

RISE®

SEALING SYSTEM FOR MULTI-CABLE TRANSITS

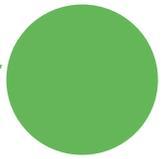


**TESTED TO IMO RESOLUTION A.754(I8);
FIRE CLASS AO-A60 and HO-HI20
EC (MED) CERTIFICATE
09156/CO ISSUED BY BUREAU VERITAS**

CONTENTS

page	I	Introduction to BEELE Engineering
pages	2-3	Performance of RISE® rubber grade and sealing system
pages	4-5	RISE® tables and possible configurations
pages	6-17	RISE® installation instructions
pages	18-23	RISE® EXTEND-A-FRAMES for existing block systems
pages	24-25	RISE® properties and additional testing
pages	26-31	RISE® EMC/EMI penetrations: installation instructions
pages	32-35	RIACNOF® and NOFIRNO® multi-cable transits
pages	36	Calculation software
page	37	BEELE R&D - special applications

Copyright	: BEELE Engineering BV/CSD International BV, Aalten, the Netherlands. Proprietary rights on all drawings and technical data released in this brochure. © 1997-2018
Edition	: NWS 2018
Note	: No part of this publication may be reproduced without explicit written approval of BEELE Engineering BV.
Research & Development	: BEELE Engineering BV, Aalten, the Netherlands.
Note	: The manufacturer reserves the right to make dimensional and design modifications without prior notification.
®	: ACTIFIRE, ACTIFOAM, AQUASTOP, BEEBLOCK, BEELE, BEESEAL, CONDUCTON, CRUSHER, CSD, CSD THE SIMPLE SEAL SYSTEM, DRIFIL, DYNATITE, FIRSTO, FIWA, LEAXEAL, MULTI-ALL-MIX, NOFIRNO, RAPID TRANSIT SYSTEM, RIACNOF, RISE, RISWAT, S, SLIPSIL, flanges SLIPSIL plugs, ULEPSI and YFESTOS are registered trade marks of BEELE Engineering BV.
brochure code	: rise cable/hb/en/mar



BEELE ENGINEERING - SAFETY, RELIABILITY, INVOLVEMENT

Every moment of the day, in every business and every situation, the threat of fire is present. For over three decades, BEELE Engineering has specialized in passive fire safety in the form of systems which prevent the spread of fire, smoke, water and gases via cable and pipe penetrations. With our superior sealing technologies, we have become the undisputed Number One in this particular field.

It is BEELE Engineering's philosophy that R&D exists to respond to market demands. Only then can research and development activities be classed as functional. Only then are innovative solutions generated for problems that have current or near-term relevance. Our policy is one of continuous active response to customers' demands, or to modified or new functional requirements. We listen, we observe and we interpret, and so we arrive at new product developments and bold innovations.

BEELE Engineering has built up an enormous body of specialized expertise and knowledge. Our company is the world market leader in sealing systems for state-of-the-art shipbuilding applications as well as civil and industrial applications. We do not follow trends, we set them.

Development of new products and technologies, as well as pioneering know-how, are present in every fibre of our organization. We are driven by passion for our specialization, and our customer involvement drives us to exceed the boundaries of what is technically feasible.

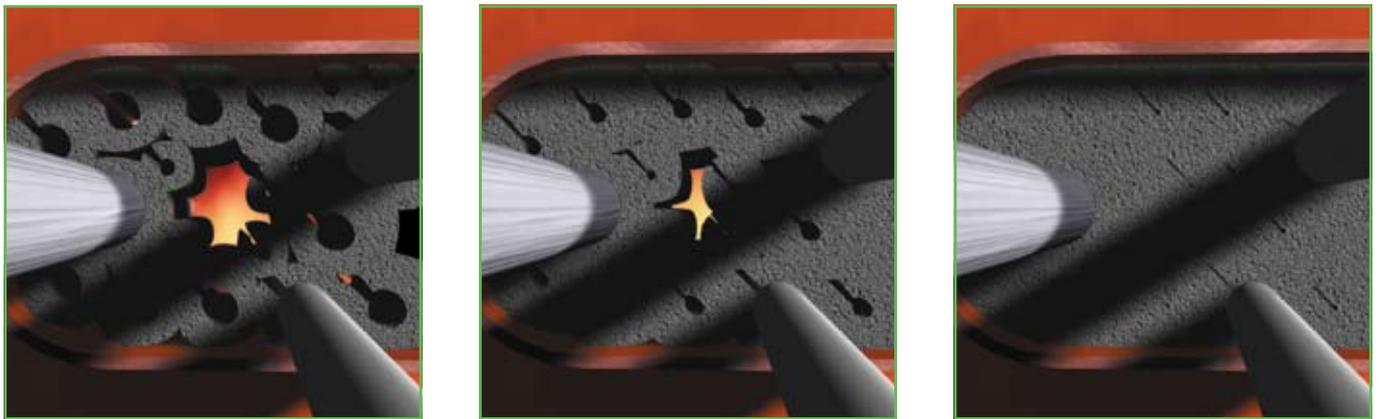
BEELE Engineering operates world-wide. From our agencies in virtually every industrialized country, our support and services are always somewhere nearby. We are there for you – also for on-site advice or in-house demonstrations, instructions and support at your location.



Our development, test and production facilities are among the most advanced in the world. The factory is equipped with state of the art machines, which are tailor made to the requirements of our company. We work to a high-level ISO system, with unmatched involvement. Continuous investment in design technologies, combined with highest quality polymers, is our guarantee for the safety of lives and equipment. That is why BEELE Engineering is internationally recognized by all relevant certification institutes and classification societies.

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

BEELE Engineering is dedicated to fire safety. In a fire, it is of utmost importance that the cable and pipe penetration seals stop the spread of fire and smoke to adjacent areas. However, the degree of maintenance in installations is a determining factor. Sealing systems might not be properly resealed after maintenance work, or might be damaged. To address this problem, BEELE Engineering has developed the ACTIFIRE® technology. The objective is to activate the sealing system under fire load so that the system is “self-correcting” when exposed the fire. Small openings are immediately closed off.

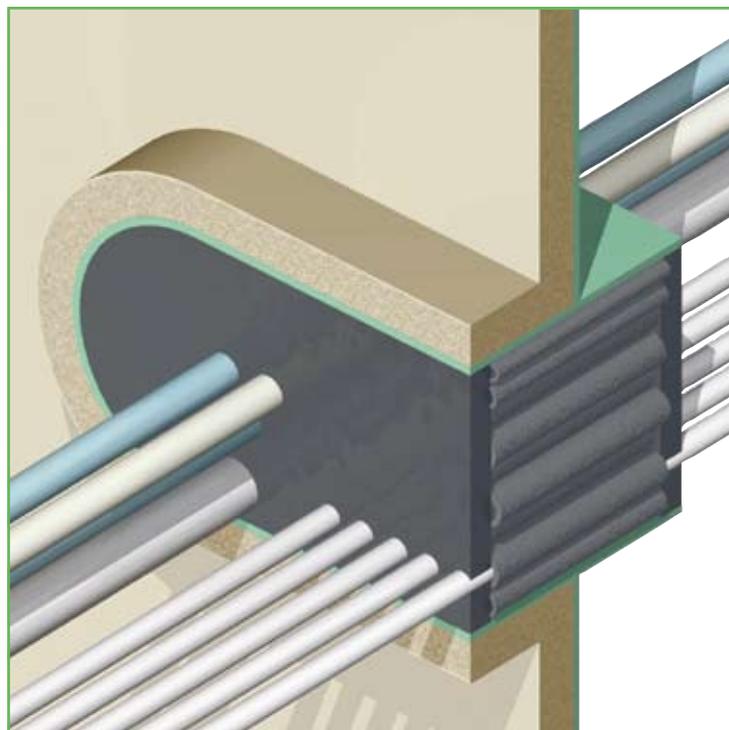


From the above it will be obvious that sealing systems can be vulnerable. For this reason we have developed special rubber compounds for the RISE® and NOFIRNO® multi-cable transits. An important feature of these compounds is that they will be ACTIVE and/or NON-CONSUMABLE in case of fire.

Generally, rubbers used for cable transit systems are made of a more or less self-extinguishing compound. The drawback of these rubbers is that they will start charring under heat and will slowly but surely shrink due to loss of water content in the rubber. This means that they will not compensate for the cable sheathings which are burning or melting away. Not the case with the RISE® rubber.

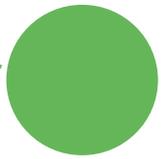
On contrary, the RISE® rubber starts vulcanizing when exposed to heat, thereby heavily expanding and forming a solid rubber mass inside the penetration. The RISE® system is forgiving, self-adjusting, and self-correcting, and will immediately compensate for any gaps or holes in the system.

This means that a cable could be removed from the transit, never be replaced, the hole could remain, and RISE® would still stop the fire!



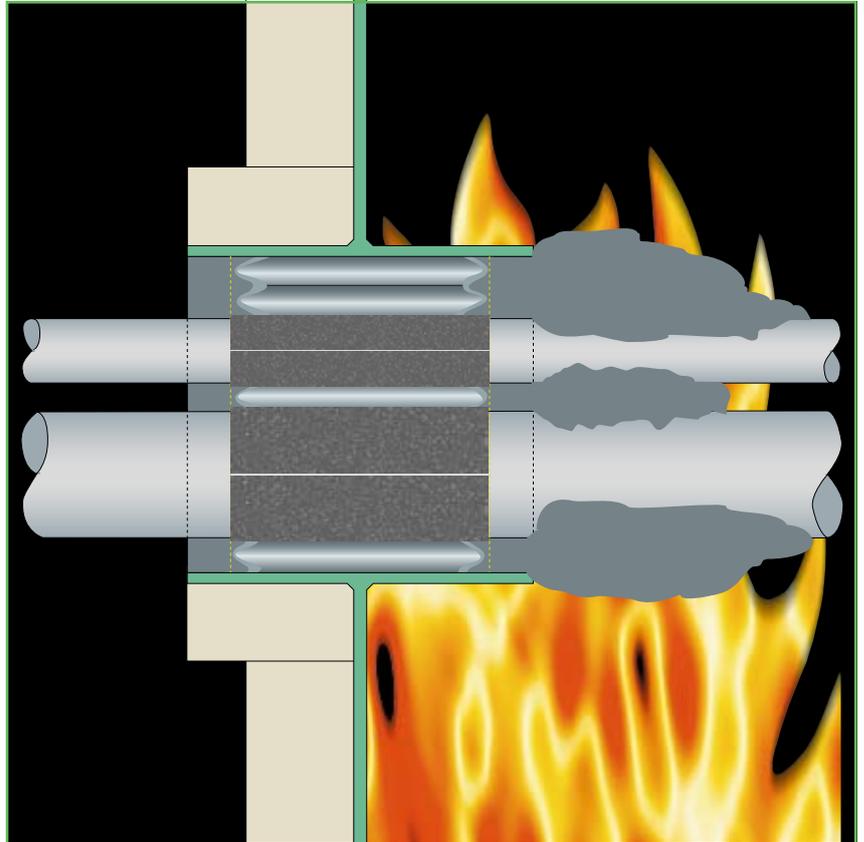
Official fire tests according to IMO Resolution A.754(18) have successfully been carried out at the EFECTIS (formerly TNO) test institute. The RISE® multi-cable transits have been certified for A-class ratings up to A-60 and for H-class ratings up to H-120. Type Approval Certificates are available, covering TC. MED certificate has been issued by Bureau Veritas, covering USCG. The RISE® rubber grade, which is compounded under strict conditions in our factory, is suitable for gas and water tight ducting and for fire rated applications as well. Based on the LEAXEAL®

technology developed by BEELE Engineering, the RISE® sealing system does not need to be compressed to offer highest tightness ratings. Furthermore, the rubbers are not exposed to any stress relaxation so that tightness is maintained in the long term.



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

The ACTIFIRE® technology ensures that, during a fire, the rubbers and sealants used for the sealing system will produce such an amount of fire retardant material that major deformations or displacements can easily be followed. As a result, the penetration will remain fire-tight. The higher the temperature, the more fire retardant material will be produced. Because of this “active material production”, in the event of a fire an elevated pressure will be formed inside the penetration. The result is that a virtually solid rubber mass forms inside the penetration, with which its fire resistant and sealing capacity is effortlessly maintained. In addition, “excess” new material produced is forced out of the penetration at the exposed side (together with all the softened plastic materials of the cable sheaths). In this way the penetration is effectively lengthened. Openings which are left by the softening and combustion of cable sheathings are easily filled up.

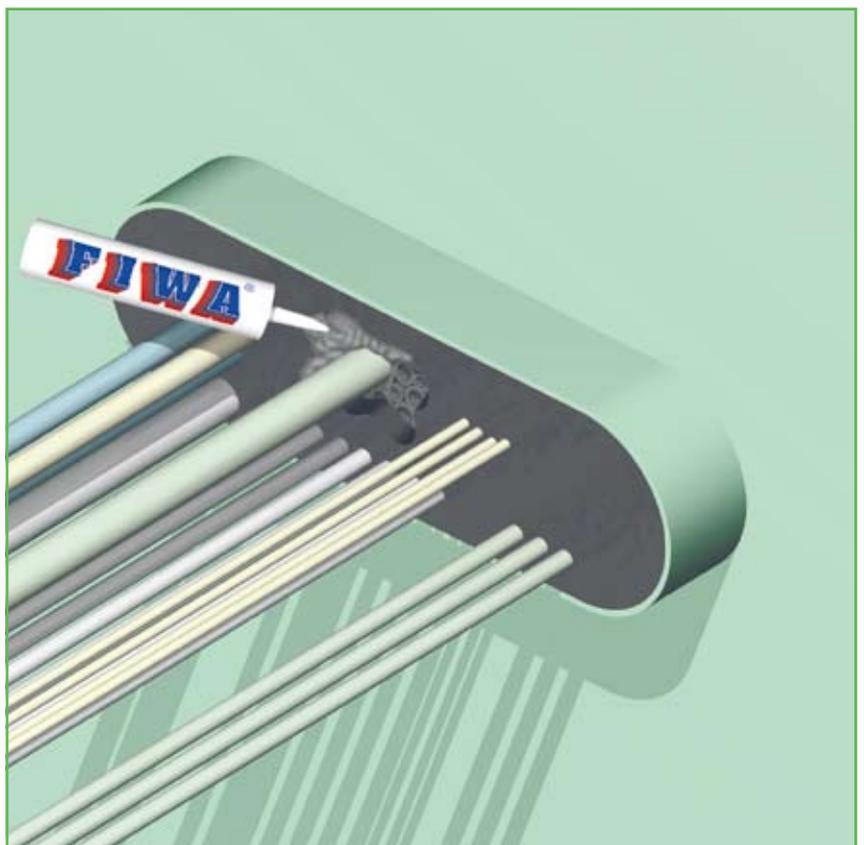


RISE® multi-cable penetrations are the best alternative for the casting compounds, mineral wool and block systems used in fire-rated/watertight bulkheads and decks. RISE® multi-cable penetrations offer a most simple way of installation. The very limited amount of different parts makes this system easy to handle on site. Use is made of rubber inserts (placed around the cables) and filler sleeves. No precise positioning of the cables in the transit needed.

The RISE® sealing system allows cables to be ducted through conduit openings in a bent, curved or oblique way without any adverse impact on sealing performance.

The RISE® sealing system gives easy access to add or remove cables in a later stage without the necessity to disassemble the whole penetration or replace all existing material.

Just cut away a piece of the FIWA® layer at both sides of the penetration, pull the cable through and refill the opening in the sealant layer. **It is that simple!**



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

RISE® filler sleeves



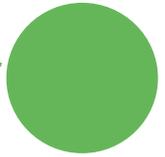
Note: maximum continuous service temperature of the RISE® sleeves not to exceed 70 °C. Consult our technical support department in case of higher operating temperatures.

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

For the RISE® insert and filler sleeves, a special rubber compound was developed. When this rubber is exposed to fire or temperatures in excess of 200 °C, it expands five to ten times its original volume. During the expansion of the rubber a carbonized mass is formed, which has good properties of thermal insulation. The RISE® rubber is absolutely HALOGEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore the RISE® rubber has a low smoke index (NES 711: Issue 2: 1981) and a very high oxygen index (ISO 4589-2: 1996).

The wall thickness of the sleeves is so chosen as to satisfy the requirements governing adequate separation of the cables. For ease of filling of larger remaining spaces, the filler sleeves 18/12 and 27/19 can be supplied as non-split multi-units of 10 pieces bonded together. Note: split sleeves 18/12 and 27/19 can also be used as filler sleeves.

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
<i>all dimensions in mm</i>			
12/6	5 - 7	160	80.0100
14/8	7 - 9	160	80.0101
16/10	9 - 11	160	80.0102
18/12	11 - 13	160	80.0103
20/14	13 - 15	160	80.0104
22/16	15 - 17	160	80.0105
27/19	17 - 21	160	80.0106
31/23	21 - 25	160	80.0107
35/27	25 - 29	160	80.0108
39/31	29 - 33	160	80.0109
46/36	33 - 39	160	80.0110
52/42	39 - 45	160	80.0111
58/48	45 - 51	160	80.0112
64/54	51 - 57	160	80.0113
70/60	57 - 63	160	80.0114
<i>all dimensions in mm</i>			
12/6	5 - 7	210	80.0200
14/8	7 - 9	210	80.0201
16/10	9 - 11	210	80.0202
18/12	11 - 13	210	80.0203
20/14	13 - 15	210	80.0204
22/16	15 - 17	210	80.0205
27/19	17 - 21	210	80.0206
31/23	21 - 25	210	80.0207
35/27	25 - 29	210	80.0208
39/31	29 - 33	210	80.0209
46/36	33 - 39	210	80.0210
52/42	39 - 45	210	80.0211
58/48	45 - 51	210	80.0212
64/54	51 - 57	210	80.0213
70/60	57 - 63	210	80.0214
<i>all dimensions in mm</i>			
RISE® filler sleeve		sleeve length	article number
18/12 single		140	80.0323
18/12 multi		140	80.0324
18/12 single		160	80.0313
18/12 multi		160	80.0314
18/12 single		210	80.0303
18/12 multi		210	80.0304
<i>all dimensions in mm</i>			
27/19 single		140	80.0326
27/19 multi		140	80.0327
27/19 single		160	80.0316
27/19 multi		160	80.0317
27/19 single		210	80.0306
27/19 multi		210	80.0307
<i>all dimensions in mm</i>			



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

PRODUCT INFORMATION SEALANT

01) colour	dark grey
02) specific gravity	1.30 ± 0.03 g/cm ³
03) curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04) service temperature	-50 °C up to +160 °C
05) tensile strength	1.15 MPa
06) elongation at break	125%
07) hardness	35 Shore A
08) elastic deformation	approx. 25%
09) resistance	UV, Ozone, arctic conditions
10) ageing	more than 20 years
11) supplied in	310 ml cartridges
12) storage	to be stored cool and dry min/max temperature = +5/+30° C
13) storage life	guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application



article number 80.0900

FIWA® is absolutely HALO-GEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore FIWA® has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996), and low flame spread characteristics according to IMO Resolution A.653(16).

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

PRODUCT INFORMATION PUTTY

01) colour	black
02) specific gravity	1.30 ± 0.03 g/cm ³
03) curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04) service temperature	-50 °C up to +160 °C
05) tensile strength	0.80 MPa
06) elongation at break	40%
07) hardness	35 Shore A
08) elastic deformation	approx. 25%
09) electrical resistance	< 100 Ω
10) ageing	more than 20 years
11) supplied in	310 ml cartridges
12) storage	to be stored cool and dry min/max temperature = +5/+30° C
13) storage life	guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application



article number 80.0910

CONDUCTON® putty is an electrically conductive sealing putty based on a single component silicone compound.

CONDUCTON® has been developed for the RISE/EMC multi-cable and pipe transits.

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



article number 80.0932

CONDUCTON® flexible rubber has been developed for the RISE®/EMC multi-cable transits and is used to fill the cavity around the ducted cables in the conduit sleeve, instead of making use of the putty. This rubber can be molded by hand and offers the highest attenuation.

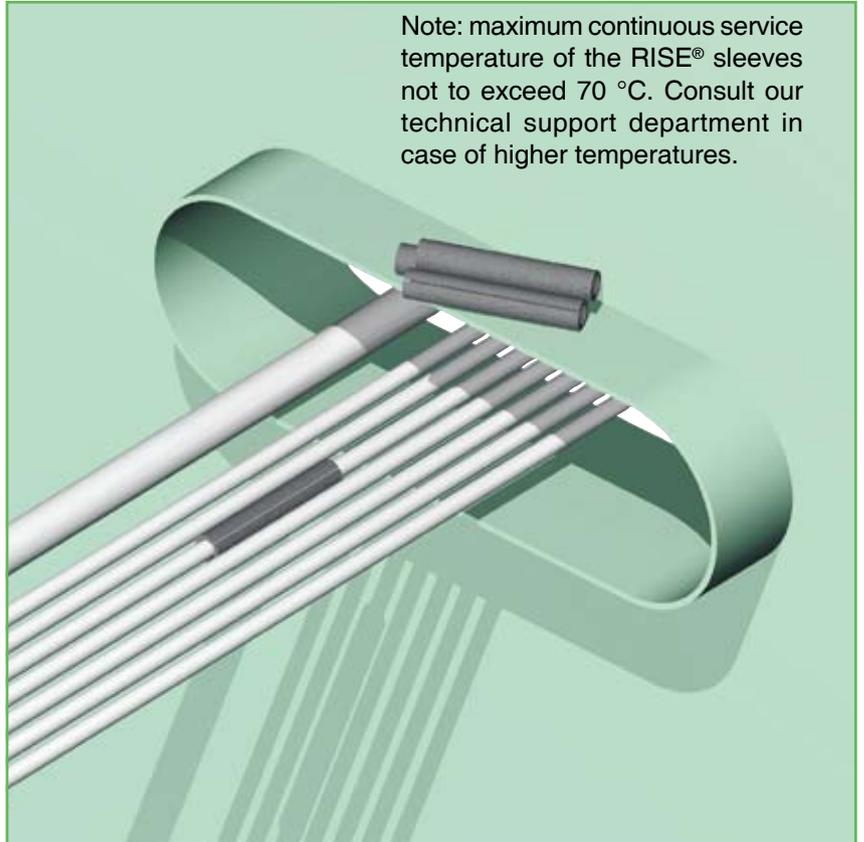
CONDUCTON® flexible rubber is absolutely HALOGEN FREE and has a toxicity index of 0,00 (tested according to Naval Engineering Standard NES 713: Issue 3).

Furthermore CONDUCTON® has a low smoke index (NES 711: Issue 2: 1981), an oxygen index of 38,2% (ISO 4589-2: 1996), and a temperature index of 294 °C (ISO 4589-3: 1996).

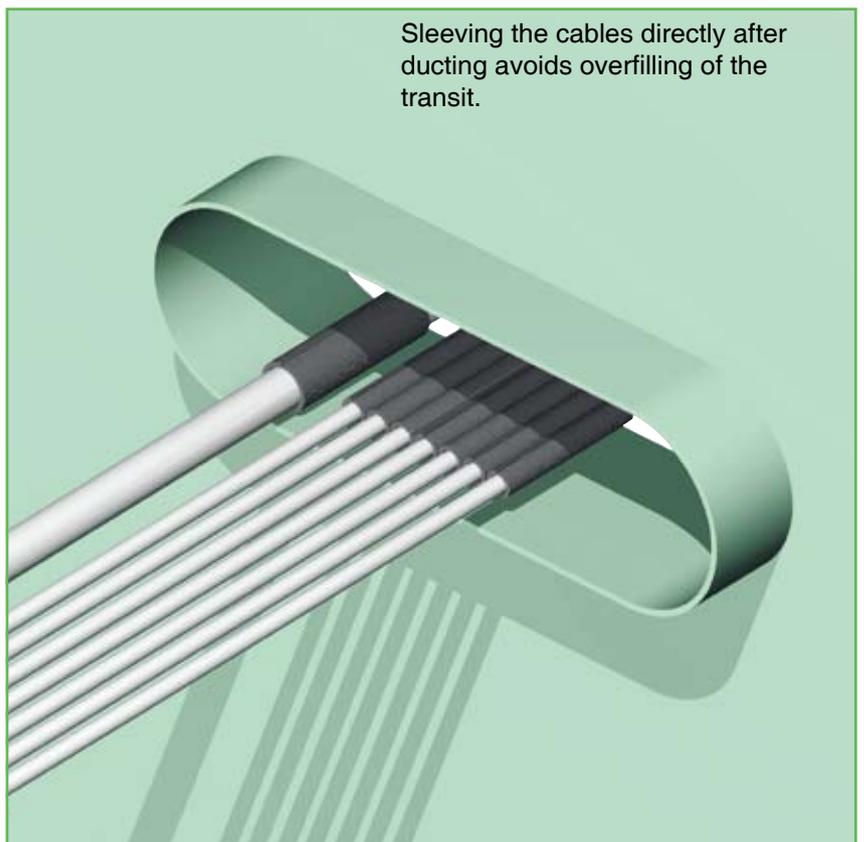
CONDUCTON® flexible rubber fulfils the criteria for use on board of UK Navy vessels for EMP/EMI penetrations.

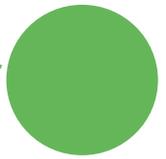
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

1) The cables can be ducted through the conduit sleeve/frame in random order. It is most important that they are not pulled too tight so as not to hamper their separation when RISE® insert sleeves are inserted.



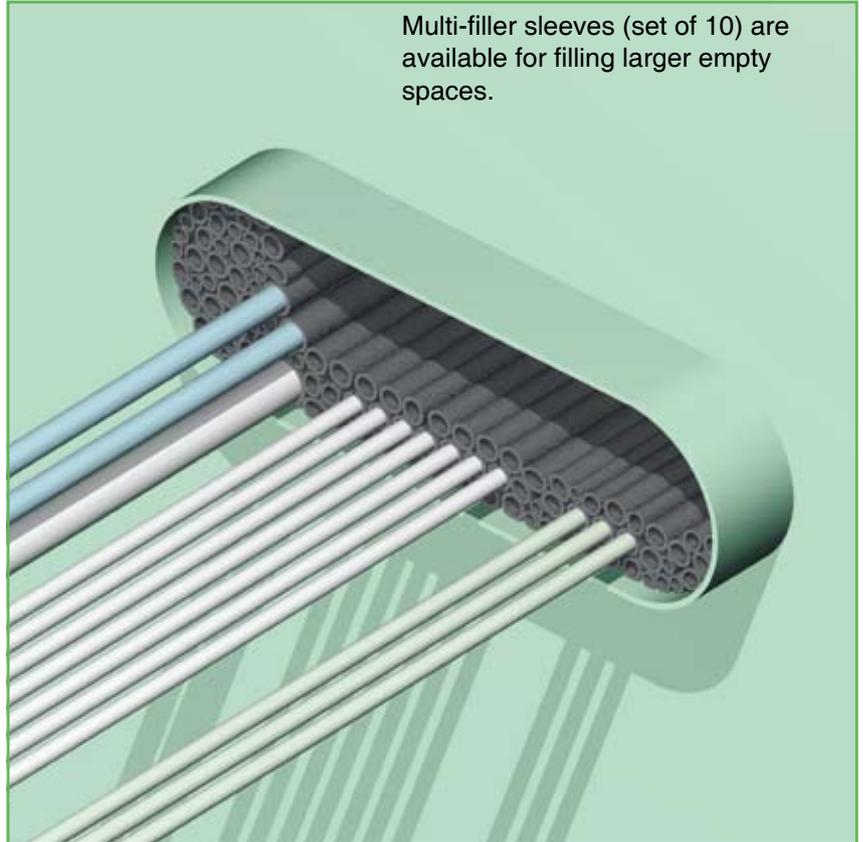
2) After the cables have been ducted, RISE® insert sleeves are applied around each cable. The insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit.





RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

3) The remaining free space in the conduit is filled with RISE® filler sleeves type 27/19 and 18/12. For ease of filling, the RISE® filler sleeves are supplied non-split. The ratio 27/19 to 18/12 should be about 2:1.



4) Push the insert/filler sleeves into the conduit in such a way as to leave about 20 mm free space at the front and the back. The whole set of filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.



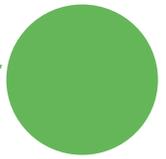
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

5) A 20 mm thick layer of FIWA® sealant is applied at each side of the conduit. Clean and dry the conduit opening and the cables thoroughly, and remove any dirt, rust or oil residues before applying the sealant.



6) The conduit should be overfilled with FIWA® 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.





RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

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



8) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with FIWA®. Please refer to the Safety Data Sheet for more information.



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

9) The FIWA® sealant between the cables is pressed down and smoothed by hand or with a spatula or putty knife. This is essential to obtain optimum gas and water tightness.



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



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

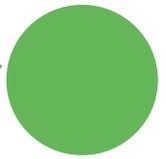
Please refer to the Safety Data Sheet for more information.



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

Please refer to the Safety Data Sheet for more information.

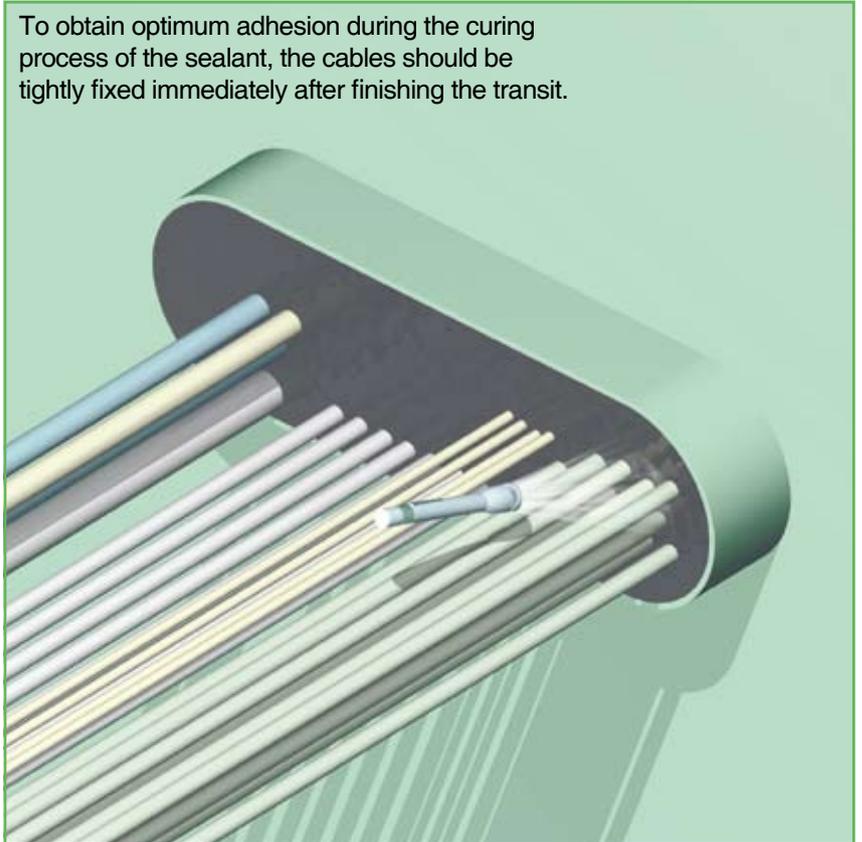




RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

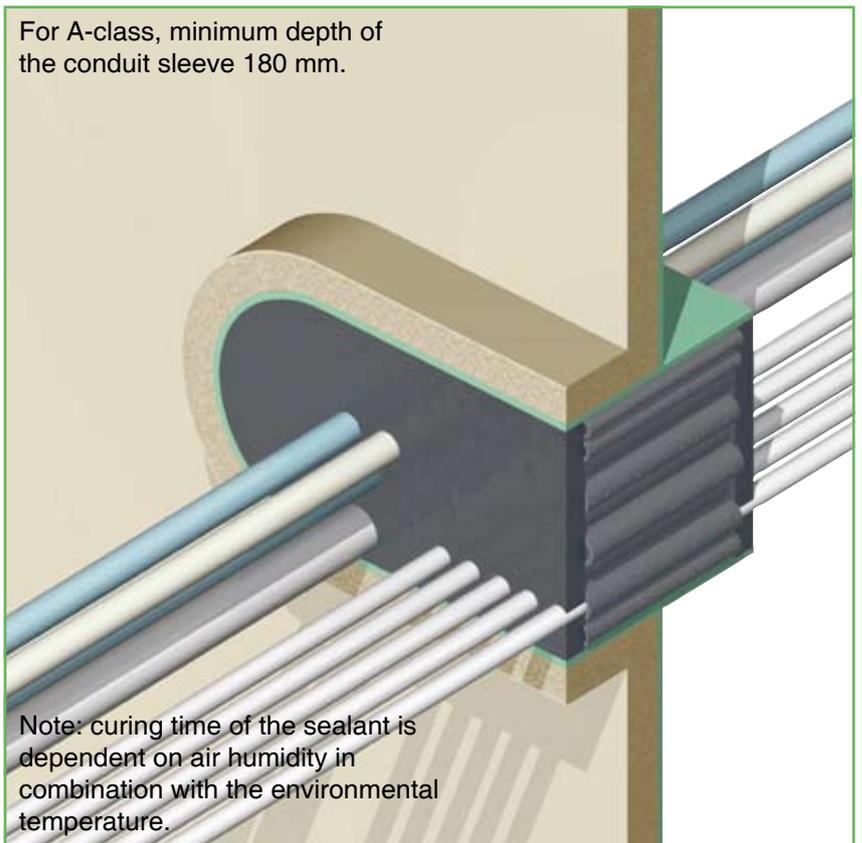
11) After smoothing is finished, a last check should be taken to ensure sufficient sealant has been applied in between the cables (especially for transits with larger amounts of cables). This is most important for water and gas tight penetrations.

To obtain optimum adhesion during the curing process of the sealant, the cables should be tightly fixed immediately after finishing the transit.



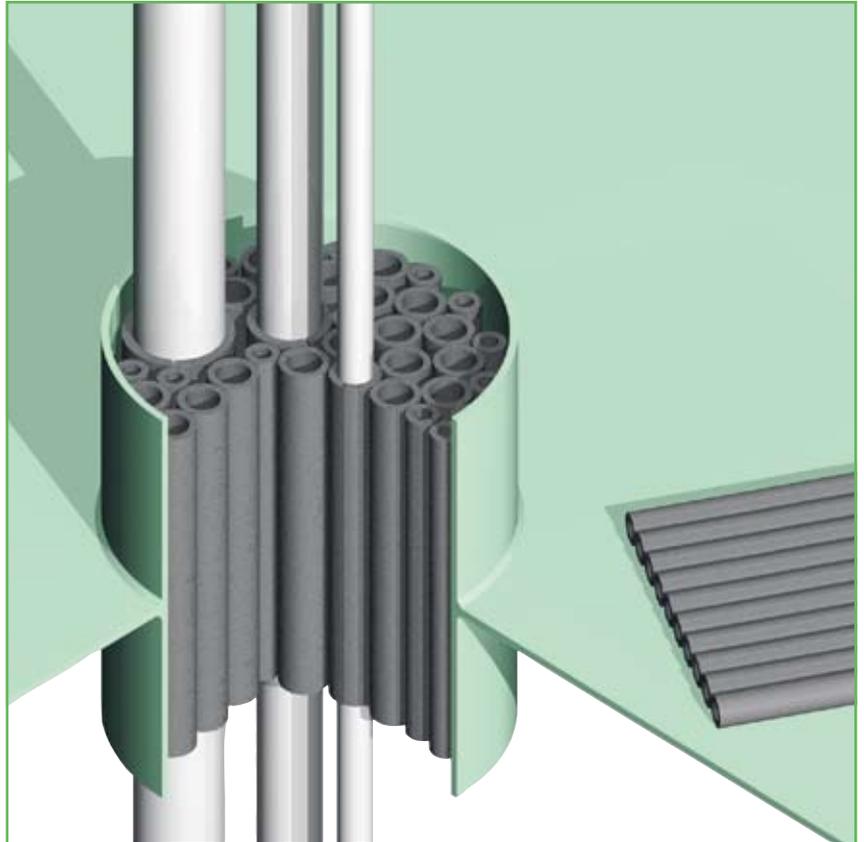
12) For A-class penetrations (which are insulated), the conduit sleeve/frame needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. No extra insulation needed in front of the penetration and/or in between the cables.

For A-class, minimum depth of the conduit sleeve 180 mm.

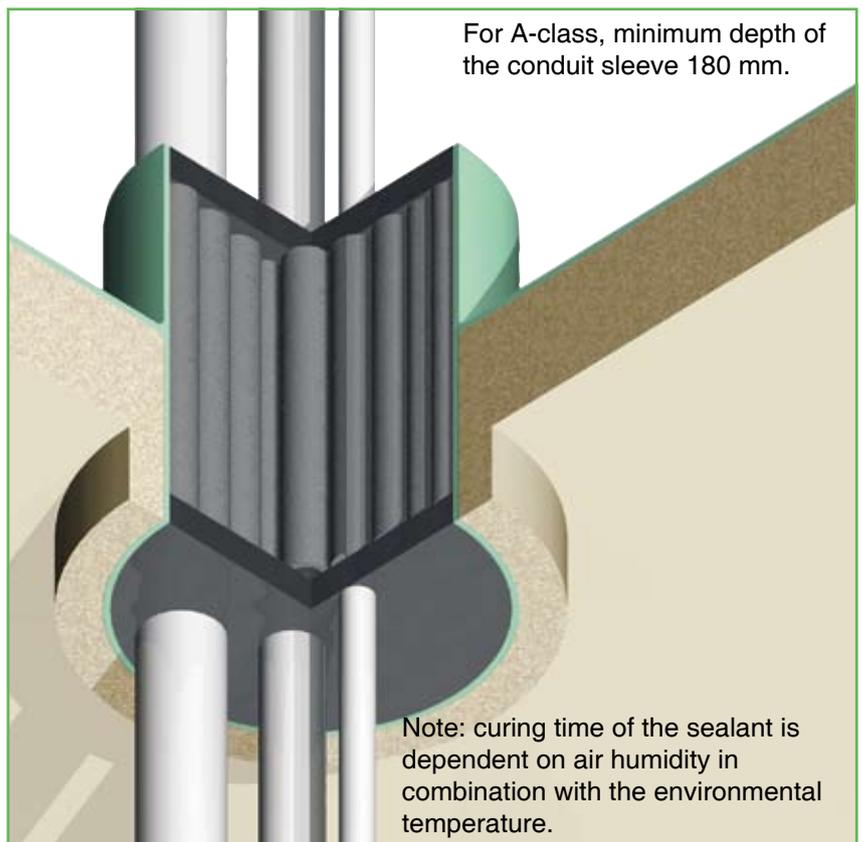


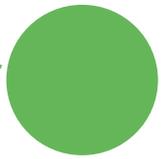
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

13) To prevent the filler sleeves from falling out of the conduit sleeve/frame, they are squeezed together to form a compact bundle. They are available in bundles of ten pieces.



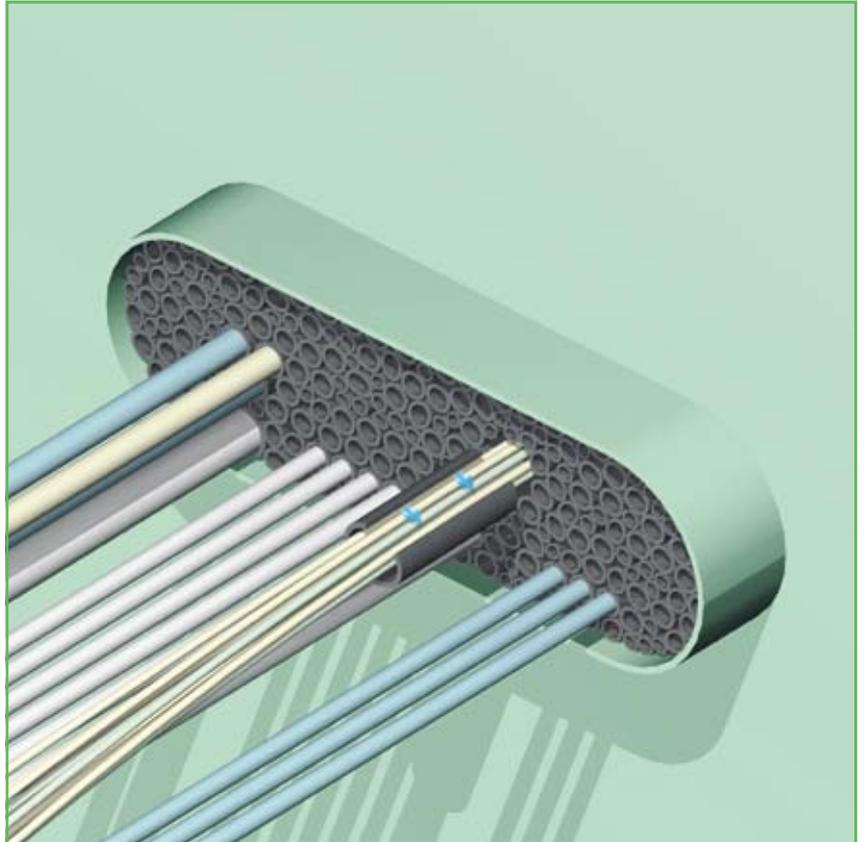
14) The optimized viscosity and the superb adhesion properties of the FIWA® sealant make applying the sealant overhead an easy matter. FIWA® sealant does not sag and will not drip off.





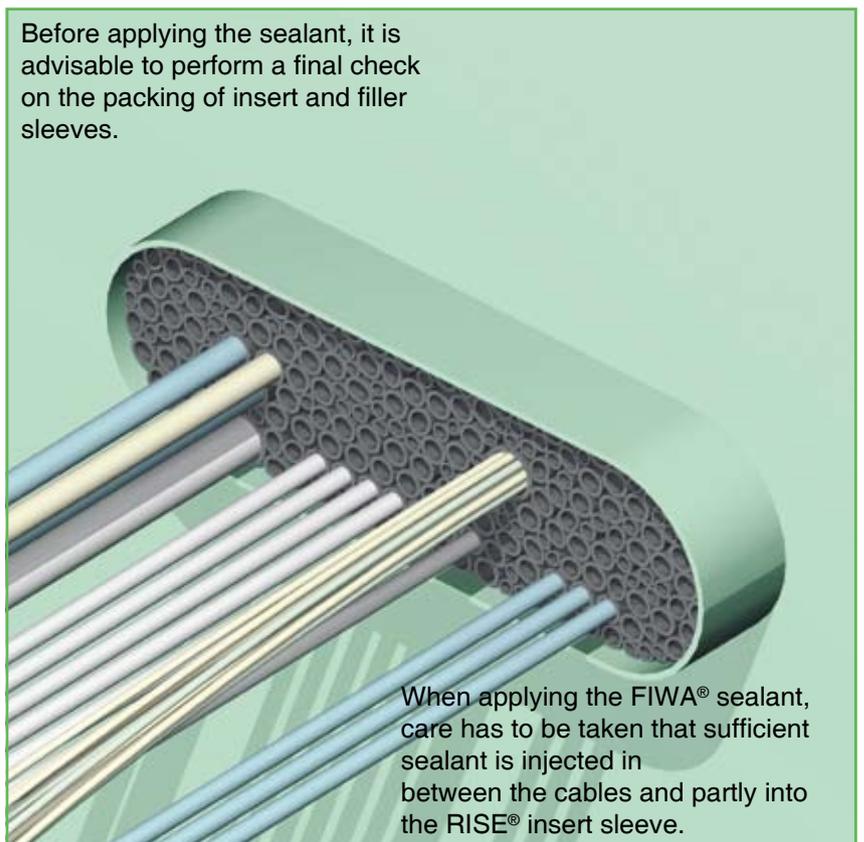
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

15) The RISE cable penetrations are certified for ducting bundles of cables. Pull a set of bundled cables through the conduit and place a RISE® insert sleeve around the cable. See the specifications on pages 14 and 15.



16) Push the insert/filler sleeves into the conduit in such a way as to leave about 20 mm free space at the front and the back. The whole set of filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.

The conduit to be finished as described on pages 7-11.



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

L1: A-60/H-120 approved bulkhead insulation.

- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD AND UP TO 3x400 MM²
- APPROVED FOR BUNDLED LAN DATA CABLES
- MAX. BUNDLE SIZE 35 MM

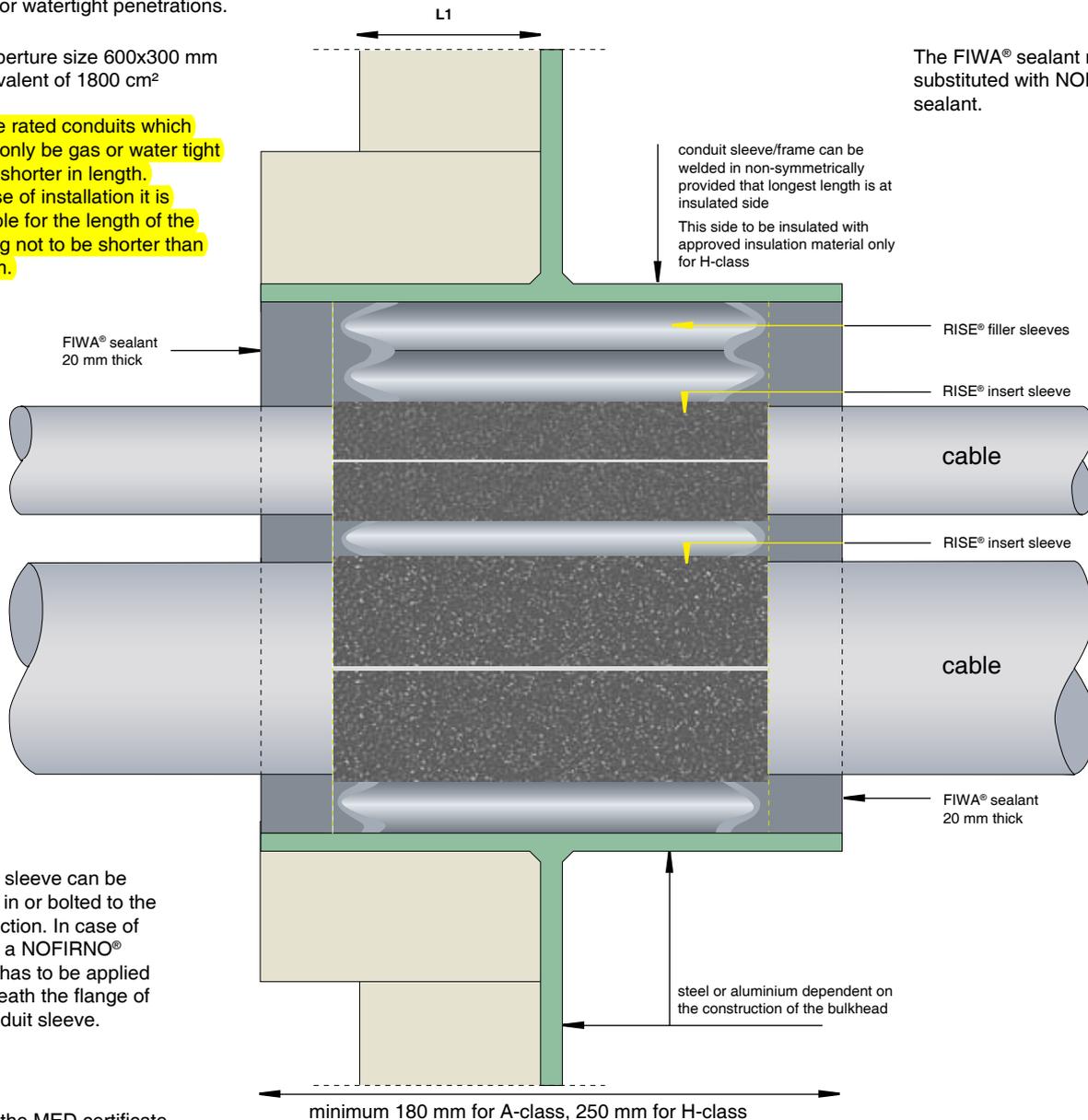
Bundling of cables is not allowed for gas or watertight penetrations.

- NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES

max. aperture size 600x300 mm or equivalent of 1800 cm²

Non-fire rated conduits which should only be gas or water tight can be shorter in length. For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

The FIWA® sealant may be substituted with NOFIRNO® sealant.



conduit sleeve can be welded in or bolted to the construction. In case of bolting, a NOFIRNO® gasket has to be applied underneath the flange of the conduit sleeve.

ask for the MED certificate with the stamped and signed detailed installation drawings

Specifications for A-class according to EC (MED) certificate 09156/CO EC issued by Bureau Veritas. Drawings R0096E, R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0273E and R0274E For H-class DNV certificate F-19295. Drawings R0103E, R0104E and R0105E.

A0-A60 / H0-H120 MULTI-CABLE TRANSIT

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

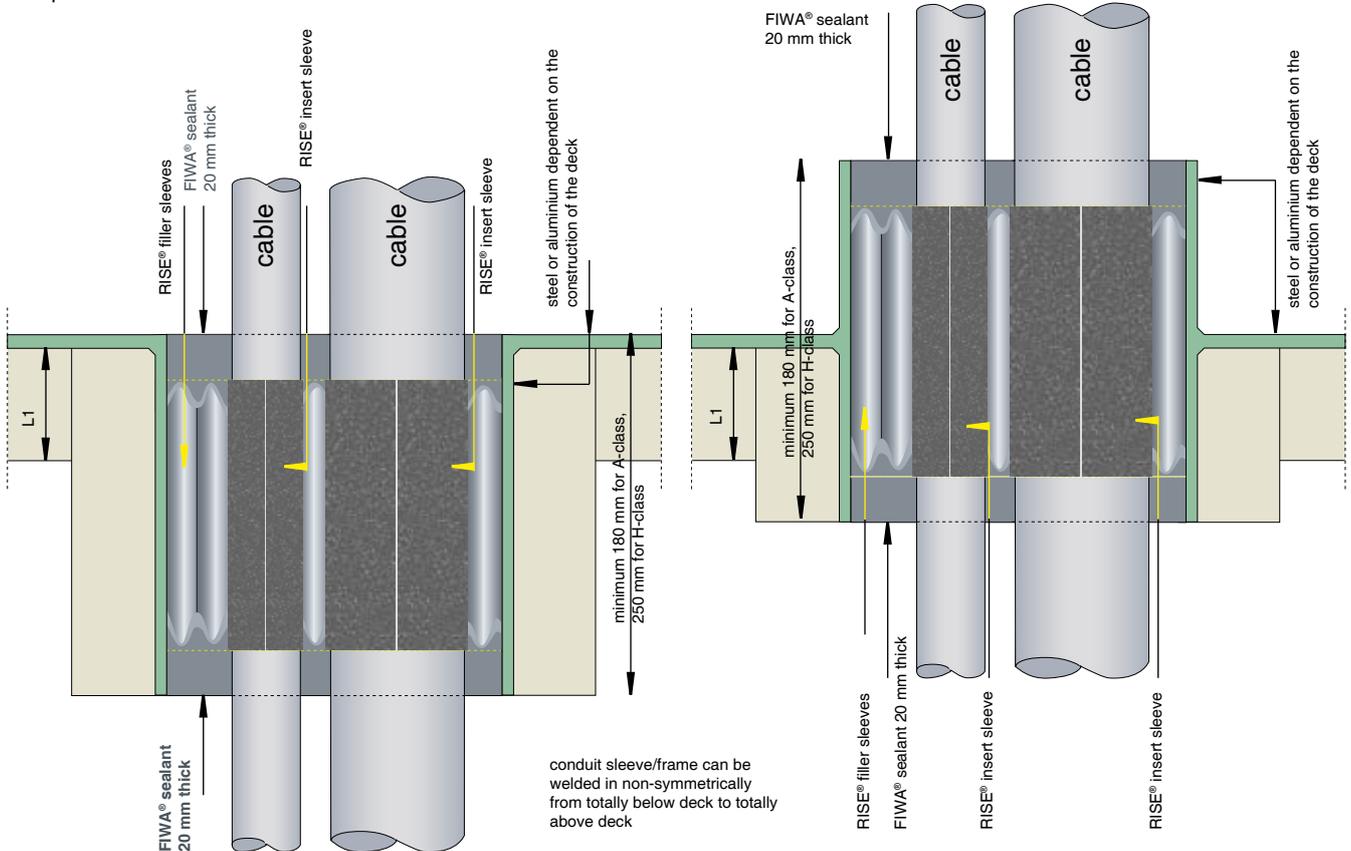
L1: A-60/H-120 approved deck insulation.

- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD AND UP TO 3x400 MM²
- APPROVED FOR BUNDLED LAN DATA CABLES
- MAX. BUNDLE SIZE 35 MM

Bundling of cables is not allowed for gas or watertight penetrations.

max. aperture size 600x300 mm or equivalent of 1800 cm²

- NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES



The FIWA® sealant may be substituted with NOFIRNO® sealant.

ask for the MED certificate with the stamped and signed detailed installation drawings

ask for the MED certificate with the stamped and signed detailed installation drawings

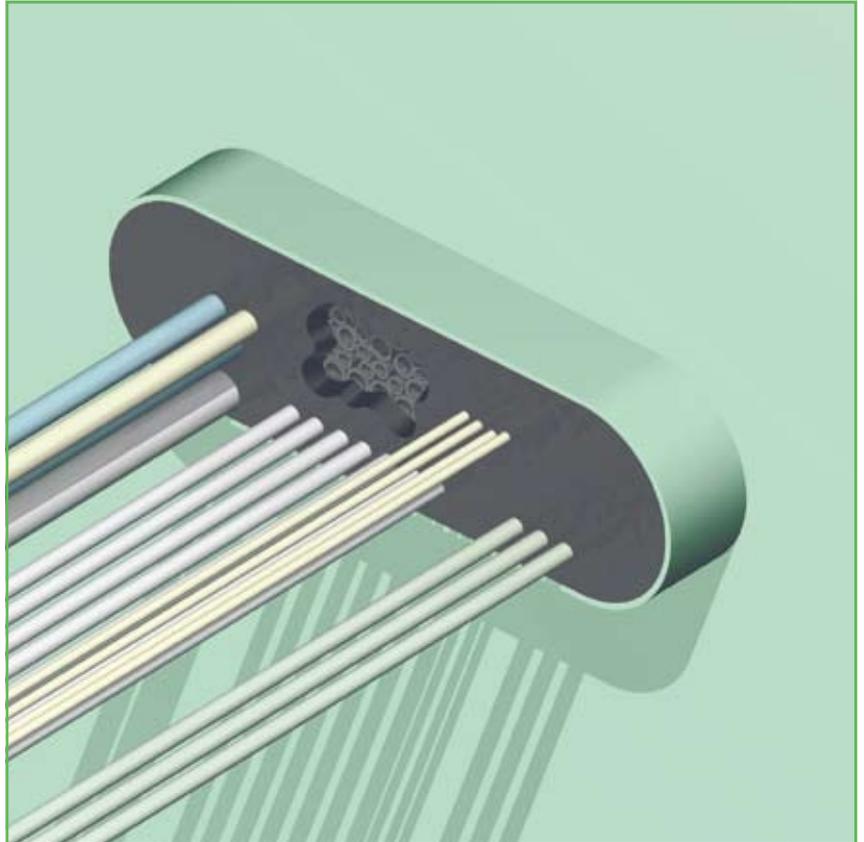
Non-fire rated conduits which should only be gas or water tight can be shorter in length. For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

Specifications for A-class according to EC (MED) certificate 09156/CO EC issued by Bureau Veritas. Drawings R0096E, R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0273E and R0274E For H-class DNV certificate F-19295. Drawings R0103E, R0104E and R0105E.

A0-A60 / H0-H120 MULTI-CABLE TRANSIT

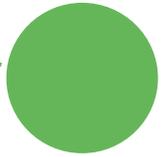
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

1) Adding extra cables 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. This creates a good foundation for the sealant mass to be applied later.



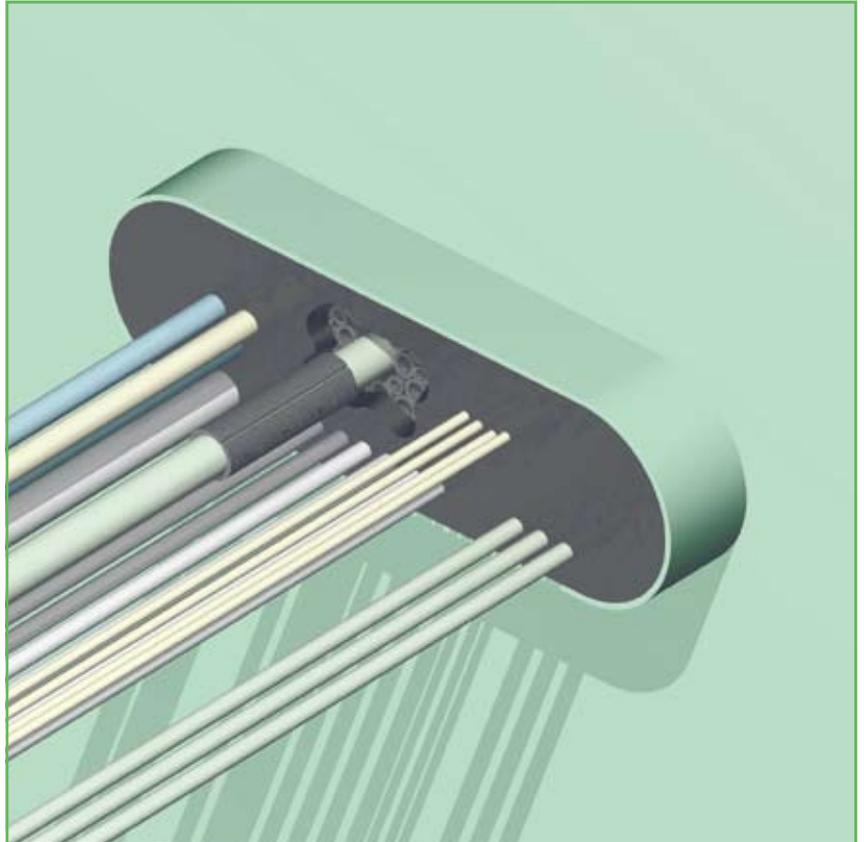
2) Pull the cable through one of the empty filler sleeves with an inner diameter more or less corresponding to the outer diameter of the cable. If the empty filler sleeves are not fitting to the size of the cable to be ducted, a number of these insert sleeves must be removed from the penetration.





RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

3) Place a RISE® sleeve around the newly ducted cable. Push the insert sleeve into the conduit. Fill open spaces with RISE® filler sleeves.



4) Refill the opening in the sealant layer at both sides of the penetration with sufficient FIWA® sealant. The FIWA® sealant is pressed down firmly and smoothed with a damped cloth. Note: do not use soap water!

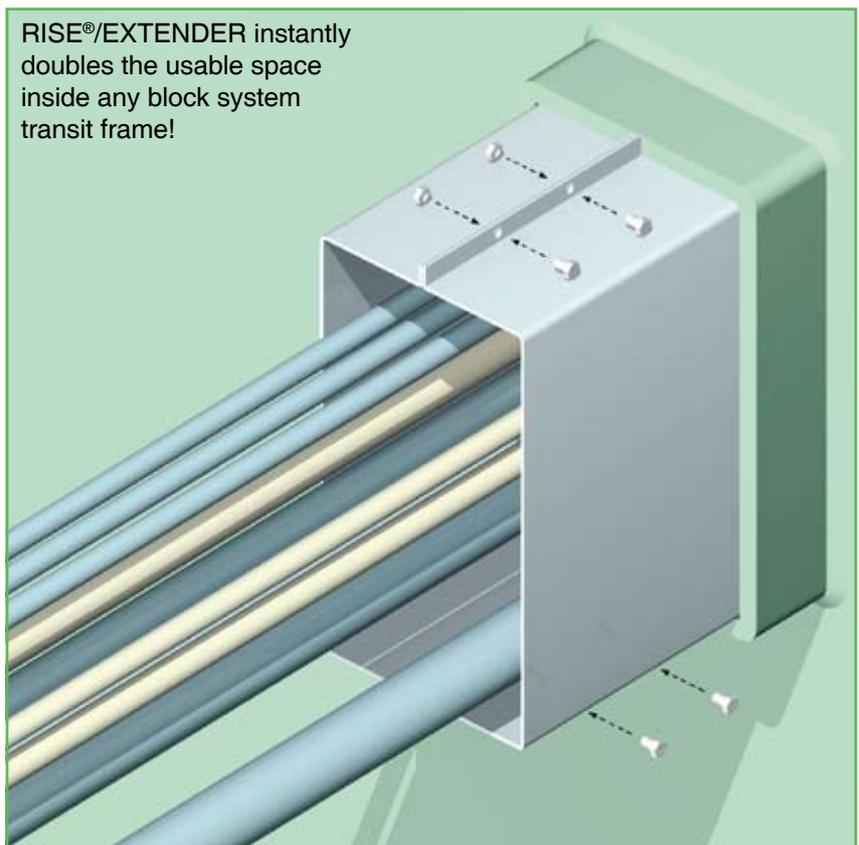


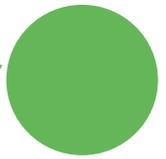
RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

1) Remove all components from the transit frame, if any. Remove any dirt or grease from the inside of the frame and the cable jackets. Position the two halves of the EXTEND-A-FRAME around the bundle of cables, then push the EXTEND-A-FRAME into the transit frame. The fitting must be very tight for stability reasons.



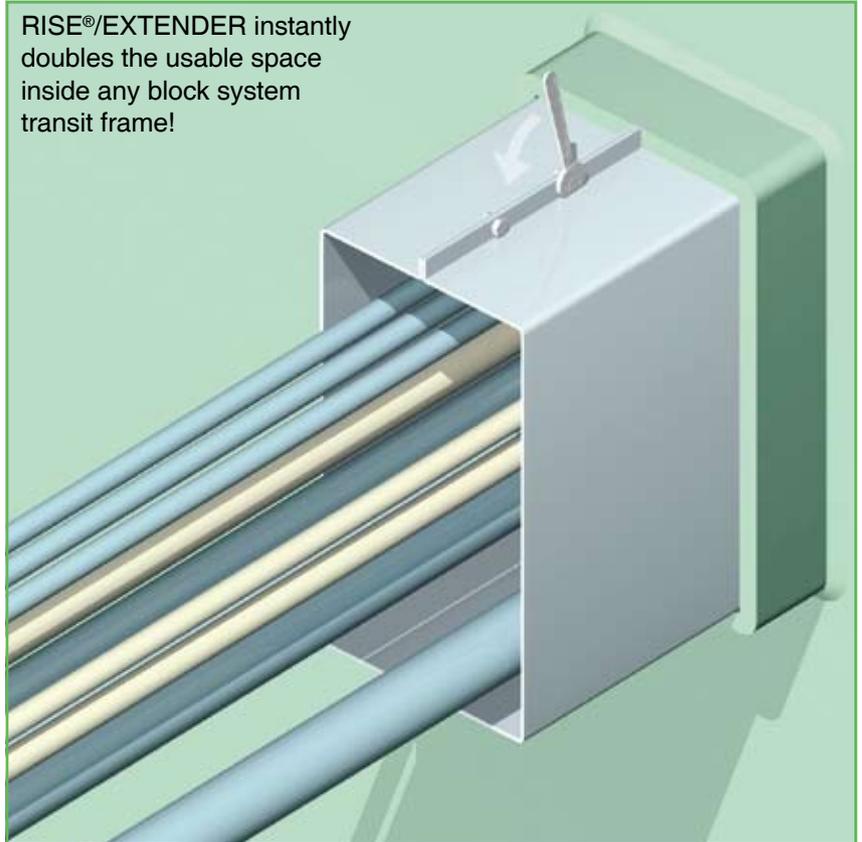
2) The flanges on the top and bottom of the EXTEND-A-FRAME must be firmly seated against the transit frame. Install the bolts and nuts on the top and bottom flanges. Tighten the bolts on top and bottom flanges.



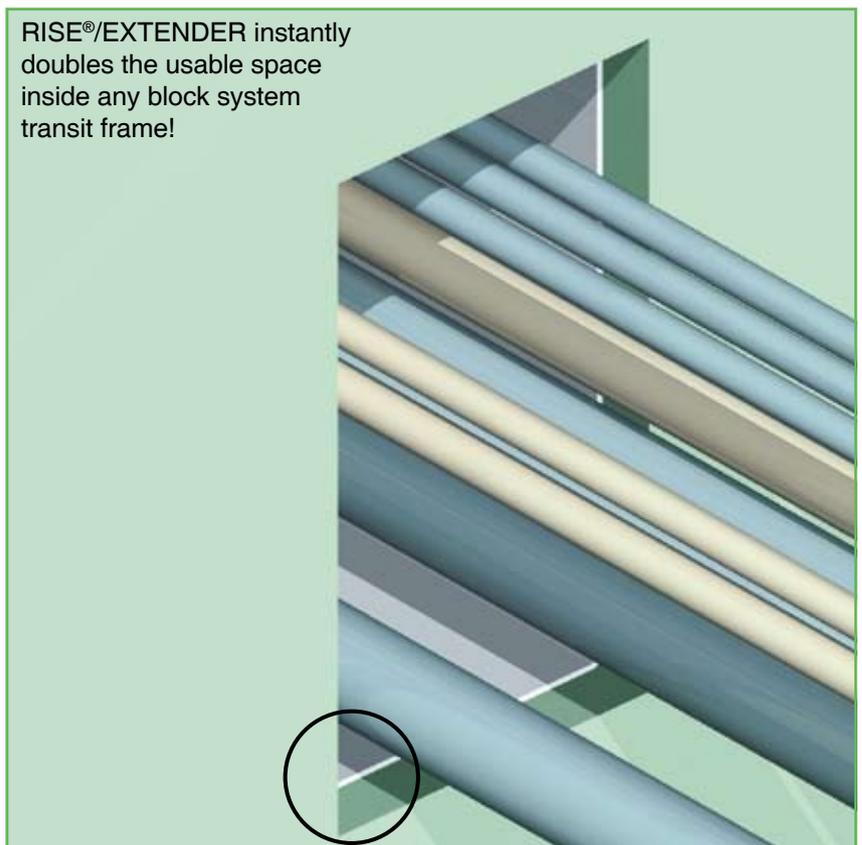


RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

3) The flanges are 10 mm high, corresponding with the wall thickness of the block system transits. This enables the EXTEND-A-FRAMES to fit in multi-window transit units without any problems.

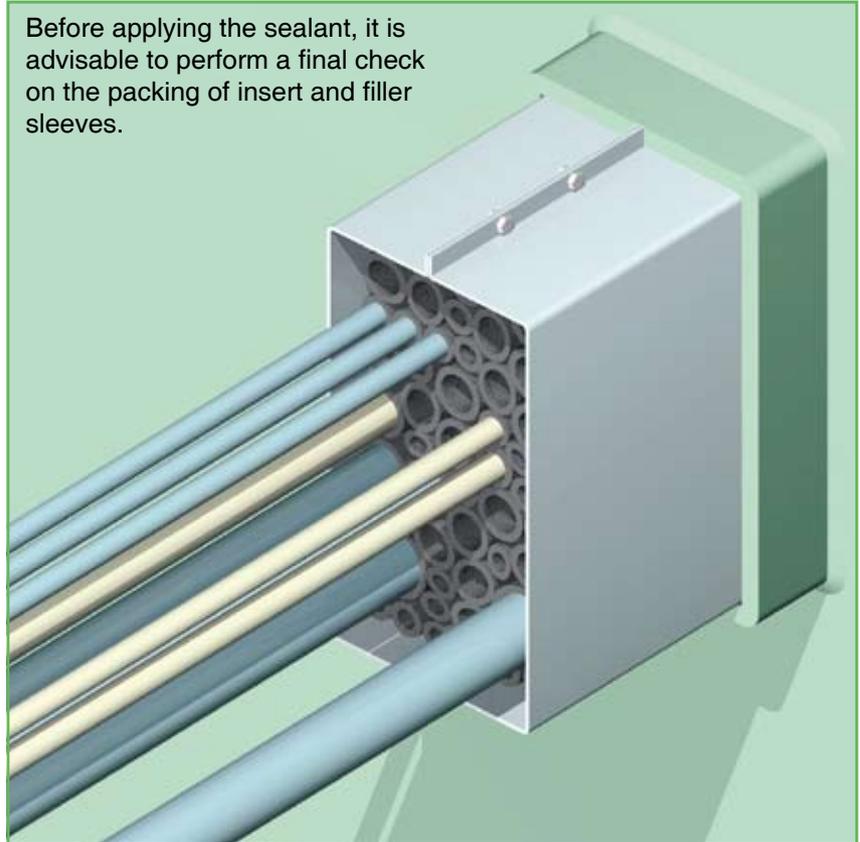


4) The EXTEND-A-FRAME, positioned in the transit frame, leaves 20 mm free at the back of the transit frame for the bonding of the FIWA® sealant to the transit frame. This is necessary to obtain a tight seal.



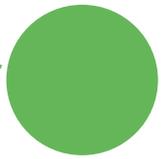
RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

5) Place a RISE® insert sleeve around each cable. Any empty space is filled with RISE® filler sleeves. Note: EXTEND-A-FRAMES can also be used with the NOFIRNO® system.



6) Center the RISE® sleeves within the conduit so as to leave 20 mm free space at the front and the back of the transit. A 20 mm layer of FIWA® or NOFIRNO® sealant is applied at both sides of the transit.

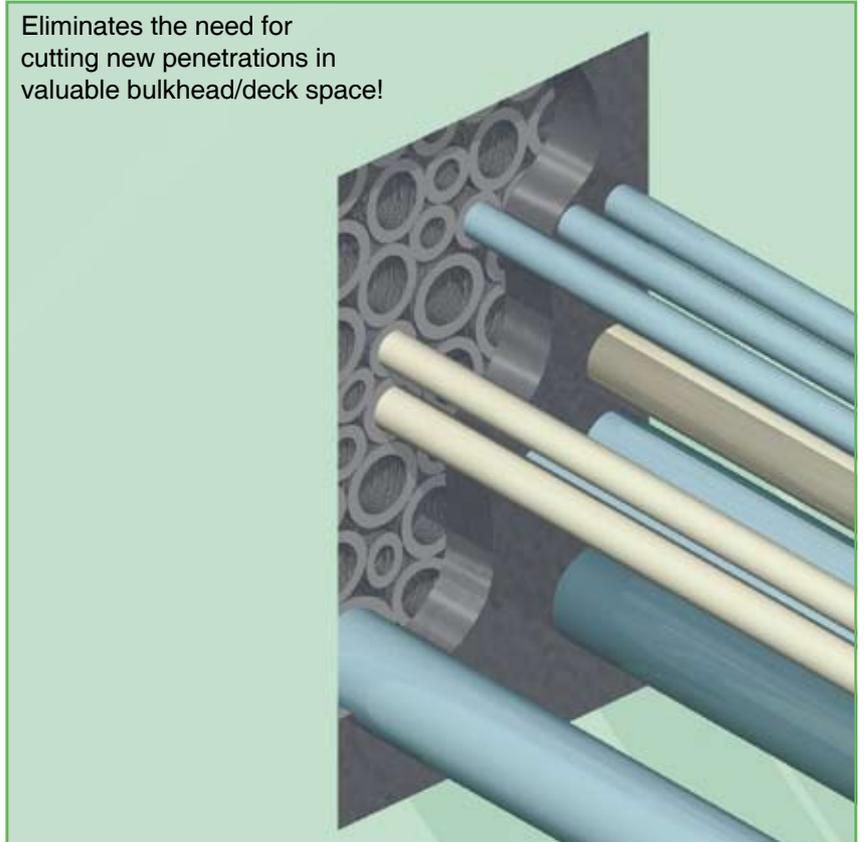




RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

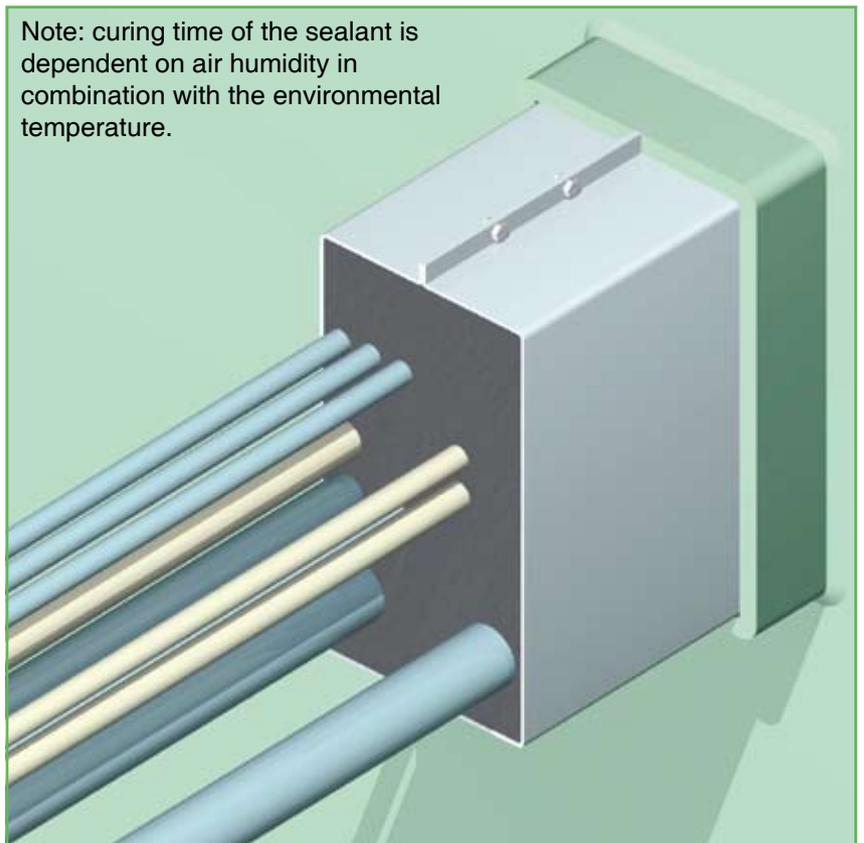
7) For final finishing of the transit, refer to the step by step installation instructions for RISE® multi-cable penetrations on pages 8-11. Note: EXTEND-A-FRAMES can also be used with the NOFIRNO® system.

Eliminates the need for cutting new penetrations in valuable bulkhead/deck space!



8) For optimum stability, the EXTEND-A-FRAME can be spot welded or bolted to the existing frame. For larger frame configurations, an option is to install a frame around the existing transit frames, spot welded to the deck or bulkhead.

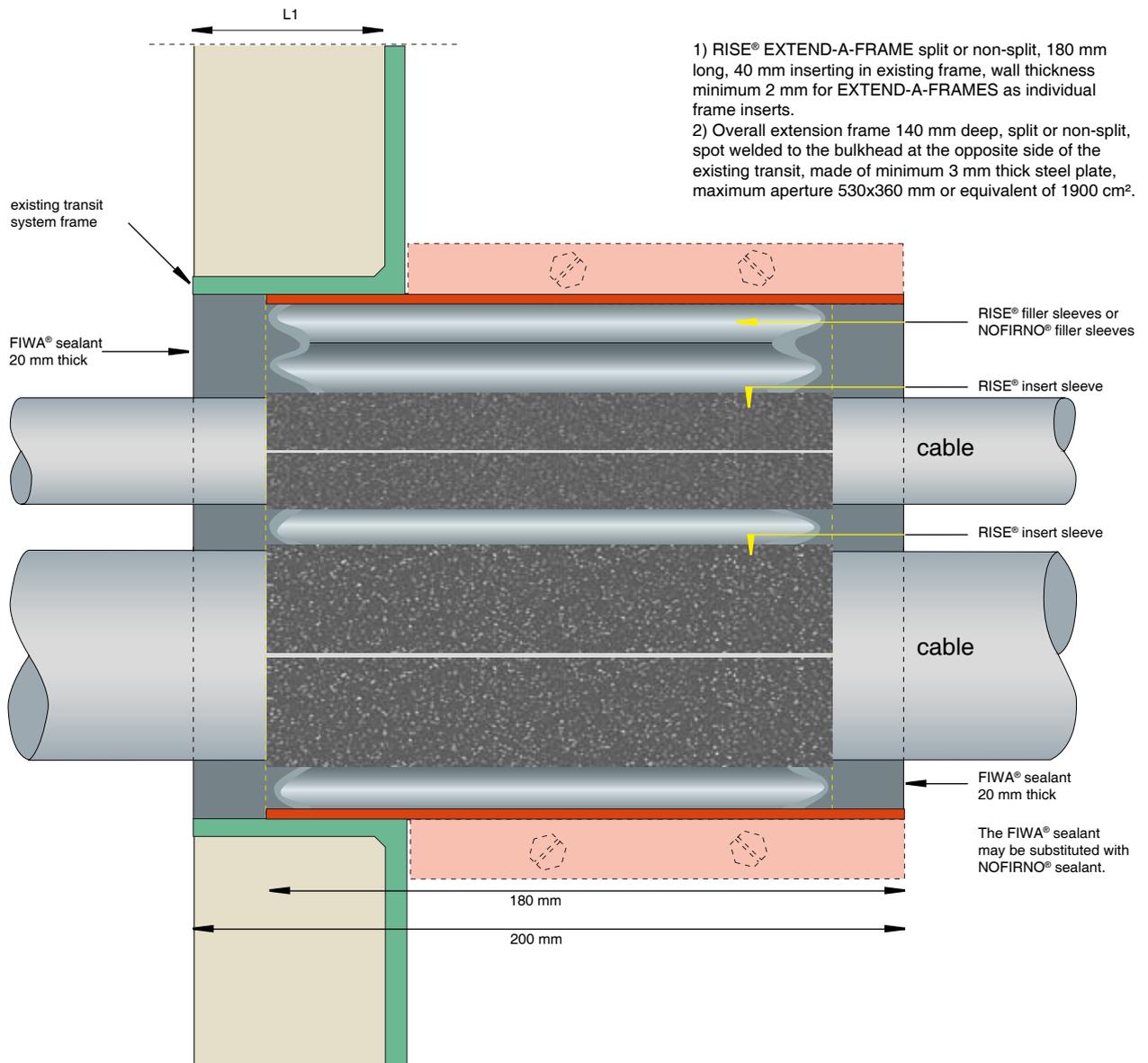
Note: curing time of the sealant is dependent on air humidity in combination with the environmental temperature.



RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

L1: A-60 approved bulkhead insulation.

NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES



- 1) RISE® EXTEND-A-FRAME split or non-split, 180 mm long, 40 mm inserting in existing frame, wall thickness minimum 2 mm for EXTEND-A-FRAMES as individual frame inserts.
- 2) Overall extension frame 140 mm deep, split or non-split, spot welded to the bulkhead at the opposite side of the existing transit, made of minimum 3 mm thick steel plate, maximum aperture 530x360 mm or equivalent of 1900 cm².

ask for the MED certificate with the stamped and signed detailed installation drawings

specifications for A-class according to EC (MED) certificate 09156/C0 EC issued by Bureau Veritas.
Drawings R0066E, R0067E, R0101E and R0102E

For optimum stability, the EXTEND-A-FRAME can be spot welded to the existing frame.
For larger frame configurations an option is to install a frame around the existing transit frames, spot welded to the bulkhead.

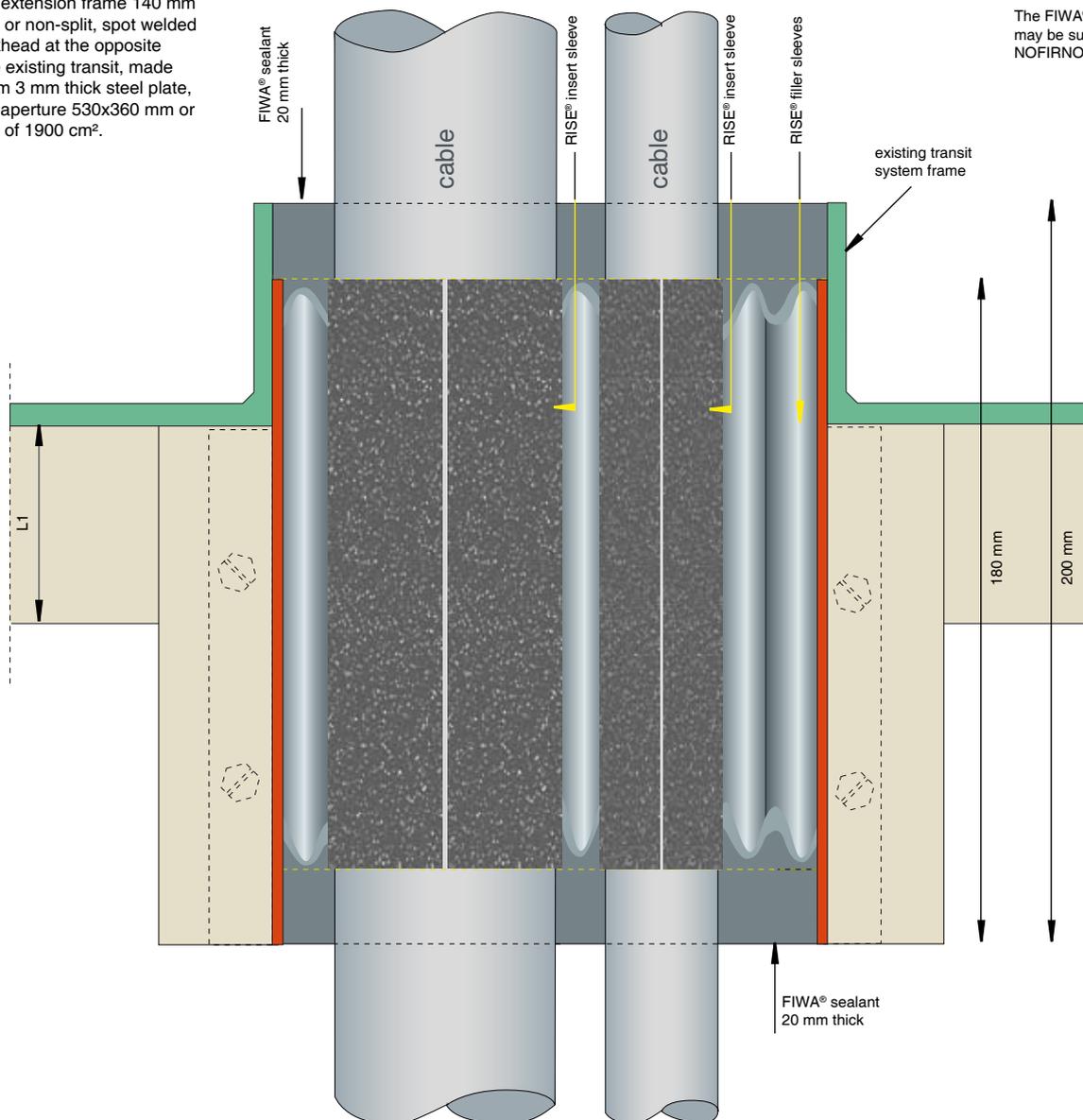
A0-A60 MULTI-CABLE TRANSIT

RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

L1: A-60 approved deck insulation.

- 1) RISE® EXTEND-A-FRAME split or non-split, 180 mm long, 40 mm inserting in existing frame, wall thickness minimum 2 mm for EXTEND-A-FRAMES as individual frame inserts.
- 2) Overall extension frame 140 mm deep, split or non-split, spot welded to the bulkhead at the opposite side of the existing transit, made of minimum 3 mm thick steel plate, maximum aperture 530x360 mm or equivalent of 1900 cm².

NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES



The FIWA® sealant may be substituted with NOFIRNO® sealant.

ask for the MED certificate with the stamped and signed detailed installation drawings

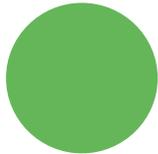
specifications for A-class according to EC (MED) certificate 09156/C0 EC issued by Bureau Veritas. Drawings R0066E, R0067E, R0101E and R0102E

For optimum stability, the EXTEND-A-FRAME can be spot welded to the existing frame. For larger frame configurations an option is to install a frame around the existing transit frames, spot welded to the deck.

**A0-A60
MULTI-CABLE
TRANSIT**

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

Cutting Edge ACTIFIRE® technology for optimum performance under fire conditions:



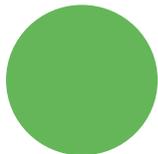
SYSTEM WILL NOT BE CONSUMED WHEN EXPOSED TO FIRE
ALL COMPONENTS ARE MADE OF INERT SILICONE RUBBER

IN CASE OF FIRE: NON-TOXIC, LOW SMOKE INDEX

CE (MED) CERTIFICATES FOR A-0 UP TO A-60

CERTIFIED FOR H-0 UP TO H-120 AND JET FIRE TESTED

APPROVED WATERTIGHT UP TO 2.5 - 4 BAR



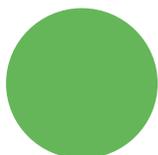
APPROVED GAS TIGHT UP TO 1 BAR

CAN BE USED IN ARCTIC CONDITIONS

HIGH LEVEL OF SOUND DAMPING/EMC ATTENUATION

SHOCK AND VIBRATION PROOF

UP TO 50 YEARS SERVICE LIFE



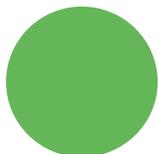
CAPABLE OF ABSORBING TEMPERATURE CHANGES

WEATHERING, UV AND OZONE RESISTANT

NO PRE-ENGINEERING NEEDED

NO SPECIAL CONDUIT FRAMES

MINIMIZED NUMBER OF STRUCTURAL COMPONENTS



MOST COMPACT INSTALLATION

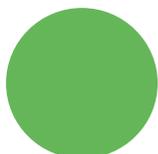
EXTREMELY SIMPLE TO INSTALL

NO INSULATION IN FRONT OF THE PENETRATION

SHORTEST POSSIBLE CONDUIT LENGTH

APPROVED FOR HEAVY CONDUCTOR CABLES

APPROVED FOR BUNDLED LAN CABLES

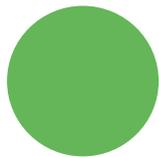
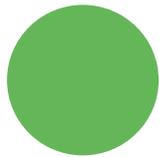
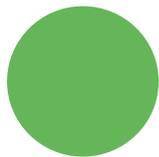
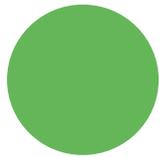


APPROVED FOR STEEL AND ALUMINIUM PARTITIONS

MAINTENANCE FRIENDLY

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM

Cutting Edge ACTIFIRE® and LEAXEAL® technology for optimum physical performance:

	<ul style="list-style-type: none"> * Naval Engineering Standard 711: Issue 2: Determination of the smoke index passed * Naval Engineering Standard 713: Issue 3: Determination of the toxicity index passed * ISO 4589 - 2 : 1996 Determination of the oxygen index passed * ISO 4589 - 3 : 1996 Determination of the temperature index passed * IMO Resolution A.653(16) Determination of low flame spread characteristics passed
	<ul style="list-style-type: none"> * Artificial ageing test Determination of properties after 25-50 years passed * Thermal cycling test Determination of adhesion at +120 °C / ambient / -40 °C (+212 °F / ambient / -40°F) passed * Naval Engineering Standard 510: Issue 2, Draft B: Shock (100 g_n) and vibration test (5-350 Hz) combined with 1 bar leak test afterwards passed * Naval Engineering Standard 814: Shock test, acceleration level 8378/s/s in two directions combined with 6.9 bar leak test afterwards passed
	<ul style="list-style-type: none"> * Naval Engineering Standard 510: Issue 2, Draft B: Leak test after a one hour fire test passed * General classification Helium gas leak test up to 1 bar passed * Nordtest method NT ELEC 030, modified for conducted attenuation 20-100 dB * Sound damping test According to EN ISO 717-1:1996 70 dB
	<ul style="list-style-type: none"> * Rapid rise fire test, shock, vibration and water pressure According to Mil-P-24705 of the US Navy passed * Dynamic cycling test Displacement 10 mm, 100,000 cycles, frequency 0.5 Hz passed * Shock and vibration tests in 3 axis and pressure tests According to standards of the German Navy passed

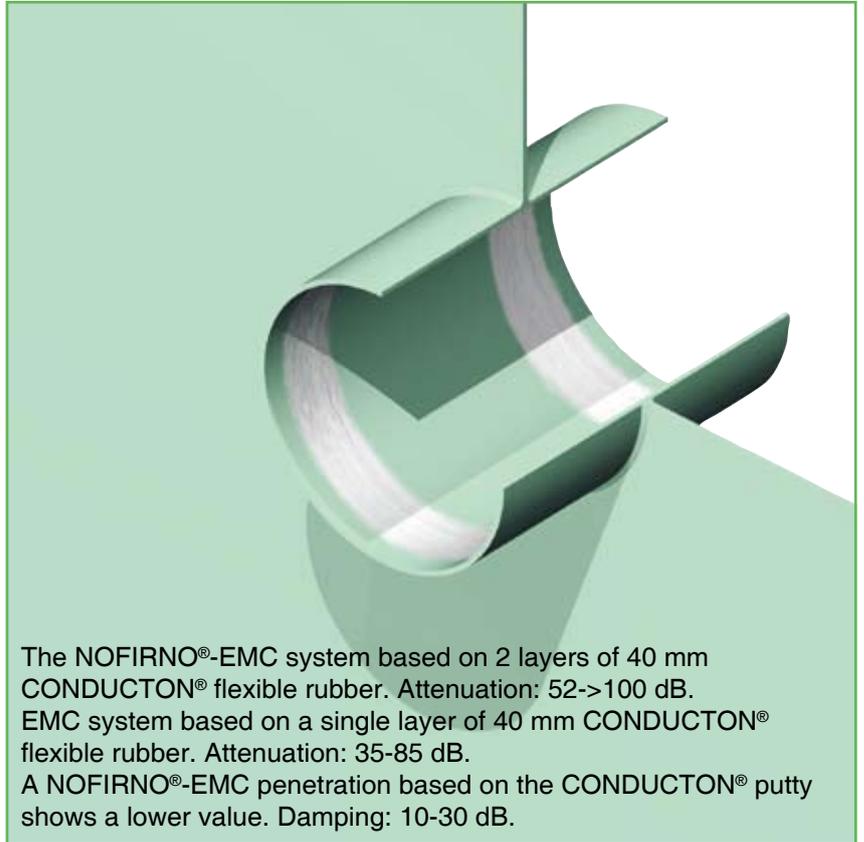
To prove the outstanding quality and safety of the RISE® cable and pipe penetrations, the basic materials (FIWA® sealant and RISE® rubber) have been subjected to additional tests.

These tests have been carried out by official institutes: Warrington Fire Research and RAPRA Technologies in the United Kingdom, the Fire Technology Institute of the University of Ghent in Belgium and TNO Laboratories in The Netherlands.

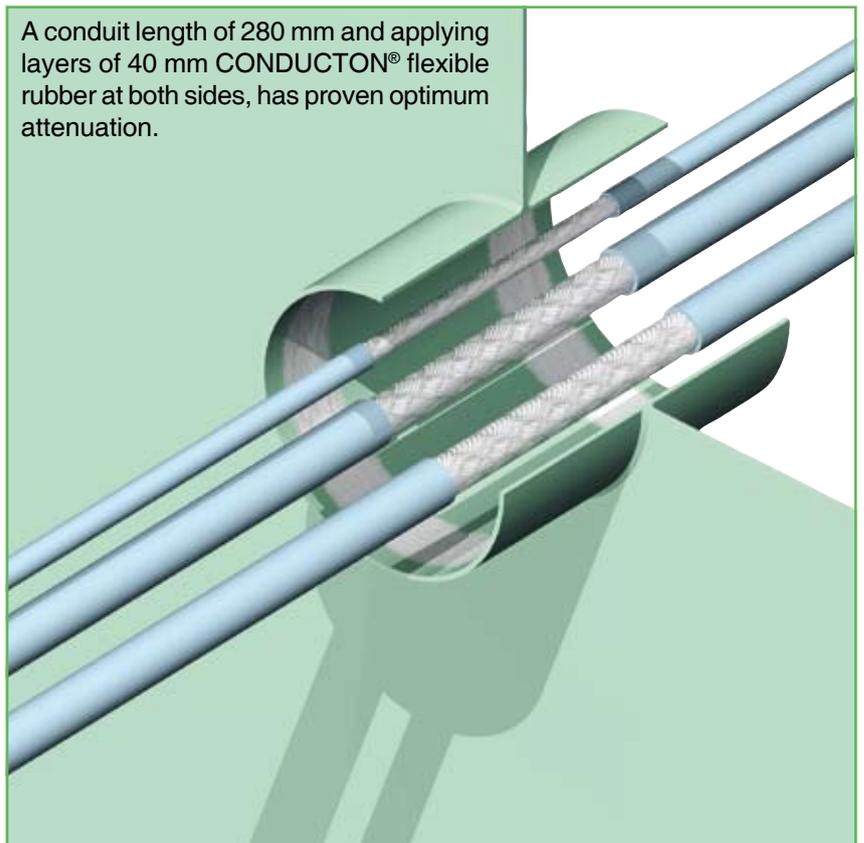
The RISE® cable and pipe penetrations have also been subjected to additional tests at official institutes such as DELTA Danish Electronics, Light and Acoustics Testing in Denmark, QinetiQ in England, South West Research Institute in USA and in-house under survey of the classification societies. To name some: sound tests, shock and vibration tests, rapid temperature rise tests, leak tests after a one hour fire test, EMC tests, A-0 test without insulation, dynamic cycling test, several configurations on watertightness and a helium gas leak test.

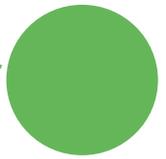
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM TYPE EMC/EMI

1) At the place where the CONDUCTON® flexible compound is to be applied, the penetration should be bare steel without primer and thoroughly cleaned to ensure effective connection to earth.



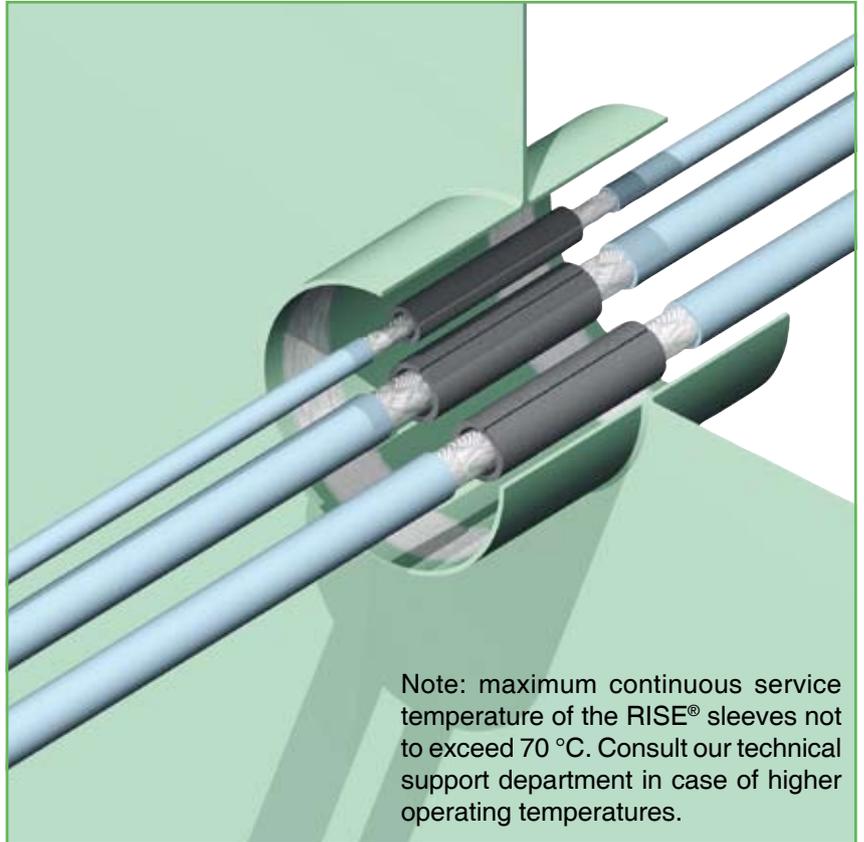
2) Remove the cable sheathing over a length that is 40 mm shorter than the length of the penetration, in such a way that the front face of the exposed braiding is situated about 20 mm inside the conduit at both sides.





RISE[®] MULTI-CABLE TRANSIT SEALING SYSTEM TYPE EMC/EMI

3) RISE[®] sleeves 120 mm shorter in length than the penetration are then fitted around the ducted cables and pushed into the penetration. The exposed braiding should extend 40 mm outside the sleeves.

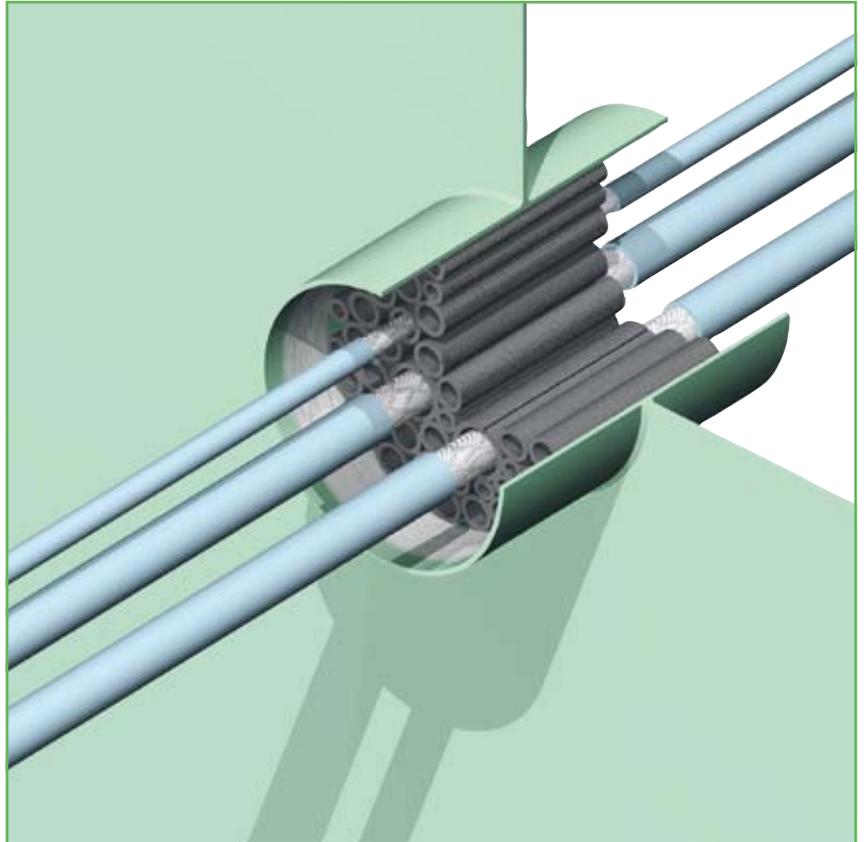


4) The remaining space inside the penetration is then packed with RISE[®] filler sleeves. Push the filler sleeves into the penetration in the same way as the sleeves fitted around the cables. Make sure that the sleeves fit tightly.

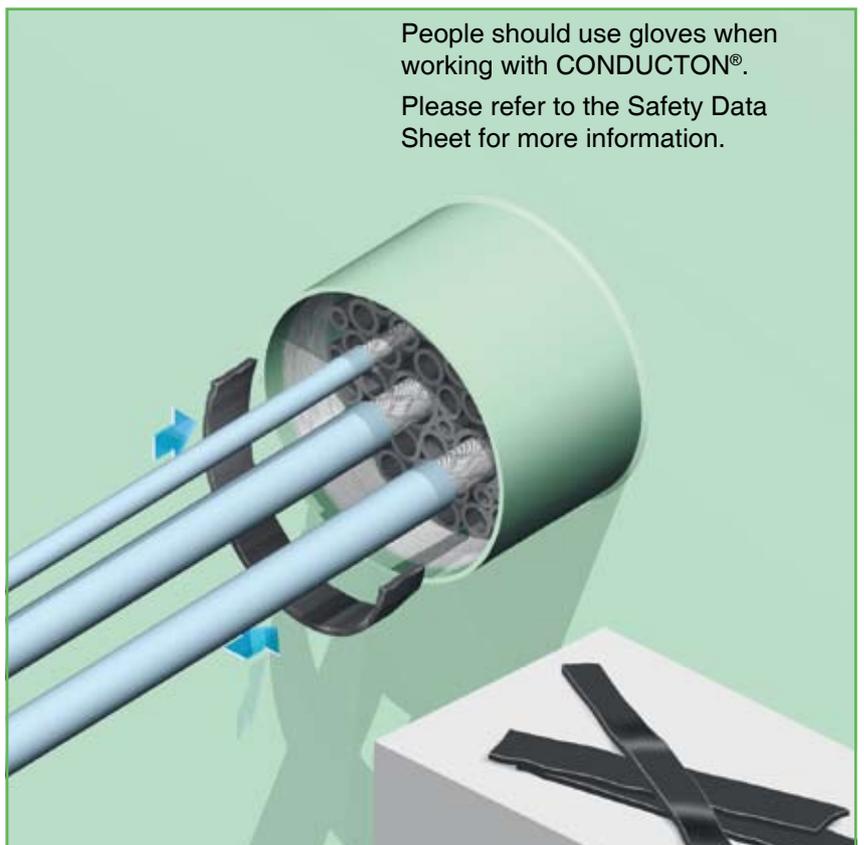


RISE® MULTI-CABLE TRANSIT SEALING SYSTEM TYPE EMC/EMI

5) Push the insert/filler sleeves into the penetration in such a way as to leave about 60 mm free space at both sides. Take care that the exposed braiding extends 40 mm outside the sleeves at each side.



6) Then apply layers of CONDUCTON® flexible rubber strips 40 mm wide against the inside wall of the penetration.



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM TYPE EMC/EMI

7) Pack the free space inside the penetration with lengths of strip. Compress the filling from time to time firmly to obtain a solid mass of flexible rubber and a good contact with the coaming/sleeve.



8) Pack the remaining small spaces around the cables with spare pieces of flexible rubber strip. Then press them down firmly with a piece of wood in order to obtain a good contact with the braiding.



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM TYPE EMC/EMI

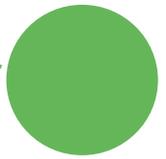
9) Firmly press down the mass once more by hand. This is extremely important to ensure effective conductivity. Then apply the CONDUCTON® flexible rubber at the other side of the penetration in a similar way.



10) At both sides of the penetration about 20 mm free space should be present to enable the application of the FIWA® fire safe, water tight sealing compound. First clean the inside wall of the penetration very thoroughly.

Refer to pages 8-11 for further finishing of the penetration.





RISE® MULTI-CABLE TRANSIT SEALING SYSTEM TYPE EMC/EMI

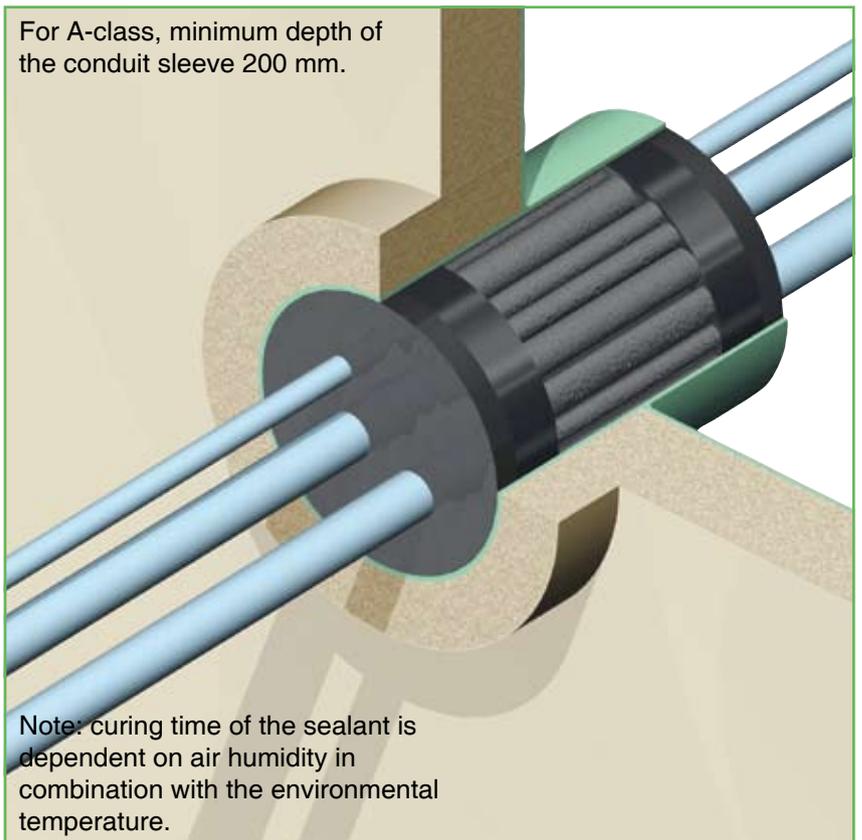
11) After smoothing is finished, a last check should be taken to ensure sufficient sealant has been applied in between the cables (especially for transits with larger amounts of cables). This is most important for water and gas tight penetrations.

To obtain optimum adhesion during the curing process of the sealant, the cables should be tightly fixed immediately after finishing the transit.



12) For A-class penetrations (which are insulated), 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 and/or in between the cables.

For A-class, minimum depth of the conduit sleeve 200 mm.



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



RIACNOF® MULTI-CABLE TRANSIT SEALING SYSTEM

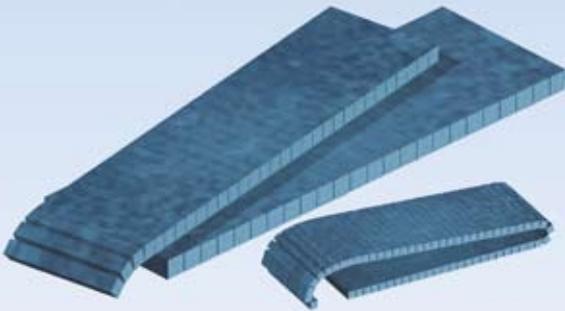
RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

ACTIFOAM® filler sheets



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

RIACNOF® (RISE-ACTIFOAM-NOFIRNO) multi-cable penetrations are a further development of the regular RISE® system. We have combined ACTIFIRE® and NOFIRNO® technology to obtain high fire ratings and cost-effective installation. The system is a cost-effective alternative to the RISE® filler sleeves to pack large void spaces in transits. Use is made of RISE® rubber insert sleeves (placed around the cables) and ACTIFOAM® cell rubber filling. ACTIFOAM® rubber sheets are pre-slit to enable ease of filling. Single strips can be torn off easily to fill smaller voids in the penetration. Based on the ACTIFIRE® technology, both rubber grades are activated when exposed to fire. On both sides of the penetration, a layer of NOFIRNO® (non-fire consumable, non-intumescent, non-ageing) sealant is applied. Only halogen free components.

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
12/6	5 - 7	160	80.0100
14/8	7 - 9	160	80.0101
16/10	9 - 11	160	80.0102
18/12	11 - 13	160	80.0103
20/14	13 - 15	160	80.0104
22/16	15 - 17	160	80.0105
27/19	17 - 21	160	80.0106
31/23	21 - 25	160	80.0107
35/27	25 - 29	160	80.0108
39/31	29 - 33	160	80.0109
46/36	33 - 39	160	80.0110
52/42	39 - 45	160	80.0111
58/48	45 - 51	160	80.0112
64/54	51 - 57	160	80.0113
70/60	57 - 63	160	80.0114
12/6	5 - 7	210	80.0200
14/8	7 - 9	210	80.0201
16/10	9 - 11	210	80.0202
18/12	11 - 13	210	80.0203
20/14	13 - 15	210	80.0204
22/16	15 - 17	210	80.0205
27/19	17 - 21	210	80.0206
31/23	21 - 25	210	80.0207
35/27	25 - 29	210	80.0208
39/31	29 - 33	210	80.0209
46/36	33 - 39	210	80.0210
52/42	39 - 45	210	80.0211
58/48	45 - 51	210	80.0212
64/54	51 - 57	210	80.0213
70/60	57 - 63	210	80.0214

ACTIFOAM® filler sheets	sheet length	article number
300x140x10	140	83.2400
300x140x25	140	83.2403
300x160x10	160	83.2300
300x160x25	160	83.2303
600x140x25	140	83.2413
600x160x25	160	83.2313
600x140x25 (slits 25x50 mm)	140	83.2423
600x160x25 (slits 25x50 mm)	160	83.2323



RIACNOF® MULTI-CABLE TRANSIT SEALING SYSTEM

PRODUCT INFORMATION SEALANT

01) colour	red brown
02) specific gravity	1.40 ± 0.03 g/cm ³
03) curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04) service temperature	-50 °C up to +180 °C
05) tensile strength	1.5 MPa
06) elongation at break	200%
07) hardness	45 Shore A
08) elastic deformation	approx. 50%
09) resistance	UV, Ozone, arctic conditions
10) ageing	more than 20 years
11) supplied in	310 ml cartridges
12) storage	to be stored cool and dry min/max temperature = +5/+30° C
13) storage life	guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application



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.

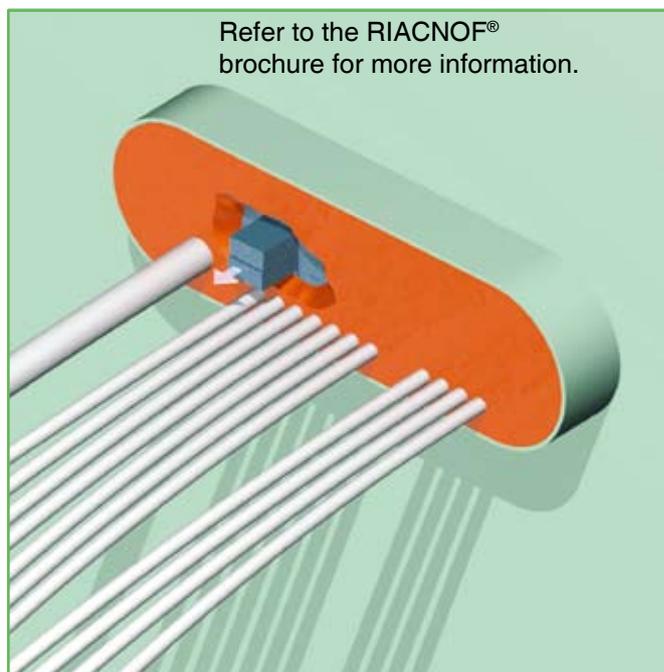
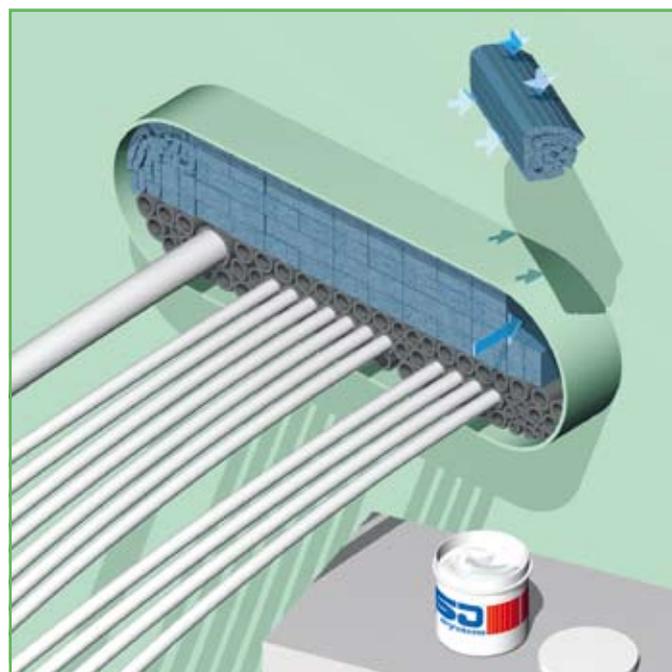
THE SYSTEM OF CHOICE FOR ECONOMICAL APPLICATIONS.

The NOFIRNO® sealing system has been successfully tested according to IMO Resolution A.754(18) with filling the open spaces in the transit with ACTIFOAM® filler sheets. Especially in the case of cable transits with a very low filling rate, a lot of time saving is obtained since stuffing in the ACTIFOAM® sheets and rolls is a very easy matter. The penetration has to be sealed at both sides with 20 mm NOFIRNO® sealant.

RISE® insert sleeves are placed around each of the ducted cables and inserted into the conduit. The open spaces around the sleeved cables can be filled with RISE® filler sleeves to obtain a plain level for applying the ACTIFOAM® filling.

On top of the RISE® filling, ACTIFOAM® pre-slit filler strips and rolls are placed to fill the remaining space in the conduit. For later extensions, it is advisable to tear off the strips so that removal is easier.

For adding an extra cable, an opening is made in the sealant layer and ACTIFOAM® fillers are removed.



NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM

RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

NOFIRNO® filler sleeves



Operating temperatures:
-50 °C up to +180 °C

filler sleeves are supplied non-split

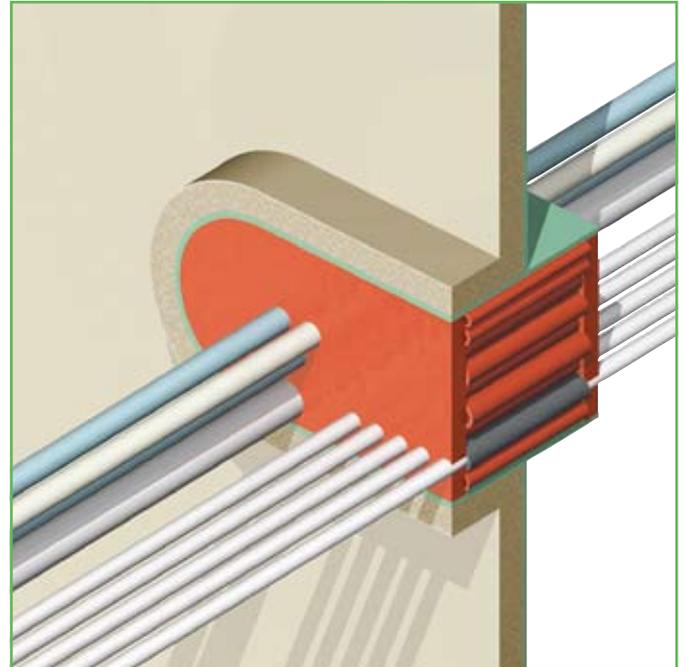
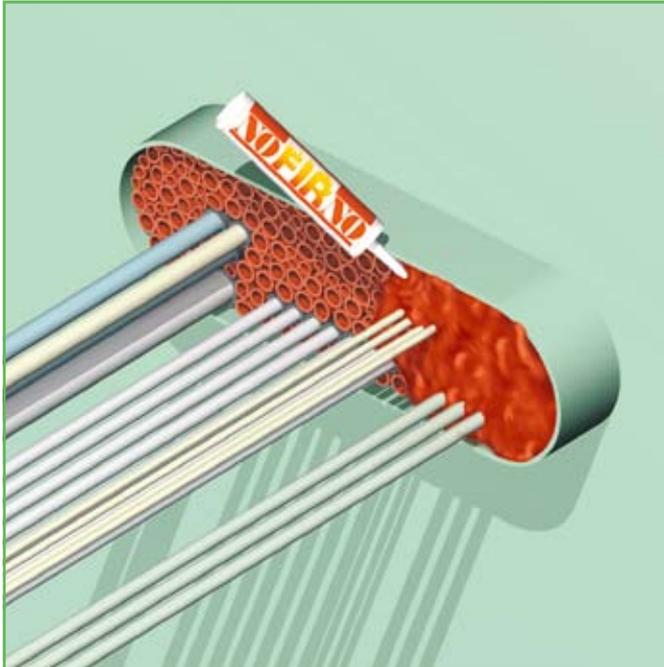
NOFIRNO® multi-filler sleeves



filler sleeves are supplied in multi-sets of 10 sleeves

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
<i>all dimensions in mm</i>			
12/6	5 - 7	160	80.0100
14/8	7 - 9	160	80.0101
16/10	9 - 11	160	80.0102
18/12	11 - 13	160	80.0103
20/14	13 - 15	160	80.0104
22/16	15 - 17	160	80.0105
27/19	17 - 21	160	80.0106
31/23	21 - 25	160	80.0107
35/27	25 - 29	160	80.0108
39/31	29 - 33	160	80.0109
46/36	33 - 39	160	80.0110
52/42	39 - 45	160	80.0111
58/48	45 - 51	160	80.0112
64/54	51 - 57	160	80.0113
70/60	57 - 63	160	80.0114
<i>all dimensions in mm</i>			
12/6	5 - 7	210	80.0200
14/8	7 - 9	210	80.0201
16/10	9 - 11	210	80.0202
18/12	11 - 13	210	80.0203
20/14	13 - 15	210	80.0204
22/16	15 - 17	210	80.0205
27/19	17 - 21	210	80.0206
31/23	21 - 25	210	80.0207
35/27	25 - 29	210	80.0208
39/31	29 - 33	210	80.0209
46/36	33 - 39	210	80.0210
52/42	39 - 45	210	80.0211
58/48	45 - 51	210	80.0212
64/54	51 - 57	210	80.0213
70/60	57 - 63	210	80.0214
<i>all dimensions in mm</i>			
NOFIRNO® filler sleeve		sleeve length	article number
18/12 single		140	80.5002
18/12 multi		140	80.5052
18/12 single		160	80.5003
18/12 multi		160	80.5053
18/12 single		210	80.5004
18/12 multi		210	80.5054
<i>all dimensions in mm</i>			
27/19 single		140	80.5012
27/19 multi		140	80.5062
27/19 single		160	80.5013
27/19 multi		160	80.5063
27/19 single		210	80.5014
27/19 multi		210	80.5064

NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM



THE SYSTEM OF CHOICE FOR HARSHTEST APPLICATIONS.

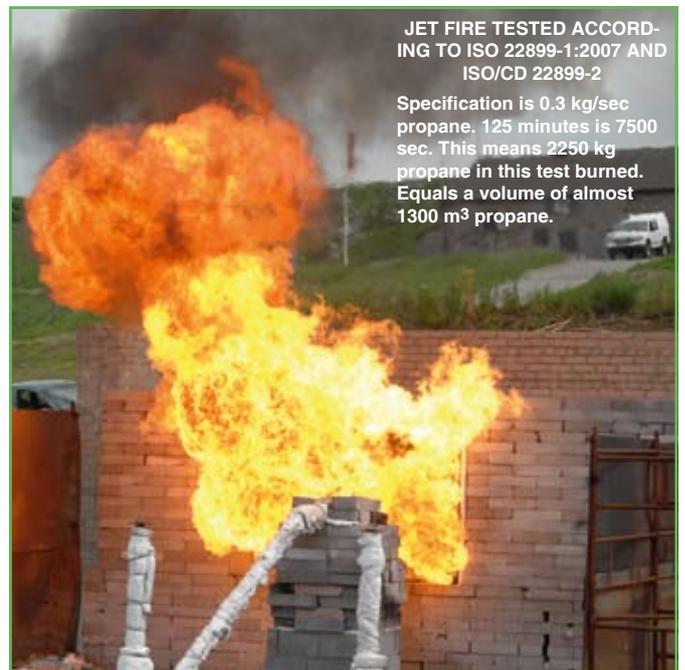
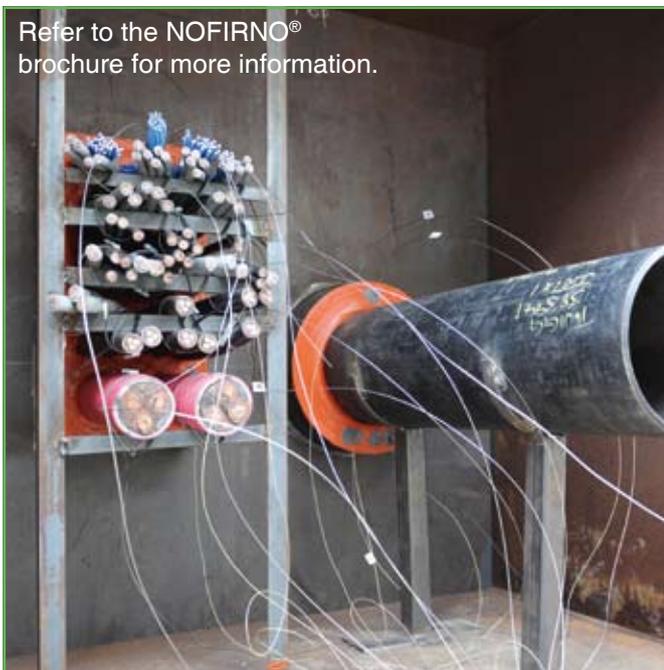
From a time/temperature perspective, Jet Fire tests are similar to Hydrocarbon (H-Class) Fire tests. During the Hydrocarbon test, an instantaneous temperature rise up to 800 °C takes place, with the overall exposure temperature rising to 1150 °C. During the Hydrocarbon test, there are no extreme conditions imparted to the penetration seal, such as thermal and mechanical loads or severe erosive forces, as is the case with the Jet Fire Test.

The NOFIRNO® sealing system, for both cable and pipe transits have been successfully subjected to A-0, H-0 and even Jet Fires without being severely affected.

ISO standard ISO/CD 22899-2 highlights the value of Jet Fire performance quite clearly under Article 6.5: Products that have demonstrated the ability to withstand a jet fire can be used to protect buildings more sensitive to extreme fires.

Jet fire tests simulate the most onerous conditions of a hydrocarbon fueled fire on an offshore oil rig, or a missile strike on a military warship.

Refer to the NOFIRNO® brochure for more information.



JET FIRE TESTED ACCORDING TO ISO 22899-1:2007 AND ISO/CD 22899-2

Specification is 0.3 kg/sec propane, 125 minutes is 7500 sec. This means 2250 kg propane in this test burned. Equals a volume of almost 1300 m³ propane.

NOFIRNO[®], RIACNOF[®], RISE[®] AND RISE[®]/ULTRA CABLE/PIPE TRANSIT SEALING SYSTEM



**TRANSIT
CALCULATOR**

Calculate your materials requirements for our fire safe and gas and smoke tight sealing systems

RISE
RISE/NOFIRNO
RISE/ULTRA
RISWAT
RIACNOF

Free material calculation software. Download at our website <http://www.beele.com>.

After entering the dimensions of the conduit opening and the amount and outer diameters of the ducted cables or pipes, the software calculates the amount of RISE[®] or RISWAT[®] insert sleeves, the RISE[®], RISWAT[®] or NOFIRNO[®] filler sleeves, the ACTIFOAM[®] spare filling sheets, the RISE[®] or RISE[®]/ULTRA crushers and the DRIFIL[®], FIWA[®] or NOFIRNO[®] sealant. It is easy to switch between the several systems and also between A-class, H-class, EMC and watertight penetrations. After entering the dimensions and amount and sizes of cables/pipes, a drawing appears on the screen showing also the remaining free space in the conduit opening. Furthermore, the filling rate of the cable penetrations is shown. Warnings appear for deviations of the certified configurations and for overfilling the transits or exceeding filling rates.

For a created project, all calculated transits can be stored in a database. Order/calculation forms can be shown on screen for project totals and single transits. The material lists can be printed and/or exported to MS Word.

The material list of a transit shows the options which can be entered to make a calculation of the materials needed:

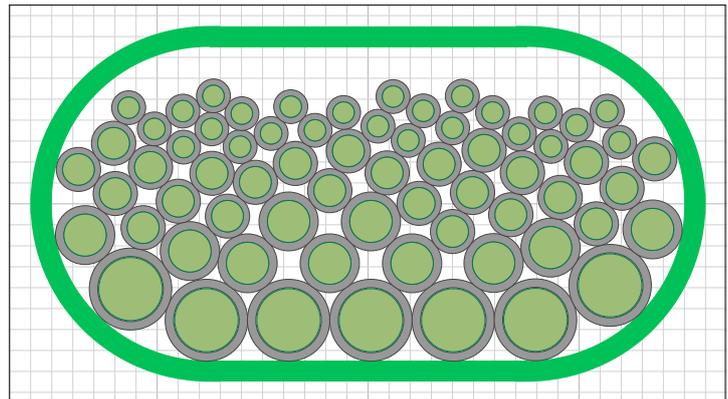
- 1) transit dimensions.
- 2) the depth of a transit is automatically selected based on the entered data at class (A, B, H-class or watertight) but can be changed. In this case, a warning appears that this is a deviation of the certification.
- 3) selection of the sealing system (cable, pipe).
- 4) the quantity of duplicate transits in the project.
- 5) the filling rate is calculated on the basis of the entered cable amounts and dimensions
- 6) percentage of spare for later extensions
- 7) where appropriate, a selection can be made for EMC rated penetrations
- 8) type of sealant can be selected (FIWA[®] or NOFIRNO[®] for fire rated transits and DRIFIL[®], FIWA[®] or NOFIRNO[®] for watertight transits)

The material list displays the selected system, cable (or pipe) specifications, and the sealing material requirements. All transits in a project can be selected to create a similar list for all materials for the whole project.

Program-version of Transit-calculator: 3.9.2 (10 Dec 2009)

Always use the most recent version when creating a new material-list!

Material list for transit 'RISE multi-cable transit!'



Created on:	20-1-2010 13:55:32
Created by:	Jansen
Last modified:	23-2-2010 15:50:38
Modified by:	Dickson

Transit specifications:	(All dimensions in mm)
Width:	300,00
Height:	150,00
Corner radius:	75,00
Depth:	180,00
Transit type:	Cable
Transit used in this project:	1 time
Filling rate:	36%
Spare on cable set:	0%
Class:	A-class
EMC:	None
Sealant:	20mm (both sides)

Check the Type Approval Certificates for limitations in sizes !

Material specifications:	
Type of filler sleeves:	standard
FIWA sealant:	cartridges 310 ml

Cable specifications:	
Cables (OD)	Amount
10,00	25
15,00	25
20,00	10
30,00	7

Total amount of cables: 67

RISE materials needed:		
Insert sleeves	Amount	Length
16/10	25	140,00 mm
20/14	25	140,00 mm
27/19	10	140,00 mm
39/31	7	140,00 mm
Filler sleeves	Amount	Length
18/12	7	140,00 mm
27/19	16	140,00 mm

FIWA sealant (incl. overfill)	1354 ml (5 cartridges)
---	------------------------

BEELE - RESEARCH & DEVELOPMENT PRODUCTS FOR SPECIAL APPLICATIONS

NOFIRNO® *NEW TECHNOLOGY*

- Approved for harshest fire ratings for pipe penetrations (A, H and Jet Fire class).
- Allows substantial movement of the ducted pipe within the conduit.
- High pressure ratings - designed for gas and/or watertight penetrations.
- Prevents corrosion inside the penetration.
- Longest service life and best Total Cost of Ownership on the market.
- NOFIRNO® rubber sleeves and sealant will remain stable and not be consumed by fire.
- **Breakthrough - MULTI-ALL-MIX SYSTEM®**
- Approved for any combination of cable and/or metallic, GRP or plastic pipes!



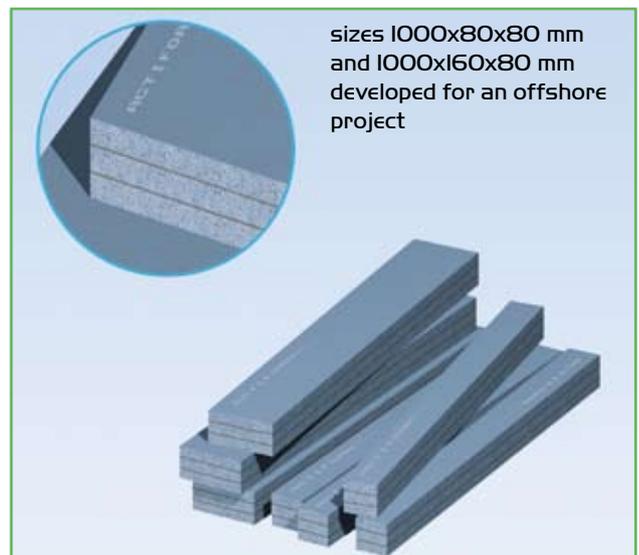
NOFIRNO® *NEW TECHNOLOGY*

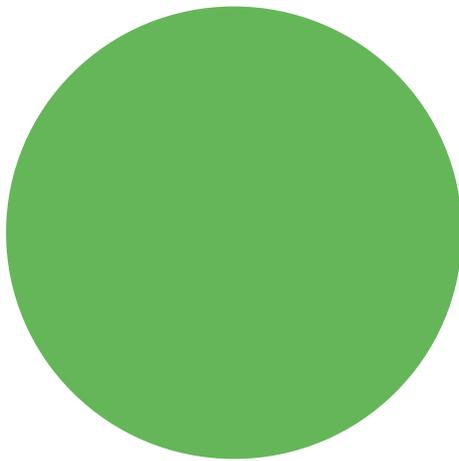
- Gaskets and rubber sheets for applications in which the transits, coamings or conduit sleeves are bolted to the partition.
- Successfully tested for A-class RISE®, RIACNOF® and NOFIRNO® sealing systems for multi-cable and pipe transits bolted to the partitions.
- NOFIRNO® rubber will remain stable and not be consumed by fire.
- NOFIRNO® rubber has excellent resistance against UV, Ozone and weathering.
- Wide temperature range: -50 °C up to +180 °C.
- **Proven - harshest fire exposure**
- Special sizes of gaskets upon request.
- Products made of NOFIRNO® rubber upon request.



ACTIFOAM®/ULTRA *NEWEST TECHNOLOGY*

- Sealing of gaps and openings in constructions against the ingress of moisture and to avoid flame spread.
- ACTIFOAM® has high thermal insulation values due to the close cellular structure.
- RISE®/ULTRA - adhesive properties under fire load.
- **Breakthrough - ACTIFOAM® sheets can be layered with RISE/ULTRA sheets.**
- The sandwich construction acts as a “bridge bearing” enabling the carrying of very high loads.
- Highest fire ratings achievable due to the unique combination of the two rubber grades.
- Successfully subjected to two hour hydrocarbon fire.





WE CARE

**BEELE ENGINEERING:
A COMPANY DEDICATED TO SAFETY
FOR OVER 35 YEARS**



BEELE Engineering bv - CSD International bv

**CSD Sealing Systems - North America, LLC
21 Meadowbrook Lane - Unit 12, Gilford, NH 03249 USA
Tel. 603-293-0100 Fax 603-293-0200 E-Mail info@csd.us.com**

www.csd.us.com

www.beele.com