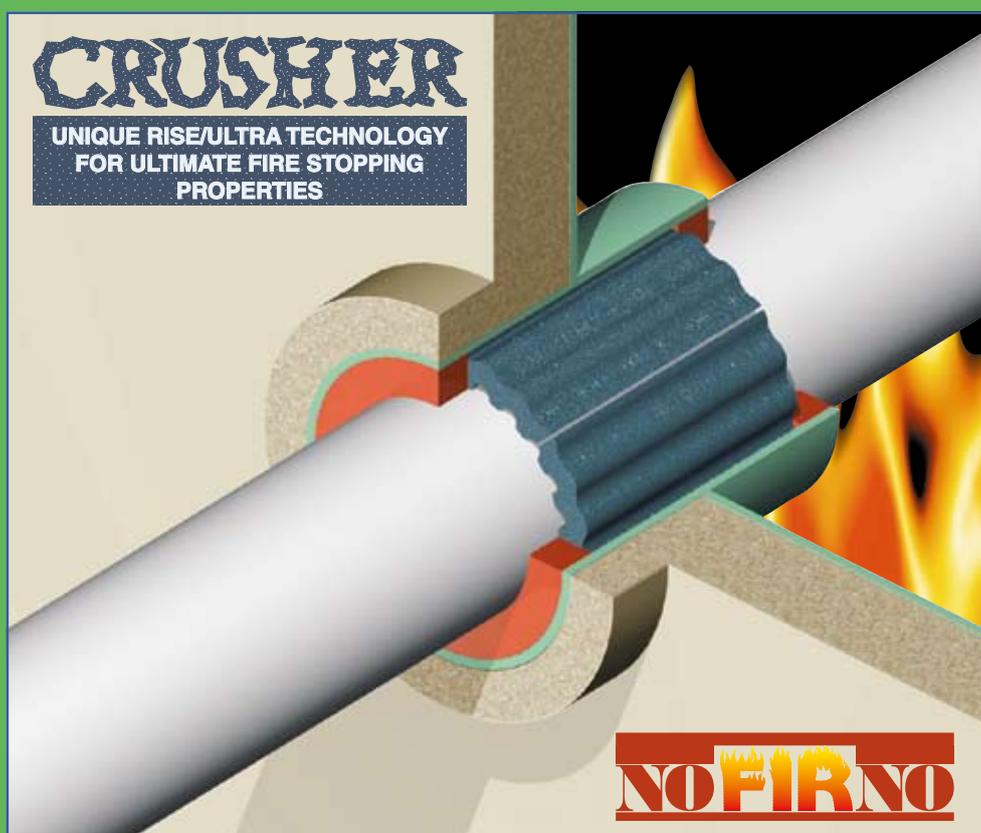


RISE/ULTRA® CRUSHER®

FIRE SAFE SEALING OF PLASTIC PIPE ENTRIES

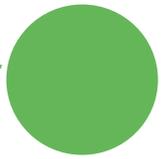


TESTED TO IMO RESOLUTION A.754(I8);
FIRE RESISTANCE AO-A60
EC (MED) CERTIFICATE
MED-B-5068 ISSUED BY DNV

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brochure code	: rise/ultra/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.

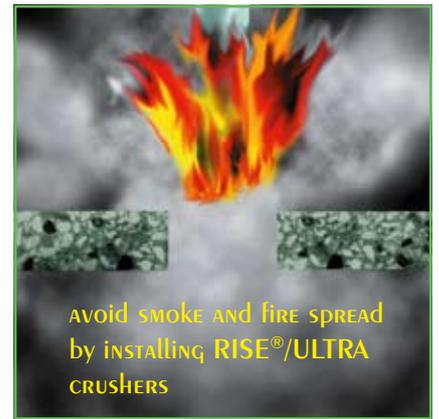
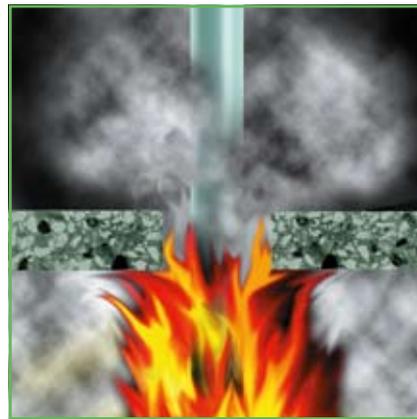
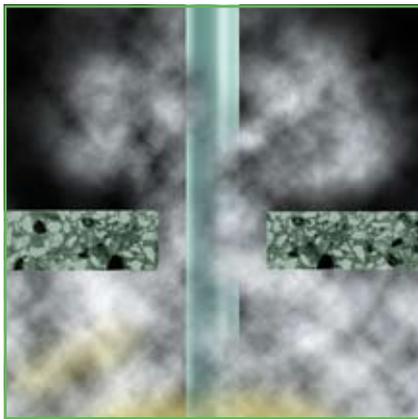
BEELE Engineering operates world-wide. From our agencies in virtually every industrialized country, our support and services are always somewhere nearby. We are there for you – also for on-site advice or in-house demonstrations, instructions and support at your location.



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.

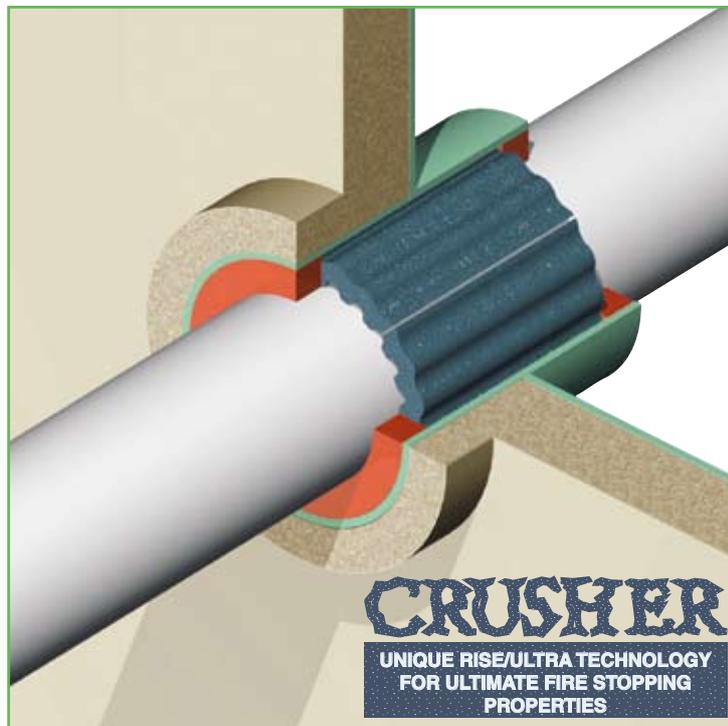
RISE®/ULTRA - CRUSHERS® PLASTIC PIPE TRANSIT SEALING SYSTEM

Plastic pipes which pass through fire-rated bulkheads and decks as part of, for example, sanitation systems, are a potential source of serious problems in case of fire. Most plastic pipes start to soften at a temperature of about 75 °C and ignite at a temperature of about 140 °C. This means that, should a fire occur, a hole will be formed by the softened or combusted plastic pipe, allowing fumes and flames to spread freely. To address this problem, BEELE Engineering has developed the CRUSHER® technology.



Based on the CRUSHER® technology it is now possible to make fire stop penetrations for plastic pipes just by inserting a single RISE®/ULTRA crusher into the conduit opening. The RISE®/ULTRA crusher is placed around the ducted plastic pipe. For conduits which should also be air or water tight, a combination of RISE®/ULTRA and NOFIRNO® sealant is used. The design of the crusher allows for a balanced amount of hot air penetrating around the crusher. The time to close off the opening left by the burned or softened plastic pipe must be very short. Otherwise a chimney effect will occur, causing the pipe at the unexposed side to melt. The unique RISE®/ULTRA rubber reacts at two different temperature levels to speed up compression. The first reaction transfers the rubber under limited expansion to a very adhesive substance. Adhesive sealing all around causes the trapped air to expand rather fast.

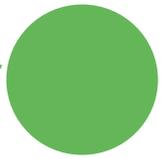
In this way compression of the plastic pipe starts already at an early stage of the fire. The unique RISE®/ULTRA crusher allows for smallest conduit openings.



For oversized openings and for multi-plastic pipe penetrations use is made of NOFIRNO® filler sleeves and NOFIRNO® sealant. Based on the properties of the RISE®/ULTRA rubber, ultimately a hard solid rubber mass adhering to the wall of the conduit and the remaining part of the plastic pipe is formed. In this way the penetration keeps tight. Official fire tests according to IMO Resolution A.754(18) have successfully been carried out at the EFECTIS (formerly TNO) test institute,

including multi-mix (cables, metallic and plastic pipe) transits. RISE®/ULTRA crushers have been certified for A-class ratings up to A-60. Type Approval Certificates are available, covering TC. MED certificate has been issued by DNV, covering USCG.

2



RISE®/ULTRA - CRUSHERS® PLASTIC PIPE TRANSIT SEALING SYSTEM

The RISE®/ULTRA plastic pipe penetrations are based on the newly developed CRUSHER® technology. It has been found that a combination of adhesive swelling of the rubber, followed by compressive expansion, results in a hard and solid fill of the conduit with an optimum on fire stopping properties. The RISE®/ULTRA rubber expands on two different temperature levels. The first reaction causes the rubber to become very adhesive under the effect of temperature. This process is facilitated by small air cavities inside the penetration around the RISE®/ULTRA crusher. With the accompanied swelling, the rubber seals the transit totally by adhering to the ducted pipe and to the wall of the conduit opening. From this point on, the compressive expansion is directed to the inside of the penetration and crushes the softened plastic pipe. Based on this new technology, a single RISE®/ULTRA crusher is able to crush plastic pipes quickly, and can withstand extended fire exposure.



A fair amount of fire tests have shown that the depth of the conduit opening can be minimum 180 mm for plastic pipes up to 140 mm OD, and 200 mm above 140 mm OD. Fire tests have shown that the formed adhesive mass prevents shrinkage of the expanded rubber during and after fire exposure.

An advantage is that the RISE®/ULTRA crusher can be applied in standard conduit sleeves. A further advantage of the system is that the crusher can be installed from one side.

No steel parts, no corrosion. No water sensitive materials. Halogen free.

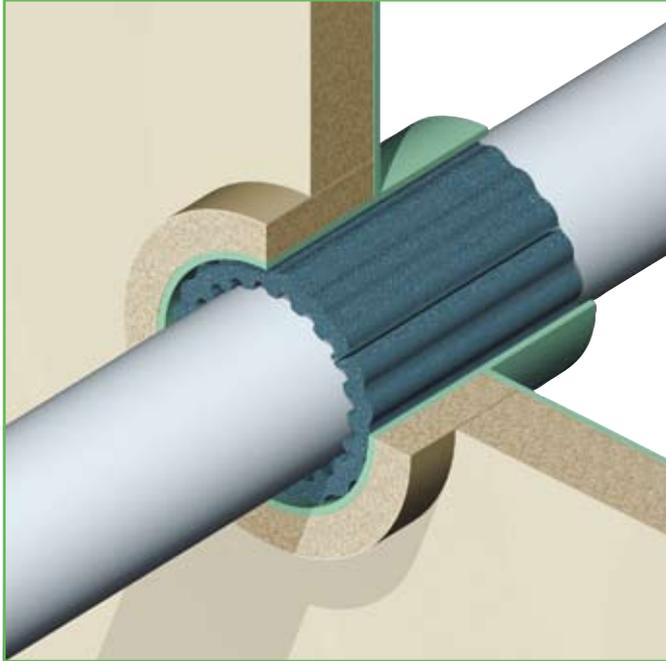
Three different versions are available:

- 1) split crushers (C-FIT)
- 2) crusher wraps (sheets)

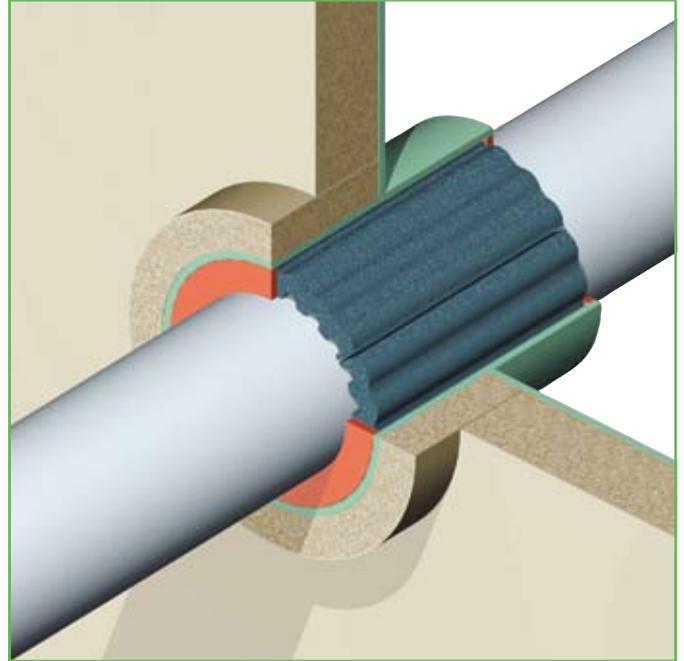
3) crusher combined with NOFIRNO®
For oversized openings, for off centre ducted pipes and for multi-penetrations use is made of NOFIRNO® filler sleeves and sealant in combination with RISE®/ULTRA crushers.



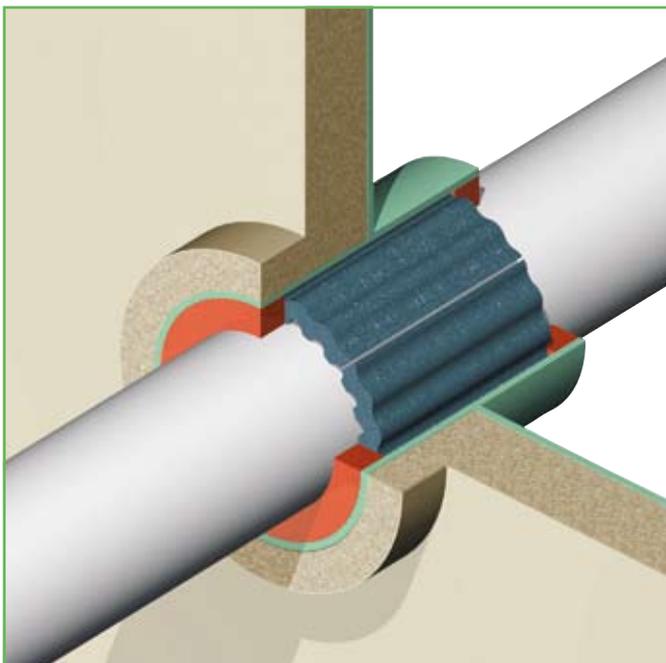
RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM



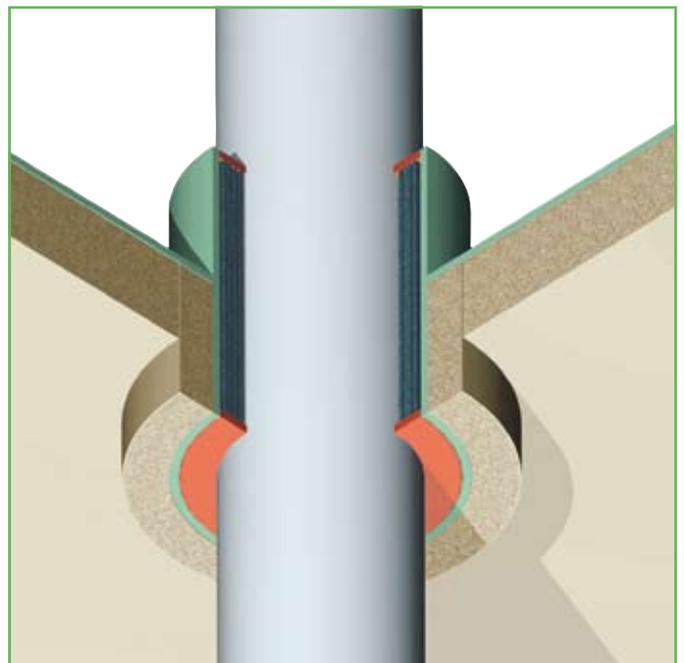
Several options are available with the RISE®/ULTRA crushers. The most simple and cost effective solution is a fitting C-FIT crusher applied in a conduit sleeve with an exact ID for a tight fit. This application is for **fire-rated only** penetrations.



For air and smoke tight penetrations, a non-fitting crusher can be used (although fitting is preferred). Note: Limitations on the air gap between crusher and wall of the conduit. NOFIRNO® sealant with a thickness of minimum 5 mm to be applied at both sides.



For gas and watertight penetrations, a fitting C-FIT crusher is applied in a conduit sleeve with an exact ID for a tight fit. NOFIRNO® sealant with a thickness of minimum 20 mm to be applied at both sides. Note: water tightness dependent on adhesion of the sealant to the plastic pipe.



Instead of RISE®/ULTRA crushers, RISE®/ULTRA wraps can be used. It is recommended to always apply NOFIRNO® sealant to prevent the crusher from falling out of the conduit. Note: the RISE®/ULTRA wraps are 2.5 thick and have to be wrapped to the required thickness.

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

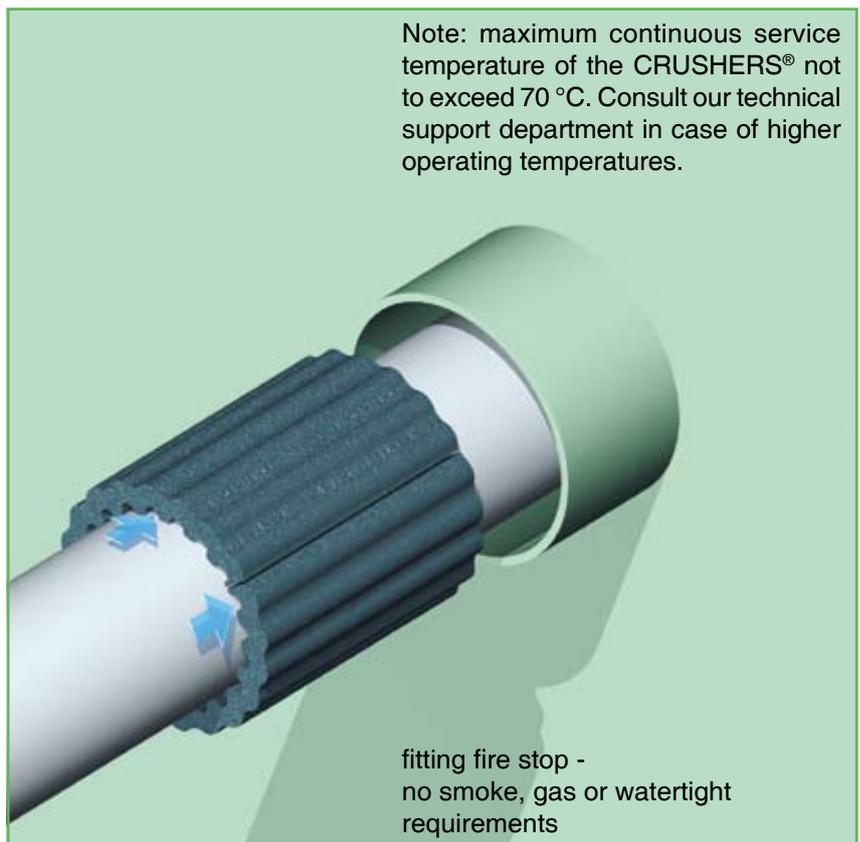
1) To obtain optimum performance at low cost, it is advisable to select the appropriate size of the conduit opening based on the type of crusher to be used according to the tables on page 4.

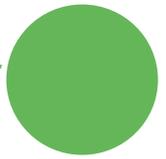
The fitting RISE®/ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe in front of the conduit sleeve.

CRUSHER

2) In case of a tight fitting crusher, the outside of the crusher and the inner wall of the conduit should be treated with CSD® lubricant for ease of installation. Push the crusher into the conduit sleeve.

CRUSHER





RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

3) Check for a tight fit. For “fire-rated only” penetrations, it is not mandatory to apply a sealant. It will be obvious that a tight fit is in such cases a must to hold the crusher in place. In case of a non-fitting crusher, the danger exists that the crusher might fall out of the penetration.

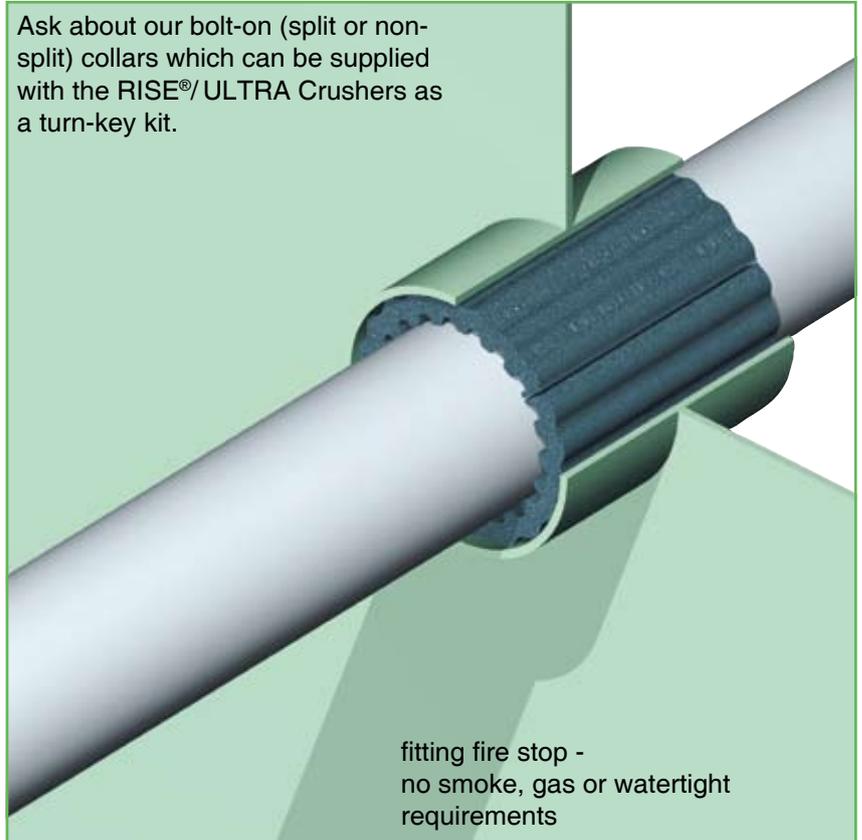
Our advice is to always apply sealant in order to avoid this problem.



4) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.

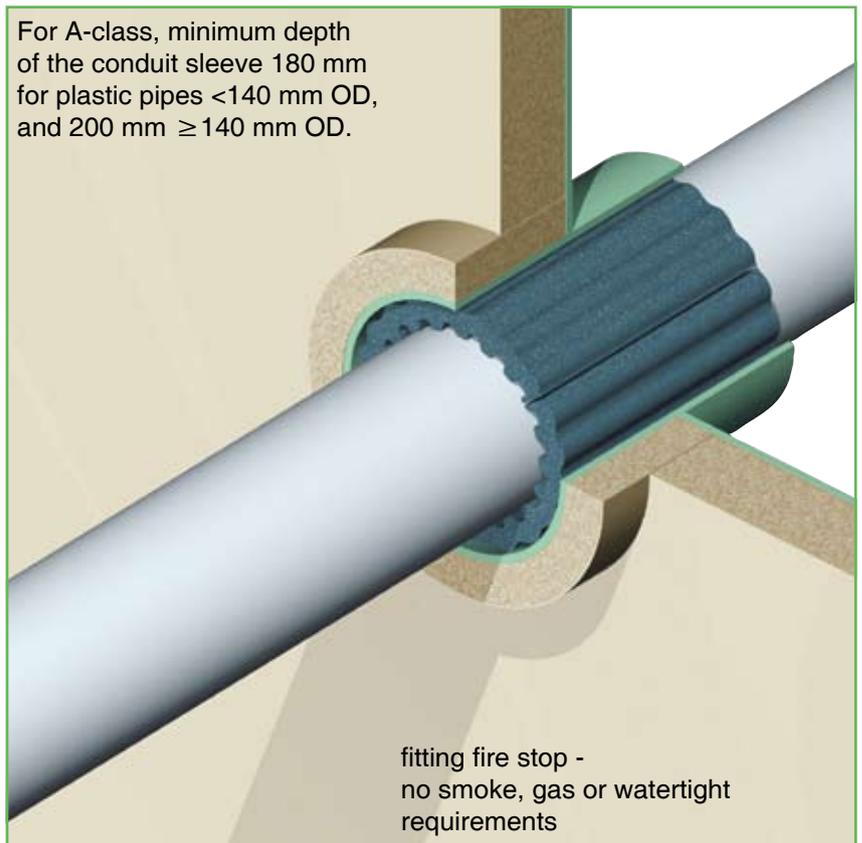


Ask about our bolt-on (split or non-split) collars which can be supplied with the RISE®/ULTRA Crushers as a turn-key kit.



fitting fire stop -
no smoke, gas or watertight requirements

For A-class, minimum depth of the conduit sleeve 180 mm for plastic pipes <140 mm OD, and 200 mm ≥ 140 mm OD.



fitting fire stop -
no smoke, gas or watertight requirements

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead insulation.

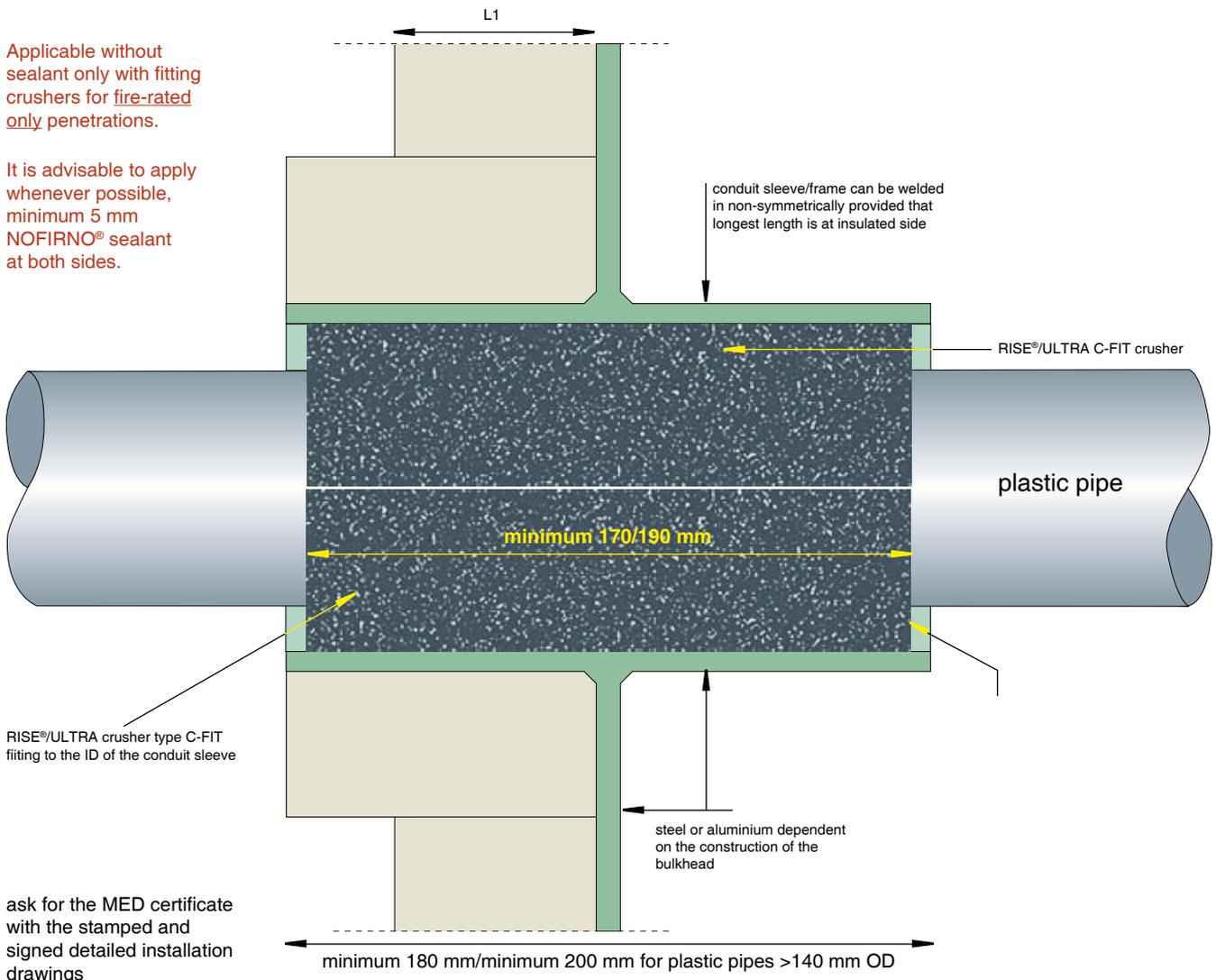
In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

In this case the CRUSHER® has to be fixed in an appropriate way to avoid the crusher from falling out of the penetration.

- FOR ALL PLASTIC PIPES (ABS, PE, PB, PP-R, PVC) UP TO 160 MM OD
- FOR PIPES WITH WALL THICKNESS UP TO 10 MM

Applicable without sealant only with fitting crushers for fire-rated only penetrations.

It is advisable to apply whenever possible, minimum 5 mm NOFIRNO® sealant at both sides.

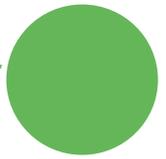


for fire rated only conduits (not for gas or watertight conduits)

for fire rated, airtight conduits: minimum 5 mm sealant at both sides

Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas. Drawings R0256E, R0257E, R0258E, R0262E, R0264E, R0265 and R0267E.

A0-A60 PLASTIC PIPE TRANSIT



RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved deck insulation.

In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

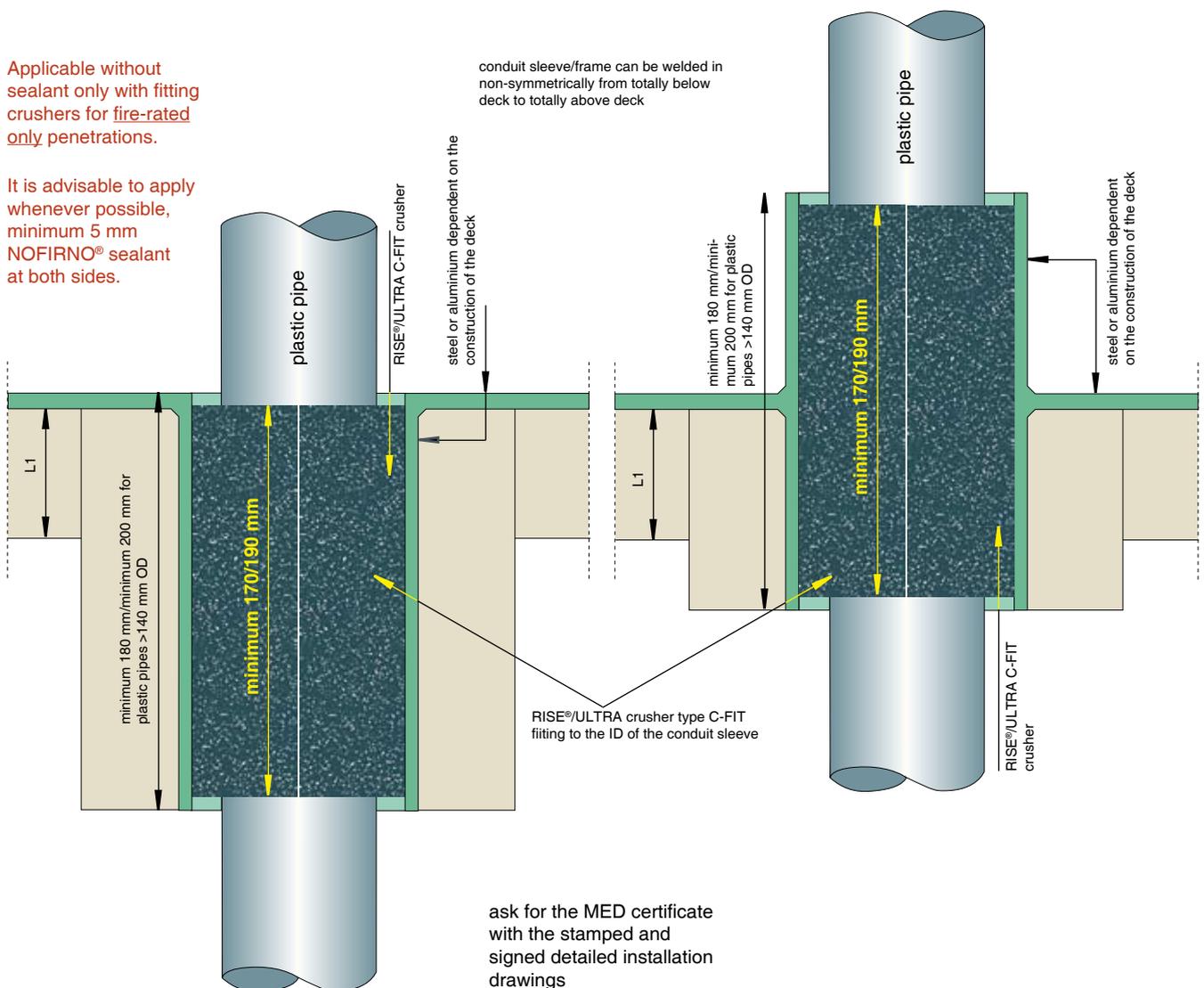
In this case the CRUSHER® has to be fixed in an appropriate way to avoid the crusher from falling out of the penetration.

- FOR ALL PLASTIC PIPES (ABS, PE, PB, PP-R, PVC) UP TO 160 MM OD
- FOR PIPES WITH WALL THICKNESS UP TO 10 MM

Applicable without sealant only with fitting crushers for fire-rated only penetrations.

It is advisable to apply whenever possible, minimum 5 mm NOFIRNO® sealant at both sides.

conduit sleeve/frame can be welded in non-symmetrically from totally below deck to totally above deck



for fire rated only conduits (not for gas or watertight conduits)
for fire rated, airtight conduits: minimum 5 mm sealant at both sides

Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas. Drawings R0256E, R0257E, R0258E, R0262E, R0264E, R0265 and R0267E.

A0-A60 PLASTIC PIPE TRANSIT

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

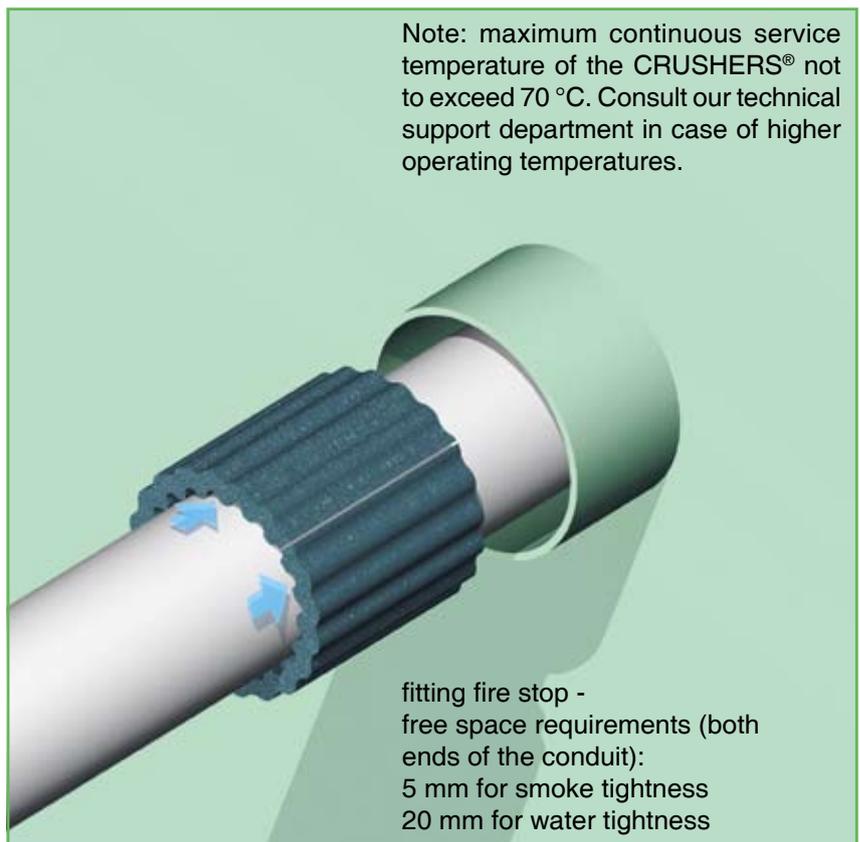
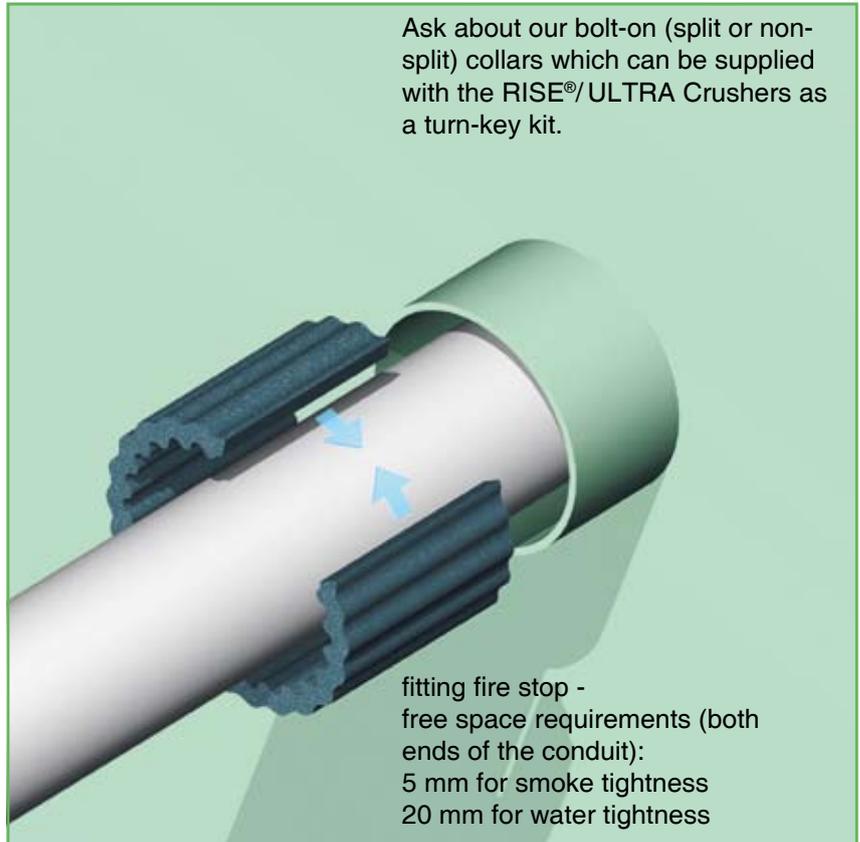
1) To obtain optimum performance at low cost, it is advisable to select the appropriate size of the conduit opening based on the type of crusher to be used according to the tables on page 4. The RISE®/ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe in front of the conduit sleeve.

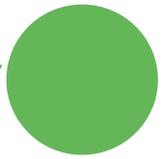
CRUSHER

2) Push the crusher into the conduit sleeve in such a way as to leave about 5 mm, alternatively 20 mm free space, depending on the application, at the front and back side.

Note: for airtight penetrations in which sealant has to be applied, the crusher is allowed to be non-fitting. See the specifications on pages 12-13.

CRUSHER





RISE[®]/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

3) For airtight penetrations, a NOFIRNO[®] sealant layer with thickness min. 5 mm is applied at both sides of the penetration.

For watertight penetrations the sealant layer has to be 20 mm thick at both sides of the penetration.

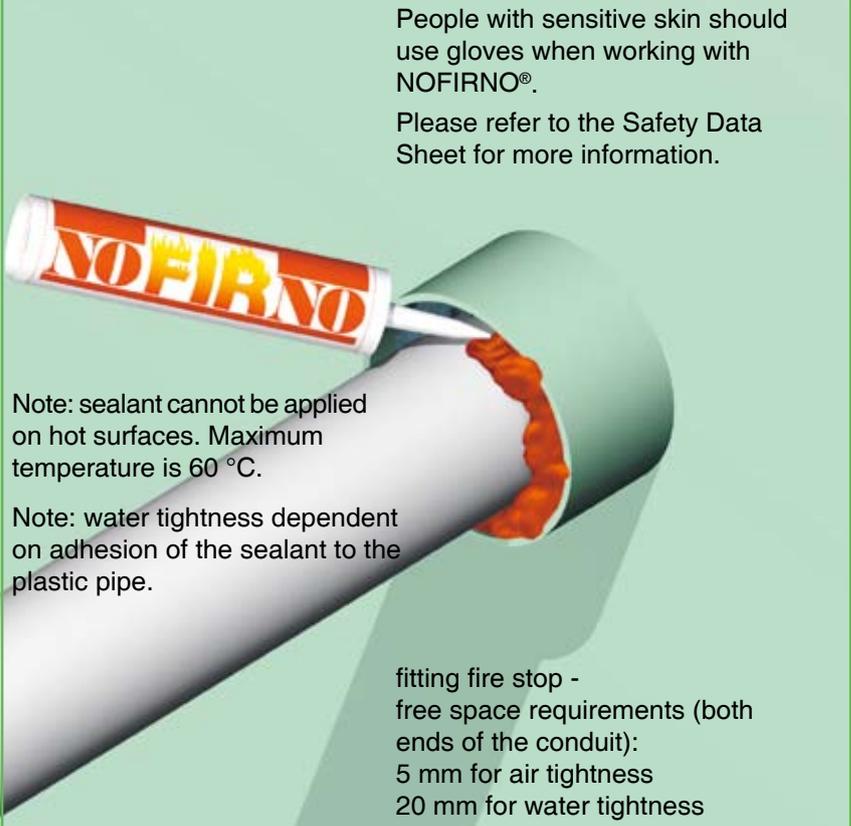
Clean and dry the inside of the conduit sleeve and the outside of the plastic pipe thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.



4) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck.

The ducted pipe does not need to be insulated.

For the approved air gap between the crusher and the conduit sleeve, refer to the data on pages 12-13. For watertight penetrations a fitting crusher is preferred.

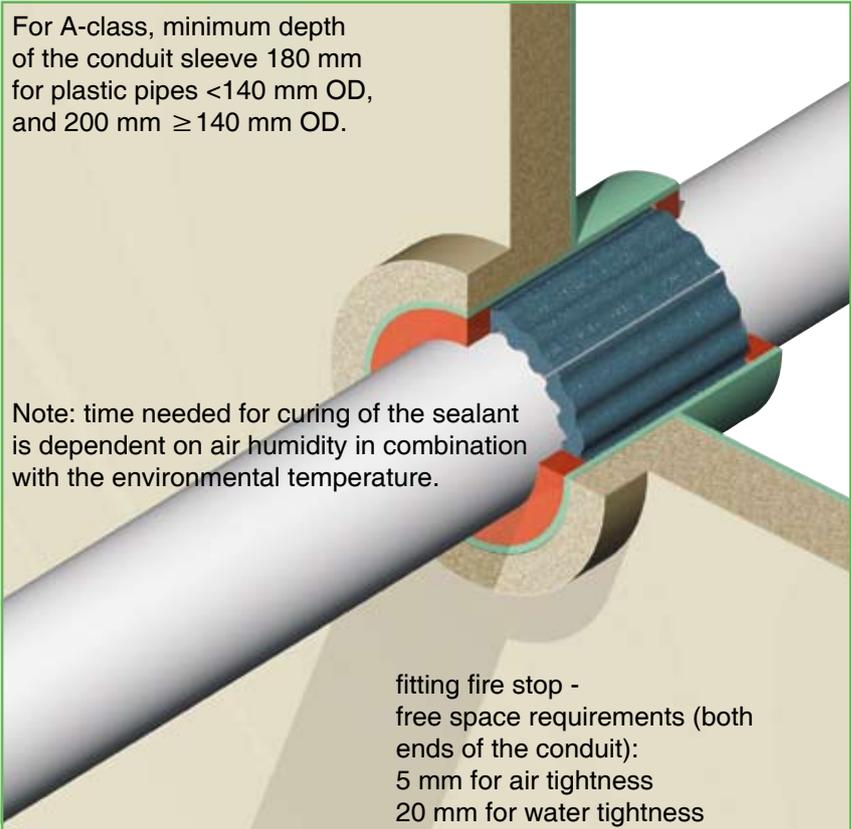


People with sensitive skin should use gloves when working with NOFIRNO[®].
Please refer to the Safety Data Sheet for more information.

Note: sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C.

Note: water tightness dependent on adhesion of the sealant to the plastic pipe.

fitting fire stop - free space requirements (both ends of the conduit):
5 mm for air tightness
20 mm for water tightness



For A-class, minimum depth of the conduit sleeve 180 mm for plastic pipes <140 mm OD, and 200 mm ≥ 140 mm OD.

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

fitting fire stop - free space requirements (both ends of the conduit):
5 mm for air tightness
20 mm for water tightness

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead insulation.

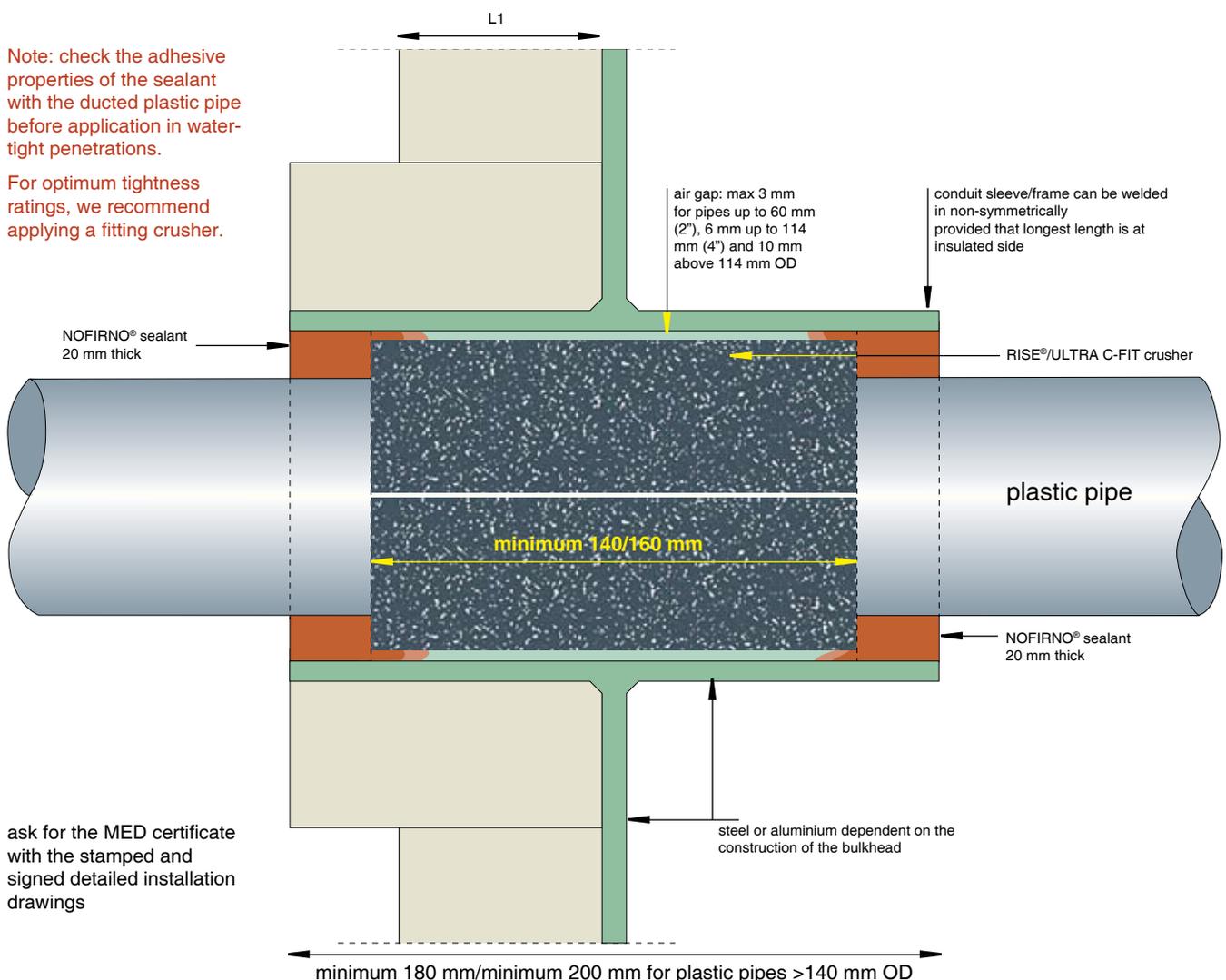
In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

In this case the CRUSHER® must fit tightly inside the conduit sleeve to obtain sufficient mechanical stability.

- FOR ALL PLASTIC PIPES (ABS, PE, PB, PP-R, PVC) UP TO 160 MM OD
- FOR PIPES WITH WALL THICKNESS UP TO 10 MM

Note: check the adhesive properties of the sealant with the ducted plastic pipe before application in water-tight penetrations.

For optimum tightness ratings, we recommend applying a fitting crusher.



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

for fire rated, gas or watertight conduits

for fire rated, airtight conduits: minimum 5 mm sealant at both sides

Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas. Drawings R0256E, R0257E, R0258E, R0262E, R0264E, R0265 and R0267E.

A0-A60 PLASTIC PIPE TRANSIT

RISE®/ULTRA - SINGLE AND MULTI-PLASTIC PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT



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

NOFIRNO® filler sleeves



filler sleeves are supplied non-split

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.

article number 50.0102



The NOFIRNO® rubber grade has excellent properties and will not be consumed by the fire. The NOFIRNO® sealant immediately forms a protective layer and char when exposed to flames, in this way protecting the filling of the penetration seal.

The thermal insulation is very high because of the air volume inside the penetration. The air is tightly enclosed by the sealant layer at both sides even when one side is exposed to the fire. The NOFIRNO® system has been subjected to A-0, H-0 and even Jet Fires without being severely affected. Due to the superb behaviour of our various systems, the NOFIRNO® sealing system can be easily combined with RISE®.

The NOFIRNO rubber is absolutely HALOGEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore, the NOFIRNO rubber has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996).

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

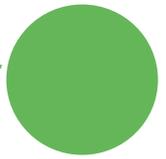
all dimensions in mm

Especially for larger oversized plastic pipe penetrations, the multi-filler sleeves offer an advantage when filling the cavity between the conduit sleeve/frame and the ducted plastic pipe that is sleeved with a crusher. The sets are very flexible and can be easily wrapped around the crusher around the ducted plastic pipe. Furthermore, single filler sleeves can be torn off easily. The NOFIRNO® rubber has a good, long lasting memory, enabling a tight fit of the sleeves inside the conduit. This improves the overall mechanical stability of the sealing system during service life.

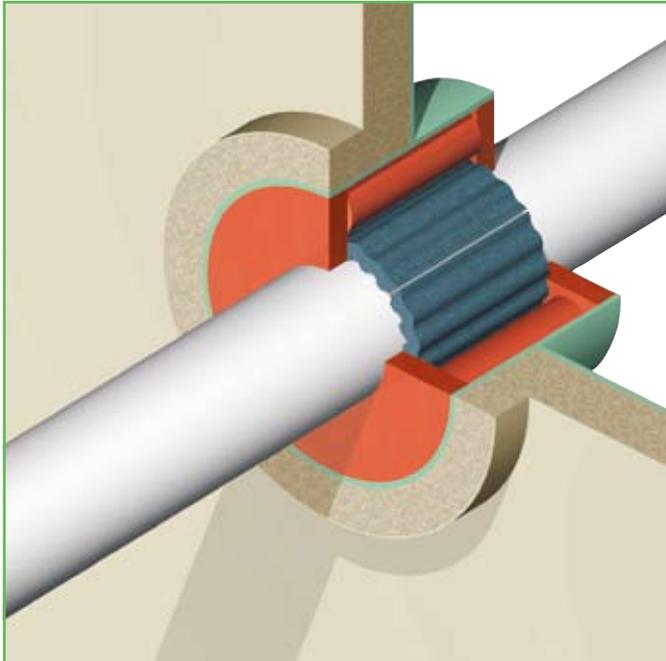
NOFIRNO® multi-filler sleeves



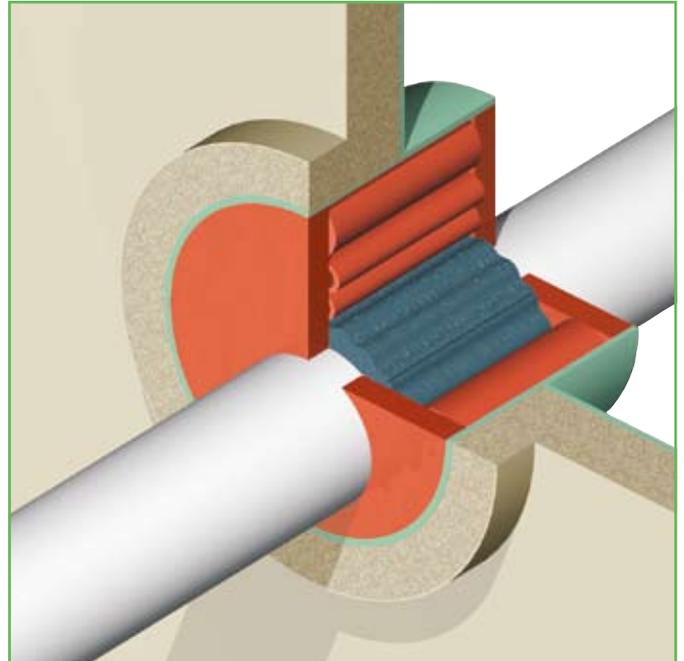
filler sleeves are supplied non-split, single and multi (set of 10)



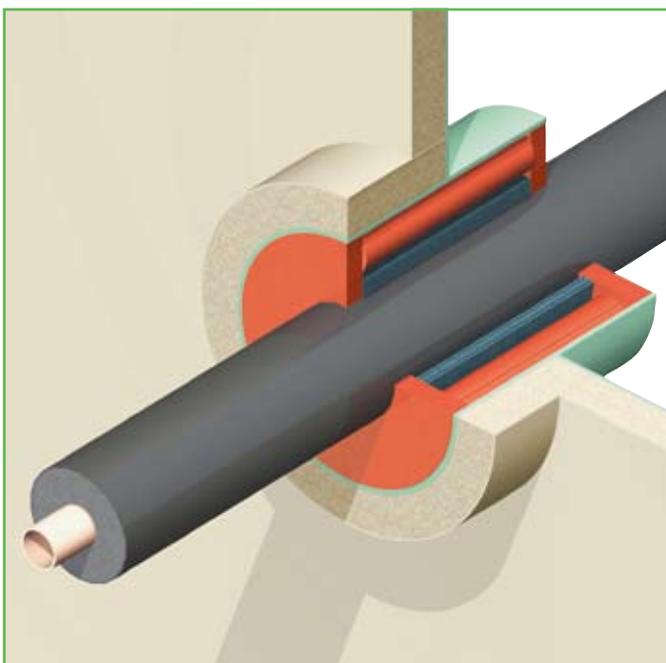
RISE®/ULTRA - SINGLE AND MULTI-PLASTIC PIPE TRANSIT SEALING SYSTEM



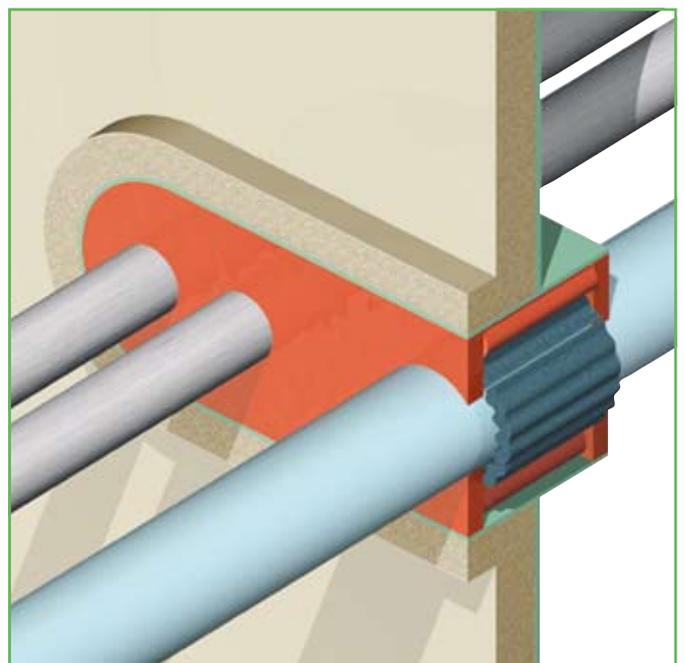
Several options are available with the RISE®/ULTRA crushers in combination with NOFIRNO®. For oversized conduits, NOFIRNO® filler sleeves are used to fill open spaces in the conduit. NOFIRNO® sealant to be applied in a thickness of 20 mm at both sides of the penetration.



For off centre ducted plastic pipes, NOFIRNO® filler sleeves are used to fill open spaces in the penetration between the 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.



RISE®/ULTRA crushers in combination with NOFIRNO® filler sleeves and sealant can be used for multi-plastic and multi-plastic/metallic pipe penetrations. NOFIRNO® filler sleeves are used to fill open spaces in the conduit. NOFIRNO® sealant to be applied in a thickness of 20 mm at both sides of the penetration.

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

1) Select the appropriate size of the crusher to be used, based on the OD of the ducted plastic pipe, according to the tables on page 14.

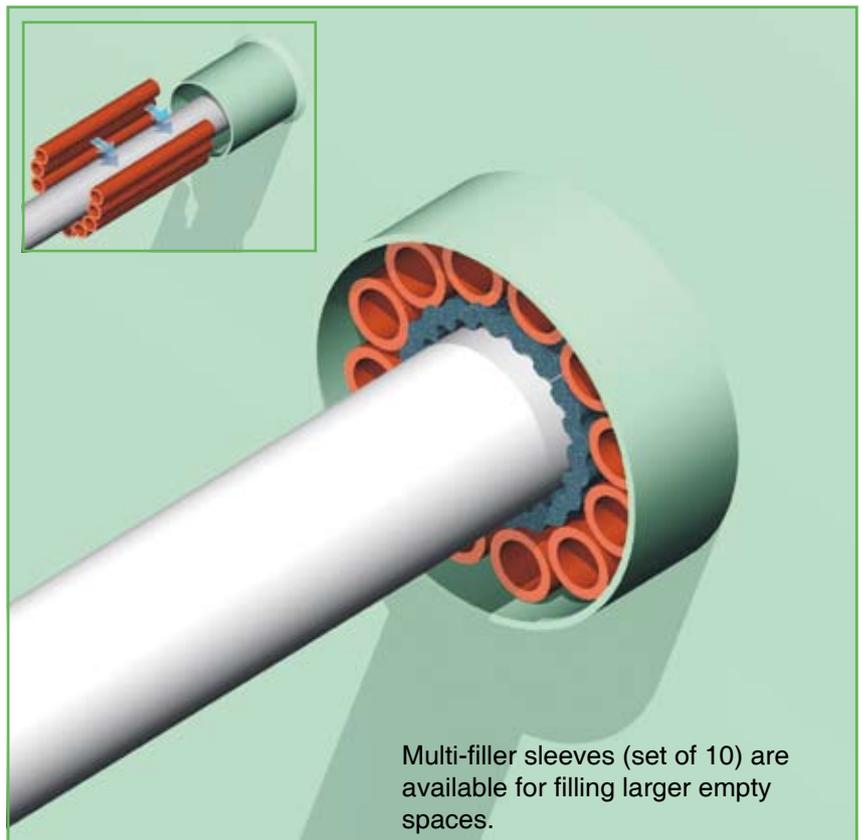
The RISE®/ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe in front of the conduit sleeve.



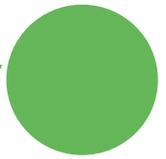
CRUSHER

2) Push the crusher into the conduit sleeve in such a way as to leave about 20 mm free space at the front and back side.

The remaining free space in the conduit is filled with NOFIRNO® filler sleeves. NOFIRNO® multi-filler sleeves are especially useful for packing single pipe penetrations. The multi-set can be wrapped around smallest service pipes.



CRUSHER



RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

3) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit.

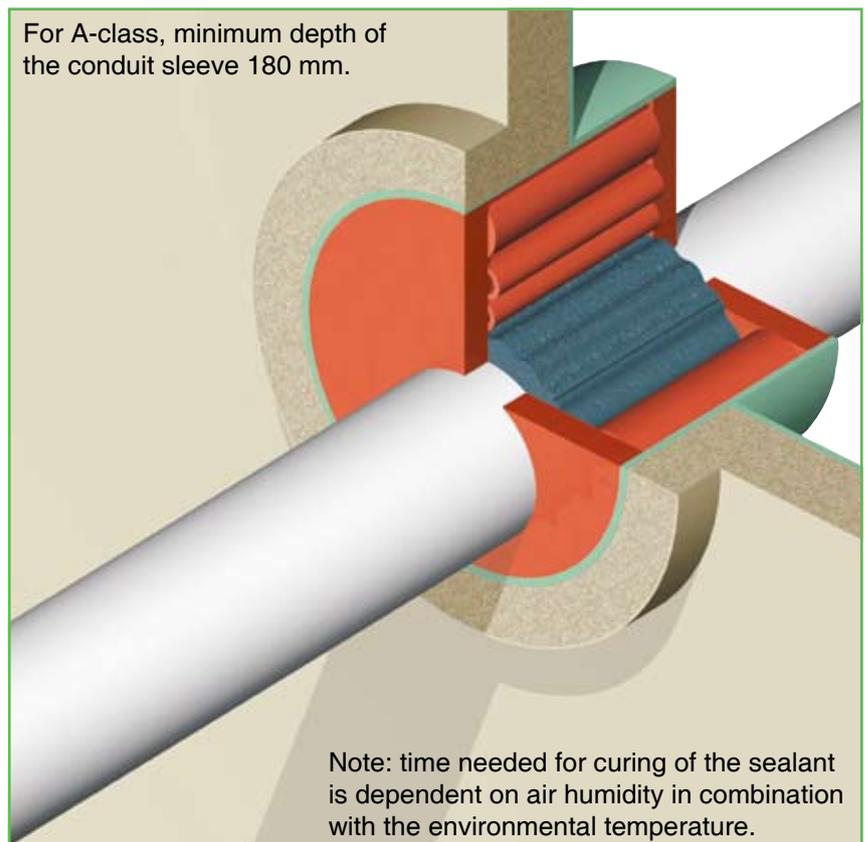
Clean and dry the inside of the conduit sleeve and the outside of the plastic pipe thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.

CRUSHER

4) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.

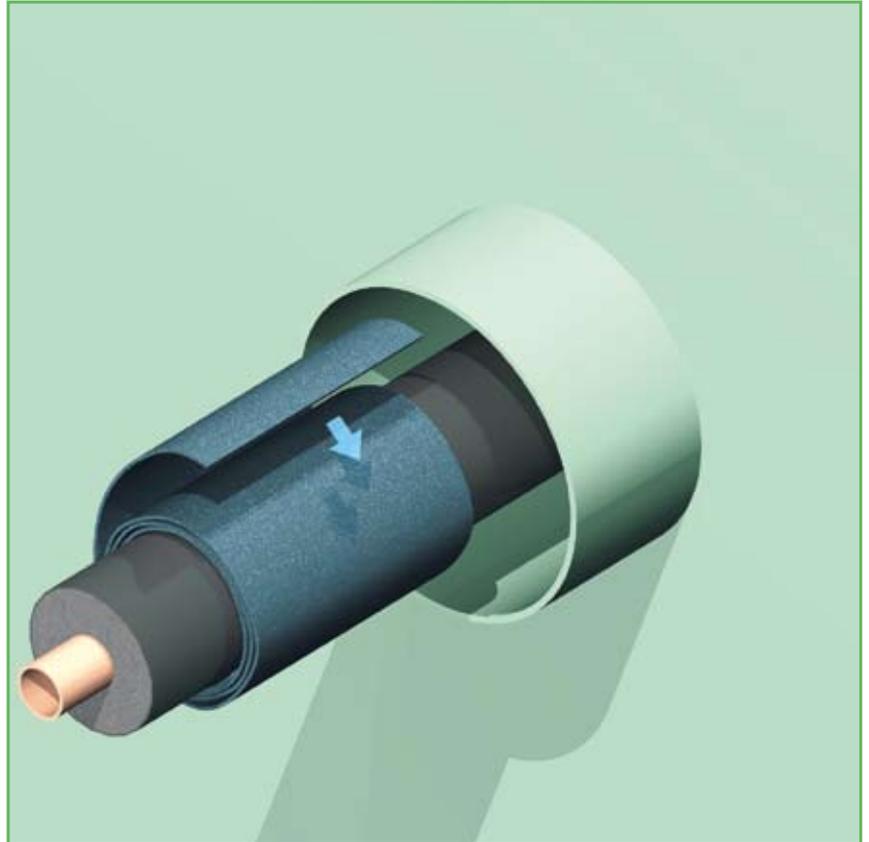
Also applicable for off centre ducted pipes.

CRUSHER



RISE[®]/ULTRA - PRE-INSULATED PIPE TRANSIT SEALING SYSTEM

1) For fire rated penetrations of pre-insulated pipes (for instance for chilled water lines), by applying RISE[®]/ULTRA there is now no need to remove the insulation inside the penetration. This prevents condensation problems.



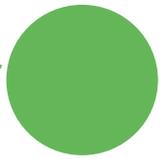
CRUSHER

2) A RISE[®]/ULTRA sheet 210mm wide, 2.5 mm thick is wrapped around the thermal insulation to the required thickness and then pushed over the insulation into the conduit sleeve. The system can be used for both insulated steel and copper pipes.

Push the crusher wrap into the conduit sleeve in such a way as to leave about 20 mm free space at the front and back side.



CRUSHER



RISE[®]/ULTRA - PRE-INSULATED PIPE TRANSIT SEALING SYSTEM

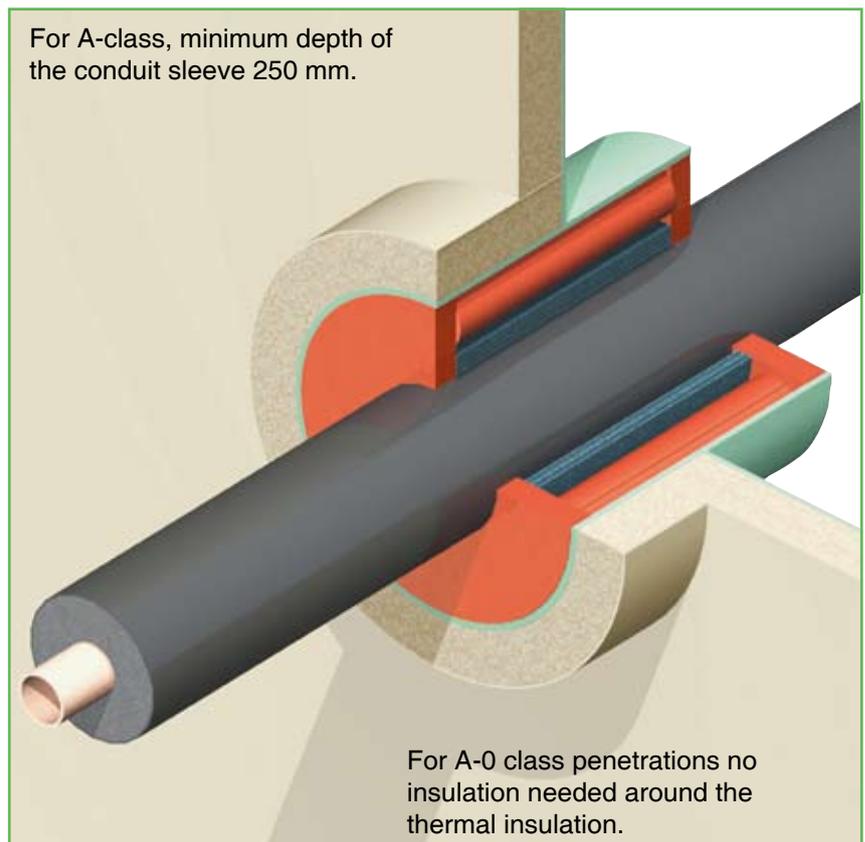
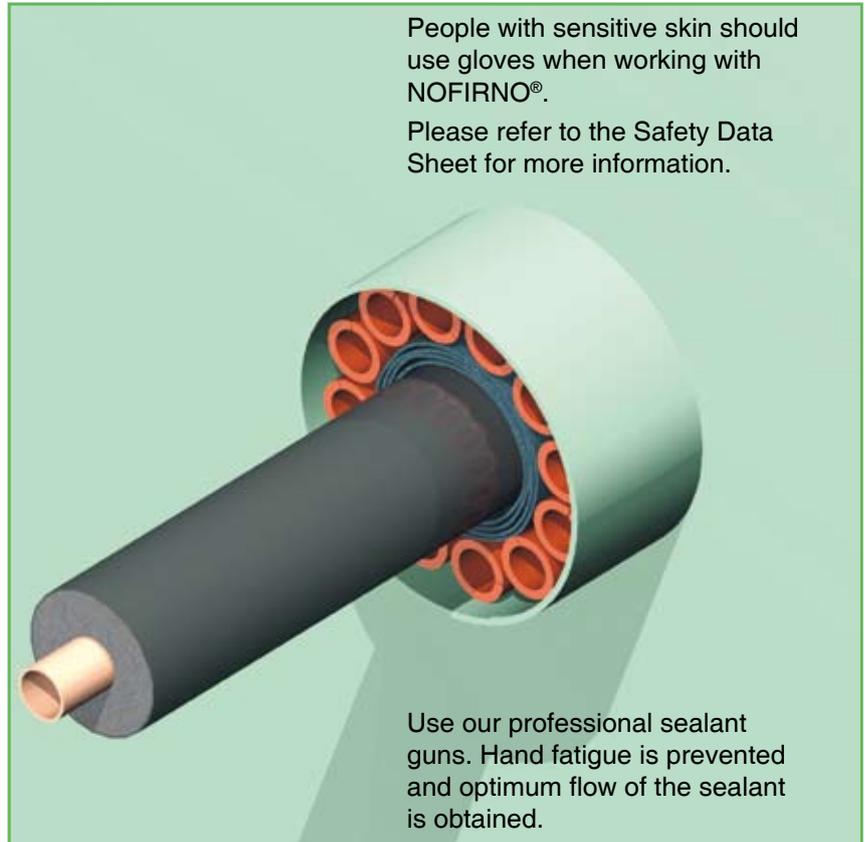
3) Layer(s) of NOFIRNO[®] filler sleeves have to be applied around the crusher. See the certified drawings. A minimum 20 mm thick layer of NOFIRNO[®] sealant is applied at each side of the conduit.

Clean and dry the conduit sleeve inside and the surface of the thermal insulation thoroughly and remove any dirt, rust or oil/lubricant residues before applying the sealant.



4) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipe has to be insulated around the thermal insulation according to the specifications on the certified drawings.

Note: not approved for water tight partitions. In these cases the thermal insulation has to be interrupted.



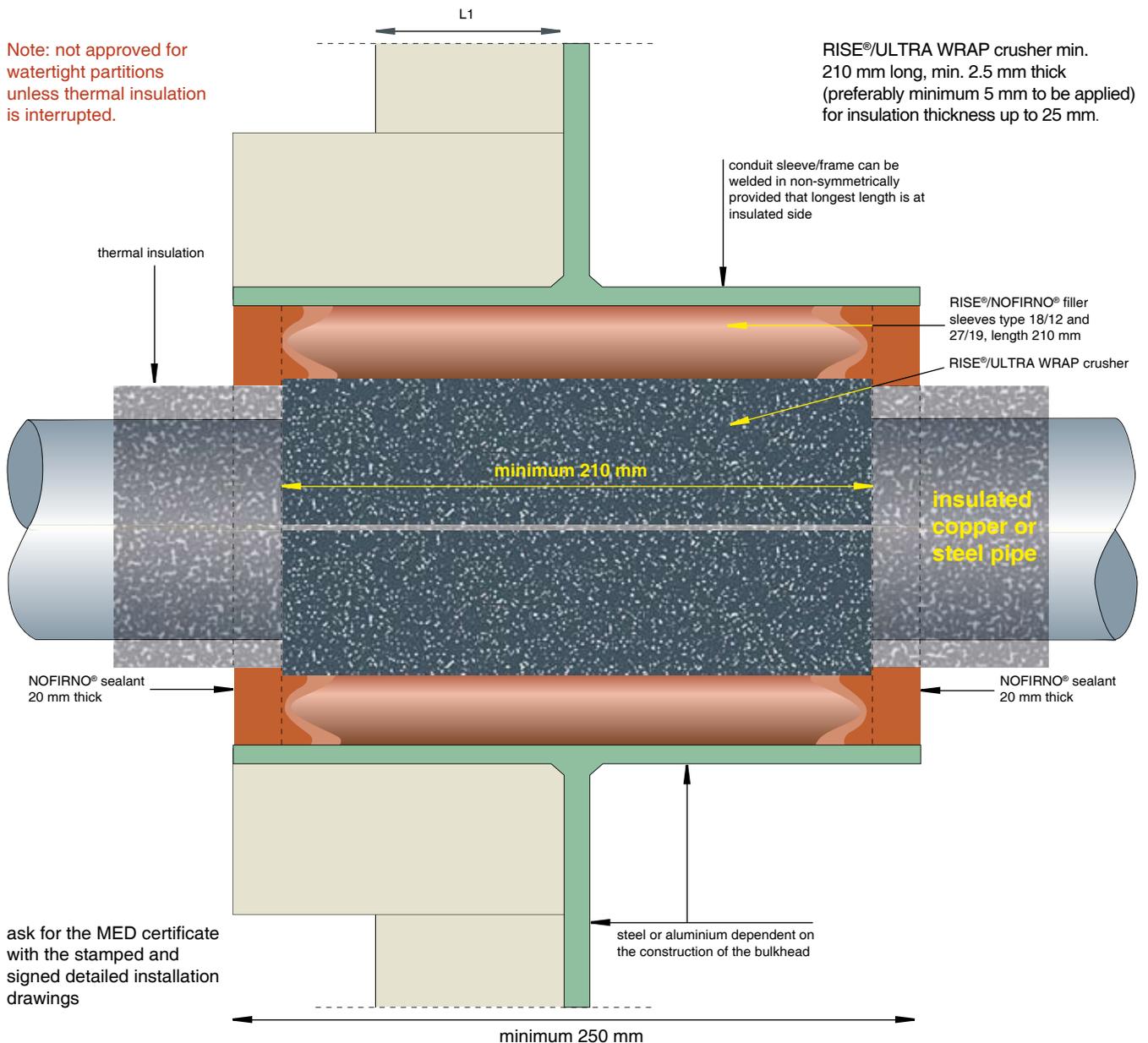
RISE®/ULTRA - PRE-INSULATED PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead insulation.

Larger pipe sizes to be insulated at the insulated side of the bulkhead. See certified drawings. Approved without any insulation for A-0 applications.

Note: not approved for watertight partitions unless thermal insulation is interrupted.

- CAN BE USED FOR THERMALLY INSULATED STEEL AND COPPER PIPES
- COPPER PIPES UP TO 54 MM; STEEL PIPES UP TO 168 MM

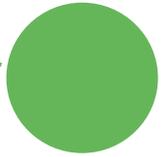


ask for the MED certificate with the stamped and signed detailed installation drawings

Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas.

Drawings R0246E, R0247E, R0248E and R0249E.

A0-A60 INSULATED PIPE TRANSIT



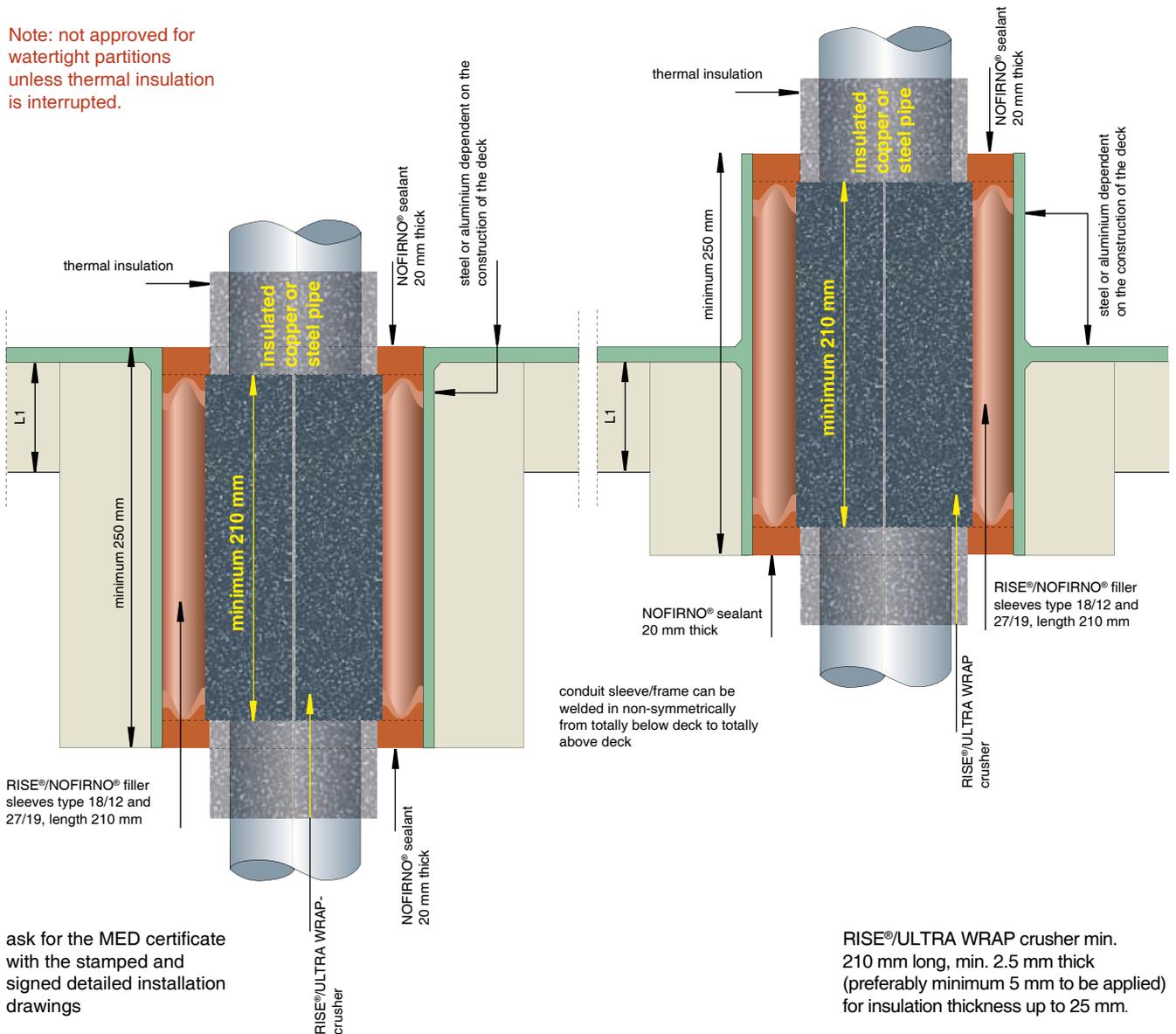
RISE®/ULTRA - PRE-INSULATED PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved deck insulation.

Larger pipe sizes to be insulated at the insulated side of the deck. See certified drawings. Approved without any insulation for A-0 applications.

- CAN BE USED FOR THERMALLY INSULATED STEEL AND COPPER PIPES
- COPPER PIPES UP TO 54 MM; STEEL PIPES UP TO 168 MM

Note: not approved for watertight partitions unless thermal insulation is interrupted.



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

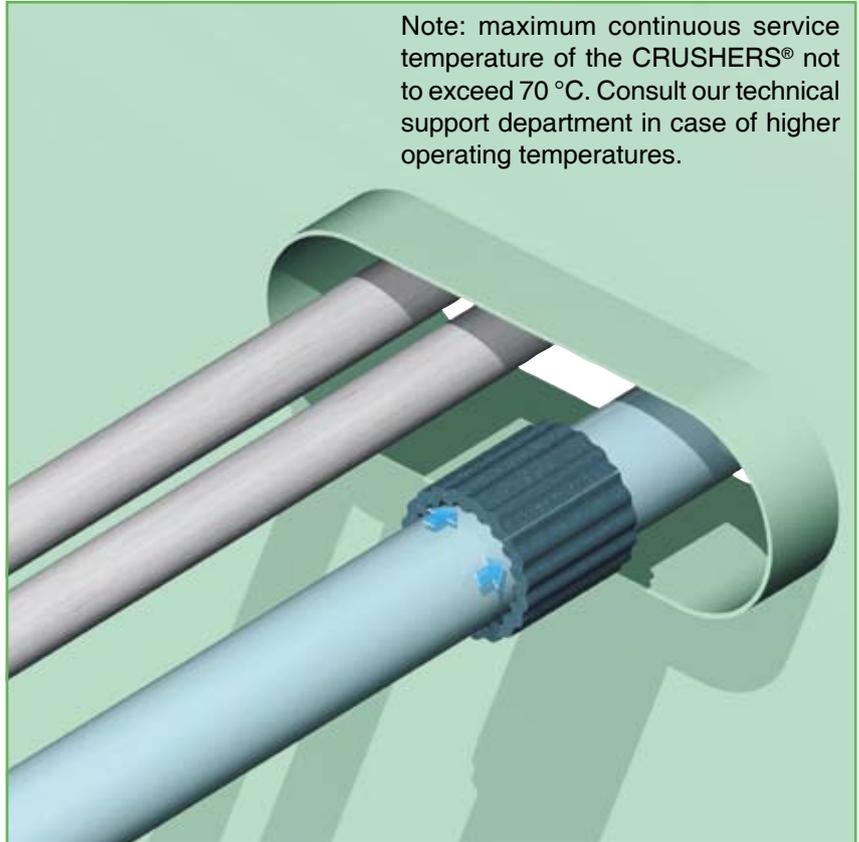
Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas.

Drawings R0246E, R0247E, R0248E and R0249E.

A0-A60 INSULATED PIPE TRANSIT

**RISE®/ULTRA - MULTI-PLASTIC/METALLIC
PIPE TRANSIT SEALING SYSTEM**

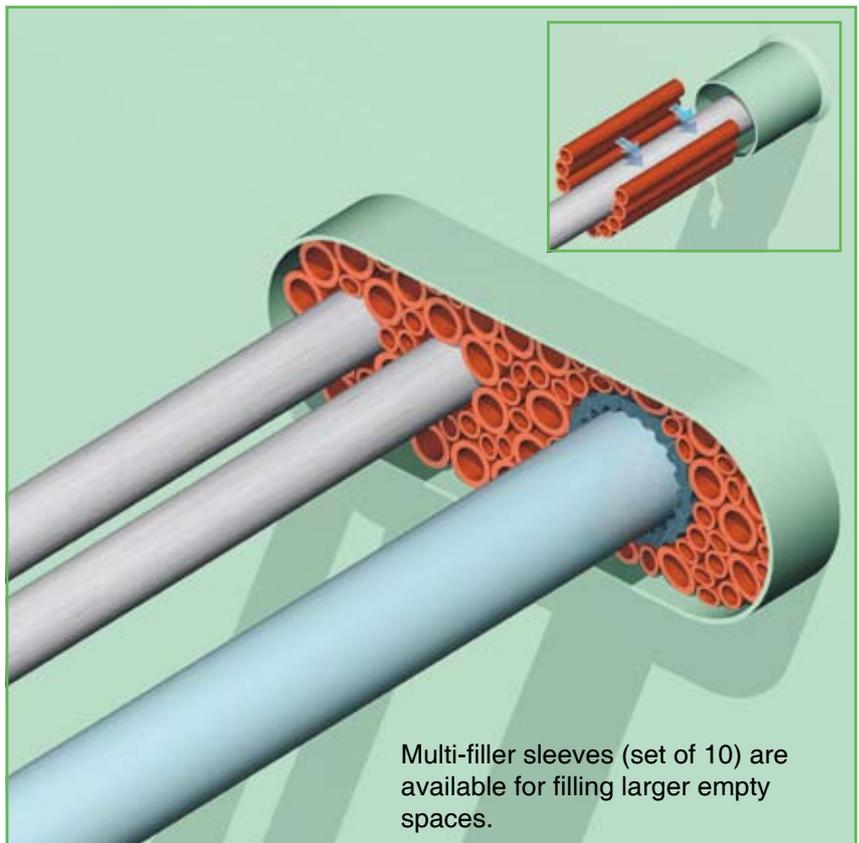
1) Make sure that the minimum space between the metallic pipe(s) and the wall of the conduit sleeve is in accordance with the minimum allowed distance as certified.
Place a fitting RISE®/ULTRA crusher around the ducted plastic pipe(s).



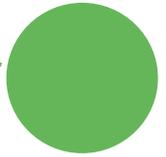
CRUSHER

2) Push the crusher into the conduit sleeve in such a way as to leave about 20 mm free space at the front and back side.

The remaining free space in the conduit is filled with NOFIRNO® filler sleeves. For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces. The ratio 27/19 to 18/12 should be about 2:1.



CRUSHER

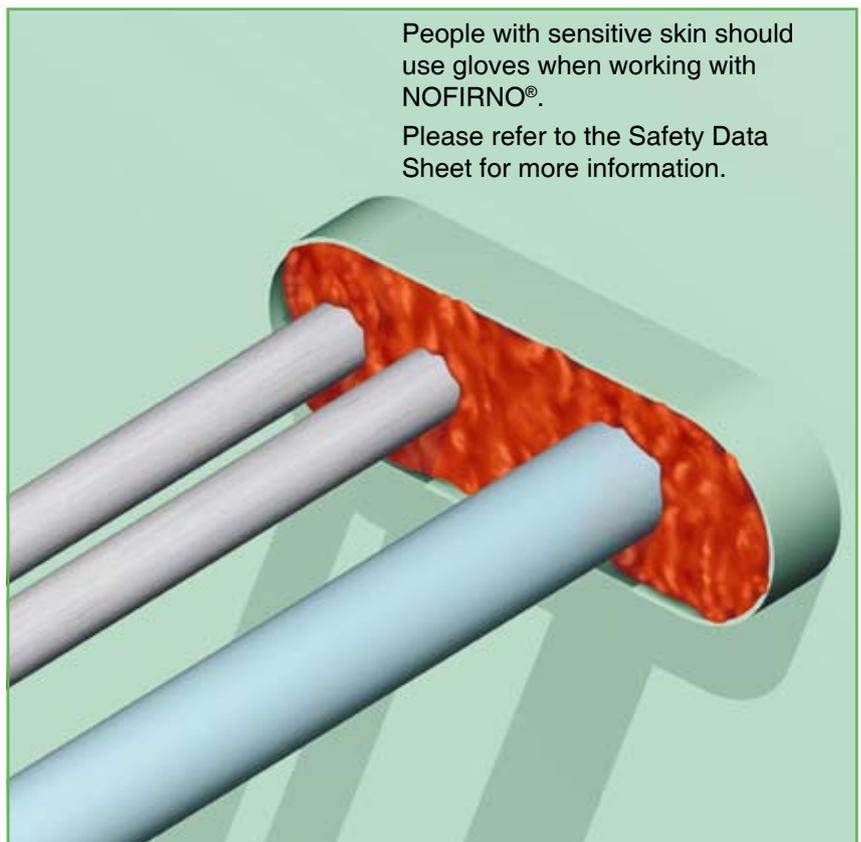


RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

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

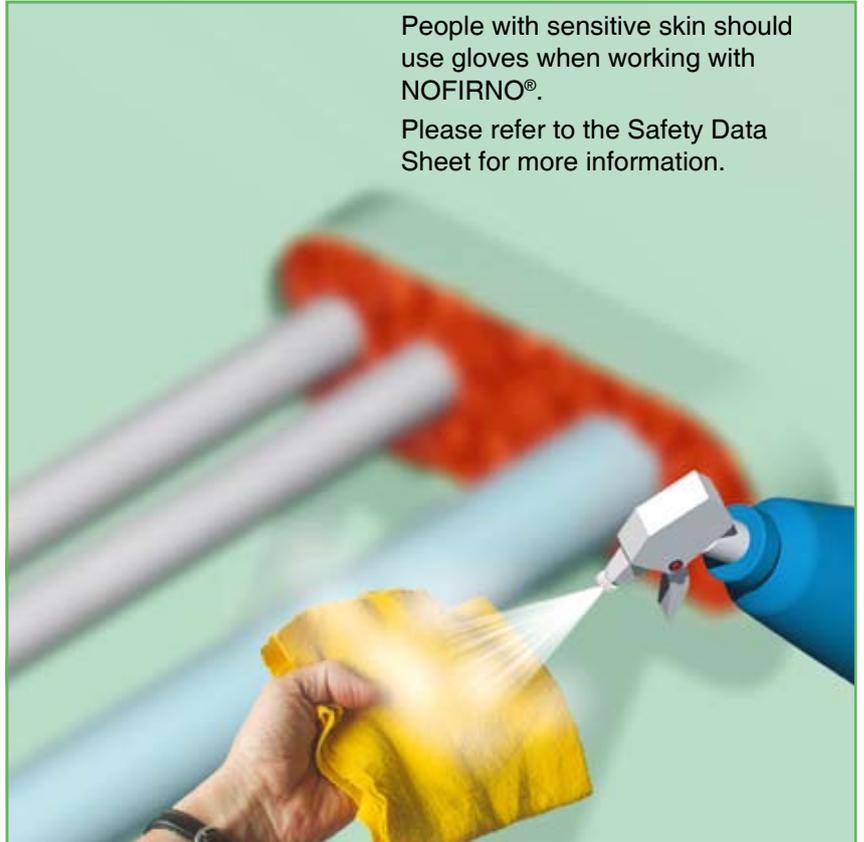
**CRUSHER**

4) 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.

**CRUSHER**

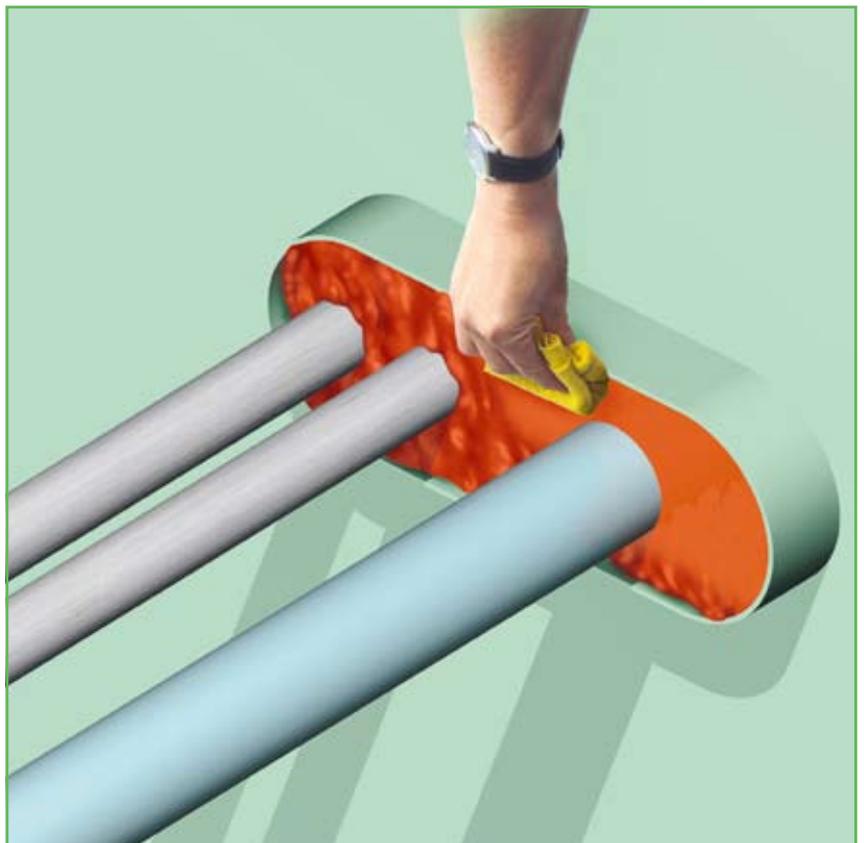
RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

5) 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!

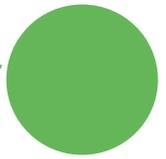


CRUSHER

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



CRUSHER



RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

7) 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.

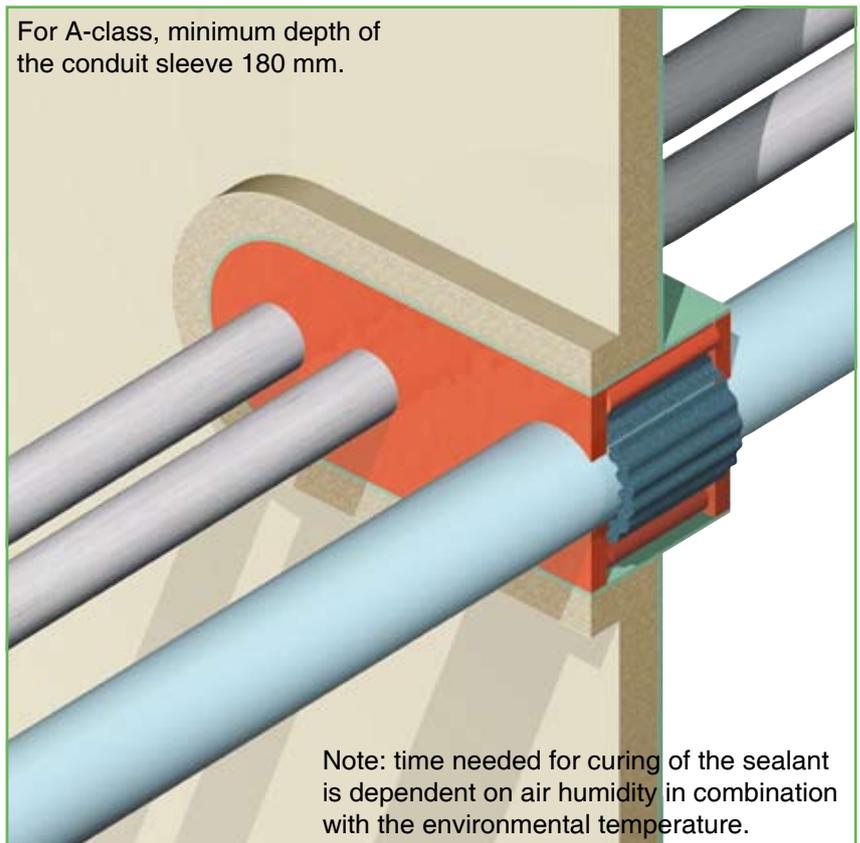


CRUSHER

8) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck.

The ducted plastic pipe(s) do not need to be insulated.

The ducted metallic pipe(s) have to be insulated according to the specifications on the certified drawings.



CRUSHER

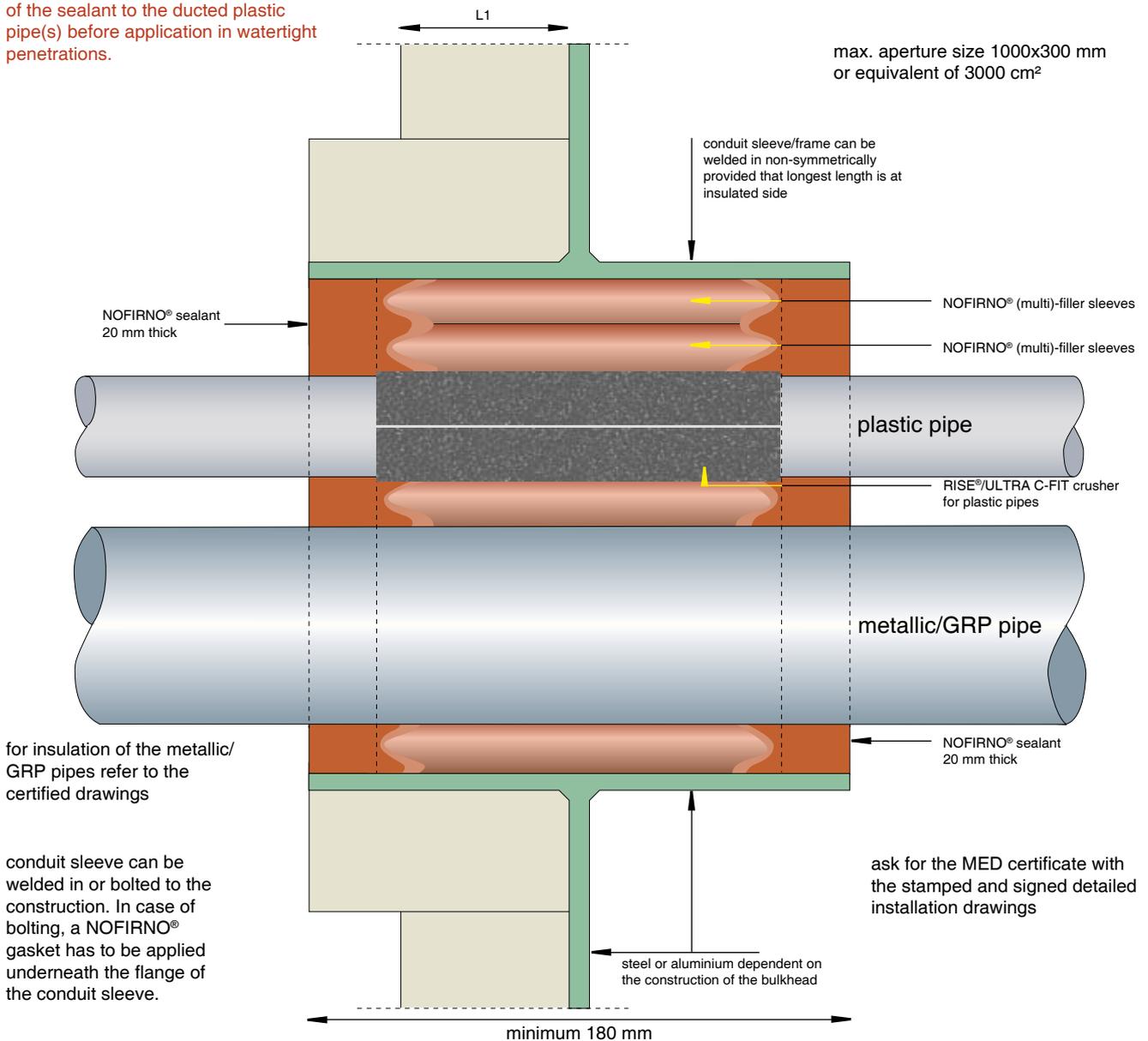
RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead insulation

In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

Note: check the adhesive properties of the sealant to the ducted plastic pipe(s) before application in watertight penetrations.

- APPROVED FOR STEEL/SS PIPES UP TO 168 MM OD
- APPROVED FOR COPPER/CuNi PIPES UP TO 108 MM OD
- APPROVED FOR PLASTIC PIPES UP TO 160 MM OD

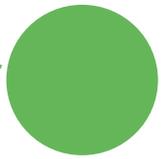


for insulation of the metallic/GRP pipes refer to the certified drawings

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.

Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas. Drawings N0015E, N0016E and N0017E

**A0-A60 MULTI-
PLASTIC/METALLIC
PIPE TRANSIT**



RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

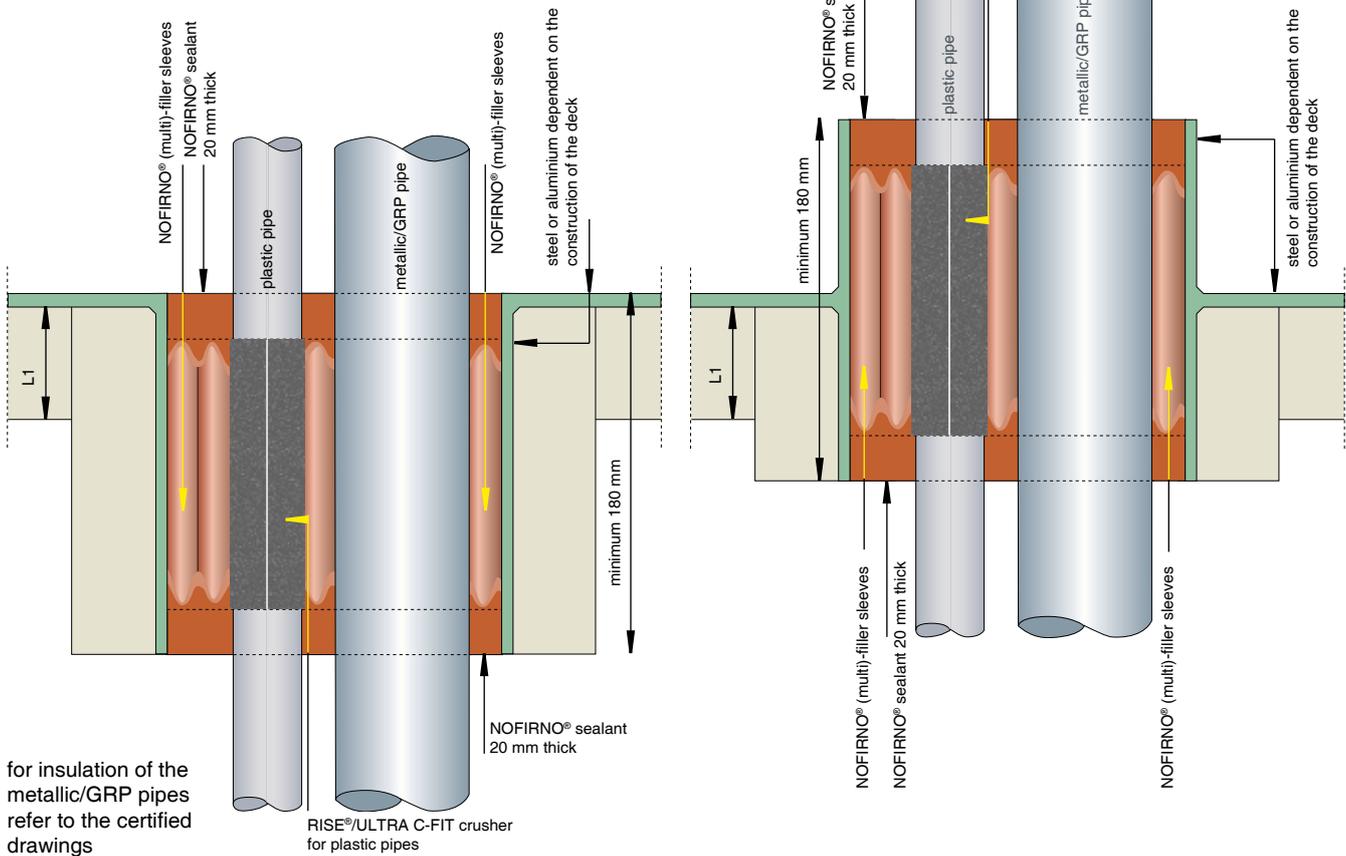
L1: A-60 approved deck insulation.

In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

Note: check the adhesive properties of the sealant to the ducted plastic pipe(s) before application in watertight penetrations.

- APPROVED FOR STEEL/SS PIPES UP TO 168 MM OD
- APPROVED FOR COPPER/CuNi PIPES UP TO 108 MM OD
- APPROVED FOR PLASTIC PIPES UP TO 160 MM OD

conduit sleeve/frame can be welded in non-symmetrically from totally below deck to totally above deck



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.

max. aperture size 1000x300 mm or equivalent of 3000 cm²

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

Specifications for A-class according to EC (MED) certificate MED-B-5068 issued by Det Norske Veritas. Drawings N0015E, N0016E and N0017E

A0-A60 MULTI-PLASTIC/METALLIC PIPE TRANSIT



**SAFETY
SEALING
SYSTEMS**



RISE®/ULTRA - FIRE SAFE PLASTIC PIPE TRANSIT SEALING SYSTEM

crusher® type	article number	crusher® type	article number	crusher® type	article number
30/16-110	80.6000	40/20-110	80.6120	53/40-110	80.6240
30/16-140	80.6001	40/20-140	80.6121	53/40-140	80.6241
30/16-150	80.6002	40/20-150	80.6122	53/40-150	80.6242
30/16-160	80.6003	40/20-160	80.6123	53/40-160	80.6243
30/16-170	80.6004	40/20-170	80.6124	53/40-170	80.6244
30/18-110	80.6010	40/25-110	80.6130	54/25-110	80.6250
30/18-140	80.6011	40/25-140	80.6131	54/25-140	80.6251
30/18-150	80.6012	40/25-150	80.6132	54/25-150	80.6252
30/18-160	80.6013	40/25-160	80.6133	54/25-160	80.6252
30/18-170	80.6014	40/25-170	80.6134	54/25-170	80.6254
32/16-110	80.6020	41/16-110	80.6140	54/32-110	80.6260
32/16-140	80.6021	41/16-140	80.6141	54/32-140	80.6261
32/16-150	80.6022	41/16-150	80.6142	54/32-150	80.6262
32/16-160	80.6023	41/16-160	80.6143	54/32-160	80.6263
32/16-170	80.6024	41/16-170	80.6144	54/32-170	80.6264
32/18-110	80.6030	41/18-110	80.6150	54/40-110	80.6270
32/18-140	80.6031	41/18-140	80.6151	54/40-140	80.6271
32/18-150	80.6032	41/18-150	80.6152	54/40-150	80.6272
32/18-160	80.6033	41/18-160	80.6153	54/40-160	80.6273
32/18-170	80.6034	41/18-170	80.6154	54/40-170	80.6274
35/16-110	80.6040	41/20-110	80.6160	60/32-110	80.6280
35/16-140	80.6041	41/20-140	80.6161	60/32-140	80.6281
35/16-150	80.6042	41/20-150	80.6162	60/32-150	80.6282
35/16-160	80.6043	41/20-160	80.6163	60/32-160	80.6283
35/16-170	80.6044	41/20-170	80.6164	60/32-170	80.6284
35/18-110	80.6050	41/25-110	80.6170	60/40-110	80.6290
35/18-140	80.6051	41/25-140	80.6171	60/40-140	80.6291
35/18-150	80.6052	41/25-150	80.6172	60/40-150	80.6292
35/18-160	80.6053	41/25-160	80.6173	60/40-160	80.6293
35/18-170	80.6054	41/25-170	80.6174	60/40-170	80.6294
37/16-110	80.6060	50/20-110	80.6180	62/32-110	80.6300
37/16-140	80.6061	50/20-140	80.6181	62/32-140	80.6301
37/16-150	80.6062	50/20-150	80.6182	62/32-150	80.6302
37/16-160	80.6063	50/20-160	80.6183	62/32-160	80.6303
37/16-170	80.6064	50/20-170	80.6184	62/32-170	80.6304
37/18-110	80.6070	50/25-110	80.6190	62/40-110	80.6310
37/18-140	80.6071	50/25-140	80.6191	62/40-140	80.6311
37/18-150	80.6072	50/25-150	80.6192	62/40-150	80.6312
37/18-160	80.6073	50/25-160	80.6193	62/40-160	80.6313
37/18-170	80.6074	50/25-170	80.6194	62/40-170	80.6314
37/20-110	80.6080	50/32-110	80.6200	70/40-110	80.6320
37/20-140	80.6081	50/32-140	80.6201	70/40-140	80.6321
37/20-150	80.6082	50/32-150	80.6202	70/40-150	80.6322
37/20-160	80.6083	50/32-160	80.6203	70/40-160	80.6323
37/20-170	80.6084	50/32-170	80.6204	70/40-170	80.6324
37/25-110	80.6090	50/40-110	80.6210	70/50-110	80.6330
37/25-140	80.6091	50/40-140	80.6211	70/50-140	80.6331
37/25-150	80.6092	50/40-150	80.6212	70/50-150	80.6332
37/25-160	80.6093	50/40-160	80.6213	70/50-160	80.6333
37/25-170	80.6094	50/40-170	80.6214	70/50-170	80.6334
40/16-110	80.6100	53/25-110	80.6220	75/40-110	80.6340
40/16-140	80.6101	53/25-140	80.6221	75/40-140	80.6341
40/16-150	80.6102	53/25-150	80.6222	75/40-150	80.6342
40/16-160	80.6103	53/25-160	80.6223	75/40-160	80.6343
40/16-170	80.6104	53/25-170	80.6224	75/40-170	80.6344
40/18-110	80.6110	53/32-110	80.6230	75/50-110	80.6350
40/18-140	80.6111	53/32-140	80.6231	75/50-140	80.6351
40/18-150	80.6112	53/32-150	80.6232	75/50-150	80.6352
40/18-160	80.6113	53/32-160	80.6233	75/50-160	80.6353
40/18-170	80.6114	53/32-170	80.6234	75/50-170	80.6354

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:

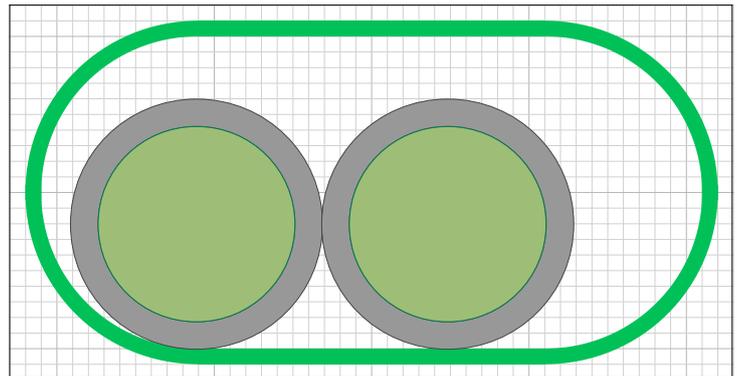
- 1) transit dimensions.
- 2) the depth of a transit is automatically selected based on the entered data at class (A, B, H-class or watertight) but can be changed. In this case, a warning appears that this is a deviation of the certification.
- 3) selection of the sealing system (cable, pipe).
- 4) the 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 'pl125deck'



Created on: 16-1-2010 11:37:17
 Created by: Smith
 Last modified: 29-1-2010 16:10:00
 Modified by: Jacobs

Transit specifications: (All dimensions in mm)

Width: 400,00
 Height: 200,00
 Corner radius: 100,00
 Depth: 180,00
 Transit type: Multi-pipe (plastic)
 Transit used in this project: 1 time
 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
 NOFIRNO sealant: cartridges 310 ml

Pipe specifications:

Pipes (OD)	Amount
125,00	2

Total amount of pipes: 2

NOFIRNO materials needed:

Filler sleeves	Amount	Length
18/12	23	140,00 mm
27/19	46	140,00 mm

NOFIRNO sealant

(incl. overfill) 2895 ml (10 cartridges)

RISE materials needed:

ULTRA Crushers	Amount	Length
160/125	2	140,00 mm

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!



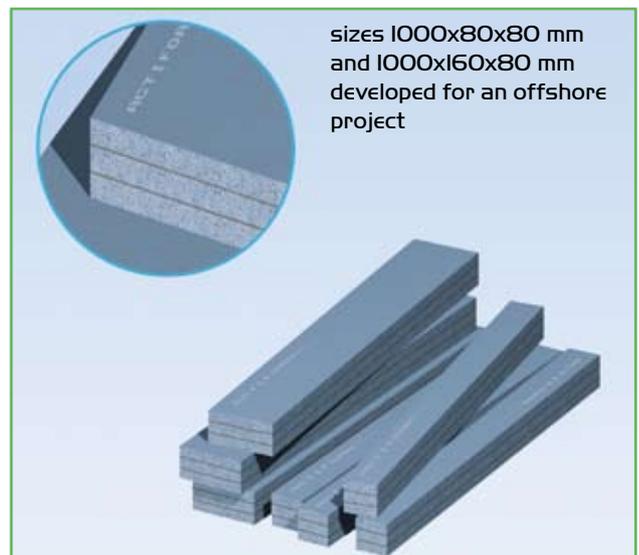
NOFIRNO® *NEW TECHNOLOGY*

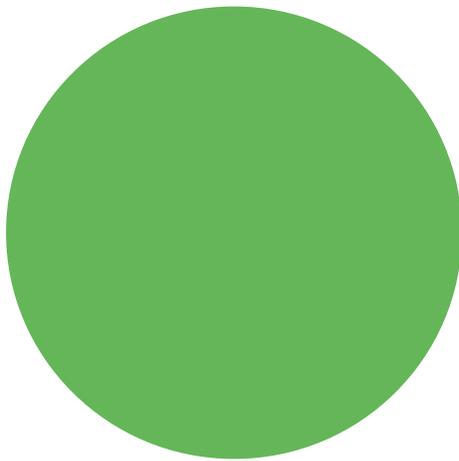
- Gaskets and rubber sheets for applications in which the transits, coamings or conduit sleeves are bolted to the partition.
- Successfully tested for A-class RISE®, RIACNOF® and NOFIRNO® sealing systems for multi-cable and pipe transits bolted to the partitions.
- NOFIRNO® rubber will remain stable 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*

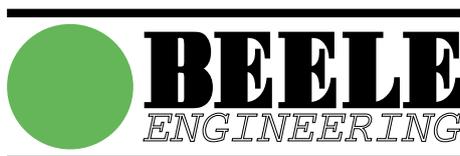
- Sealing of gaps and openings in constructions against the ingress of moisture and to avoid flame spread.
- ACTIFOAM® has high thermal insulation values due to the close cellular structure.
- RISE®/ULTRA - adhesive properties under fire load.
- **Breakthrough - ACTIFOAM® sheets can be layered with RISE/ULTRA 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**



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

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