

**RISE/NOFIRNO®:  
THE ULTIMATE SEALING  
SYSTEM FOR MULTI-ALL-  
MIX TRANSITS®  
(PIPES AND CABLES)**



**SUCCESSFULLY TESTED ACCORDING TO  
EN 1366-3:2004; FIRE RESISTANCE  
EI90/EI120 ACCORDING TO EN 13501-2:2003  
CERTIFICATES 2007-EFECTIS-R0763-64**

# NO FIRNO

**MAXIMUM SIMPLICITY OF USE  
OPTIMUM FLEXIBILITY  
OUTSTANDING PERFORMANCE**

**Websites:** <http://www.actifoam.com>, [www.beele.com](http://www.beele.com), [www.firsto.com](http://www.firsto.com), [www.nofirno.com](http://www.nofirno.com),  
[www.rise-systems.com](http://www.rise-systems.com), [www.rise-nofirno.com](http://www.rise-nofirno.com), [www.riswat.com](http://www.riswat.com) and [www.slipsil.com](http://www.slipsil.com)

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<b>brochure code</b>	: NOFIRNOpipe/hb/en/con

# BEELE ENGINEERING BV CSD INTERNATIONAL BV

BEELE Engineering and CSD International have been working in the field of water and gas tight and fireproof sealing of conduits for pipes and cables for more than 35 years. In the field of passive fire prevention, we have invested substantial amounts of money in the development of systems which are capable withstanding fires for extended periods of time. Passive fire prevention is a very complicated matter due to the fact that cable and pipe penetrations have to be designed to the actual circumstances at site and not for a laboratory test. In case of a catastrophe penetrations are subject not only to flame erosion and very high temperatures, but also

to mechanical loads due to collapsing cableways and possibly a jet of fire-fighting water. This means that the performance in actual situations can differ dramatically from that in a regular fire test. In fact, the systems could only be applied as tested to guarantee the required fire safety.

## **And this means discussions and limitations!**

We have ensured that our systems will function under all circumstances, and the classification societies have awarded us signed and stamped installation drawings of our sealing systems. Approved for steel and aluminium partitions. Guaranteed safety in your installation will be the result.

*The R&D department of BEELE Engineering is constantly working in the field of rubber and systems techniques to optimize the existing systems and to develop new concepts for cable and pipe conduits on board of vessels and offshore installations. Although installation of the CSD sealing systems is in fact an easy matter, a full training programme can be given in-house by our engineers. Because the advantages and possibilities of passive fire prevention and evacuation signposting can most effectively be discovered in an environment that matches the practical situation as closely as possible, we have constructed an unique research and development centre. As far is known, this R&D centre is the only institute world-wide where visitors can experience for themselves all the aspects of fire prevention and evacuation signposting systems.*



Above an impression of the research and development centre with a training and schooling institute for passive fire prevention products and systems and for the improvement of evacuation signposting systems in buildings and on board ships. The centre consists of a presentation theatre seating up to 45 persons, and a mock-up covering about 500 square metres in which various evacuation signposting systems are installed to enable their effectiveness to be

determined in the dark.

The behaviour of escaping persons inside the test facility is recorded from a separate technical area (with an associated showroom) by means of infra-red cameras and an audio-video system.

In addition the centre comprises three laboratories with a total surface area of about 300 square metres in which, respectively, large-scale fire tests, mechanical tests, and light emission investigations are performed.

# RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM

*RISE®/NOFIRNO® pipe penetrations:  
based on high-tech NOFIRNO® technology*

Non-insulated steel partitions are most dangerous in fire conditions. Generally certificates for use on boards ships and offshore constructions are issued on the basis of a successful A-60 test for A-0 up to A-60 class. However, if the approval is for A-0 up to A-60 without the remark that the system is approved for steel partitions without insulation, this means that for these applications insulation has to be applied (insulated) as tested for A-60 class. This may not be observed in practice since such partitions are generally not insulated at all. The fire integrity may then be very doubtful in such a case.

The market place tends to think that A-0 is less severe than A-60. This is not the case! Due to the missing insulation it is just the opposite.

The intense heat of the construction will cause all materials in the direct vicinity to ignite spontaneously. The radiation heat can be so immense that ignition might occur even at several meters distance.



Specially with A-0 decks the rising radiation heat of the deck, reaching temperatures of more than 700 °C, contributes to even more severe conditions. It will be obvious that the impact on sealing systems will be extreme. Based on “no insulation”, the development of the RISE®/NOFIRNO® sealing system was started. As proven with the SLIPSIL® plugs, the NOFIRNO® rubber will not be consumed by fire. For A-0 class it is of utmost importance to keep the sealing system inside the penetration. In contrast to the regular RISE® system only a limited expansion of the rubber will take place. No material will fall off during fire exposure at the unexposed side. The NOFIRNO® sealant will follow any deformation of the division.

The thermal insulation of the transit is maintained and no excessive temperatures will arise on the NOFIRNO® rubber/sealant. Furthermore no smoke emission will occur, also limiting any ignition possibilities at the unexposed side.



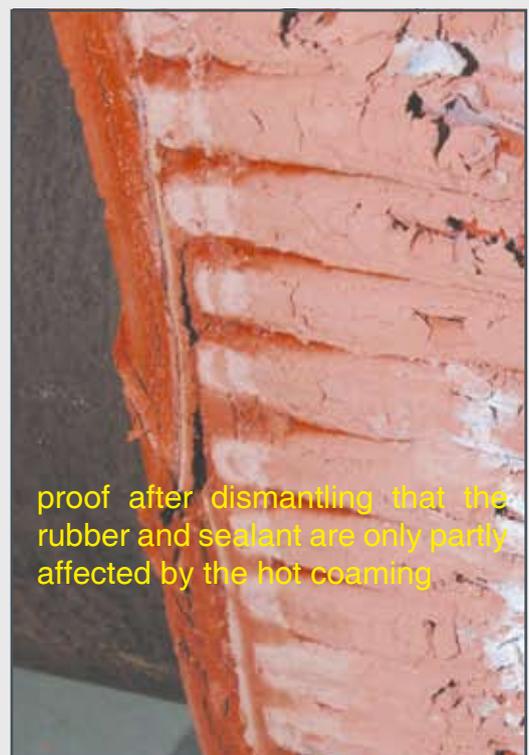
# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

*RISE<sup>®</sup>/NOFIRNO<sup>®</sup> pipe penetrations:  
based on high-tech NOFIRNO<sup>®</sup> technology*

The NOFIRNO<sup>®</sup> rubber has excellent properties regarding exposure to fire and excessive temperatures. Specially for A-0 class divisions this is an advantage because the sealing system will be exposed to hot metal parts all around; the steel division, the coaming/conduit sleeve and the ducted metallic pipe will all get extremely hot up to red glowing. The picture below left shows the red glowing bulkhead and coaming.

At the end of the one hour fire test, temperatures measured on the coaming were over 420 °C, and at a distance 25 mm away from the sealing system over 350 °C on the ducted steel pipe. Another unique property of the RISE<sup>®</sup>/NOFIRNO<sup>®</sup> system is its very high thermal insulation value. On the surface of the sealing system 23 mm away from the coaming and 23 mm away from the ducted steel pipe the temperature had only risen about 160 °C.

The picture below right shows the non-consumable feature of the rubber.



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

*RISE<sup>®</sup>/NOFIRNO<sup>®</sup> pipe penetrations:  
based on high-tech NOFIRNO<sup>®</sup> technology*

It will be obvious that the RISE<sup>®</sup>/NOFIRNO<sup>®</sup> sealing system, once so successfully tested for A-0 divisions, is also most suitable for A-60 penetrations.

First of all the fire test in an A-0 division has shown that the surface of the sealing system does not exceed the thermal insulation requirements of the A-60 criteria according IMO Resolution A.754(18).

Secondly it has been proven that the NOFIRNO<sup>®</sup> rubber will not be consumed by fire exposure. This phenomenon has also been shown with the fire tests on the SLIPSIL<sup>®</sup> plugs.

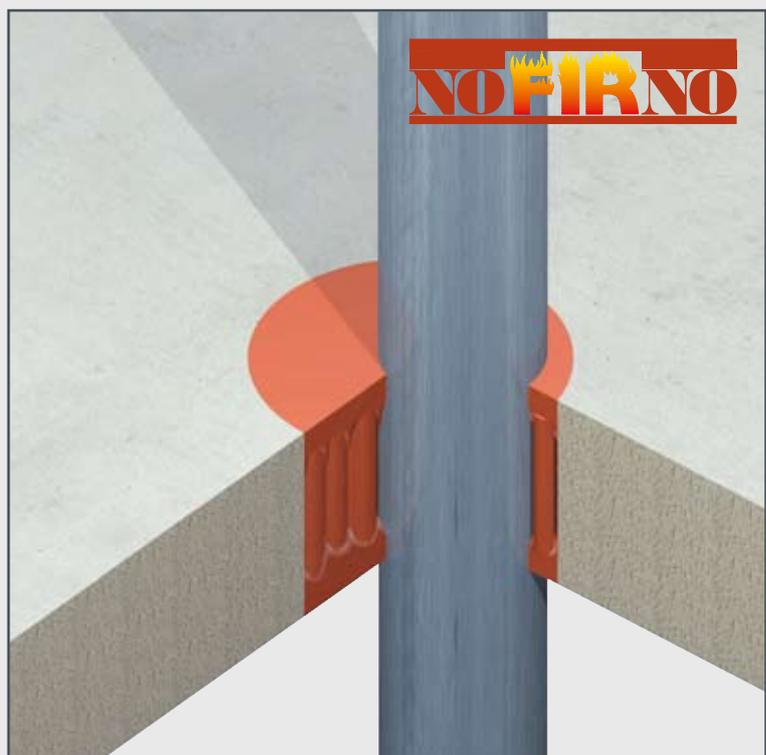
So, in fact it is only a matter of sufficient insulation of the conduit sleeve and the ducted pipe to fulfill E/EI classification.

Based on the achievements with the RISE/NOFIRNO<sup>®</sup> sealing system for A-0, it has been possible to reduce the conduit depth even to 150 mm. Officially tested according to EN1366-3:2004 and classified according to EN 13501-2:2003.



The properties of the RISE<sup>®</sup>/NOFIRNO<sup>®</sup> sealing system have been optimized:

- 1) the NOFIRNO<sup>®</sup> rubber shows minimum permanent deformation and optimizes mechanical stability on long term.
- 2) the NOFIRNO<sup>®</sup> rubber can be exposed to high temperatures (up to 180 °C), making the RISE/NOFIRNO<sup>®</sup> sealing system suitable for steam lines.
- 3) the NOFIRNO<sup>®</sup> sealant/rubber has improved fire stopping properties:
  - a) creates immediately a protective layer at the fire side
  - b) will not be consumed under fire exposure
  - c) prevents smoke emission
- 4) higher thermal insulation values under fire load with the RISE/NOFIRNO<sup>®</sup> system
- 5) shorter conduit depths with the RISE<sup>®</sup>/NOFIRNO<sup>®</sup> system
- 6) approved for A-0 class without the use of any insulation.



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

*RISE<sup>®</sup>/NOFIRNO<sup>®</sup> pipe penetrations:  
based on high-tech NOFIRNO<sup>®</sup> technology*

For manufacturing NOFIRNO<sup>®</sup> sleeves and sealant use is made of a high quality polymer. NOFIRNO<sup>®</sup> rubber has excellent weathering properties, UV and ozone resistance and long term behaviour. Service life of the sleeves and sealant easily exceeds 20 years under normal environmental conditions.

The sleeves and sealant can be used in a very wide temperature range. Even at low temperatures down to -50° C the rubber stays flexible and does not harden excessively as other rubber types will do. This guarantees tightness even at low temperatures. The rubber can also be used in applications up to +180° C.

A single rubber grade is now capable of satisfying almost all sealing conditions. Sealing systems are safety devices. Only highest quality can do the job, not only when newly installed but also after a long service life.

With NOFIRNO<sup>®</sup> this safety is guaranteed for a very long time!



The NOFIRNO<sup>®</sup> rubber grade, which is compounded under strict conditions in our factory, is suitable for gas and water tight ducting and for fire rated applications as well. We have been involved with fire resistant rubbers for decades. The drawbacks of certain fire resistant types are halogen content, hardness of the highly filled rubbers, hardening during lifetime, and high permanent deformation sets. All these features will have an impact on performance in the long run.

NOFIRNO<sup>®</sup> rubber does not have the above drawbacks.

The processing conditions for optimized compounding in our factory assure highest performance of the rubber.

NOFIRNO<sup>®</sup> rubber is traceable to prevent counterfeiting and to guarantee users that they get the quality they are paying for.

From the way of surface charring and the rubber residues inside the product, it can easily be determined whether or not NOFIRNO<sup>®</sup> has been used.



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

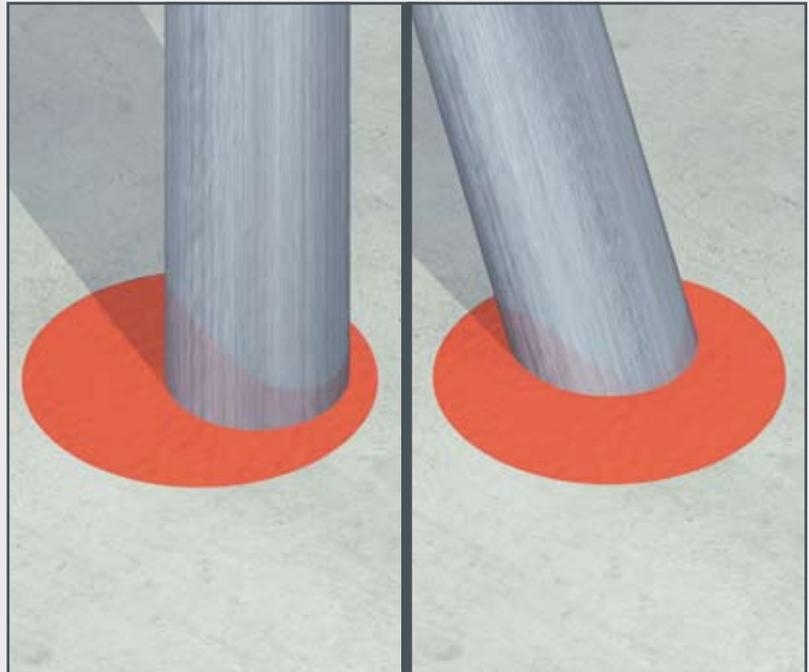
*RISE<sup>®</sup>/NOFIRNO<sup>®</sup> pipe penetrations:  
based on high-tech NOFIRNO<sup>®</sup> technology*

The RISE/NOFIRNO<sup>®</sup> pipe sealing system is a most adaptive system for sealing eccentrically and angled pipe penetrations in fire-rated/watertight walls and floors. Use is made of non-split, hollow NOFIRNO<sup>®</sup> filler sleeves type 18/12 and 27/19 made of high-tech NOFIRNO<sup>®</sup> rubber to fill the space around the ducted pipe inside the penetration.

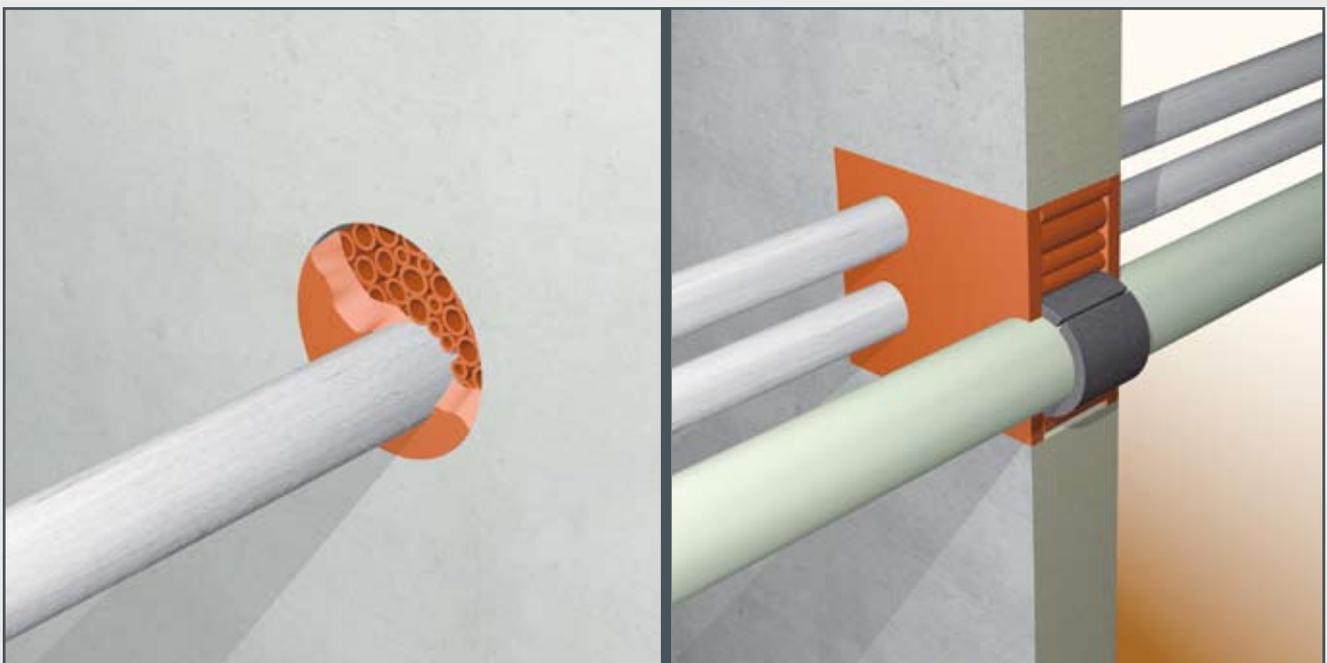
In case of plastic pipes a RISE<sup>®</sup>/ULTRA crusher is placed around the ducted pipe and the remaining space is filled with NOFIRNO<sup>®</sup> filler sleeves. The RISE<sup>®</sup>/ULTRA crusher expands when exposed to heat/flames and will then crush the softened plastic pipe.

On both sides of the penetration a layer of NOFIRNO<sup>®</sup> sealant is applied.

***Only halogen free, non-intumescent, non-ageing components with a low smoke index.***



*RISE<sup>®</sup>/NOFIRNO<sup>®</sup> pipe penetrations:  
ultimate flexibility, maintenance friendly*



# **RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM**

***RISE®/NOFIRNO® pipe penetrations:  
based on high-tech NOFIRNO® technology***

**SYSTEM WILL NOT BE CONSUMED WHEN EXPOSED TO FIRE**

**ALL COMPONENTS ARE TOTALLY HALOGEN FREE**

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

**EC (MED) AND TYPE APPROVAL CERTIFICATES ISSUED**

**SUCCESSFULLY TESTED ACCORDING TO EN 1366-3**

**NO METAL PARTS, NO CORROSION**

**HIGH LEVEL OF EMC AND SOUND DAMPING**

**SHOCK AND VIBRATION PROOF**

**LONG LASTING FLEXIBLE SYSTEM:**

**NO MECHANICAL STRESSES TRANSFERRED TO THE DIVISION**

**UP TO 50 YEARS SERVICE LIFE**

**TEMPERATURE CHANGES ARE EASILY ABSORBED**

**CAN BE USED IN ARCTIC CONDITIONS**

**WEATHERING, UV AND OZONE RESISTANT**

**PROVIDES CATHODIC PROTECTION**

**ALLOWS LONGITUDINAL/RADIAL MOVEMENT**

**FOR METALLIC, PLASTIC AND GRP PIPES**

**APPROVED FOR MULTI-MIX PIPE PENETRATIONS**

**MOST EASY TO INSTALL: REDUCES LABOUR COSTS**

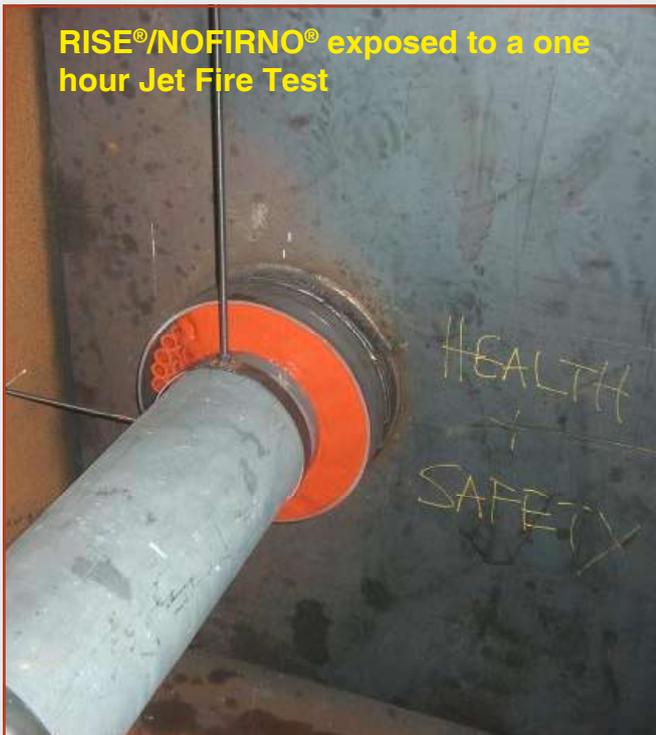
**NO INSULATION REQUIRED FOR NON-INSULATED DIVISIONS**

**SHORTEST POSSIBLE CONDUIT LENGTH**

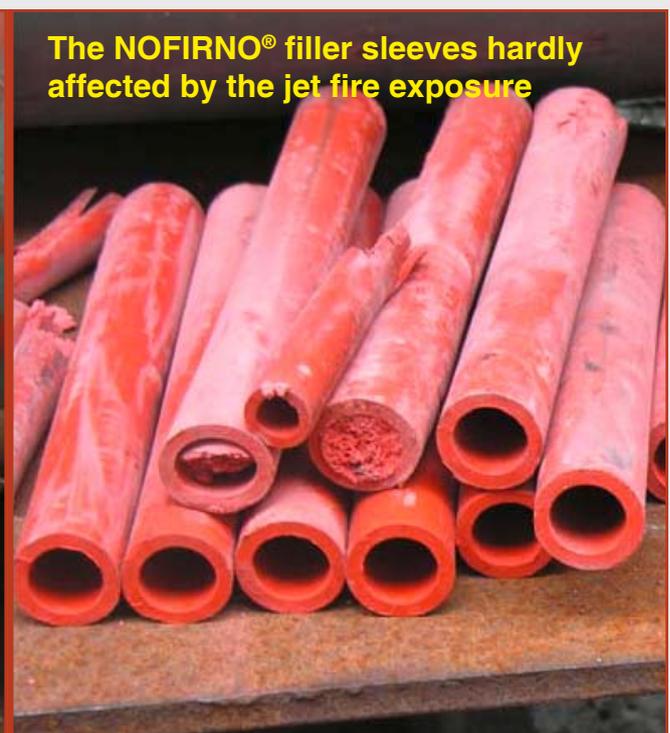
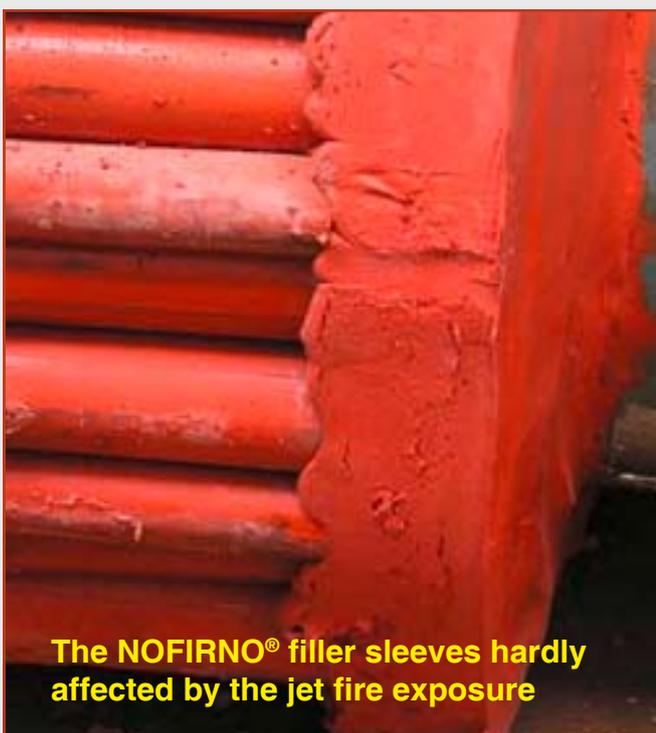
**APPROVED FOR CONCRETE, STEEL AND ALUMINIUM PARTITIONS**

**MAINTENANCE FRIENDLY**

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM



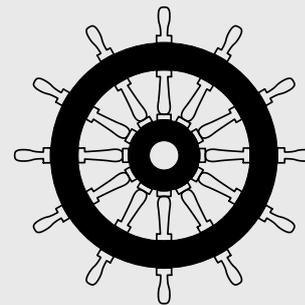
An indicative Jet Fire Test to support Health and Safety Laboratories to test out the new Jet Fire Test procedures they are currently writing for HSE. After exposure for 1 hour the performance of RISE<sup>®</sup>/NOFIRNO<sup>®</sup> is almost identical to that in the A-0 fire tests according to IMO Resolution A.754(18). The NOFIRNO<sup>®</sup> rubber is hardly affected.



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM



EC (MED) certificates according to EUROPEAN UNION COUNCIL DIRECTIVE 96/98 EC on MARINE EQUIPMENT have been issued by Det Norske Veritas certificates N° MED-B-4906 for RISE/ULTRA, N° MED-B-4908 for RISE/NOFIRNO multi-pipe and multi-all-mix penetrations and N° MED-B-4941 for SLIPSIL plugs and by Bureau Veritas certificates N° 09156/B2 EC for RISE, RISE/NOFIRNO and RIACNOF multi-cable penetrations and extended multi-cable penetrations, N° 11301/B0 EC for RISE-EMC multi-cable penetrations, N° 11302/A2 EC for RISE busbar penetrations and certificates N° 10035/B0 EC and N° 10710/B1 EC for RISE single and multi-pipe penetrations for metallic and plastic pipes.



AMERICAN BUREAU of SHIPPING . . . *CERTIFIED*  
BUREAU VERITAS  
CHINA CLASSIFICATION SOCIETY  
CHINA CORPORATION REGISTER of SHIPPING  
DET NORSKE VERITAS . . . . . *CERTIFIED*  
GERMANISCHER Lloyd  
KOREAN REGISTER of SHIPPING  
Lloyd's REGISTER of SHIPPING  
Nippon Kaiyokai  
RUSSIAN MARITIME REGISTER of SHIPPING  
TRANSPORT CANADA via DNV CERTIFICATES  
USCG via MED CERTIFICATES

**APPLIED FOR**



**CERTIFIED BY  
THE MAJOR  
CLASSIFICATION  
SOCIETIES**

*Note: configurations may differ per classification society.*

# RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM

*only two different components for a  
NOFIRNO® pipe transit: sleeves and sealant*



sleeve type	sleeve length (standard)	sleeve length (standard)	sleeve length (standard)	wall thickness
18/12*	110	140	160	3
27/19*	110	140	160	4

\* filler sleeves are supplied non-split for ease of filling dimensions in mm



*NOFIRNO rubber is absolutely HALOGEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3).*

*Furthermore NOFIRNO rubber has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996).*

## *RISE®/NOFIRNO® pipe penetrations: non-toxic, halogen free components*

Our most superior rubber grade, which is suitable for fire rated applications as well, has been selected for NOFIRNO® sleeves.

For decades we have been involved with fire resistant rubbers. The drawbacks of certain fire resistant types are halogen content, hardness of the highly filled rubbers, hardening during lifetime and high permanent deformation sets. All these features will have an impact on performance in the long run. NOFIRNO® rubber does not have the above drawbacks.

NOFIRNO® rubber is traceable to prevent counterfeiting and to guarantee users that they get the CSD quality they are paying for.



**RISE®/NOFIRNO® filler sleeves are made of NOFIRNO® rubber which will not be consumed in fire conditions. From the way of surface charring and the rubber residues inside the product, it can easily be determined whether or not NOFIRNO® has been used.**

# RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM

*only two different components for a  
NOFIRNO® pipe transit: sleeves and sealant*



NOFIRNO® is a fire-resistant sealant based on a single component silicone compound.

**NOFIRNO® is also water-repellent**

**High bonding strength**

**UV and Ozone resistant**

The numerous fire tests we have carried out with NOFIRNO® sealant has shown that the sealant is able to withstand fire and thermal loads without showing any dramatic colour change or carbonization at the unexposed side. At the exposed side the sealant will NOT be consumed by the fire due to the protective layer and char formed. This means that the sealant will stay in place there.

NOFIRNO® sealant is halogen free, has outstanding weathering properties, does not shrink during fire exposure, has an oxygen index of 45% (>30% is flame retardant), a low smoke index and is non-toxic.

The cured sealant layer maintains its original hardness during service life. NOFIRNO® sealant can be used in a very wide temperature range.

*optimum combination of viscosity, flow and  
bonding capacity of NOFIRNO® sealant*

## PRODUCT INFORMATION

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



*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.*

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

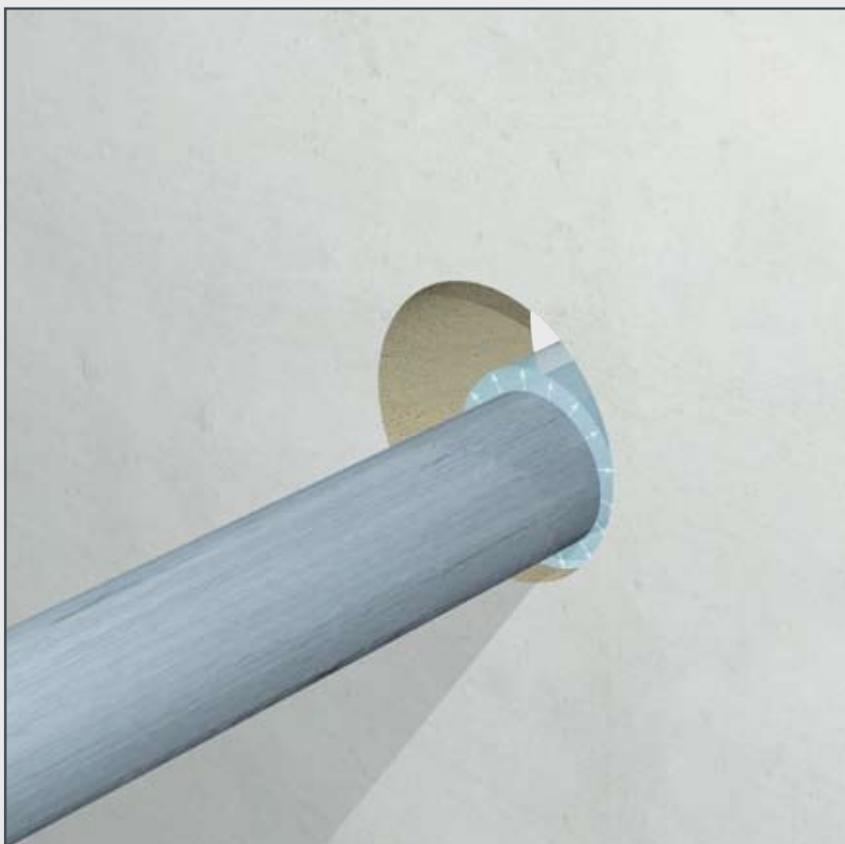
1) The metallic pipe can be passed through the conduit opening in any position, provided there is enough space between the wall of the conduit opening and the ducted pipe (see 2). The conduit opening should be minimum 150 mm deep for EI90/E120 ratings.



*Quality System Approval  
SMS.W.I.CE.D/2357/A.0 and ISO  
9001:2001 Certificate NL7001684  
issued by Bureau Veritas*



2) Make sure that the minimum space between the pipe and the wall of the conduit opening is in accordance with the minimum allowed distance as certified.

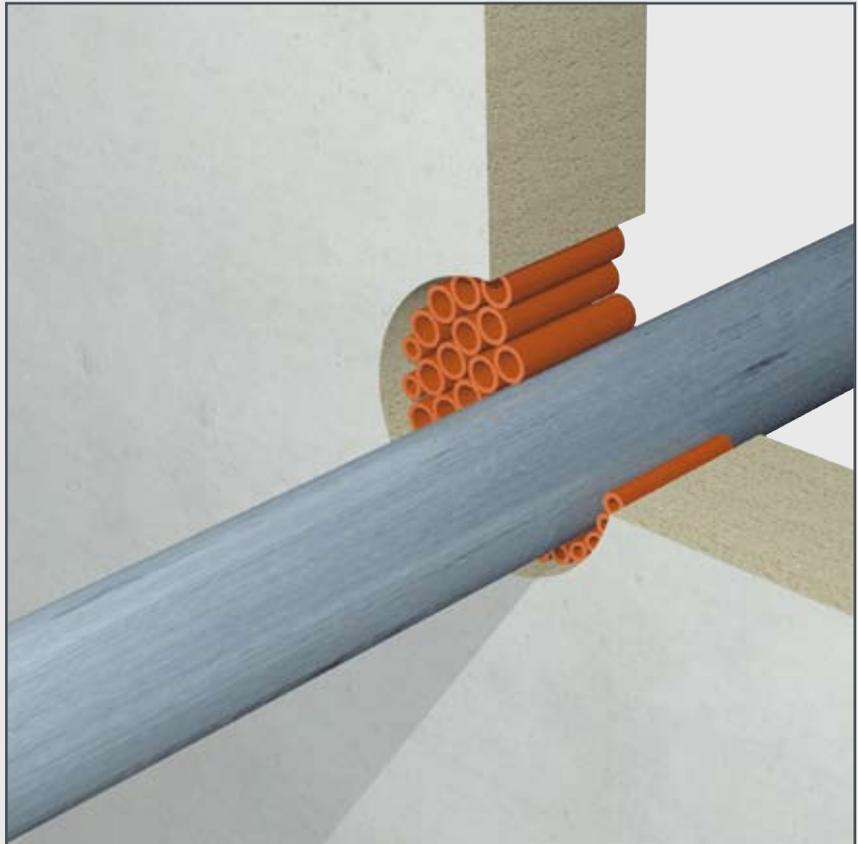


# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

3) The free space in the conduit is filled with RISE<sup>®</sup>/NOFIRNO<sup>®</sup> filler sleeves type 27/19 and 18/12.

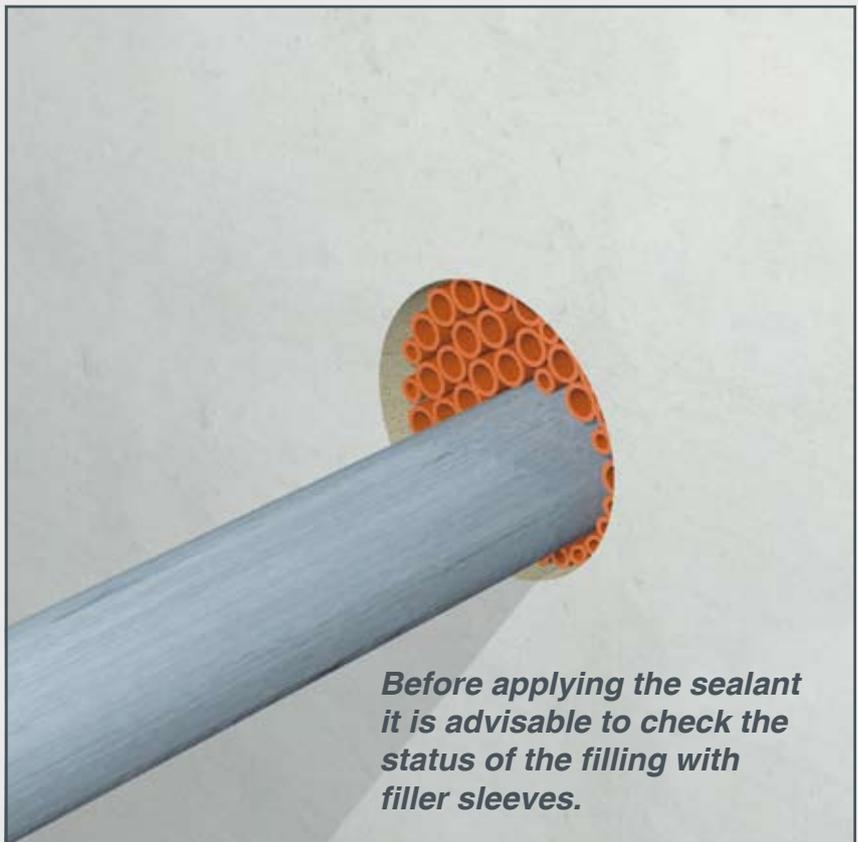
For ease of filling the RISE<sup>®</sup>/NOFIRNO<sup>®</sup> filler sleeves are delivered non-split.

The ratio 27/19 to 18/12 should be about 2:1.



4) Push the insert/filler sleeves into the conduit in such a way as to leave about 20 mm free space at the front.

The whole set of filler sleeves should tightly fit into the conduit to offer sufficient mechanical stability.



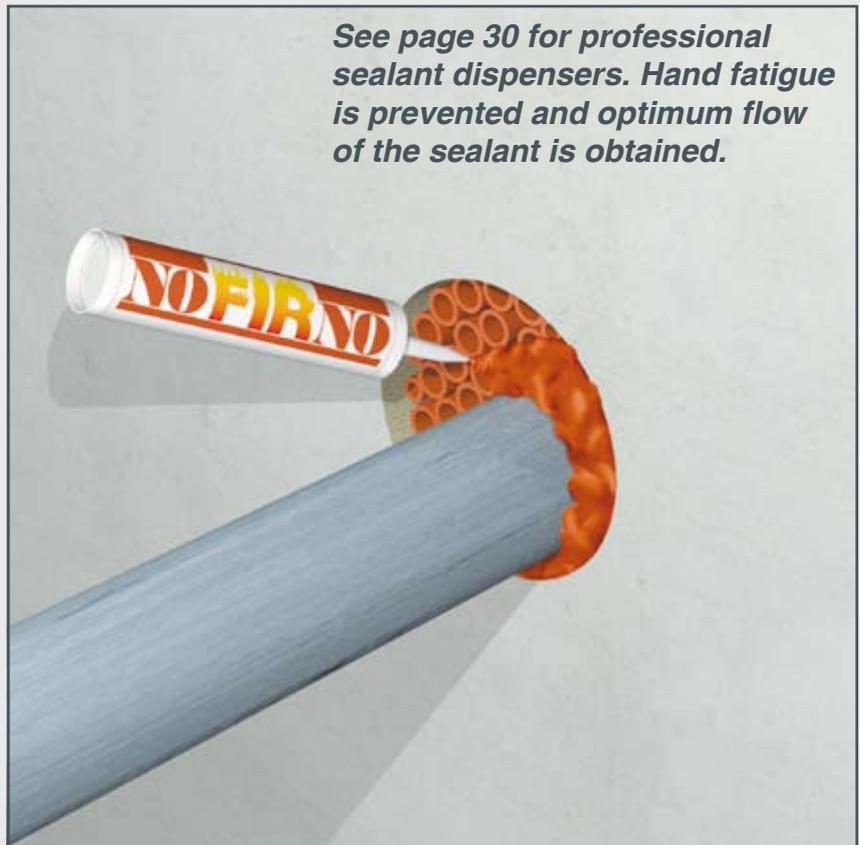
*Before applying the sealant it is advisable to check the status of the filling with filler sleeves.*



# RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM

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

*See page 30 for professional sealant dispensers. Hand fatigue is prevented and optimum flow of the sealant is obtained.*



6) 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.



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

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

**NOFIRNO**



**CSA**

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

**NOFIRNO**

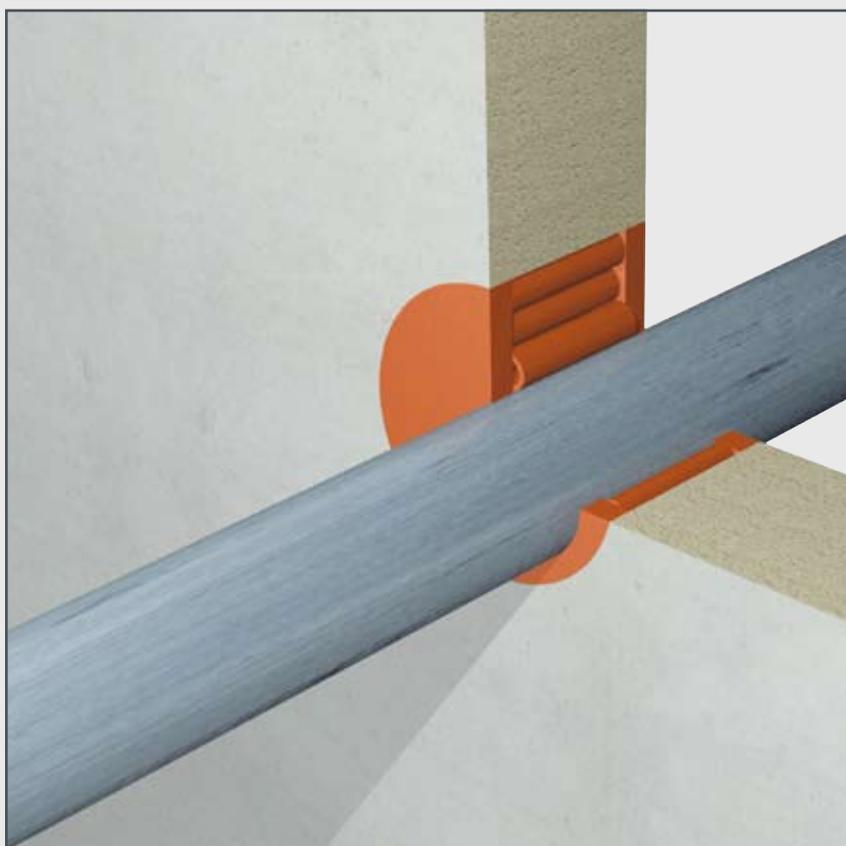


# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

9) The surface can further be smoothed by hand. Just wet the hand thoroughly with soap and water. No dirty hands when working with NOFIRNO<sup>®</sup>. People with sensitive skin should use gloves when working with NOFIRNO<sup>®</sup>.



10) Successfully tested for >120 minutes (E120) fire integrity according to EN 1366-3:2004. For EI classification (fire integrity plus thermal insulation), the larger metallic pipes have to be insulated.

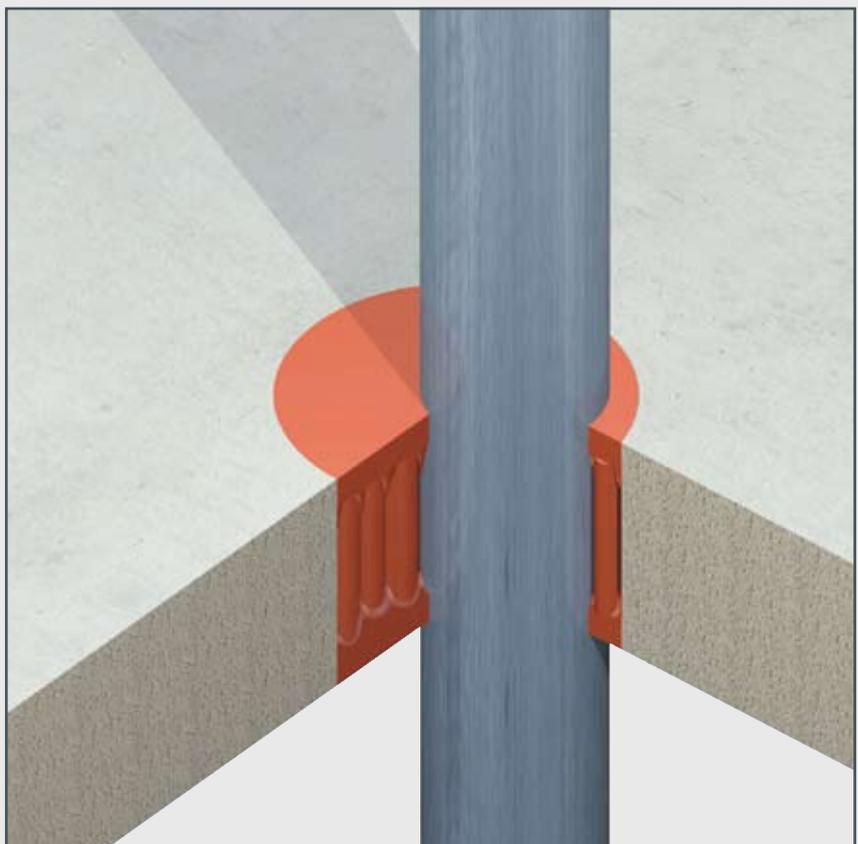


# RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM

11) Vertical transits are easy to install as well. To prevent the filler sleeves from falling out of the larger conduit openings during installation, they can be bundled with a tie-wrap.



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



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

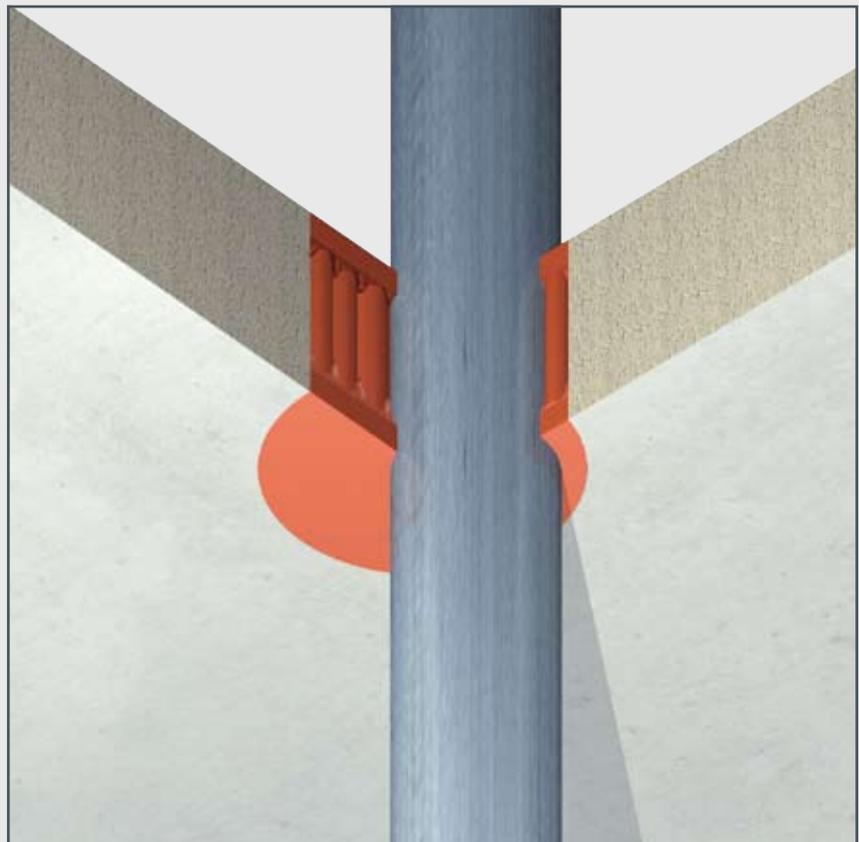
13) The optimized viscosity and the superb adhesion properties of the NOFIRNO<sup>®</sup> sealant make applying the sealant overhead an easy matter. NOFIRNO<sup>®</sup> sealant does not sag and will not drip off.



**NOFIRNO**

**CSA**

14) Successfully tested for >120 minutes (E120) fire integrity according to EN 1366-3:2004. For EI (fire integrity plus thermal insulation) classification, the larger metallic pipes have to be insulated.



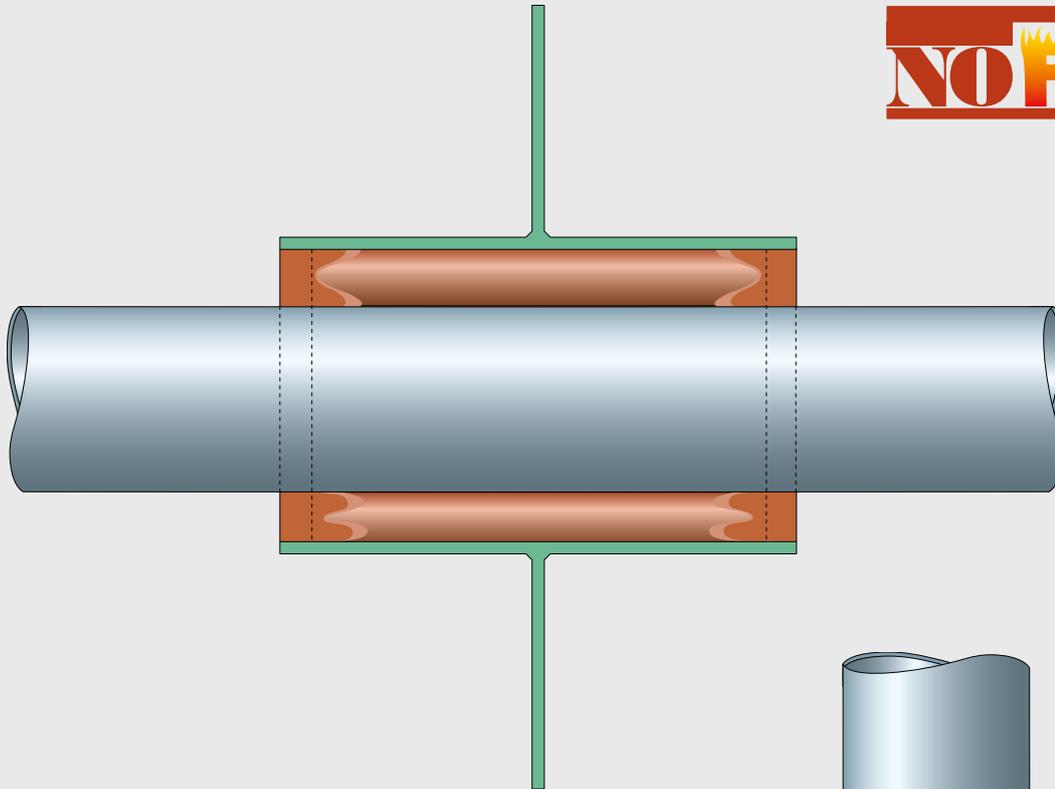
**NOFIRNO**

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM

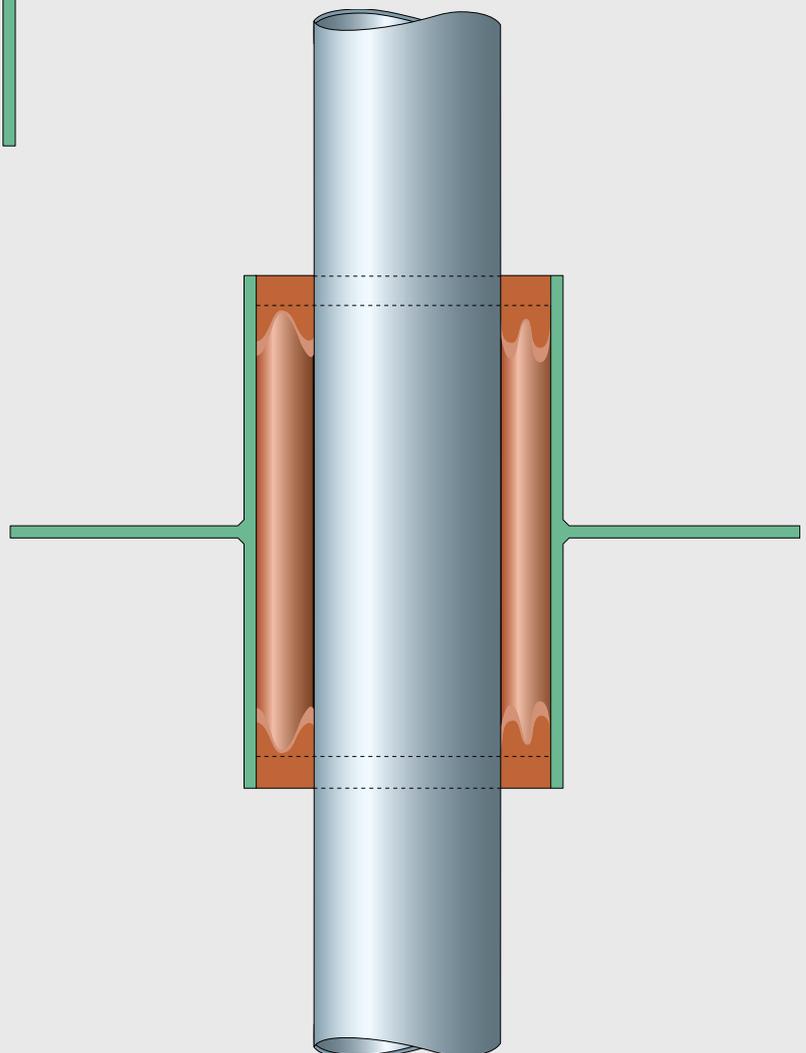
The RISE<sup>®</sup>/NOFIRNO<sup>®</sup> sealing system has been specially developed for most severe fire conditions as for instance non-insulated steel divisions. Non-consumable rubber, no smoke emission during fire exposure and high thermal insulation values guarantee optimum fire safety in harshest fire environment.



**NOFIRNO**



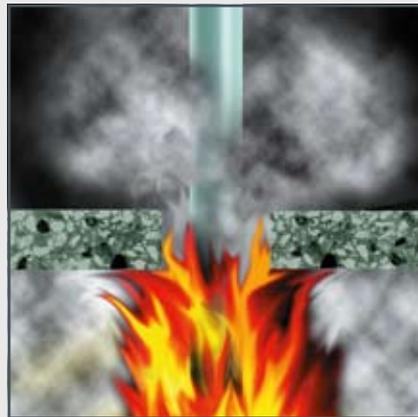
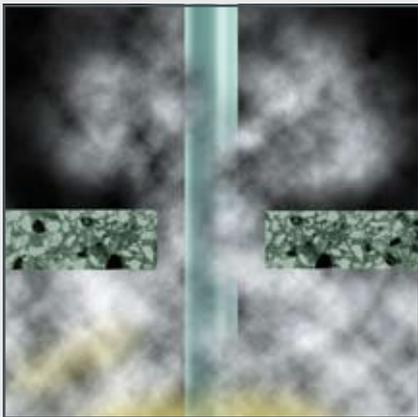
For A-0 class RISE<sup>®</sup>/NO-FIRNO<sup>®</sup> penetrations, the conduit length is 250 mm (instead of 180 mm). The conduit sleeves have to be welded in symmetrically to cope with the extreme heat of the red glowing partition. Approved for steel/stainless steel (408 mm OD), Cu/CuNi (420 mm OD) and GRP (222 mm OD) pipes. NOFIRNO<sup>®</sup>: high-tech in fire safety.



**NOFIRNO**

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

*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 meet this problem, BEELE Engineering has developed the CRUSHER<sup>®</sup> technology.*



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

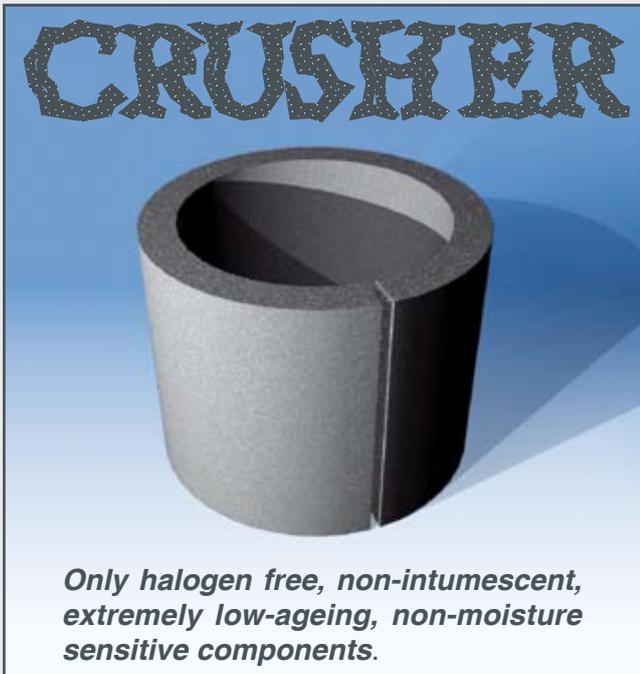


openings ACTIFOAM<sup>®</sup> fillers can be used and for multi-penetrations use is made of or NO-FIRNO<sup>®</sup> filler sleeves and sealant. Based on the properties of the RISE<sup>®</sup>/ULTRA rubber, ultimately a hard solid rubber mass adhering to the wall of the conduit and the remaining part 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<sup>®</sup>/ULTRA crushers have also been tested according to EN1366-3:2004 for a fire rating of two hours and lately in-house for a four hour fire rating.

# CRUSHER<sup>®</sup>

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

*RISE<sup>®</sup>/NOFIRNO<sup>®</sup> combined with RISE<sup>®</sup>/ULTRA  
for plastic pipe and multi-all-mix transits*



pipe OD	crusher type	wall thickness	crusher lengths	conduit opening
16	24/16	4	140	25-30
18	24/18	3	140	25-30
20	28/20	4	140	28-34
25	33/25	4	140	33-40
32	40/32	4	140	40-48
40	48/40	4	140	49-55
50	58/50	4	140	60-66
63	75/63	6	140	75-83
75	90/75	7.5	140	90-100
90	105/90	7.5	140	105-115
110	138/110	14	140	139-160
125	160/125	17.5	140	160-180
140	180/140	20	140	180-200
160	200/160	20	140	200-220

*Note: 140 mm length only in combination with 20 mm NOFIRNO<sup>®</sup> sealant at both sides.*

*For more information we refer to the RISE<sup>®</sup>/ULTRA brochure.*

*RISE<sup>®</sup> insert sleeves to be used for the ducted cables in the multi-all-mix transit*

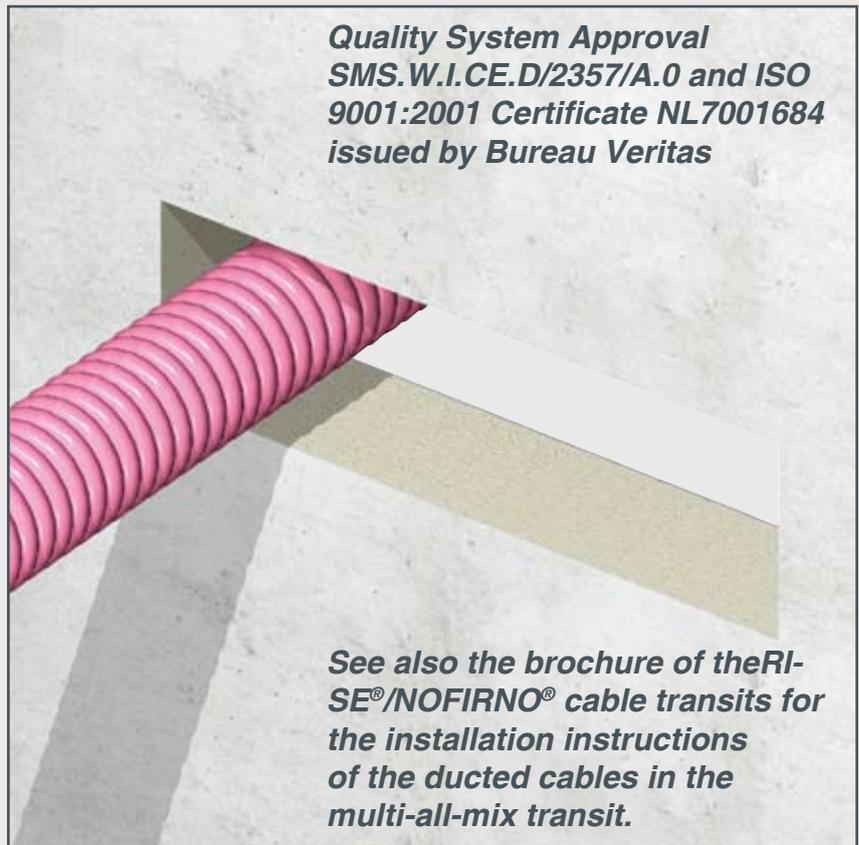


sleeve type	cable diameter	sleeve length (A-class)	sleeve length (H-class)	wall thickness
12/6	5 - 7	160	210	3
14/8	7 - 9	160	210	3
16/10	9 - 11	160	210	3
18/12	11 - 13	160	210	3
20/14	13 - 15	160	210	3
22/16	15 - 17	160	210	3
27/19	17 - 21	160	210	4
31/23	21 - 25	160	210	4
35/27	25 - 29	160	210	4
39/31	29 - 33	160	210	4
46/36	33 - 39	160	210	5
52/42	39 - 45	160	210	5
58/48	45 - 51	160	210	5
64/54	51 - 57	160	210	5
70/60	57 - 63	160	210	5

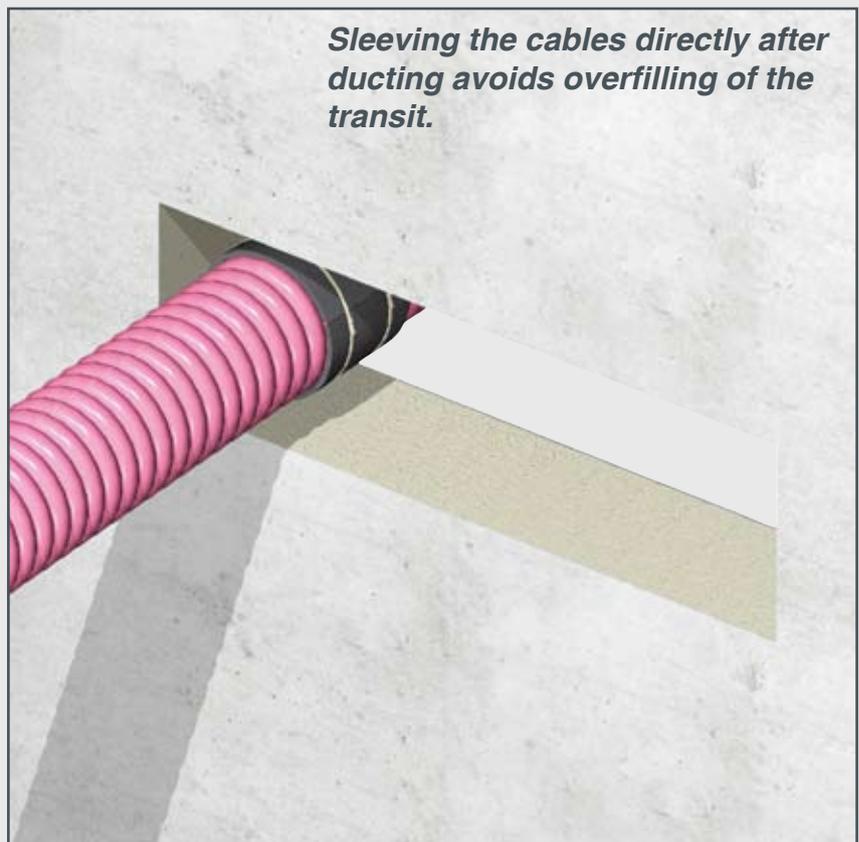
*For more information we refer to the RISE<sup>®</sup> brochure.*

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

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

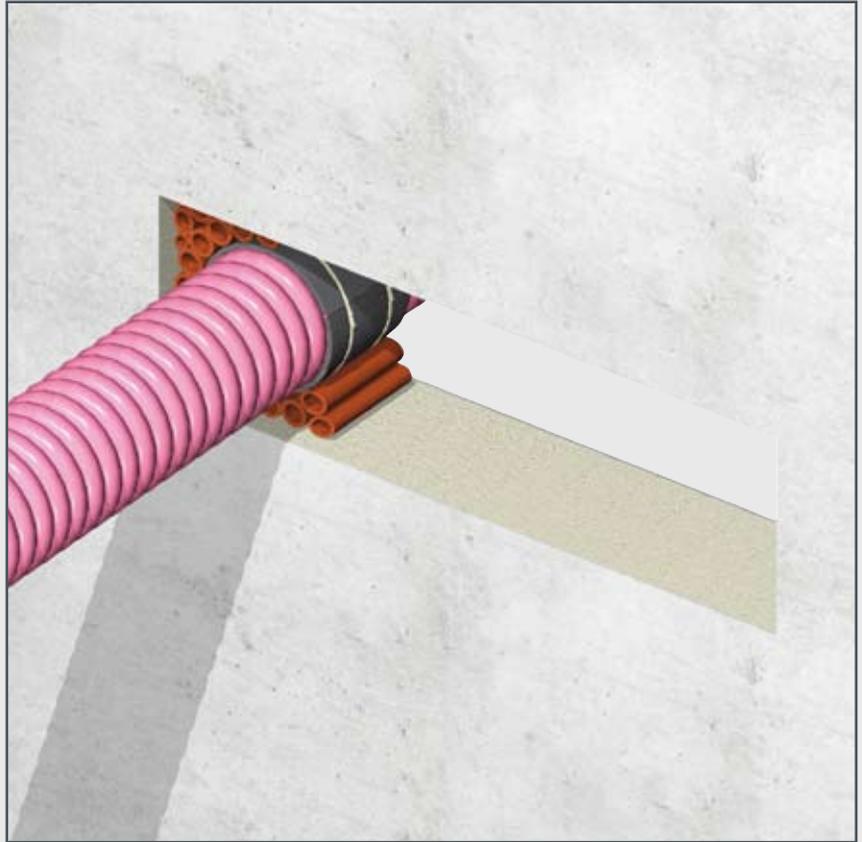


2) The RISE<sup>®</sup> insert sleeves are split length-wise and can therefore be fitted around the cables in front of the conduit.  
For cable sizes > 64 mm a RISE<sup>®</sup> wrap with thickness 5 mm is applied.  
The wraps can be fixed with a tie-wrap.

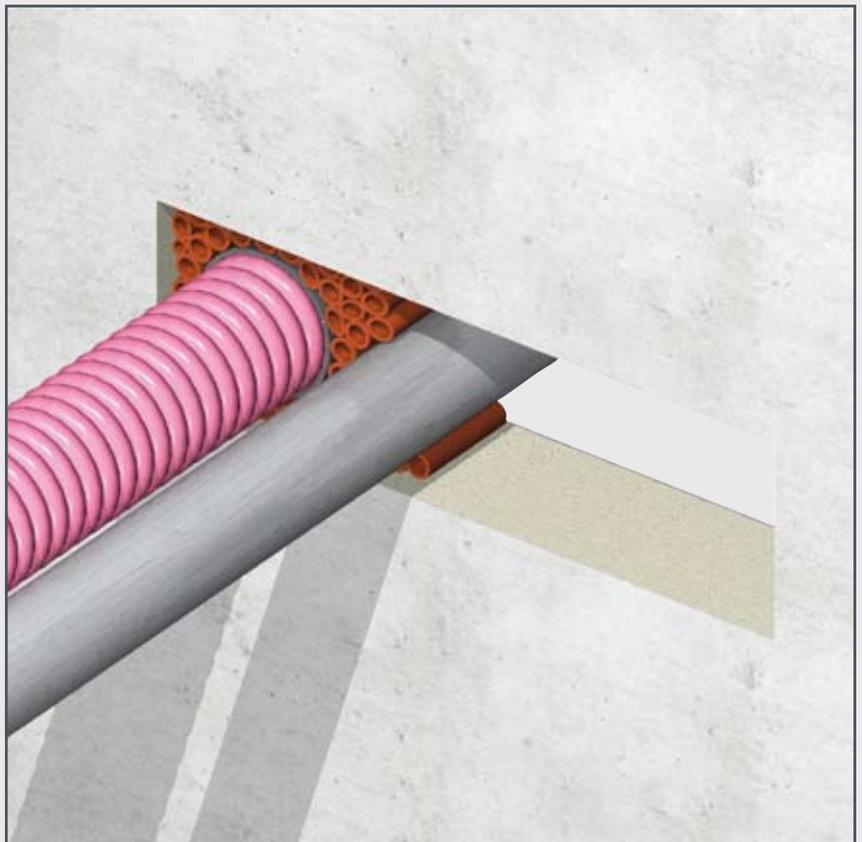


# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

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

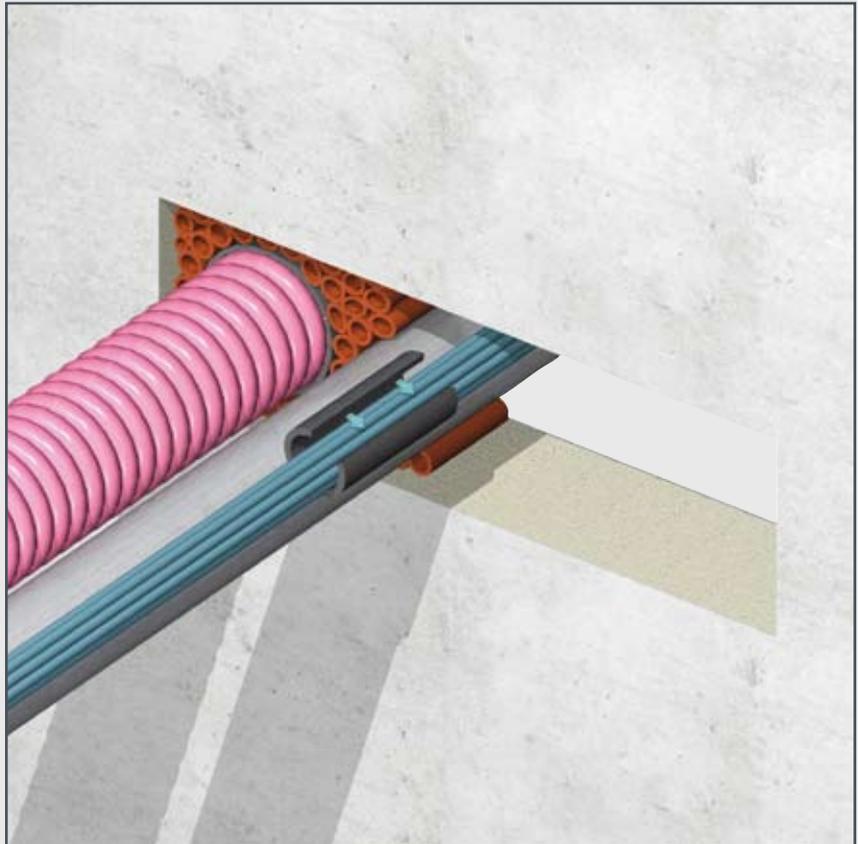
The logo for RISE, featuring the word "RISE" in a stylized, bold, sans-serif font. The letters are white with a red-to-black gradient and a 3D effect.The logo for NOFIRNO, featuring the word "NOFIRNO" in a bold, sans-serif font. The letters are white with a red-to-black gradient and a 3D effect. The letter "O" is replaced by a stylized flame icon.

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

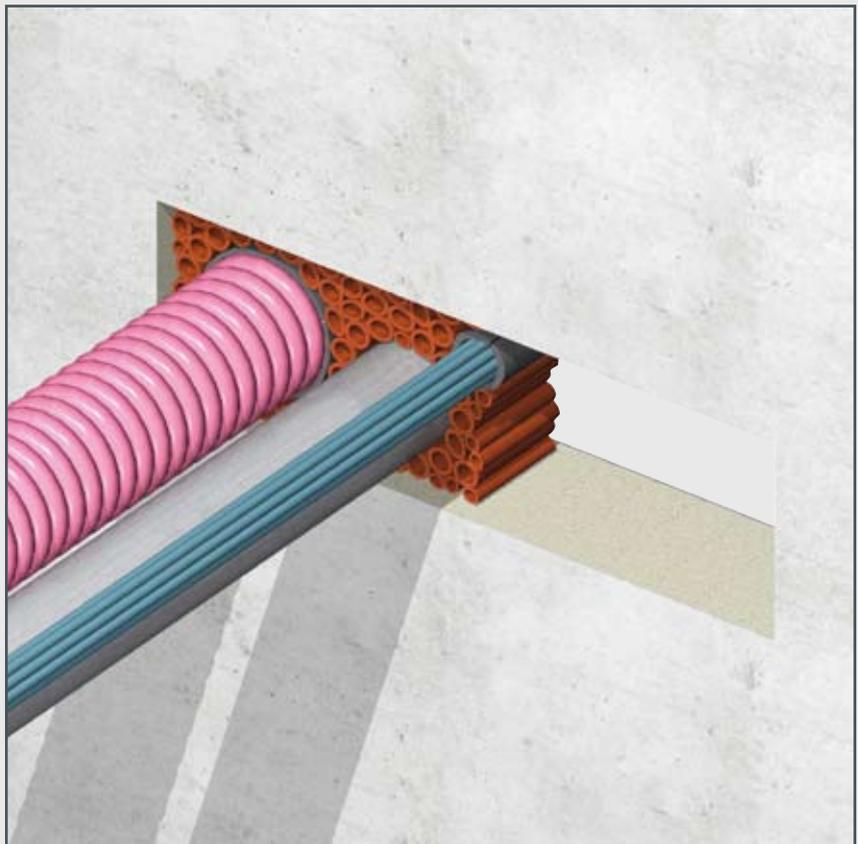
The logo for RISE, featuring the word "RISE" in a stylized, bold, sans-serif font. The letters are white with a red-to-black gradient and a 3D effect.

# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

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

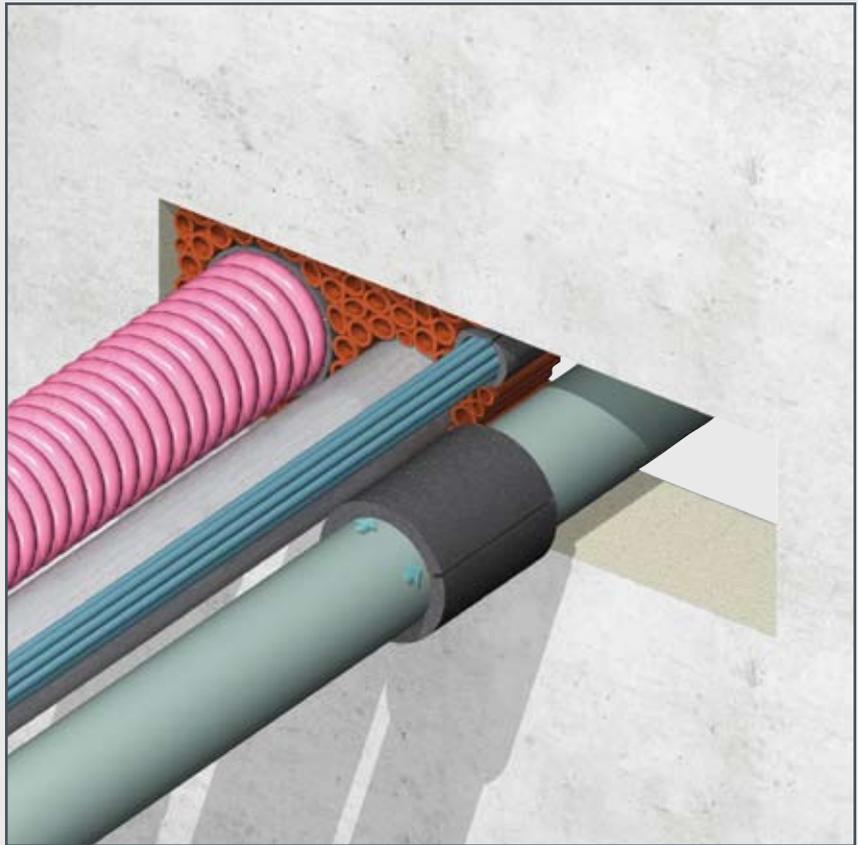


6) Open spaces in the conduit can be directly afterwards filled with NOFIRNO<sup>®</sup> filler sleeves type 27/19 and 18/12. The ratio 27/19 to 18/12 should be about 2:1.

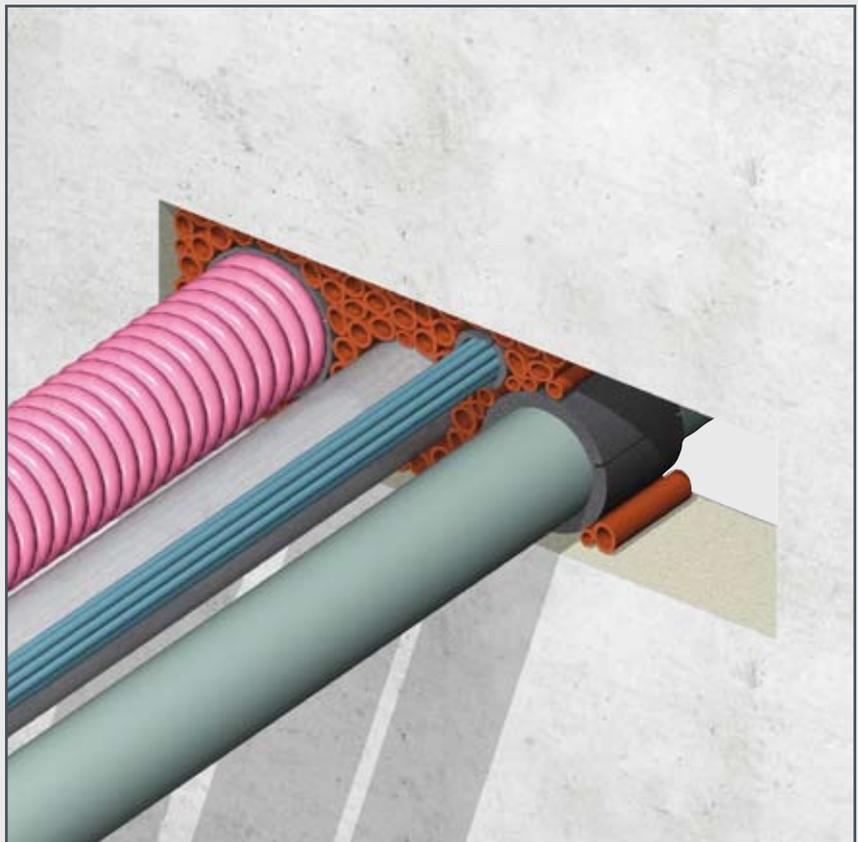


# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

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

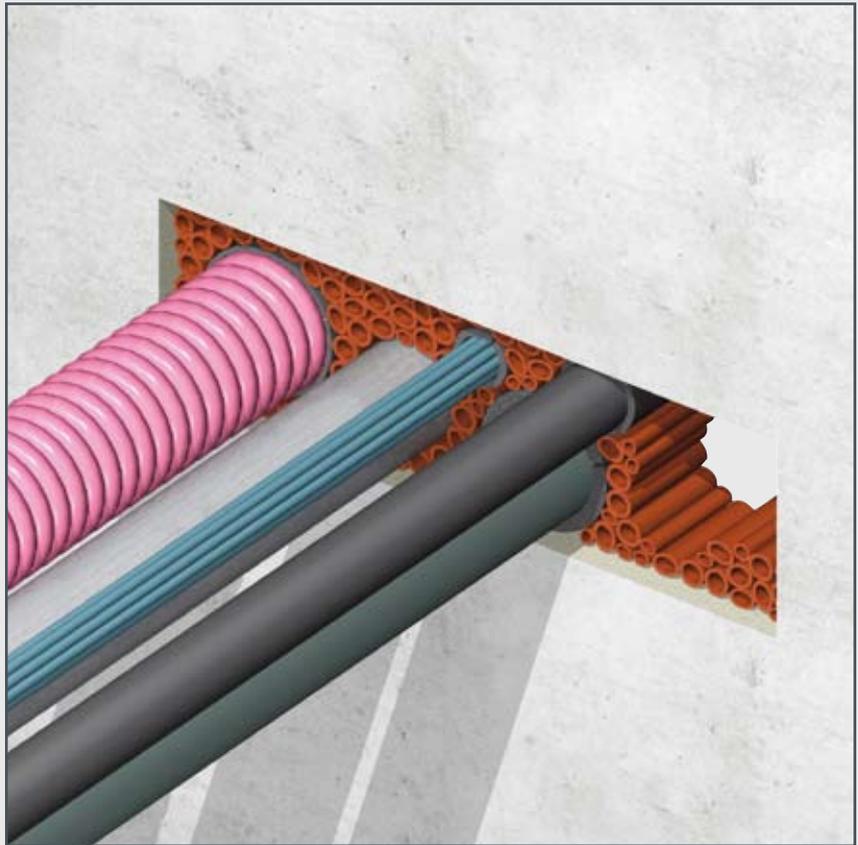


8) Push the insert/filler sleeves and the crusher into the conduit in such a way as to leave about 20 mm free space at both sides of the transit. This space is needed to apply in a later stage the NOFIRNO<sup>®</sup> sealant.

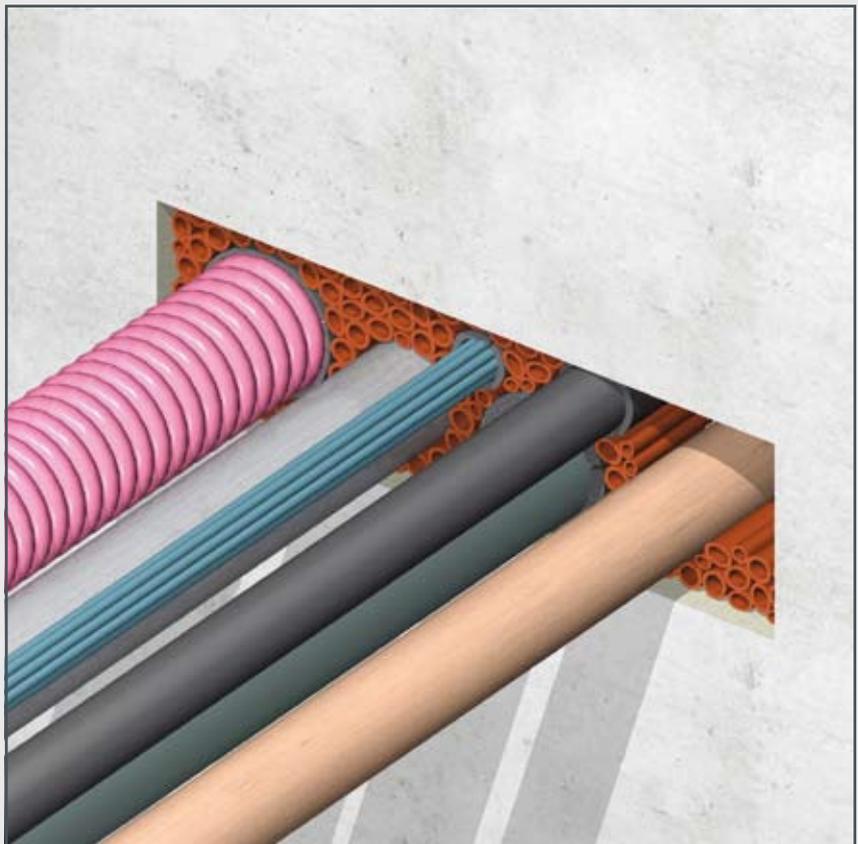


# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

9) The system allows also for insulated chilled water lines without interrupting the insulation and multi-beverage lines. A RISE<sup>®</sup>/ULTRA crusher or wrap is placed around the insulation and inserted into the penetration.

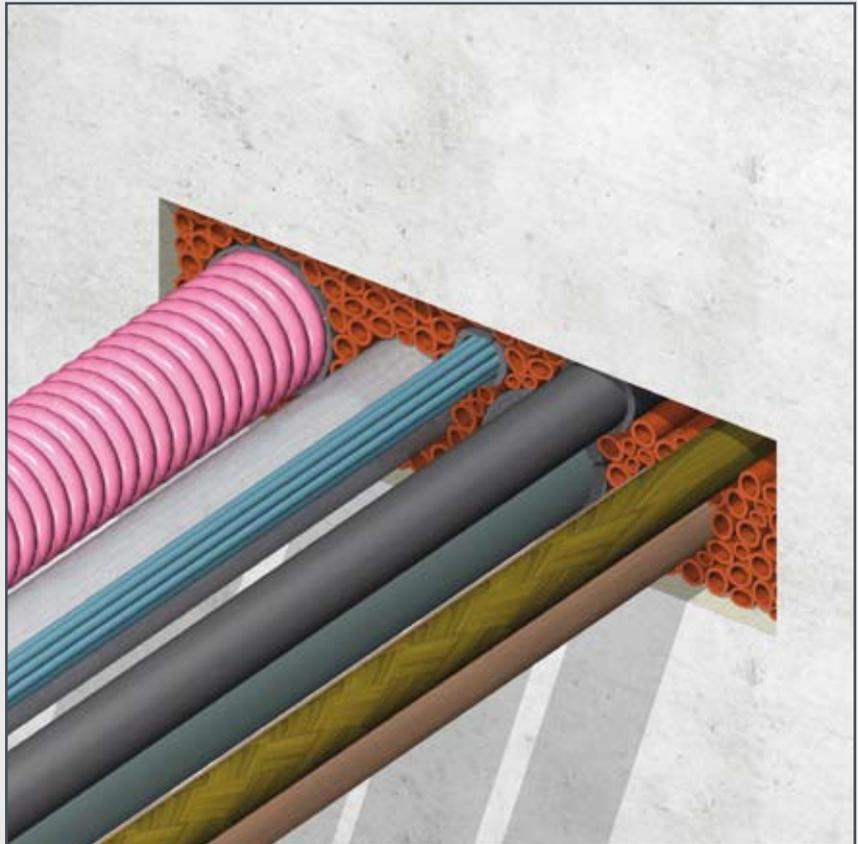


10) Copper/CuNi pipes can also be ducted through the multi-all-mix penetration. Separation of the metallic pipes is provided by RISE<sup>®</sup>/NOFIRNO filler sleeves all around the ducted pipe(s). See the approved drawings for minimum inter-spacing.



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> + RISE<sup>®</sup>/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

11) Also GRP pipes are allowed. Separation of the GRP pipes is provided by NOFIRNO<sup>®</sup> filler sleeves all around the ducted pipe(s).



12) The remaining open spaces in the transit are filled with NOFIRNO<sup>®</sup> filler sleeves.

The whole set of crushers, insert and filler sleeves should tightly fit into the conduit to offer sufficient mechanical stability.



# RISE®/NOFIRNO® + RISE®/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

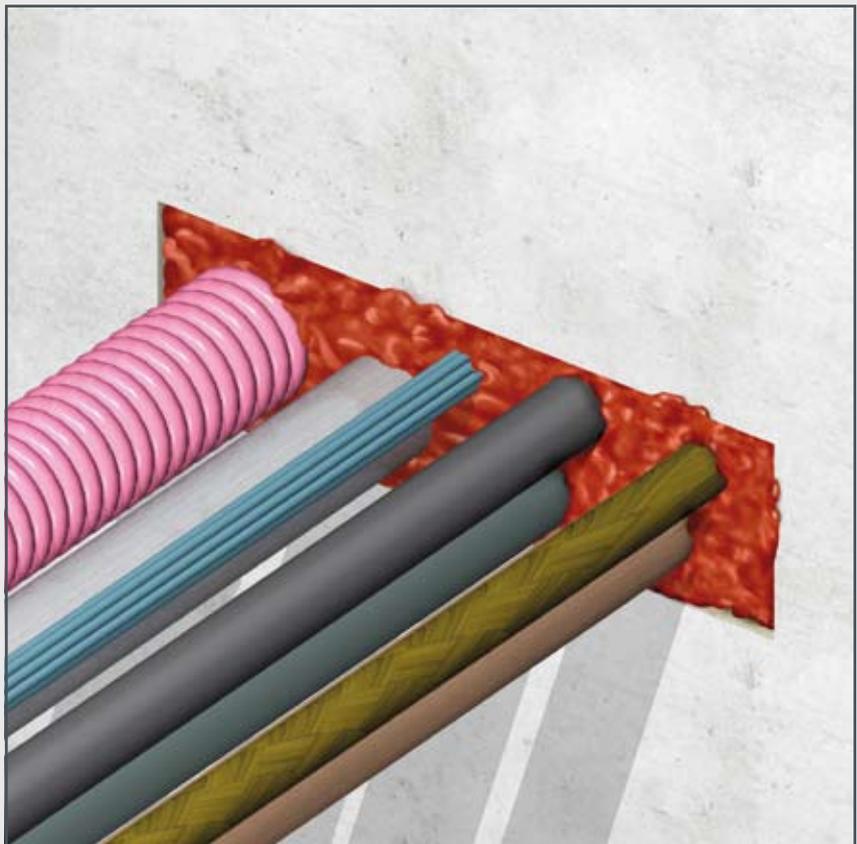
13) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. Clean and dry the conduit opening and the cables thoroughly and remove any dirt, rust or oil residues before applying the sealant.



*See page 30 for professional sealant dispensers. Hand fatigue is prevented and optimum flow of the sealant is obtained.*



14) 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.



# RISE®/NOFIRNO® + RISE®/ULTRA MULTI-ALL-MIX CABLE/PIPE TRANSITS

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

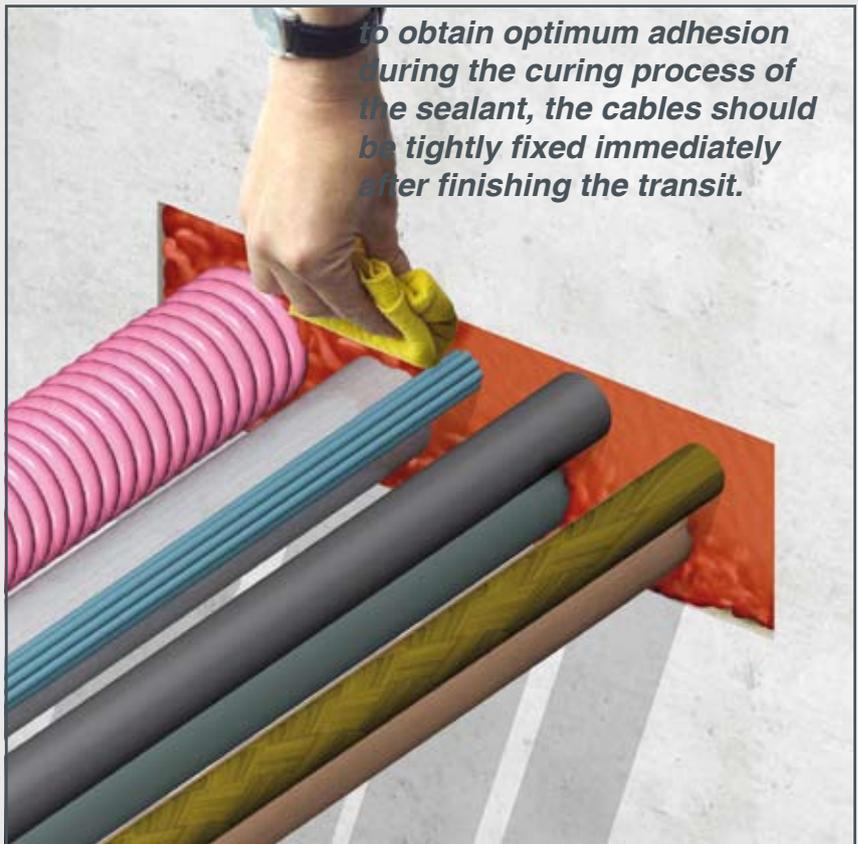
# RISE



# NOFIRNO

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

# RISE



# RISE<sup>®</sup>/NOFIRNO<sup>®</sup> TRANSITS: THE RAPID<sup>®</sup> SEALING SYSTEM



DRIFIL<sup>®</sup> is a water-repellent sealant based on a single-component silicone compound. In developing DRIFIL<sup>®</sup> sealing compound, high priority was focused on its power of adhesion to subsurfaces as occurring in the construction sector, and to cable sheathing and metal and plastic pipes.

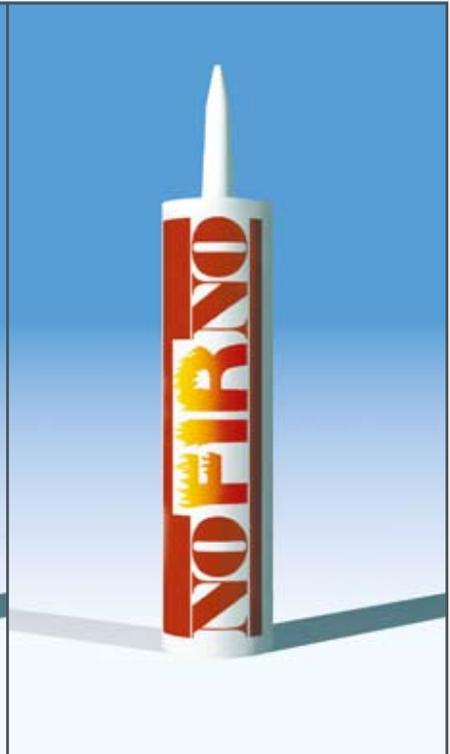
In addition, special attention was given to the permanent flexibility of the sealant in order to permit minor settlements and movements of the cable/pipe bunch after the sealant has set. The purpose of this is to ensure that the seal remains intact in the longer term even in spite of possible mechanical loading.

DRIFIL<sup>®</sup> sealant has a very short setting time. The top layer is rapidly tack-free.



FIWA<sup>®</sup> is a fire-resistant sealant based on a single component silicone compound. FIWA<sup>®</sup> is also water-repellent. The sealant adheres well to most subsurfaces occurring in the building industry, and is permanently elastic. In the event of fire or at temperatures in excess of 200 °C the sealant expands to about five to ten times its original volume. During this process a porous mass is formed which has excellent thermal insulation properties. In contrast to conventional materials that swell under severe heat exposure, the expansion of FIWA<sup>®</sup> is not caused by intumescence, but by a chemical process.

The advantage of this is that the expansion of FIWA<sup>®</sup> is not accompanied by the formation of fumes.



NOFIRNO<sup>®</sup> is a fire-resistant sealant based on a single component silicone compound. The numerous fire tests we have carried out with NOFIRNO<sup>®</sup> sealant has shown that the sealant is able to withstand fire and thermal loads without showing any dramatic colour change or carbonization at the unexposed side. At the exposed side the sealant will NOT be consumed by the fire due to the protective layer and char formed. This means that the sealant stays in place there. NOFIRNO<sup>®</sup> sealant is halogen free, does not harden during service life, has outstanding weathering properties, does not shrink during fire exposure, has an oxygen index of 45% (>30% is flame retardant) and a low smoke index. Can be used in a very wide temperature range.



For ease of application of very high viscosity sealants, we have selected a powerful manual applicator with a 26 : 1 trigger leverage. This means much easier dispensing and reduced fatigue. The applicator is equipped with the so-called Wear Compensating Device, which automatically removes free-play in the trigger to provide instant rod drive immediately when the trigger is pulled. Less full trigger strokes required to empty a cartridge. Extended working life of the applicator.



We have also selected a powerful pneumatic applicator for highest productivity. Quiet operation (less than 70 dB). Air supply to suit most standard systems. Fast, easy pressure regulation for accurate flow control. High volume trigger valve for immediate sealant flow. Ergonomic design: comfort, minimal operator fatigue. Short, well balanced design, combined with lightweight engineering plastic and aluminium components. Also available for 1 liter cartridges.

# RISE®/NOFIRNO® TRANSITS: THE RAPID® SEALING SYSTEM

*ease of calculation with  
our cable and pipe penetrations*

## 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 software. Can be downloaded from our website <http://www.rise-systems.com>.

After the entry of 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 RIWAT® 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 entry of 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.

*we are there with full support for  
our cable and pipe penetrations*

# THE FIRST PHASE OF THE NEW FACTORY NEXT TO OUR R&D CENTRE



- 1) machines specially developed for compounding and processing of rubbers under controlled conditions to obtain optimum quality
- 2) machines specially developed for compounding and manufacturing of all types of sealants under controlled processing
- 3) moisture treatment installation and processing equipment for manufacturing of electrically conductive sealants and rubbers
- 4) a complete line of injection moulding presses ranging from 40 tons up to 400 tons for manufacturing sealing plugs and other rubber components
- 5) a complete line of compression moulding presses up to 300 tons for manufacturing larger type sealing plugs and ULEPSI rubber plates
- 6) processing installation for after-curing of rubber products to obtain the required compression set (long term behaviour)
- 7) extruder line including cooling system and cutting and slitting installation for manufacturing insert and filler sleeves for the RISWAT system
- 8) fully automatic extruder lines with a length of 20 meters, including cooling system and automatic cutting, slitting and sorting installation for manufacturing rubber insert and filler sleeves and rubber strips of the RISE system
- 9) extruder line for manufacturing luminescent profiles and hoses
- 10) line of injection moulding machines ranging from 50 up to 200 tons for manufacturing plates of the ULEPSI tank supports and luminescent YFESTOS floor coverings
- 11) completely equipped die-making shop for the in-house production of all tooling for rubber and plastics manufacturing
- 12) modern laser equipment for engraving the type codes in the dyes for rubber manufacturing and for marking products with bar and 2D-matrix codes
- 13) mixing and airless spraying facilities for the NOFIRNO boards

*Together with highly advanced systems and technologies  
we offer highest quality products.*



**YOUR RELIABLE  
PARTNERS**



# **NO FIRNO**

**MAXIMUM SIMPLICITY OF USE  
OPTIMUM FLEXIBILITY  
OUTSTANDING PERFORMANCE**

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[www.rise-systems.com](http://www.rise-systems.com), [www.rise-nofirno.com](http://www.rise-nofirno.com), [www.riswat.com](http://www.riswat.com) and [www.slipsil.com](http://www.slipsil.com)

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- \* **RISE® SEALING SYSTEM FOR SINGLE AND MULTI-PIPE PENETRATIONS**
- \* **RIACNOF® MULTI-CABLE TRANSIT SYSTEM**
- \* **RISE®/NOFIRNO® MULTI-ALL-MIX CABLE AND PIPE TRANSITS**
- \* **RISE®-ULTRA SINGLE PLASTIC PIPE PENETRATIONS**
- \* **RISWAT® GAS AND WATERTIGHT CABLE AND PIPE DUCTS**
- \* **SLIPSIL® SEALING PLUGS FOR PIPE ENTRIES**
- \* **SLIPSIL®-SQ MULTI-CABLE TRANSITS**
- \* **DYNATITE® DYNAMIC HIGH PRESSURE SEALS**
- \* **BEESEAL® MULTI-PIPE AND CABLE PENETRATIONS**
- \* **ACTIFOAM® TEMPORARY SEALS AND CAVITY SEALS**
- \* **FIRSTO® FIRESTOPS FOR CABLE TRAY PENETRATIONS**
- \* **NOFIRNO® CAVITY SEALS, COATINGS AND SEALANTS**
- \* **ULEPSI® TANK SUPPORTS FOR BITUMEN TANKERS**



**CONDUIT SEALING DEVICES OF AN  
AMAZING SIMPLICITY WITH AN  
OUTSTANDING PERFORMANCE**



*BEELE Engineering and CSD International have been involved with fire, water and gas tight sealing for more than 30 years. We have developed and tested products proven to provide the utmost in sealing protection around the world. To receive our complete civil construction and/or marine products catalogues, please contact your distributor or local representative.*

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