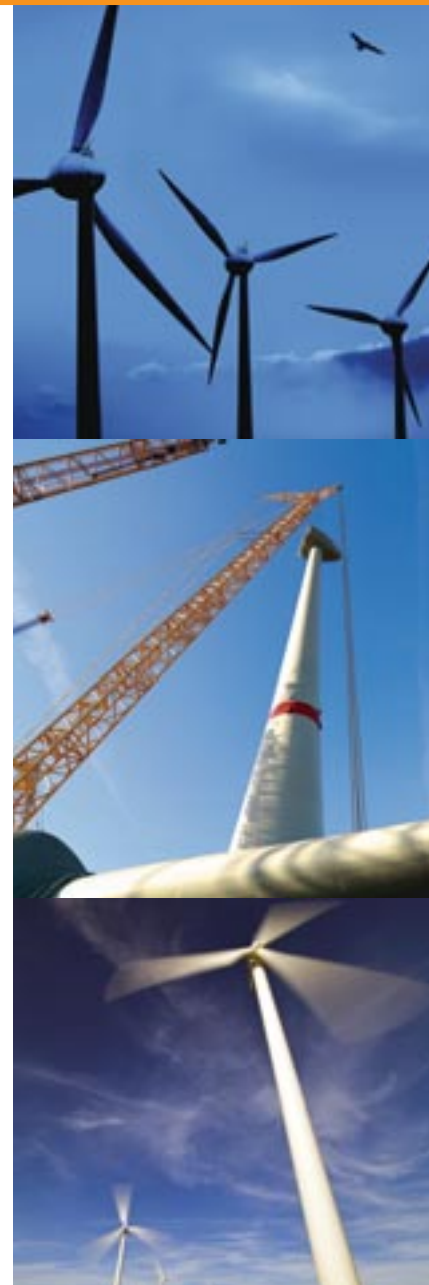


The most advanced product range for fire, gas and water tight sealing for cable and pipe entries.





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Safety. Reliability. Ingenuity.

Introduction.

Power Generation capabilities.



An experienced partner

CSD Sealing Systems have specialised in fire safe, gas and water tight sealing systems in the UK for over 15 years.

With close links to CSD International and Beele Engineering in the Netherlands, a company with over 35 years experience of development and production in this field, our clients can be assured of first class products and first class service, whatever their industry.

Customer focused

At CSD, we realise the importance of keeping to budgets and time-scales, and that is why we have developed systems which require few components and materials, and are guaranteed to lower costs of both inventory and installation.

Certified systems

CSD products have been extensively tested by all major worldwide classification societies and independent institutes, and are proven to ensure the highest standards of quality, safety, reliability and durability.



“CSD Sealing Systems provide an advanced product range to suit all conduit sealing applications. CSD products have been installed in a wide variety of wind farm projects both on and offshore throughout the world.”

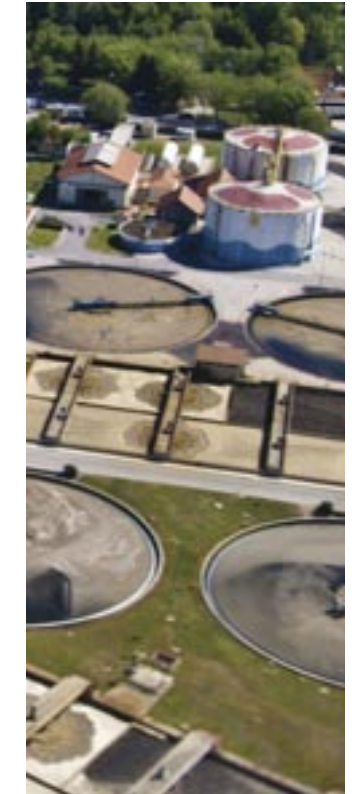
An advanced product range

Whatever the project, CSD offer the most comprehensive and cost effective range of sealing systems designed to seal cable and pipe entries to remove the risk of explosion, water ingress or spread of fire, protecting wind farm assets and personnel.

With a range that is expertly designed, CSD products are ideally suited for numerous environments, both on and offshore. With rubber grades that will protect for the life of the structure even in salt laden atmospheres, or exposed to severe weather conditions and UV.

With products retaining extremely high levels of protection and age tested to ensure no deterioration in performance in excess of 50 years, CSD Sealing Systems offer the ideal solution to any high risk environment.

Across many industries.



Civil Construction

CSD products have been installed in a wide variety of civil construction applications. Whatever the project, CSD offer the most comprehensive and cost-effective range of sealing systems designed to prevent the spread of fire, fumes, smoke and gases, helping to save lives as well as buildings and equipment.

Pharmaceutical

Due to the advanced designs of our products, they are ideally suited for ensuring safety in a clean room environment day after day. A wide range of rubber grades means we offer sealing solutions against even the most aggressive chemicals. Also, the materials we use will guarantee no fibre migration throughout the building.

Petrochemical

With products designed to increase the level of fire safety and with extremely high levels of protection against the spread of explosive gases, coupled with straight forward installation and maintenance, CSD Sealing Systems offer the ideal solution to this high-risk environment.

Power Generation & Distribution

Using the latest polymer technology and with a wide range of solutions, CSD products are guaranteed to resolve any sealing challenges across the power generation industry. Whether it is the high risk environments such as Nuclear Power Stations where safety is the number one priority, or in arduous environments such as offshore wind farms. CSD have a long running pedigree in supplying products that guarantee safety and protection of life and assets with seals that will continue to perform for the lifetime of the structure.

Offshore

Offshore platforms are a hazardous environment and therefore require the highest levels of safety. CSD Sealing Systems have been supplying offshore engineers with specialist sealing solutions for over 20 years, protecting against the demanding situations and ensuring the fire safe, gas and watertight ducting of all pipe and cable penetrations.

Naval

Naval vessels are amongst the most advanced ships in the world and as such require the most progressive sealing solutions. The full range of CSD products has been extensively tested under the most extreme conditions, to prove their suitability for surface ships and submarine applications, offering a lightweight, space-efficient solution and guaranteeing the highest level of safety for naval vessels and their personnel.

Marine

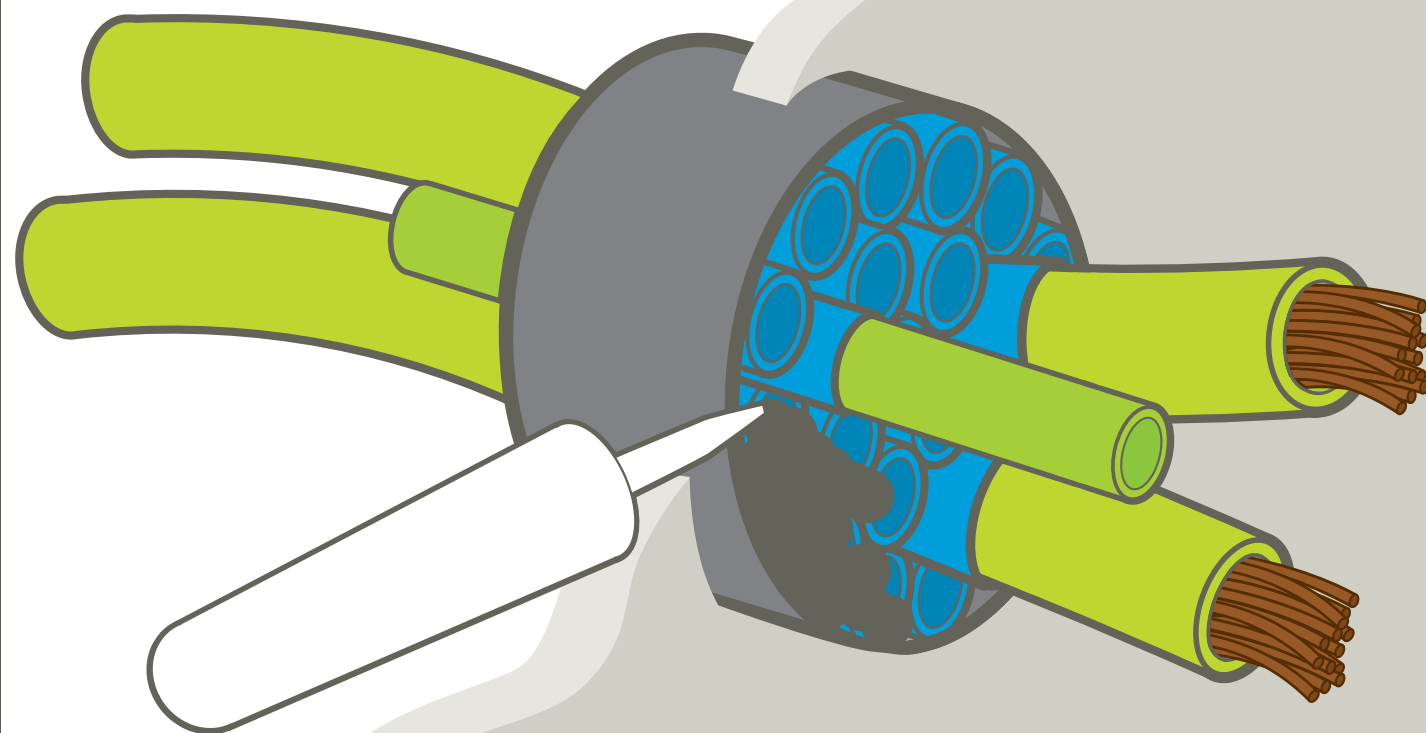
CSD Sealing Systems is a market leader in cable and pipe sealing systems for the marine industry. Safe, cost-effective, flexible systems are the key in the construction of all seagoing vessels today, and the reason why CSD products have been specified and installed by many leading worldwide shipbuilders to provide solutions that offer the highest standards of quality, safety and reliability.

Water

CSD have been market leaders in sealing cable entry ducts within the water industry for several years. Our range of products are designed to suit the specific needs of the water industry, where resistance to gases such as methane, as well as long term and high levels of protection against explosion risk is a specific and unique requirement. With products designed for simple installation, effective long term sealing of cable and pipe entries is assured.

RISE®

Multi Cable and Pipe Sealing System.



“...an effective and simple solution to all fire, gas and watertight sealing requirements.”

Features.



Simple and effective

The RISE Duct Seal is a multi-cable and pipe transit sealing system. It provides an effective and simple solution to all fire, gas and water tight duct sealing requirements.

Few components

It consists of only two components: rubber insert sleeves, used to guarantee cable separation and as a backing for the sealant layer and FIWA (or NOFIRNO) sealant; a high quality silicone based, fire resistant, water repellent sealant which consequently makes the system quick and easy to install.

Water and gas tight

The elasticity and high bonding strength of sealant offers a flexible seal, which resists movement, shock and vibration, as well as high pressure. The RISE rubber insert sleeves are applied to provide cable separation and a backing for the application of the sealant. For water and gas tight applications our standard 60mm RISE sleeve is sufficient.

Fire, water and gas tight

Using the RISE insert sleeves at a length of 160mm and applying sealant to both faces of the opening, will provide a fire tight seal. When exposed to heat or flame, the advanced rubbers used within the system will resist heat and flame, assuring total conduit sealing protection against fire, heat, toxic and corrosive gases.

Flexible and versatile

The RISE System can be used in vertical as well as horizontal ducts. The insert sleeves cling to the cables without sliding down and falling out of the penetration. The high adhesion and viscosity of the sealant means it will not run or drip when applied overhead.

Adding/removing cables

Installing additional cables is very straightforward. It is a simple matter of coring into the soft rubber layer of the sealant to a depth of 20mm and passing the additional cables through the opening created. The sealant is then applied around the new cable to re-seal. There is no need to disassemble the whole transit.

Benefits.



“The RISE Cable Transit System is quick and flexible, making it easier to achieve an effective gas and watertight seal.”

Cost-effective

Up to four hours fire protection

WIMES compliant

Ensures DSEAR compliance

High levels of gas and water tightness

Ease of re-entry for adding cables

Few components

No frame required

Suitable for trefoil cables

Age tested – 50 years

Complies with ATEX regulations

Resistant to methane, hydrogen sulphide and chlorine

Resistant to submersion in petrol, diesel and transformer oils

Quick and easy to install

Extensive test programme.



In-house fire testing and pressure testing at CSD International's laboratories.

The RISE Duct Seal has been extensively tested, not only in-house at the technical laboratories of CSD International in the Netherlands, but also by independent experts TNO Rubber Technologies and witnessed by independent approval bodies such as Lloyds Register. Our test programme ensures all of our products meet the rigorous quality standards of our customers in a wide range of industries and guarantees our products will be effective against the spread of fire, gases or water in the most arduous environments, and are proven to show no deterioration in effectiveness in excess of 50 years.

Lloyds Register witnessed – 2.5 bar pressure test

TNO Efectis Laboratory – Age Testing to 50 years with no deterioration in performance

BSEN1366-3 European Fire Test – 4 hour fire protection

Def Stan 02-711 Low Smoke Index (formerly NES711)

Def Stan 02-713 Low Toxicity Index (formerly NES713)

ISO 4589-3 – High Temperature Index

ISO 4589-2 – High Oxygen Index

Complies with ATEX regulations

Ensures DSEAR compliance

Installation layout.

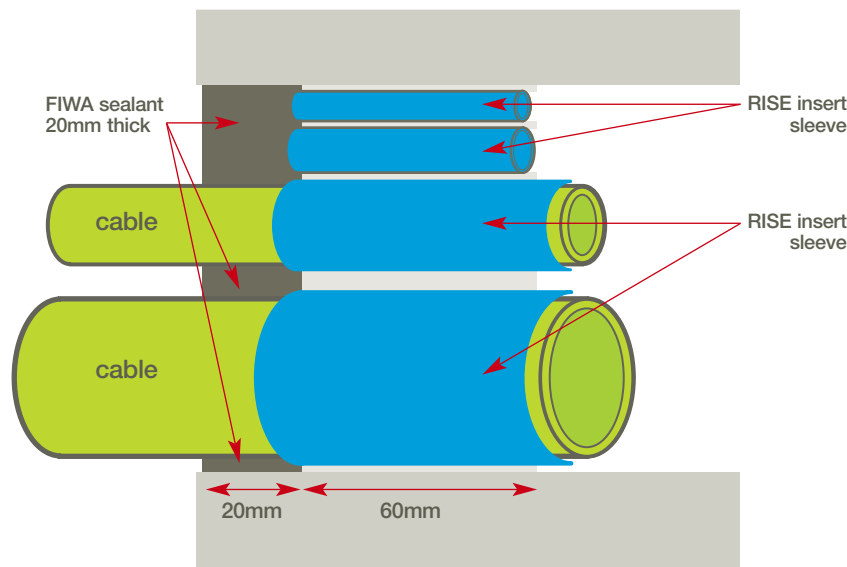
Onshore application.

Water and gas tight

The elasticity and high bonding strength of FIWA sealant offers a flexible seal, which resists movement, shock and vibration, as well as high pressure. The RISE rubber insert sleeves are applied to provide cable separation and a backing for the application of the FIWA sealant. For water and gas tight applications our standard 60mm RISE sleeve is sufficient.

20mm layer FIWA (or NOFIRNO) sealant
60mm RISE insert sleeves

- Certified Pressure Resistance – 2.5 bar

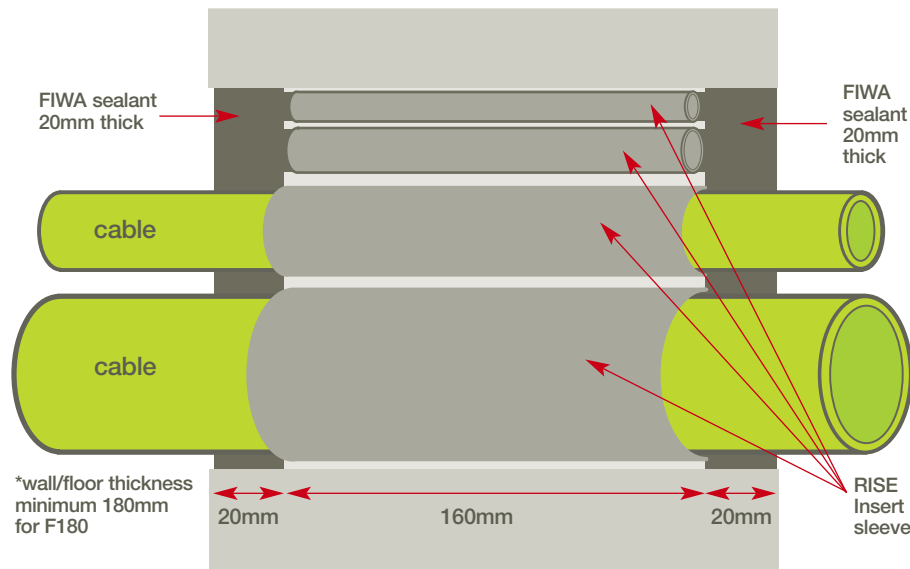


Fire, water and gas tight

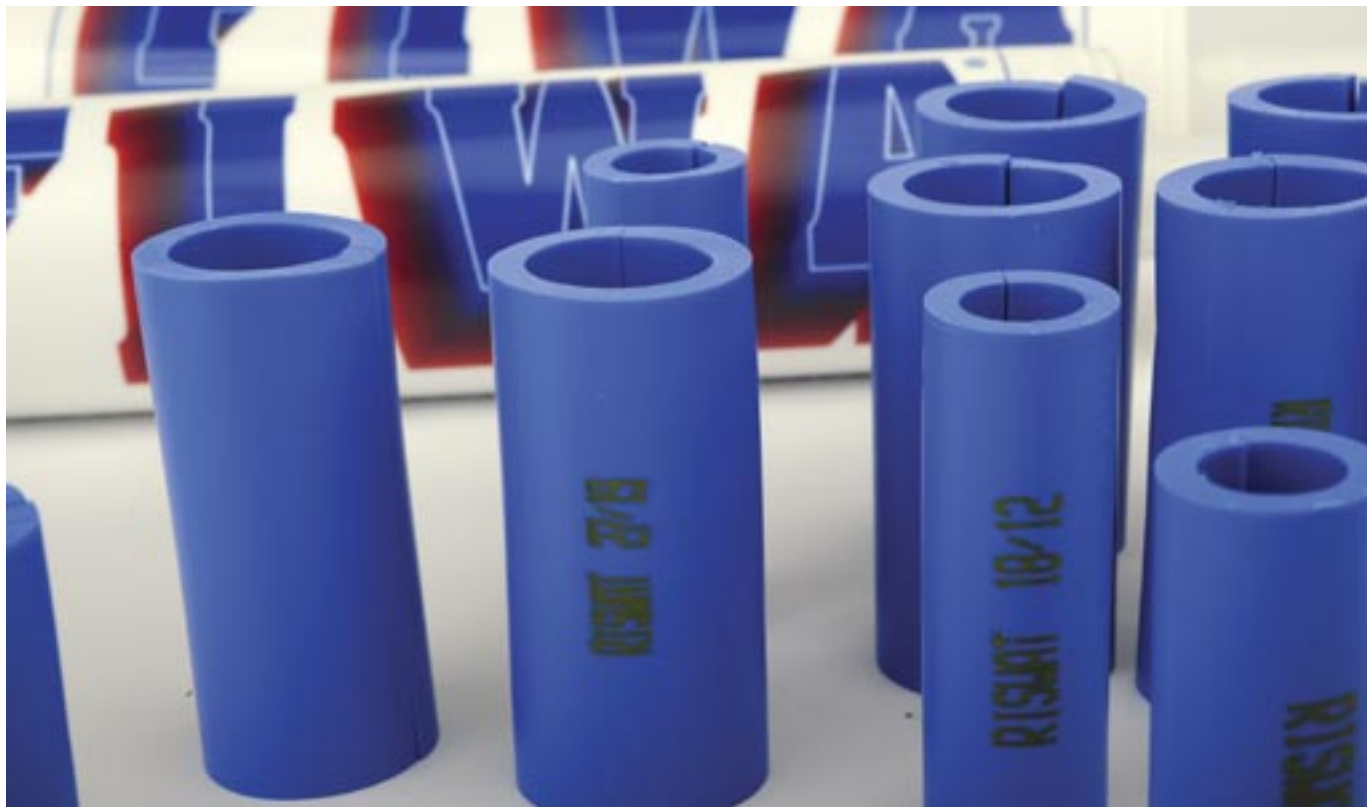
Using the RISE insert sleeves at a length of 160mm and applying FIWA sealant to both faces of the opening, will provide a fire tight seal. When exposed to heat or flame, the advanced rubbers used within the system will resist heat and flame, assuring total conduit sealing protection against fire, heat, toxic and corrosive gases.

2 x 20mm FIWA (or NOFIRNO) sealant layers
160mm RISE insert sleeves Type FRR/LEHF

- Certified Pressure Resistance – 2.5 bar
- 4 hours fire protection



Installation.



Step 1

Thoroughly clean the inside of the duct and cables, use an appropriate degreaser to remove the dirt, dust or oil to allow the FIWA (or NOFIRNO) sealant to bond. Apply a RISE insert sleeve of the relevant diameter around each cable to ensure all cables are separated.



Step 2

Fill the remaining free space with spare RISE insert sleeves, usually of sizes 27/19 and 18/12. Pack sleeves tightly then adjust to allow a 20mm gap from the front of the transit.



Step 3

Apply a 20mm layer of sealant to the face of the transit. Begin in the most difficult area and work outwards. A slight overfill is recommended. Ensure sealant is applied between all cables.

Installation.



Step 4

Using a damp cloth, press the sealant down and between the cables. Ensure a sufficient amount is applied and it makes good contact with all surfaces.



Step 5

Using your hand (nitrile gloves are recommended), make sure enough sealant is between the cables and has been applied to the required depth and then smooth to finish. Wet the hands to prevent the sealant sticking.



Step 6

Take a final check with a torch to ensure sufficient sealant has been applied between the cables. Sealant layer cures on average at a rate of 2mm per day.

Adding a cable.



Step 1

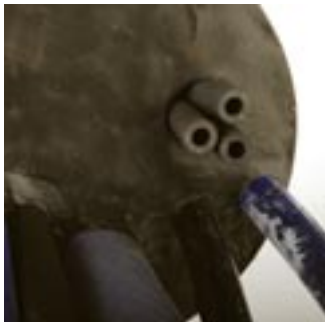
Adding extra cables is an easy job. Cut away the sealant layer at both sides of the penetration with a knife or a hollow punch in a tapering shape as shown above. This creates a good foundation for the sealant mass to be applied later.



Step 2

Pull the cable through one of the empty filler sleeves with an inner diameter more or less corresponding to the outer diameter of the cable.

Refill the opening in the sealant layer at both sides of the penetration with sufficient sealant.



Step 3

If the empty filler sleeves are not fitting to the size of the cable to be ducted, a number of these insert sleeves must be removed from the penetration.

Install a fitting insert sleeve (with some filler sleeves if necessary) in the open space in the penetration.



Step 4

Pull the cable through the fitting insert sleeve that has now been installed. Refill the openings cut in the sealant layer at both sides of the penetration with sufficient sealant. The sealant is pressed down firmly and smoothed with a damp cloth.

Standard RISE kits – order table.

REQUIREMENT	SIZE	ORDER CODE
WATER/GAS TIGHT	3 X 50MM DUCTS	RISEDUCT50WG
WATER/GAS TIGHT	100MM DUCT	RISEDUCT100WG
WATER/GAS TIGHT	125MM DUCT	RISEDUCT125WG
WATER/GAS TIGHT	150MM DUCT	RISEDUCT150WG
WATER/GAS TIGHT	200MM DUCT	RISEDUCT200WG
WATER/GAS TIGHT	250MM DUCT	RISEDUCT250WG
FIRE, WATER AND GAS TIGHT	3 X 50MM DUCTS	RISEDUCT50F
FIRE, WATER AND GAS TIGHT	100MM DUCT	RISEDUCT100F
FIRE, WATER AND GAS TIGHT	125MM DUCT	RISEDUCT25F
FIRE, WATER AND GAS TIGHT	150MM DUCT	RISEDUCT150F
FIRE, WATER AND GAS TIGHT	200MM DUCT	RISEDUCT200F
FIRE, WATER AND GAS TIGHT	250MM DUCT	RISEDUCT250F



NOTE: RISE can be used to suit **ANY** size opening. If the above standard selection does not suit your requirements please contact us.

TOOLS REQUIRED (INSTALLATION KITS AVAILABLE)

- High ratio sealant gun
- Tape measure
- Disposable nitrile gloves
- Cloths

- Long nose pliers
- Water spray
- Wooden depth gauge
- Wire brush
- Degreasing agent

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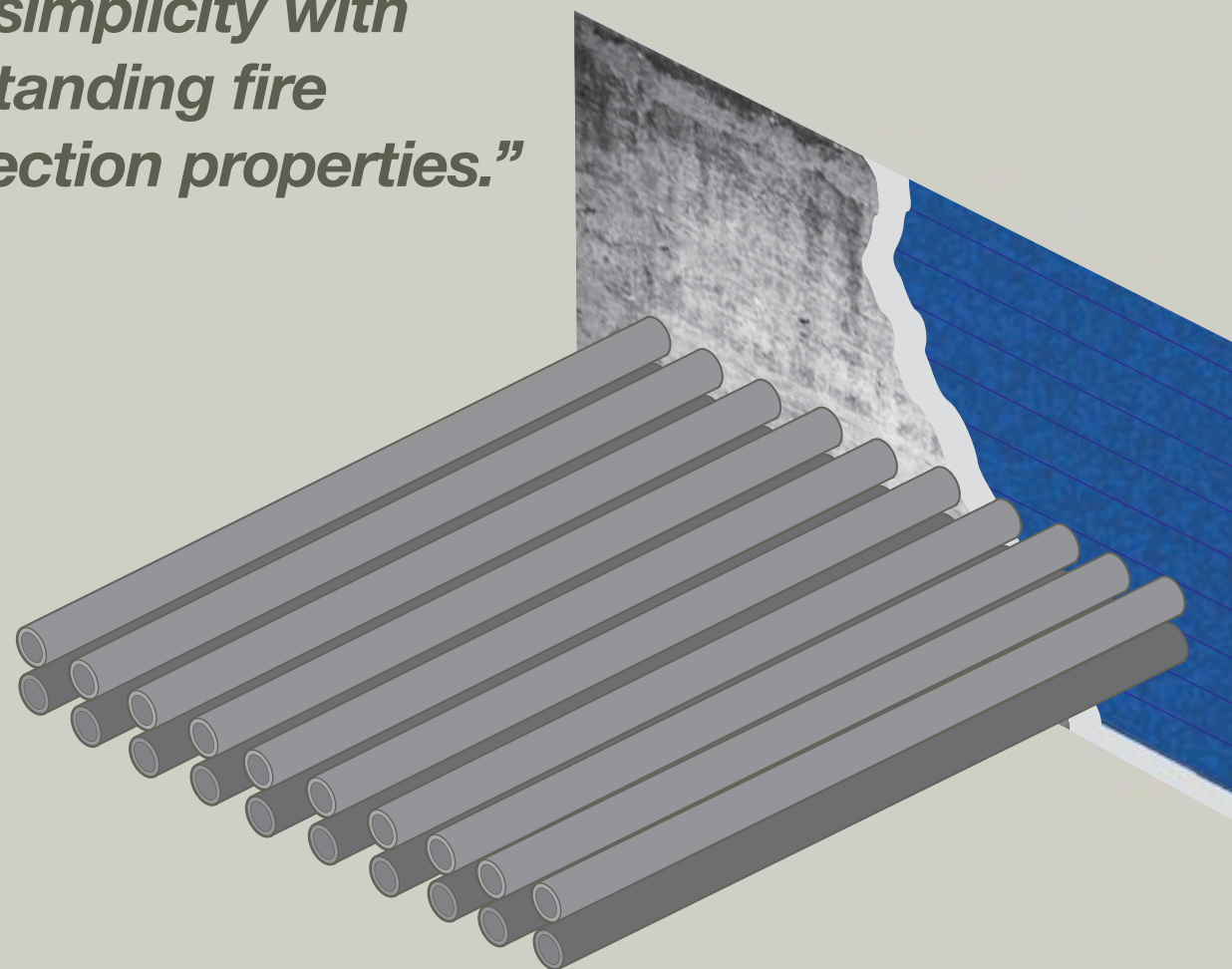
Safety. Reliability. Ingenuity. 13

ACTIFOAM[®] FIRESTOP

Cable and Pipe Fire-Stopping System.



“...combines flexibility and simplicity with outstanding fire protection properties.”



Features.



Flexibility and simplicity

ACTIFOAM is designed for fire-safe ducting of cables in building and industrial applications. The ACTIFOAM system combines flexibility and simplicity with outstanding fire protection properties. Closed cell foam rubber sheets can be sized to suit any variety of service types passing through any size wall or floor opening.

Two designs, one purpose

CSD's frame design is combined with ACTIFOAM to create an extremely high level of fire resistance, in a format that is simple to install and easy to regularly disassemble; ideal for applications where routing or re-routing of cables is common place.

Outstanding performance

The purpose of ACTIFOAM technology is to ensure that during a fire the rubbers, thermoplastics and compounds used for the seal will produce such an amount of fire retardant material that major deformations or displacements in the services or structure are effectively accommodated.

As a result, the penetration will remain fire tight. The higher the temperature, the more fire retardant material will be produced.

Tested to the limit

ACTIFOAM is an expanding rubber that fills any cavities or gaps in constructions, offering a perfect fire seal that lasts for a very long duration.

ACTIFOAM has been extensively tested to guarantee low smoke and low toxic gas production, to such a high level; it has been approved for use in areas where low smoke and low toxicity products are a life saving necessity. ACTIFOAM provides up to 2 hours fire protection and 2 hours insulation in accordance with BSEN1366-3 (mandatory from December 2010).

A seal against water, gases & cold smoke

ACTIFOAM is a closed cell rubber so it will not absorb moisture making it suitable for use outdoors or in harsh environments. In addition, with the application of CSD's FIWA (or NOFIRNO) sealant, the system provides a seal against water, gases or cold smoke, to pressures in excess of 2.5 bar. ACTIFOAM really is the seal for all applications and all environments.

Benefits.



“Low smoke and toxicity index and up to 2 hours fire protection.”

Suitable for outdoor environments

High levels of fire resistance

Remains mechanically intact

Ducting of additional cables is very simple

No fibre migration

Thermal protection

Lower maintenance costs

Age tested in excess of 50 years

Lowest smoke and toxicity materials

Aesthetic finish

Long term protection against fire and heat

Easy to install

Extensive test programme.



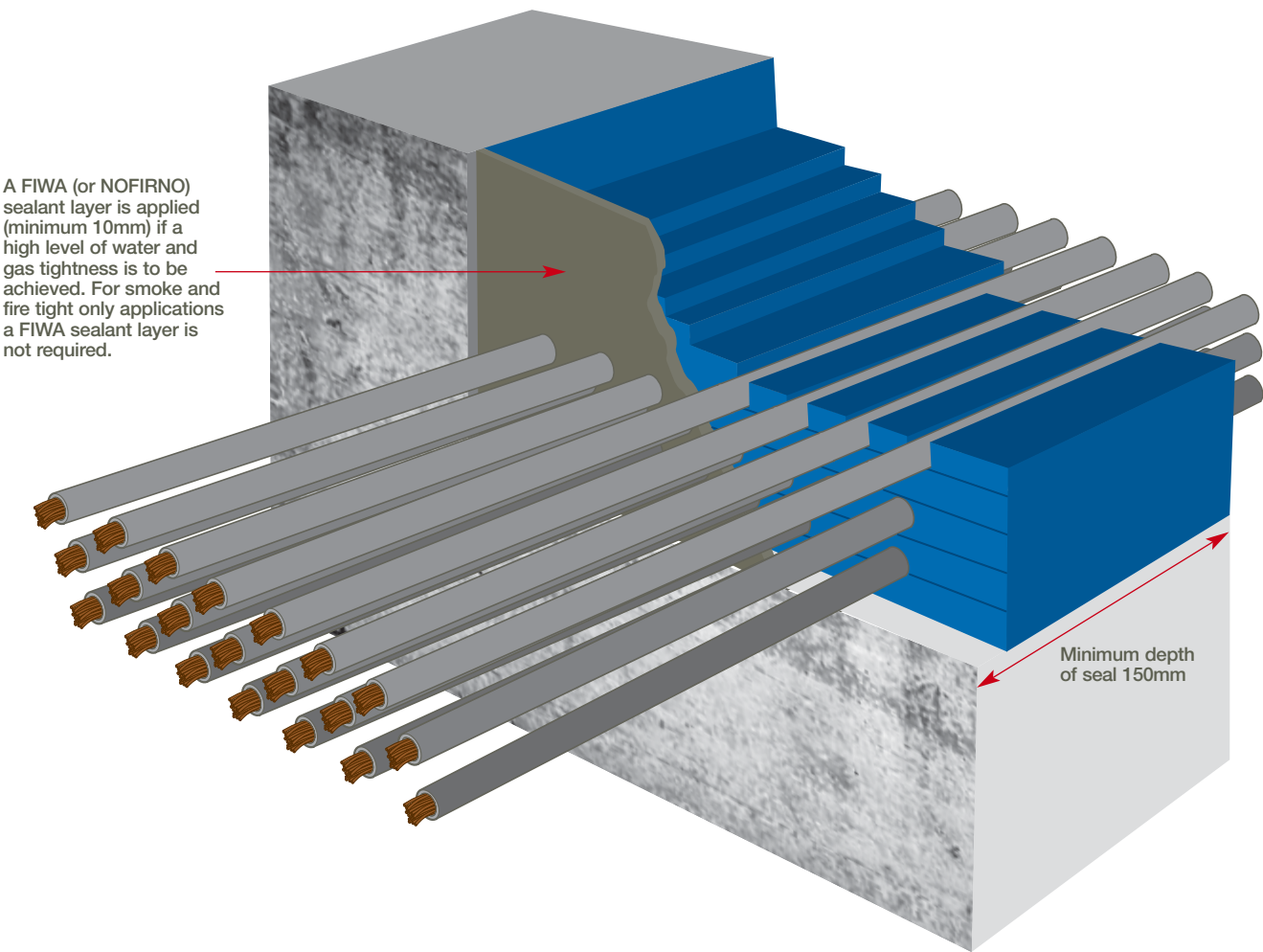
Offering 2 hour fire protection for both integrity and insulation, ACTIFOAM has been tested in accordance with the most stringent fire test procedure BSEN1366-3 (mandatory from December 2010). With the addition of a FIWA (or NOFIRNO) layer, the system also becomes gas and water tight.

- Lloyds Register witnessed – 2.5 bar pressure test
- TNO Efectis Laboratory – Age Testing to 50 years with no deterioration in performance
- BSEN1366-3 European Fire Test – 2 hour fire protection (mandatory from December 2010)
- Def Stan 02-711 Low Smoke Index (formerly NES711)
- Def Stan 02-713 Low Toxicity Index (formerly NES713)
- ISO 4589-3 – High Temperature Index
- ISO 4589-2 – High Oxygen Index
- FIRAS and Certifire approved
- BS476 Part 20:1987

Innovative technology.

ACTIFOAM Firestop System.

Where cables are in trunking ACTIFOAM is used to fill any available voids around cable bundles and trunking. Where cables run through on tray ACTIFOAM is applied in between cables. Cable separation to correspond with cable diameter (small cables can be bundled to a max bundle of 35mm).



Test standards	Fire resistance integrity	Fire resistance insulation
BSEN1366-3	2 hrs	2 hrs

Foam rubber is supplied in sheets with a thickness from 10 up to 25mm.

ACTIFOAM
FIRESTOP

Sheets are delivered in sizes:

500x500x10mm	
500x500x15mm	1000x500x15mm
500x500x20mm	1000x500x20mm
500x500x25mm	1000x500x25mm

They can easily be cut to size with a sharp knife.

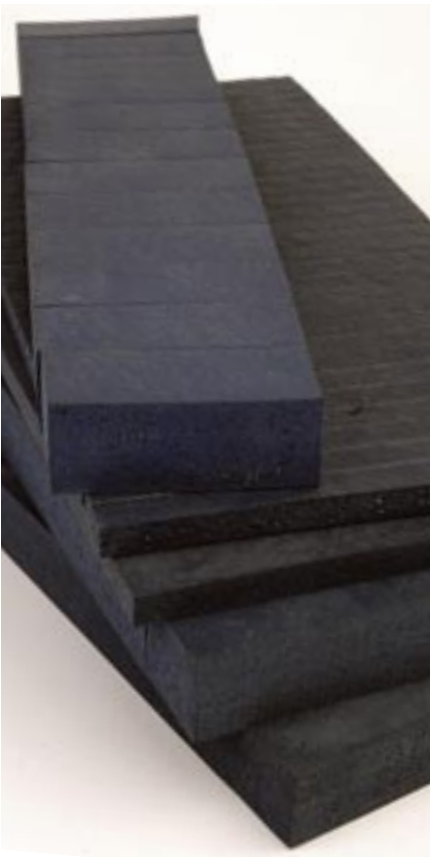
Sheets and pre-slit sheets are delivered in sizes:

ACTIFOAM
FIRESTOP

300x100x10mm	600x100x10mm
300x100x15mm	600x100x15mm
300x100x20mm	600x100x20mm
300x100x25mm	600x100x25mm
300x150x10mm	600x150x10mm
300x150x15mm	600x150x15mm
300x150x20mm	600x150x20mm
300x150x25mm	600x150x25mm
300x200x10mm	600x200x10mm
300x200x15mm	600x200x15mm
300x200x20mm	600x200x20mm
300x200x25mm	600x200x25mm
300x250x10mm	600x250x10mm
300x250x15mm	600x250x15mm
300x250x20mm	600x250x20mm
300x250x25mm	600x250x25mm

The **10mm thick sheets** have 30 (60) pre-cut profiles 10x10mm.
The **15mm thick sheets** have 20 (40) pre-cut profiles 15x15mm.
The **20mm thick sheets** have 15 (30) pre-cut profiles 20x20mm.
The **25mm thick sheets** have 12 (24) pre-cut profiles 25x25mm.

The profiles can easily be torn off.



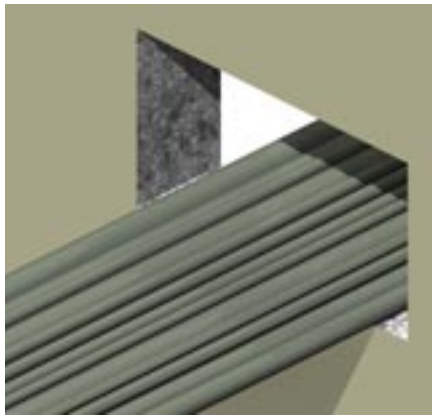
Installation.

ACTIFOAM Firestop System.



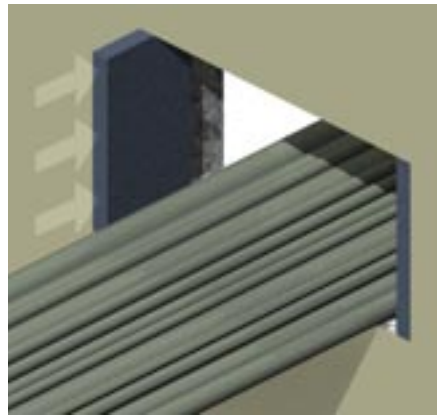
Step 1

If the walls inside the conduit opening exhibit large irregularities, they should be locally smoothed with FIWA (or NOFIRNO) fire safe sealant, otherwise insufficient smoke tightness will be obtained.



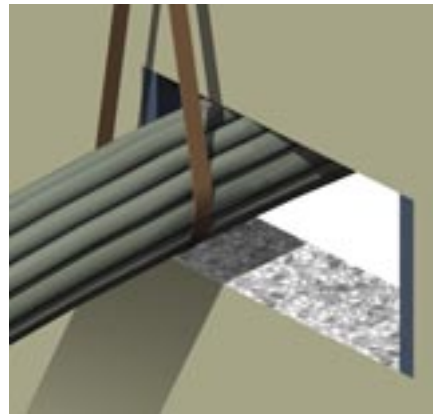
Step 2

The cables can be ducted through the conduit opening in random order. It is important that they are not pulled too tight in order to hamper their separation.



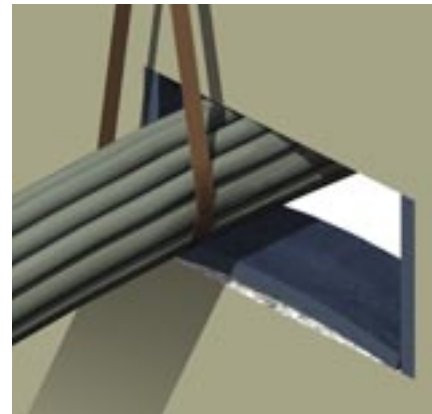
Step 3

ACTIFOAM rubber sheets are cut into strips fitting to the size of the walls inside the conduit opening. For this purpose ACTIFOAM sheets with a thickness of 25mm are used.



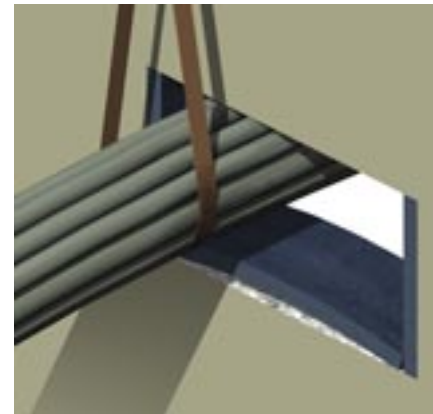
Step 4

The ACTIFOAM rubber sheets should fit snugly in the conduit opening to ensure a tight fit against the walls. This is important to avoid smoke penetrating between the sheets and the wall.



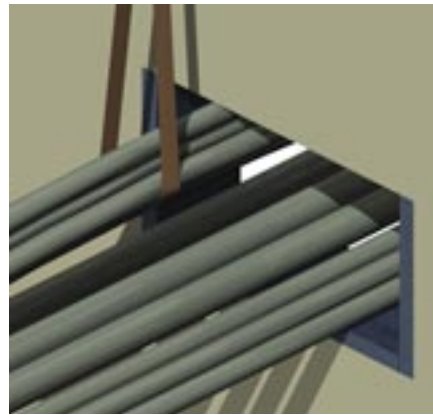
Step 5

An ACTIFOAM rubber sheet must also be placed in the conduit opening underneath the layer of cables. A band is placed around the cable bundle to lift the bundle of cables.



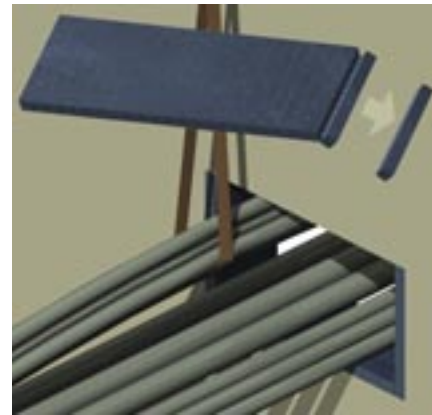
Step 6

A slightly oversized strip of ACTIFOAM rubber with a thickness of 25mm is placed inside the conduit opening underneath the cables. The sheet will be compressed by the weight of the cables.



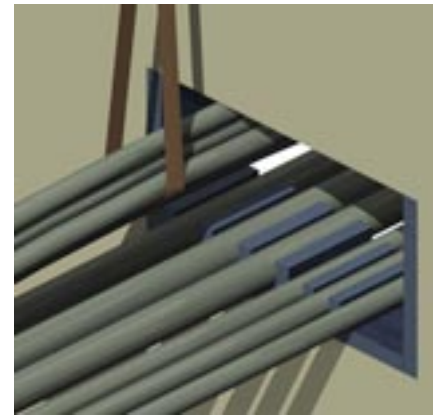
Step 7

One layer of cables is spread out on the ACTIFOAM rubber sheet at the bottom of the conduit opening. The other cables are lifted to make room for further finishing to the first layer.



Step 8

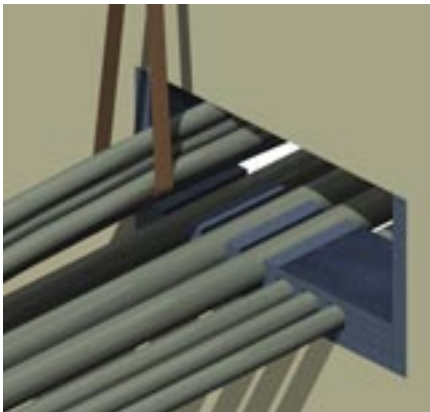
For proper cable separation square profiles are torn off the pre-slit ACTIFOAM rubber sheets. The sizes of the profiles should be equivalent to the cable diameters.



Step 9

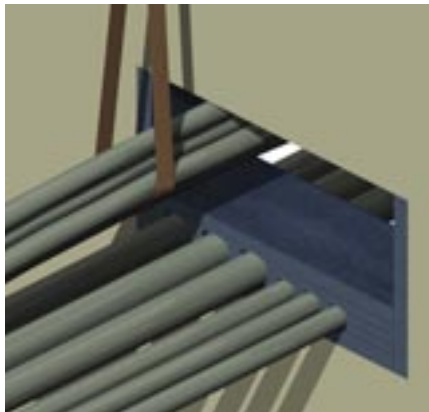
Profiles are slit in sizes of 10x10, 15x15, 20x20 and 25x25mm. This enables an easy fit for corresponding cable sizes. Cables larger than 25mm should be separated by a minimum of 25mm.

...continued.
ACTIFOAM Firestop System.



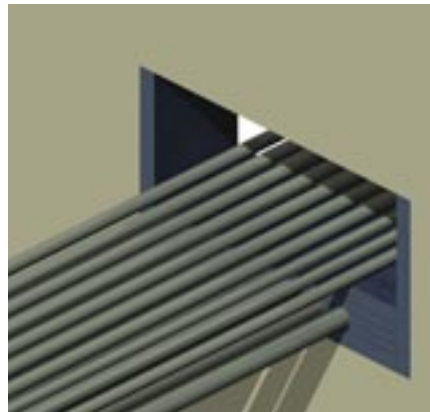
Step 10

Adjacent to the first layer of cables and profiles, one or more extra sheets of ACTIFOAM rubber is fitted to create a level layer for further filling the conduit opening.



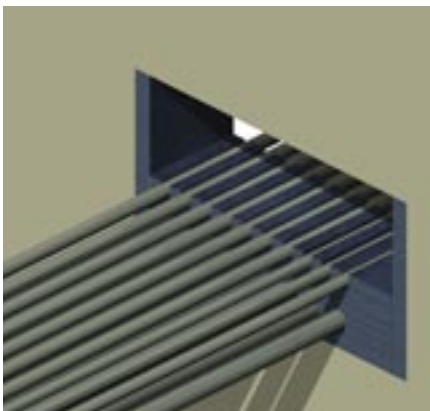
Step 11

An intermediate ACTIFOAM rubber sheet is inserted in the conduit opening on top of the levelled first layer. The thickness of the intermediate layer is dependent on the maximum cable diameter.



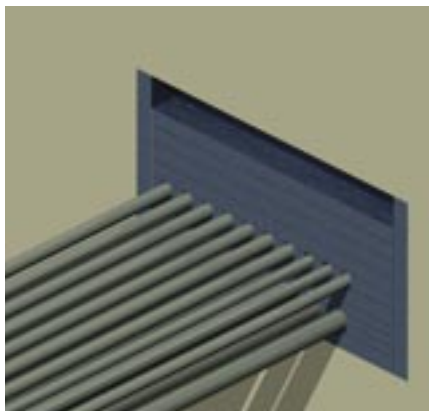
Step 12

The next layer of cables is spread out on the ACTIFOAM intermediate rubber sheet. As indicated before, the cables should not be pulled too tight to enable this.



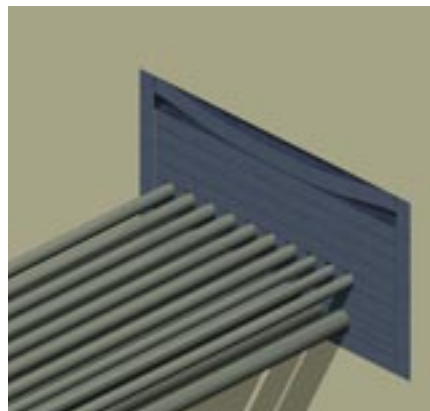
Step 13

In the same way as with the first layer of cables, the cables are separated with the ACTIFOAM pre-slit profiles and levelled with one or more ACTIFOAM sheets.



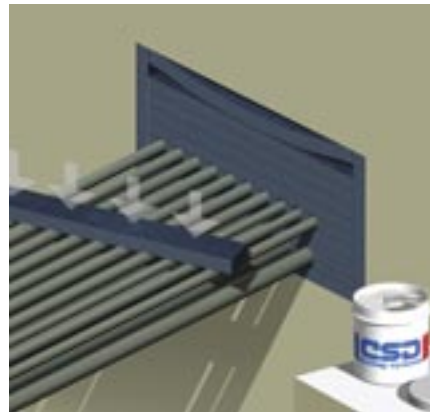
Step 14

The remaining space is filled with one or more ACTIFOAM sheets. All sheets should fit tightly in the conduit opening to obtain a fair degree of smoke tightness.



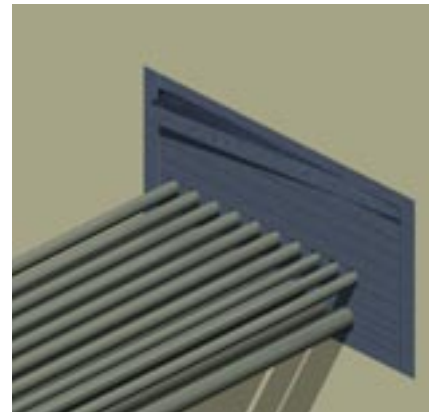
Step 15

Due to better sliding of greased rubber on rubber, for final finishing an ACTIFOAM sheet must be inserted between the top layers of ACTIFOAM sheets.



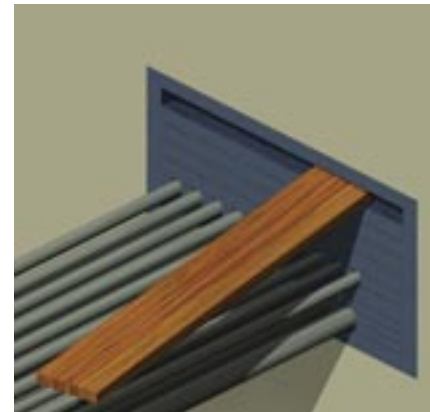
Step 16

Compression of the filling is necessary to obtain stability. For this purpose it is easier to insert a couple of strips instead of sheets. The strips are greased all around with CSD lubricant.



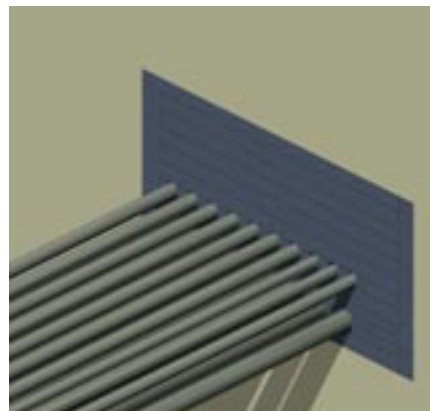
Step 17

The first strip is inserted into the opening between the layers by hand. For a wall thickness of 150mm it is advisable to cut three strips 50mm wide to enable easier insertion.



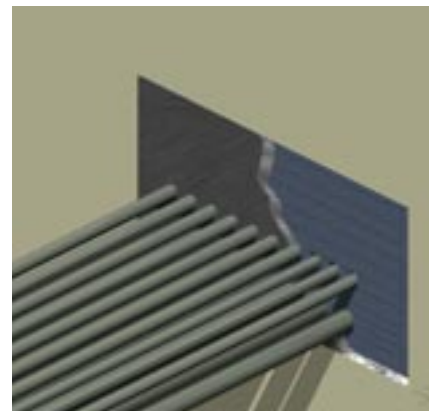
Step 18

A piece of wood is used to push the strips tightly into the opening between the ACTIFOAM rubber sheets. The use of strips instead of sheets makes this much easier to do.



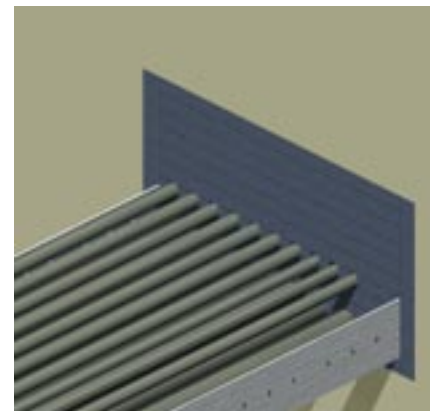
Step 19

The finished ACTIFOAM multi-cable penetration. Officially fire tested according to BSEN 1366-3 (NEN 6069) for two hours in an aerated concrete wall 150mm thick.



Step 20

In case the penetration has to be not only fire safe but also gas and water tight, the ACTIFOAM foam rubber filling can be covered with a layer of FIWA (or NOFIRNO) sealant in a thickness of minimum 10mm.

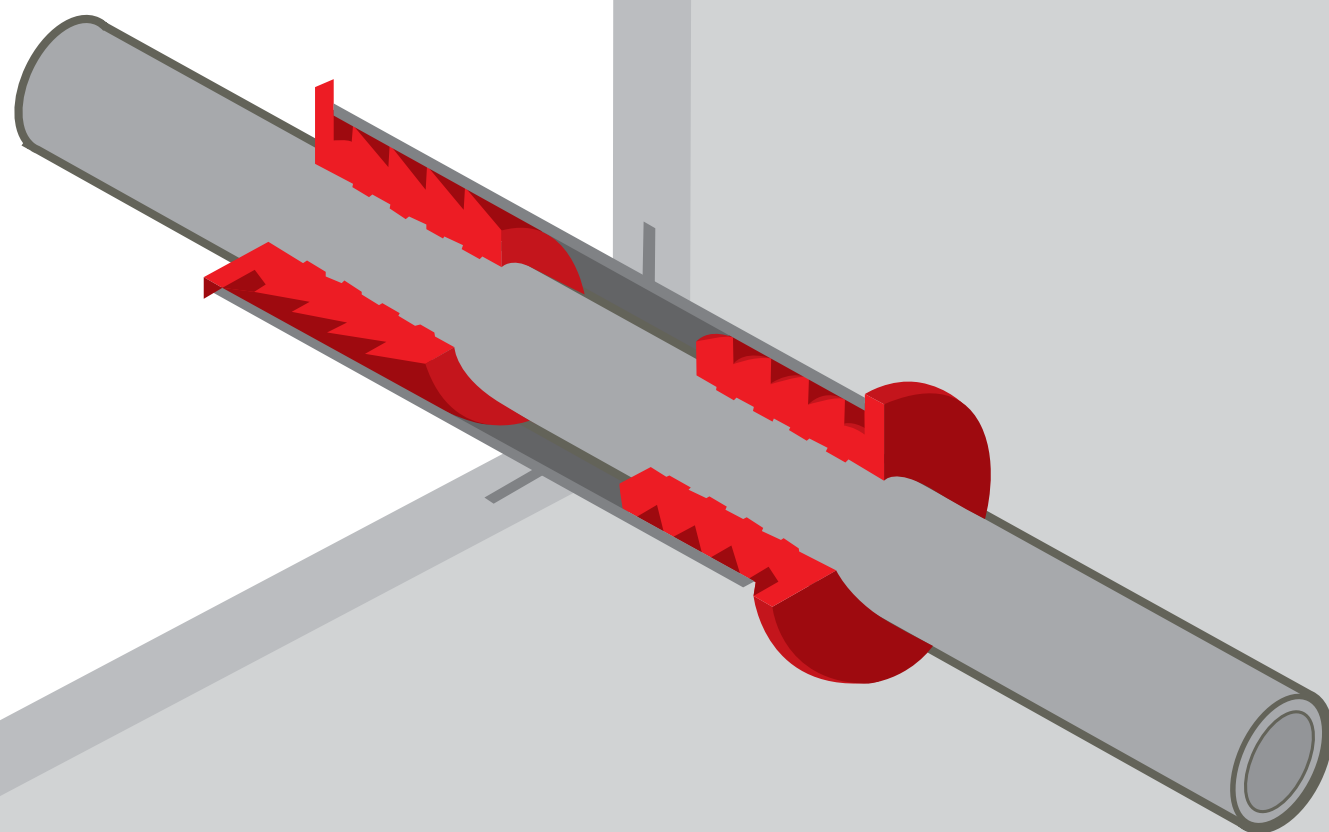


Step 21

It is not necessary to interrupt the cable tray. ACTIFOAM allows, if required, the tray to be passed through the conduit opening. Around the cable tray ACTIFOAM sheets are placed.

SLIPSIL®

Seals for Cable and Pipe Entries.



“CSD Sealing Plugs consist of two equal parts that allows them to be inserted after all pipes or cables in a conduit are installed.”

Features.



New generation seals

SLIPSIL is the new generation sealing plug from CSD. It combines simple installation with effective sealing performance. Designed to seal pipes and cables against the ingress of fire, gas and water at pressures in excess of 2.5 bar, and is resistant against fire for up to 2 hours. In a range of sizes to suit services between 5mm and 520mm in diameter, the plug will cope with a much larger tolerance than the traditional CSD Sealing Plugs.

Simple installation, outstanding performance

CSD Sealing Plugs consist of two equal parts that allows them to be inserted after all pipes or cables in a conduit are installed.

The flange of the sealing plug is designed in a way that even after installation they are easily recognisable. The plugs have a special profiling; the serrated profiles at the outside have an interspacing and are levelled and the inner ribs are flattened and interconnected.



Benefits.



*“Fast
and simple
to install.”*

Can be installed in minutes

Allows the shortest possible conduit length for fire rated penetrations

Can be used for all types of metallic and plastic pipes

Do not require bolting or any other mechanical outfitting

Low maintenance

Can be exposed to high pressure loads directly after installation

Tested under severe conditions, suitable for wide ranging industries and for use in the harshest environments

Extensive pressure testing.



SLIPSIL sealing plugs have gone through three pressure tests at nominal dimensions to determine the pressure ratings for plugs with smallest, medium and largest inlets.

The plugs also have been subjected to three pressure tests with the minimum pipe diameter and the widest conduit opening to determine tightness and extreme tolerances.

This procedure has to be repeated with the smallest conduit opening and the largest pipe diameter to determine ease of installation. Finally, the largest pipe diameter has to be tested in the widest conduit opening to determine tightness in another extreme condition.

This creates a total of twelve pressure tests for each series to determine the operational tolerances and ease of installation.

Lloyds Register Witnessed
– 2.5 bar pressure test

TNO Laboratory – Age Testing to 50 years

BSEN1366-3 European Fire Test
– 2 hour fire protection

NES711 – Low Smoke Index

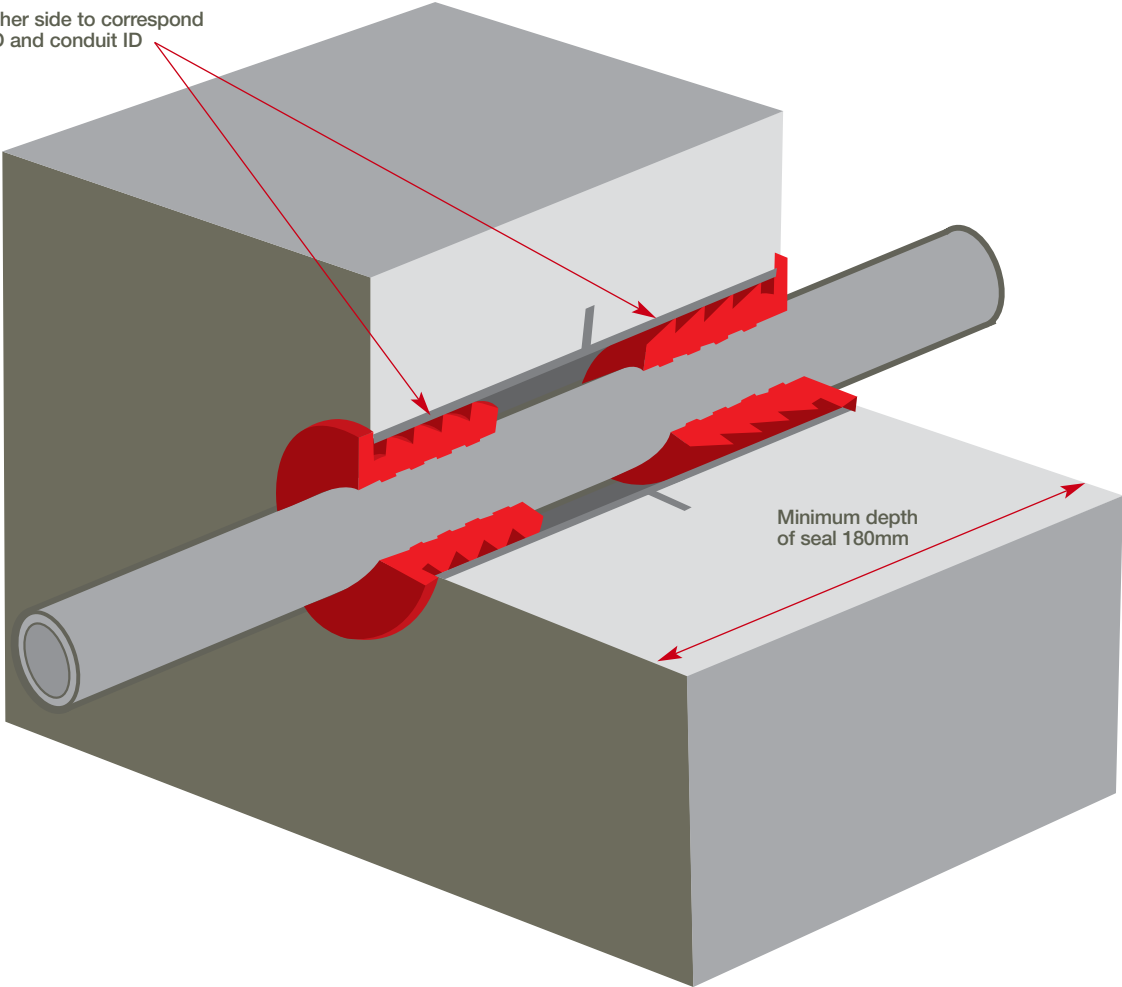
NES713 – Low Toxicity Index

ISO 4589-3 – High Temperature Index

ISO 4589-2 – High Oxygen Index

Innovative technology.

Seal fitted either side to correspond to service OD and conduit ID



Test standards	Fire resistance integrity	Fire resistance insulation
BSEN1366-3	2 hrs	2 hrs
BSEN13501-2:2003	2 hrs	2 hrs

Specialist conduit frames are available. Alternatively, SLIPSIL plugs can be inserted into core drilled holes.

Installation.



Step 1

Before starting the installation, any dirt or oil residues should be removed from the conduit opening.



Step 2

The inside wall should then be treated with CSD lubricant along a distance which approximately corresponds with the length of the sealing plug.



Step 3

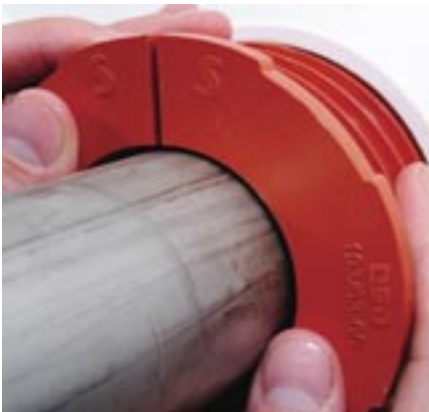
The inside surfaces of both segments of the sealing plug need to then be covered with CSD lubricant.

...continued.



Step 4

The segments of the sealing plug need to be treated with CSD lubricant on the outside. Ensure all surfaces are well lubricated.



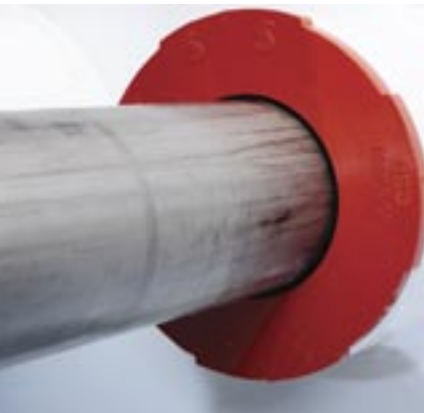
Step 5

Place both segments of the sealing plug around the ducted pipe and then push into the conduit opening as far as the first serration.



Step 6

Push both segments of the sealing plug evenly by hand, serration by serration, further into the conduit opening. For some plugs at extreme tolerance, a wooden section and mallet may be required.



Step 7

To satisfy certification requirements a plug should be installed at each end of the penetration (flanged edge flush against the frame). When installing the second plug air can become trapped inside the penetration. Use a lubricated screwdriver and carefully insert the end between the 2 plug segments to release the air. Repeat process if required until all air is released and the second plug is fully inserted.

Plastic pipes (additional steps)



Step 8

For plastic pipes you must use an 80mm wide wrap of RISE FRR/EHF rubber between the SLIPSIL plugs. A pre-formed sleeve can be used for pipe sizes up to 44mm and wrap in 1m or 3m lengths for sizes above.



Step 9

Once the wrap is inserted in to the centre of the penetration the second SLIPSIL plug can be installed as before. This will create your fully certified plastic pipe SLIPSIL penetration.

SLIPSIL selection table for metallic and GRP pipework.

STEP 1			STEP 2						
BS (NB)	ASTM (NB)	MM	SERIES 35	SERIES 53	SERIES 78	SERIES 103	SERIES 128	SERIES 154	SERIES 207
			(Suits 5-20mm)	(Suits 10-34mm)	(Suits 22-50mm)	(Suits 40-75mm)	(Suits 60-92mm)	(Suits 88-125mm)	(Suits 110-168mm)
		6	35/5-6						
		8	35/8-9						
		10	35/10-12	53/10-12					
		12	35/12-14	53/12-14					
1/4"	1/4"	13	35/12-14	53/12-14					
		15	35/14-16	53/14-16					
3/8"	3/8"	17	35/16-18	53/16-18					
		18	35/18-20	53/18-20					
		20		53/20-22					
		21		53/20-22					
		22		53/22/-24					
		25		53/24-26					
3/4"	3/4"	26		53/26-28					
		28		53/28-30	78/28-30				
		30		53/30-31	78/30-32				
1"	1"	33		53/33-34	78/32-34				
		35			78/34-36				
		38			78/38-40				
		40			78/40-42				
1 1/4"	1 1/4"	42			78/42-44	103/42-44			
		44			78/44-46	103/44-46			
1 1/2"	1 1/2"	48			78/48-50	103/48-50			
		50			78/50	103/50-52			
		53				103/52-54			
		54				103/54-56			
2"	2"	60				103/60-62	128/60-62		
		63				103/62-63	128/62-64		
		67				103/66-68	128/66-68		
	2 1/2"	73				103/72-74	128/72-74		
2 1/2"		76					128/76-78		
3"	3"	88					128/88-90	154/88-90	
		108						154/108-110	
4"	4"	114						154/114-116	
6"	6"	168							207/168

STEP 3							
NB	1 1/4"	2"	3"	4"	5"	6"	8"
OD & Wall Thickness (mm)	42.2 x 3.56	60.3 x 3.6	88.9 x 5.49	114.3 x 5.6	139.7 x 5.6	168.3 x 7.11	219.1 x 6.3
Inside Diameter (mm)	35.08	53.1	77.92	103.1	128.5	154.08	206.5
Allowable Tolerance on ID (mm)	34.5-35.7	52-53.7	77-78.7	102-103.7	127-128.7	153-154.7	206-207.7
Suggested Steel Specification	API 5L Grade B	ST.52 DIN 1629	API 5L Grade B	API 5L Grade B	ST.52 DIN 1629	API 5L Grade B	API 5L Grade B
Minimum Frame Length (mm)	120	120	160	160	160	160	160

STEP 1: Select the outside diameter of the service pipe from the table.

STEP 2: Read along the row to select the correct plug size and type.

STEP 3: Read down the column to select the correct penetration sleeve.

The internal diameter of the chosen sleeve is critical to ensure a water tight seal. The ID must be within the tolerance indicated in the table.

Penetration sleeves are available direct from CSD, sized to suit and with a bevel applied to the inside edge to aid insertion of the SLIPSIL plugs.

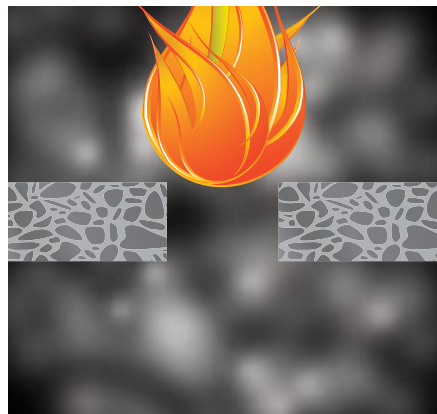
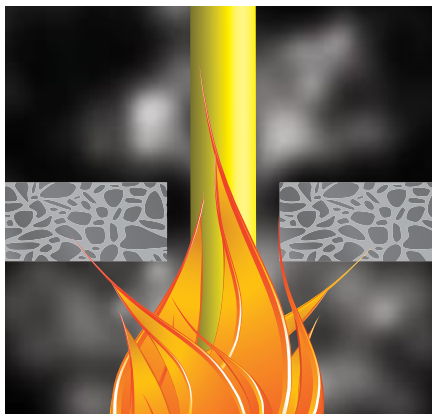
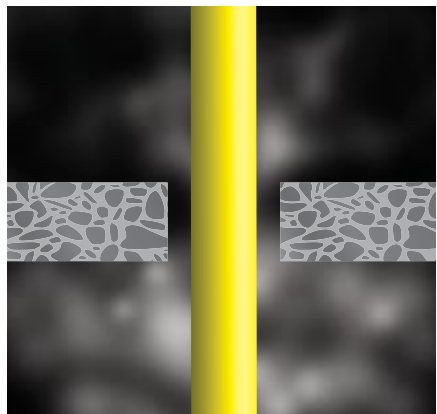
Mild steel is supplied as standard and can be coated to your specification if required. Aluminium, Stainless Steel and GRP sleeves are also available.

The above is not a complete listing of plugs available, but does cover the majority of requirements. If it does not cover yours please request a complete listing of available sizes.

Note: New plug series are added to the range on a regular basis. Please contact our sales department when there is a need for a new series not listed above.

Plastic pipes.

SLIPSIL Sealing Plugs and RISE Ultra.



Plastic pipes which pass through fire-rated walls and floors as part of, for example, sanitation systems, create 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, the SLIPSIL Plug System and RISE Ultra has been developed.

To avoid smoke and fire spread RISE rubber is used; type FRR-EHF (fire resistant rubber – expanding, halogen free). This rubber is placed between SLIPSIL Sealing Plugs made of NOFIRNO rubber.

When exposed to temperatures above 200°C or flames, RISE rubber will expand vigorously to more than ten times its original volume with such a force that even a thin wall aluminium pipe will be crushed. This means that in case of a fire, no opening will be left in the conduit for the passage of smoke and flames.

The cavity between both SLIPSIL plugs needs to be partly filled with RISE rubber strips or sleeves. Other than with PE/ALU pipes, the time to close off the opening left by the burned or softened plastic pipe is very short. If the reaction is too late,

a chimney effect will occur causing the pipe at the unexposed side to melt.

RISE rubber will expand as soon as the conduit sleeve is subjected to heat and as a result it will seal off the opening created by the softened or combusted plastic pipe in a very short time.

The expanded RISE rubber possesses good thermal insulation properties, ensuring that the softened pipe will re-harden after compression.

NOFIRNO rubber will form a char at the front exposed side of the SLIPSIL plug and will slightly expand.

In this way, the RISE rubber is fully enclosed and can only expand in the direction of the softened plastic pipe.

The SLIPSIL plug at the unexposed side will keep the penetration smoke tight during the fire. The SLIPSIL plug system is a push-in system and requires no complicated installation work.

It is fire safe, gas tight and water tight.

This is accredited to EN13501-2:2003 in accordance BSEN1366-3.

RISE Ultra

RISE Ultra plastic pipe penetrations are a newly developed version of Beele Engineering and CSD's CRUSHER technology used in all our RISE products. It uses a combination of adhesion followed by rapid and extreme expansion, resulting in a solid, stable filling of the conduit opening, closing off any gaps left by the melting plastic pipe.

The RISE Ultra's effectiveness comes from its reaction at two different temperature levels.

Firstly, the rubber becomes very adhesive, bonding itself to the ducted pipe and then following the initial stage of expansion, bonding itself to the inside wall of the conduit opening. The next stage of the reaction as the temperatures increase further is a huge expansion of material which crushes the softening plastic pipe quickly and prevents any smoke of fire breakthrough. The resulting rubber mass is then extremely stable and will withstand extended exposure to fire.

Installation layout.

Shipbuilding/offshore application.

Plastic pipe penetration walls and floors

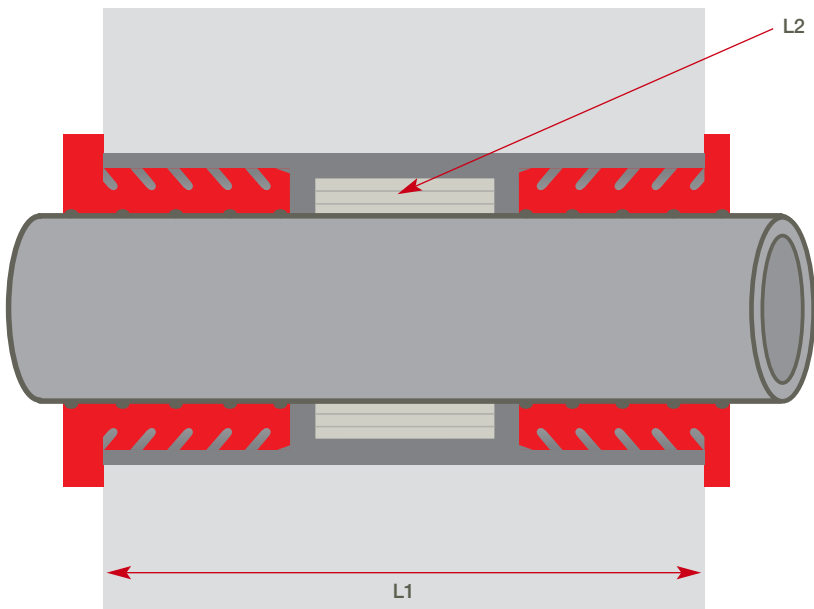
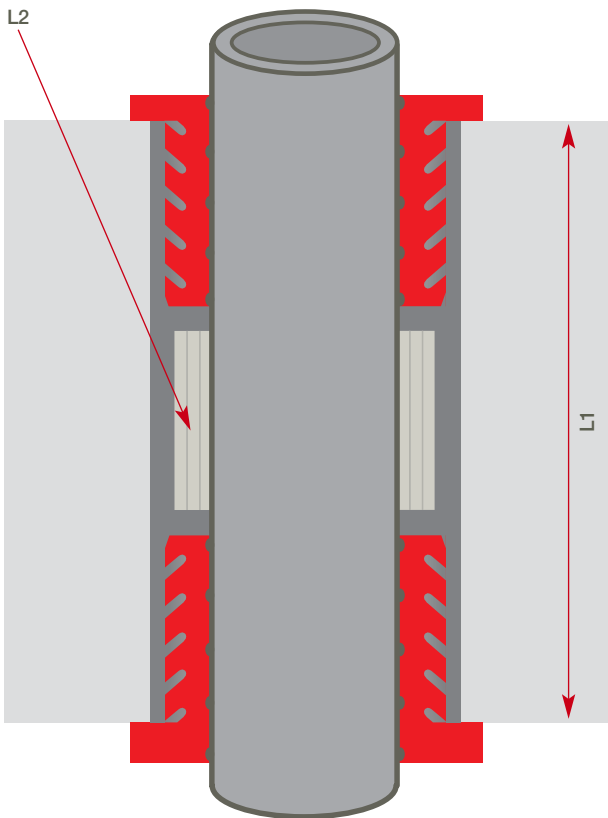
L1: 250mm

L2: 80mm wide strips of RISE strip to be wrapped around the ducted pipe to a minimum thickness of 1/4xD, rounded up to the nearest +/-5mm. For pipe sizes up to 42mm, a pre-formed sleeve of the required thickness is available. Available sizes are:

12/6 : 6mm OD pipe	12/8 : 8mm OD pipe
16/10 : 10mm OD pipe	18/12 : 12mm OD pipe
22/14 : 14mm OD pipe	27/16 : 16mm OD pipe
27/18 : 18mm OD pipe	31/20 : 20mm OD pipe
35/22 : 22mm OD pipe	39/24 : 24mm OD pipe
39/26 : 26mm OD pipe	46/28 : 28mm OD pipe
46/30 : 30mm OD pipe	52/32 : 32mm OD pipe
52/34 : 34mm OD pipe	58/36 : 36mm OD pipe
58/38 : 38mm OD pipe	64/40 : 40mm OD pipe
64/42 : 42mm OD pipe	

ID of conduit sleeve to be within the tolerances detailed on page 31.

SLIPSIL sealing plugs to be inserted both sides of the conduit.





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