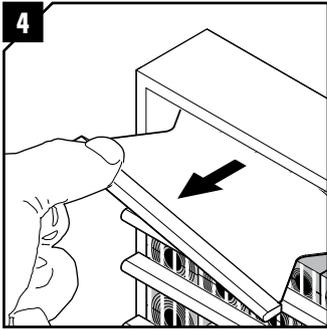
Remove the wedge clip from the wedge.



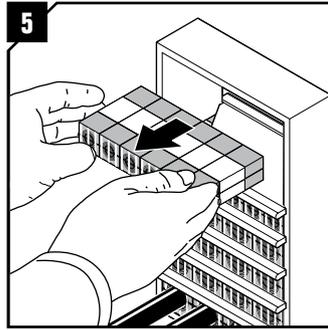
Release the compression by loosening the screws alternately to full stop. Do not exceed 20 Nm (15 ft.lb.).



Insert a flat tool between the wedge and the stayplate to simplify removal of the wedge. Roxtec special tools are available.

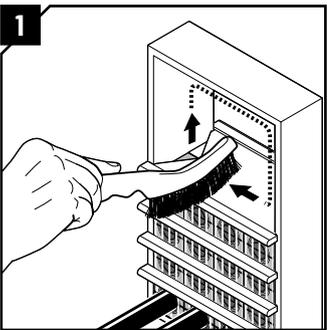


Remove modules and stayplates.

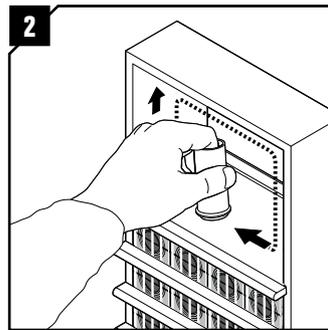


**Note:** Keep the rows sorted until it is time to re-install the transit. If a module is damaged or replaced, all modules in that row must be replaced.

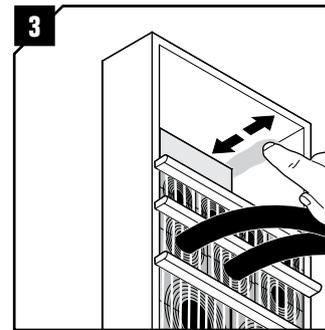
## Re-installation



Make sure that the inside surfaces of the exposed packing space are free from dirt or dust.



Lubricate the inside surfaces all around with Roxtec Lubricant, especially into the corners. Continue the re-installation.



## Module sizing chart

Module type	For cable/pipe outer diameter a-b (mm)
RM 15 ES	3-11
RM 15w40 ES	3.5-10.5
RM 20 ES	4.0-14.5
RM 20w40 ES	3.5-16.5
RM 30 ES	10-25
RM 40 ES	21.5-34.5
RM 40 10-32 ES	9.5-32.5
RM 60 ES	28-54
RM 60 24-54 ES	24-54
RM 80 ES	48-71
RM 90 ES	48-71
RM 120 ES	67.5-99

### Note:

The range of the modules indicates the smallest possible diameter of the exposed cable screen/armor or pipe to the largest possible diameter of the cable sheath or pipe.

## Note

- For optimum reliability, wait 24 hours or longer after installation before exposing the cables or pipes to strain or pressure.
- Optional wedge positions. The wedge can be placed in the top or bottom of the frame.
- Cables shall go straight through the frame.
- Make sure the tape is not damaged on re-used modules.

## 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

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