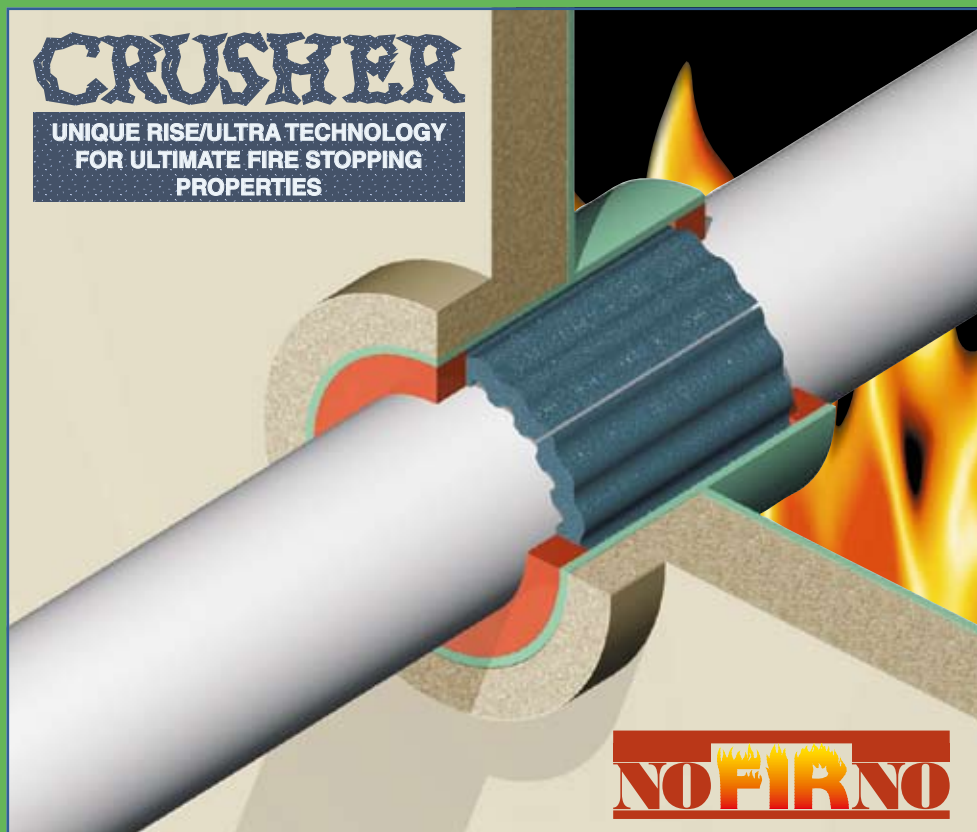


RISE/ULTRA® CRUSHER®

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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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.

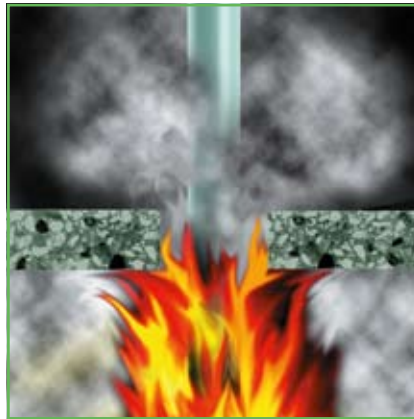
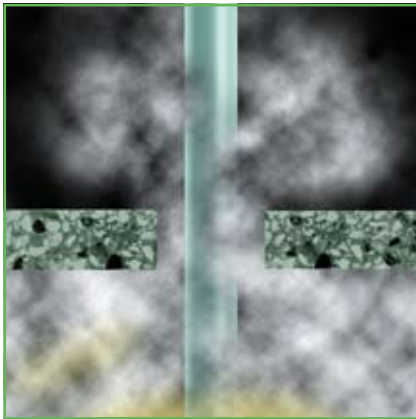
BEELE Engineering operates world-wide. From our agencies in virtually every industrialized country, our support and services are always somewhere nearby. We are there for you – also for on-site advice or in-house demonstrations, instructions and support at your location.



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.

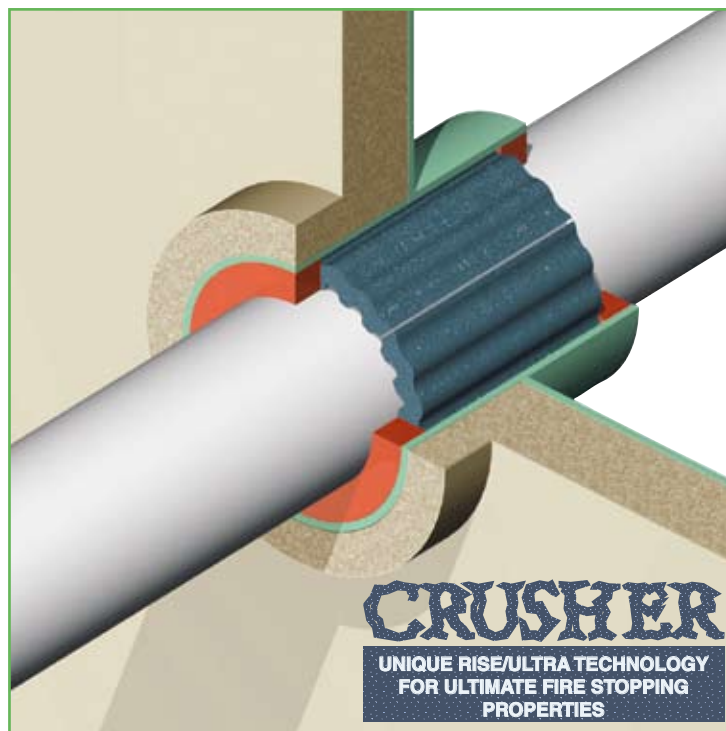


Based on the CRUSHER® technology it is now possible to make fire stop penetrations for plastic pipes just by inserting a single RISE®/ULTRA crusher into the conduit opening. The RISE®/ULTRA crusher is placed around the ducted plastic pipe. For conduits which should also be air or water tight, a combination 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.

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.



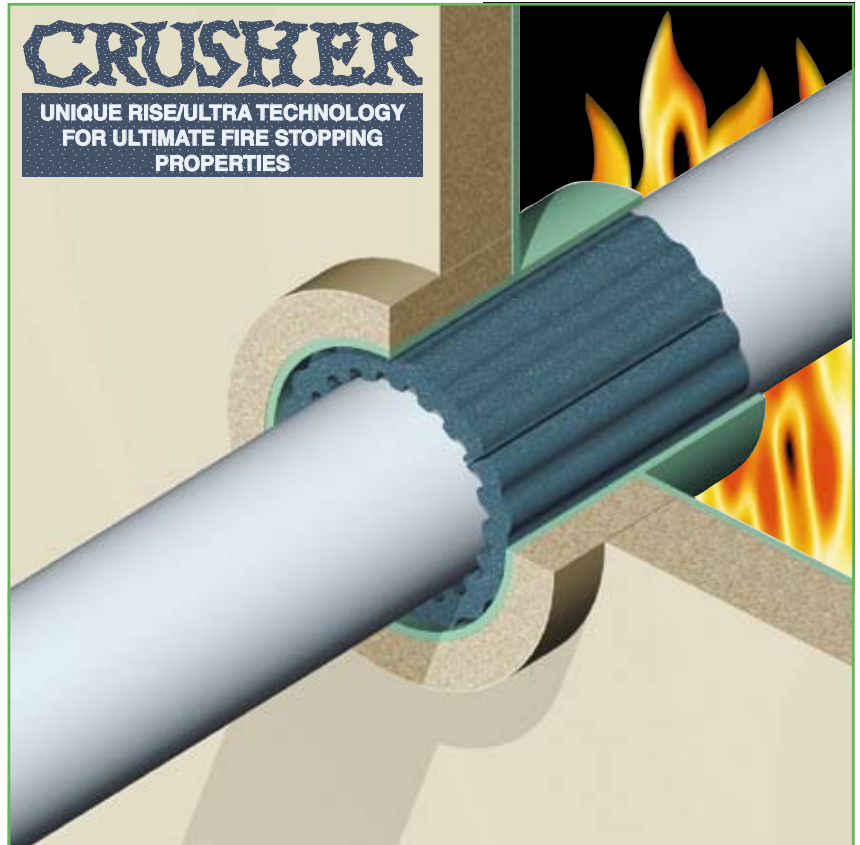
For oversized openings and for multi-plastic pipe penetrations use is made of NOFIRNO® filler sleeves and NOFIRNO® sealant. Based on the properties of the RISE®/ULTRA rubber, ultimately a hard solid rubber mass adhering to the wall of the conduit and the remaining part of the plastic pipe is formed. 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.



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

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.

CRUSHER® type WRAP



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



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.

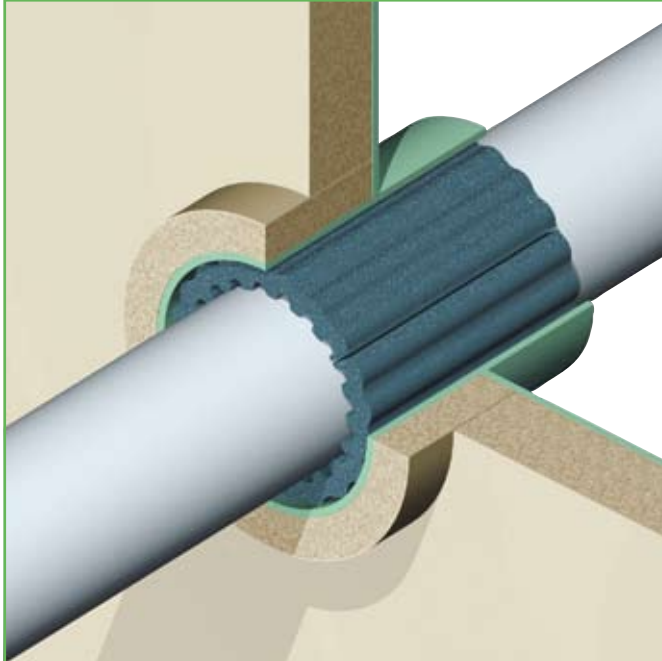
Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

plastic pipe OD	crusher® type	conduit opening	crusher® length	article number
16	37/16	37.2	140	80.2800
18	37/18	37.2	140	80.2801
20	37/20	37.2	140	80.2802
25	37/25	37.2	140	80.2803
32	54/32	54.5	140	80.2804
40	54/40	54.5	140	80.2805
50	82/50	82.5	140	80.2806
63	82/63	82.5	140	80.2807
75	107/75	107.1	140	80.2808
90	131/90	131.7	140	80.2809
110	159/110	159.3	140	80.2810
125	159/125	159.3	140	80.2811
140	207/140	207.3	160	80.2812
160	207/160	207.3	160	80.2813
16	37/16	37.2	170	80.2840
18	37/18	37.2	170	80.2841
20	37/20	37.2	170	80.2842
25	37/25	37.2	170	80.2843
32	54/32	54.5	170	80.2844
40	54/40	54.5	170	80.2845
50	82/50	82.5	170	80.2846
63	82/63	82.5	170	80.2847
75	107/75	107.1	170	80.2848
90	131/90	131.7	170	80.2849
110	159/110	159.3	170	80.2850
125	159/125	159.3	170	80.2851
140	207/140	207.3	190	80.2852
160	207/160	207.3	190	80.2853
16	35/16	35.9	140	80.2900
18	35/18	35.9	140	80.2901
20	41/20	41.1	140	80.2902
25	41/25	41.1	140	80.2903
32	53/32	53.9	140	80.2904
40	53/40	53.9	140	80.2905
50	80/50	80.7	140	80.2906
63	80/63	80.7	140	80.2907
75	105/75	105.3	140	80.2908
90	130/90	130.8	140	80.2909
110	155/110	155.2	140	80.2910
125	155/125	155.2	140	80.2911
140	202/140	202.7	160	80.2912
160	202/160	202.7	160	80.2913
16	35/16	35.9	170	80.2940
18	35/18	35.9	170	80.2941
20	41/20	41.1	170	80.2942
25	41/25	41.1	170	80.2943
32	53/32	53.9	170	80.2944
40	53/40	53.9	170	80.2945
50	80/50	80.7	170	80.2946
63	80/63	80.7	170	80.2947
75	105/75	105.3	170	80.2948
90	130/90	130.8	170	80.2949
110	155/110	155.2	170	80.2950
125	155/125	155.2	170	80.2951
140	202/140	202.7	190	80.2952
160	202/160	202.7	190	80.2953
wrap 1000x140x2.5 mm				80.2512
wrap 1000x160x2.5 mm				80.2513
wrap 1000x170x2.5 mm				80.2514
wrap 1000x190x2.5 mm				80.2515
wrap 1000x210x2.5 mm				80.2516

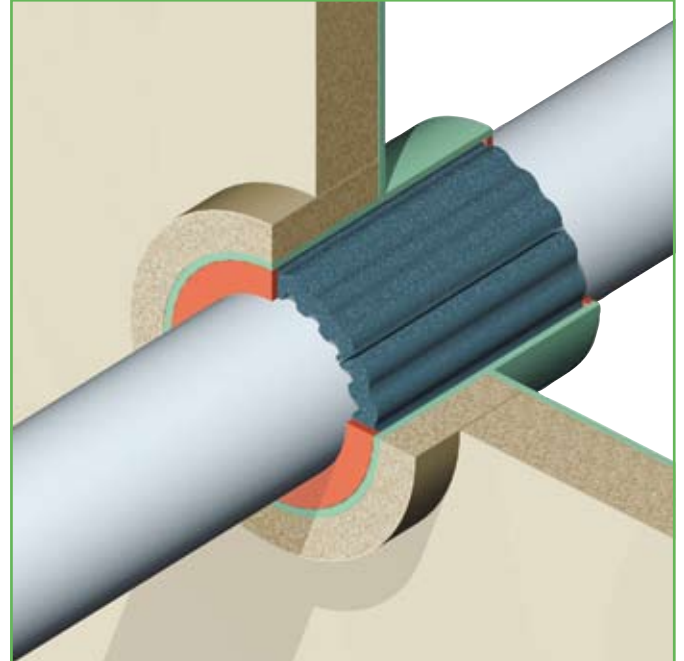
all dimensions in mm



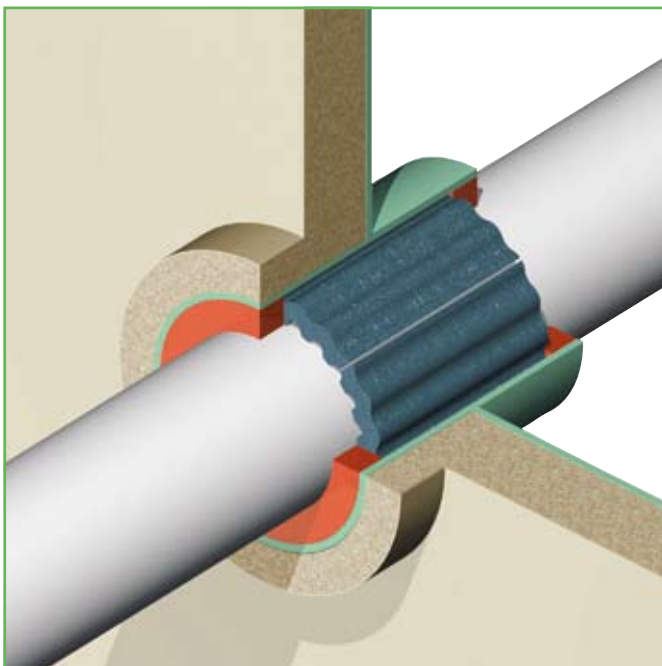
RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM



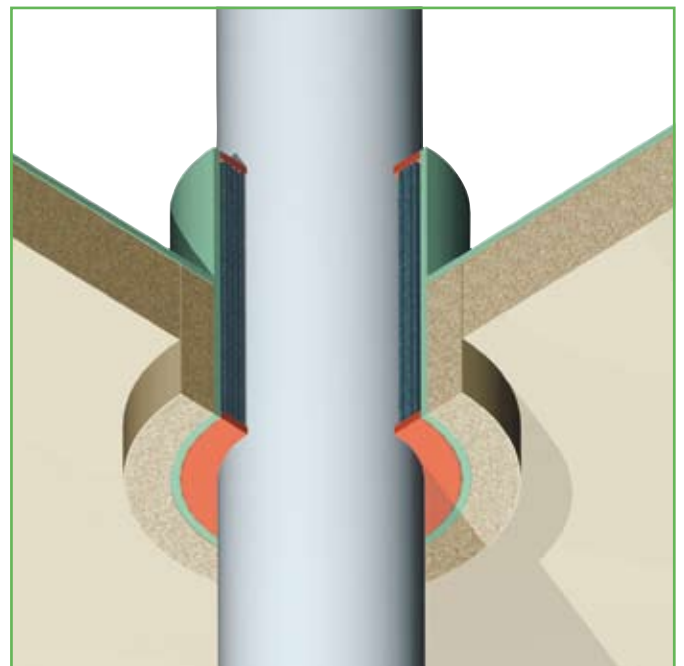
Several options are available with the RISE®/ULTRA crushers. The most simple and cost effective solution is a fitting C-FIT crusher applied in a conduit sleeve with an exact ID for a tight fit. This application is for **fire-rated only** penetrations.



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

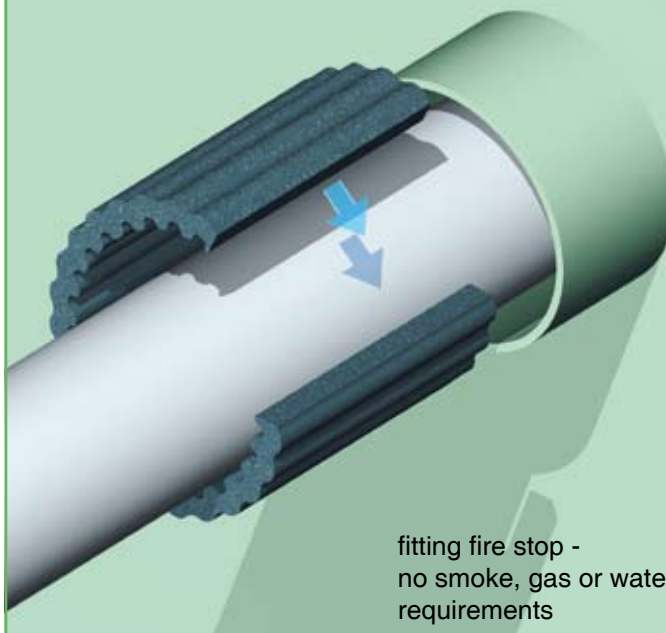
1) To obtain optimum performance at low cost, it is advisable to select the appropriate size of the conduit opening based on the type of crusher to be used according to the tables on page 4. The fitting RISE®/ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe in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

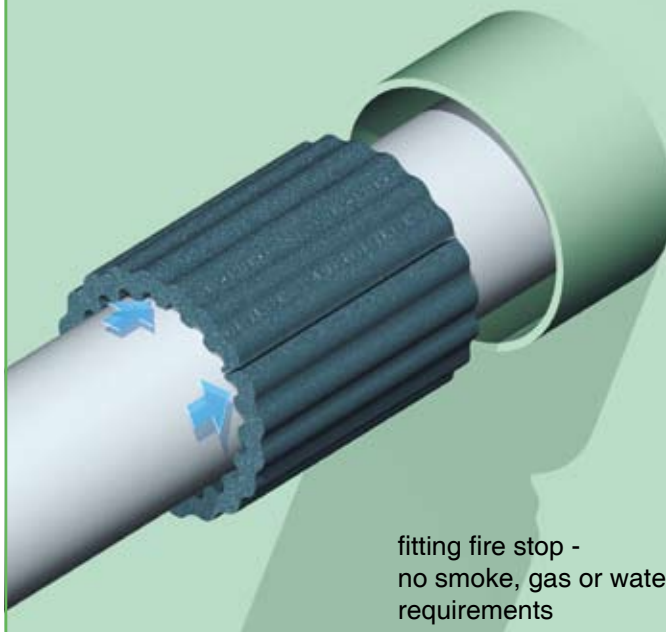
CRUSHER

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

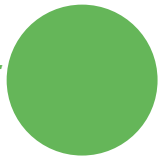


fitting fire stop -
no smoke, gas or watertight
requirements

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



fitting fire stop -
no smoke, gas or watertight
requirements



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.

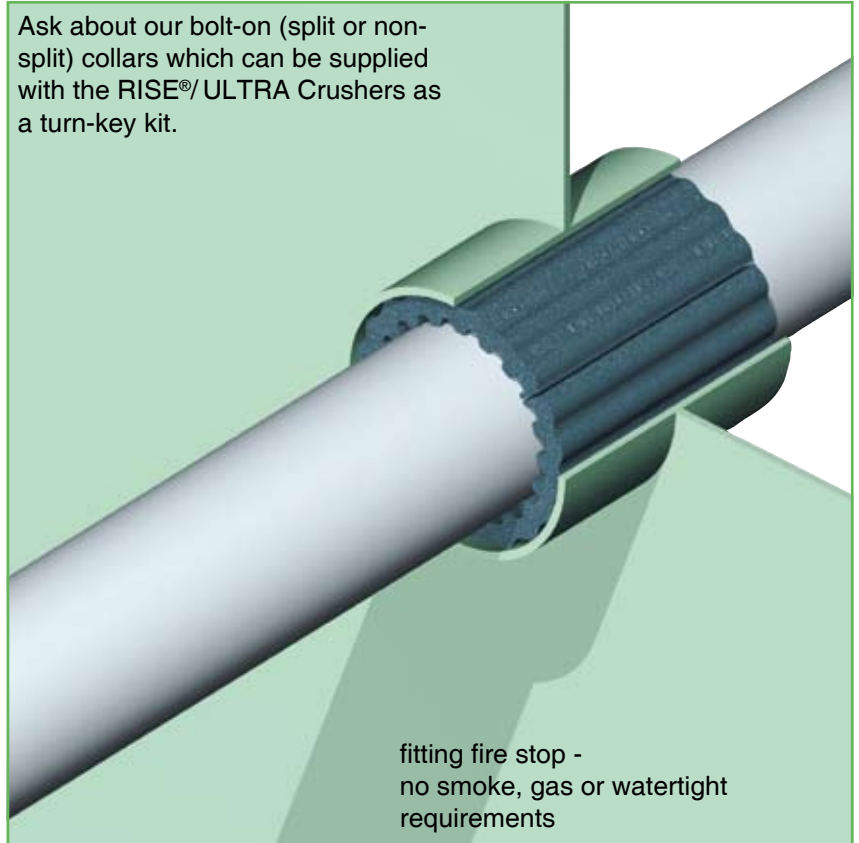
Our advice is to always
apply sealant in order to
avoid this problem.



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.

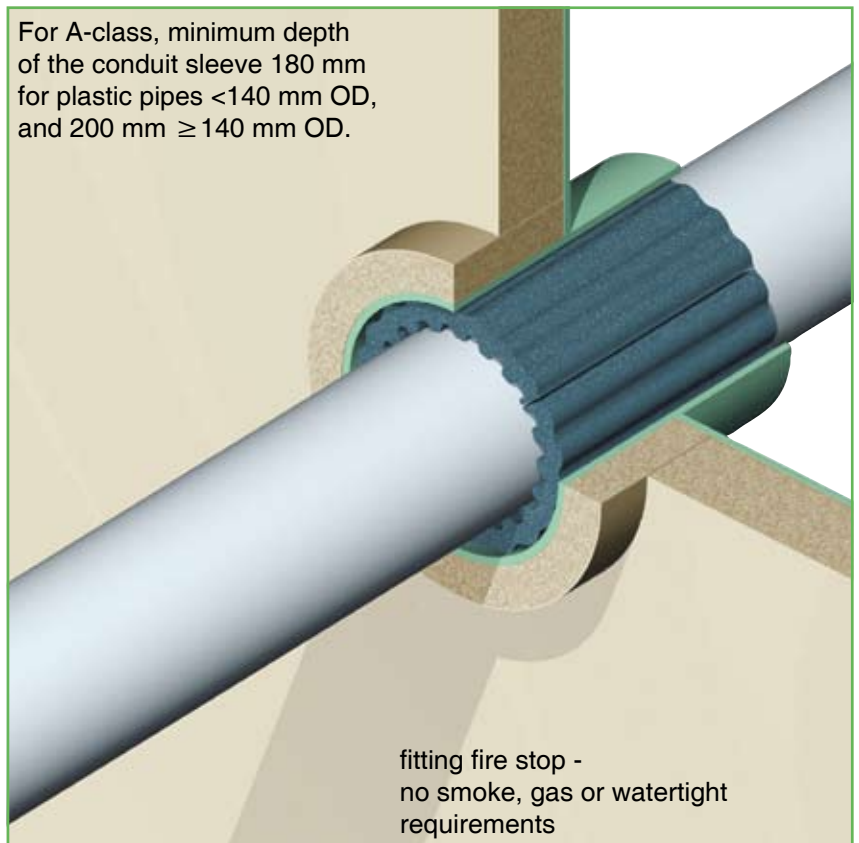


Ask about our bolt-on (split or non-split) collars which can be supplied with the RISE®/ ULTRA Crushers as a turn-key kit.



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.

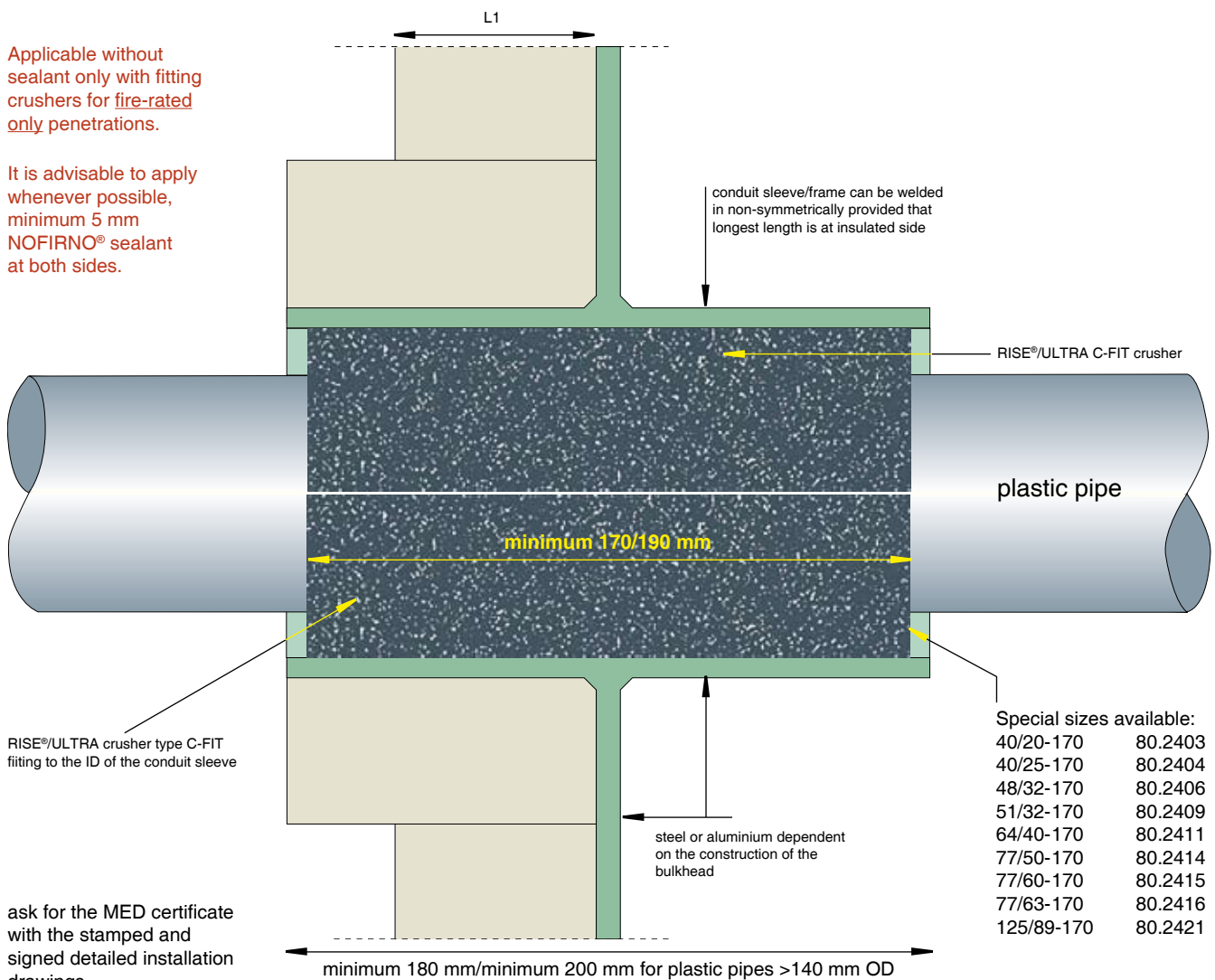
In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

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.

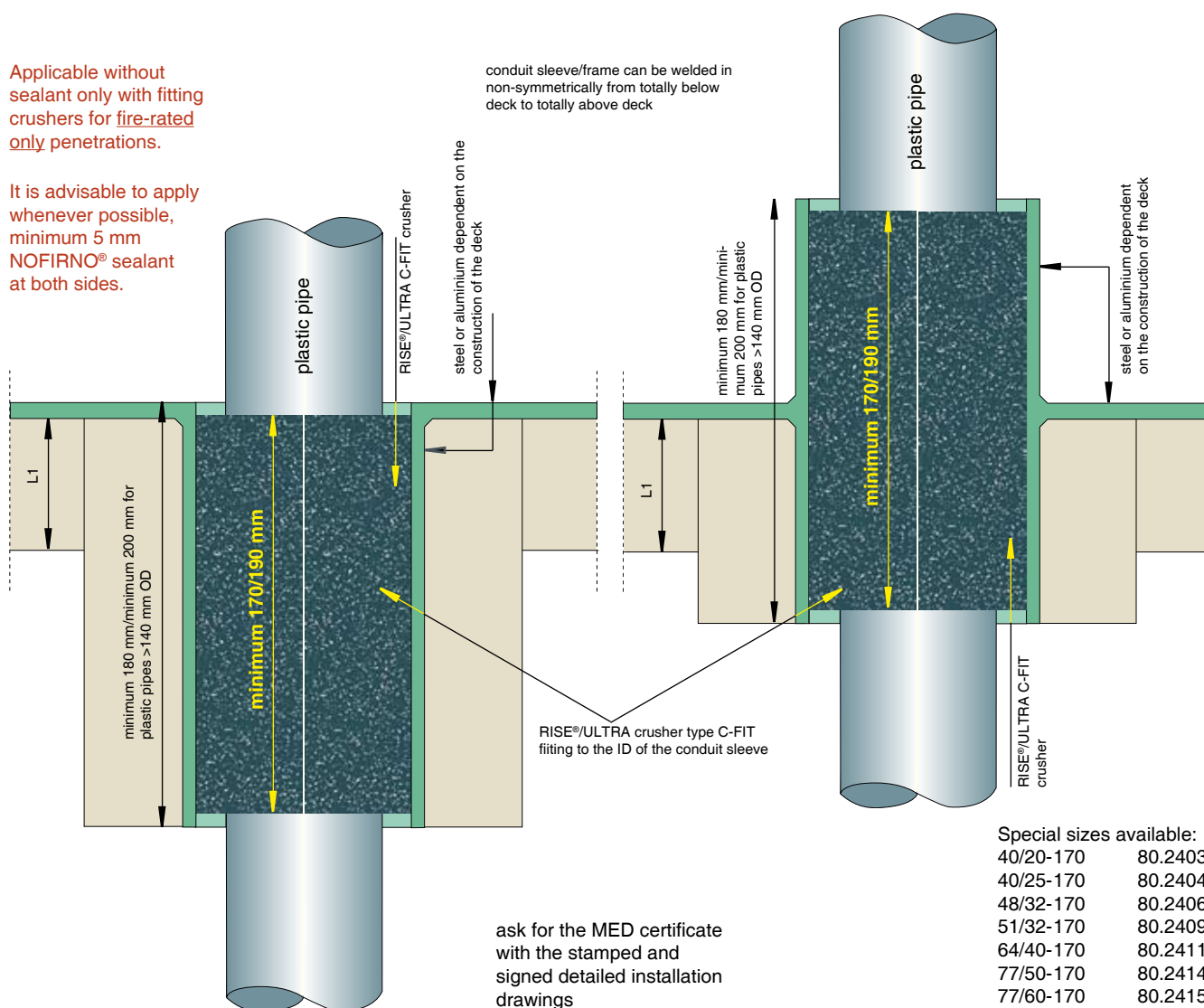
In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

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

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



Special sizes available:

40/20-170	80.2403
40/25-170	80.2404
48/32-170	80.2406
51/32-170	80.2409
64/40-170	80.2411
77/50-170	80.2414
77/60-170	80.2415
77/63-170	80.2416
125/89-170	80.2421

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.

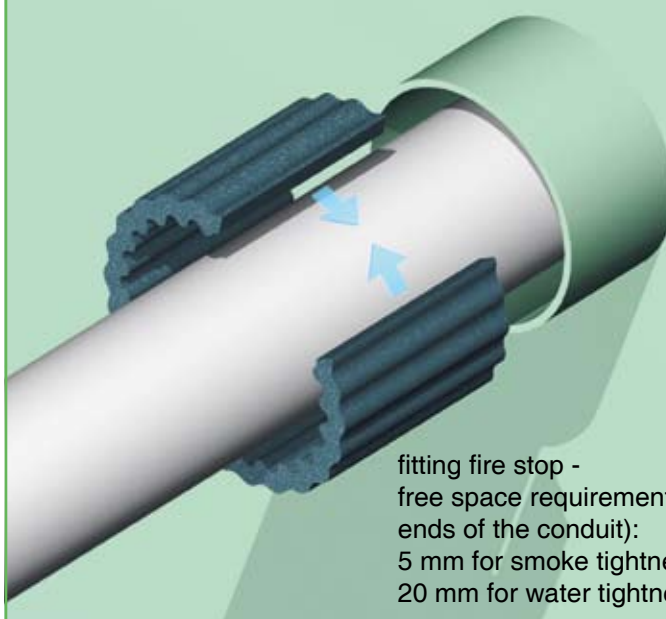
CRUSHER

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.

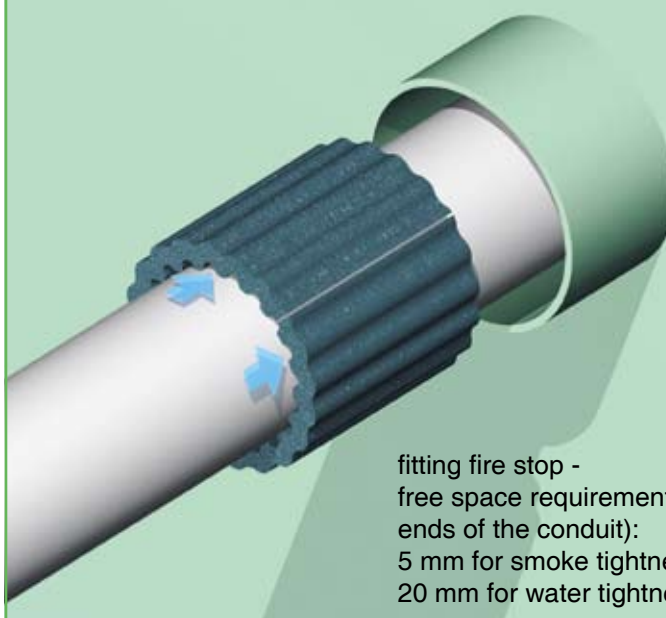
CRUSHER

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 -
free space requirements (both
ends of the conduit):
5 mm for smoke tightness
20 mm for water tightness

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



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



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.

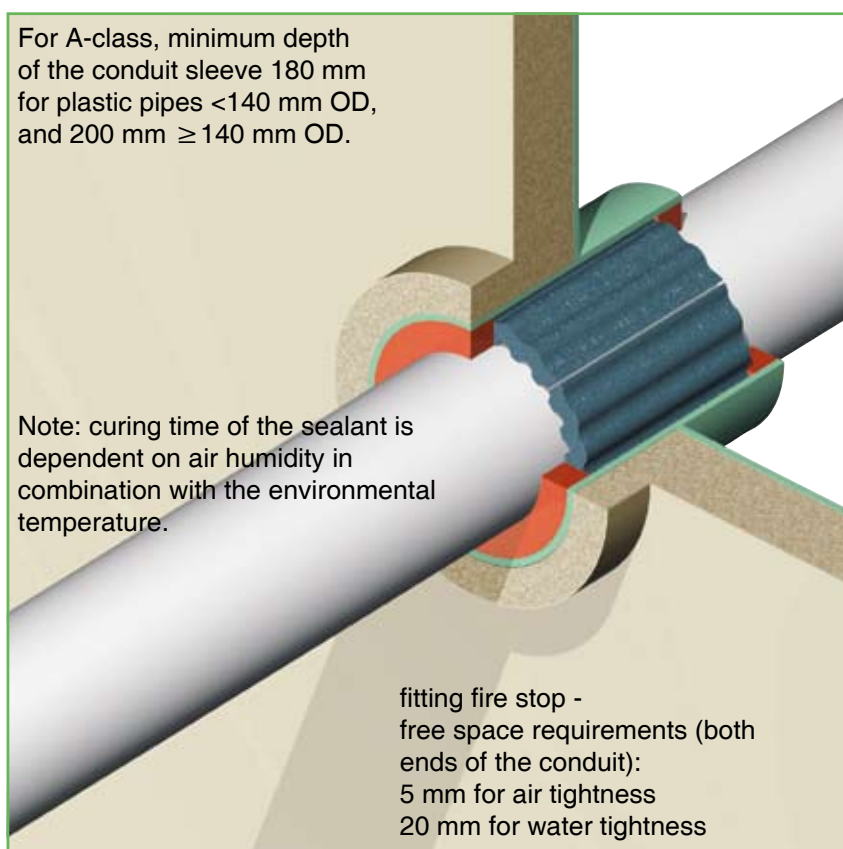
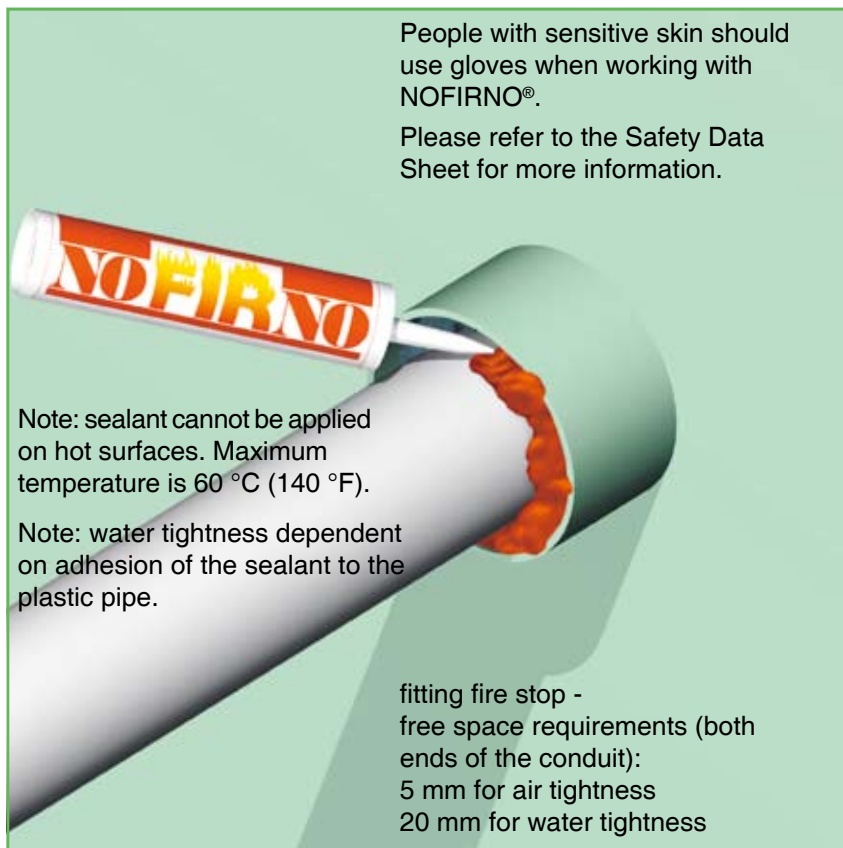
For watertight penetrations the sealant layer has to be 20 mm thick at both sides of the penetration.

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.



RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead insulation.

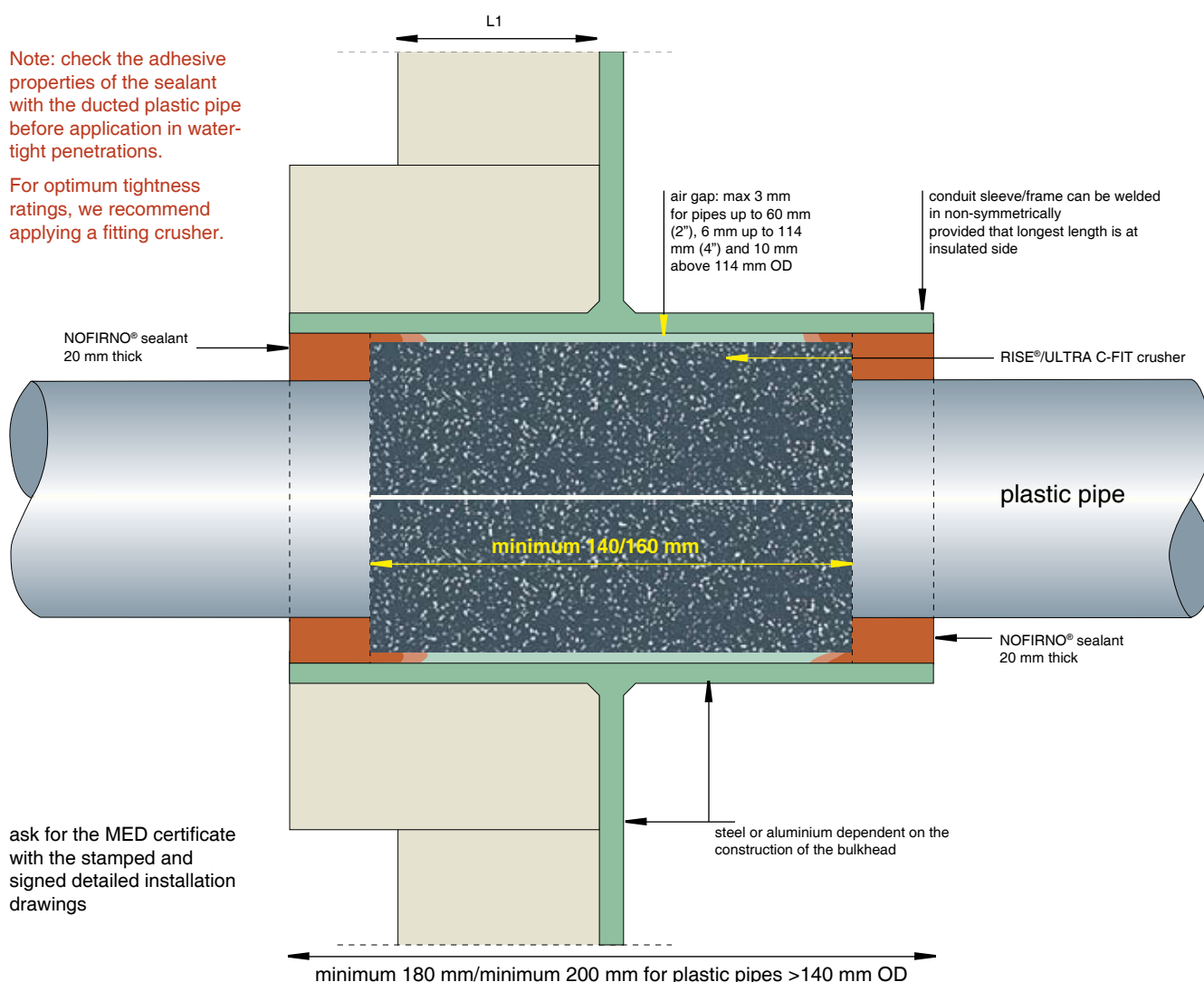
In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

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

13

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.

plastic pipe OD	crusher® type	crusher® length	article number
16	30/16	140	80.2720
18	30/18	140	80.2721
20	40/20	140	80.2722
25	40/25	140	80.2723
32	50/32	140	80.2724
40	50/40	140	80.2725
50	70/50	140	80.2726
63	80/63	140	80.2727
75	100/75	140	80.2728
90	125/90	140	80.2729
110	150/110	140	80.2730
125	160/125	140	80.2731
140	180/140	140	80.2732
160	200/160	140	80.2733
wrap 1000x140x2.5 mm			80.2512
wrap 1000x210x2.5 mm			80.2516

NOFIRNO® filler sleeves



filler sleeves are supplied non-split

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

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)

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.

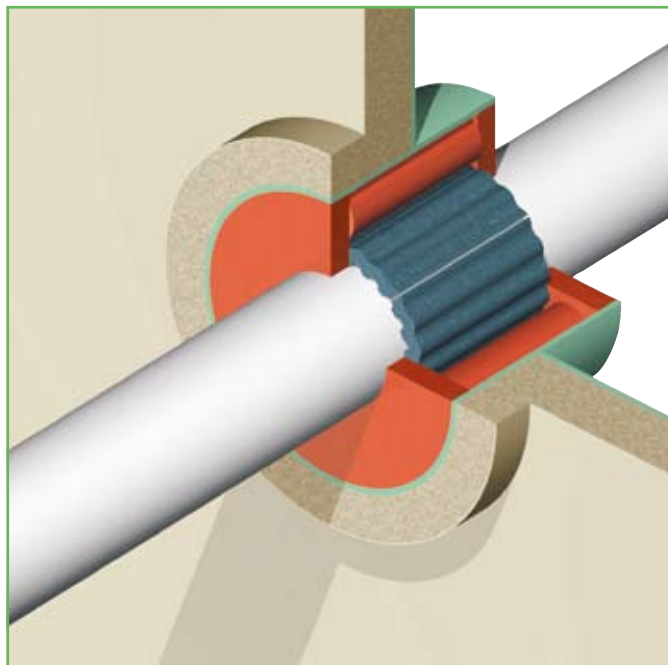
Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

article number 50.0102

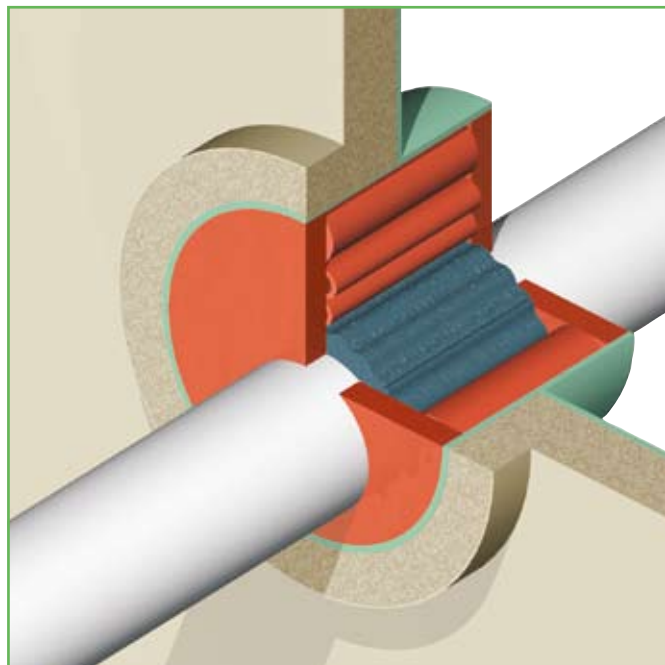




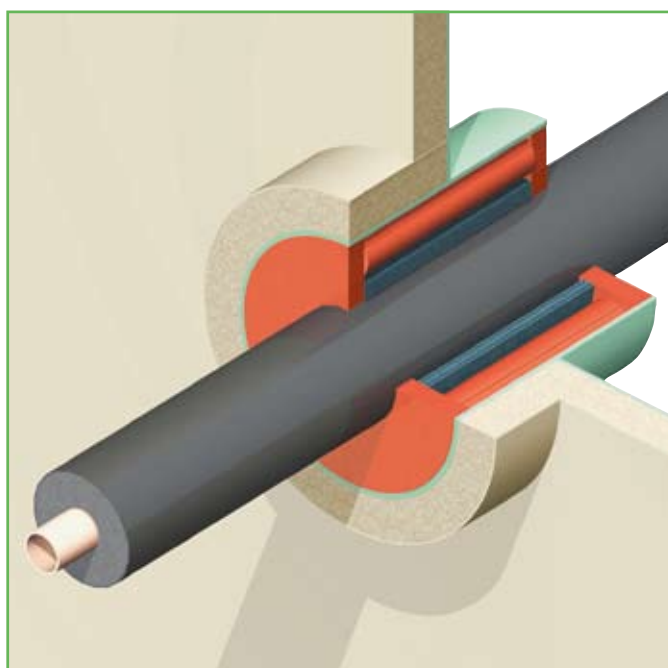
RISE®/ULTRA - SINGLE AND MULTI-PLASTIC PIPE TRANSIT SEALING SYSTEM



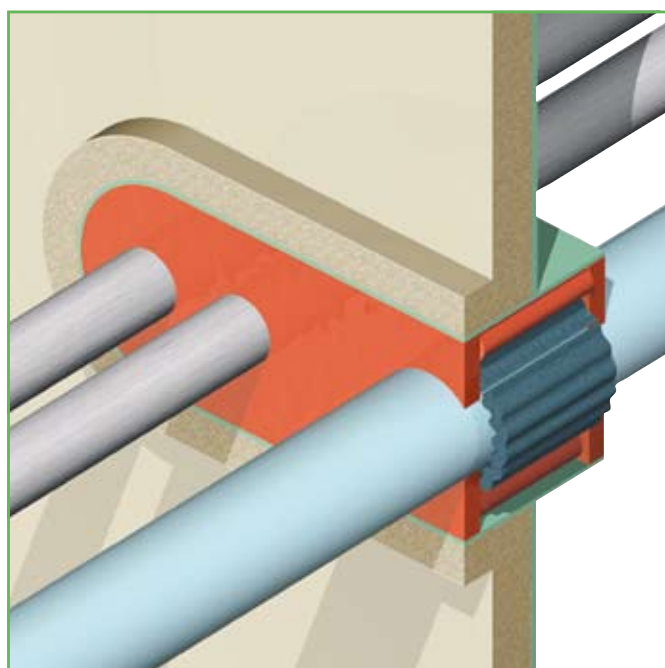
Several options are available with the RISE®/ULTRA crushers in combination with NOFIRNO®. For oversized conduits, NOFIRNO® filler sleeves are used to fill open spaces in the conduit. NOFIRNO® sealant to be applied in a thickness of 20 mm at both sides of the penetration.



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.



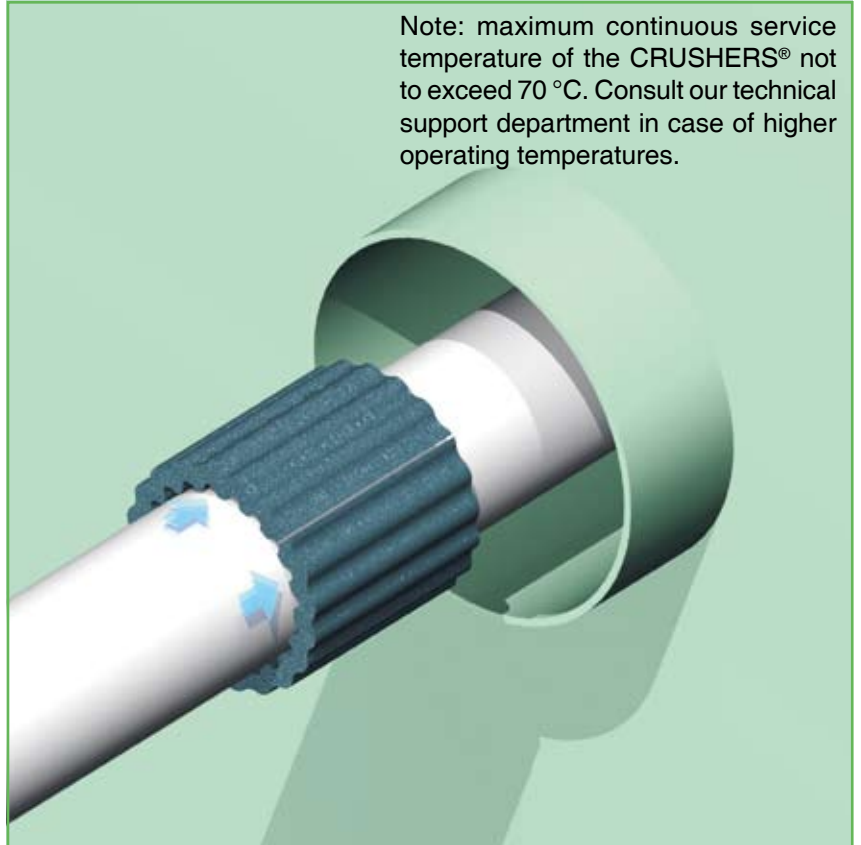
RISE®/ULTRA crushers in combination with NOFIRNO® filler sleeves and sealant can be used for multi-plastic and multi-plastic/metallic pipe penetrations. NOFIRNO® filler sleeves are used to fill open spaces in the conduit. NOFIRNO® sealant to be applied in a thickness of 20 mm at both sides of the penetration.

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.

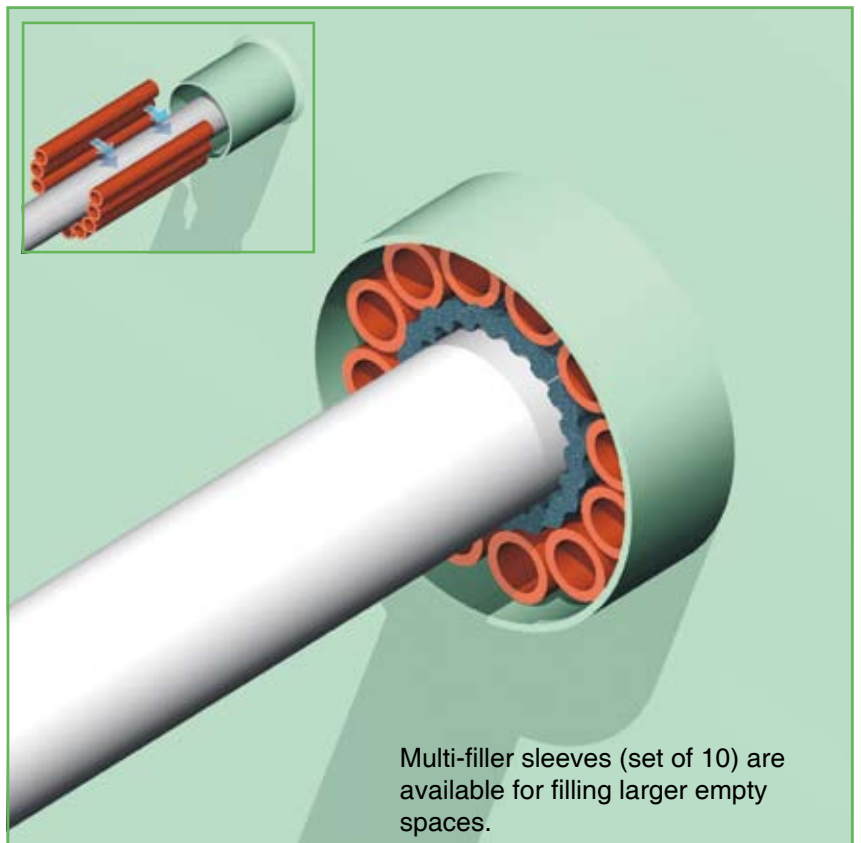
Note: maximum continuous service temperature of the CRUSHERS® not to exceed 70 °C. Consult our technical support department in case of higher operating temperatures.



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.



Multi-filler sleeves (set of 10) are available for filling larger empty spaces.

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.

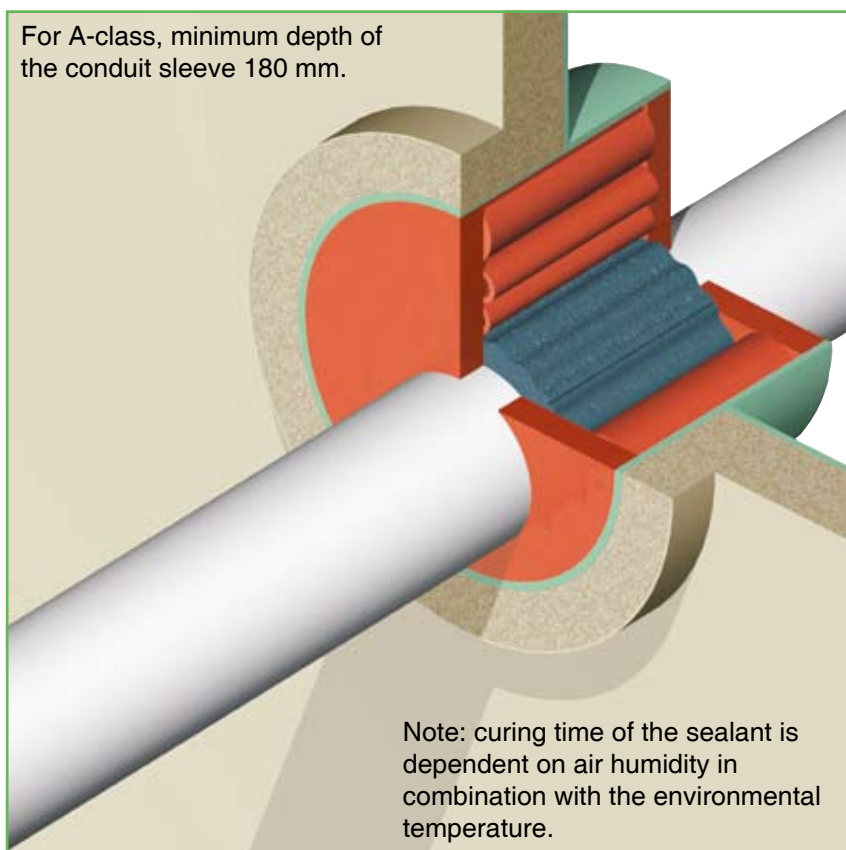
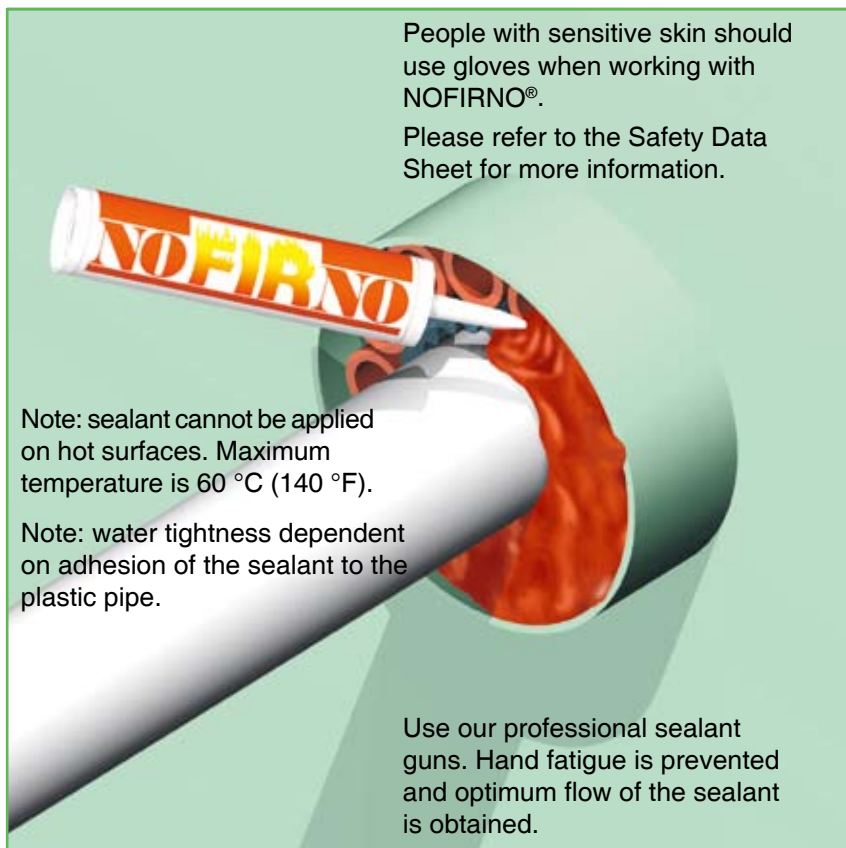
Clean and dry the inside of the conduit sleeve and the outside of the plastic pipe thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.

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.

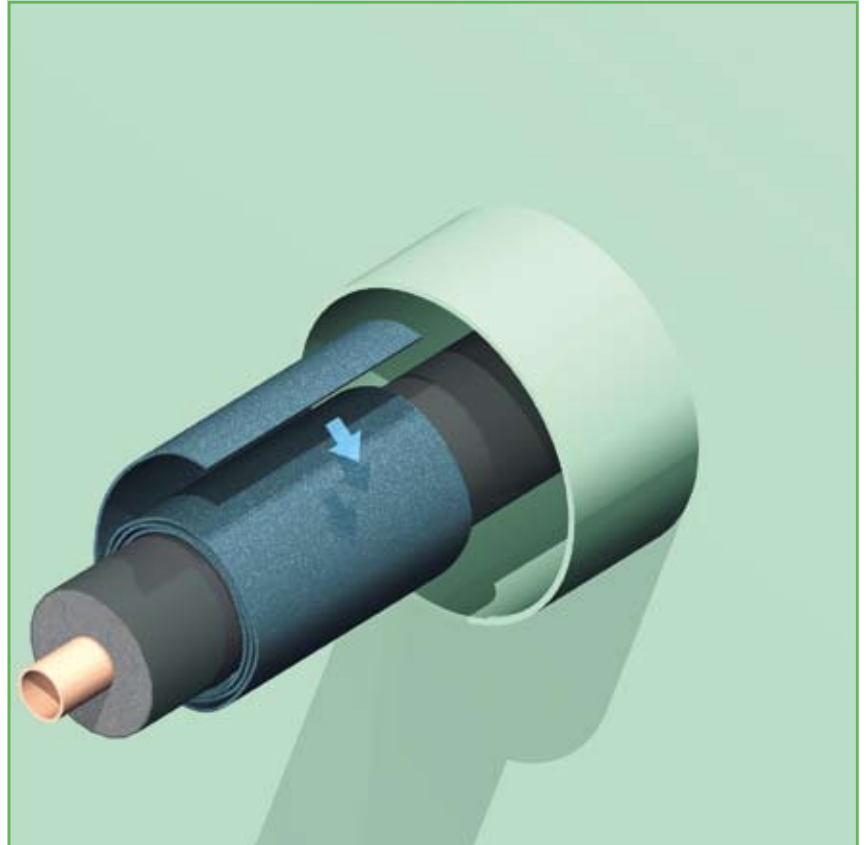
Also applicable for off centre ducted pipes.

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.

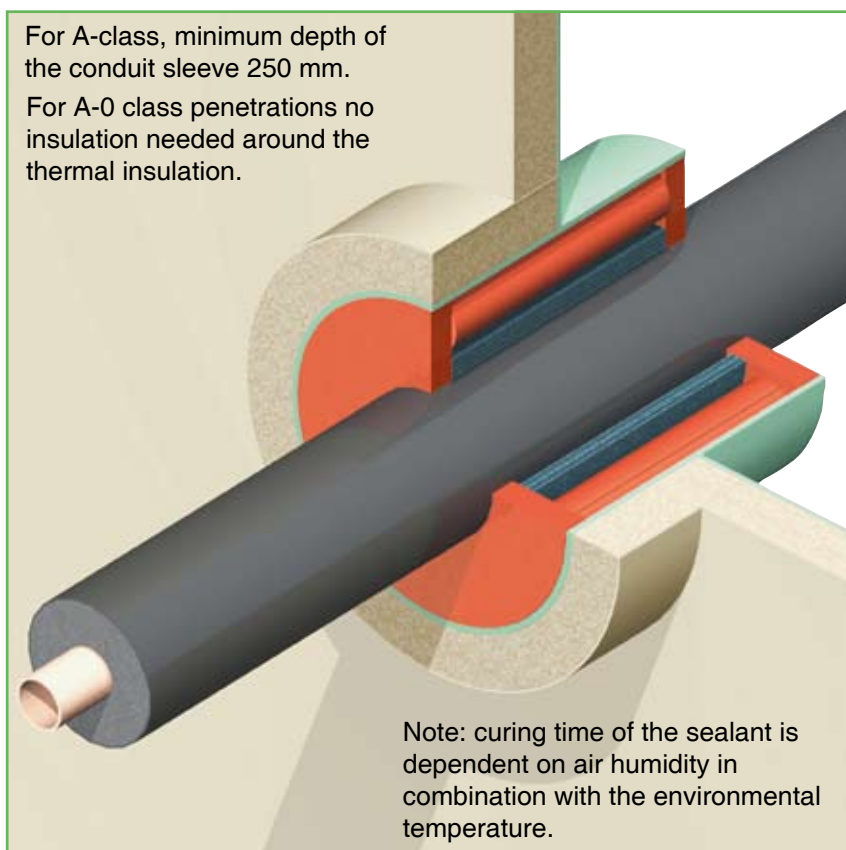
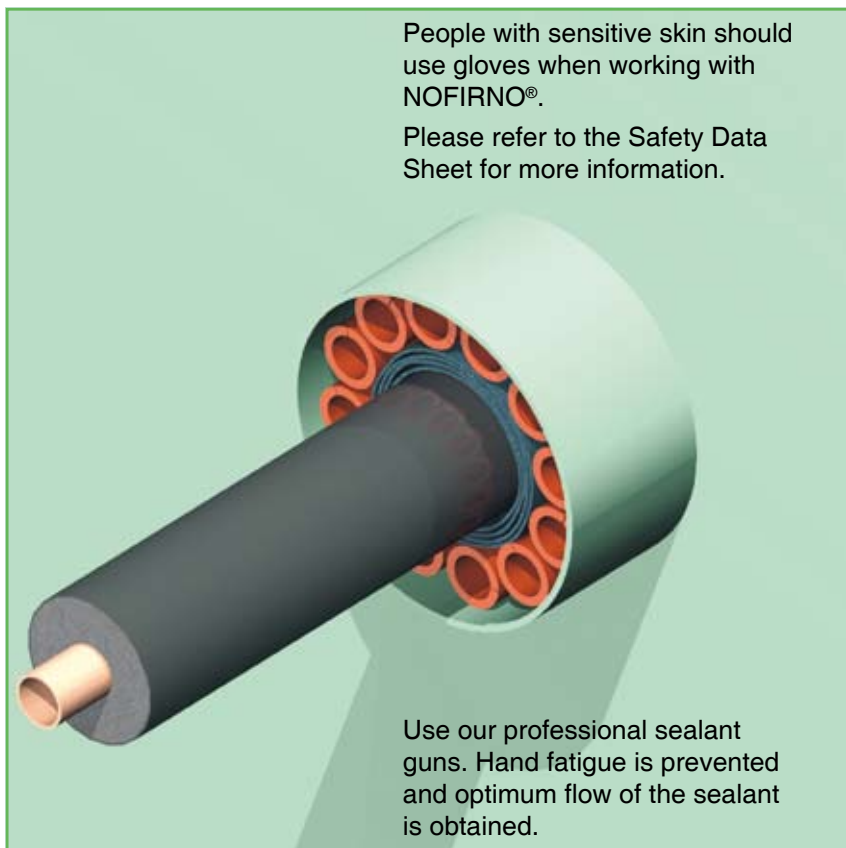
Clean and dry the conduit sleeve inside and the surface of the thermal insulation thoroughly and remove any dirt, rust or oil/ lubricant residues before applying the sealant.

CRUSHER

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.

CRUSHER



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

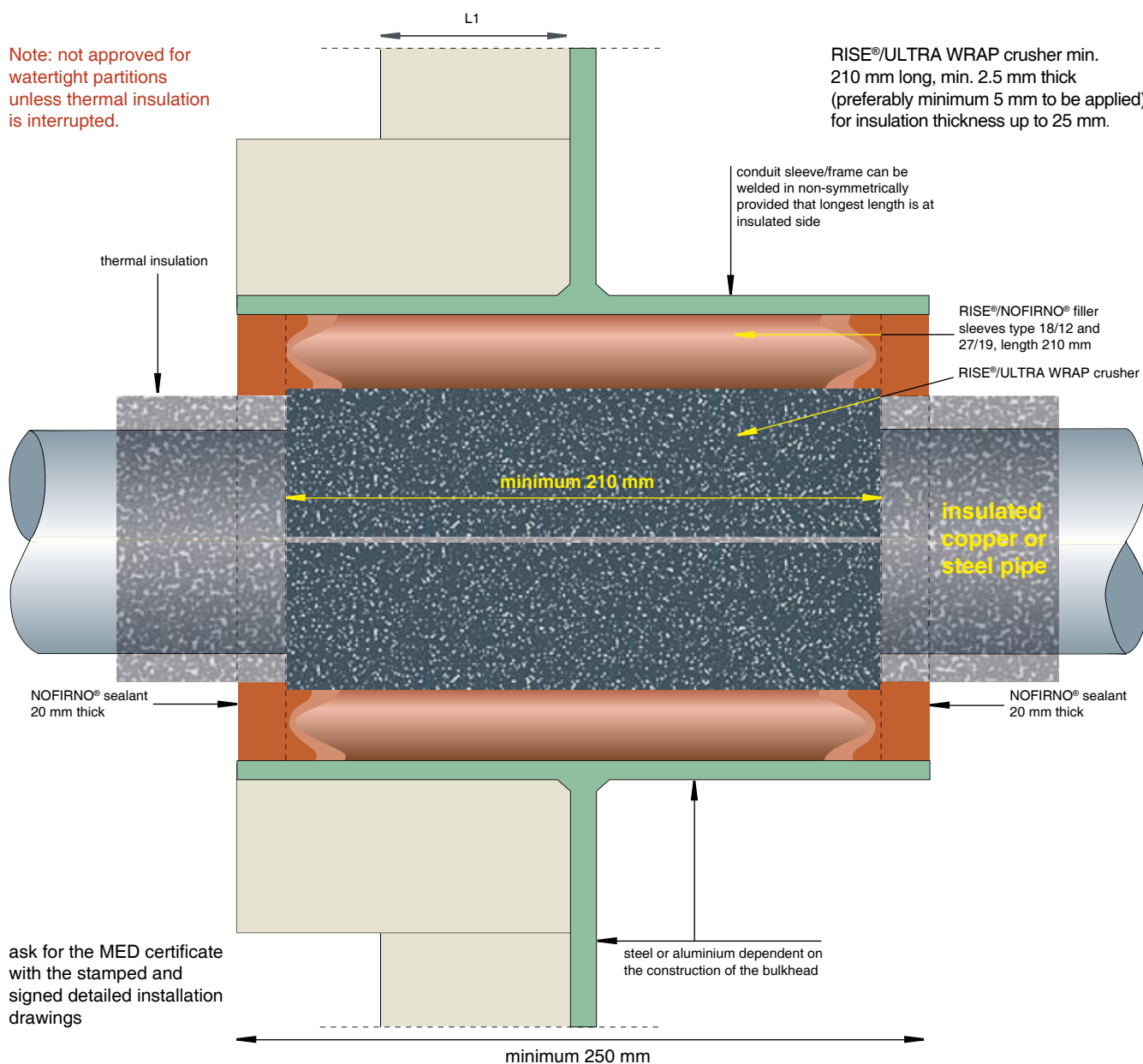
L1: A-60 approved bulkhead insulation.

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

RISE®/ULTRA WRAP crusher min. 210 mm long, min. 2.5 mm thick (preferably minimum 5 mm to be applied) for insulation thickness up to 25 mm.



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**



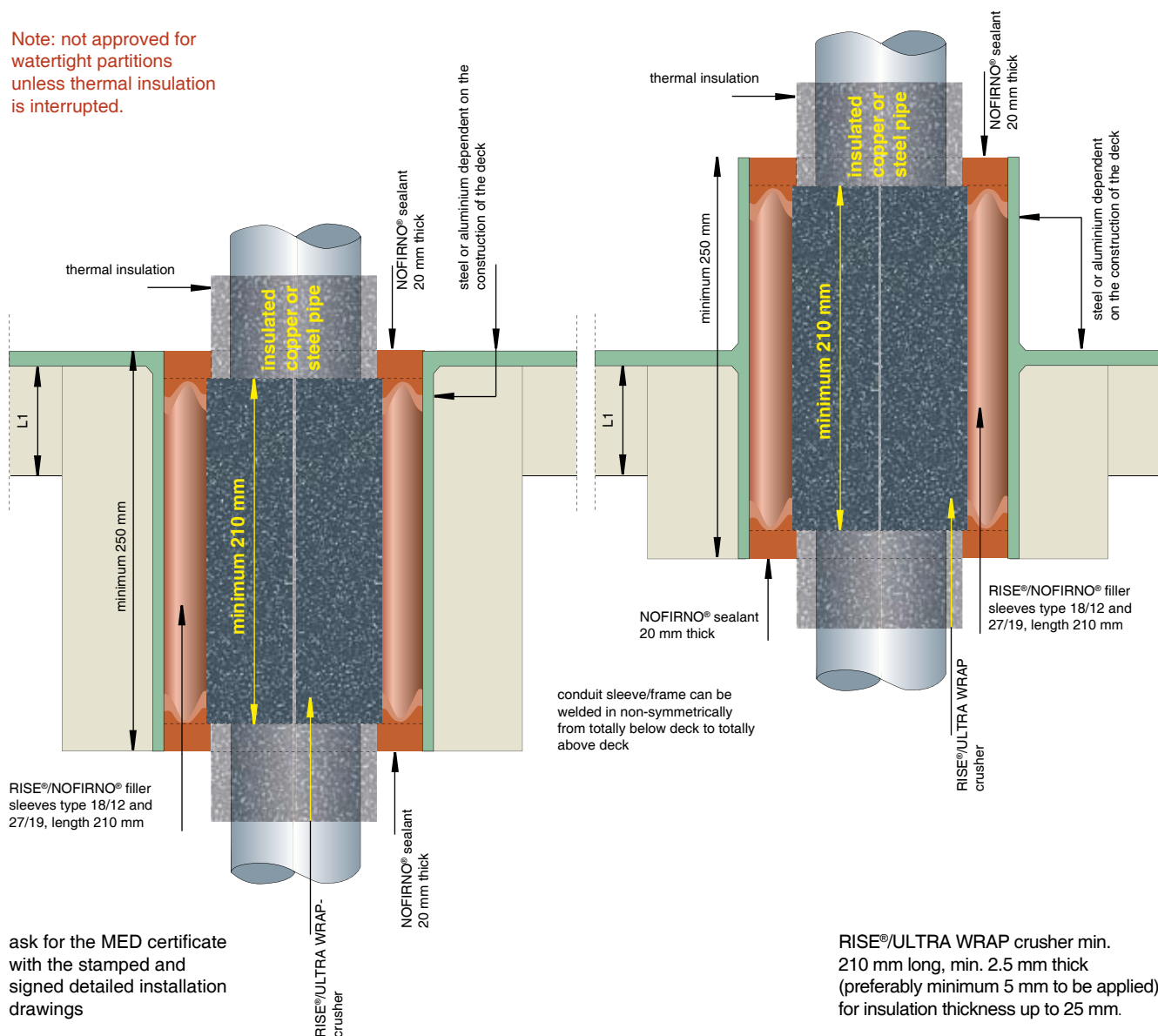
RISE®/ULTRA - PRE-INSULATED PIPE TRANSIT SEALING SYSTEM

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.

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



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

Drawings R0246E, R0247E, R0248E and R0249E.

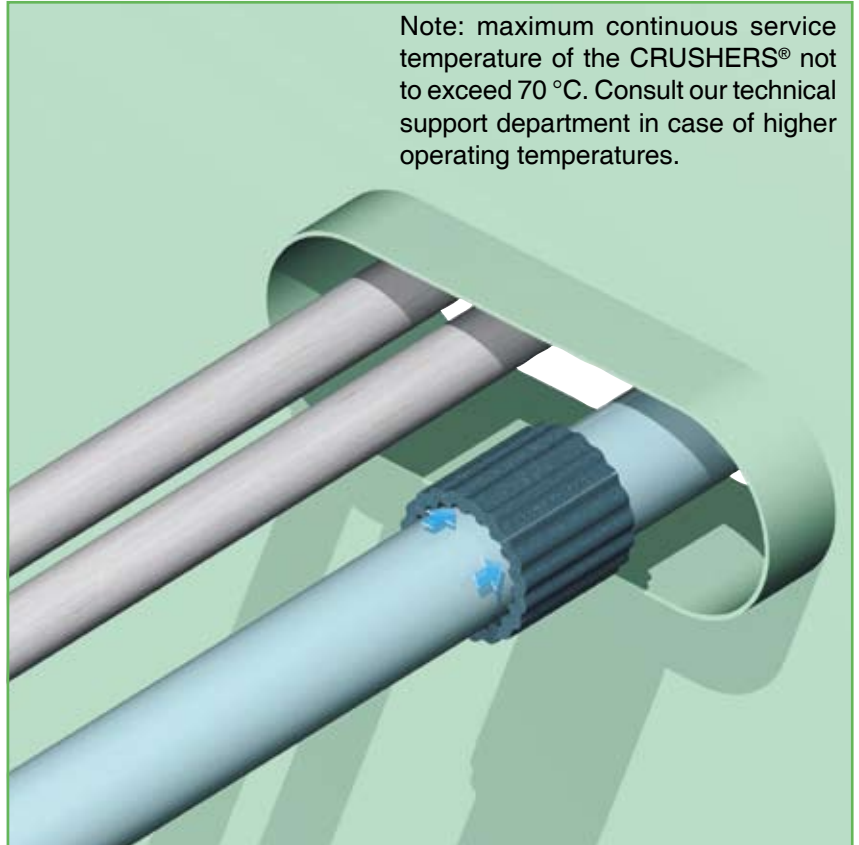
A0-A60 INSULATED PIPE TRANSIT

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).

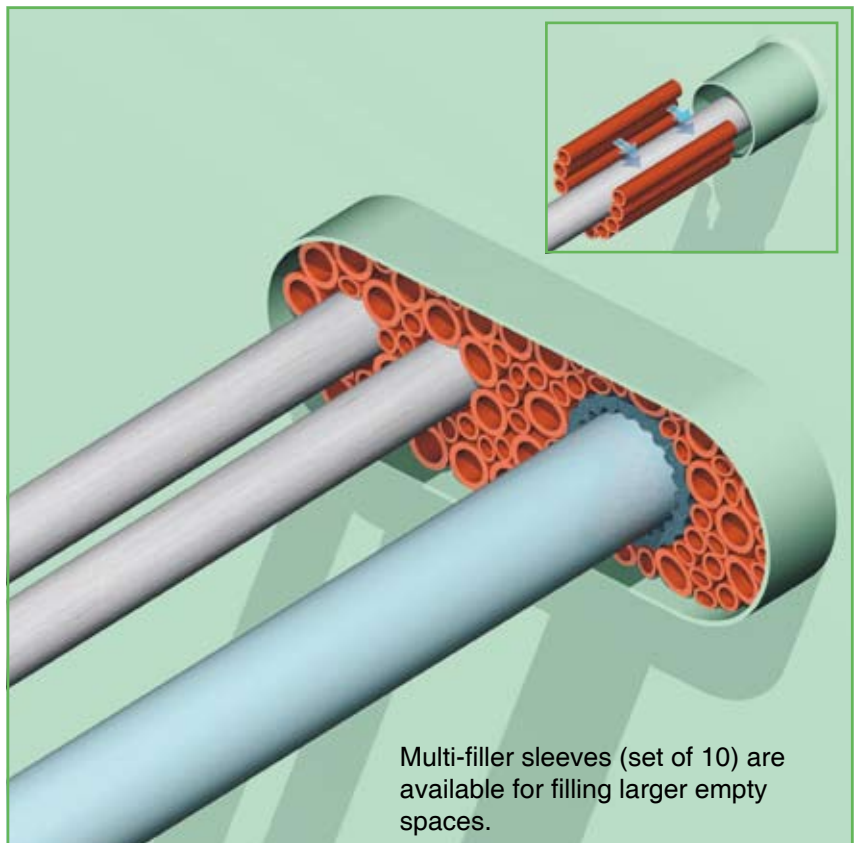
Note: maximum continuous service temperature of the CRUSHERS® not to exceed 70 °C. Consult our technical support department in case of higher operating temperatures.



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.



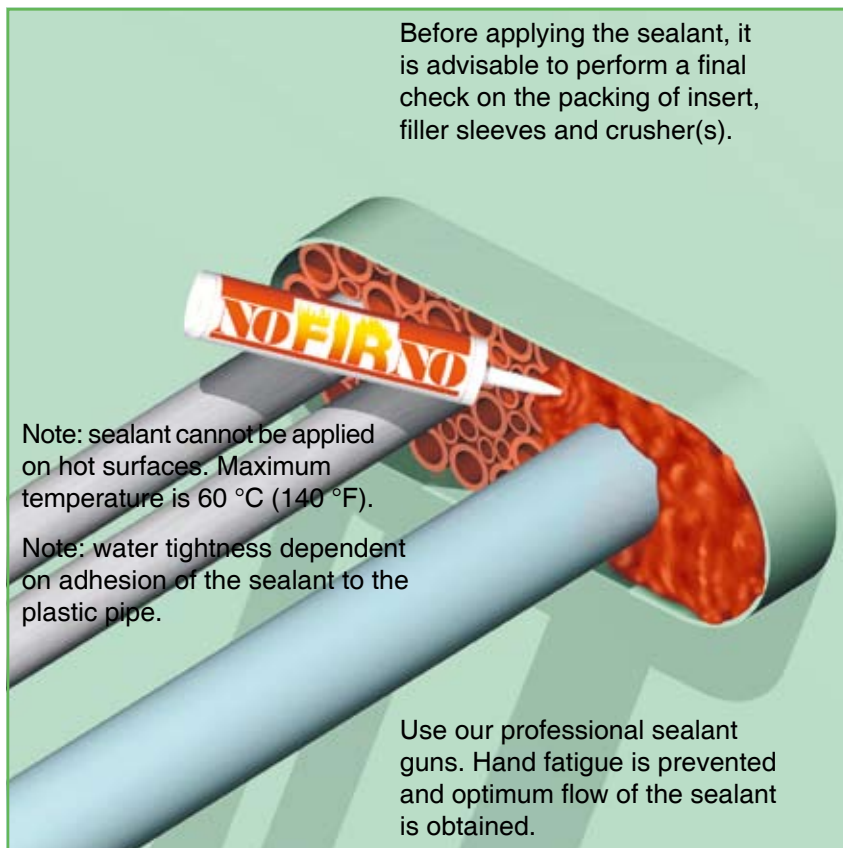
Multi-filler sleeves (set of 10) are available for filling larger empty spaces.

CRUSHER



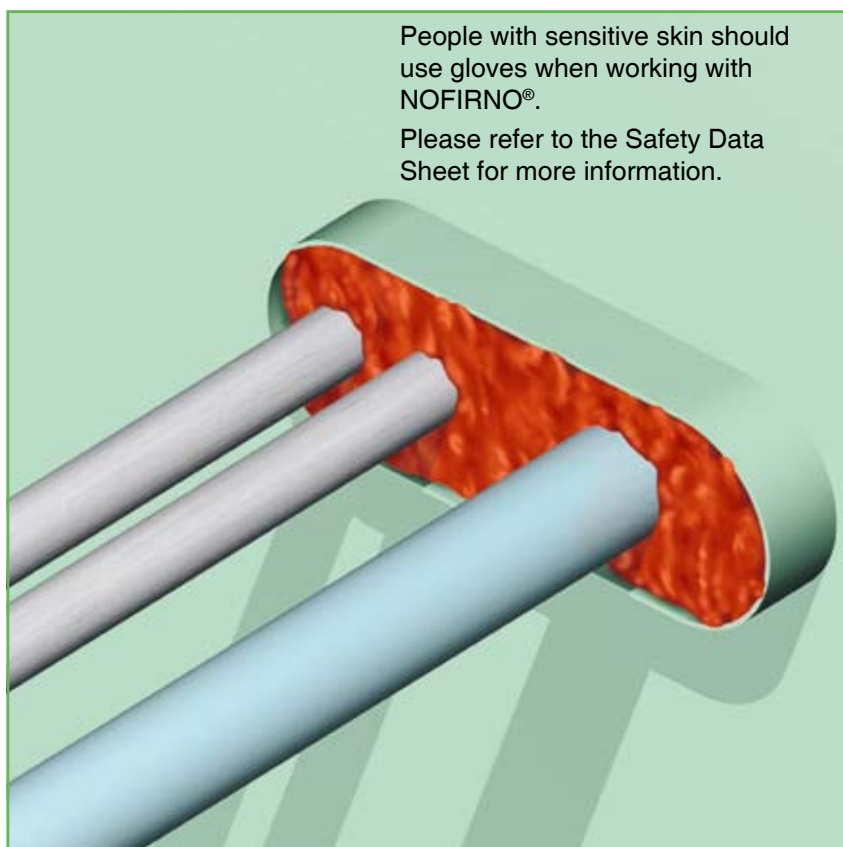
RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

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

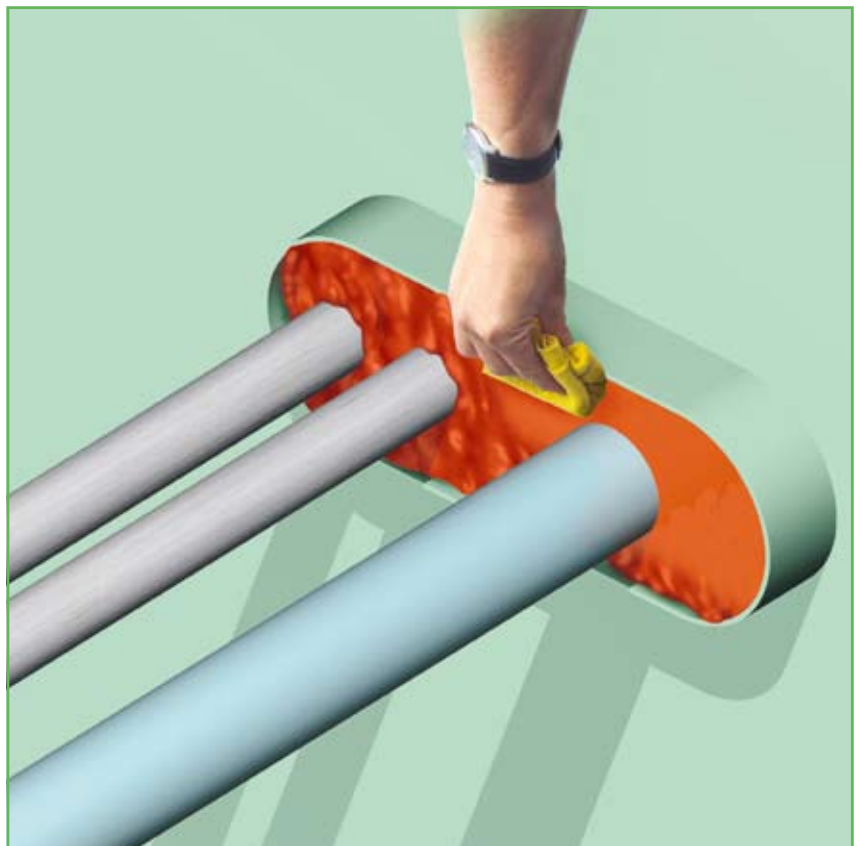
5) To smooth the surface of the NOFIRNO® sealant layer, a cloth is sprayed with water. This prevents the sealant from sticking to the cloth. Note: do not use soap water!



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.

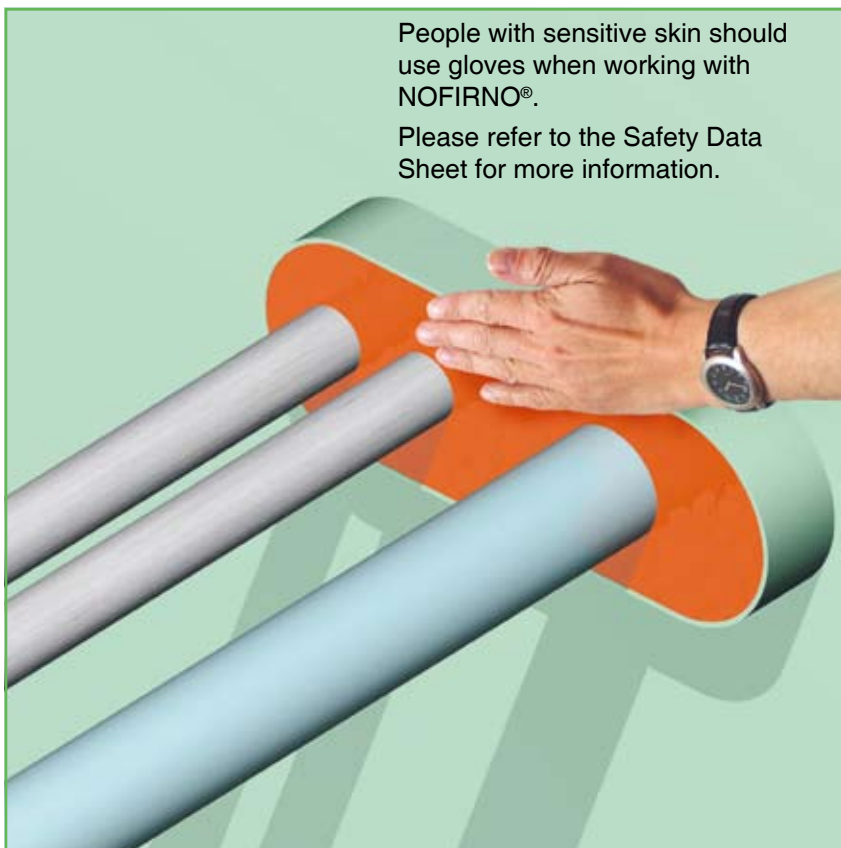


CRUSHER



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.

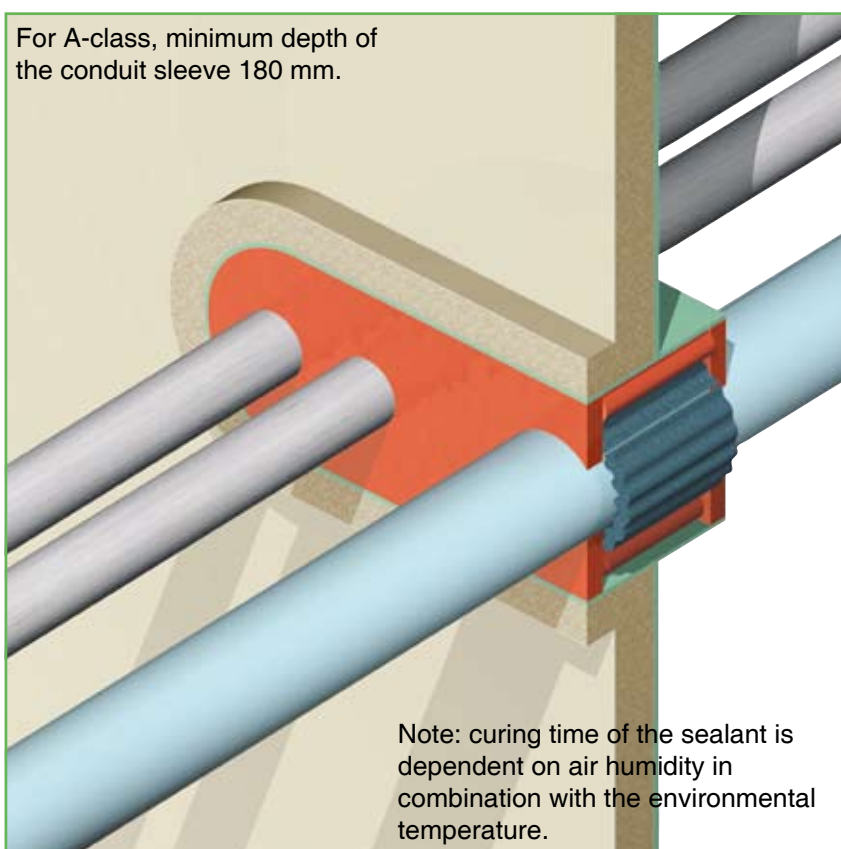


CRUSHER

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

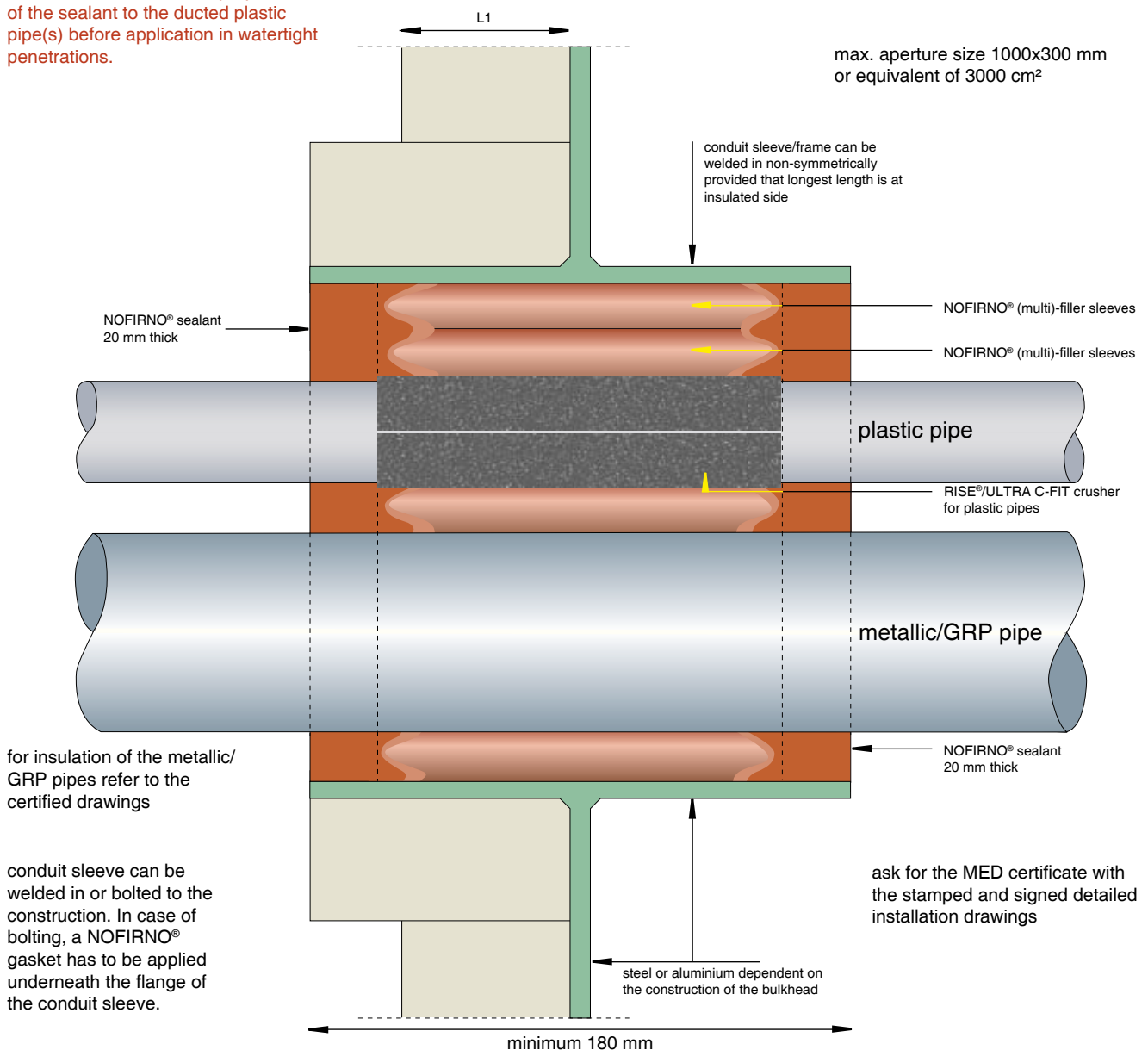
RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

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



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**



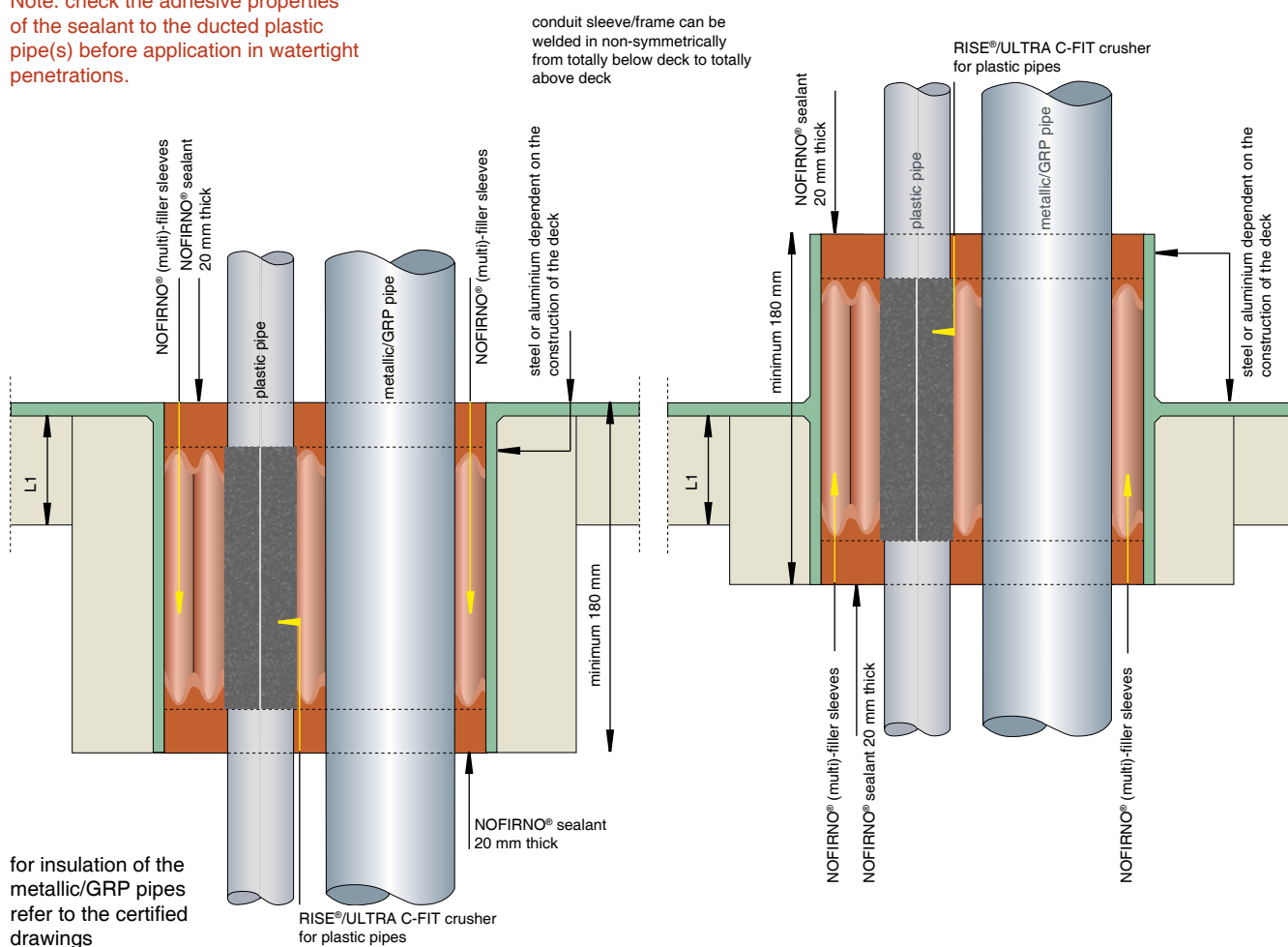
RISE®/ULTRA - MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

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



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.

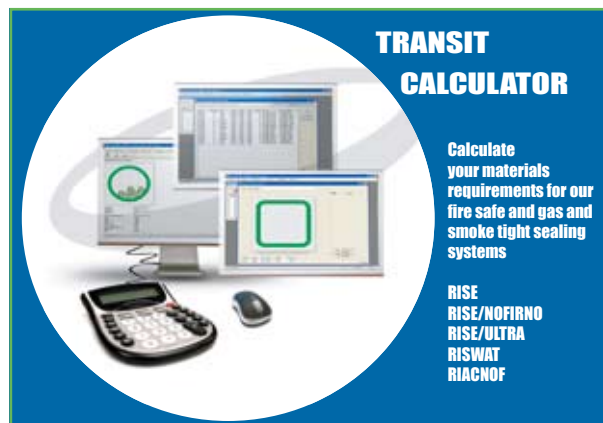
max. aperture size 1000x300 mm or equivalent of 3000 cm²

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

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



Free material calculation software. Download at our web-site <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:

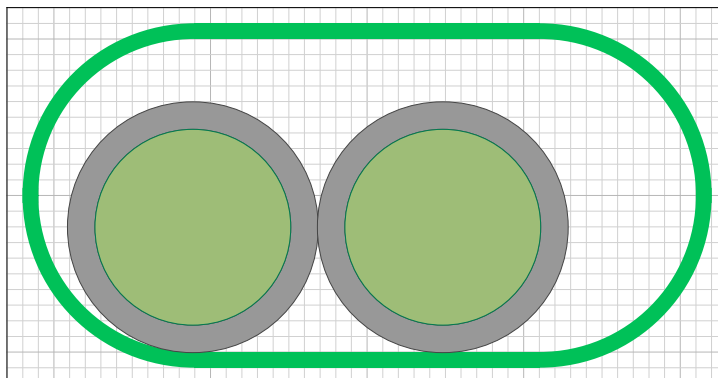
- 1) transit dimensions.
- 2) the depth of a transit is automatically selected based on the entered data at class (A, B, H-class or watertight) but can be changed. In this case, a warning appears that this is a deviation of the certification.
- 3) selection of the sealing system (cable, pipe).
- 4) the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

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)

(All dimensions in mm)

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

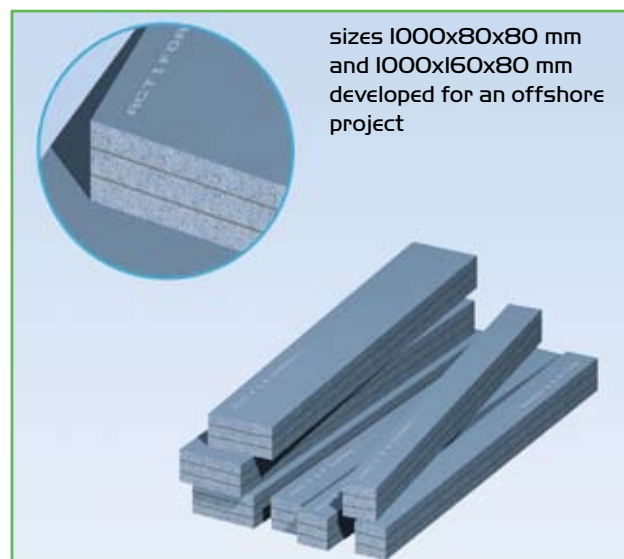
- Gaskets and rubber sheets for applications in which the transits, coamings or conduit sleeves are bolted to the partition.
- Successfully tested for A-class RISE®, RIACNOF® and NOFIRNO® sealing systems for multi-cable and pipe transits bolted to the partitions.
- NOFIRNO® rubber will remain stable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

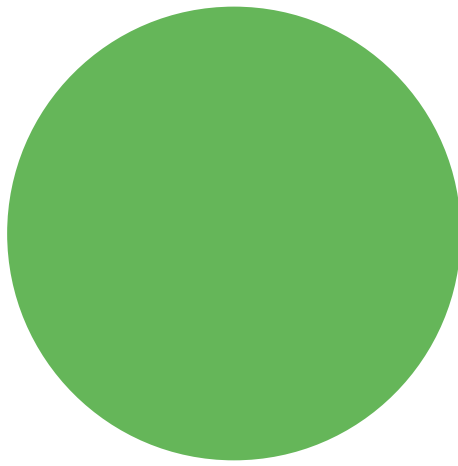


ACTIFOAM®/ULTRA

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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www.rise-systems.com, www.rise-nofirno.com, www.riswat.com and www.slipsil.com)**