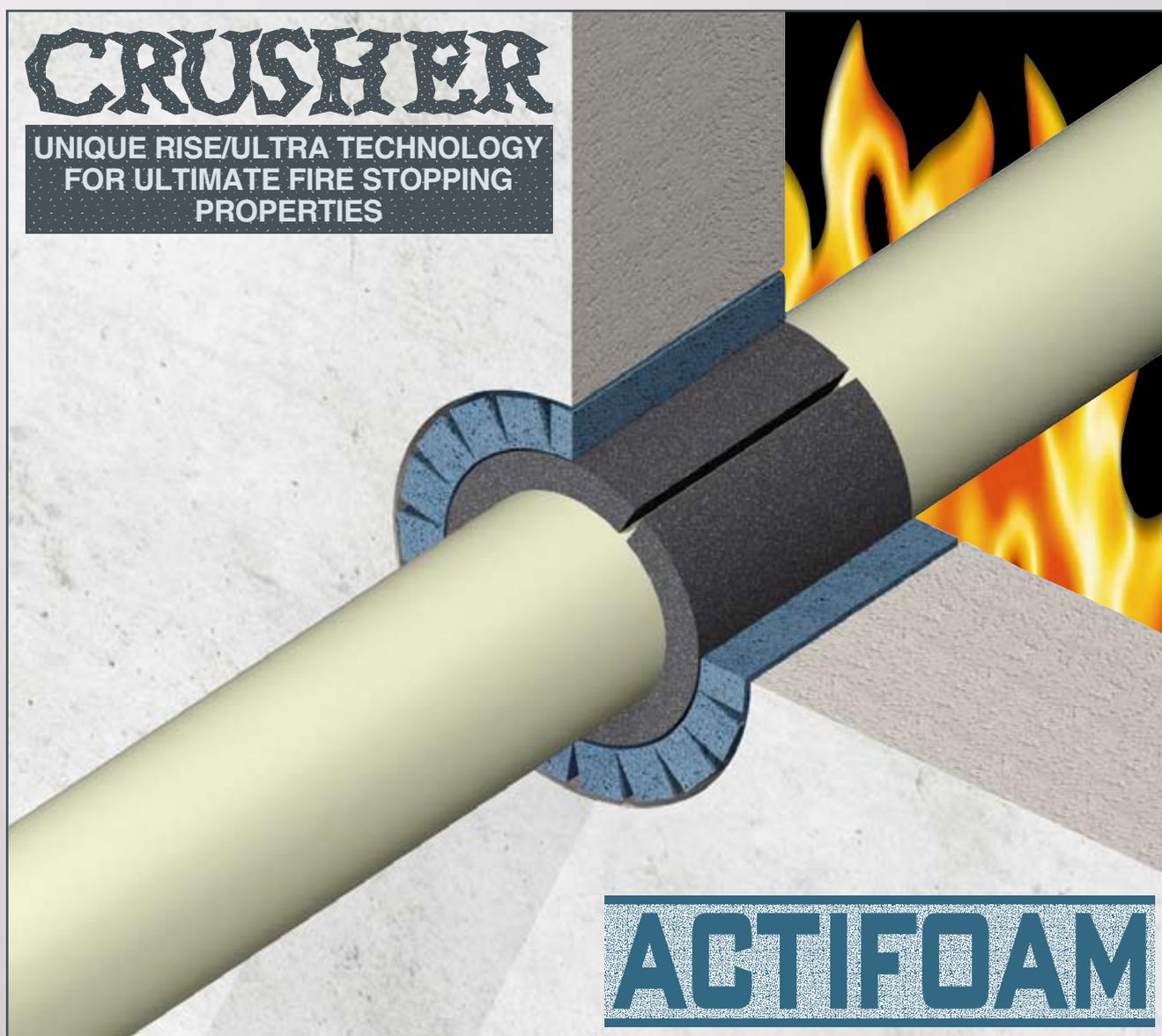


# RISE/ULTRA® CRUSHER FIRE SAFE SEALING OF PLASTIC PIPE ENTRIES: OPTIMUM, SIMPLE AND COST EFFECTIVE



SUCCESSFULLY TESTED ACCORDING TO  
EN 1366-3:2004; FIRE RESISTANCE  
E120/E120 ACCORDING TO EN 13501-2:2003  
CERTIFICATES 2008-EFECTIS-R0635-36-37

# CRUSHER

**UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES**

**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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# 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 a 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

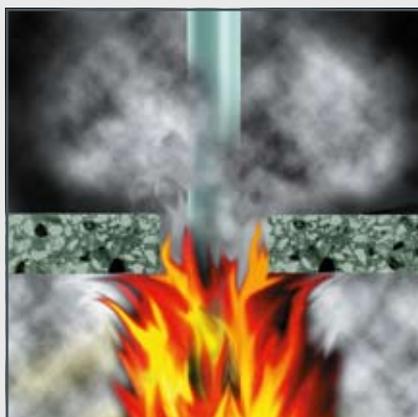
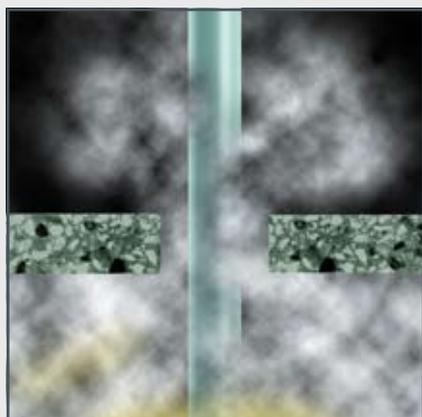
determined in the dark.

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.

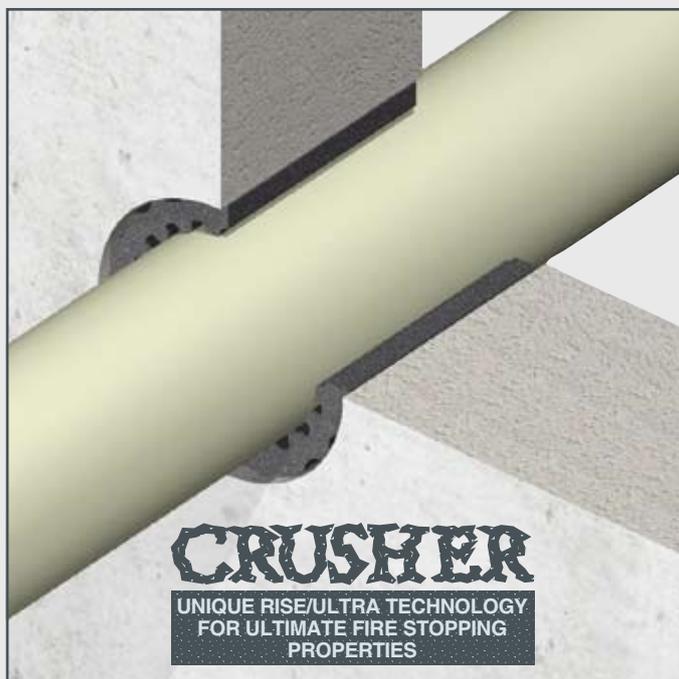
# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

*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 NOFIRNO<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.

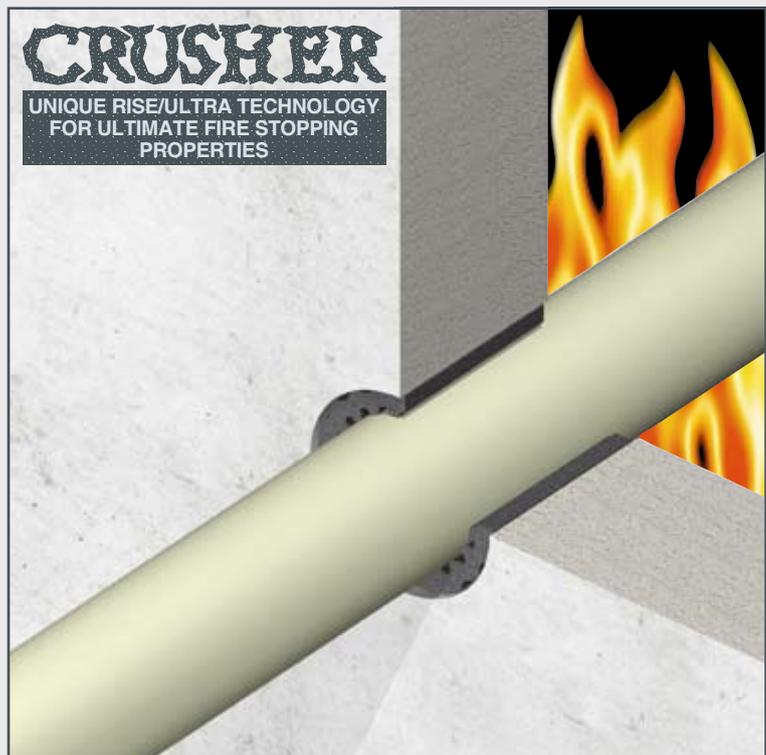
# CRUSHER<sup>®</sup>

# RISE®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

## *RISE®/ULTRA plastic pipe penetrations: based on high-tech CRUSHER® technology*

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 possible 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 the new technology a single RISE®/ULTRA crusher is able to crush plastic pipes quick and can withstand extended fire exposure.



A fair amount of fire tests has shown that the depth of the conduit opening could be minimum 150 mm for plastic pipes up to 110 mm OD. The advantage is that the RISE®/ULTRA crusher can be installed inside the wall or floor. 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.

Meanwhile three different versions are available:

- 1) split crushers (Cfit - Non-profiled)
  - 2) crusher wraps (sheets)
  - 3) crushers with ACTIFOAM®/NOFIRNO®
- For oversized openings ACTIFOAM® fillers can be used and for multi-penetrations use is made of NOFIRNO® filler sleeves and sealant in combination with RISE®/ULTRA crushers.

Fire tests have shown that the formed adhesive mass prevents shrinkage of the expanded rubber during and after fire exposure.



# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

*a single RISE<sup>®</sup>/ULTRA-Cfit crusher for a plastic pipe transit*



*Only halogen free, non-intumescent, extremely low-ageing, non-moisture sensitive components.*

pipe OD	crusher type	wall thickness	crusher lengths (standard)	conduit opening
16	30/16	7	110/140	30
18	30/18	6	110/140	30
20	40/20	10	110/140	40
25	40/25	7.5	110/140	40
32	50/32	9	110/140	50
40	50/40	5	110/140	50
50	70/50	10	110/140	70
63	80/63	8.5	110/140	80
75	100/75	12.5	110/140	100
90	125/90	17.5	110/140	125
110	150/110	20	110/140	150

*Note: 110 mm length only in combination with 20 mm NOFIRNO<sup>®</sup> sealant at both sides.*

## CRUSHER

## CRUSHER



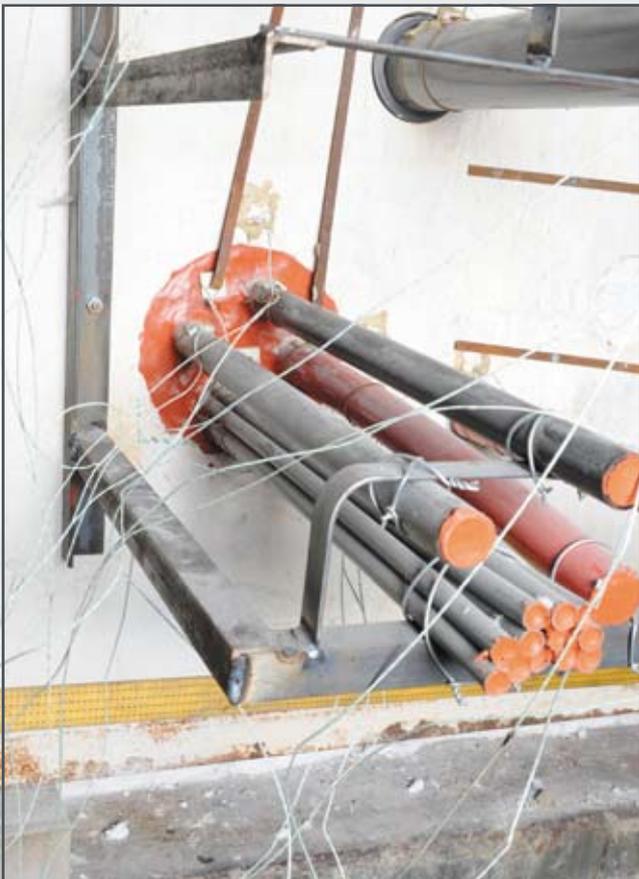
*Only halogen free, non-intumescent, extremely low-ageing, non-moisture sensitive components.*

*Instead of using fitting RISE<sup>®</sup>/ULTRA Cfit crushers or in case no fitting crushers are available, use can be made of the RISE<sup>®</sup>/ULTRA wraps. These can be wrapped around the ducted plastic pipe and in this way made to fit at site. Wraps make material management at site very easy.*

*The sheets are available in sizes 1000x110x2.5 mm and 1000x140x2.5 mm. See pages 24-27 for the minimum thickness of the wraps to be applied.*

*Note: 110 mm length only in combination with 20 mm NOFIRNO<sup>®</sup> sealant at both sides.*

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION



# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

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 table on page 4.

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**CRUSHER**

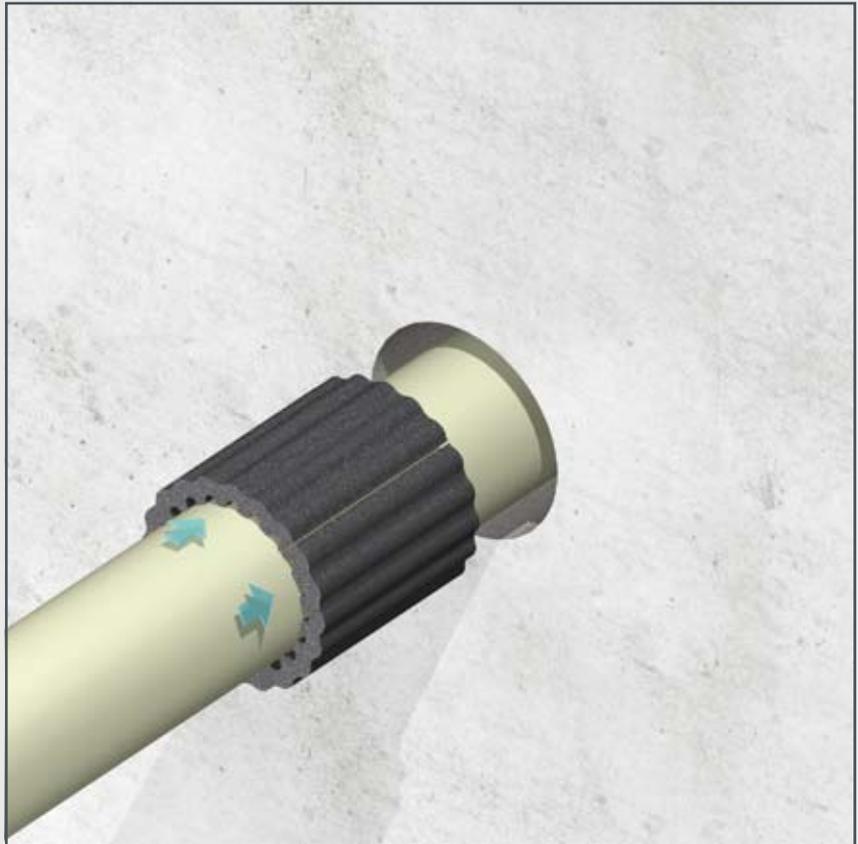
2) The fitting RISE<sup>®</sup>/ULTRA crusher, which is split lengthwise, is folded around the ducted plastic pipe in front of the wall.



**CRUSHER**

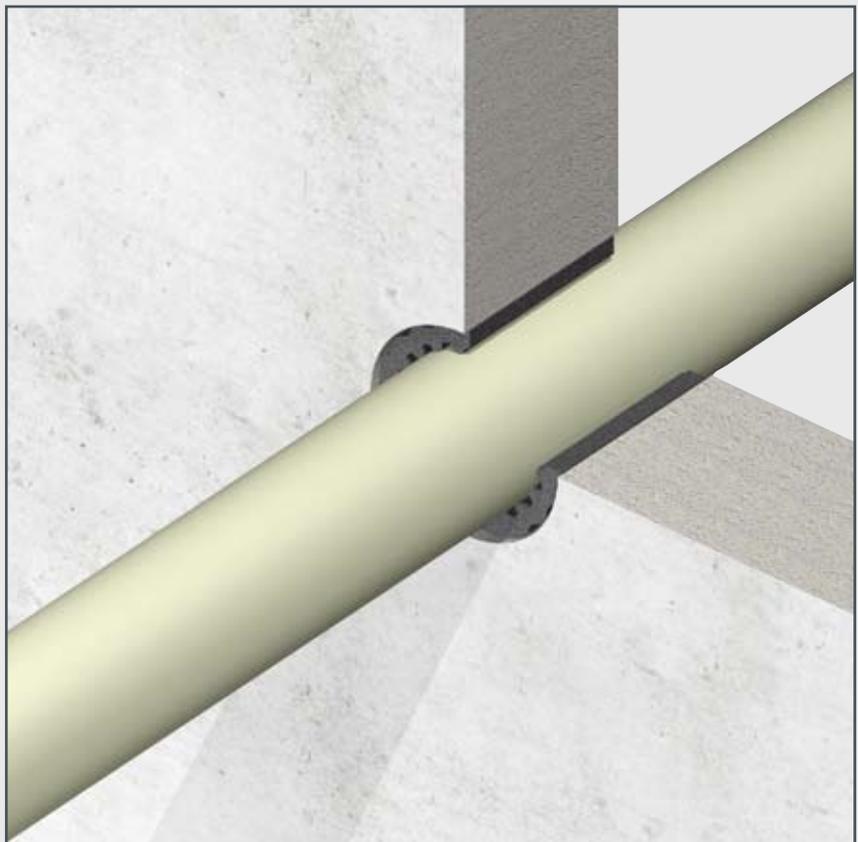
# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

3) Push the crusher into the conduit opening. In case of a fitting crusher the outside of the crusher and the inner wall of the conduit should be treated with CSD lubricant for ease of installation.



**CRUSHER**

4) Fire safe ducting of plastic pipes cannot be more simple than with the RISE<sup>®</sup>/ULTRA crushers. Care has to be taken for a tight fixation of the crusher, specially in floor penetrations.



**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

1a) 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 table on page 4.

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**CRUSHER**

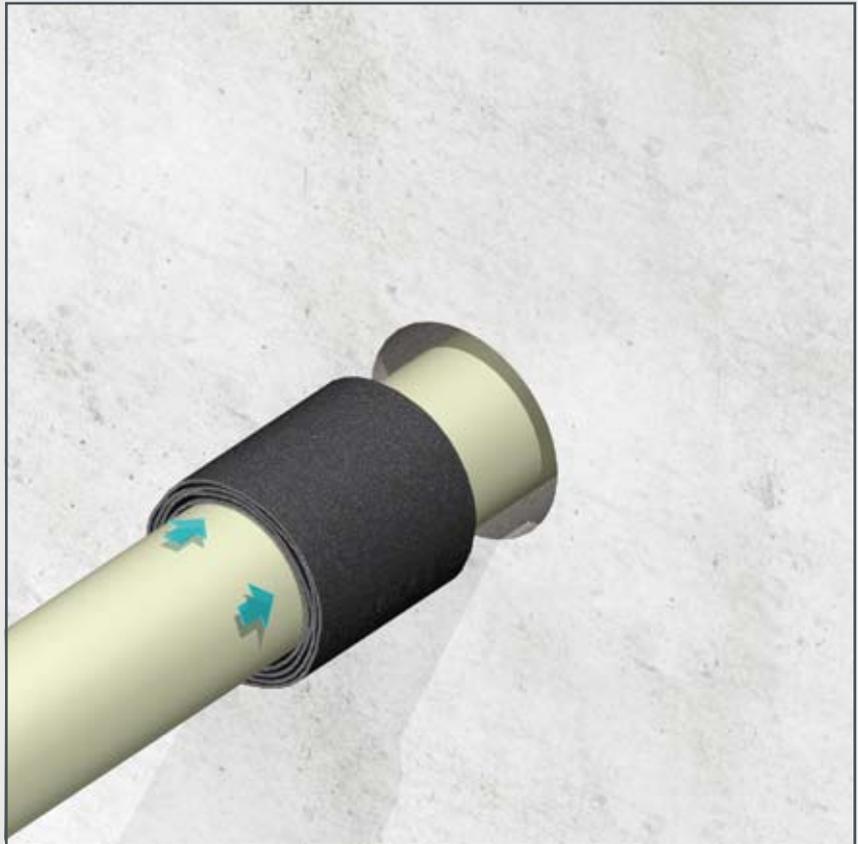
2a) In case no fitting RISE<sup>®</sup>/ULTRA crusher is available, use can be made of RISE<sup>®</sup>/ULTRA sheets with a thickness of 2.5 mm to be wrapped around the plastic pipe. RISE<sup>®</sup>/ULTRA wraps are used also for conduit openings which are a bit oversized. Note: minimum thickness to be regarded (see pages 24-27).



**CRUSHER**

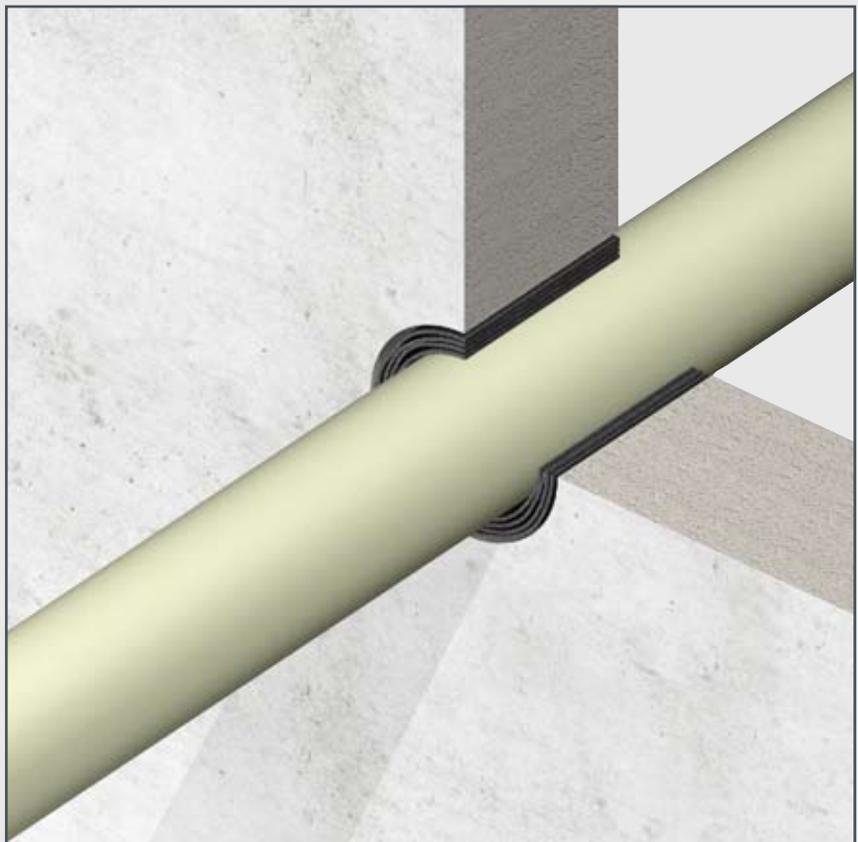
# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

3a) Push the fitting crusher wrap into the conduit opening. In case of a fitting crusher the outside of the crusher and the inner wall of the conduit should be treated with CSD lubricant for ease of installation.



**CRUSHER**

4a) Fire safe ducting of plastic pipes cannot be more simple than with the RISE<sup>®</sup>/ULTRA wraps. Care has to be taken for a tight fixation of the crusher, specially in floor penetrations.



**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

*a single RISE<sup>®</sup>/ULTRA crusher for a  
plastic pipe transit*



pipe OD	crusher type	wall thickness	crusher lengths (standard)	conduit opening
16	24/16	4	110/140	25-30
18	24/18	3	110/140	25-30
20	28/20	4	110/140	30-35
25	33/25	4	110/140	35-40
32	38/32	3	110/140	40-45
40	48/40	4	110/140	50-55
50	58/50	4	110/140	60-65
63	78/63	7.5	110/140	80-85
75	88/75	6.5	110/140	90-100
90	118/90	14	110/140	120-135
110	138/110	14	110/170	140-155

*Note: non-profiled crushers to be used for slightly oversized openings and for multi-pipe penetrations. Fixation needed when no sealant is applied.*

*Note: 110 mm length only in combination with 20 mm NOFIRNO<sup>®</sup> sealant at both sides.*

## CRUSHER

## CRUSHER



*Instead of using fitting RISE<sup>®</sup>/ULTRA Cfit, non-profiled crushers or in case no fitting crushers are available, use can be made of the RISE<sup>®</sup>/ULTRA wraps. These can be wrapped around the ducted plastic pipe and in this way made to fit at site. Wraps make material management at site very easy.*

*The sheets are available in sizes 1000x110x2.5 mm and 1000x140x2.5 mm. See pages 24-27 for the minimum thickness of the wraps to be applied.*

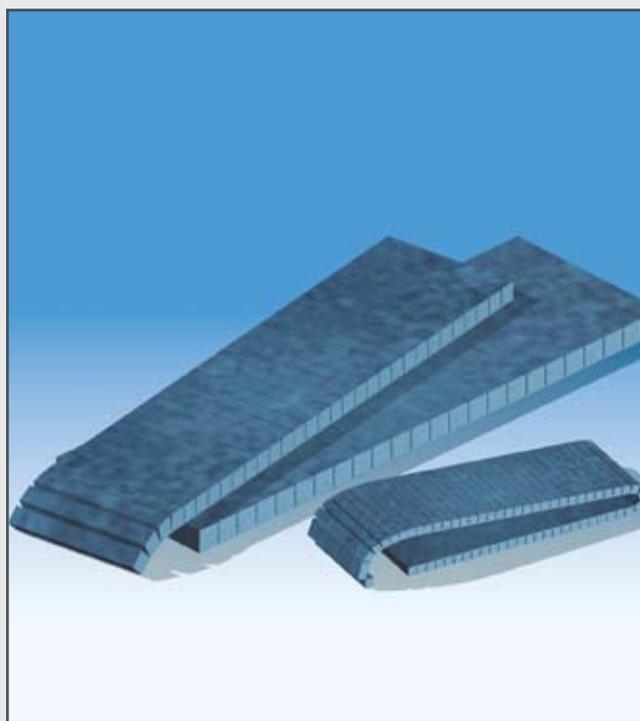
*Note: 110 mm length only in combination with 20 mm NOFIRNO<sup>®</sup> sealant at both sides.*

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

## ACTIFOAM<sup>®</sup> filling for overdimensioned single plastic pipe transits

ACTIFOAM<sup>®</sup> is used to fill any cavities or gaps in constructions. ACTIFOAM<sup>®</sup> in combination with RISE<sup>®</sup>/ULTRA crushers is the perfect solution for fire safe ducting of single plastic pipes in the building industry.

An advantage is that ACTIFOAM<sup>®</sup> does not absorb water. Due to the closed cell structure, the rubber has good thermal insulation properties. The K value at 10 °C according to NEN-EN 12667 is 12.3 W/mk. The density of the foam rubber at 23 °C is between 0.33 and 0.37 g/cm<sup>3</sup>, in accordance with ISO 2781. Compression set of the foam rubber is 14% which stands for a good "memory". Good weathering, UV and ozone resistance. Temperature range from -15 °C to +70 °C. The ACTIFOAM<sup>®</sup> filler sheets are delivered in sizes 300x140 mm, thickness 10, 15, 20 and 25 mm and 600x140 mm, thickness 20 and 25 mm. The sheets are slit to enable easy fitting around the ducted pipe and crusher.



# ACTIFOAM



### 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



*For esthetic finishing of the conduit sealant can be applied on top of RISE<sup>®</sup>/ULTRA/ACTIFOAM<sup>®</sup>.*

*NOFIRNO<sup>®</sup> is a paste-like compound which is simple to use. NOFIRNO<sup>®</sup> 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®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

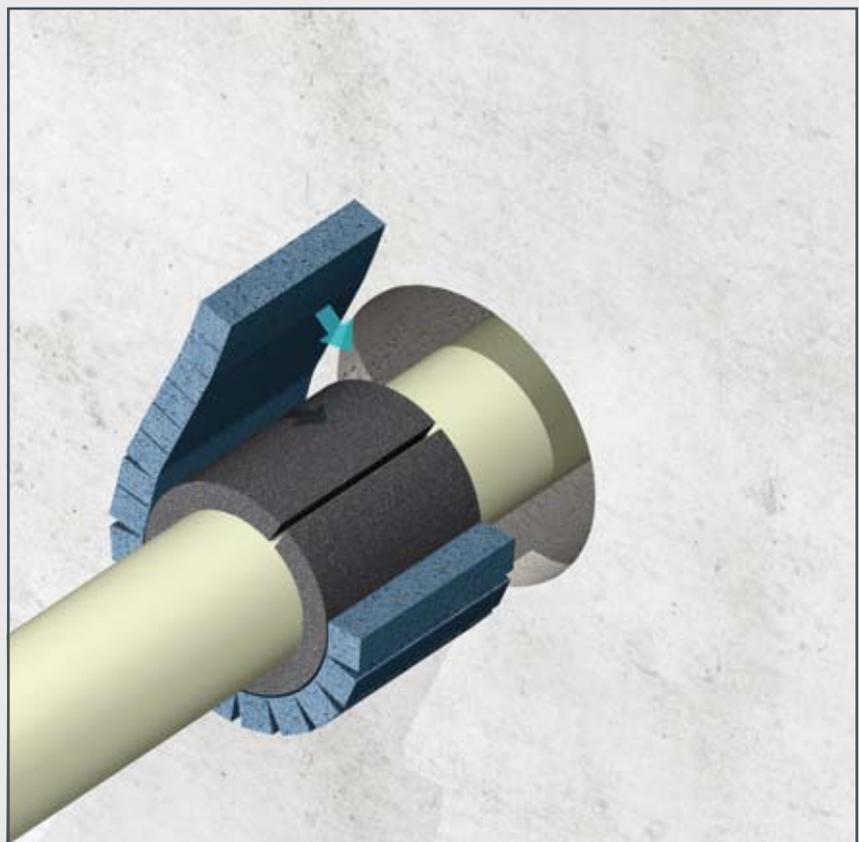
1b) When the conduit opening is over dimensioned, a combination of RISE®/ULTRA and ACTIFOAM® is the solution. A RISE®/ULTRA crusher or crusher wrap, selected according to the OD of the plastic pipe, is folded around the ducted plastic pipe.



**CRUSHER**

**ACTIFOAM**

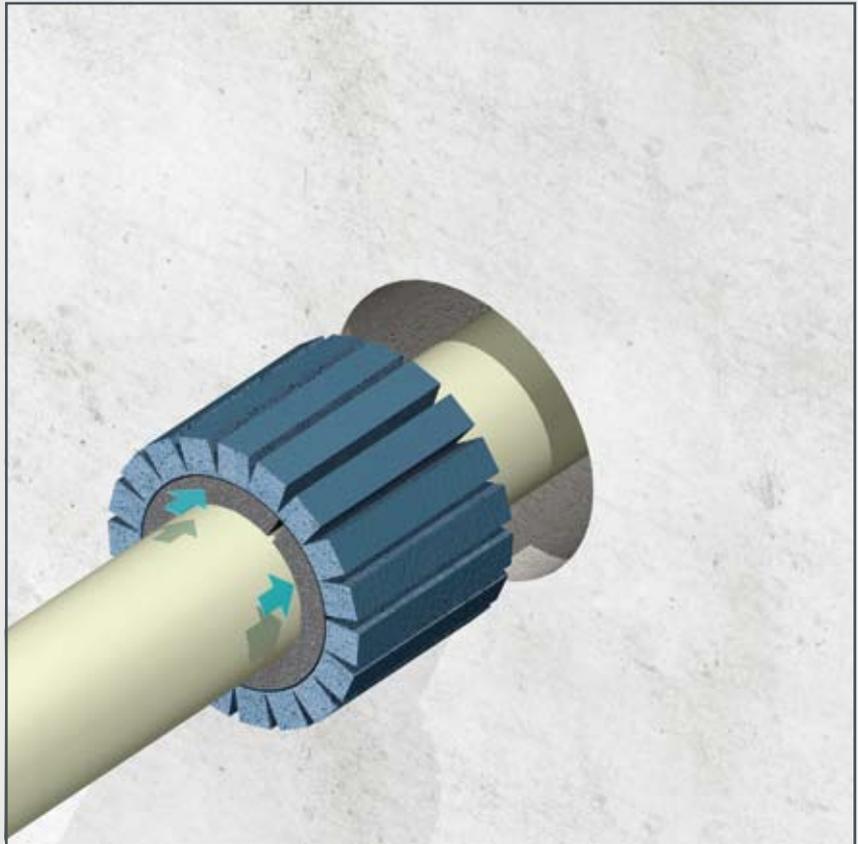
2b) Then a pre-slit ACTIFOAM® sheet with a thickness suitable for a good fit in the conduit opening is rolled around the crusher. To adjust the length of the wrap around the crusher, slits can be torn off.



**CRUSHER**

# RISE®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

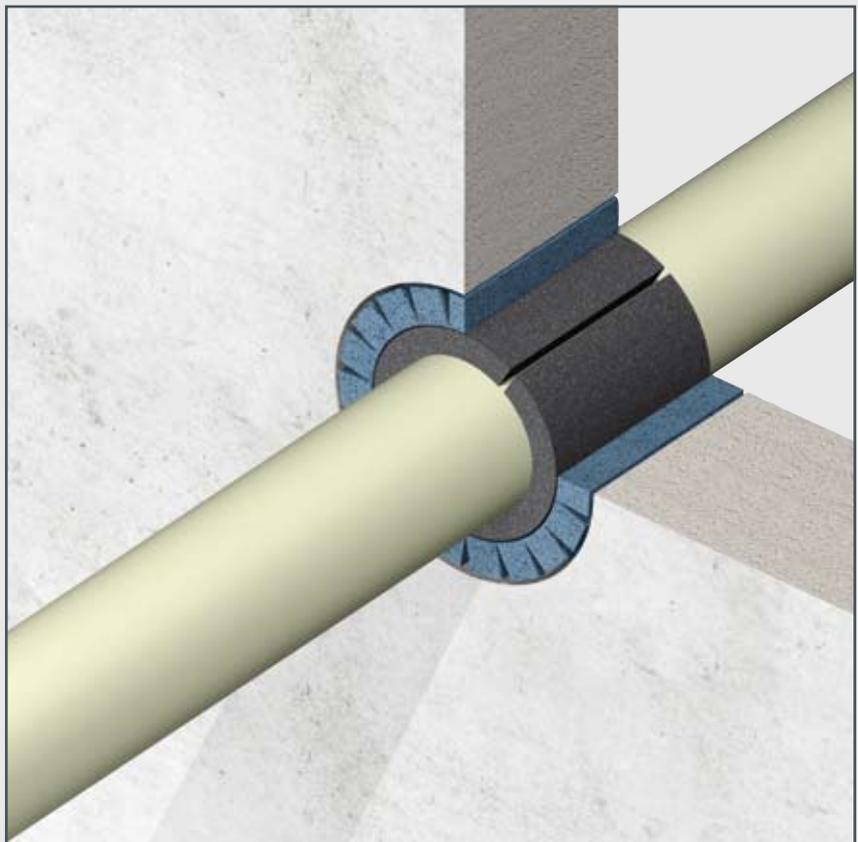
3b) Push the combination of RISE®/ULTRA crusher and pre-slit ACTIFOAM® sheet into the conduit opening. The inner wall of the penetration and the outside of the ACTIFOAM® wrap can be treated with CSD® lubricant to enable ease of installation.



**CRUSHER**

**ACTIFOAM**

4b) Even installation of a CRUSHER® fire stop for over dimensioned conduit openings of plastic pipes is most easy. Care has to be taken for a tight fit of the RISE®/ULTRA crusher with ACTIFOAM® wrap, specially in floor penetrations.



**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

1c) A bundle of max. 12 plastic pipes with an OD of 12 mm can be ducted through a single conduit opening and then fire safe sealed with RISE<sup>®</sup>/ULTRA.

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**CRUSHER**

2c) A RISE<sup>®</sup>/ULTRA crusher, with the appropriate wall thickness, which is split lengthwise, is folded around the ducted bundle of plastic pipes in front of the wall.

Note: the plastic pipes should be tightly bundled together to avoid larger air gaps in the bundle between the pipes.



**CRUSHER**

# RISE®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

3c) Push the crusher into the conduit opening.  
Note: max. allowable air gap between the wall of the conduit and the RISE®/ULTRA crusher 3-5 mm.

For oversized conduits use can be made of the RISE®/ULTRA wraps, if needed in combination with pre-slit ACTIFOAM® sheets.



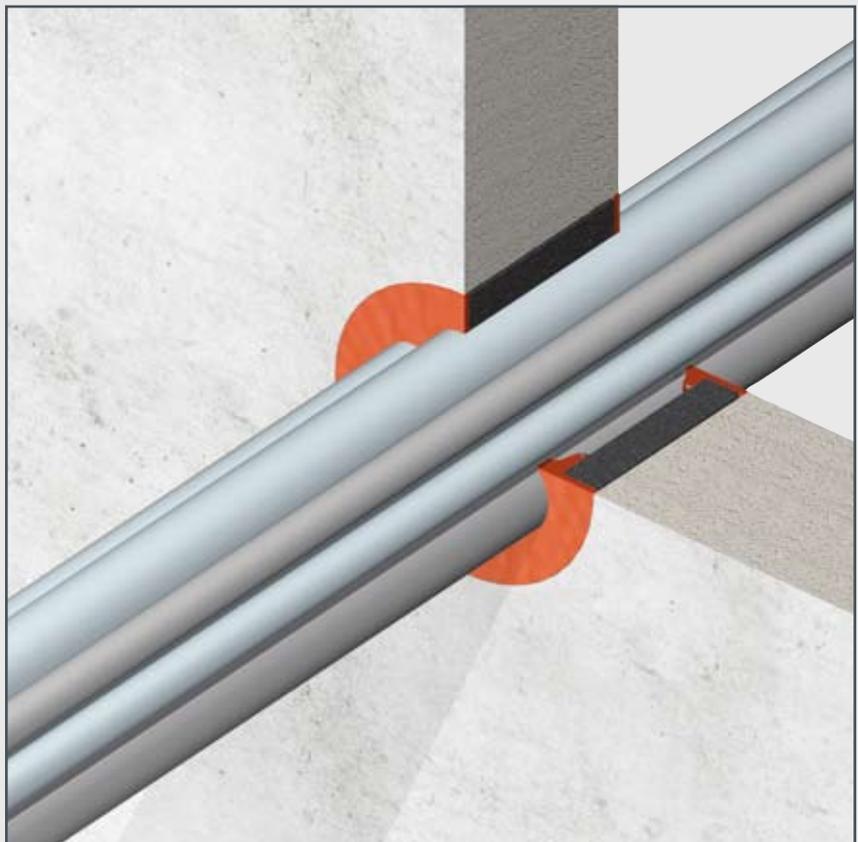
**CRUSHER**

**NOFIRNO**

4c) It is necessary to apply NOFIRNO® sealant around and in between the ducted pipes.

Preferably a layer of 20 mm NOFIRNO® sealant is applied at both sides of the conduit.

Remaining open spaces in the conduit to be filled with ACTIFOAM® or NOFIRNO® filler sleeves.



**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

## RISE<sup>®</sup>/ULTRA-NOFIRNO<sup>®</sup> (multi-) plastic pipe penetrations: crusher, sleeves and sealant



NOFIRNO<sup>®</sup> is a fire-resistant sealant based on a single component silicone compound.

**NOFIRNO<sup>®</sup> is also water-repellent**

**High bonding strength**

**UV and Ozone resistant**

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 will stay in place there.

NOFIRNO<sup>®</sup> 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<sup>®</sup> sealant can be used in a very wide temperature range.

## optimum combination of viscosity, flow and bonding capacity of NOFIRNO<sup>®</sup> 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<sup>®</sup> is a paste-like compound which is simple to use.*

*NOFIRNO<sup>®</sup> 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®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

*additional filling for an off centre, oversized or multi-plastic pipe penetration*



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®/ULTRA-NOFIRNO® (multi-) plastic pipe transits: 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<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

1d) For penetrations which should not only be fire safe but also watertight, use can be made of RISE<sup>®</sup>/ULTRA crushers (if needed with ACTIFOAM<sup>®</sup> pre-slit sheets or NOFIRNO<sup>®</sup> filler sleeves) and a final finishing with NOFIRNO<sup>®</sup> sealant. Note: check adhesive properties with the plastic pipe before applying the sealant.

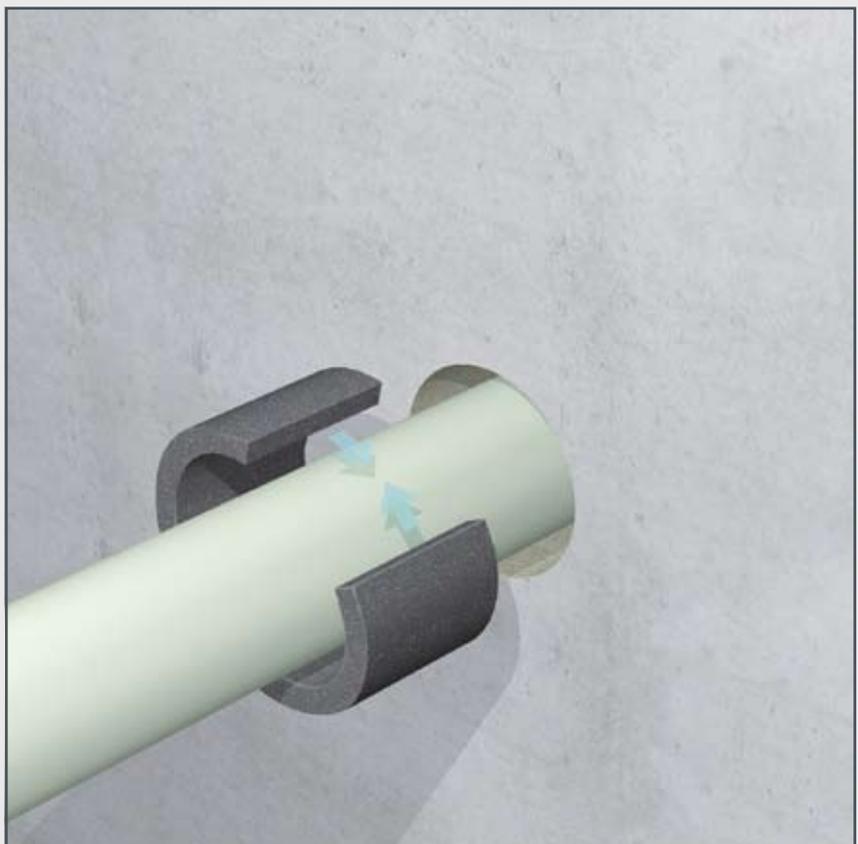
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**CRUSHER**

**NOFIRNO**

2d) A fitting RISE<sup>®</sup>/ULTRA crusher, preferably the C-fit version, which is split lengthwise is folded around the ducted plastic pipe in front of the wall. Also the non-profiled crushers can be used taking into account a max. allowable air gap of 3-5 mm between the wall of the conduit and the crusher.



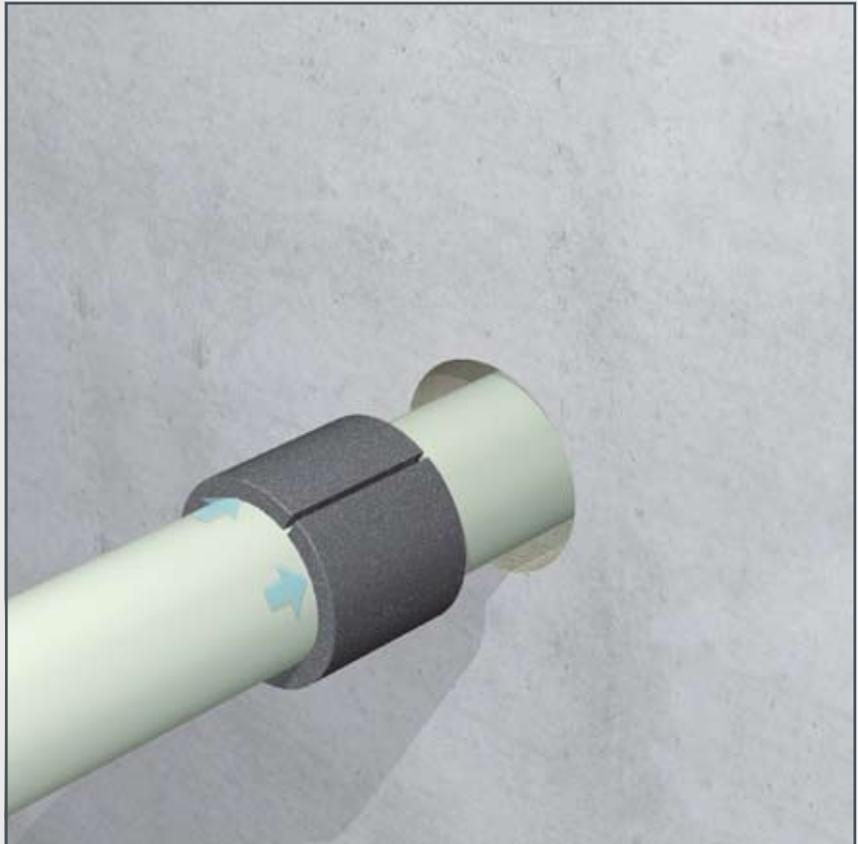
**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

3d) The RISE<sup>®</sup>/ULTRA crusher is then pushed into the conduit opening.

In case of a fitting crusher the outside of the crusher and the inner wall of the conduit should be treated with CSD lubricant for ease of installation.

Note: remove residues before applying sealant.



**CRUSHER**

**NOFIRNO**

4d) Push the crusher into the conduit opening in such a way as to leave about 20 mm free space at the front and back side.



**CRUSHER**

# RISE®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

5d) 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 and lubricant residues before applying the sealant.

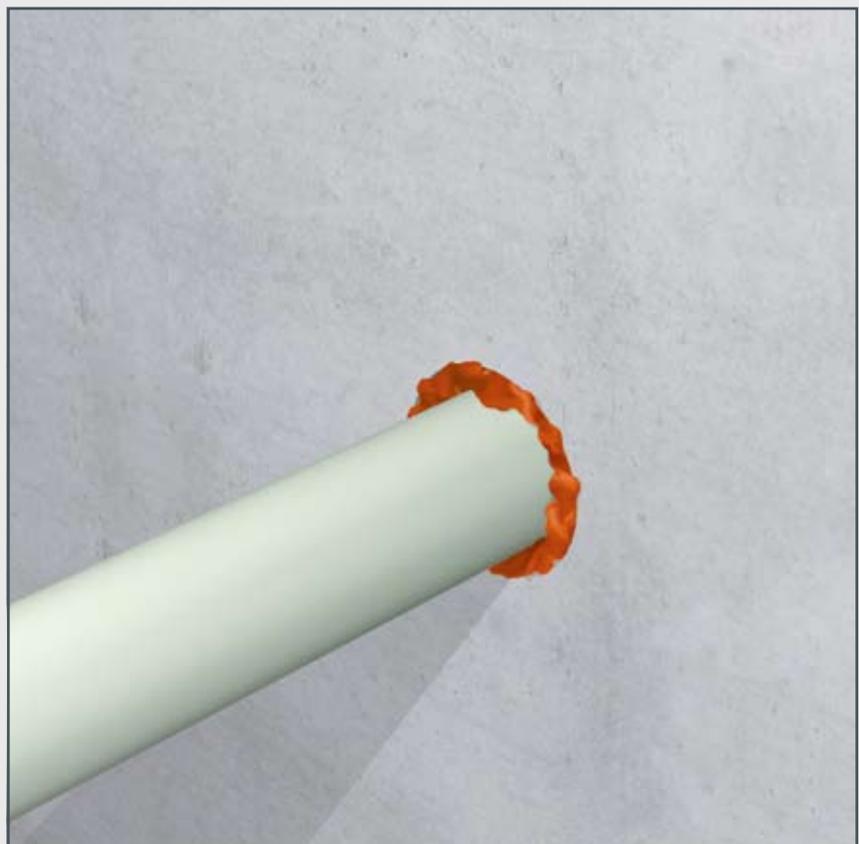


*See page 30 for professional sealant dispensers. Hand fatigue is prevented and optimum flow of the sealant is obtained.*

**CRUSHER**

**NOFIRNO**

6d) The conduit should be a bit overfilled with NOFIRNO® sealant, because some sealant will be pushed into the space between the RISE®/ULTRA crusher and the inner wall of the conduit opening.

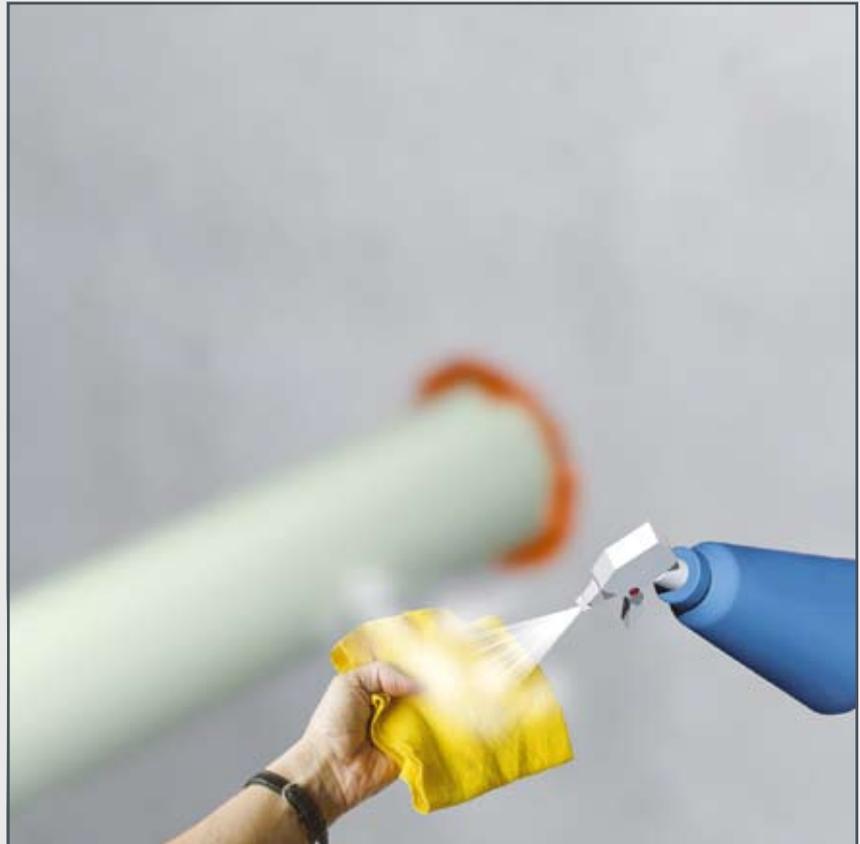


**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

7d) 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.

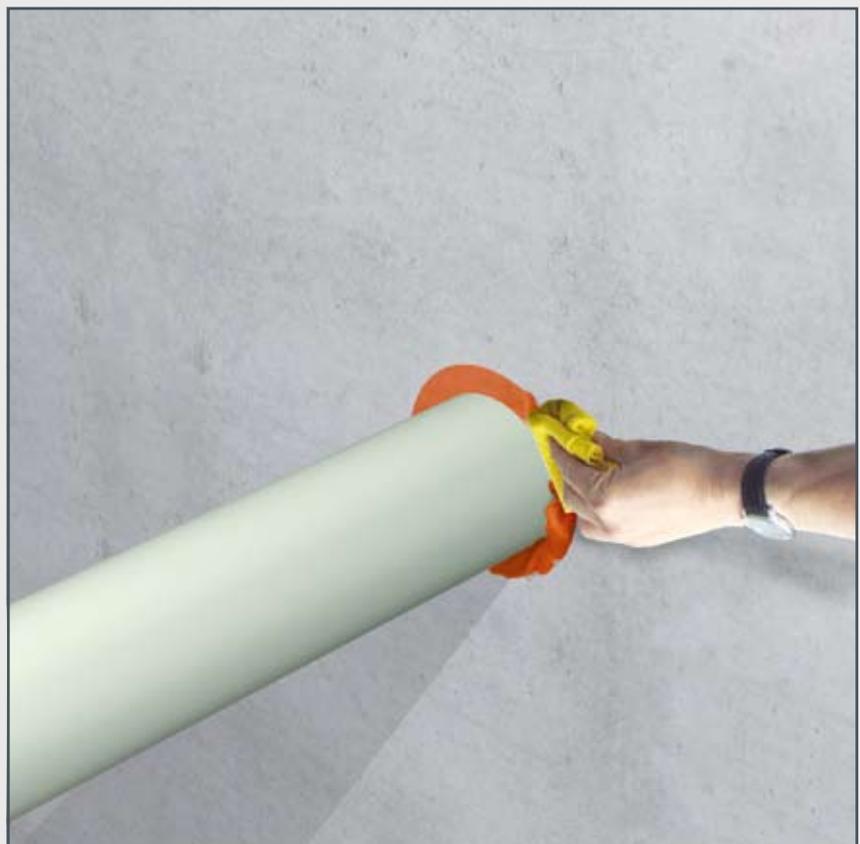
Note: do not use soap water!



**CRUSHER**

**NOFIRNO**

8d) 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.



**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

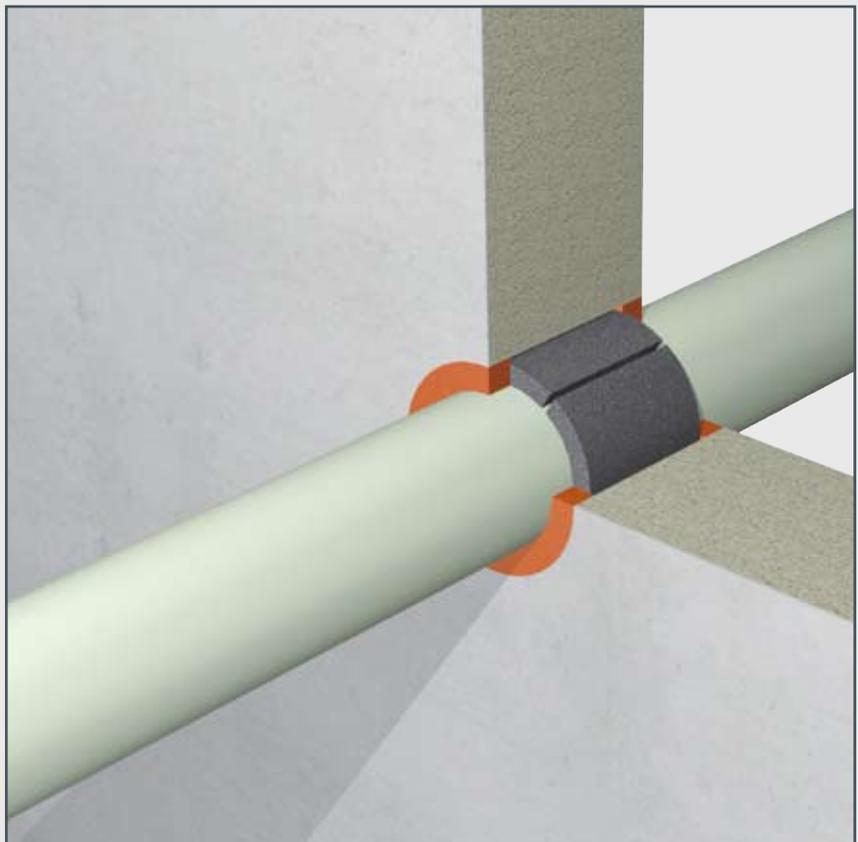
9) The surface can further be smoothed by hand. Just wet the hand thoroughly with soap and water. No dirty hands when working with NOFIRNO<sup>®</sup>. People with sensitive skin should use gloves when working with NOFIRNO<sup>®</sup>.



**CRUSHER**

**NOFIRNO**

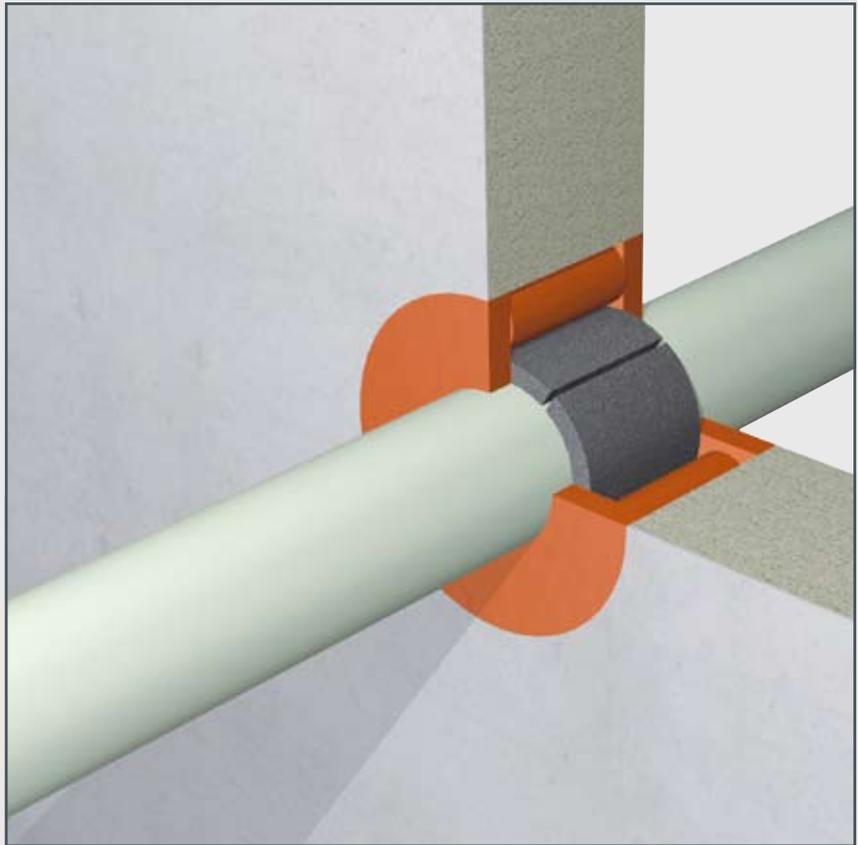
10) Successfully tested for >120 minutes (E120) fire integrity according to EN 1366-3:2004. Fire Classification according to EN 13501-2:2003 EI120/E120.



**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

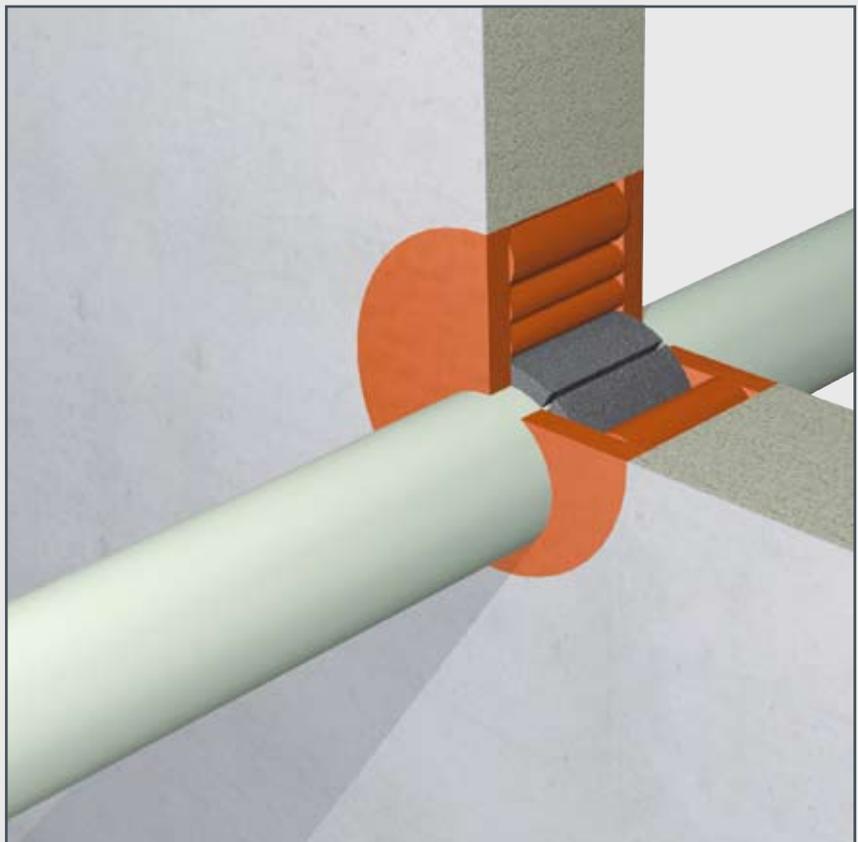
11d) NOFIRNO<sup>®</sup> sleeves are used to fill larger open spaces in the conduit opening. This might be the case when retro-fitting existing installations.



**CRUSHER**

**NOFIRNO**

12d) Or in case the plastic pipe is ducted eccentrically, leaving a fairly large open space in the conduit opening, the open space should be filled entirely with NOFIRNO<sup>®</sup> sleeves.

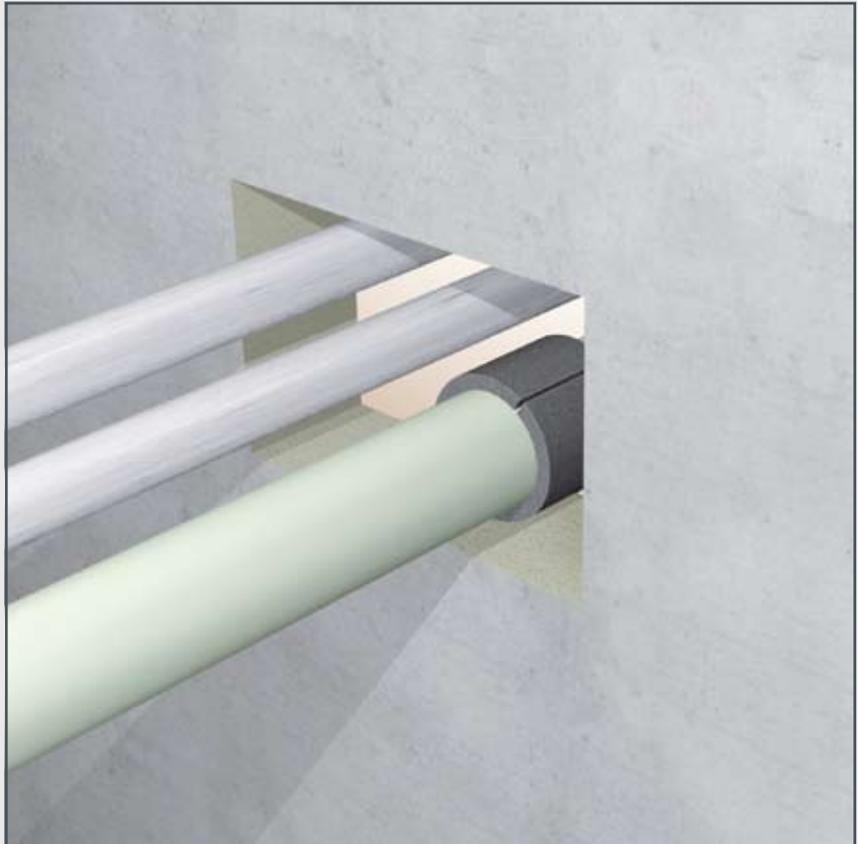


**CRUSHER**

# RISE®/ULTRA CRUSHERS®: ULTIMATE FIRE SAFE SOLUTION

1e) The RISE®/ULTRA system can be used also for penetrations through which metallic and plastic pipes are ducted.

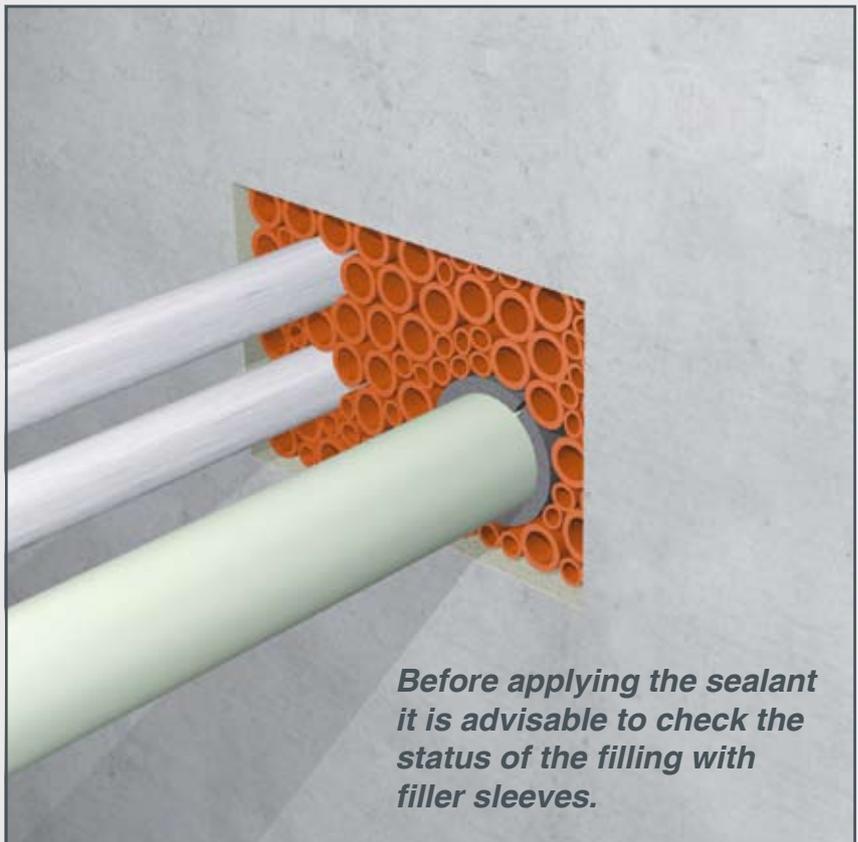
A RISE®/ULTRA crusher is placed around the ducted plastic pipe and then pushed into the conduit opening.



**CRUSHER**

**NOFIRNO**

2e) The remaining spaces in the conduit opening are filled with NOFIRNO® filler sleeves. Push the sleeves into the conduit opening in such a way as to leave about 20 mm free space at the front and back side. The sleeves should tightly fit into the conduit opening.



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

**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

3e) A 20 mm thick layer of NOFIRNO<sup>®</sup> 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.

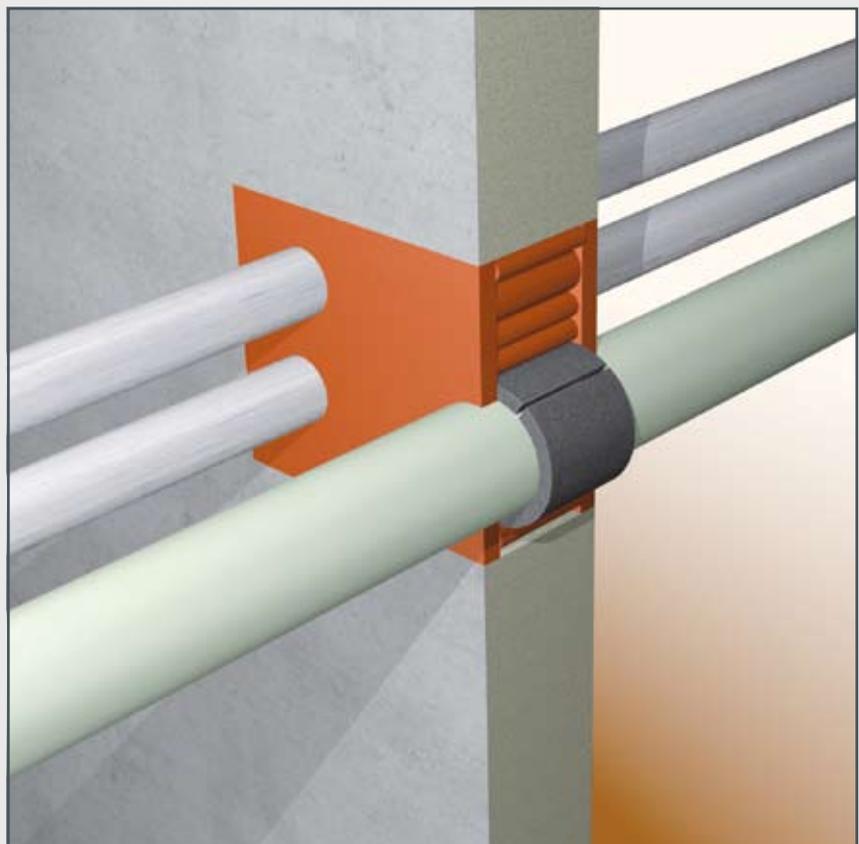


**CRUSHER**

**NOFIRNO**

4e) 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.

See also the brochure RISE<sup>®</sup>/NOFIRNO<sup>®</sup> for pipe penetrations.

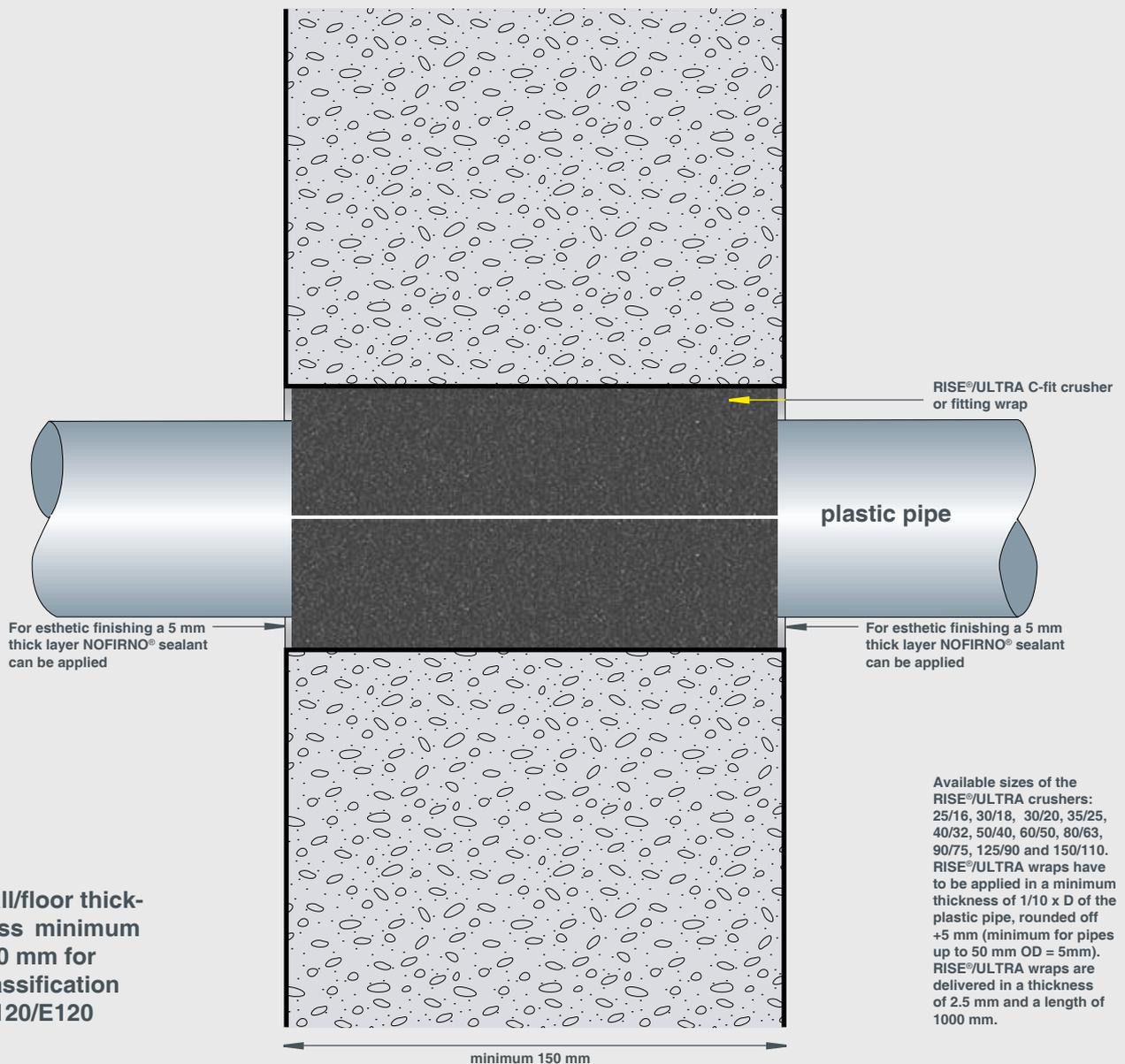


**CRUSHER**

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

## DIAGRAMMATIC OVERVIEW CONSTRUCTION/ONSHORE

- MOST SIMPLE AND COST EFFECTIVE APPLICATION;  
ONLY A FITTING RISE<sup>®</sup>/ULTRA CRUSHER OR WRAP
- CERTIFIED FOR ALL TYPES OF PLASTIC PIPES UP  
TO 110 MM OD AND WALL THICKNESS UP TO 10 MM



\* wall/floor thickness minimum 150 mm for classification EI120/E120

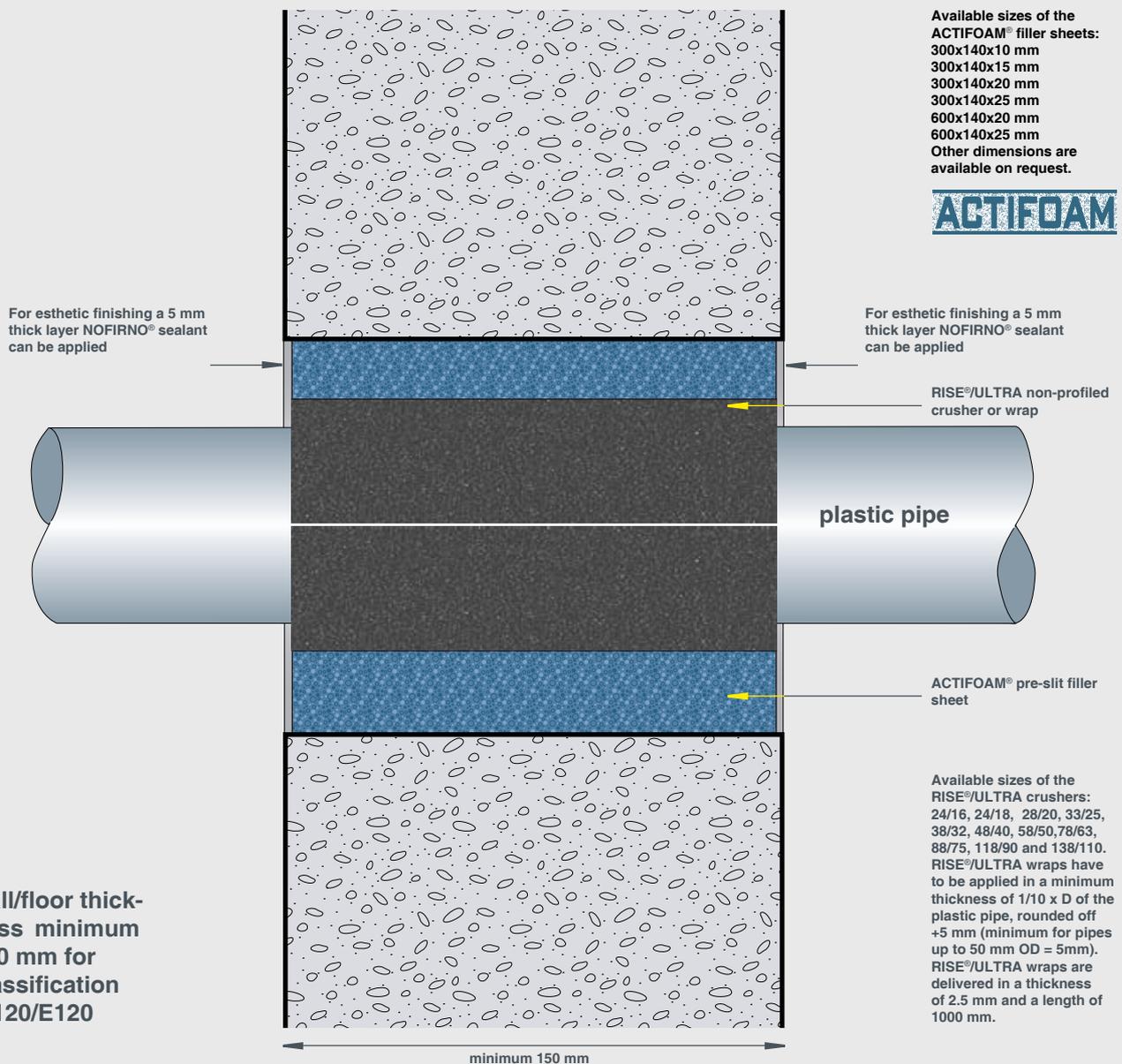
**CRUSHER**  
UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES

\*\* standard length of the RISE<sup>®</sup>/ULTRA crushers or wraps is 140 mm. Other lengths are available on request.

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

## DIAGRAMMATIC OVERVIEW CONSTRUCTION/ONSHORE

- FOR OVERSIZED CONDUIT OPENINGS; FITTING RISE<sup>®</sup>/ULTRA CRUSHER AND ACTIFOAM<sup>®</sup> FILLING
- CERTIFIED FOR ALL TYPES OF PLASTIC PIPES UP TO 110 MM OD AND WALL THICKNESS UP TO 10 MM



**CRUSHER**  
UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES

\*\*standard length of the RISE<sup>®</sup>/ULTRA crushers and ACTIFOAM<sup>®</sup> sheets is 140 mm. Other lengths are available on request.

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

## DIAGRAMMATIC OVERVIEW CONSTRUCTION/ONSHORE

- FOR WATERTIGHT TRANSITS; FITTING RISE<sup>®</sup>/ULTRA CRUSHER, ACTIFOAM<sup>®</sup> FILLING, NOFIRNO<sup>®</sup> SEALANT
- CERTIFIED FOR ALL TYPES OF PLASTIC PIPES UP TO 110 MM OD AND WALL THICKNESS UP TO 10 MM

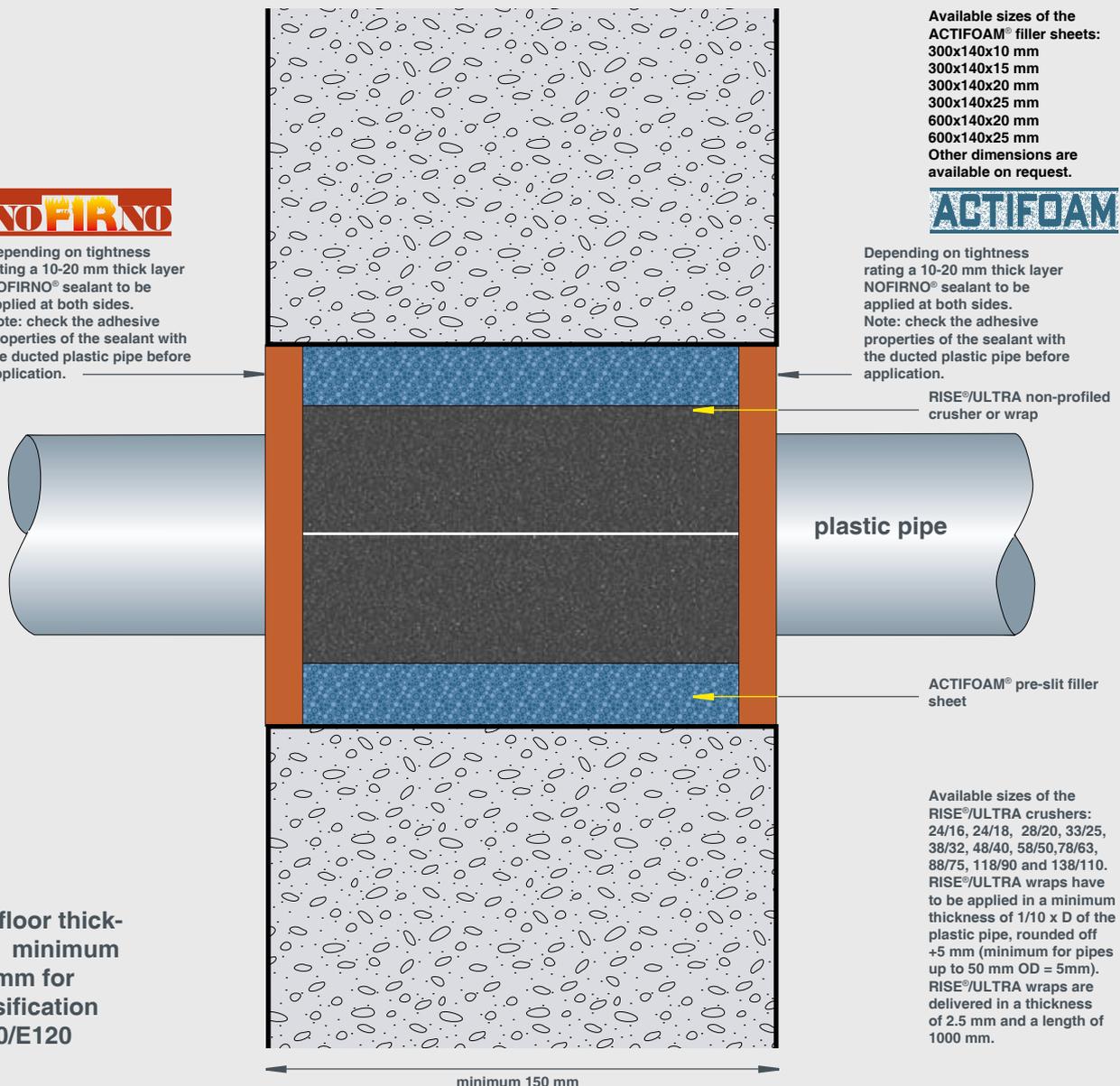
**NOFIRNO**

Depending on tightness rating a 10-20 mm thick layer NOFIRNO<sup>®</sup> sealant to be applied at both sides.  
Note: check the adhesive properties of the sealant with the ducted plastic pipe before application.

Available sizes of the ACTIFOAM<sup>®</sup> filler sheets:  
300x140x10 mm  
300x140x15 mm  
300x140x20 mm  
300x140x25 mm  
600x140x20 mm  
600x140x25 mm  
Other dimensions are available on request.

**ACTIFOAM**

Depending on tightness rating a 10-20 mm thick layer NOFIRNO<sup>®</sup> sealant to be applied at both sides.  
Note: check the adhesive properties of the sealant with the ducted plastic pipe before application.



\* wall/floor thickness minimum 150 mm for classification EI120/E120

Available sizes of the RISE<sup>®</sup>/ULTRA crushers:  
24/16, 24/18, 28/20, 33/25, 38/32, 48/40, 58/50, 78/63, 88/75, 118/90 and 138/110.  
RISE<sup>®</sup>/ULTRA wraps have to be applied in a minimum thickness of 1/10 x D of the plastic pipe, rounded off +5 mm (minimum for pipes up to 50 mm OD = 5mm).  
RISE<sup>®</sup>/ULTRA wraps are delivered in a thickness of 2.5 mm and a length of 1000 mm.

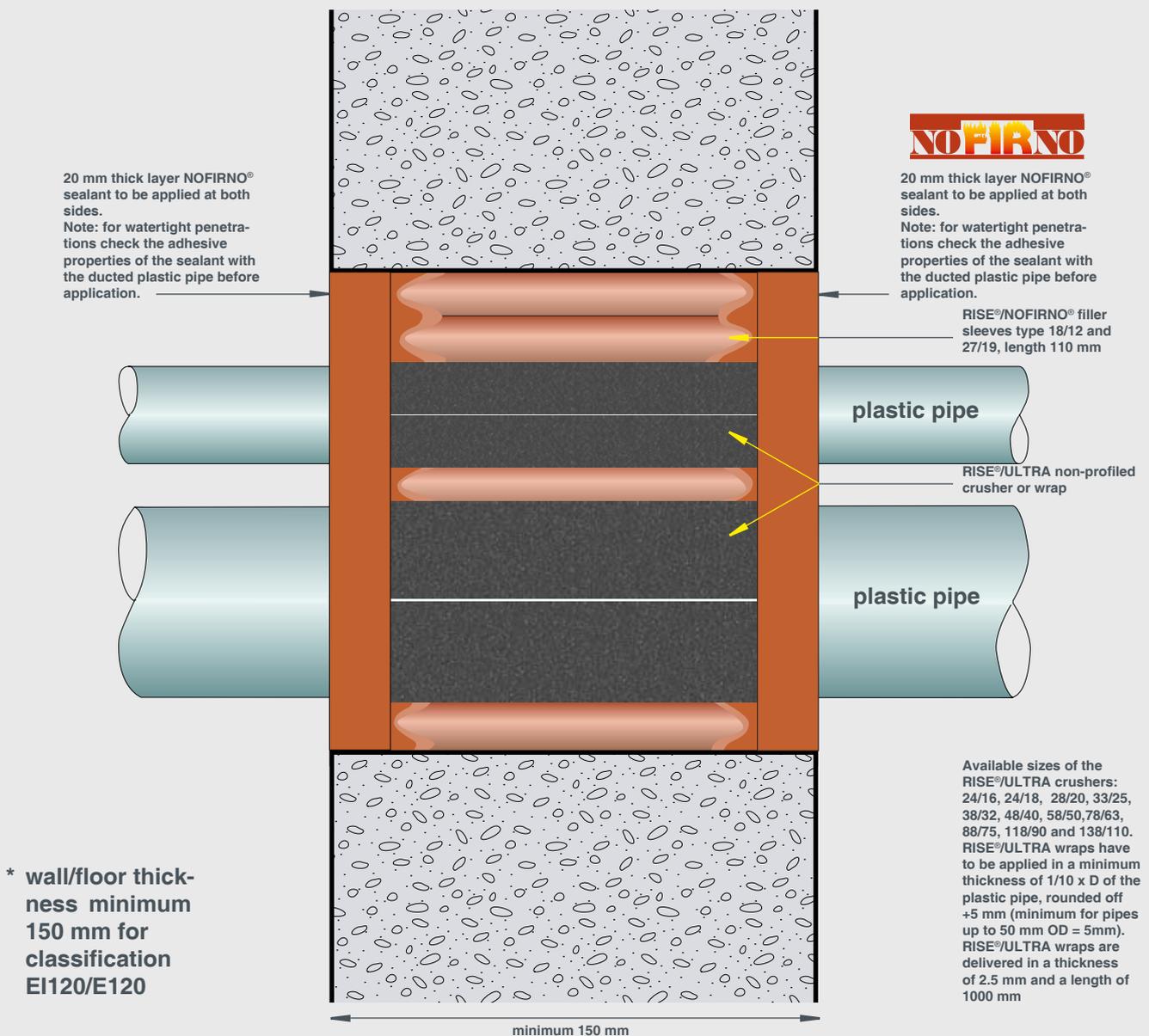
**CRUSHER**  
UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES

\*\*standard length of the RISE<sup>®</sup>/ULTRA crushers and ACTIFOAM<sup>®</sup> sheets is 110 mm. Other lengths are available on request.

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

## DIAGRAMMATIC OVERVIEW CONSTRUCTION/ONSHORE

- FOR MULTI-PIPE TRANSITS; FITTING RISE<sup>®</sup>/ULTRA CRUSHERS, NOFIRNO<sup>®</sup> FILLER SLEEVES AND SEALANT
- SEE THE RISE<sup>®</sup>/NOFIRNO<sup>®</sup> BROCHURE FOR DETAILS



**CRUSHER**

UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES

\*\*standard length of the RISE<sup>®</sup>/ULTRA crushers and NOFIRNO<sup>®</sup> sleeves is 110 mm. Other lengths are available on request.

# RISE<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION



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<sup>®</sup>/ULTRA CRUSHERS<sup>®</sup>: ULTIMATE FIRE SAFE SOLUTION

*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<sup>®</sup> or RIWAT<sup>®</sup> insert sleeves, the RISE<sup>®</sup>, RISWAT<sup>®</sup> or NOFIRNO<sup>®</sup> filler sleeves, the ACTIFOAM<sup>®</sup> spare filling sheets, the RISE<sup>®</sup> or RISE<sup>®</sup>/ULTRA crushers and the DRIFIL<sup>®</sup>, FIWA<sup>®</sup> or NOFIRNO<sup>®</sup> 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**



# CROSSHER

**UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES**

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),  
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## **ASK FOR THE SEPARATE BROCHURES ON OUR PRODUCT RANGES:**

- \* **RISE® MULTI-CABLE TRANSIT SYSTEM**
- \* **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

# CROSSBAR

**UNIQUE RISE/ULTRA TECHNOLOGY  
FOR ULTIMATE FIRE STOPPING  
PROPERTIES**

*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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