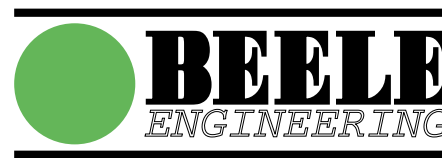


INSTALLATION INSTRUCTIONS MULTI-ALL-MIX® SEALING SYSTEM FOR CABLE/PIPE TRANSITS



TESTED TO IMO RESOLUTION A.754(I8);
FIRE RESISTANCE AO-A60
EC (MED) CERTIFICATE
MED-B-4908 ISSUED BY DNV



PLEASE ALSO REFER TO THE STAMPED INSTALLATION DRAWINGS ATTACHED TO OUR MED AND TYPE APPROVAL CERTIFICATES

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brochure code	: multi-all-mix/installation/en/mar



NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT



CRUSHER® type WRAP



plastic pipe OD	crusher® type	crusher® length	article number
16	30/16	140	80.2720
18	30/18	140	80.2721
20	40/20	140	80.2722
25	40/25	140	80.2723
32	50/32	140	80.2724
40	50/40	140	80.2725
50	70/50	140	80.2726
63	80/63	140	80.2727
75	100/75	140	80.2728
90	125/90	140	80.2729
110	150/110	140	80.2730
125	160/125	140	80.2731
140	180/140	140	80.2732
160	200/160	140	80.2733
wrap 1000x140x2.5 mm			80.2512

RISE® cable sleeves



Note: maximum continuous service temperature of the RISE® sleeves and CRUSHERS® not to exceed 70 °C. Consult our technical support department in case of higher operating temperatures.

cable sleeves are supplied split lengthwise

RISE® cable sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	140	80.0051
14/8	7 - 9	140	80.0052
16/10	9 - 11	140	80.0053
18/12	11 - 13	140	80.0054
20/14	13 - 15	140	80.0055
22/16	15 - 17	140	80.0056
27/19	17 - 21	140	80.0057
31/23	21 - 25	140	80.0058
35/27	25 - 29	140	80.0059
39/31	29 - 33	140	80.0060
46/36	33 - 39	140	80.0061
52/42	39 - 45	140	80.0062
58/48	45 - 51	140	80.0063
64/54	51 - 57	140	80.0064
70/60	57 - 63	140	80.0065

NOFIRNO® filler sleeve	sleeve length	article number
18/12 single	140	80.5002
18/12 multi	140	80.5052
27/19 single	140	80.5012
27/19 multi	140	80.5062

NOFIRNO® filler sleeves



filler sleeves are supplied non-split, single and multi (set of 10)

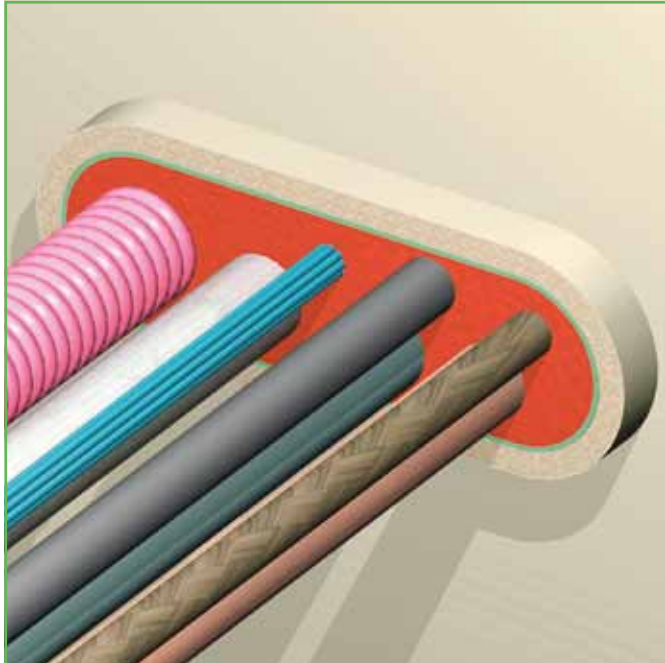
article number 50.0102



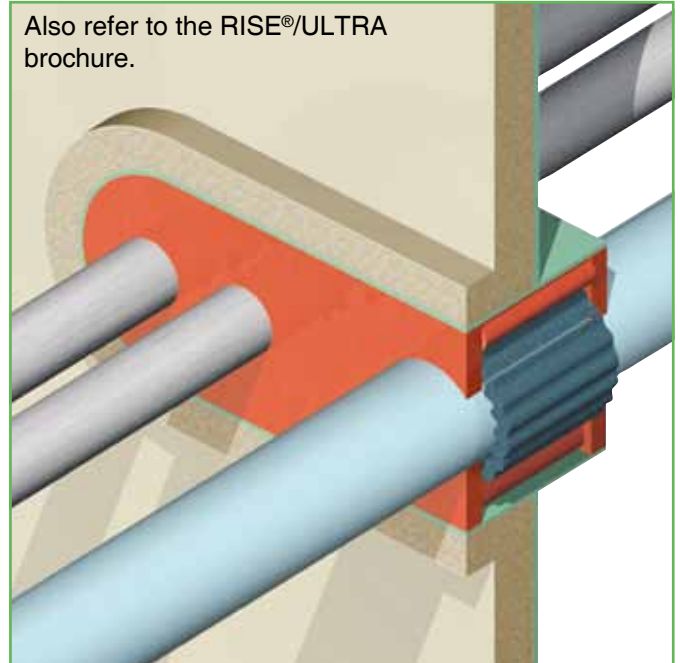
NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead. After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

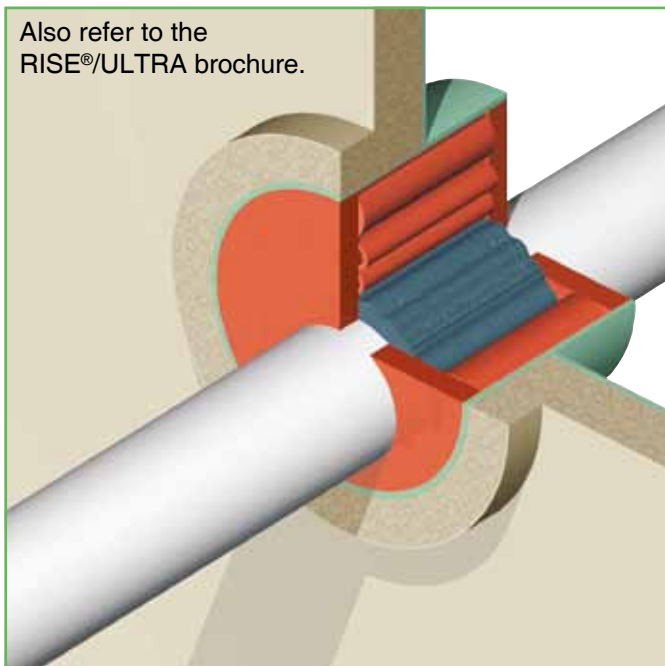
NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM



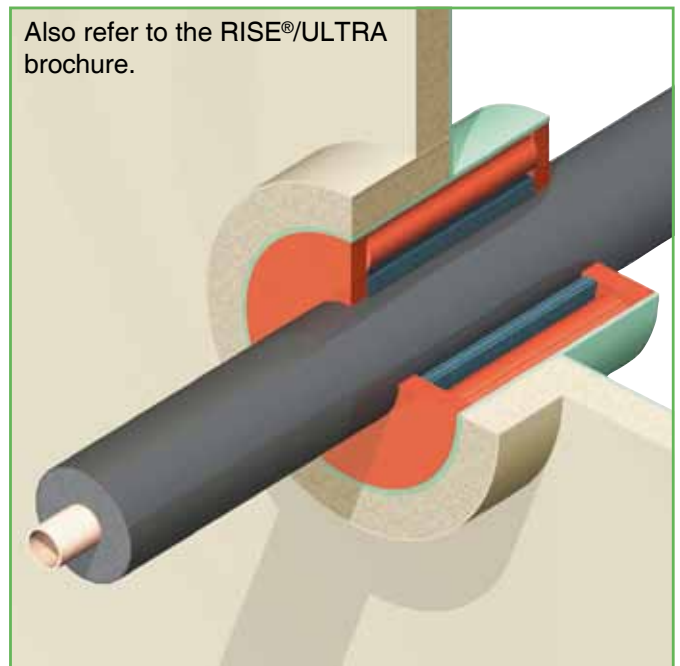
Several options are available with NOFIRNO® in combination with RISE® and RISE®/ULTRA. The latest development is the so-called MULTI-ALL-MIX® cable/pipe transit system. RISE® for the cables, RISE®/ULTRA for the plastic pipes and NOFIRNO® for finishing.



RISE®/ULTRA in combination with NOFIRNO® filler sleeves and sealant can be used for multi-plastic and multi-plastic/metallic pipe penetrations. NOFIRNO® filler sleeves fill open spaces in the conduit, and NOFIRNO® sealant is applied at both sides of the penetration.



For oversized conduits and off centre ducted plastic pipes, NOFIRNO® filler sleeves are used to fill open spaces in the penetration between the RISE®/ULTRA crusher and the wall of the conduit sleeve. NOFIRNO® sealant to be applied in a thickness of 20 mm at both sides of the penetration.

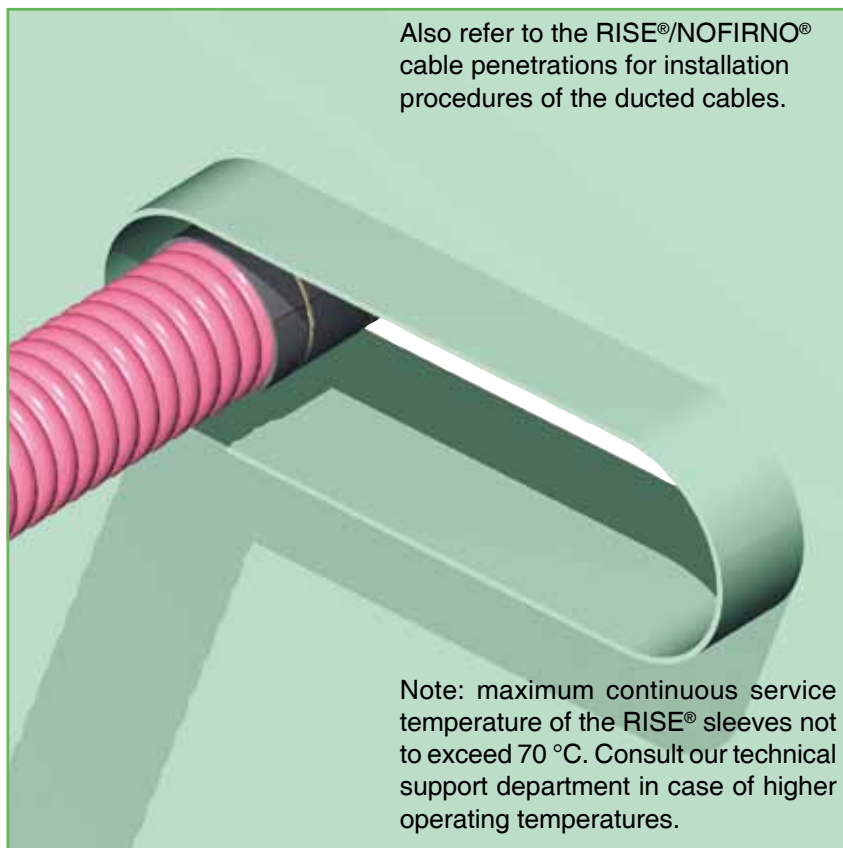


RISE®/ULTRA crushers in combination with NOFIRNO® filler sleeves and sealant eliminate interruption of thermal insulation. NOFIRNO® filler sleeves have to be applied around the RISE/ULTRA® crusher. NOFIRNO® sealant to be applied in a thickness of 20 mm at both sides of the penetration.



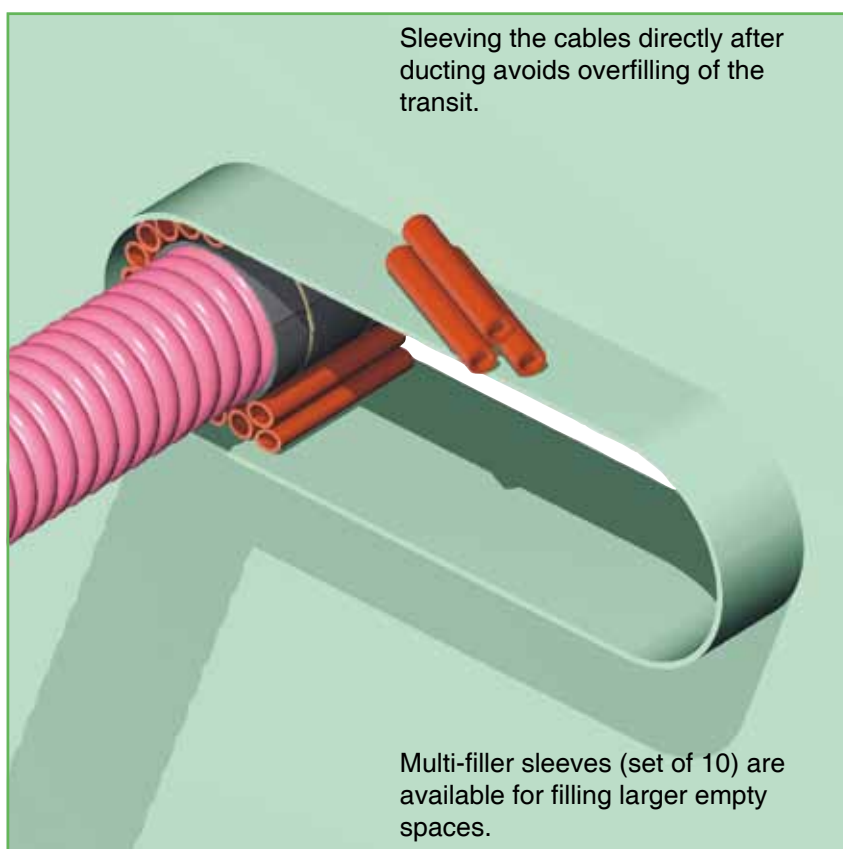
NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

1) The cables can be ducted through the conduit sleeve/frame in random order. After the cables have been ducted, RISE® insert sleeves are applied around each cable.



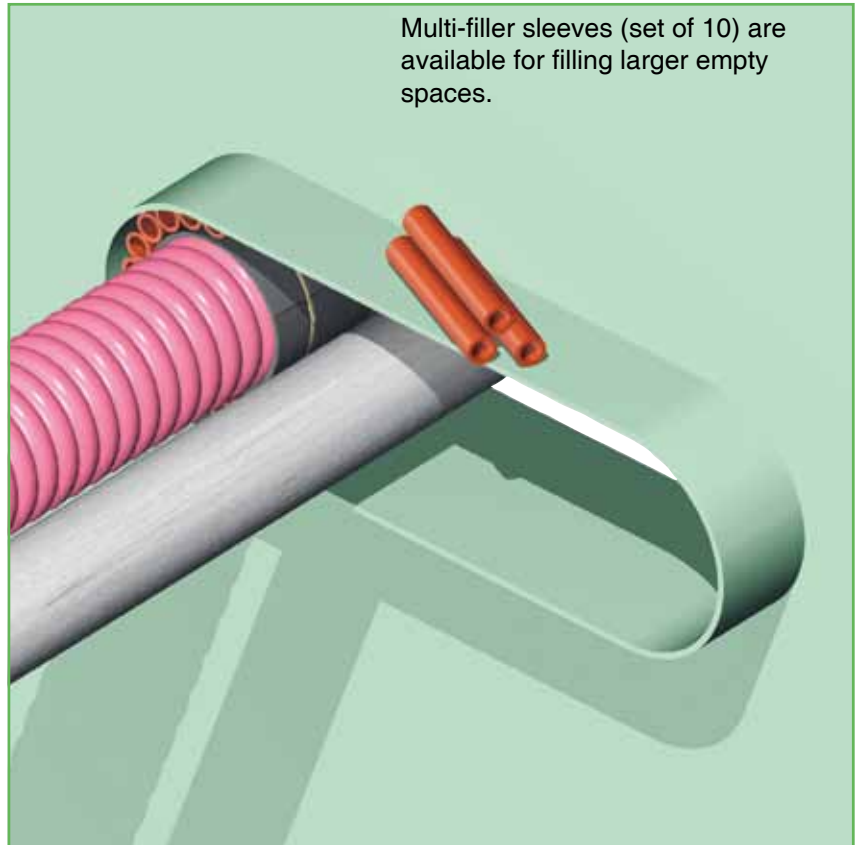
2) The RISE® insert sleeves are split lengthwise and can therefore be fitted around the cables in front of the conduit.

For cable sizes > 64 mm a RISE® wrap with thickness 5 mm is applied. The wraps can be fixed with a tie-wrap (or similar).

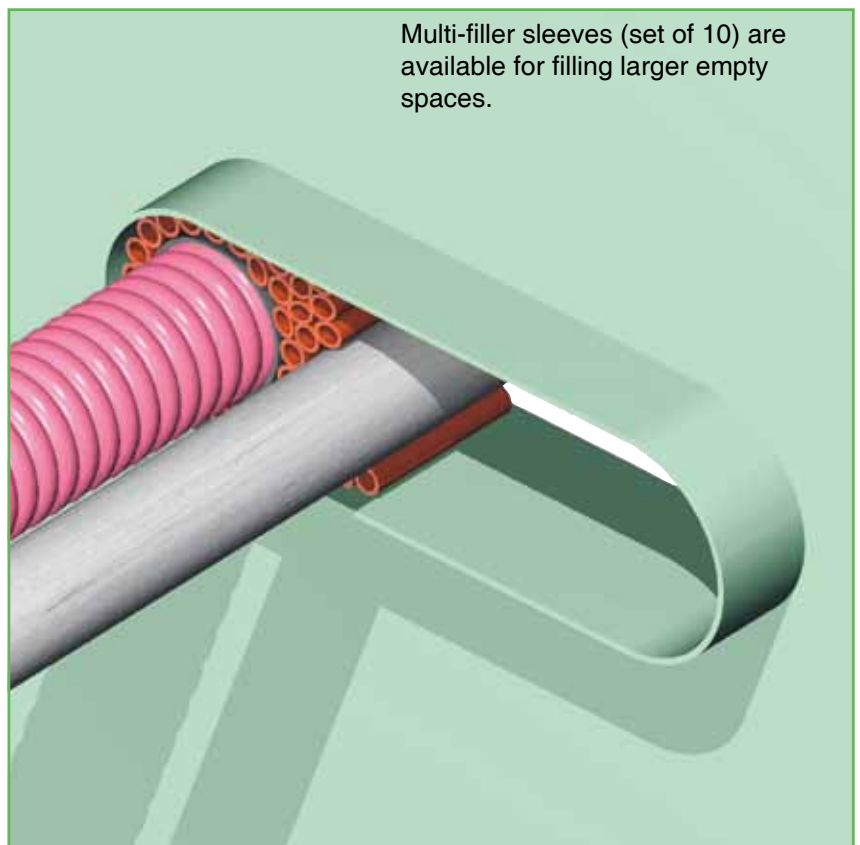


NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

3) The system is also approved for ducting steel/stainless steel pipes. The minimum interspacing should be followed according to the specifications on the approved installation drawings.



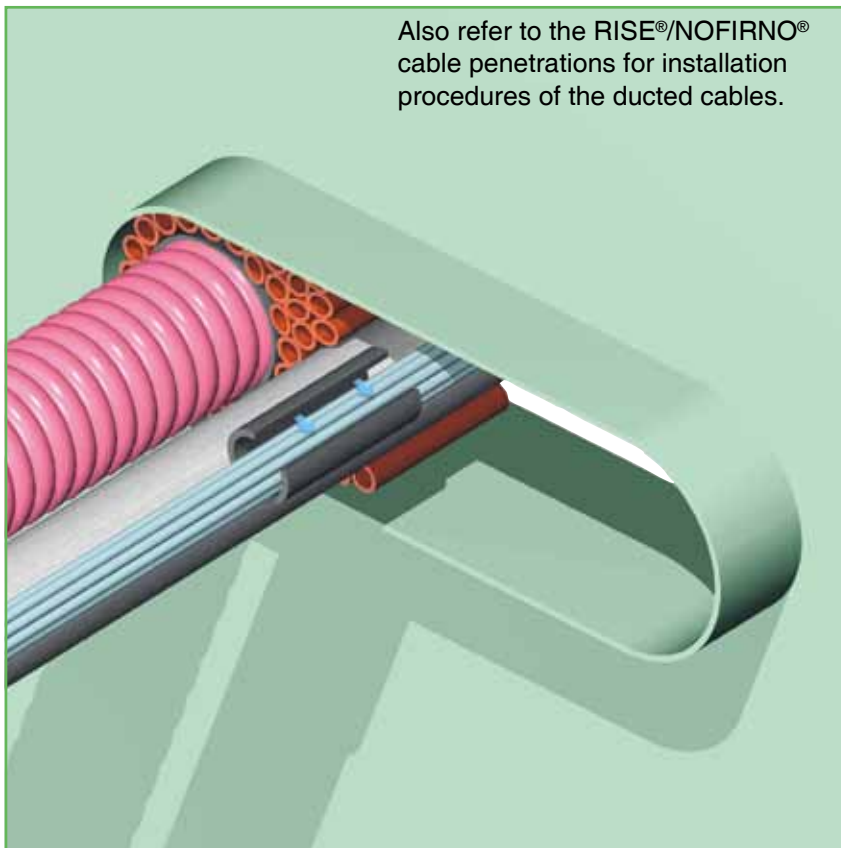
4) Separation of the metallic pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s). NOFIRNO® filler sleeves are available in sizes 18/12 and 27/19 and are non-split for ease of installation.



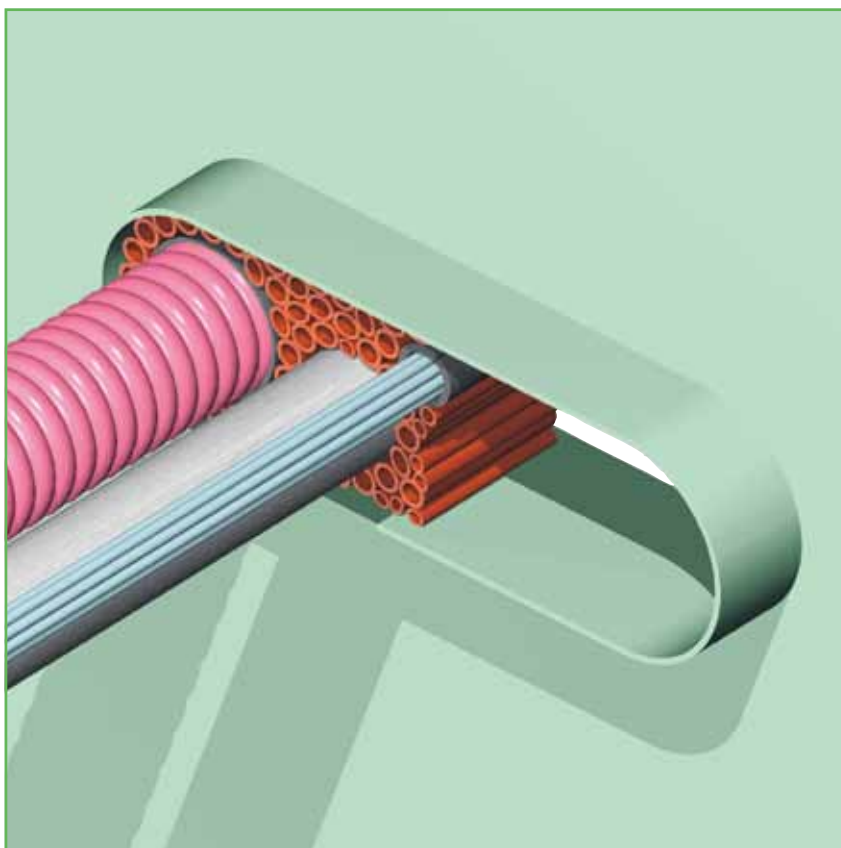


NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

5) Bundled cable sets are allowed in the NOFIRNO® multi-all-mix® sealing system, using only a single RISE® insert sleeve. See the approved installation drawings for details.



6) Open spaces in the conduit are afterwards filled with NOFIRNO® filler sleeves type 27/19 and 18/12. The ratio 27/19 to 18/12 should be about 2:1. NOFIRNO® multi-filler sleeves can be used for filling the larger open spaces.

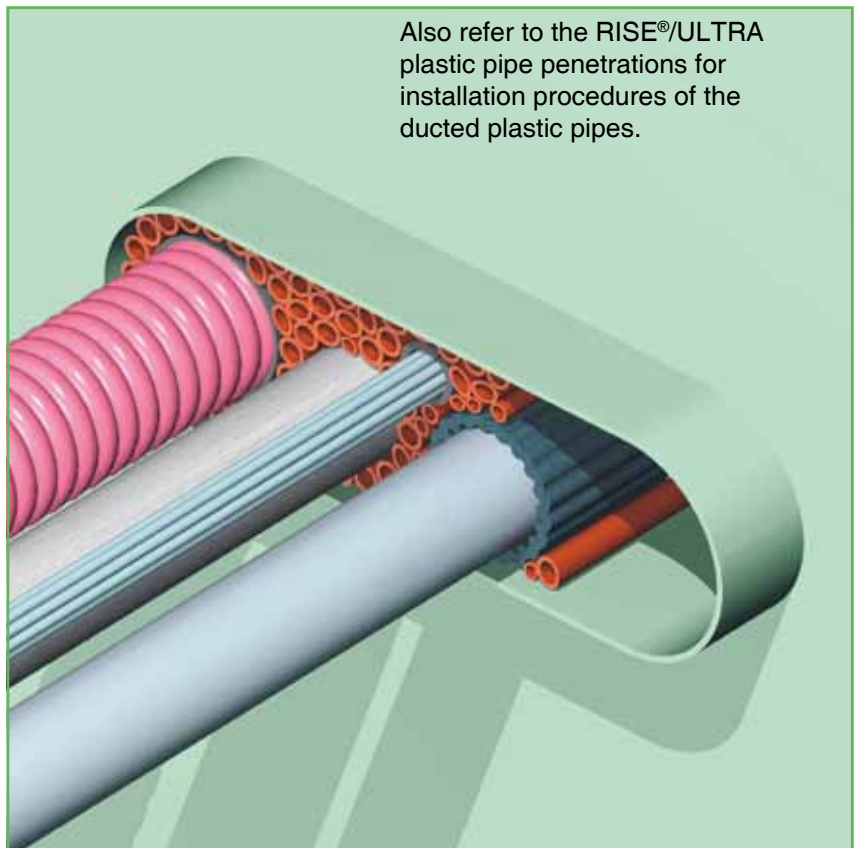
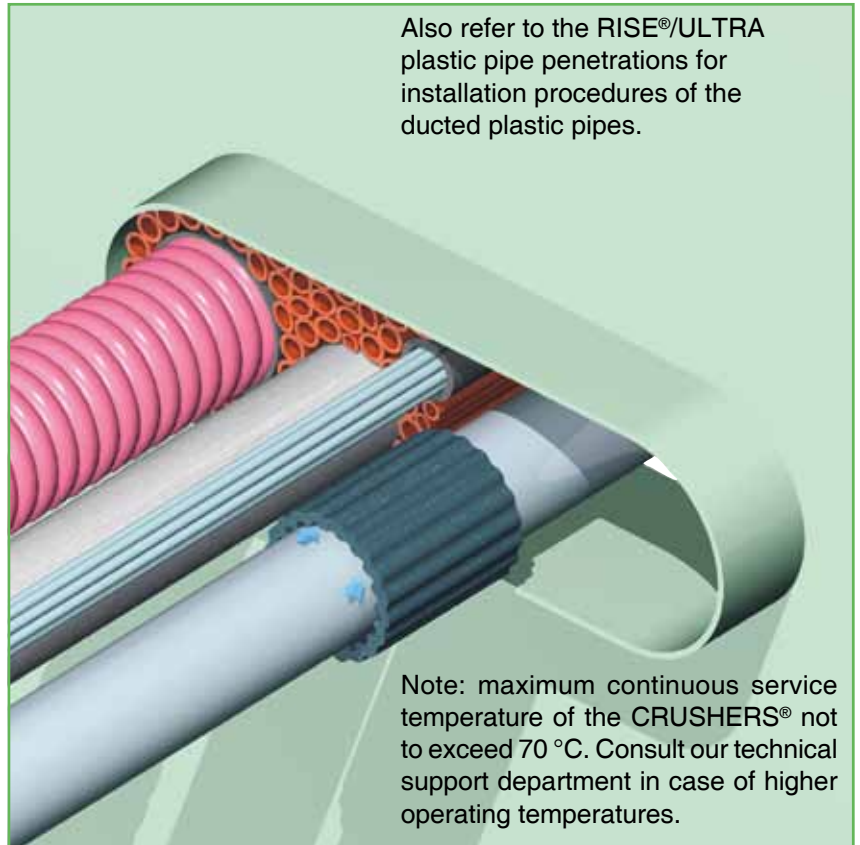


NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

7) Plastic pipes can also be ducted through the multi-all-mix® transit. Place a RISE®/ULTRA crusher around the ducted pipe in front of the penetration. RISE®/ULTRA crushers are split lengthwise.



8) Push the insert/filler sleeves and the crusher into the conduit in such a way as to leave about 20 mm free space at both sides of the transit. This space is needed to apply the NOFIRNO® sealant at a later stage.

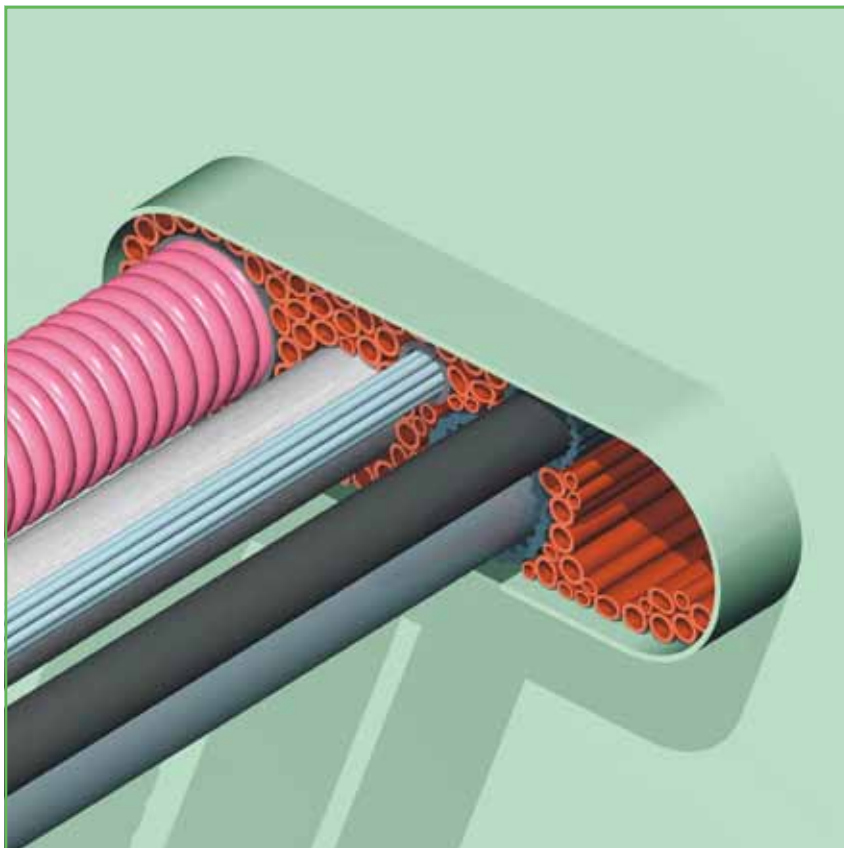




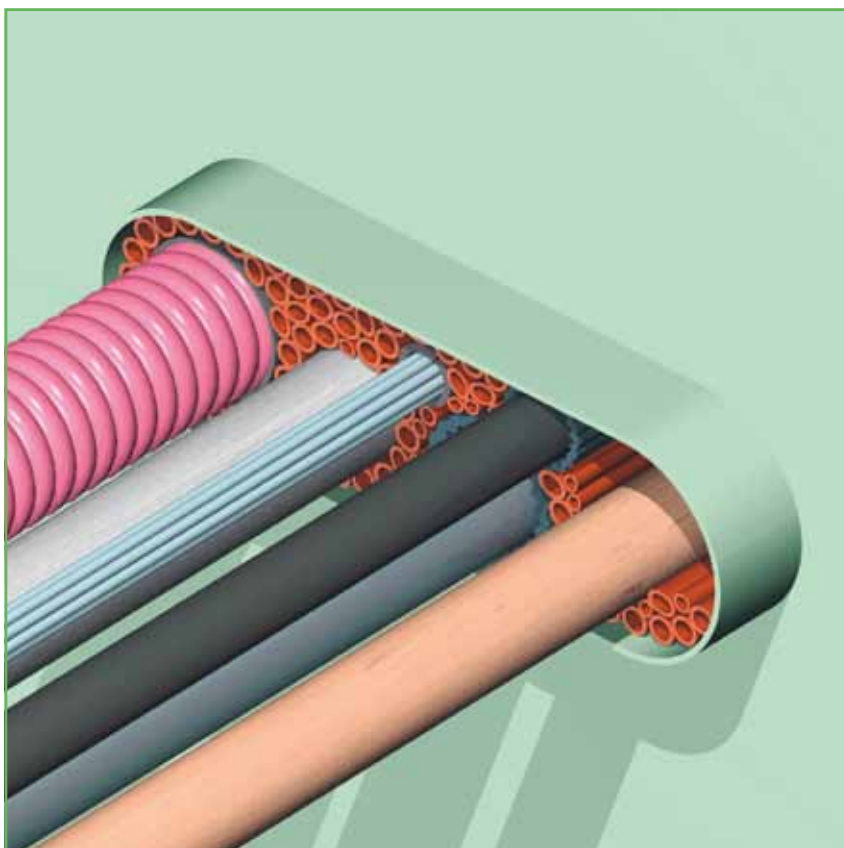
NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

9) The system also allows for various types of plastic pipes and lines with can be regarded as plastic pipes (for instance multi-beverage lines).

A RISE®/ULTRA crusher or wrap is placed around the pipes or lines, and inserted into the penetration.

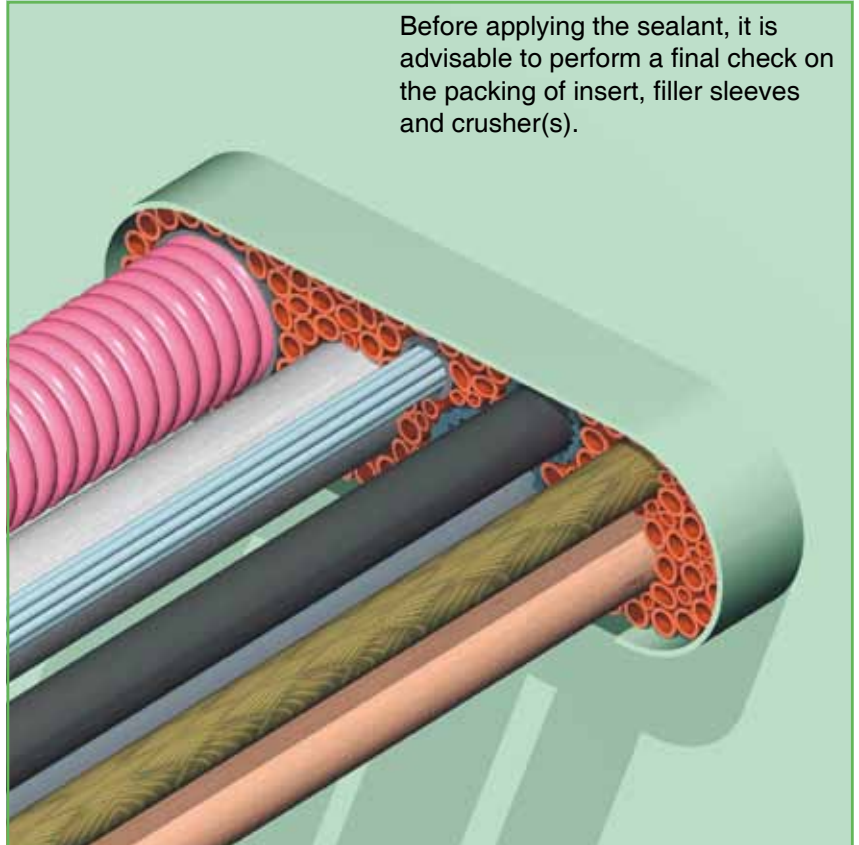


10) Copper/CuNi pipes can also be ducted through the multi-all-mix penetration. Separation of the metallic pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s). The minimum interspacing should be followed according to the specifications on the approved installation drawings.



NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

11) GRP pipes are also allowed. Separation of the GRP pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s). The remaining open spaces in the transit are filled with NOFIRNO® single and multi-filler sleeves.



Before applying the sealant, it is advisable to perform a final check on the packing of insert, filler sleeves and crusher(s).



12) The whole set of crushers, insert and filler sleeves should tightly fit into the conduit. Clean and dry the inside of the conduit sleeve and the cables/pipes thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.

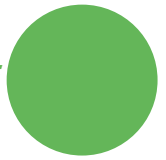


People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

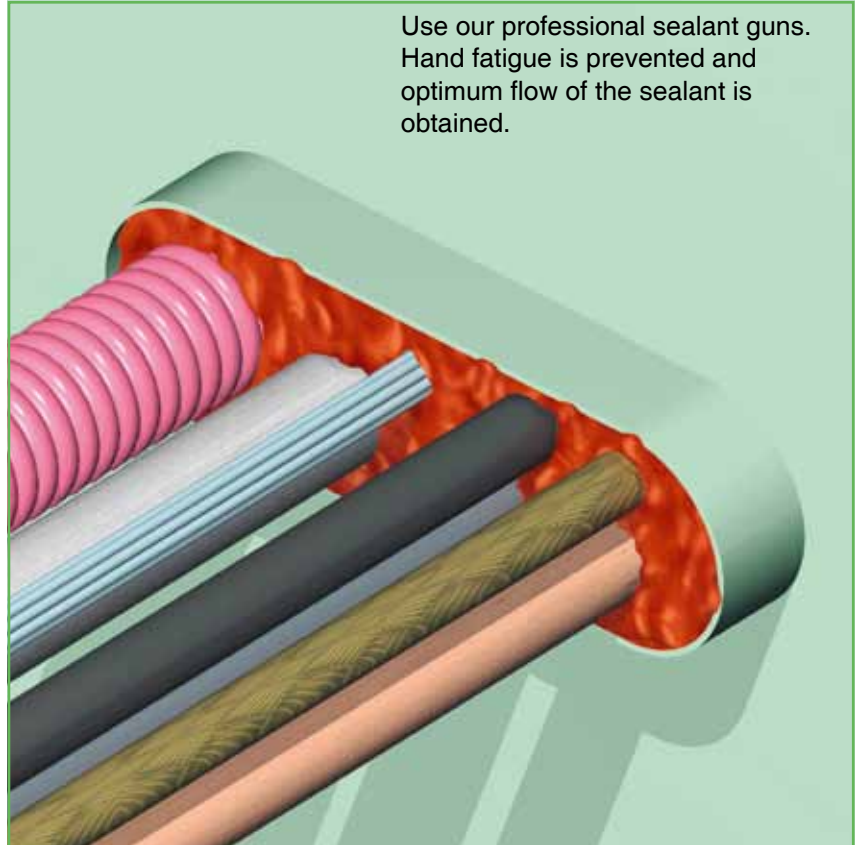
Note: due to the curing process, the sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C (140 °F).





NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

13) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



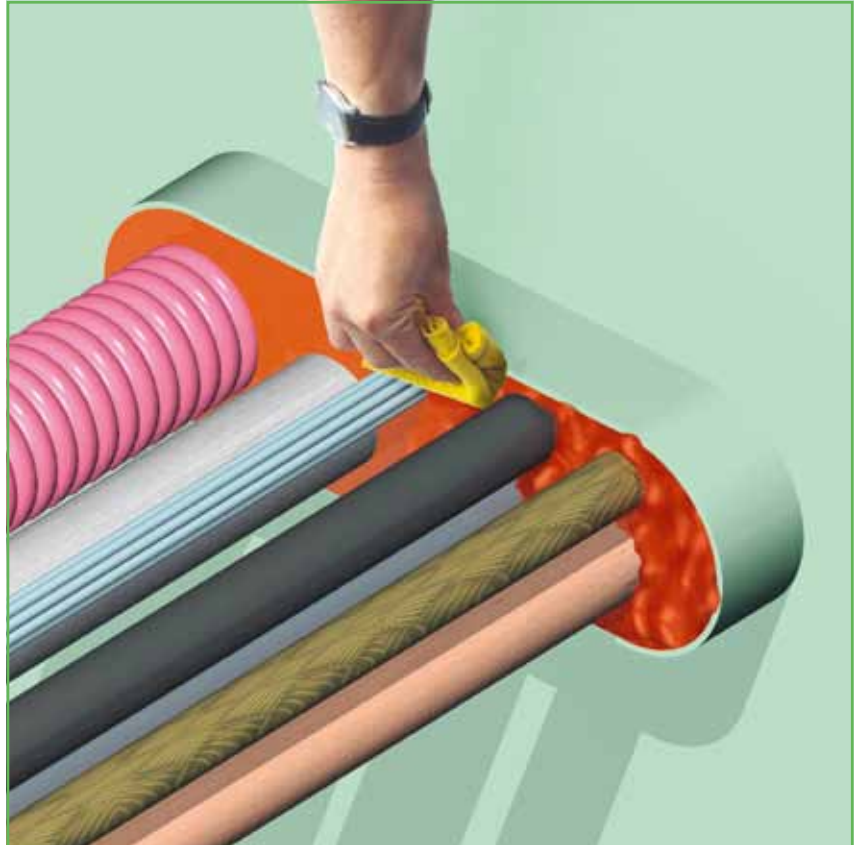
14) To smooth the surface of the NOFIRNO® sealant layer, a cloth is sprayed with water. This prevents the sealant from sticking to the cloth. Note: do not use soap water!



NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

15) The cloth is then used to press down the sealant layer.

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16) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.



People with sensitive skin should use gloves when working with NOFIRNO®.

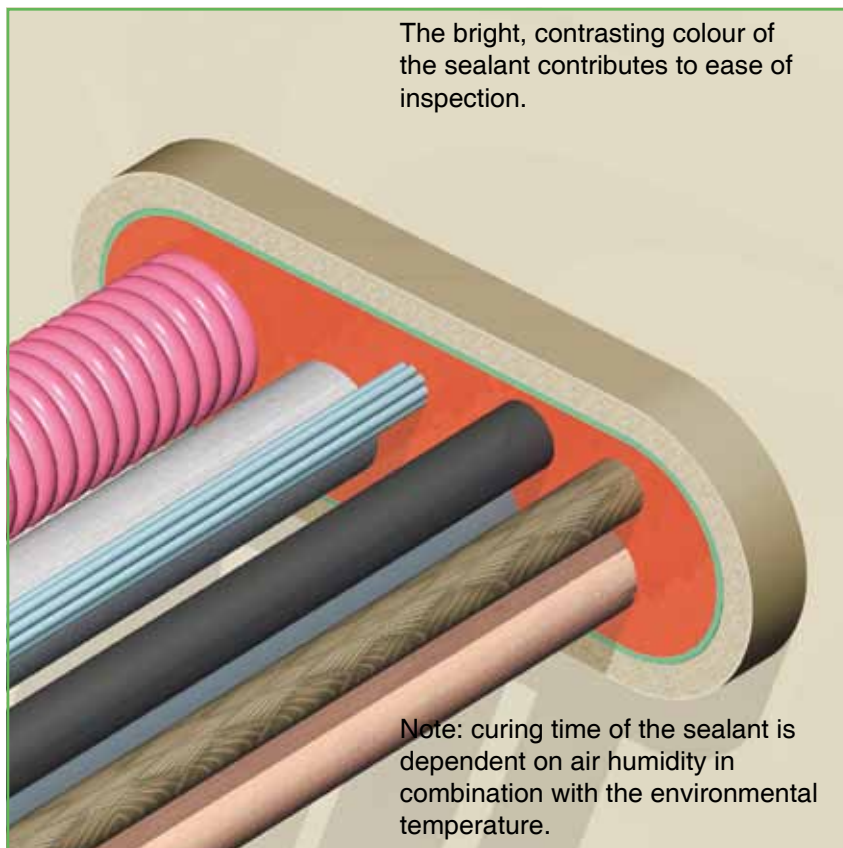
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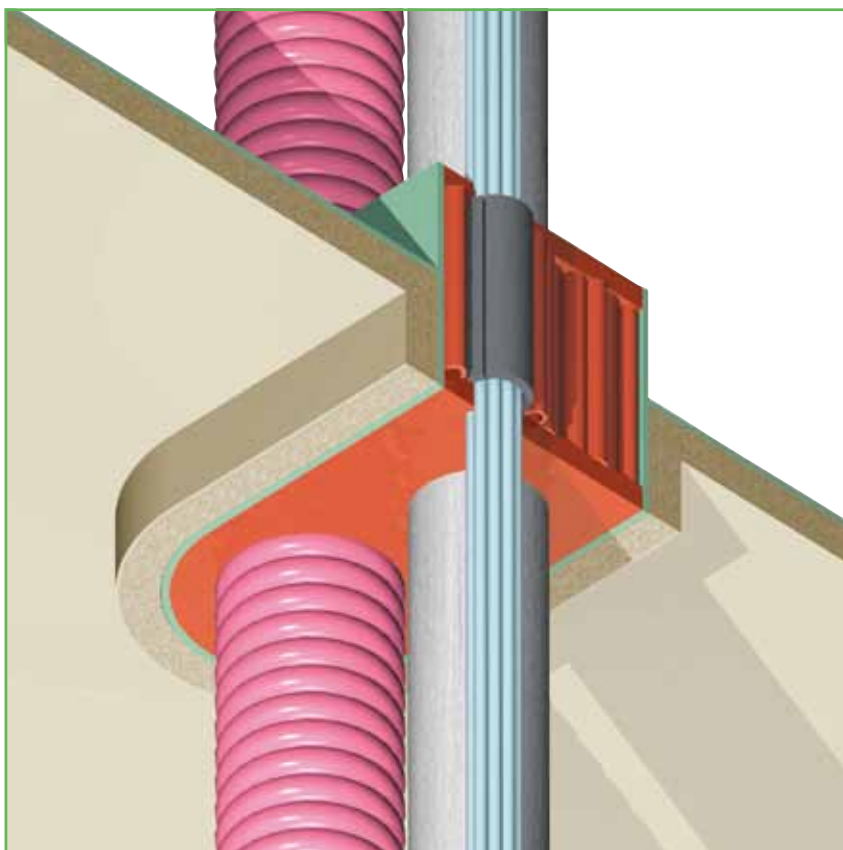


NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

17) For A-class penetrations, the conduit sleeve/frame needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck.
No extra insulation needed in front of the penetration for cables and plastic pipes.



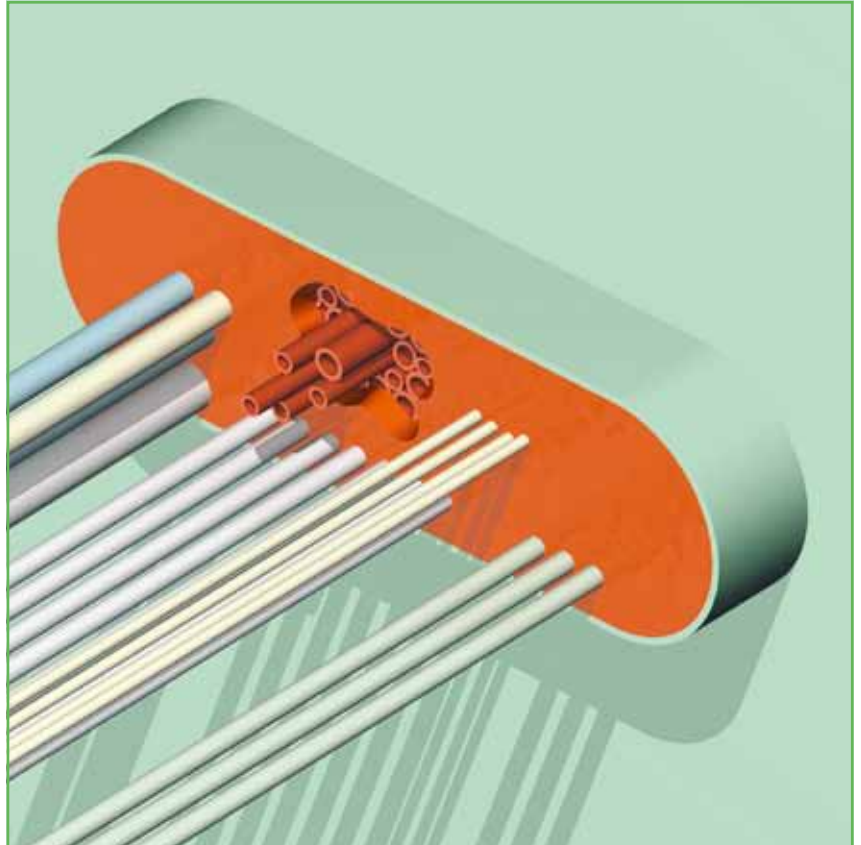
18) The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead an easy matter. NOFIRNO® sealant does not sag and will not drip off.



NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

Adding extra cables or pipes is an easy job. Cut away the sealant layer at both sides of the penetration with a knife or a hollow punch in a tapering shape.

Remove one or more NOFIRNO® filler sleeves to create a fitting opening for the cable or pipe to be ducted.



Place a RISE® sleeve around the newly ducted cable or a RISE®/ULTRA crusher around the newly ducted plastic pipe. Push the insert sleeve/crusher into the conduit.

Fill the remaining space with NOFIRNO® filler sleeves. Refill the opening with sufficient NOFIRNO® sealant at both sides of the penetration.



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

Note: curing time of the sealant is dependent on air humidity in combination with the environmental temperature.

