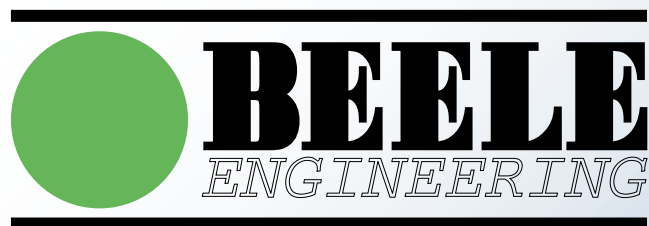


**SAFETY
SEALING
SYSTEMS**



PRODUCT OVERVIEW CABLE AND PIPE SEALING SYSTEMS SHIPBUILDING/OFFSHORE



**TECHNOLOGIES DEVELOPED BY BEELE ENGINEERING BV
COMPOUNDING AND PRODUCTION IN THE ULTRA-MODERN
MANUFACTURING FACILITIES IN AALTEN/THE NETHERLANDS
UNDER A STRINGENT ISO 9001:2008 QUALITY SYSTEM
MORE THAN 40 YEARS R&D ON QUALITY, DURABILITY & FUNCTIONALITY**

CONTENTS

page	I	Introduction to BEELE Engineering
pages	2-3	Product overview

ELECTRICAL SECTION

pages	4-II	RISE® multi-cable transit sealing system
pages	12-13	RISE® type EMC/EMI multi-cable transit sealing system
pages	14-19	RISE®/NOFIRNO® multi-cable transit sealing system
pages	20-21	RISE® EXTEND-A-FRAMES for upgrading existing installations
pages	22-23	RIACNOF® multi-cable transit sealing system
pages	24-27	CET-A-SIL pluggen - GLANDMOD modules for cabinet entries

MECHANICAL SECTION

pages	28-36	NOFIRNO® (multi-) pipe transit sealing system
pages	37-38	NOFIRNO® sealing system for structural gaps
pages	39-46	RISE®/ULTRA (multi-) plastic pipe crusher system
pages	47-50	NOFIRNO® multi-all-mix® transit sealing system
page	51	RISE® calculation software
pages	52-68	SLIPSIL® sealing plugs for pipe penetrations
pages	69-72	SLIPSIL®/DYNATITE® sealing plugs for installation from one side
pages	73-76	SLIPSIL® sealing plugs for plastic pipe penetrations
pages	77-86	DYNATITE® sealing system for high (instantaneous) pressure ratings

NEWEST DEVELOPMENTS

page	87-89	ACTIFOAM®/ULTRA firesafe sealing system for gaps/hatches
------	-------	--

Copyright	: BEELE Engineering BV/CSD International BV, Aalten, the Netherlands. Proprietary rights on all drawings and technical data released in this brochure. © 1997-2016
Edition	: August 2016
Note	: No part of this publication may be reproduced without explicit written approval of BEELE Engineering BV.
Research & Development	: BEELE Engineering BV, Aalten, the Netherlands.
Note	: The manufacturer reserves the right to make dimensional and design modifications without prior notification.
®	: ACTIFOAM, AQUASTOP, BEEBLOCK, BEEBOND, BEELE, BEELE WE CARE, BEESEAL, BLOCKSTACK, CONDUCTON, CONTROFIL, CRUSHER, CRUSHNOF, CSD, CSD THE SIMPLE SEAL SYSTEM, DRIFIL, DYNATITE, FIRAQUA, FIREQUAKE, FIRSTO, FISSIC, FIWA, LEAXEAL, MULTI-ALL-MIX, NOFIRNO, profiles NOFIRNO gaskets, RAPID TRANSIT SYSTEM, RIACNOF, RISE, RISWAT, SEALING VALLEY, S, SLIPSIL, flanges SLIPSIL plugs, ULEPSI and YFESTOS are registered trade marks of BEELE Engineering.
brochure code	: product overview/en/mar

BEELE ENGINEERING - SAFETY, RELIABILITY, INVOLVEMENT

Every moment of the day, in every business and every situation, the threat of fire is present. For over three decades, BEELE Engineering has specialized in passive fire safety in the form of systems which prevent the spread of fire, smoke, water and gases via cable and pipe penetrations. With our superior sealing technologies, we have become the undisputed Number One in this particular field.

It is BEELE Engineering's philosophy that R&D exists to respond to market demands. Only then can research and development activities be classed as functional. Only then are innovative solutions generated for problems that have current or near-term relevance. Our policy is one of continuous active response to customers' demands, or to modified or new functional requirements. We listen, we observe and we interpret, and so we arrive at new product developments and bold innovations.

BEELE Engineering has built up an enormous body of specialized expertise and knowledge. Our company is the world market leader in sealing systems for state-of-the-art shipbuilding applications as well as civil and industrial applications. We do not follow trends, we set them.

Development of new products and technologies, as well as pioneering know-how, are present in every fibre of our organization. We are driven by passion for our specialization, and our customer involvement drives us to exceed the boundaries of what is technically feasible.

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



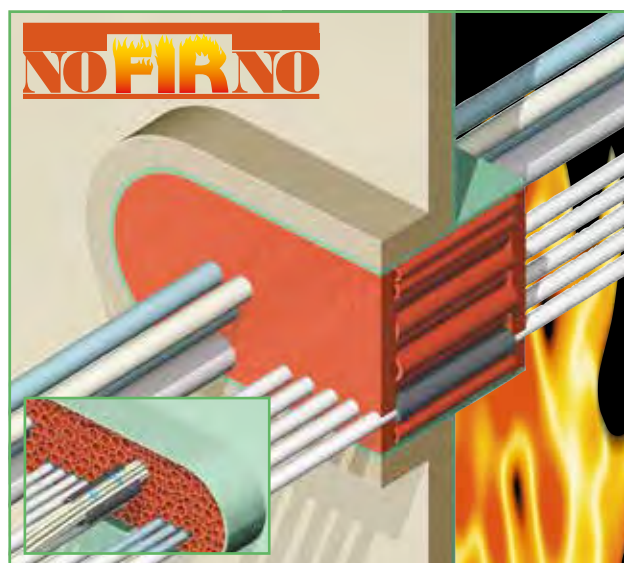
Our development, test and production facilities are among the most advanced in the world. The factory is equipped with state of the art machines, which are tailor made to the requirements of our company. We work to a high-level ISO system, with unmatched involvement. Continuous investment in design technologies, combined with highest quality polymers, is our guarantee for the safety of lives and equipment. That is why BEELE Engineering is internationally recognized by all relevant certification institutes and classification societies.

BEELE PRODUCT OVERVIEW MARINE APPLICATIONS - ELECTRICAL



RISE®

- For fire, gas, smoke and watertight sealing of multi-cable penetrations.
- Compact system. No precise fitting parts.
- No metal parts, no corrosion.
- Most cost-effective way of installation.
- No pre-engineering or special conduit frames.
- No restrictions on cable types and sizes, no insulation in front of the penetration needed.
- Adding or removing cables an easy matter.
- RISE® EXTEND-A-FRAME applicable for upgrading block systems - doubles the usable space!
- **Proven - for new and upgraded installations**
- The system of choice in shipyards worldwide for MORE THAN 20 years!



NOFIRNO®

- For fire, gas, smoke and watertight sealing of multi-cable penetrations.
- Compact system. No precise fitting parts.
- No metal parts, no corrosion.
- Most cost-effective way of installation.
- No pre-engineering or special conduit frames.
- No restrictions on cable types and sizes, no insulation in front of the penetration needed.
- Jet Fire tested for harshest applications.
- A-O and H-O tested without the use of any insulation.
- **Breakthrough - bundled cable sets approved**
- The system of choice for highest fire ratings and harshest environment!



DYNATITE®

- For applications where a high degree of (instantaneous) tightness is required.
- Dynamic sealing when a disaster occurs.
- Plugs are compressible and will return to their original shape after shock pressure.
- Easily withstands shock pressure loads of up to 15 bar (220 psi).
- Ideal solution for the columns of offshore rigs and collision bulkheads.
- **Breakthrough - dynamic compression**
- Based on high-tech rubber grade and engineered profiling, the DYNATITE® plugs can be substantially compressed and get tighter with excessive pressure.

BEELE PRODUCT OVERVIEW MARINE APPLICATIONS - MECHANICAL

SLIPSIL®

- Designed to provide fire safe, gas and watertight seals for pipe penetrations.
- For transits carrying single or multiple metal pipes with the same diameter (hydraulic and pneumatic lines).
- Installs in a couple of minutes. Lubricate and push - that is it!
- No bolting or other mechanical devices.
- Absorbs mechanical stresses, vibration and prevents galvanic corrosion problems.
- Wide temperature range: -50 °C up to +180 °C.
- **Proven - simple, shortest conduit length**
- The system of choice in shipyards world-wide for more than 2 decades!



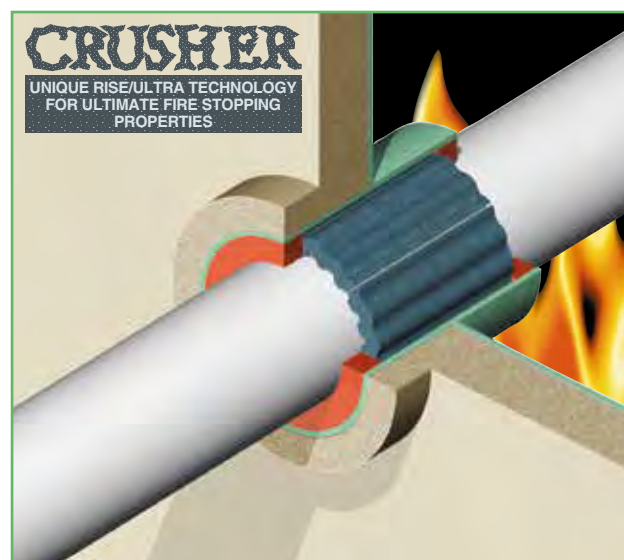
NOFIRNO®

- Approved for harshest fire ratings for pipe penetrations (A, H and Jet Fire class).
- Allows substantial movement of the ducted pipe within the conduit.
- High pressure ratings - designed for gas and/or watertight penetrations.
- Prevents corrosion inside the penetration.
- Longest service life and best Total Cost of Ownership on the market.
- NOFIRNO® rubber sleeves and sealant will remain stable and not be consumed by fire.
- **Breakthrough - MULTI-ALL-MIX® SYSTEM**
- Approved for any combination of cable and/or metallic, GRP or plastic pipes!



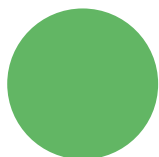
CRUSHER®

- Most simple and effective system for all plastic pipe penetrations.
- RISE®/ULTRA C-FIT crushers squeeze down and seal opening during a fire.
- RISE®/ULTRA wraps to be used for oversized conduit sleeves.
- NOFIRNO® sleeves for filling larger spaces.
- NOFIRNO® sealant adheres well to plastics: high degree of water tightness feasible.
- **Breakthrough - adhesion under fire load**
- RISE®/ULTRA compound forms an adhesive mass during fire exposure!
- Approved for a multiple mixture of all kinds of plastic pipes.



RISE® & NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEMS

Cutting Edge ACTIFIRE® & NOFIRNO® technology for optimum performance under fire conditions:



RISE® SYSTEM WILL BE ACTIVATED WHEN EXPOSED TO FIRE

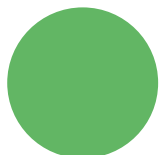
NOFIRNO® SYSTEM WILL NOT BE CONSUMED BY FIRE

ALL COMPONENTS ARE TOTALLY HALOGEN FREE

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

CE (MED) CERTIFICATES FOR A-O UP TO A-60

CERTIFIED FOR H-O UP TO H-120 AND JET FIRE TESTED



FIWA & NOFIRNO LOW FLAME SPREAD ACC. TO IMO A.653(16)

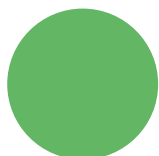
APPROVED WATERTIGHT UP TO 2.5 - 4 BAR

APPROVED GAS TIGHT UP TO 1 BAR

CAN BE USED IN ARCTIC CONDITIONS

HIGH LEVEL OF SOUND DAMPING/EMC ATTENUATION

SHOCK AND VIBRATION PROOF



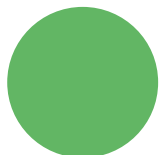
UP TO 50 YEARS SERVICE LIFE

CAPABLE OF ABSORBING TEMPERATURE CHANGES

WEATHERING, UV AND OZONE RESISTANT

NO PRE-ENGINEERING NEEDED

NO SPECIAL CONDUIT FRAMES



MINIMIZED NUMBER OF STRUCTURAL COMPONENTS

MOST COMPACT INSTALLATION

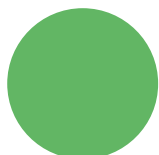
EXTREMELY SIMPLE TO INSTALL

NO INSULATION IN FRONT OF THE PENETRATION

SHORTEST POSSIBLE CONDUIT LENGTH

APPROVED FOR HEAVY CONDUCTOR CABLES

APPROVED FOR BUNDLED LAN CABLES



APPROVED FOR STEEL AND ALUMINIUM PARTITIONS

MAINTENANCE FRIENDLY

RISE® & NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEMS

Cutting Edge NOFIRNO® and LEAXEAL® technology for optimum physical performance:

	* Naval Engineering Standard 711: Issue 2: Determination of the smoke index	passed
	* Naval Engineering Standard 713: Issue 3: Determination of the toxicity index	passed
	* ISO 4589 - 2 : 1996 Determination of the oxygen index	passed
	* ISO 4589 - 3 : 1996 Determination of the temperature index	passed
	* IMO Resolution A.653(16) on FIWA and NOFIRNO Determination of low flame spread characteristics	passed
	* Artificial ageing test Determination of properties after 25-50 years	passed
	* Thermal cycling test Determination of adhesion at +120 °C / ambient / -40 °C (+212 °F / ambient / -40°F)	passed
	* Naval Engineering Standard 510: Issue 2, Draft B: Shock (100 g _r) and vibration test (5-350 Hz) combined with 1 bar leak test afterwards	passed
	* Naval Engineering Standard 814: Shock test, acceleration level 8378/s/s in two directions combined with 6.9 bar leak test afterwards	passed
	* Naval Engineering Standard 510: Issue 2, Draft B: Leak test after a one hour fire test	passed
	* General classification Helium gas leak test up to 1 bar	passed
	* Nordtest method NT ELEC 030, modified for conducted attenuation	20-100 dB
	* Sound damping test According to EN ISO 717-1:1996	70 dB
	* Rapid rise fire test, shock, vibration and water pressure According to Mil-P-24705 of the US Navy	passed
	* Dynamic cycling test Displacement 10 mm, 100,000 cycles, frequency 0.5 Hz	passed
	* Shock and vibration tests in 3 axis and pressure tests According to standards of the German Navy	passed
	* Fluid nitrogen test at -196 °C on customer specification during 15 minutes exposure	passed
	* Jet Fire test according to ISO 22899-1:2007 with a duration of two hours at Health & Safety Laboratory, England	passed
	* Jet Fire test according to OTI 96634 at SINTEF, Norway to determine if existing RISE pipe penetrations could be J-classed without any extra action	passed
		passed

Initially some of these tests have been carried out with the regular RISE® system. The sealant is a determining factor for successful mechanical testing. NOFIRNO® sealant has improved mechanical properties so that NOFIRNO® can also be classed for these tests as well. TNO report TQS/RAP/07/335-idi.

To prove the outstanding quality and safety of the RISE® cable and pipe penetrations, the basic materials (FIWA® sealant and RISE® rubber) have been subjected to additional tests. These tests have been carried out by official institutes: Warrington Fire Research and RAPRA Technologies in the United Kingdom, the Fire Technology Institute of the University of Ghent in Belgium and TNO Laboratories in The Netherlands.

The RISE® cable and pipe penetrations have also been subjected to additional tests at official institutes such as DELTA Danish Electronics, Light and Acoustics Testing in Denmark, QinetiQ in England, South West Research Institute in USA and in-house under survey of the classification societies. To name some: sound tests, shock and vibration tests, rapid temperature rise tests, leak tests after a one hour fire test, EMC tests, A-0 test without insulation, dynamic cycling test, several configurations on watertightness and a helium gas leak test.

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

RISE® filler sleeves



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

Note: split sleeves 18/12 and 27/19 can also be used as filler sleeves.

filler sleeves are supplied non-split

RISE® multi-filler sleeves



filler sleeves are supplied in multi-sets of 10 sleeves

RISE® cable sleeve	cable diameter	sleeve length	article number
-----------------------	-------------------	------------------	-------------------

12/6	5 - 7	140	80.0051
14/8	7 - 9	140	80.0052
16/10	9 - 11	140	80.0053
18/12	11 - 13	140	80.0054
20/14	13 - 15	140	80.0055
22/16	15 - 17	140	80.0056
27/19	17 - 21	140	80.0057
31/23	21 - 25	140	80.0058
35/27	25 - 29	140	80.0059
39/31	29 - 33	140	80.0060
46/36	33 - 39	140	80.0061
52/42	39 - 45	140	80.0062
58/48	45 - 51	140	80.0063
64/54	51 - 57	140	80.0064
70/60	57 - 63	140	80.0065

all dimensions in mm

12/6	5 - 7	160	80.0100
14/8	7 - 9	160	80.0101
16/10	9 - 11	160	80.0102
18/12	11 - 13	160	80.0103
20/14	13 - 15	160	80.0104
22/16	15 - 17	160	80.0105
27/19	17 - 21	160	80.0106
31/23	21 - 25	160	80.0107
35/27	25 - 29	160	80.0108
39/31	29 - 33	160	80.0109
46/36	33 - 39	160	80.0110
52/42	39 - 45	160	80.0111
58/48	45 - 51	160	80.0112
64/54	51 - 57	160	80.0113
70/60	57 - 63	160	80.0114

all dimensions in mm

12/6	5 - 7	210	80.0200
14/8	7 - 9	210	80.0201
16/10	9 - 11	210	80.0202
18/12	11 - 13	210	80.0203
20/14	13 - 15	210	80.0204
22/16	15 - 17	210	80.0205
27/19	17 - 21	210	80.0206
31/23	21 - 25	210	80.0207
35/27	25 - 29	210	80.0208
39/31	29 - 33	210	80.0209
46/36	33 - 39	210	80.0210
52/42	39 - 45	210	80.0211
58/48	45 - 51	210	80.0212
64/54	51 - 57	210	80.0213
70/60	57 - 63	210	80.0214

all dimensions in mm

RISE® filler sleeve	sleeve length	article number
------------------------	------------------	-------------------

18/12 single	140	80.0323
18/12 multi	140	80.0324
18/12 single	160	80.0313
18/12 multi	160	80.0314
18/12 single	210	80.0303
18/12 multi*	210	80.0304
27/19 single	140	80.0326
27/19 multi	140	80.0327
27/19 single	160	80.0316
27/19 multi	160	80.0317
27/19 single	210	80.0306
27/19 multi*	210	80.0307

all dimensions in mm

** not available yet*

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

PRODUCT INFORMATION SEALANT

01) colour	dark grey
02) specific gravity	1.30 ± 0.03 g/cm ³
03) curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04) service temperature	-50 °C up to +160 °C
05) tensile strength	1.15 MPa
06) elongation at break	125%
07) hardness	35 Shore A
08) elastic deformation	approx. 25%
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



article number 80.0900

FIWA® is absolutely HALOGEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3).

Furthermore FIWA® has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996), and low flame spread characteristics according to IMO Resolution A.653(16).

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

PRODUCT INFORMATION SEALANT

01) colour	red brown
02) specific gravity	1.40 ± 0.03 g/cm ³
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

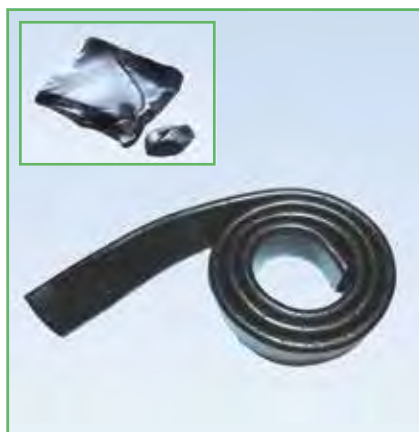


article number 50.0102

NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.

After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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



article number 80.0932

CONDUCTON® flexible rubber is used to fill the cavity around the ducted cables in the conduit sleeve, instead of making use of the putty. This rubber can be molded by hand and offers the highest attenuation.

CONDUCTON® flexible rubber is absolutely HALOGEN FREE and has a toxicity index of 0,00 (tested according to Naval Engineering Standard NES 713: Issue 3).

Furthermore CONDUCTON® has a low smoke index (NES 711: Issue 2: 1981), an oxygen index of 38,2% (ISO 4589-2: 1996), and a temperature index of 294 °C (ISO 4589-3: 1996).

CONDUCTON® flexible rubber fulfils the criteria for use on board of UK Navy vessels for EMP/EMI penetrations.

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

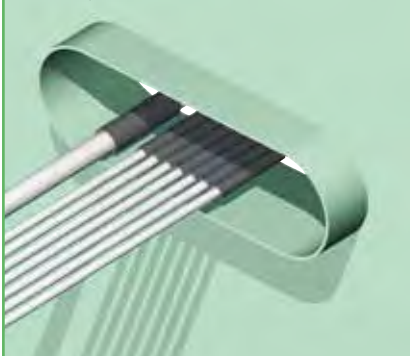
RISE® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

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



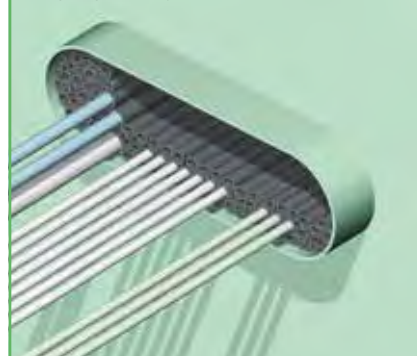
1) The cables can be ducted through the conduit sleeve/frame in random order. It is most important that they are not pulled too tight so as not to hamper their separation when RISE® insert sleeves are inserted.

Sleeving the cables directly after ducting avoids overfilling of the transit.



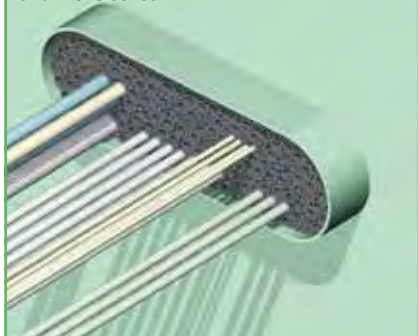
2) After the cables have been ducted, RISE® insert sleeves are applied around each cable. The insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit.

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



3) The remaining free space in the conduit is filled with RISE® filler sleeves type 27/19 and 18/12. For ease of filling, the RISE® filler sleeves are supplied non-split. The ratio 27/19 to 18/12 should be about 2:1.

Before applying the sealant, it is advisable to perform a final check on the packing of insert and filler sleeves.



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 insert and filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.

Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.



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

5) A 20 mm thick layer of FIWA® 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.

People with sensitive skin should use gloves when working with FIWA®.



Please refer to the Safety Data Sheet for more information.

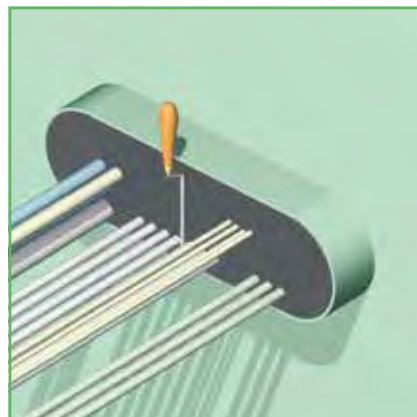
6) The conduit should be overfilled with FIWA® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



7) 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 soap water!



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



9) The FIWA® sealant between the cables is pressed down and smoothed by hand or with a spatula or putty knife. This is essential to obtain an effective gas and water tightness.

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

People with sensitive skin should use gloves when working with FIWA®.



Please refer to the Safety Data Sheet for more information.

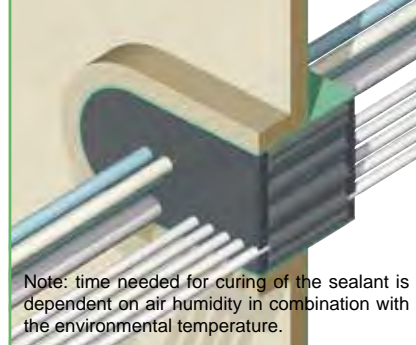
10) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with FIWA® and a very neat surface is the result.

To obtain optimum adhesion during the curing process of the sealant, the cables should be tightly fixed immediately after finishing the transit.



11) After smoothing is finished, a last check should be taken to ensure sufficient sealant has been applied in between the cables (especially for transits with larger amounts of cables). This is most important for water and gas tight penetrations.

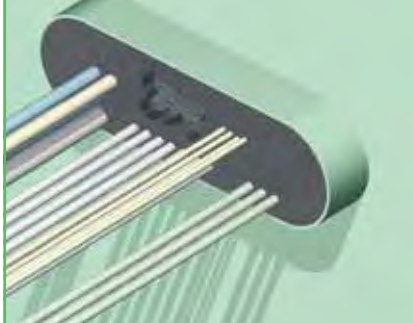
For A-class, minimum depth of the coaming 180 mm.



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

12) For A-class penetrations (which are insulated), the conduit sleeve/frame needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. No extra insulation needed in front of the penetration and/or in between the cables.

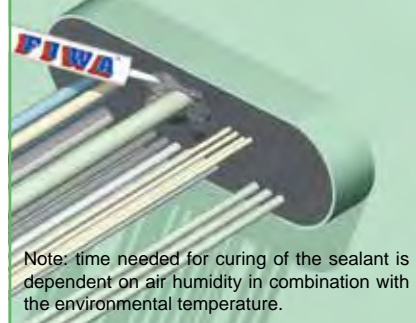
Adding extra cables is an easy job. Cut away the sealant layer at both sides of the penetration with a knife or a hollow punch in a tapering shape.



Remove one or more RISE® filler sleeves to create a fitting opening for the cable to be ducted.



Place a RISE® sleeve around the newly ducted cable. Push the insert sleeve into the conduit. Refill the opening with sufficient FIWA® sealant.



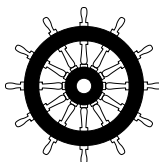
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.

RISE® multi-cable penetrations are the best alternative for the casting compounds, mineral wool and block systems used in fire-rated/watertight bulkheads and decks. RISE® multi-cable penetrations offer a most simple way of installation. The very limited amount of different parts makes this system easy to handle on site. Use is made of rubber inserts (placed around the cables) and filler sleeves. No precise positioning of the cables in the transit needed.

The RISE® sealing system allows cables to be ducted through conduit openings in a bent, curved or oblique way without any adverse impact on sealing performance.

The RISE® sealing system gives easy access to add or remove cables in a later stage without the necessity to disassemble the whole penetration or replace all existing material.

Just cut away a piece of the FIWA® layer at both sides of the penetration, pull the cable through and refill the opening in the sealant layer. **It is that simple!**



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



RISE® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

L1: A-60/H-120 approved bulkhead insulation.

- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD AND UP TO 3x400 MM²
- APPROVED FOR BUNDLED LAN DATA CABLES
- MAX. BUNDLE SIZE 35 MM

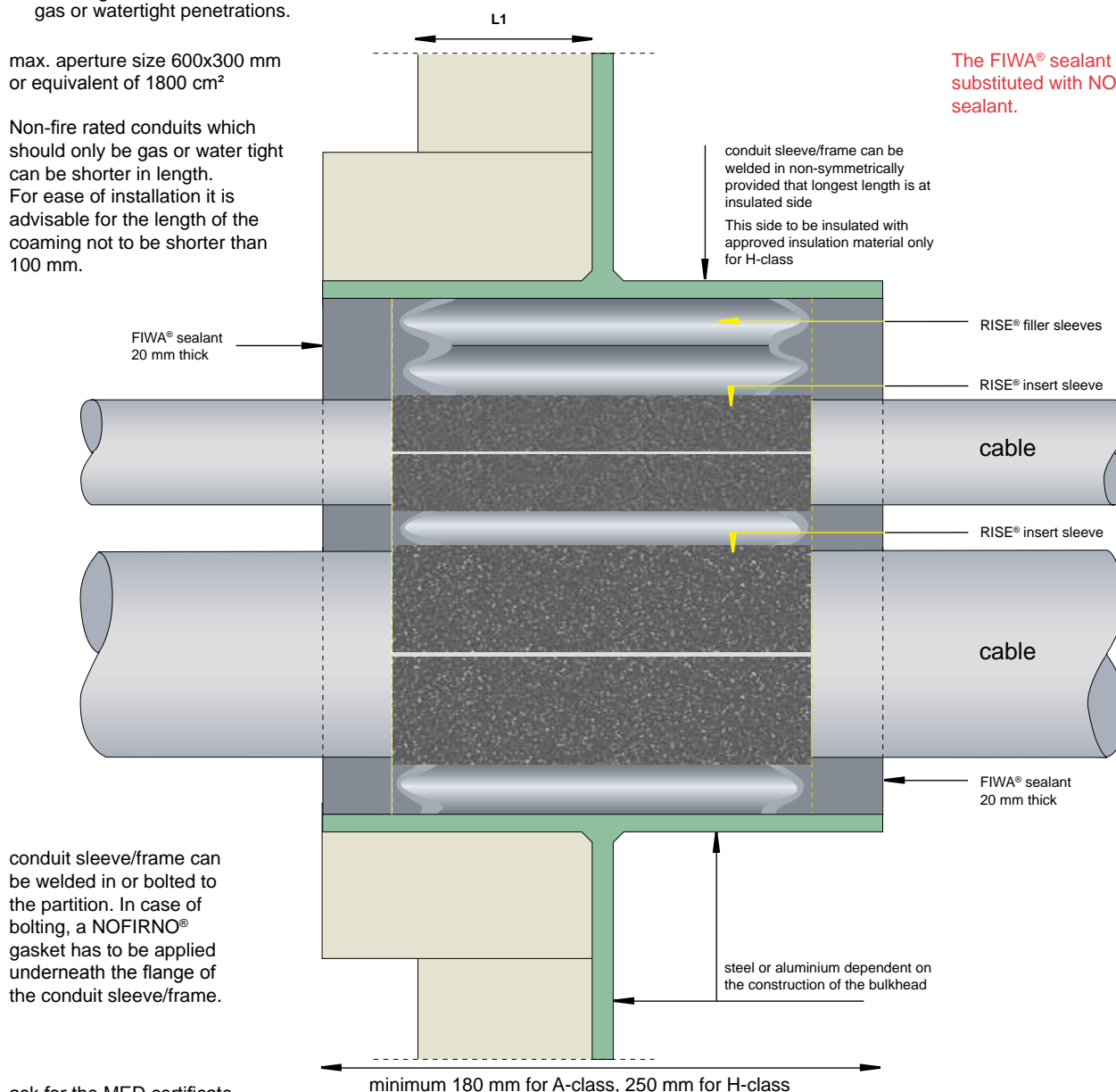
Bundling of cables is not allowed for gas or watertight penetrations.

max. aperture size 600x300 mm or equivalent of 1800 cm²

Non-fire rated conduits which should only be gas or water tight can be shorter in length. For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

- NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES

The FIWA® sealant may be substituted with NOFIRNO® sealant.



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

Specifications for A-class according to EC (MED) certificate 09156/D1 EC issued by Bureau Veritas.
Drawings R0096E, R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0273E and R0274E
For H-class DNV certificate F-20489.
Drawings R0103E, R0104E and R0105E.

**A0-A60 / H0-H120
MULTI-CABLE
TRANSIT**

RISE® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

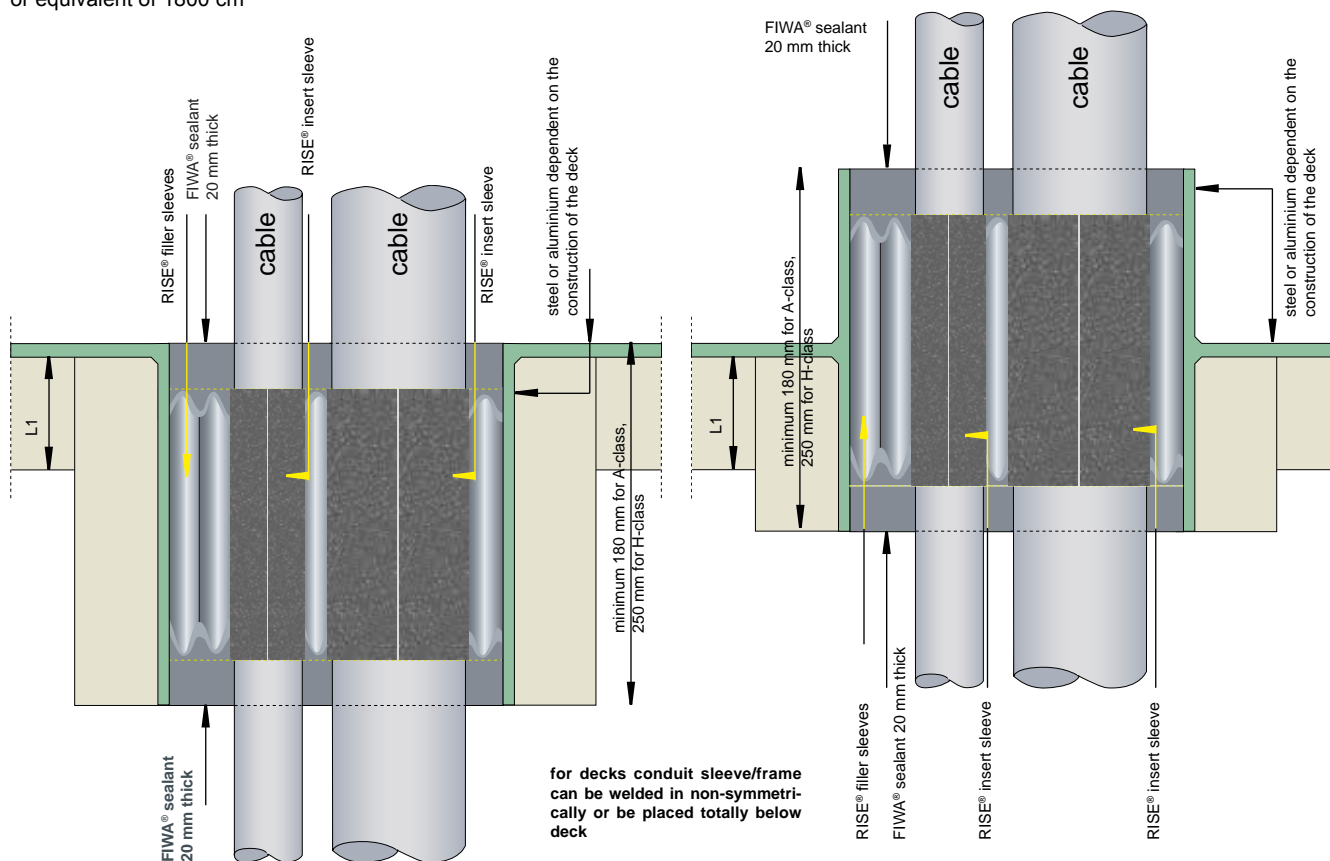
L1: A-60/H-120 approved deck insulation.

- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD AND UP TO 3x400 MM²
- APPROVED FOR BUNDLED LAN DATA CABLES
- MAX. BUNDLE SIZE 35 MM

Bundling of cables is not allowed for gas or watertight penetrations.

max. aperture size 600x300 mm
or equivalent of 1800 cm²

- NO EXTRA INSULATION
REQUIRED AT THE FRONT
OF THE PENETRATION
AND/OR IN BETWEEN THE
CABLES



The FIWA® sealant may be substituted with NOFIRNO® sealant.

conduit sleeve/frame can be welded in or bolted to the partition. In case of bolting, a NOFIRNO® gasket has to be applied underneath the flange of the conduit sleeve/frame.

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

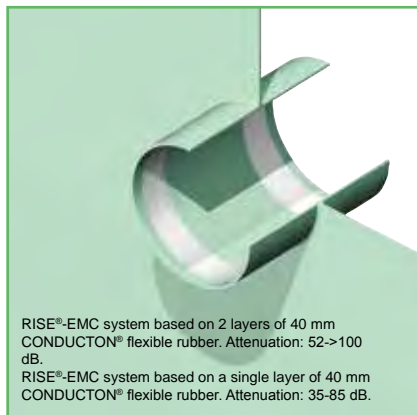
ask for the MED certificate with the stamped and signed detailed installation drawings

Specifications for A-class according to EC (MED) certificate 09156/D1 EC issued by Bureau Veritas.
Drawings R0096E, R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0273E and R0274E
For H-class DNV certificate F-20489.
Drawings R0103E, R0104E and R0105E.

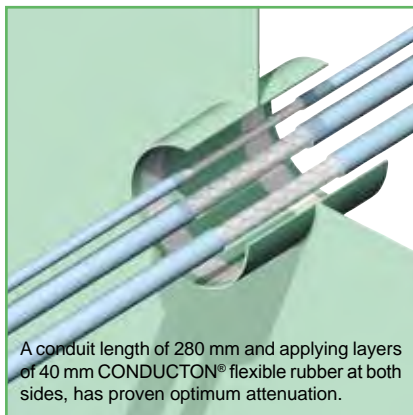
Non-fire rated conduits which should only be gas or water tight can be shorter in length.
For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

A0-A60 / H0-H120 MULTI-CABLE TRANSIT

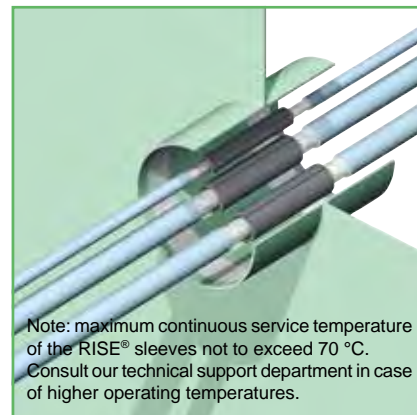
RISE® TYPE EMC/EMI MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



1) At the place where the CONDUCTON® flexible compound is to be applied, the penetration should be bare steel without primer and thoroughly cleaned to ensure effective connection to earth.



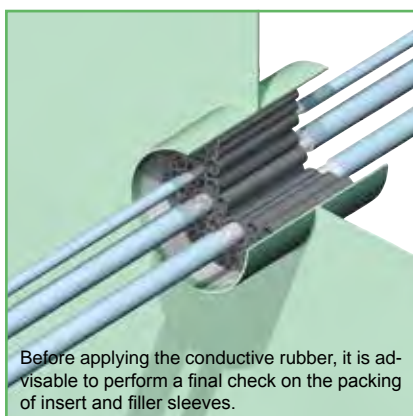
2) Remove the cable sheathing over a length that is 40 mm shorter than the length of the penetration, in such a way that the front face of the exposed braiding is situated about 20 mm inside the conduit at both sides.



3) RISE® sleeves 120 mm shorter in length than the penetration are then fitted around the ducted cables and pushed into the penetration. The exposed braiding should extend 40 mm outside the sleeves.



4) The remaining space inside the penetration is then packed with RISE® filler sleeves. Push the filler sleeves into the penetration in the same way as the sleeves fitted around the cables. Make sure that the sleeves fit tightly.



5) Push the insert/filler sleeves into the penetration in such a way as to leave about 60 mm free space at both sides. Take care that the exposed braiding extends 40 mm outside the sleeves at each side.



6) Then apply layers of CONDUCTON® flexible rubber strips 40 mm wide against the inside wall of the penetration. People with sensitive skin should use gloves when working with CONDUCTON®.



7) Pack the free space inside the penetration with lengths of strip. Compress the filling from time to time firmly to obtain a solid mass of flexible rubber and a good contact with the coaming/sleeve.



8) Pack the remaining small spaces around the cables with spare pieces of flexible rubber strip. Then press them down firmly with a piece of wood in order to obtain a good contact with the braiding.



9) Firmly press down the mass once more by hand. This is extremely important to ensure effective conductivity. Then apply the CONDUCTON® flexible rubber at the other side of the penetration in a similar way.

RISE® TYPE EMC/EMI MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

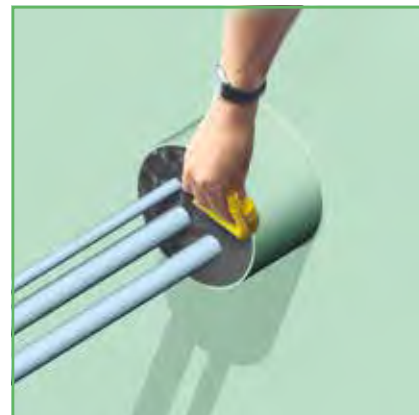
People with sensitive skin should use gloves when working with FIWA®.

Please refer to the Safety Data Sheet for more information.

10) At both sides of the penetration about 20 mm free space should be present to enable the application of the FIWA® fire safe, water tight sealing compound. First clean the inside wall of the penetration very thoroughly.



11) 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 soap water!



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

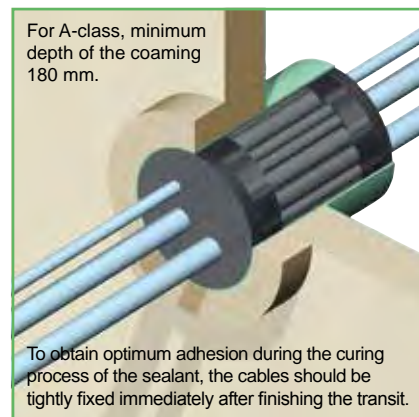
13) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with FIWA®.

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

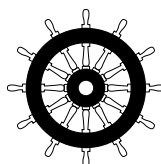
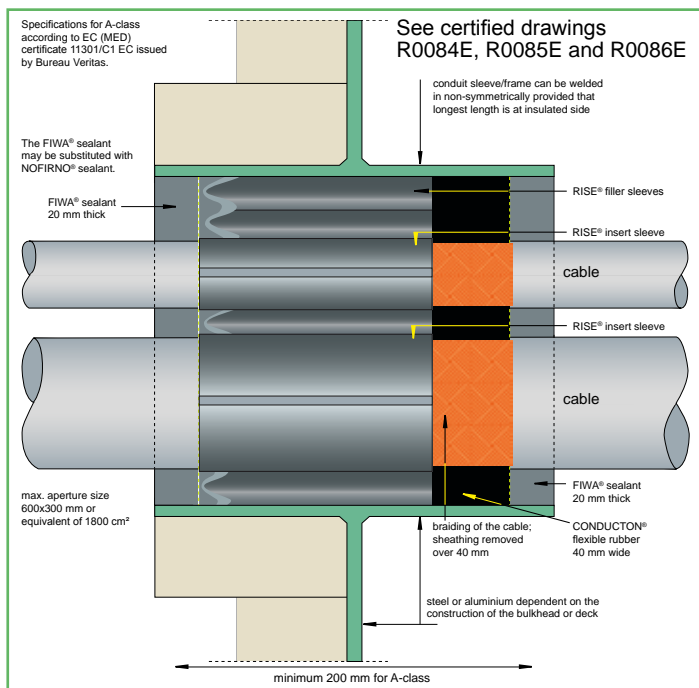
14) After smoothing is finished, a last check should be taken to ensure sufficient sealant has been applied in between the cables.



For A-class, minimum depth of the coaming 180 mm.



To obtain optimum adhesion during the curing process of the sealant, the cables should be tightly fixed immediately after finishing the transit.



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



NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

NOFIRNO® filler sleeves



Operating temperatures:
-50 °C up to +180 °C

filler sleeves are supplied non-split

NOFIRNO® multi-filler sleeves



filler sleeves are supplied in multi-sets of 10 sleeves

RISE® cable sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	140	80.0051
14/8	7 - 9	140	80.0052
16/10	9 - 11	140	80.0053
18/12	11 - 13	140	80.0054
20/14	13 - 15	140	80.0055
22/16	15 - 17	140	80.0056
27/19	17 - 21	140	80.0057
31/23	21 - 25	140	80.0058
35/27	25 - 29	140	80.0059
39/31	29 - 33	140	80.0060
46/36	33 - 39	140	80.0061
52/42	39 - 45	140	80.0062
58/48	45 - 51	140	80.0063
64/54	51 - 57	140	80.0064
70/60	57 - 63	140	80.0065
12/6	5 - 7	160	80.0100
14/8	7 - 9	160	80.0101
16/10	9 - 11	160	80.0102
18/12	11 - 13	160	80.0103
20/14	13 - 15	160	80.0104
22/16	15 - 17	160	80.0105
27/19	17 - 21	160	80.0106
31/23	21 - 25	160	80.0107
35/27	25 - 29	160	80.0108
39/31	29 - 33	160	80.0109
46/36	33 - 39	160	80.0110
52/42	39 - 45	160	80.0111
58/48	45 - 51	160	80.0112
64/54	51 - 57	160	80.0113
70/60	57 - 63	160	80.0114
12/6	5 - 7	210	80.0200
14/8	7 - 9	210	80.0201
16/10	9 - 11	210	80.0202
18/12	11 - 13	210	80.0203
20/14	13 - 15	210	80.0204
22/16	15 - 17	210	80.0205
27/19	17 - 21	210	80.0206
31/23	21 - 25	210	80.0207
35/27	25 - 29	210	80.0208
39/31	29 - 33	210	80.0209
46/36	33 - 39	210	80.0210
52/42	39 - 45	210	80.0211
58/48	45 - 51	210	80.0212
64/54	51 - 57	210	80.0213
70/60	57 - 63	210	80.0214
NOFIRNO® filler sleeve		sleeve length	article number
18/12 single		140	80.5002
18/12 multi		140	80.5052
18/12 single		160	80.5003
18/12 multi		160	80.5053
18/12 single		210	80.5004
18/12 multi		210	80.5054
27/19 single		140	80.5012
27/19 multi		140	80.5062
27/19 single		160	80.5013
27/19 multi		160	80.5063
27/19 single		210	80.5014
27/19 multi		210	80.5064
22/15 multi		140	80.5072
22/15 multi		160	80.5073
22/15 multi		210	80.5074

NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

PRODUCT INFORMATION SEALANT

01) colour	red brown
02) specific gravity	1.40 ± 0.03 g/cm ³
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 ISO 37	50%
07) elongation at shear	>150%
08) hardness	45 Shore A
09) elastic deformation	approx. 50%
10) resistance	UV, Ozone, arctic conditions
11) ageing	more than 20 years
12) supplied in	310 ml cartridges
13) storage	to be stored cool and dry min/max temperature = +5/+30° C
14) 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



article number 50.0102

NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.

After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

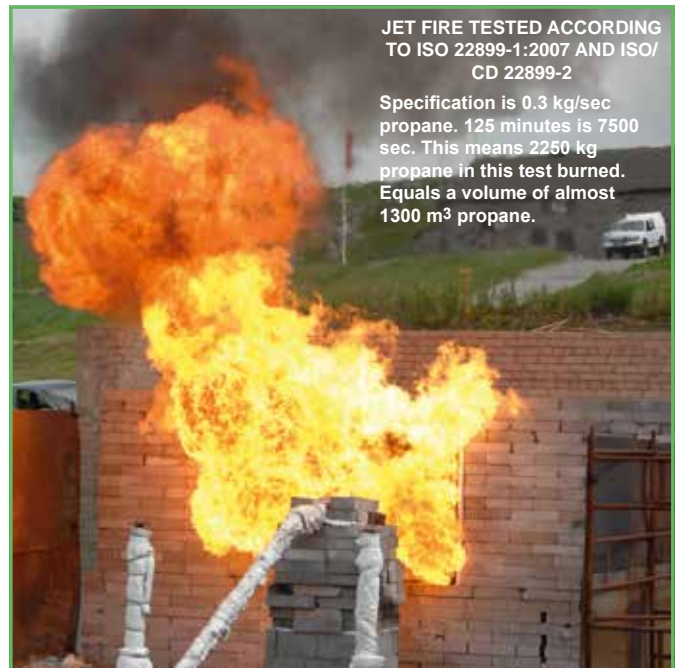
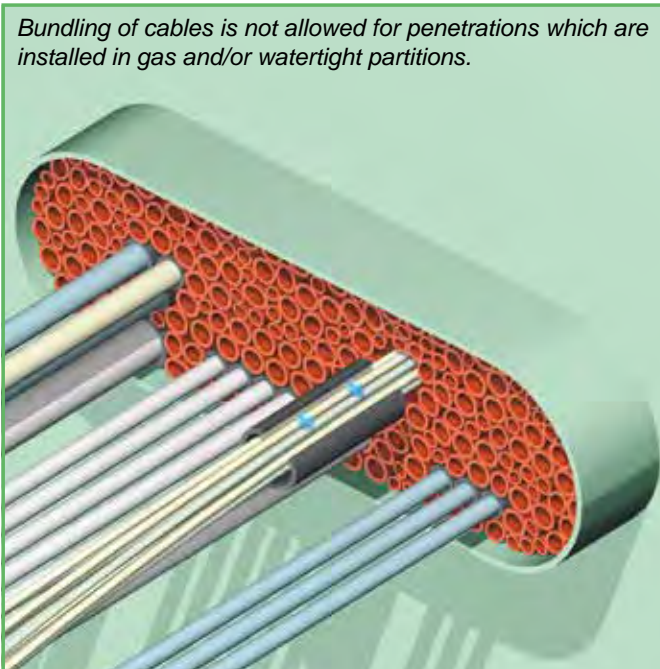
Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

The NOFIRNO®, RIACNOF® and RISE® sealing systems have been successfully tested according to IMO Resolution A.754(18) with sets of bundled cables. Especially in the case of ducting larger amounts of small diameter LAN cables, a lot of time saving is obtained since not each and every cable has to be sleeved with a RISE® insert sleeve. Cable sets of max. 25 LAN cables with an OD of 5 - 6 mm tightly bundled to max. 35 mm can be passed through the penetration. A single RISE® insert sleeve is then placed around the cable set and inserted into the penetration.

THE SYSTEM OF CHOICE FOR HARSHEST APPLICATIONS.

The NOFIRNO® system has been subjected to A-0, H-0 and even Jet Fires without being severely affected. Due to the superb behaviour of our various systems, the NOFIRNO® sealing system can be easily combined with RISE® and RISE®/ULTRA for the so-called MULTI-ALL-MIX® system for ducting all types of pipes and cables through a single conduit. The NOFIRNO® sealing system is the most advanced system in our product range.

Bundling of cables is not allowed for penetrations which are installed in gas and/or watertight partitions.



JET FIRE TESTED ACCORDING
TO ISO 22899-1:2007 AND ISO/
CD 22899-2

Specification is 0.3 kg/sec
propane. 125 minutes is 7500
sec. This means 2250 kg
propane in this test burned.
Equals a volume of almost
1300 m³ propane.

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

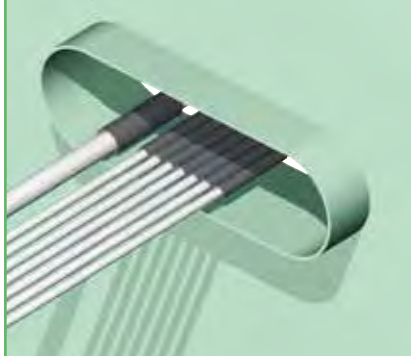
NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

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



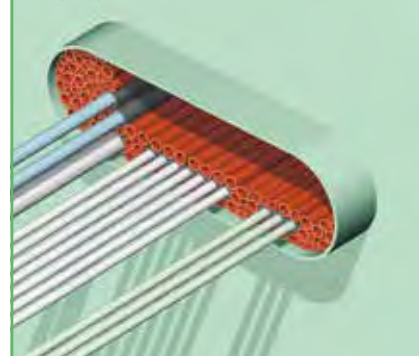
1) The cables can be ducted through the conduit sleeve/frame in random order. It is most important that they are not pulled too tight so as not to hamper their separation when RISE® insert sleeves are inserted.

Sleeving the cables directly after ducting avoids overfilling of the transit.



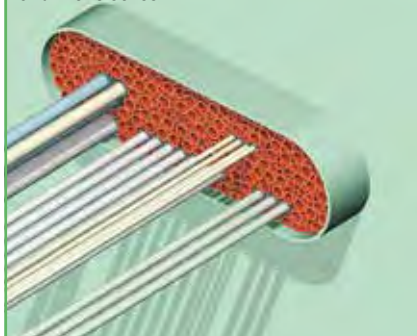
2) After the cables have been ducted, RISE® insert sleeves are applied around each cable. The insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit.

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



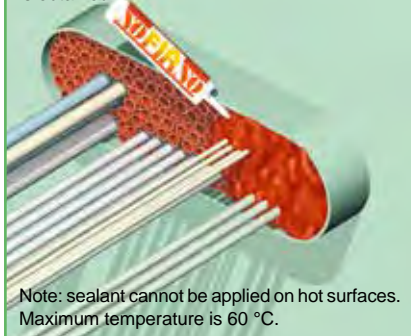
3) The remaining free space in the conduit is filled with NOFIRNO® filler sleeves type 27/19 and 18/12. For ease of filling, the NOFIRNO® filler sleeves are supplied non-split. The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15.

Before applying the sealant, it is advisable to perform a final check on the packing of insert and filler sleeves.



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 insert and filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.

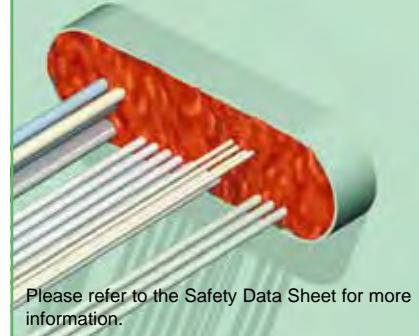
Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.



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

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 cables thoroughly, and remove any dirt, rust or oil residues before applying the sealant.

People with sensitive skin should use gloves when working with NOFIRNO®.

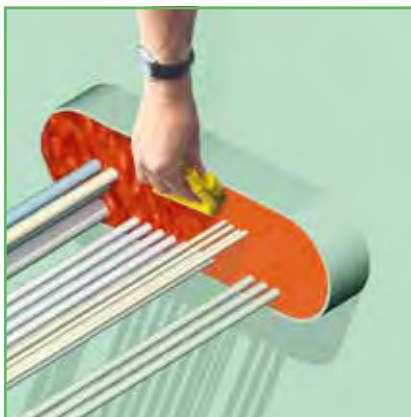


Please refer to the Safety Data Sheet for more information.

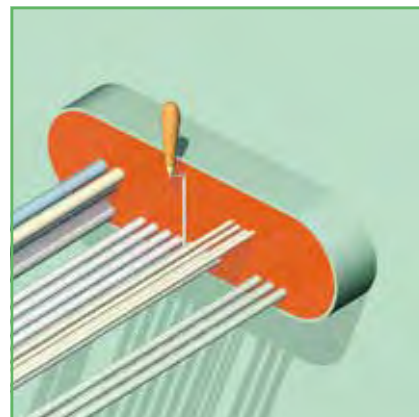
6) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



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



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



9) The NOFIRNO® sealant between the cables is pressed down and smoothed by hand or with a spatula or putty knife. This is essential to obtain an effective gas and water tightness.

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

NOFIRNO[®] MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

People with sensitive skin should use gloves when working with NOFIRNO[®].



Please refer to the Safety Data Sheet for more information.

10) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO[®] and a very neat surface is the result.

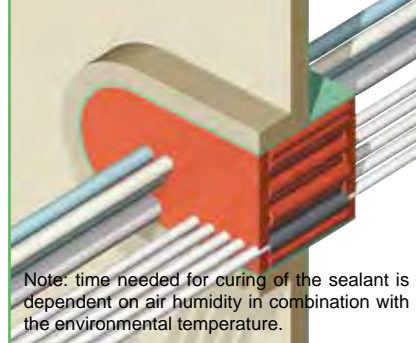
To obtain optimum adhesion during the curing process of the sealant, the cables should be tightly fixed immediately after finishing the transit.



The bright, contrasting colour of the sealant contributes to ease of inspection.

11) After smoothing is finished, a last check should be taken to ensure sufficient sealant has been applied in between the cables (especially for transits with larger amounts of cables). This is most important for water and gas tight penetrations.

For A-class, minimum depth of the coaming 180 mm.



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

12) For A-class penetrations (which are insulated), the conduit sleeve/frame needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. No extra insulation needed in front of the penetration and/or in between the cables.

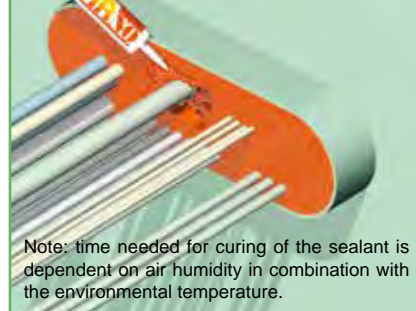
Adding extra cables is an easy job. Cut away the sealant layer at both sides of the penetration with a knife or a hollow punch in a tapering shape.



Remove one or more NOFIRNO[®] filler sleeves to create a fitting opening for the cable to be ducted.



Place a RISE[®] sleeve around the newly ducted cable. Push the insert sleeve into the conduit. Refill the opening with sufficient NOFIRNO[®] sealant.



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

The NOFIRNO[®] 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.

1) the NOFIRNO[®] rubber shows minimum permanent deformation and limited stress relaxation, guaranteeing mechanical stability in the long term.

2) The NOFIRNO[®] rubber can be exposed to high temperatures (up to 180 °C), making the NOFIRNO[®] sealing system suitable for steam lines.

3) NOFIRNO[®] stays flexible at temperatures of -50 °C, allowing application in arctic environments.

4) The NOFIRNO[®] sealant/rubber has optimum 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

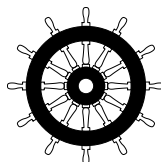
5) Higher thermal insulation values under fire load.

6) Shorter conduit depths.

7) Approved for A-0 and H-0 class without the use of any insulation. Certified up to A-60 and H-120 class.

8) Successfully exposed to a 2 hour Jet Fire test.

9) Can be combined with RISE[®] and RISE[®]/ULTRA.



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



NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

L1: A-60/H-120 approved bulkhead insulation.

- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD AND UP TO 3x400 MM²
- APPROVED FOR BUNDLED LAN DATA CABLES
- MAX. BUNDLE SIZE 35 MM

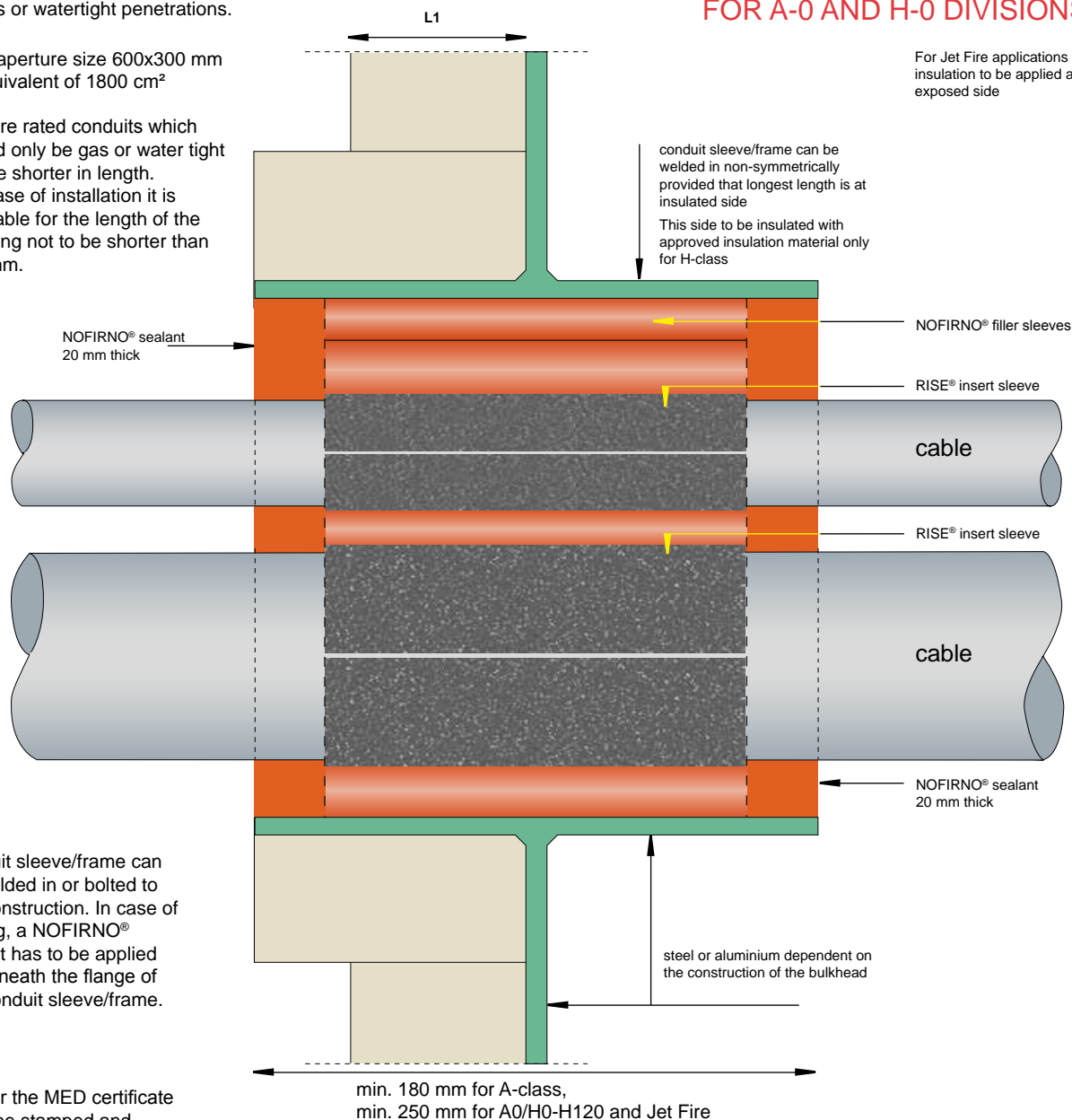
Bundling of cables is not allowed for gas or watertight penetrations.

max. aperture size 600x300 mm or equivalent of 1800 cm²

Non-fire rated conduits which should only be gas or water tight can be shorter in length. For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

- NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES
- NO INSULATION REQUIRED FOR A-0 AND H-0 DIVISIONS

For Jet Fire applications PFP insulation to be applied at the exposed side



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

Specifications for A-class according to EC (MED) certificate 09156/D1 EC issued by Bureau Veritas. Drawings R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0271E, R0272E and R0292E. For H-class DNV certificate F-20489. Drawings R0293E, R0294E and R0295E.

**A0-A60 / H0-H120
MULTI-CABLE
TRANSIT**

NOFIRNO[®] MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

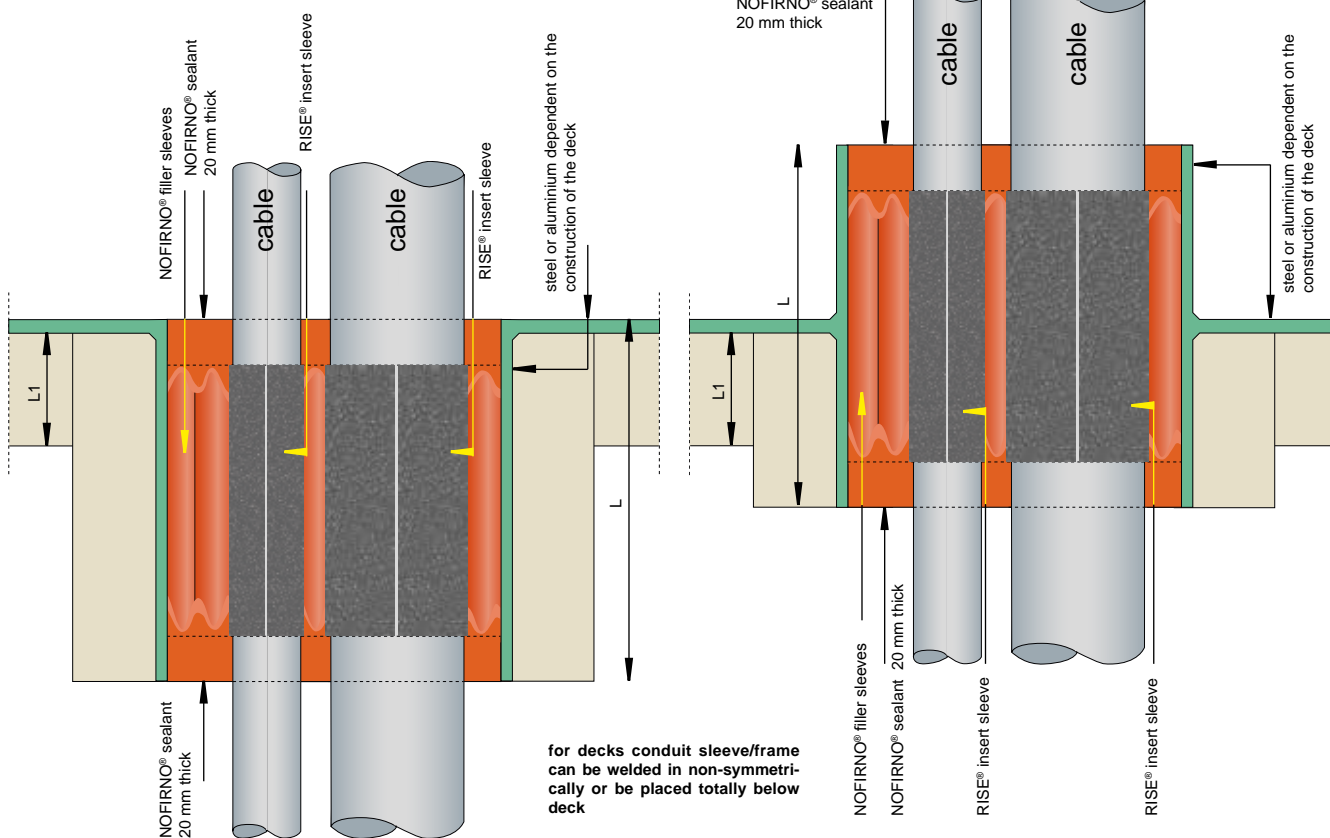
L1: A-60/H-120 approved deck insulation.

- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD AND UP TO 3x400 MM²
- APPROVED FOR BUNDLED LAN DATA CABLES
- MAX. BUNDLE SIZE 35 MM

Bundling of cables is not allowed for gas or watertight penetrations.

max. aperture size 600x300 mm
or equivalent of 1800 cm²

- NO EXTRA INSULATION REQUIRED AT THE FRONT OF THE PENETRATION AND/OR IN BETWEEN THE CABLES
- NO INSULATION REQUIRED FOR A-0 AND H-0 DIVISIONS



L= min. 180 mm for A-class,
L= min. 250 mm for A0/H0-H120 and Jet Fire

conduit sleeve/frame can be welded in or bolted to the partition. In case of bolting, a NOFIRNO[®] gasket has to be applied underneath the flange of the conduit sleeve/frame.

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

For Jet Fire applications PFP insulation to be applied at the exposed side

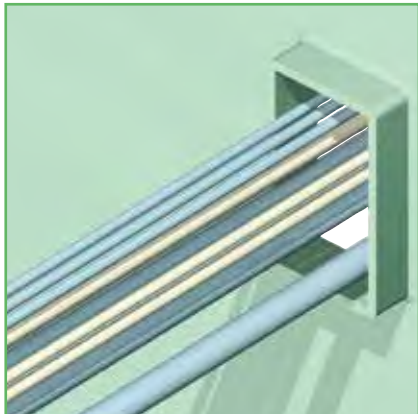
ask for the MED certificate with the stamped and signed detailed installation drawings

Specifications for A-class according to EC (MED) certificate 09156/D1 EC issued by Bureau Veritas.
Drawings R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0271E, R0272E and R0292E
For H-class DNV certificate F-20489.
Drawings R0293E, R0294E and R0295E.

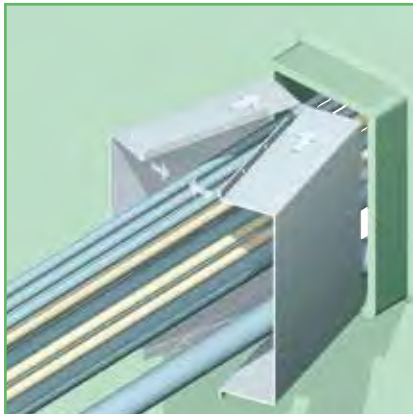
Non-fire rated conduits which should only be gas or water tight can be shorter in length.
For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

A0-A60 / H0-H120 MULTI-CABLE TRANSIT

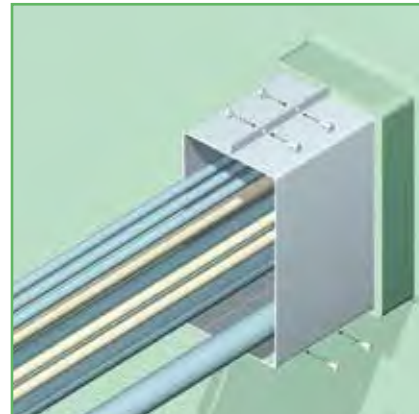
RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS



1) Remove all block components from the transit frame, if any. Remove any dirt or grease from the inside of the frame and the cable jackets.

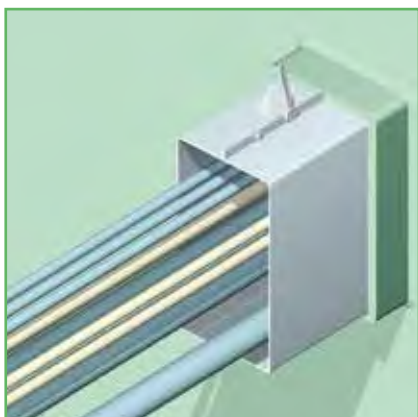


2) Position the two halves of the EXTEND-A-FRAME around the bundle of cables, then push the EXTEND-A-FRAME into the transit frame. The fitting must be very tight for stability reasons.

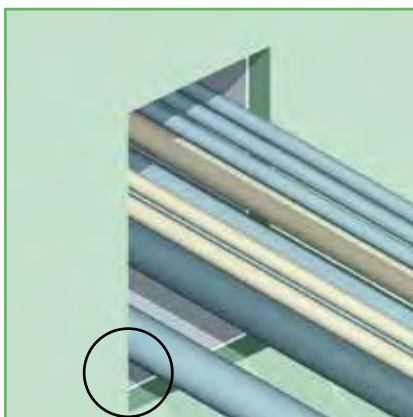


3) The flanges on the top and bottom of the EXTEND-A-FRAME must be firmly seated against the transit frame. Install the bolts and nuts on the top and bottom flanges. Tighten the bolts on top and bottom flanges.

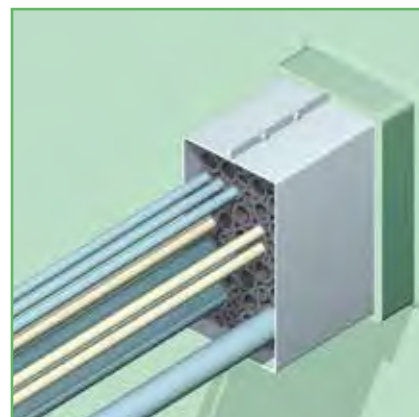
RISE®/EXTENDER instantly doubles the usable space inside any block system transit frame!



4) The flanges are 10 mm high, corresponding with the wall thickness of the block system transits. This enables the EXTEND-A-FRAMES to fit in multi-window transit units without any problems.



5) The EXTEND-A-FRAME, positioned in the transit frame, leaves 20 mm free at the back of the transit frame for the bonding of the FIWA® sealant to that transit frame. This is necessary to obtain a tight seal.



6) Place a RISE® insert sleeve around each cable. Any empty space is filled with RISE® filler sleeves. Note: EXTEND-A-FRAMES can also be used with the NOFIRNO® system.

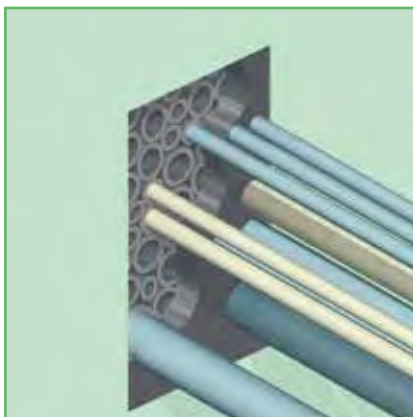
Eliminates the need for cutting new penetrations in valuable bulkhead/deck space!



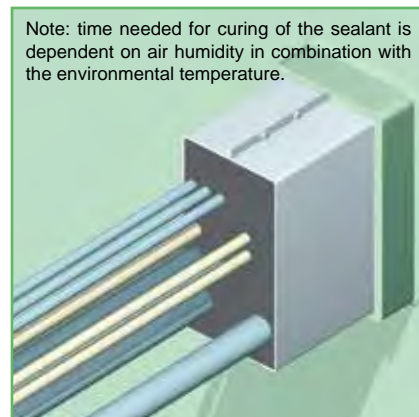
People with sensitive skin should use gloves when working with FIWA® or NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

7) Center the RISE® sleeves within the conduit so as to leave 20 mm free space at the front and the back of the transit. A 20 mm layer of FIWA® or NOFIRNO® sealant is applied at both sides of the transit.



8) Refer to the step by step installation instructions for RISE® multi-cable penetrations for final finishing of the transit. Note: EXTEND-A-FRAMES can also be used with the NOFIRNO® system.



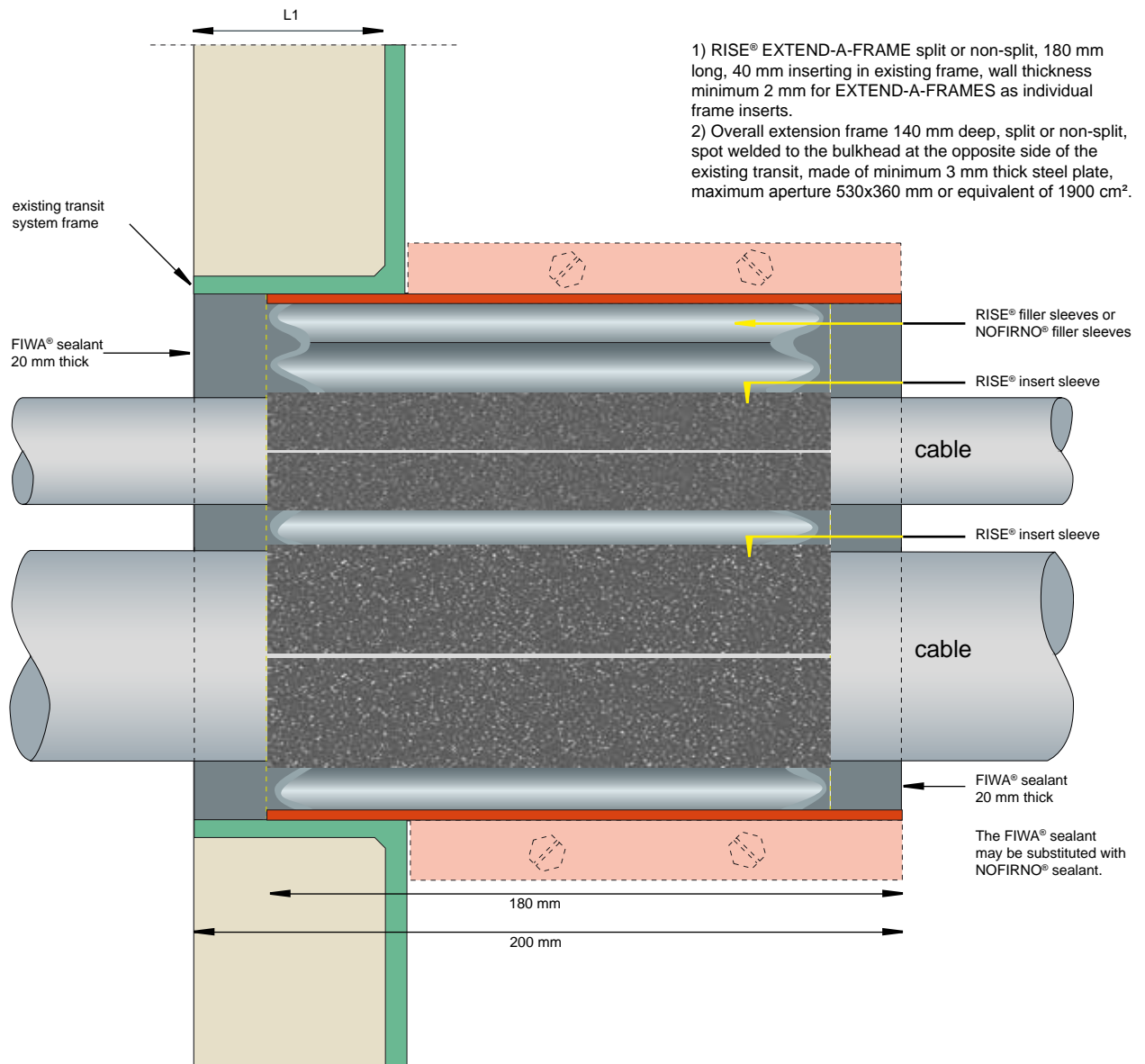
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.

9) For optimum stability, the EXTEND-A-FRAME can be spot welded or bolted to the existing frame. For larger frame configurations, an option is to install a frame around the existing transit frame spot welded to the deck or bulkhead.

RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS

L1: A-60 approved bulkhead/deck insulation.

**NO EXTRA INSULATION
REQUIRED AT THE FRONT OF
THE PENETRATION AND/OR IN
BETWEEN THE CABLES**



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

specifications for A-class according to
EC (MED) certificate 09156/D1 EC issued
by Bureau Veritas.
Drawings R0066E, R0067E, R0101E and R0102E

For optimum stability, the EXTEND-A-FRAME
can be spot welded to the existing frame.
For larger frame configurations an option is to
install a frame around the existing transit frame
spot welded to the bulkhead.

**A0-A60
MULTI-CABLE
TRANSIT**

RIACNOF® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

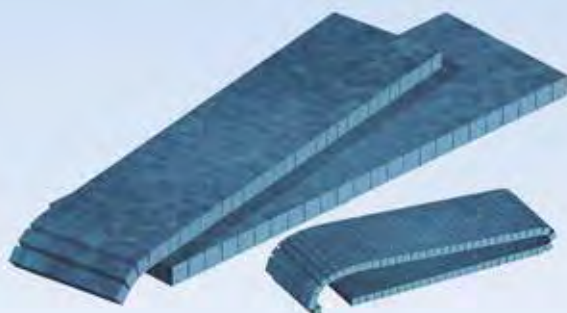
RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

ACTIFOAM® filler sheets



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

RIACNOF® (RISE-ACTIFOAM-NOFIRNO) multi-cable penetrations are a further development of the regular RISE® system. We have combined ACTIFIRE® and NOFIRNO® technology to obtain high fire ratings and cost-effective installation. The system is a cost-effective alternative to the RISE® filler sleeves to pack large void spaces in transits. Use is made of RISE® rubber insert sleeves (placed around the cables) and ACTIFOAM® cell rubber filling. ACTIFOAM® rubber sheets are pre-slit to enable ease of filling. Single strips can be torn off easily to fill smaller voids in the penetration. Based on the ACTIFIRE® technology, both rubber grades are activated when exposed to fire. On both sides of the penetration, a layer of NOFIRNO® (non-fire consumable, non-intumescent, non-ageing) sealant is applied. Only halogen free components.

RISE® cable sleeve	cable diameter	sleeve length	article number
-----------------------	-------------------	------------------	-------------------

12/6	5 - 7	140	80.0051
14/8	7 - 9	140	80.0052
16/10	9 - 11	140	80.0053
18/12	11 - 13	140	80.0054
20/14	13 - 15	140	80.0055
22/16	15 - 17	140	80.0056
27/19	17 - 21	140	80.0057
31/23	21 - 25	140	80.0058
35/27	25 - 29	140	80.0059
39/31	29 - 33	140	80.0060
46/36	33 - 39	140	80.0061
52/42	39 - 45	140	80.0062
58/48	45 - 51	140	80.0063
64/54	51 - 57	140	80.0064
70/60	57 - 63	140	80.0065

all dimensions in mm

12/6	5 - 7	160	80.0100
14/8	7 - 9	160	80.0101
16/10	9 - 11	160	80.0102
18/12	11 - 13	160	80.0103
20/14	13 - 15	160	80.0104
22/16	15 - 17	160	80.0105
27/19	17 - 21	160	80.0106
31/23	21 - 25	160	80.0107
35/27	25 - 29	160	80.0108
39/31	29 - 33	160	80.0109
46/36	33 - 39	160	80.0110
52/42	39 - 45	160	80.0111
58/48	45 - 51	160	80.0112
64/54	51 - 57	160	80.0113
70/60	57 - 63	160	80.0114

all dimensions in mm

12/6	5 - 7	210	80.0200
14/8	7 - 9	210	80.0201
16/10	9 - 11	210	80.0202
18/12	11 - 13	210	80.0203
20/14	13 - 15	210	80.0204
22/16	15 - 17	210	80.0205
27/19	17 - 21	210	80.0206
31/23	21 - 25	210	80.0207
35/27	25 - 29	210	80.0208
39/31	29 - 33	210	80.0209
46/36	33 - 39	210	80.0210
52/42	39 - 45	210	80.0211
58/48	45 - 51	210	80.0212
64/54	51 - 57	210	80.0213
70/60	57 - 63	210	80.0214

all dimensions in mm

ACTIFOAM® filler sheets	sheet length	article number
----------------------------	-----------------	-------------------

300x140x10	140	83.2510
300x140x25	140	83.2513
300x160x10	160	83.2520
300x160x25	160	83.2523
600x140x25	140	83.2563
600x160x25	160	83.2573
600x140x25 (slits 50 mm)	140	83.2592
600x160x25 (slits 50 mm)	160	83.2593

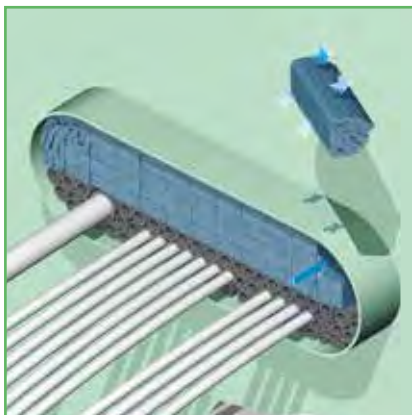
all dimensions in mm

RIACNOF® MULTI-CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

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



1) After the cables have been ducted, RISE® insert sleeves are applied around each cable. The set of sleeved cables is leveled with RISE® filler sleeves for ease of installation of the ACTIFOAM® filling.



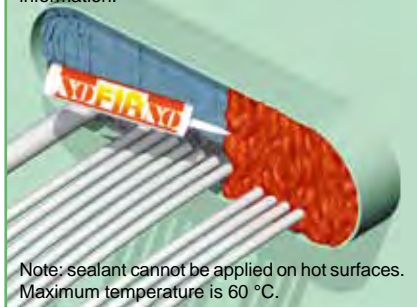
2) ACTIFOAM® strips and pre-slit sheets are used to fill the larger remaining space in the conduit opening. Use is made of ACTIFOAM® pre-slit rubber sheets 300x140x10 mm (slits 10x10 mm) and 600x140x25 mm (slits 25x25 or 25x50 mm).

Before applying the sealant, it is advisable to perform a final check on the packing of insert, filler sleeves and ACTIFOAM®.



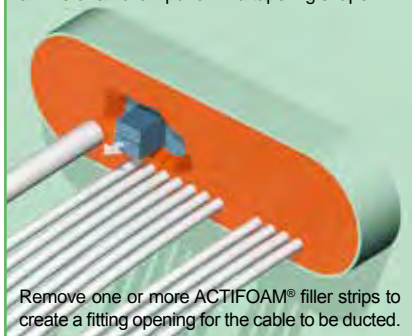
3) To obtain appropriate sealing, the 10 mm pre-slit sheets should be tightly rolled to leave a minimum of air gaps. Furthermore, the ACTIFOAM® filling should fit tightly in the conduit to obtain sufficient stability.

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



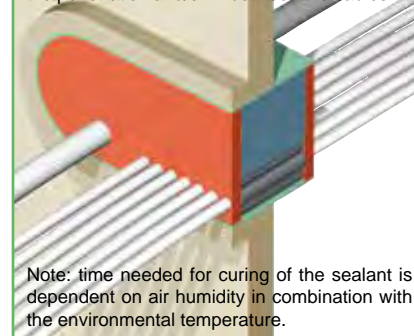
Note: sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C.

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.

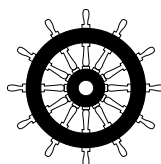
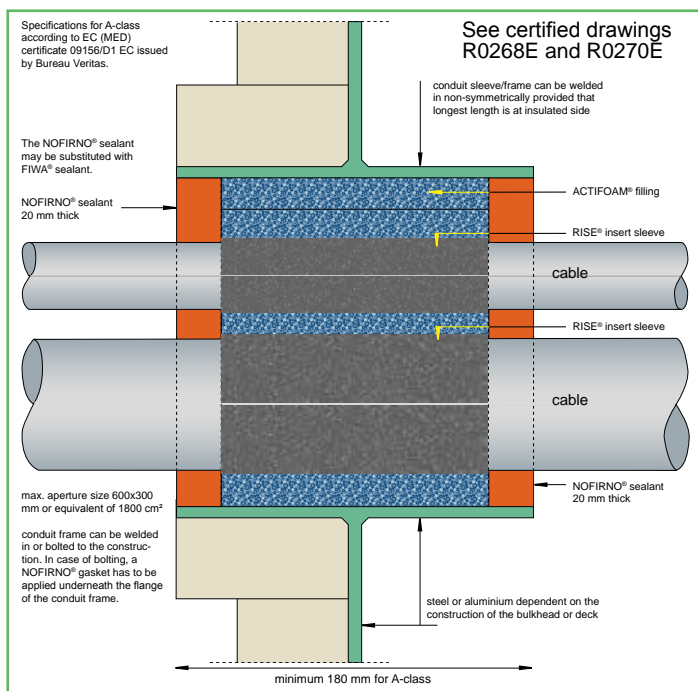


Remove one or more ACTIFOAM® filler strips to create a fitting opening for the cable to be ducted.

For A-class, minimum depth of the coaming is 180 mm. No extra insulation needed in front of the penetration and/or in between the cables.



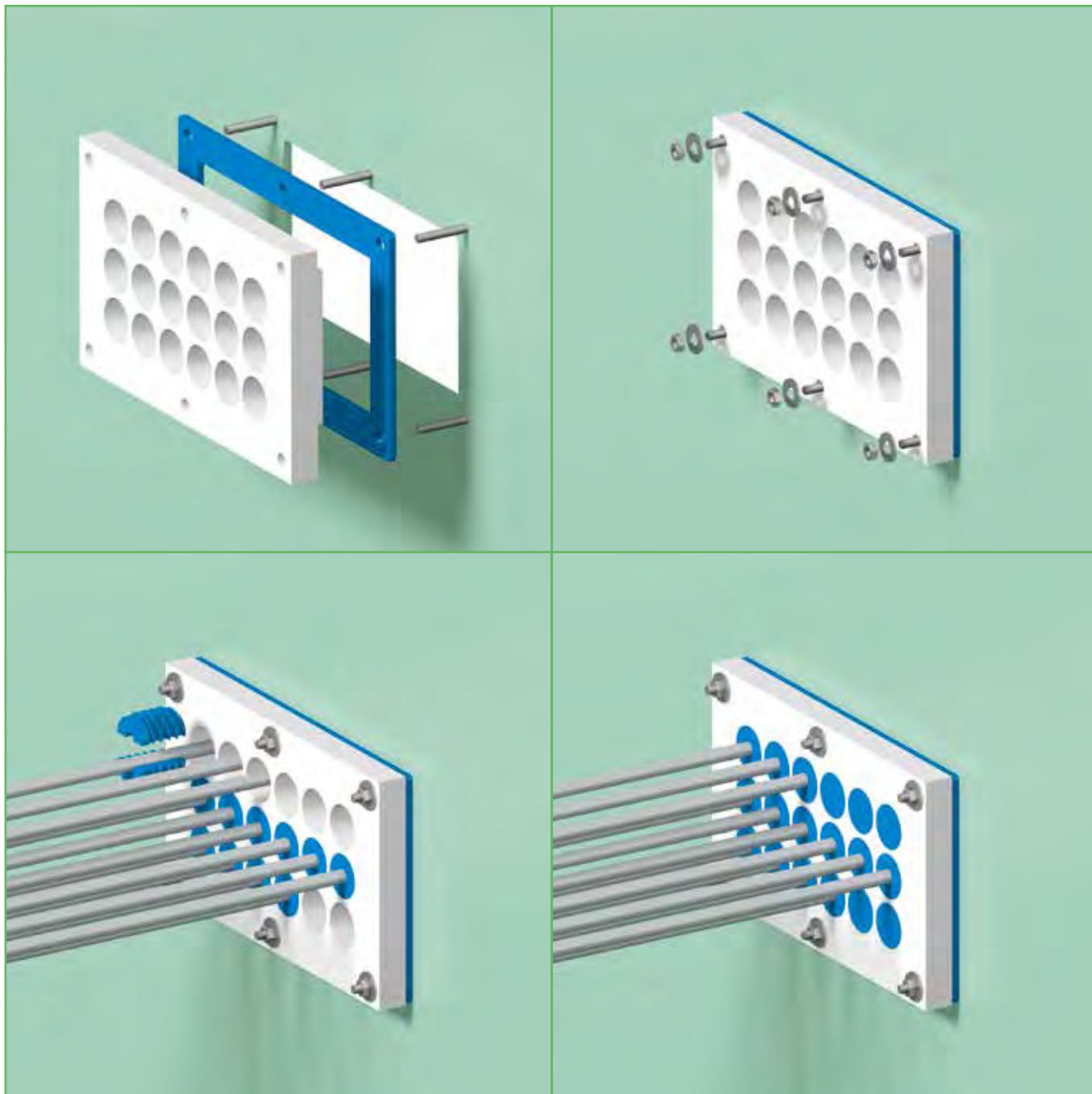
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.



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

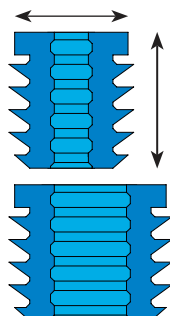


GLANDMOD - MULTI-GLAND SYSTEM
MULTI-MODULES - NOFIRNO GASKETS - CET-A-SIL PLUGS

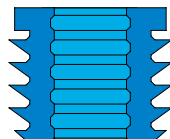


GLANDMOD - MULTI-GLAND SYSTEM
effective alternative for cable gland systems
plugs/gasket made of NOFIRNO® rubber -
body of HMPE plastic
suitable for IP 68 rated equipment - up to 4 meter
water column tight - various configurations

GLANDMOD - MULTI-GLAND SYSTEM MULTI-MODULES - NOFIRNO GASKETS - CET-A-SIL PLUGS



flange 15 mm
length 18 mm



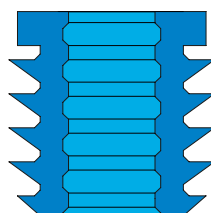
flange 20mm
length 18 mm

type	cable diameter	art. no.
15/0	blind	46.0100
15/4	3.7-4.7	46.0104
15/5	4.7-5.7	46.0105
15/6	5.7-6.7	46.0106
15/7	6.7-7.7	46.0107

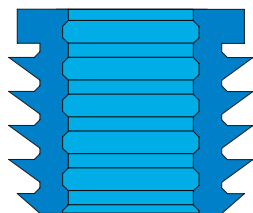
CET-A-SIL SERIES 15

type	cable diameter	art. no.
20/0	blind	46.0200
20/4	3.7-4.7	46.0204
20/5	4.7-5.7	46.0205
20/6	5.7-6.7	46.0206
20/7	6.7-7.7	46.0207
20/8	7.7-8.7	46.0208
20/9	8.7-9.7	46.0209
20/10	9.7-10.7	46.0210

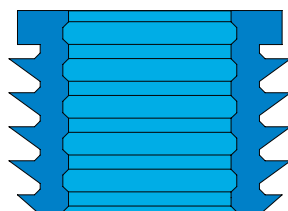
CET-A-SIL SERIES 20



flange 25 mm
length 27 mm



flange 30 mm
length 27 mm



flange 35 mm
length 27 mm

type	cable diameter	art. no.
25/0	blind	46.0300
25/8	7.7-8.7	46.0308
25/9	8.7-9.7	46.0309
25/10	9.7-10.7	46.0310
25/11	10.7-11.7	46.0311
25/12	11.7-12.7	46.0312
25/13	12.7-13.7	46.0313
25/14	13.7-14.7	46.0314

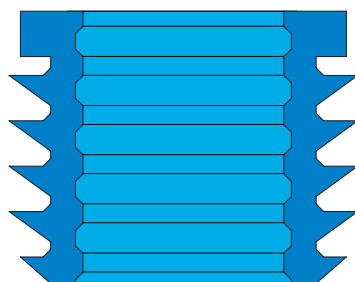
CET-A-SIL SERIES 25

type	cable diameter	art. no.
30/0	blind	46.0400
30/10	9.7-10.7	46.0410
30/11	10.7-11.7	46.0411
30/12	11.7-12.7	46.0412
30/13	12.7-13.7	46.0413
30/14	13.7-14.7	46.0414
30/15	14.7-15.7	46.0415
30/16	15.7-16.7	46.0416
30/17	16.7-17.7	46.0417

CET-A-SIL SERIES 30

type	cable diameter	art. no.
35/0	blind	46.0500
35/15	14.7-15.7	46.0515
35/16	15.7-16.7	46.0516
35/17	16.7-17.7	46.0517
35/18	17.7-18.7	46.0518
35/19	18.7-19.7	46.0519
35/20	19.7-20.7	46.0520
35/21	20.7-21.7	46.0521
35/22	21.7-22.7	46.0522

CET-A-SIL SERIES 35



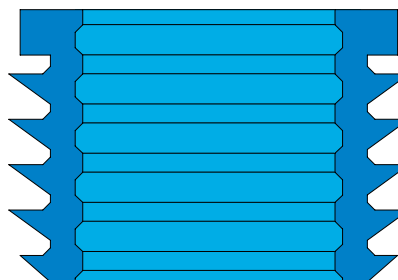
flange 43 mm
length 36 mm

type	cable diameter	art. no.
43/0	blind	46.0600
43/20	19.7-20.7	46.0620
43/21	20.7-21.7	46.0621
43/22	21.7-22.7	46.0622
43/23	22.7-23.7	46.0623
43/24	23.7-24.7	46.0624
43/25	24.7-25.7	46.0625
43/26	25.7-26.7	46.0626
43/27	26.7-27.7	46.0627
43/28	27.7-28.7	46.0628
43/29	28.7-29.7	46.0629

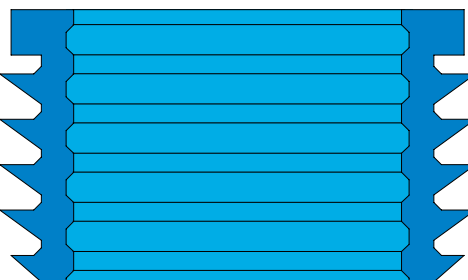
CET-A-SIL SERIES 43

type	cable diameter	art. no.
50/0	blind	46.0700
50/25	24.7-25.7	46.0725
50/26	25.7-26.7	46.0726
50/27	26.7-27.7	46.0727
50/28	27.7-28.7	46.0728
50/29	28.7-29.7	46.0729
50/30	29.7-30.7	46.0730
50/31	30.7-31.7	46.0731
50/32	31.7-32.7	46.0732
50/33	32.7-33.7	46.0733
50/34	33.7-34.7	46.0734

CET-A-SIL SERIES 50



flange 50 mm
length 36 mm

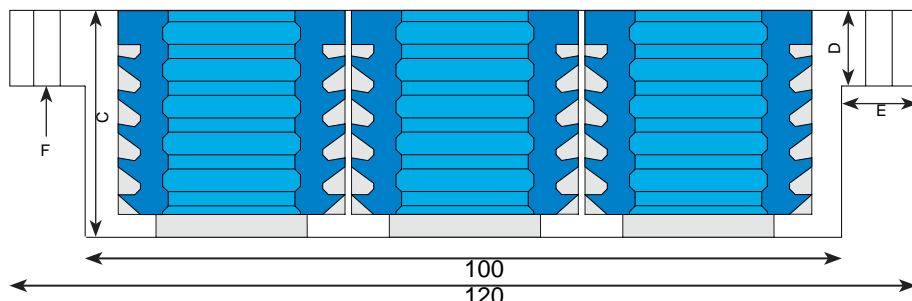


flange 60 mm
length 36 mm

60/0	blind	46.0800
60/29	28.7-29.7	46.0809
60/30	29.7-30.7	46.0830
60/31	30.7-31.7	46.0831
60/32	31.7-32.7	46.0832
60/33	32.7-33.7	46.0833
60/34	33.7-34.7	46.0834
60/35	34.7-35.7	46.0835
60/36	35.7-36.7	46.0836
60/37	36.7-37.7	46.0837
60/38	37.7-38.7	46.0838
60/39	38.7-39.7	46.0839
60/40	39.7-40.7	46.0840

CET-A-SIL SERIES 60

GLANDMOD - MULTI-GLAND SYSTEM MULTI-MODULES - NOFIRNO GASKETS - CET-A-SIL PLUGS



GLANDMOD SERIES 01:

outer dimensions 120x75 mm

recessed dimensions 100x55 mm

TYPE	A	B	C	D	E	F	art. no.
14x15	15	10	20	10	10	M4	60.9300
8x20	20	15	20	10	10	M4	60.9301
5x25	25	17.5	30	10	10	M4	60.9302
3x30	30	20	30	10	10	M4	60.9303

TYPE	conduit openings	plug series	cable size
14x15	14	15	3.7-7.7
8x20	8	20	3.7-9.7
5x25	5	25	7.7-14.7
3x30	3	30	9.7-17.7

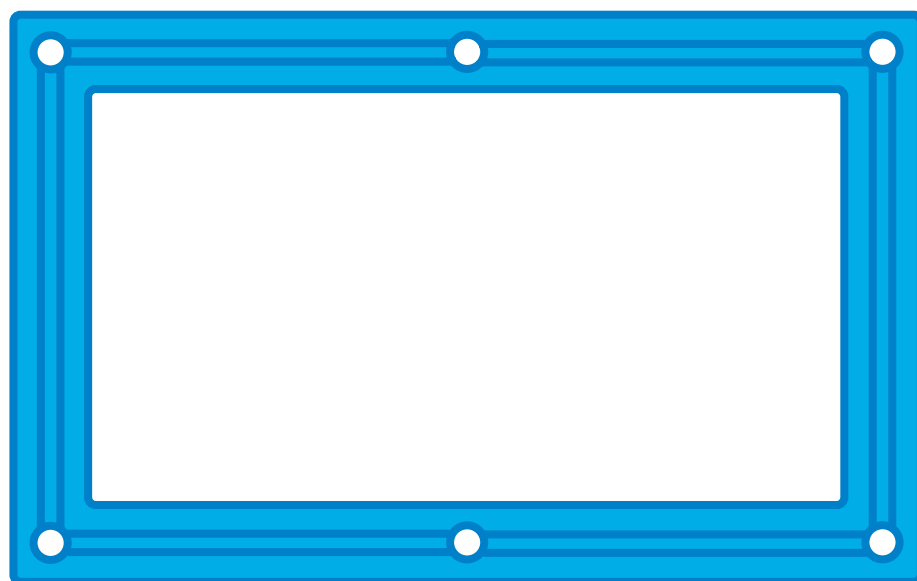
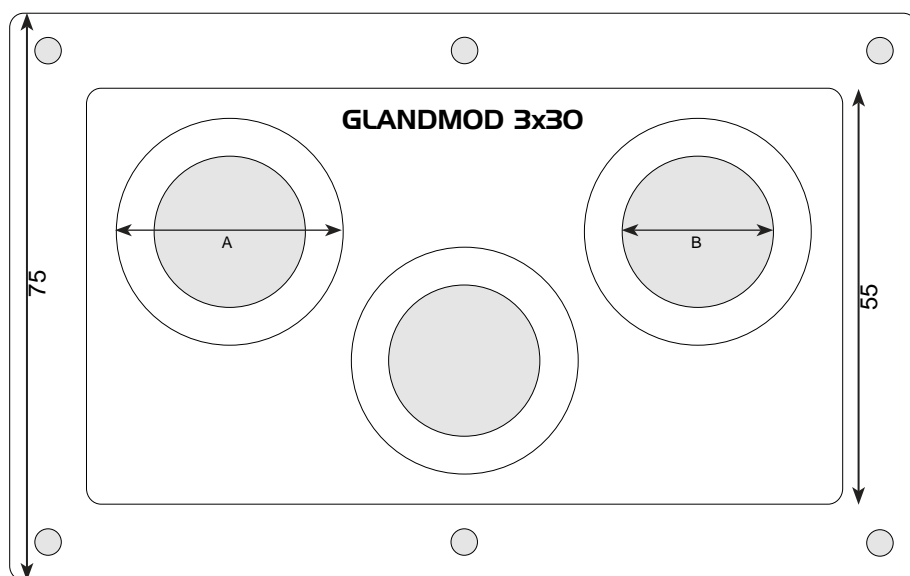
GLANDMOD SERIES 02:

outer dimensions 230x130 mm

recessed dimensions 200x100 mm

TYPE	A	B	C	D	E	F	art. no.
18x30	30	20	30	10	15	M6	60.9310
11x35	35	25	30	10	15	M6	60.9311
8x43	43	33	40	10	15	M6	60.9312
5x50	50	40	40	10	15	M6	60.9313

TYPE	conduit openings	plug series	cable size
18x30	18	30	9.7-17.7
11x35	11	35	14.7-22.7
8x43	8	43	19.7-28.7
5x50	5	50	24.7-34.7



NOFIRNO GASKET SERIES 01

profiled, thickness overall 5 mm,
width 10 mm

dimensions outside 120x75 mm

dimensions inside 100x55 mm

art. nr. 51.9301

NOFIRNO GASKET SERIES 02

profiled, thickness overall 5 mm,
width 15 mm

dimensions outside 230x130 mm

dimensions inside 200x100 mm

art. nr. 51.9302

Note: the functionality with regard to tightness of the multi-gland system can be guaranteed only by application of the CET-A-SIL plugs in GLANDMOD modules. Application of CET-A-SIL plugs cannot be guaranteed in other conduit systems. Two standard series of the GLANDMOD modules are available. Ask for the drawings of the GLANDMOD modules. On request modules with various hole configurations can be made to size. The largest one so far made is a module 565 x 240 mm with 24 conduit openings 60 mm. For special sizes, please contact our sales department.

GLANDMOD - MULTI-GLAND SYSTEM MULTI-MODULES - NOFIRNO GASKETS - CET-A-SIL PLUGS



NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

JET FIRE TEST ACCORDING TO ISO 22899-1:2007 AND ISO/CD 22899-2

Article 6.5 of ISO/CD 22899-2 mentions:

“There are concerns regarding the application and performance of passive fire protection materials and products when subjected to extreme fire events. Limited information is available how passive fire protection materials and products (developed for buildings only to withstand relatively slow build up fire tests such as ISO 834) perform if subjected to a fire exposure significantly more severe.

A fire protection material or system intended to withstand a conventional building fire for a specified period may not perform adequately in an extreme event scenario. Products that have demonstrated the ability to withstand a jet fire can be used to protect buildings more sensitive to extreme fires”.



NOFIRNO® cable and pipe transits are successfully tested for a two hour Jet Fire exposure.

Article 9.1 of ISO/CD 22899-2 mentions:

“Whilst hydrocarbon furnace tests are designed to represent a particular type of fire, they do not reproduce the actual fire conditions. Parameters such as: the balance between radiative and convective heat transfer, pressure fluctuations due to turbulence, erosive forces from high gas velocities, thermal shock and differential heating are not reproduced”.

Jet Fire tests simulate the most onerous conditions of a hydrocarbon fueled fire on an offshore oil rig, or a missile strike on a military warship.



In some areas, in the flame temperatures of 1200 °C are reached. Heat flux vs. black body temperature: 250 kW/m² equals 1175 °C.

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

NOFIRNO® filler sleeves



Operating temperatures:
-50 °C up to +180 °C

filler sleeves are supplied non-split

NOFIRNO® filler sleeve

sleeve length

article number

18/12 multi	60	80.5050
18/12 single	110	80.5001
18/12 multi	110	80.5051
18/12 single	140	80.5002
18/12 multi	140	80.5052
18/12 single	160	80.5003
18/12 multi	160	80.5053
18/12 single	210	80.5004
18/12 multi	210	80.5054
27/19 multi	60	80.5060
27/19 single	110	80.5011
27/19 multi	110	80.5061
27/19 single	140	80.5012
27/19 multi	140	80.5062
27/19 single	160	80.5013
27/19 multi	160	80.5063
27/19 single	210	80.5014
27/19 multi	210	80.5064
22/15 multi	60	80.5070
22/15 multi	110	80.5071
22/15 multi	140	80.5072
22/15 multi	160	80.5073
22/15 multi	210	80.5074

all dimensions in mm

NEW: NOFIRNO® multi-filler sleeves type 22/15



only one type of filler sleeve
instead of two:
faster installation (no ratio
18/12 : 27/19)
simplifies material management

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

The thermal insulation is very high because of the air volume inside the penetration. The air is tightly enclosed by the sealant layer at both sides even when one side is exposed to the fire. The NOFIRNO® system has been subjected to A-0, H-0 and even Jet Fires without being severely affected. Due to the superb behaviour of our various systems, the NOFIRNO® sealing system can be easily combined with RISE®. The NOFIRNO rubber is absolutely HALOGEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore, the NOFIRNO rubber has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996).

PRODUCT INFORMATION SEALANT

- | | |
|--------------------------------|---|
| 01) colour | red brown |
| 02) specific gravity | 1.40 ± 0.03 g/cm³ |
| 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 ISO 37 | 50% |
| 07) elongation at shear | >150% |
| 08) hardness | 45 Shore A |
| 09) elastic deformation | approx. 50% |
| 10) resistance | UV, Ozone, arctic conditions |
| 11) ageing | more than 20 years |
| 12) supplied in | 310 ml cartridges |
| 13) storage | to be stored cool and dry
min/max temperature = +5/+30° C |
| 14) 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 |



article number 50.0102

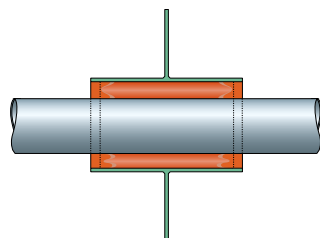
NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.

After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

L1: A-60/H-120 approved bulkhead insulation.



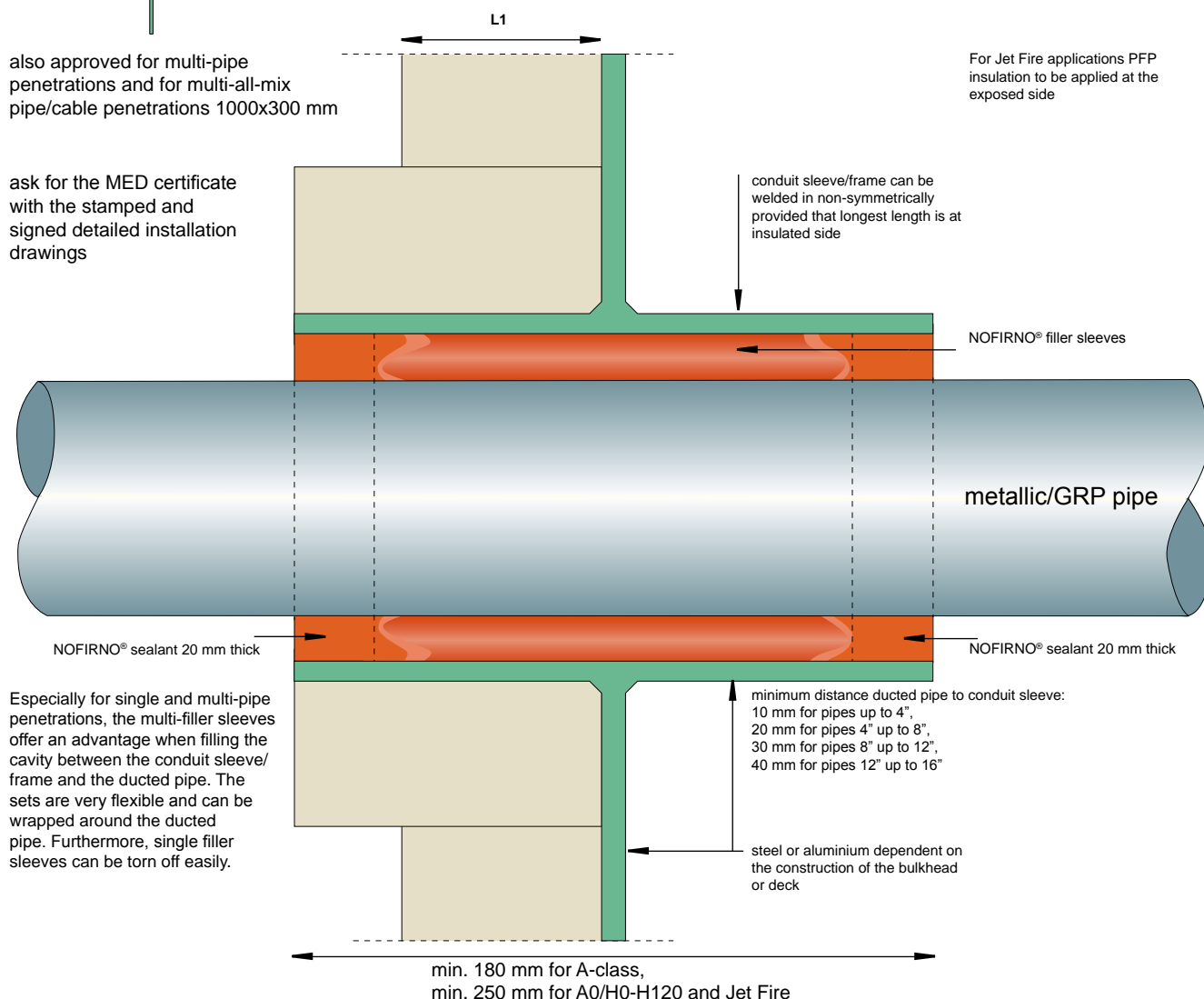
**NO INSULATION
REQUIRED FOR A-0
AND H-0 DIVISIONS**

- CAN BE USED FOR OFF CENTRE, EXCENTRICALLY AND ANGLED DUCTED PIPES
- FOR METALLIC AND GRP PIPES

also approved for multi-pipe penetrations and for multi-all-mix pipe/cable penetrations 1000x300 mm

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

For Jet Fire applications PFP insulation to be applied at the exposed side



Especially for single and multi-pipe penetrations, the multi-filler sleeves offer an advantage when filling the cavity between the conduit sleeve/frame and the ducted pipe. The sets are very flexible and can be wrapped around the ducted pipe. Furthermore, single filler sleeves can be torn off easily.

minimum distance ducted pipe to conduit sleeve:
10 mm for pipes up to 4",
20 mm for pipes 4" up to 8",
30 mm for pipes 8" up to 12",
40 mm for pipes 12" up to 16"

steel or aluminium dependent on the construction of the bulkhead or deck

min. 180 mm for A-class,
min. 250 mm for A0/H0-H120 and Jet Fire

Non-fire rated conduits which should only be gas or water tight can be shorter in length. For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

Specifications for A-class according to EC (MED) certificate MED-B-8556 issued by Det Norske Veritas. Drawings N0009E, N0011E, N0018E and N0020E, R0207E, R0213E.

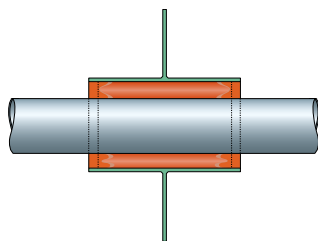
For H-class DNV certificate F-20490. Drawings N0032E, N0033E, N0034E, N0035E, N0036E, N0037E and N0038E.

For steel/stainless steel pipes up to 408/1016 mm, copper/CuNi pipes up to 420 mm and GRP pipes up to 408 mm.
For length of insulation of the ducted pipes see certified drawings N009E, N0011E, N0018E, N0020E, R0207E and R0213E.

**A0-A60 / H0-H120
METALLIC AND
GRP PIPE TRANSIT**

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

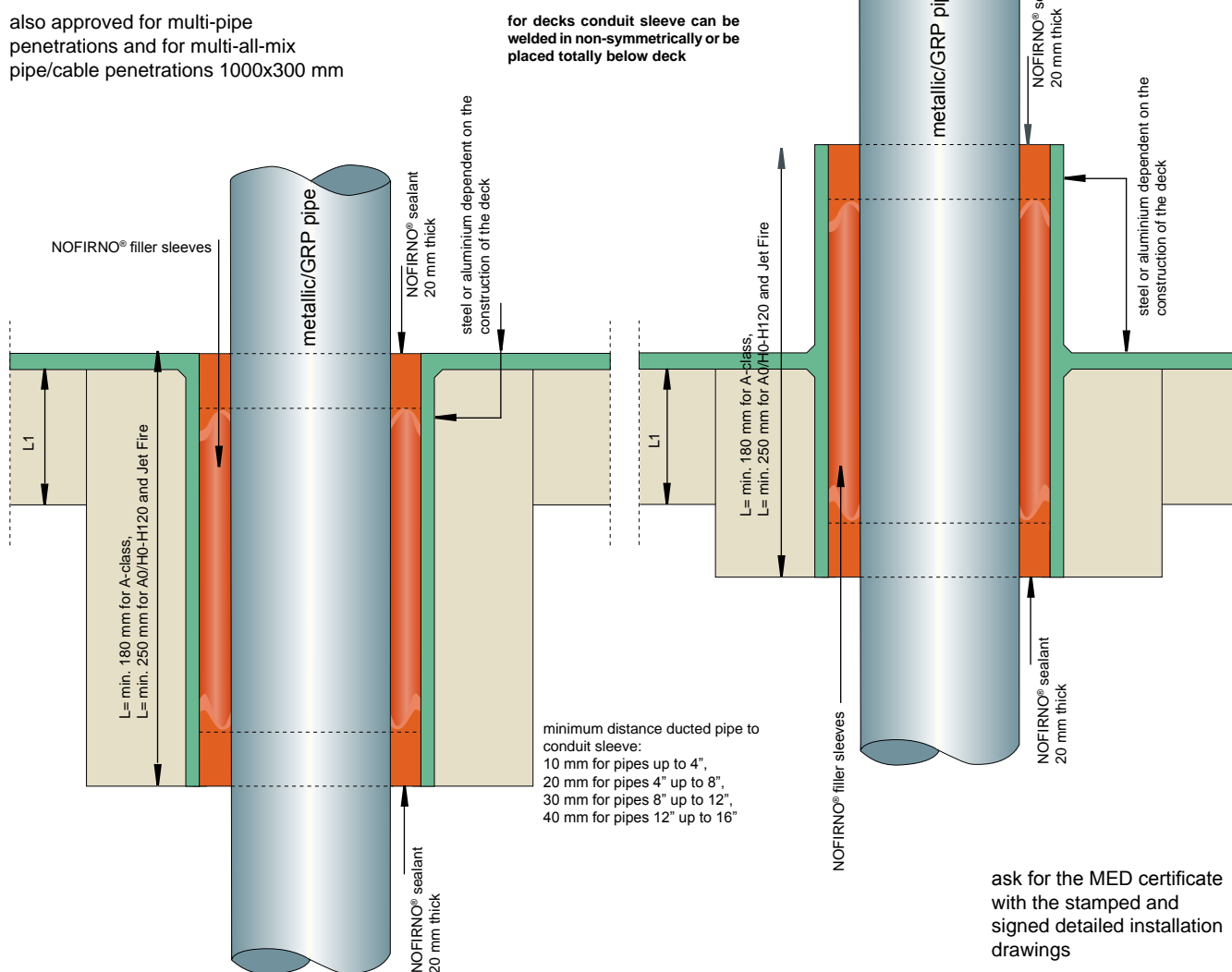
L1: A-60/H-120 approved deck insulation.



**NO INSULATION
REQUIRED FOR A-0
AND H-0 DIVISIONS**

also approved for multi-pipe penetrations and for multi-all-mix pipe/cable penetrations 1000x300 mm

- CAN BE USED FOR OFF CENTRE, EXCENTRICALLY AND ANGLED DUCTED PIPES
- FOR METALLIC AND GRP PIPES



Non-fire rated conduits which should only be gas or water tight can be shorter in length.
For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

For steel/stainless steel pipes up to 408 mm, copper/CuNi pipes up to 420 mm and GRP pipes up to 408 mm.
For length of insulation of the ducted pipes for A-class see certified drawings N009E, N0011E, N0018E, and N0020E; for H-class drawings N0033E, N0034E, N0035E, N0036E, N0037E and N0038E.

Specifications for A-class according to EC (MED) certificate MED-B-8556 issued by Det Norske Veritas. Drawings N0009E, N0011E, N0018E and N0020E, R0207E, R0213E and N0045E.
For H-class DNV certificate F-20490. Drawings N0032E, N0033E, N0034E, N0035E, N0036E, N0037E and N0038E..

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

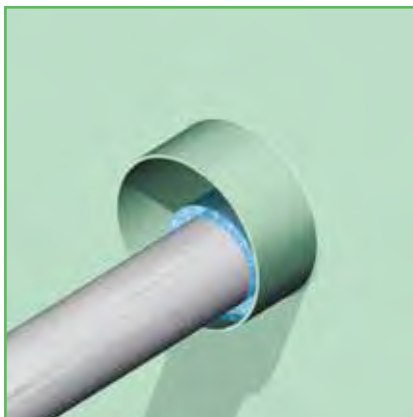
A0-A60 / H0-H120 METALLIC AND GRP PIPE TRANSIT

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

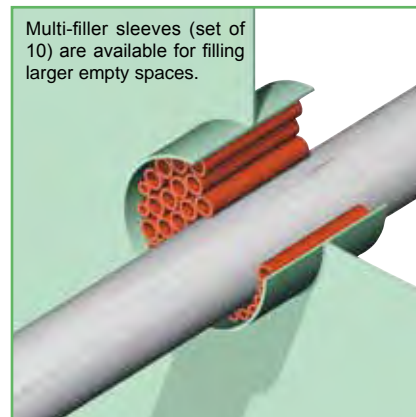
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



1) The metallic pipe can be passed through the conduit sleeve in any position, provided there is enough space between the sleeve and the ducted pipe (see next at 2).

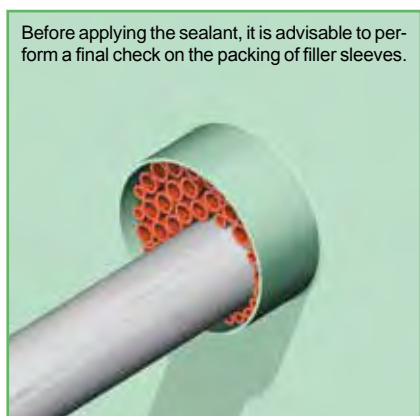


2) Make sure that the minimum space between the pipe and the wall of the conduit sleeve is in accordance with the minimum allowed distance as certified.



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

3) The remaining free space in the conduit is filled with NOFIRNO® filler sleeves type 27/19 and 18/12. For ease of filling, the NOFIRNO® filler sleeves are supplied non-split. The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15.



Before applying the sealant, it is advisable to perform a final check on the packing of filler sleeves.

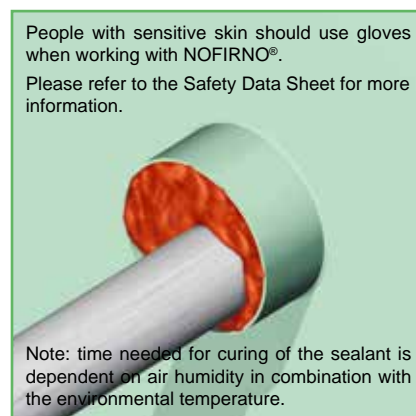
4) Push the filler sleeves into the conduit in such a way as to leave about 20 mm free space at the front. The whole set of filler sleeves should tightly fit into the conduit to provide sufficient mechanical stability.



Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

Note: sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C. After full curing max. operating temperature is 180 °C.

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



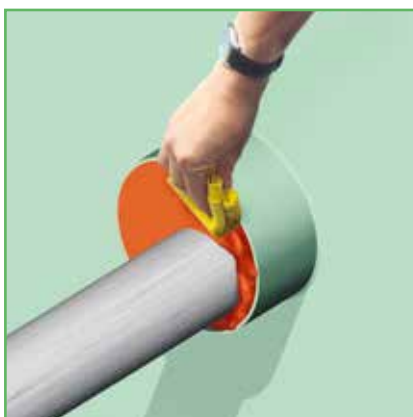
People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.

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

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.



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



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



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

9) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

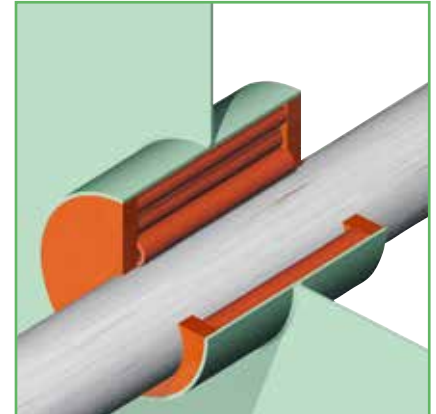
Also certified for multi-pipe penetrations.

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

10) The conduit sleeve should be minimum 180 mm deep for A-60 class and 250 mm deep for A-0, H0-H120 and Jet Fire rated divisions.

For A-class, minimum depth of the conduit sleeve 180 mm.

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



12) For A0- and H0-class penetrations the conduit sleeve/frame needs no insulation.

Vertical transits are easy to install as well. To prevent the filler sleeves from falling out of the conduit sleeve, multi-sleeves are preferably used.

The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead an easy matter.

Note: sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C. After full curing max. operating temperature is 180 °C.

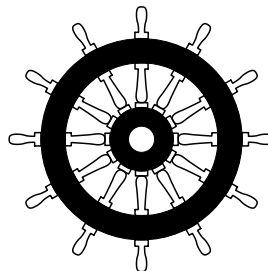
NOFIRNO® sealant does not sag and will not drip off.

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



JET FIRE TESTED ACCORDING TO ISO 22899-1:2007 AND ISO/CD 22899-2

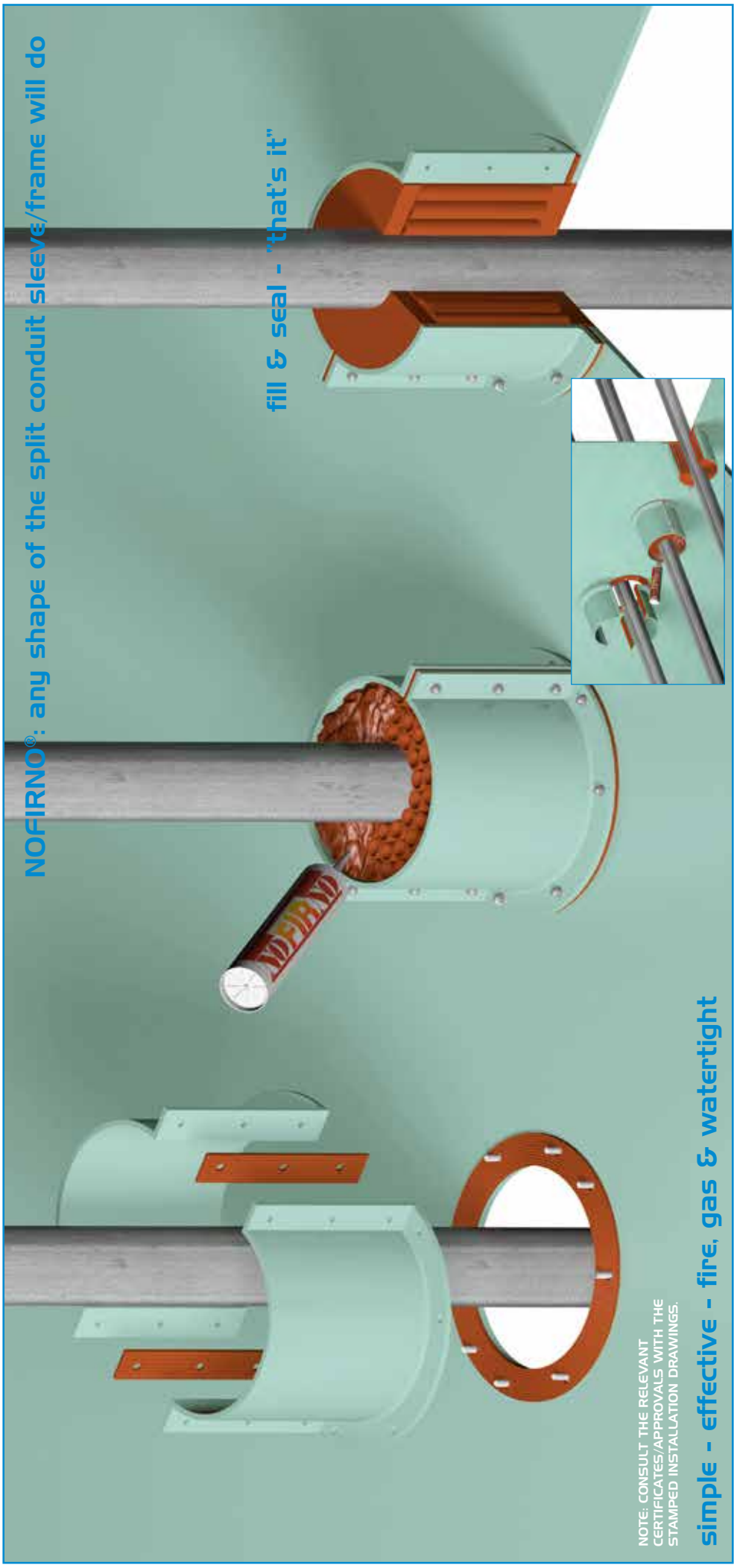
Specification is 0.3 kg/sec propane. 125 minutes is 7500 sec. This means 2250 kg propane in this test burned. Equals a volume of almost 1300 m³ propane.



NOFIRNO® single steel and GRP pipe penetrations have been successfully tested for A-0 and H-0 class without the use of any insulation. Conduit depth 250 mm.

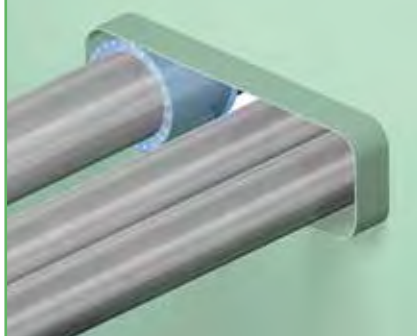


NOFIRNO® sealing system for upgrading split conduit sleeves/frames bolted to the bulkhead/deck NOFIRNO® gaskets, NOFIRNO® filler sleeves and sealant steel pipes max. 273 mm OD - H-class tested



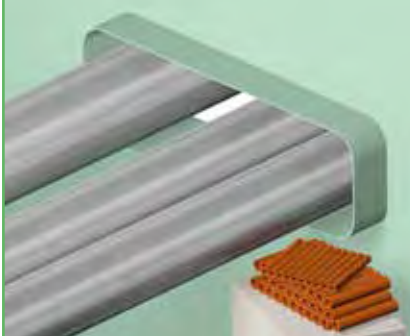
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

NOFIRNO® also is certified for multi-pipe penetrations.



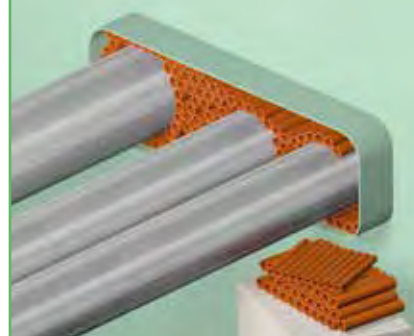
1) The metallic pipes can be passed through the conduit opening in any position. Make sure that the space between the pipes and the wall of the conduit and between the ducted pipes is in accordance with the minimum allowed distance as certified.

Note: for multi-pipe transits see drawings N0016E, N0017E, N0018E, N0020E and N0045E

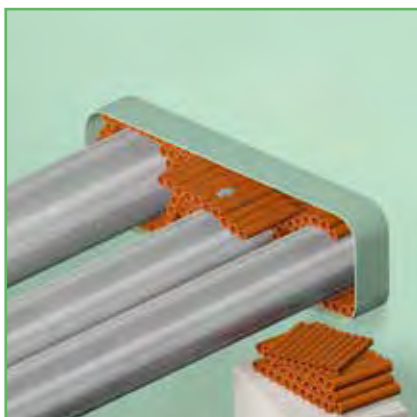


2) The open free space in the conduit opening has to be filled with NOFIRNO® filler sleeves. For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces. The filling ratio 18/12 to 27/19 should be maximum 1:2. Alternative only filler sleeves type 22/15.

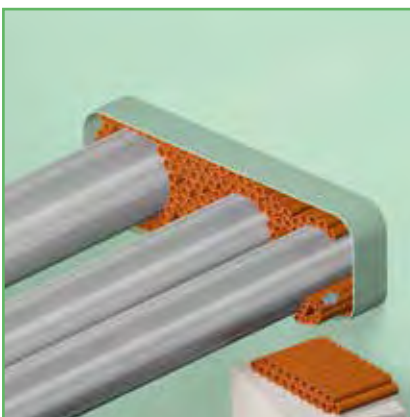
Multi-filler sleeves (set of 10) are available for filling larger empty spaces.



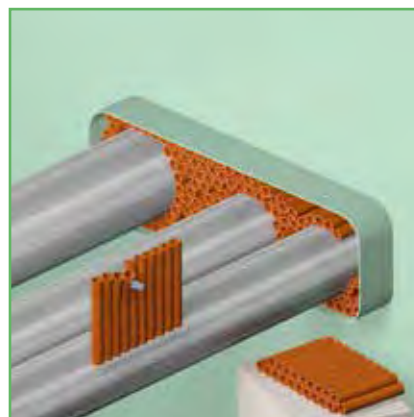
3) Before starting the installation work the ducted pipes and the wall of the conduit opening should be cleaned. Dirt, rust and oil residues should be removed. Start filling the larger open spaces in the conduit by inserting the sets of multi-filler sleeves.



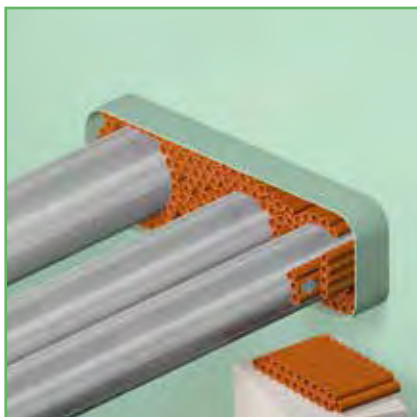
4) The installation of the NOFIRNO® sealing system is extremely fast when using the NOFIRNO® multi-filler sleeves. Besides, it makes it less complicated than using the single filler sleeves.



5) Due to the flexibility of the set of filler sleeves, the sets can be easily rolled up and then pushed into the narrow spaces. This is most helpful when installing floor penetrations.



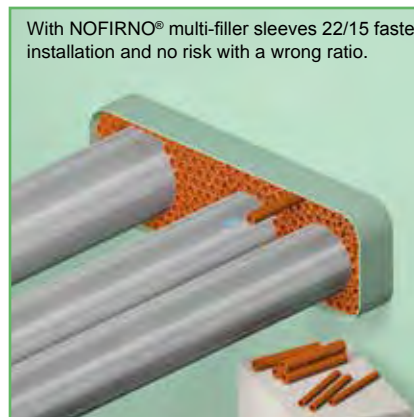
6) The smaller openings are now filled with parts of the sets of multi-filler sleeves. To tear off sleeves from the multi-set, the procedure is to do this backwards/forwards and not sideways. This is because of the strength of the intermediate rubber parts.



7) These parts of the sets of multi-filler sleeves are then pushed in the fitting remaining open spaces in the set of filling inside the conduit opening.



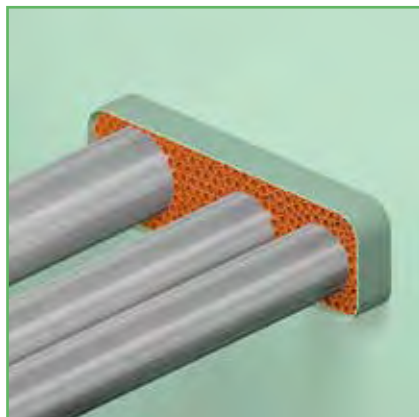
8) Single filler sleeves are used to fill the remaining small spaces in the set of fillers. Filling these spaces is of utmost importance to obtain a very tight fit of the filling inside the conduit frame.



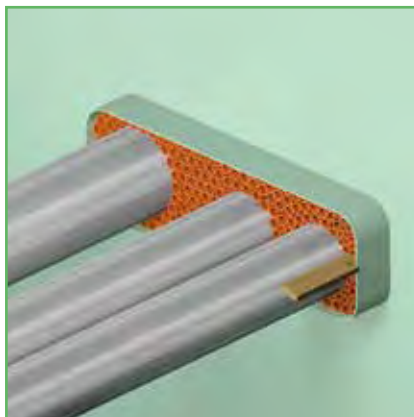
With NOFIRNO® multi-filler sleeves 22/15 faster installation and no risk with a wrong ratio.

9) The single filler sleeves are inserted in the open spaces. At this stage they can generally be pushed in by hand. At the final stage to create a very tight fit of the whole set of fillers, the sleeves can be inserted with the help of a flat nose pliers.

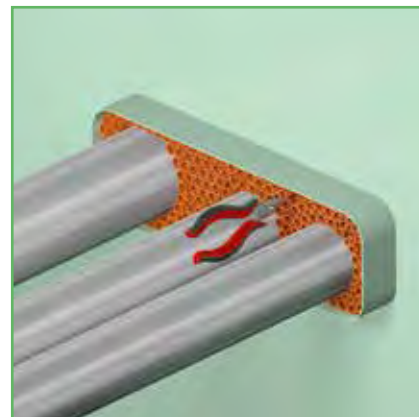
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



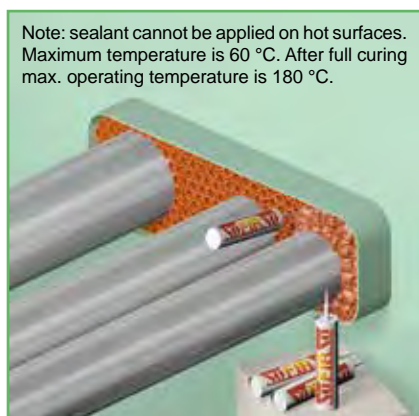
10) A tight fit of the filling with filler sleeves is essential for the overall mechanical stability and the ultimate tightness ratings.



11) Push the filler sleeves into the conduit in such a way as to leave about 20 mm free space at the front and the back. The whole set of filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.



12) The surface structure of the rubber of the sleeves makes it easy to pull NOFIRNO® filler sleeves back which are too deep inserted. Before applying the sealant, it is advisable to perform a final check on the packing of (multi-) filler sleeves.



13) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. When the application of the sealant is in a later stage, clean and dry the conduit opening and the pipes thoroughly. Remove any dirt, rust or oil residues before applying the sealant.



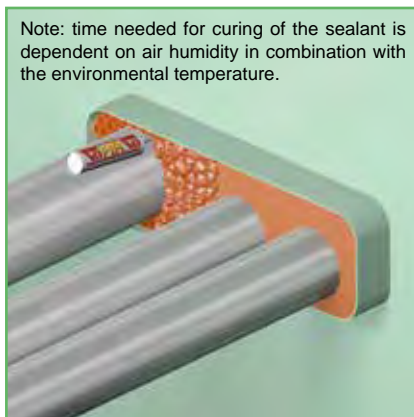
14) When working on larger conduits, the sealant should be applied in two or more parts. Due to the fast curing of the top layer of the sealant, the amount of sealant should not be more than can be finished within 10 minutes.



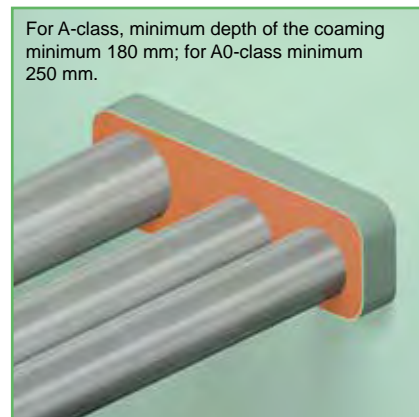
15) A cloth is sprayed with water. Note: do not use soap water! The cloth is used to press down the sealant layer. Pressing down the NOFIRNO® sealant in a stiff way is absolutely vital for the mechanical stability of the sealing system.



16) The surface can be smoothed by hand. Wet the hands thoroughly with soap and water to avoid the NOFIRNO® sticking to the hands. A very neat surface is the result. Prevent soap water to be applied on the sealant surface on which the next sealant will be applied.

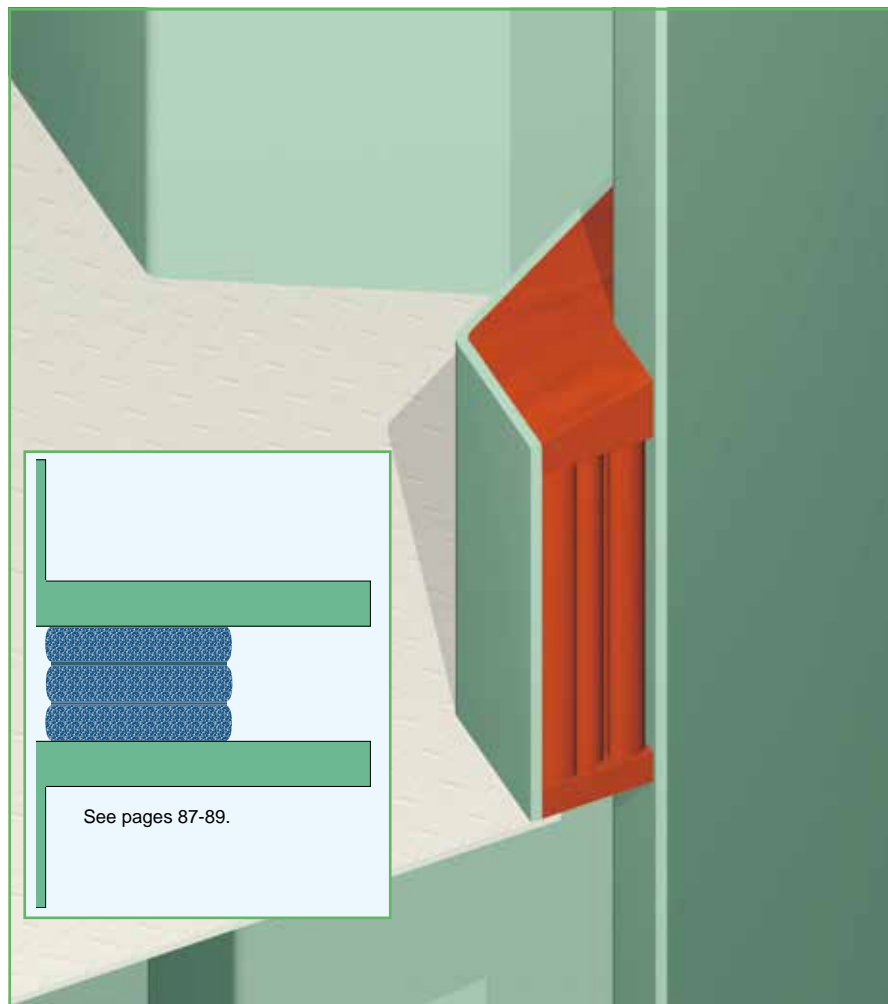


17) Then applying the sealant can be continued for the rest of the transit. Smoothing and finishing in the same way as for the first part of the sealant layer



18) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipes have to be insulated according to the specifications on the certified drawings.

NOFIRNO® SEALING SYSTEM FOR STRUCTURAL GAPS - FIRESAFE/GAS & WATERTIGHT



The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead at the bottom of the sealing system an easy matter. NOFIRNO® sealant does not sag and will not drip off.

Furthermore, the viscosity of the sealant allows to form a sloped surface of the top layer to ensure that water will drip off in case of leakages in the installation.

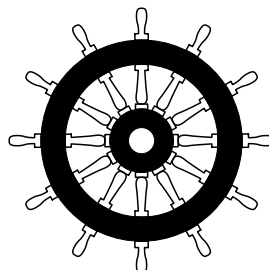
For fire safe sealing of horizontal gaps, for instance between walls and ceilings, use can be made of the ACTIFOAM®/ULTRA sandwich construction. The system can be inserted using a hammer and a piece of wood. Jet Fire rated, when covered at the exposed side with NOFIRNO® sealant.

For these type of special applications on offshore installations, so-called Design Verification Reports can be obtained on a case by case project basis. A DVR has been issued for both systems.



JET FIRE TESTED ACCORDING TO ISO 22899-1:2007 AND ISO/CD 22899-2

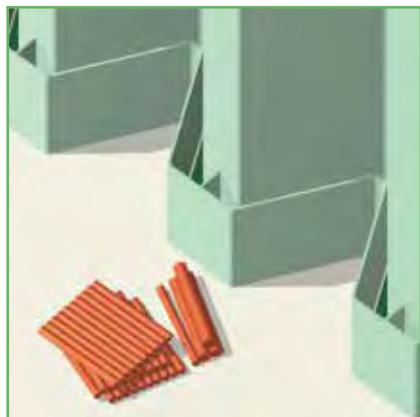
Specification is 0.3 kg/sec propane, 125 minutes is 7500 sec. This means 2250 kg propane in this test burned. Equals a volume of almost 1300 m³ propane.



NOFIRNO® single steel and GRP pipe penetrations have been successfully tested for A-0 and H-0 class without the use of any insulation. Conduit depth 250 mm.



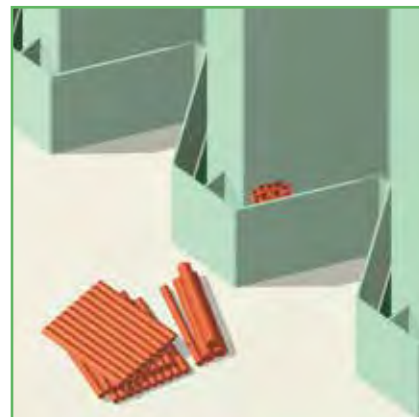
NOFIRNO® SEALING SYSTEM FOR STRUCTURAL GAPS - FIRESAFE/GAS & WATERTIGHT



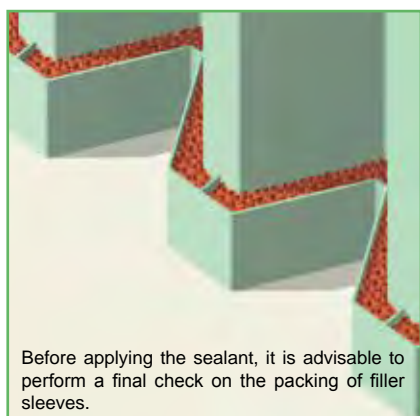
1) Based on the width and length of the gap to be sealed, partitions have to be put in place to ensure that the adhesive surface is in accordance with the maximum certified surface of 1800 cm².



2) NOFIRNO® filler sleeves are inserted in the gap to be sealed. A combination of multi-filler sleeves (set of 10 sleeves) and single filler sleeves type 18/12 and 27/19 can be used.

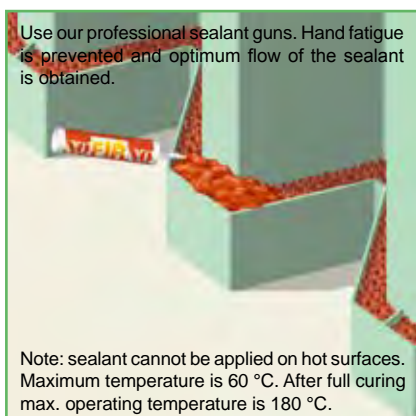


3) The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15. For H/class and Jet Fire rated constructions the length of the sleeves is 210 mm. For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces.



Before applying the sealant, it is advisable to perform a final check on the packing of filler sleeves.

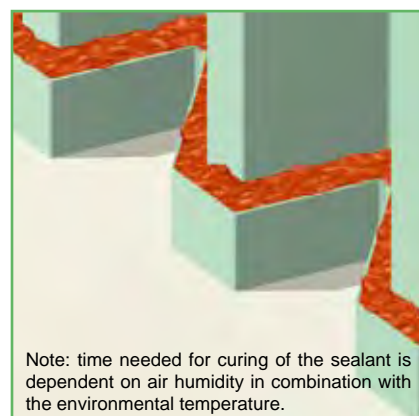
4) Push the filler sleeves into the conduit in such a way as to leave about 20 mm free space at the top and the bottom. The whole set of filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.



Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

Note: sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C. After full curing max. operating temperature is 180 °C.

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

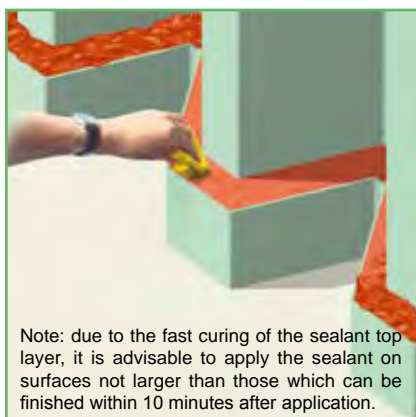


Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.

6) An overfill of NOFIRNO® sealant has to be applied, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



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



Note: due to the fast curing of the sealant top layer, it is advisable to apply the sealant on surfaces not larger than those which can be finished within 10 minutes after application.

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



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

9) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT



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

CRUSHER® type WRAP



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



article number 50.0102

NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead. After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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

plastic pipe OD	crusher® type	conduit opening	crusher® length	article number
16	37/16	37.2	140	80.2800
18	37/18	37.2	140	80.2801
20	37/20	37.2	140	80.2802
25	37/25	37.2	140	80.2803
32	54/32	54.5	140	80.2804
40	54/40	54.5	140	80.2805
50	82/50	82.5	140	80.2806
63	82/63	82.5	140	80.2807
75	107/75	107.1	140	80.2808
90	131/90	131.7	140	80.2809
110	159/110	159.3	140	80.2810
125	159/125	159.3	140	80.2811
140	207/140	207.3	160	80.2812
160	207/160	207.3	160	80.2813
16	37/16	37.2	170	80.2840
18	37/18	37.2	170	80.2841
20	37/20	37.2	170	80.2842
25	37/25	37.2	170	80.2843
32	54/32	54.5	170	80.2844
40	54/40	54.5	170	80.2845
50	82/50	82.5	170	80.2846
63	82/63	82.5	170	80.2847
75	107/75	107.1	170	80.2848
90	131/90	131.7	170	80.2849
110	159/110	159.3	170	80.2850
125	159/125	159.3	170	80.2851
140	207/140	207.3	190	80.2852
160	207/160	207.3	190	80.2853
16	35/16	35.9	140	80.2900
18	35/18	35.9	140	80.2901
20	41/20	41.1	140	80.2902
25	41/25	41.1	140	80.2903
32	53/32	53.9	140	80.2904
40	53/40	53.9	140	80.2905
50	77/50	80.7	140	80.2906
63	77/63	80.7	140	80.2907
75	105/75	105.3	140	80.2908
90	128/90	128.1	140	80.2909
110	154/110	155.2	140	80.2910
125	154/125	155.2	140	80.2911
140	202/140	202.7	160	80.2912
160	202/160	202.7	160	80.2913
16	35/16	35.9	170	80.2940
18	35/18	35.9	170	80.2941
20	41/20	41.1	170	80.2942
25	41/25	41.1	170	80.2943
32	53/32	53.9	170	80.2944
40	53/40	53.9	170	80.2945
50	77/50	77.9	170	80.2414
63	77/63	77.9	170	80.2415
75	105/75	105.3	170	80.2948
90	128/90	128.1	170	80.2949
110	154/110	155.2	170	80.2950
125	154/125	155.2	170	80.2951
140	202/140	202.7	190	80.2952
160	202/160	202.7	190	80.2953
wrap 1000x140x2.5 mm				80.2512
wrap 1000x160x2.5 mm				80.2513
wrap 1000x170x2.5 mm				80.2514
wrap 1000x190x2.5 mm				80.2515
wrap 1000x210x2.5 mm				80.2516

all dimensions in mm

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT



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

CRUSHER® type WRAP



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

plastic pipe OD	crusher® type	conduit opening	crusher® length	article number
16	30/16	30	140	80.2720
18	30/18	30	140	80.2721
20	40/20	40	140	80.2722
25	40/25	40	140	80.2723
32	50/32	50	140	80.2724
40	50/40	50	140	80.2725
40	60/40	60	140	80.2726
50	70/50	70	140	80.2727
50	80/50	80	140	80.2728
63	80/63	80	140	80.2729
63	90/63	90	140	80.2730
75	100/75	100	140	80.2731
75	110/75	110	140	80.2732
90	125/90	125	140	80.2733
110	150/110	150	140	80.2734
125	160/125	160	140	80.2735
140	200/140	200	160	80.2736
160	200/160	200	160	80.2737

all dimensions in mm

plastic pipe OD	crusher® type	conduit opening	crusher® length	article number
16	30/16	30	170	80.2760
18	30/18	30	170	80.2761
20	40/20	40	170	80.2403
25	40/25	40	170	80.2404
32	50/32	50	170	80.2764
40	50/40	50	170	80.2765
40	60/40	60	170	80.2766
50	70/50	70	170	80.2767
50	80/50	80	170	80.2768
63	80/63	80	170	80.2769
63	90/63	90	170	80.2770
75	100/75	100	170	80.2771
75	110/75	110	170	80.2772
90	125/90	125	170	80.2773
110	150/110	150	170	80.2774
125	160/125	160	170	80.2775
140	200/140	200	190	80.2776
160	200/160	200	190	80.2777

all dimensions in mm

RISE®/ULTRA - SPECIAL SIZES C-FIT CRUSHERS

plastic pipe OD	crusher® type	conduit opening	crusher® length	article number
20	40/20		170	80.2403
25	40/25		170	80.2404
32	48/32		170	80.2406
25	51/25		170	80.2408
32	51/32		170	80.2409
40	64/40		170	80.2411
48	77/48		170	80.2413
50	77/50		170	80.2414
60	77/60		170	80.2415
63	77/63		170	80.2416
76	100/76		170	80.2419
89	125/89		170	80.2421
90	130/90		170	80.2956
110	138/110		170	80.2650
114	142/114		170	80.2957
110	149/110		170	80.2425
114	149/114		170	80.2426
140	180/140		190	80.2652
140	198/140		190	80.2429

all dimensions in mm

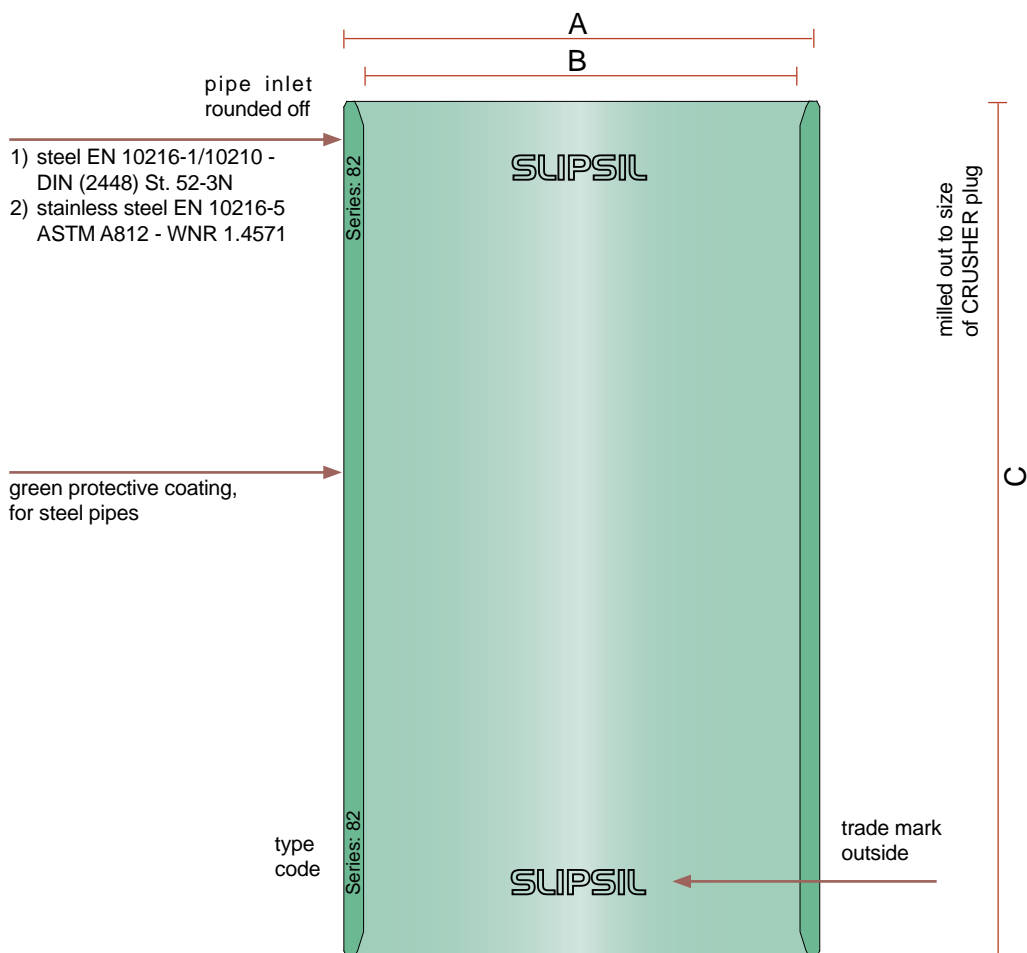
NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead. After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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

article number 50.0102



SLIPSIL® CONDUIT SLEEVES STANDARD EXACTLY FITTING TO THE CRUSHER® SERIES



All dimensions in mm

type	A	B	C	art. no. steel	art. no. stainless	C	art. no. steel	art. no. stainless	C	art. no. steel	art. no. stainless
SL 32 WS-cr	38	32	180	60.8100	60.8115	200	60.8130	60.8145	250	60.8160	60.8175
SL 41 WS-cr	47	41	180	60.8101	60.8116	200	60.8131	60.8146	250	60.8161	60.8176
SL 55 WS-cr	62	55	180	60.8102	60.8117	200	60.8132	60.8147	250	60.8162	60.8177
SL 62 WS-cr	70	62	180	60.8103	60.8118	200	60.8133	60.8148	250	60.8163	60.8178
SL 70 WS-cr	78	70	180	60.8104	60.8119	200	60.8134	60.8149	250	60.8164	60.8179
SL 82 WS-cr	88.5	82	180	60.8105	60.8120	200	60.8135	60.8150	250	60.8165	60.8180
SL 100 WS-cr	108	100	180	60.8106	60.8121	200	60.8136	60.8151	250	60.8166	60.8181
SL 107 WS-cr	114	107	180	60.8107	60.8122	200	60.8137	60.8152	250	60.8167	60.8182
SL 131 WS-cr	139	131	180	60.8108	60.8123	200	60.8138	60.8153	250	60.8168	60.8183
SL 150 WS-cr	159	150	180	60.8109	60.8124	200	60.8139	60.8154	250	60.8169	60.8184
SL 160 WS-cr	168	160	180	60.8100	60.8125	200	60.8140	60.8155	250	60.8170	60.8185
SL 207 WS-cr	218.5	207	-	-	-	200	60.8141	60.8156	250	60.8171	60.8186

RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead/deck insulation.

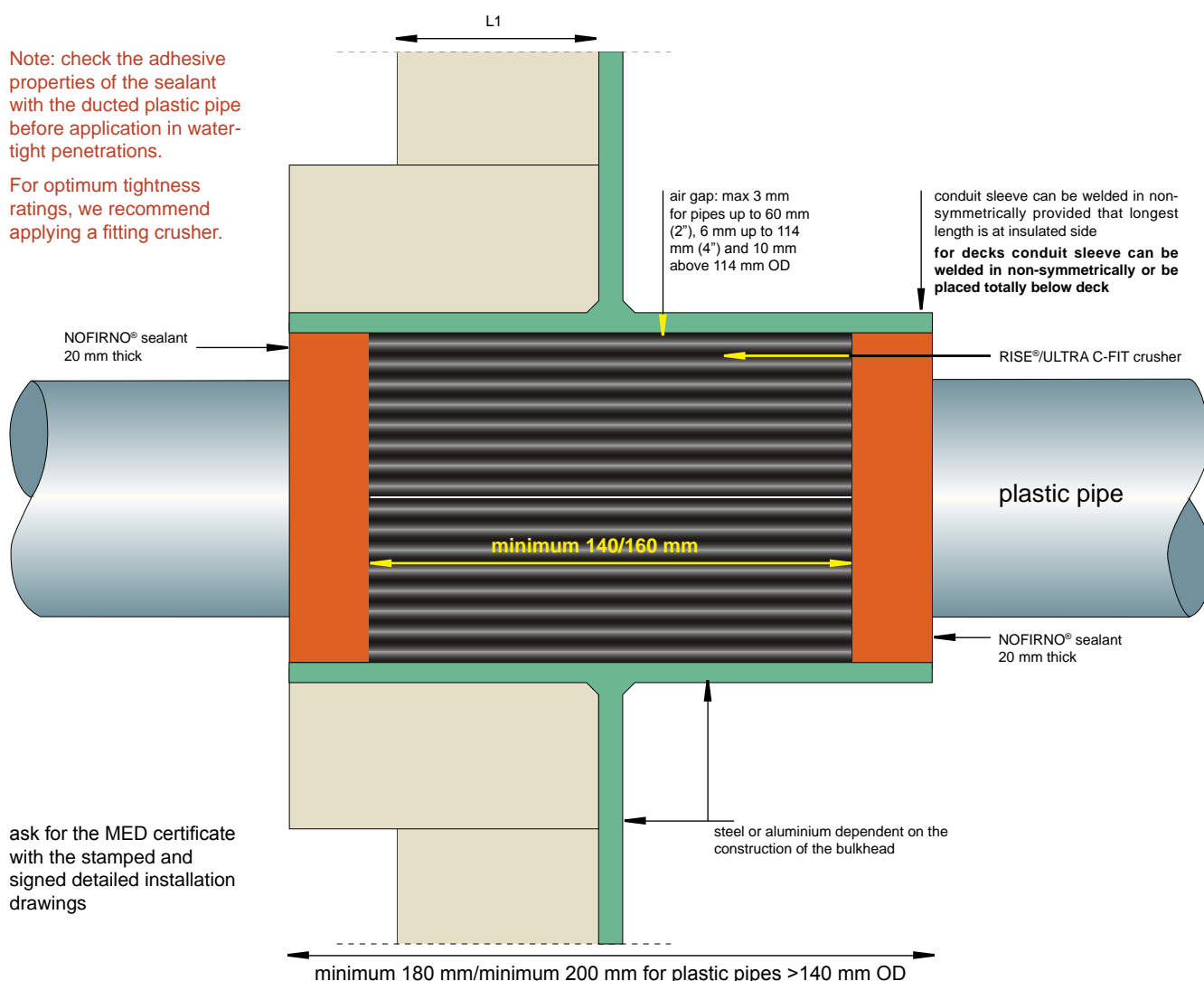
In case RISE®/ULTRA crushers are not available for conduit sleeves applied in the field, a CRUSHER® can be made to size by wrapping RISE®/ULTRA sheets around the ducted pipe.

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

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

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

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



for fire rated, gas or watertight conduits

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

Specifications for A-class according to EC (MED)
certificate MED-B-8559 issued by Det Norske Veritas.
Drawings R0256E, R0257E, R0258E, R0262E,
R0264E, R0265 and R0267E.

**A0-A60 PLASTIC
PIPE TRANSIT**

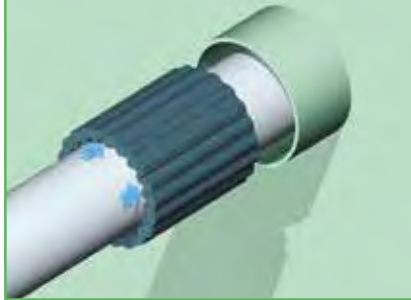
RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM

fitting fire stop -
no tightness requirements



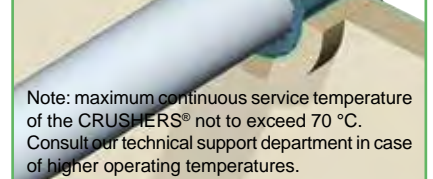
1) The fitting RISE®/ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe in front of the conduit sleeve.

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



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

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



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

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

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



Remove/clean lubricant residues before applying the sealant.

1a) Push the crusher into the conduit sleeve in such a way as to leave about 5 mm, alternatively 20 mm free space, depending on the application, at the front and back side.

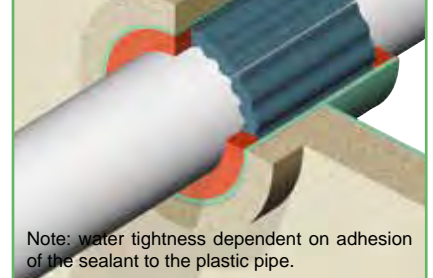
People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.



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

2a) For airtight penetrations, a NOFIRNO® sealant layer with thickness min. 5 mm is applied at both sides of the penetration. For watertight penetrations the sealant layer has to be 20 mm thick at both sides of the penetration.

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



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

3a) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.

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



Remove/clean lubricant residues before applying the sealant.

1b) In case no fitting RISE®/ULTRA crusher is available, use can be made of RISE®/ULTRA sheets to be wrapped around the plastic pipe. RISE®/ULTRA wraps are used also for conduit openings which are a bit oversized.

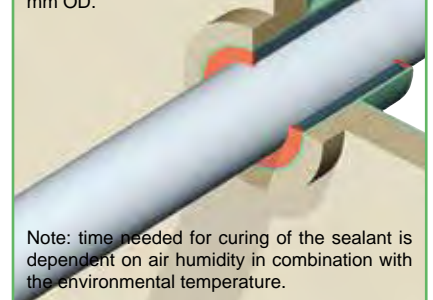
People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.



Please refer to the Safety Data Sheet for more information.

2b) A layer of NOFIRNO® sealant is applied at each side of the conduit. Clean and dry the inside of the conduit sleeve and the outside of the plastic pipe thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.

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



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

3b) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.

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



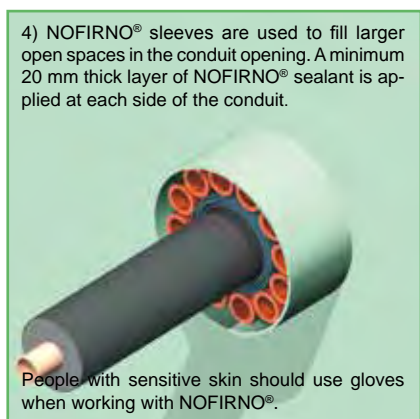
1) For fire rated penetrations of pre-insulated pipes (for instance for chilled water lines), by applying RISE®/ULTRA there is now no need to remove the insulation inside the penetration. This prevents condensation problems.



2) A RISE®/ULTRA sheet 210mm wide, 2.5 mm thick is wrapped to the required thickness around the thermal insulation. The system can be used for insulated steel and copper pipes.



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



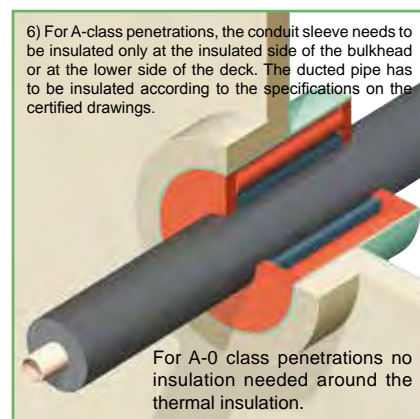
4) NOFIRNO® sleeves are used to fill larger open spaces in the conduit opening. A minimum 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit.

People with sensitive skin should use gloves when working with NOFIRNO®.



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

Please refer to the Safety Data Sheet for more information.

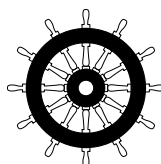
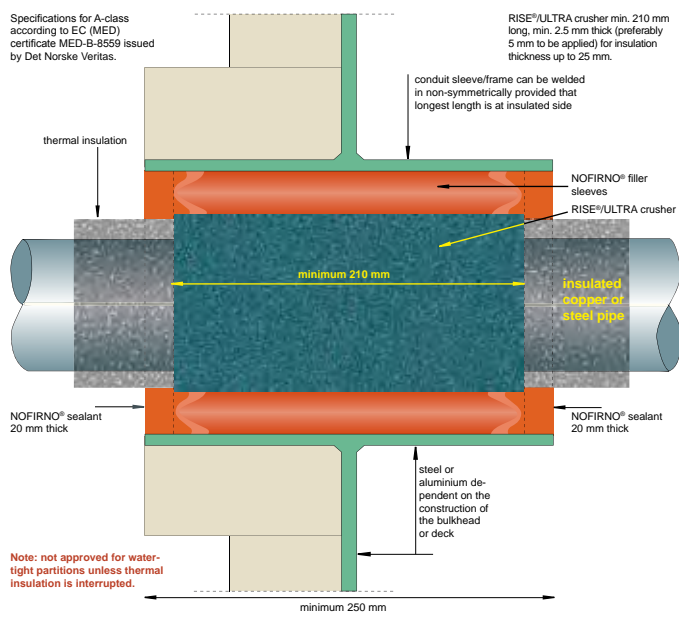


6) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipe has to be insulated according to the specifications on the certified drawings.

For A-0 class penetrations no insulation needed around the thermal insulation.

See certified drawings
R0246E, R0247E, R0248E and R0249E

Specifications for A-class according to EC (MED) certificate MED-B-8559 issued by Det Norske Veritas.



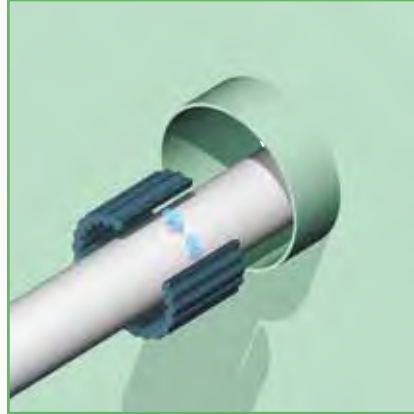
ask for the MED certificate with the stamped and signed detailed installation drawings



RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM



1) For larger oversized and/or off centre ducted plastic pipes, the conduit should preferably not be totally filled with RISE®/ULTRA crushers or wraps.

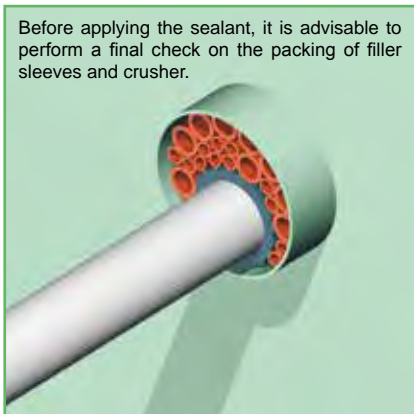


2) A RISE®/ULTRA crusher or wrap with the required minimum thickness is folded around the ducted plastic pipe in front of the conduit.



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

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



Before applying the sealant, it is advisable to perform a final check on the packing of filler sleeves and crusher.

4) Push the NOFIRNO® 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 fit tightly into the conduit to provide sufficient mechanical stability.



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

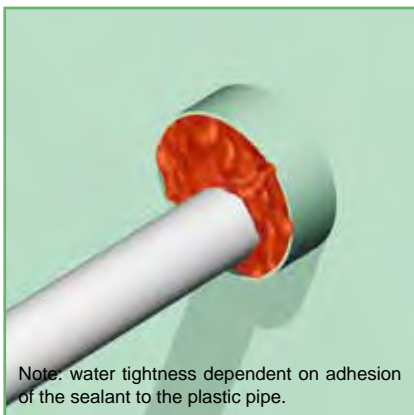
5) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. Clean and dry the inside of the conduit sleeve and the outside of the plastic pipe thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

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



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

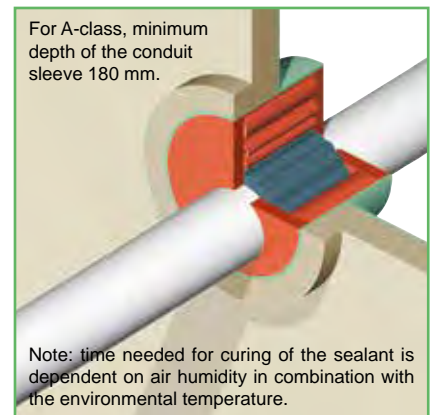
7) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

8) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.



For A-class, minimum depth of the conduit sleeve 180 mm.

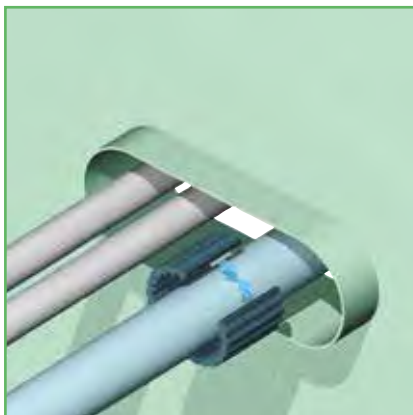
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.

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

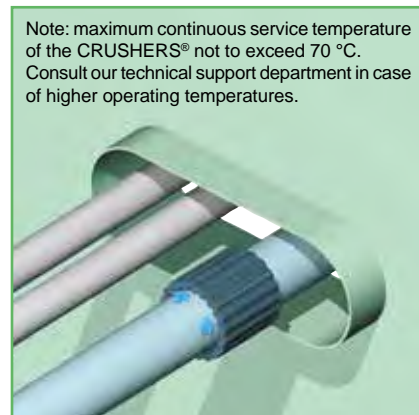
NOFIRNO® MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM



1) The metallic and plastic pipe(s) can be passed through the conduit sleeve in any position, provided there is enough space between the sleeve and the ducted pipe(s).

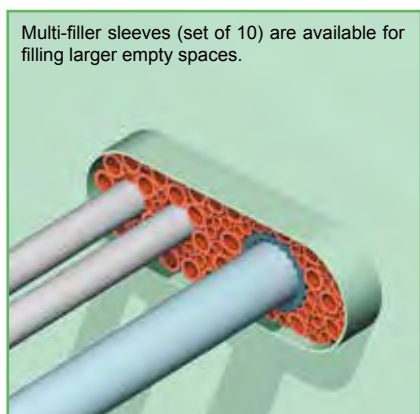


2) Make sure that the minimum space between the metallic pipe(s) and the wall of the conduit sleeve is in accordance with the minimum allowed distance as certified. Place a fitting RISE®/ULTRA crusher around the ducted plastic pipe(s).



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

3) Push the RISE®/ULTRA crusher/wrap into the conduit sleeve in such a way as to leave 20 mm free space at the front and back side.



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

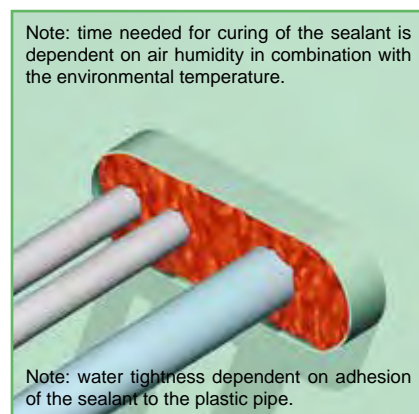
4) The remaining free space in the conduit is filled with NOFIRNO® filler sleeves type 27/19 and 18/12. For ease of filling, the NOFIRNO® filler sleeves are supplied non-split. The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15.



Before applying the sealant, it is advisable to perform a final check on the packing of insert, filler sleeves and crusher(s).

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

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 pipes thoroughly, and remove any dirt, rust or oil residues before applying the sealant.



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

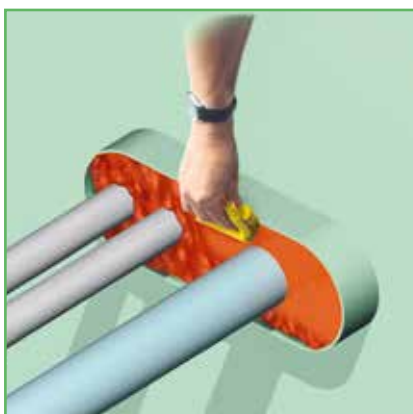
6) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

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



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



People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

9) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.

NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT



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

CRUSHER® type WRAP



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

RISE® cable sleeves



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

cable sleeves are supplied split lengthwise

RISE® cable sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	140	80.0051
14/8	7 - 9	140	80.0052
16/10	9 - 11	140	80.0053
18/12	11 - 13	140	80.0054
20/14	13 - 15	140	80.0055
22/16	15 - 17	140	80.0056
27/19	17 - 21	140	80.0057
31/23	21 - 25	140	80.0058
35/27	25 - 29	140	80.0059
39/31	29 - 33	140	80.0060
46/36	33 - 39	140	80.0061
52/42	39 - 45	140	80.0062
58/48	45 - 51	140	80.0063
64/54	51 - 57	140	80.0064
70/60	57 - 63	140	80.0065

NOFIRNO® filler sleeve	sleeve length	article number
18/12 single	140	80.5002
18/12 multi	140	80.5052
27/19 single	140	80.5012
27/19 multi	140	80.5062
22/15 multi	all dimensions in mm	80.7052

NOFIRNO® filler sleeves



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

article number 50.0102

NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead. After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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

NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

L1: A-60 approved bulkhead/deck insulation

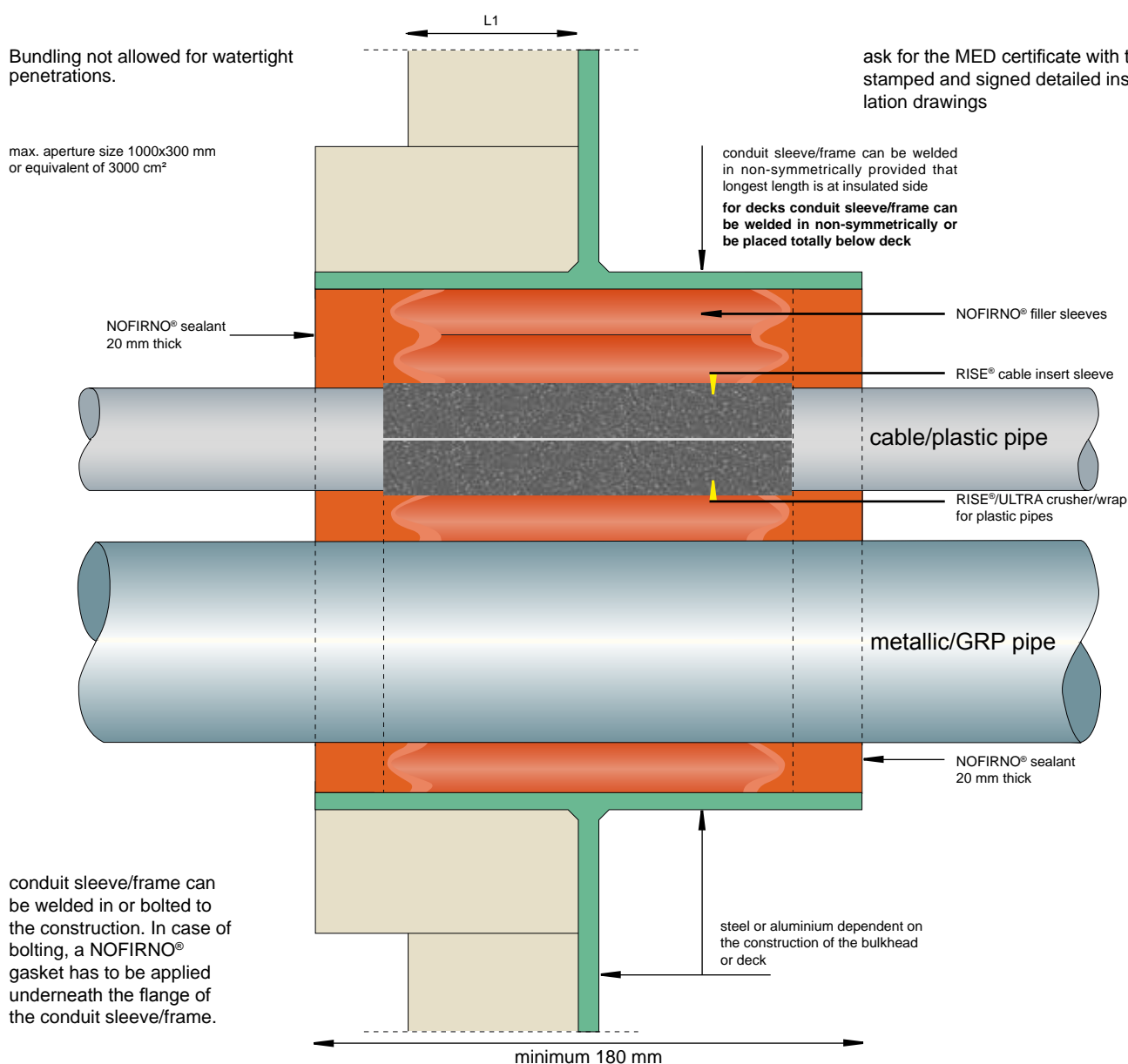
- APPROVED FOR STEEL/SS PIPES UP TO 168 MM OD
- APPROVED FOR COPPER/CuNi PIPES UP TO 108 MM OD
- APPROVED FOR PLASTIC PIPES UP TO 160 MM OD
- APPROVED FOR ALL TYPES OF CABLES INCL. LAN AND CLX
- APPROVED FOR CABLE SIZES UP TO 105 MM OD
- APPROVED FOR CABLE SETS OF MAX. 25 LAN CABLES 5-6 MM - MAX BUNDLE SIZE 35 MM

**NO EXTRA INSULATION
REQUIRED AT THE FRONT OF
THE PENETRATION AND/OR IN
BETWEEN THE CABLES OR
PLASTIC PIPES**

Bundling not allowed for watertight penetrations.

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

ask for the MED certificate with the
stamped and signed detailed instal-
lation drawings

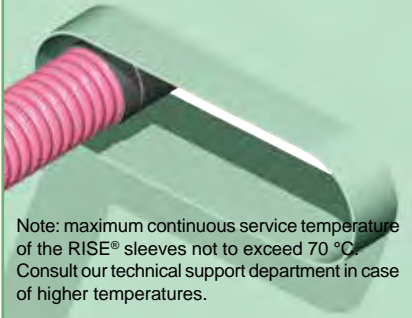


Specifications for A-class according
to EC (MED) certificate MED-B-8559
issued by Det Norske Veritas.
Drawings N0015E, N0016E and
N0017E

**A0-A60 MULTI-ALL-
MIX® PIPE/CABLE
TRANSIT**

NOFIRNO®/MULTI-ALL-MIX® CABLE/PIPE TRANSIT SEALING SYSTEM

Also refer to the RISE®/NOFIRNO® cable penetrations for installation procedures of the ducted cables.



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

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

Sleeving the cables directly after ducting avoids overfilling of the transit.



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

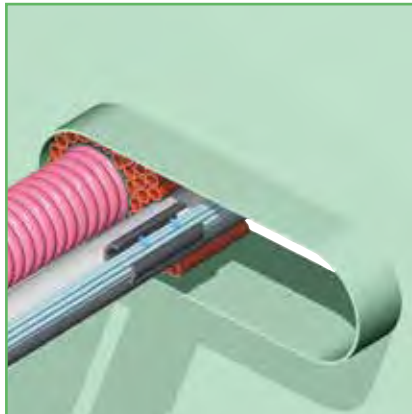
Multi-filler sleeves (set of 10) are available for filling larger empty spaces.



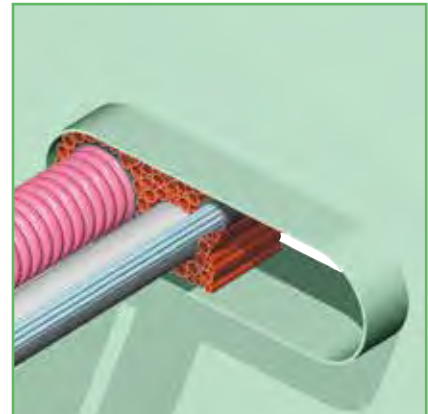
3) The system is also approved for ducting steel/stainless steel pipes. The minimum interspacing should be followed according to the specifications on the approved installation drawings.



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

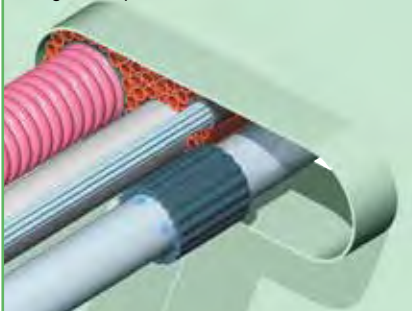


5) Bundled cable sets are allowed in the NOFIRNO® multi-all-mix® sealing system, using only a single RISE® insert sleeve. See the approved installation drawings for details.



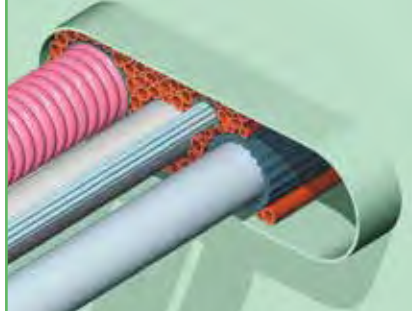
6) Open spaces in the conduit are afterwards filled with NOFIRNO® filler sleeves type 27/19 and 18/12. The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15. NOFIRNO® multi-filler sleeves can be used for filling the larger open spaces.

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

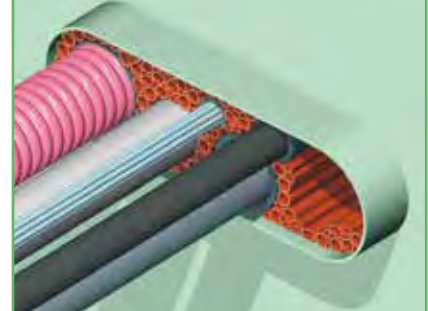


7) Plastic pipes can also be ducted through the multi-all-mix® transit. Place a RISE®/ULTRA crusher around the ducted pipe in front of the penetration. RISE®/ULTRA crushers are split lengthwise.

See also the brochure of the RISE®/ULTRA plastic pipe penetrations for installation procedures of the ducted pipes.

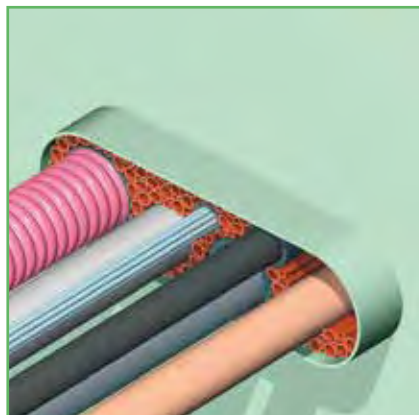


8) Push the insert/filler sleeves and the crusher into the conduit in such a way as to leave about 20 mm free space at both sides of the transit. This space is needed to apply the NOFIRNO® sealant at a later stage.

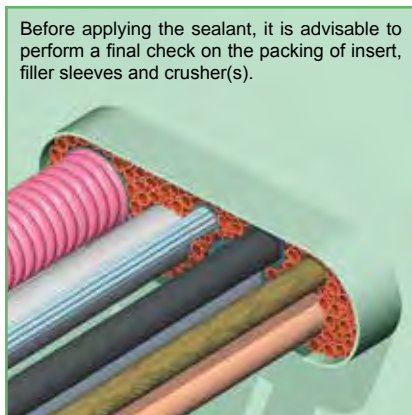


9) The system also allows for insulated chilled water lines (without interrupting the insulation), and multi-beverage lines. A RISE®/ULTRA crusher or wrap is placed around the insulation, and inserted into the penetration.

NOFIRNO®/MULTI-ALL-MIX® CABLE/PIPE TRANSIT SEALING SYSTEM



10) Copper/CuNi pipes can also be ducted through the multi-all-mix penetration. Separation of the metallic pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s).



Before applying the sealant, it is advisable to perform a final check on the packing of insert, filler sleeves and crusher(s).

11) Also GRP pipes are allowed. Separation of the GRP pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s). The remaining open spaces in the transit are filled with NOFIRNO® single and multi-filler sleeves.



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

Note: due to the curing process, the sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C.

12) The whole set of crushers, insert and filler sleeves should tightly fit into the conduit. Clean and dry the inside of the conduit sleeve and the cables/pipes thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.



Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

13) 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.



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



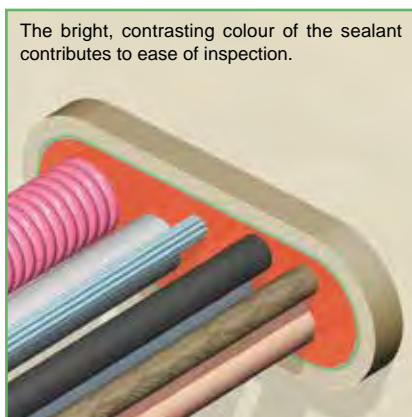
People with sensitive skin should use gloves when working with NOFIRNO®.

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



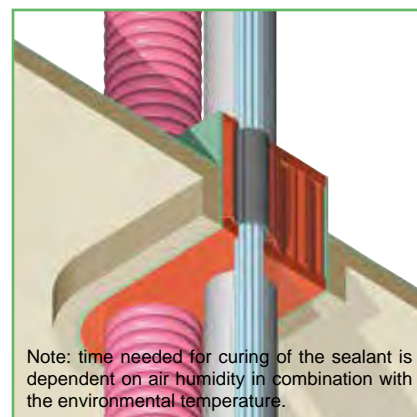
People with sensitive skin should use gloves when working with NOFIRNO®.

16) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.



The bright, contrasting colour of the sealant contributes to ease of inspection.

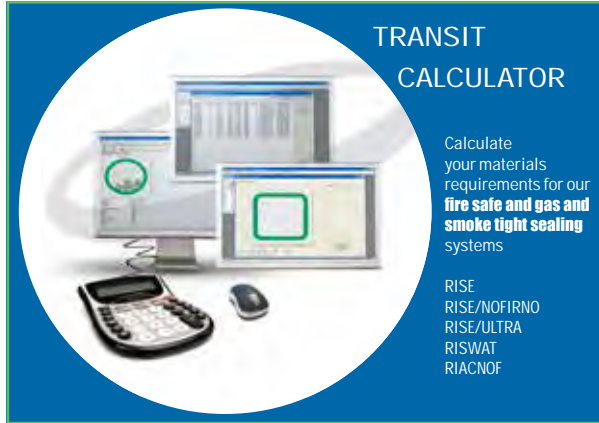
17) For A-class penetrations, the conduit sleeve/frame needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. No extra insulation needed in front of the penetration for cables and plastic pipes.



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

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

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



Free material calculation software. Download at our web-site <http://www.beele.com>.

After entering the dimensions of the conduit opening and the amount and outer diameters of the ducted cables or pipes, the software calculates the amount of RISE® or RISWAT® insert sleeves, the RISE®, RISWAT® or NOFIRNO® filler sleeves, the ACTIFOAM® spare filling sheets, the RISE® or RISE®/ULTRA crushers and the DRIFIL®, FIWA® or NOFIRNO® sealant. It is easy to switch between the several systems and also between A-class, H-class, EMC and watertight penetrations. After entering the dimensions and amount and sizes of cables/pipes, a drawing appears on the screen showing also the remaining free space in the conduit opening. Furthermore, the filling rate of the cable penetrations is shown. Warnings appear for deviations of the certified configurations and for overfilling the transits or exceeding filling rates.

For a created project, all calculated transits can be stored in a database. Order/calculation forms can be shown on screen for project totals and single transits. The material lists can be printed and/or exported to MS Word.

The material list of a transit shows the options which can be entered to make a calculation of the materials needed:

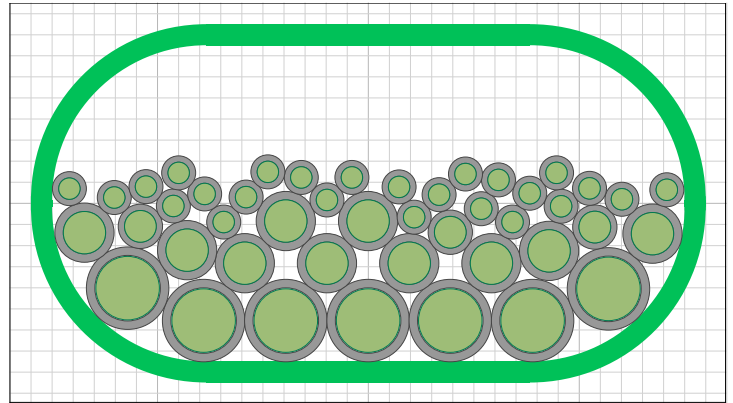
- 1) transit dimensions.
- 2) the depth of a transit is automatically selected based on the entered data at class (A, B, H-class or watertight) but can be changed. In this case, a warning appears that this is a deviation of the certification.
- 3) selection of the sealing system (cable, pipe).
- 4) the quantity of duplicate transits in the project.
- 5) the filling rate is calculated on the basis of the entered cable amounts and dimensions
- 6) percentage of spare for later extensions
- 7) where appropriate a selection can be made for EMC rated penetrations
- 8) type of sealant can be selected (FIWA® or NOFIRNO® for fire rated transits and DRIFIL®, FIWA® or NOFIRNO® for watertight transits)

The material list displays the selected system, cable (or pipe) specifications, and the sealing material requirements. All transits in a project can be selected to create a similar list for all materials for the whole project.

Program-version of Transit-calculator: 3.9.2 (10 Dec 2009)

Always use the most recent version when creating a new material-list!

Material list for transit 'transit E222CS'



Created on: 16-1-2010 11:37:17
Created by: Smith
Last modified: 16-1-2010 11:40:00
Modified by: Smith

Transit specifications: (All dimensions in mm)
Width: 300,00
Height: 150,00
Corner radius: 73,50
Depth: 180,00
Transit type: Cable
Transit used in this project: 1 time
Filling rate: 26,2%
Spare on cable set: 10,0%
Class: A-class
EMC: None
Sealant: 20mm (both sides)

Check the Type Approval Certificates for limitations in sizes !

Material specifications:
Type of filler sleeves: Standard
FIWA sealant: cartridges 310 ml

Cable specifications:

Cables (OD)	Amount
10,00	25
15,00	3
20,00	10
30,00	7

Total amount of cables: 45

RISE materials needed:

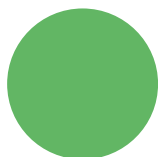
Insert sleeves	Amount	Length
16/10	25	140,00 mm
20/14	3	140,00 mm
27/19	10	140,00 mm
39/31	7	140,00 mm

Filler sleeves	Amount	Length
18/12	13	140,00 mm
27/19	26	140,00 mm

FIWA sealant
(incl. overfill) 1677 ml (6 cartridges)

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

**Cutting Edge NOFIRNO® and LEAXEAL® technology
for optimum performance under harshest conditions:**



SYSTEM WILL NOT BE CONSUMED WHEN EXPOSED TO FIRE

SEALING PLUGS ARE MADE OF INERT SILICONE RUBBER

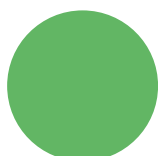
IN CASE OF FIRE: NON-TOXIC, LOW SMOKE INDEX

CE (MED) CERTIFICATES FOR A-O UP TO A-60

APPROVED WATER TIGHT UP TO 2.5 BAR

APPROVED GAS TIGHT UP TO 1 BAR

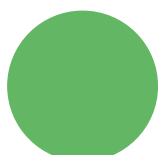
SHORTEST POSSIBLE CONDUIT LENGTH



WIDE TEMPERATURE RANGE: CAN BE USED FOR STEAM LINES
AND ALSO IN ARCTIC CONDITIONS

HIGH LEVEL OF SOUND DAMPING/EMC ATTENUATION

SHOCK AND VIBRATION PROOF



NO MECHANICAL STRESSES TRANSFERRED TO THE DIVISION

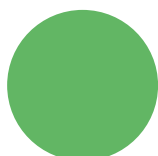
UP TO 50 YEARS SERVICE LIFE

CAPABLE OF ABSORBING TEMPERATURE CHANGES

WEATHERING, UV AND OZONE RESISTANT

PROVIDES CATHODIC PROTECTION

ALLOWS LONGITUDINAL/RADIAL MOVEMENT

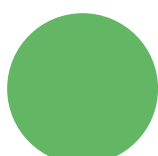


FOR METALLIC, GRP AND PLASTIC PIPES AND CABLES

EXTREMELY SIMPLE TO INSTALL

INSULATION ONLY AT THE INSULATED SIDE OF THE DIVISION

NO INSULATION REQUIRED FOR METALLIC AND GRP PIPES
PASSING THROUGH A-O DIVISIONS



SYSTEM PREVENTS CORROSION INSIDE THE TRANSIT

APPROVED FOR STEEL AND ALUMINIUM PARTITIONS

MAINTENANCE FRIENDLY

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

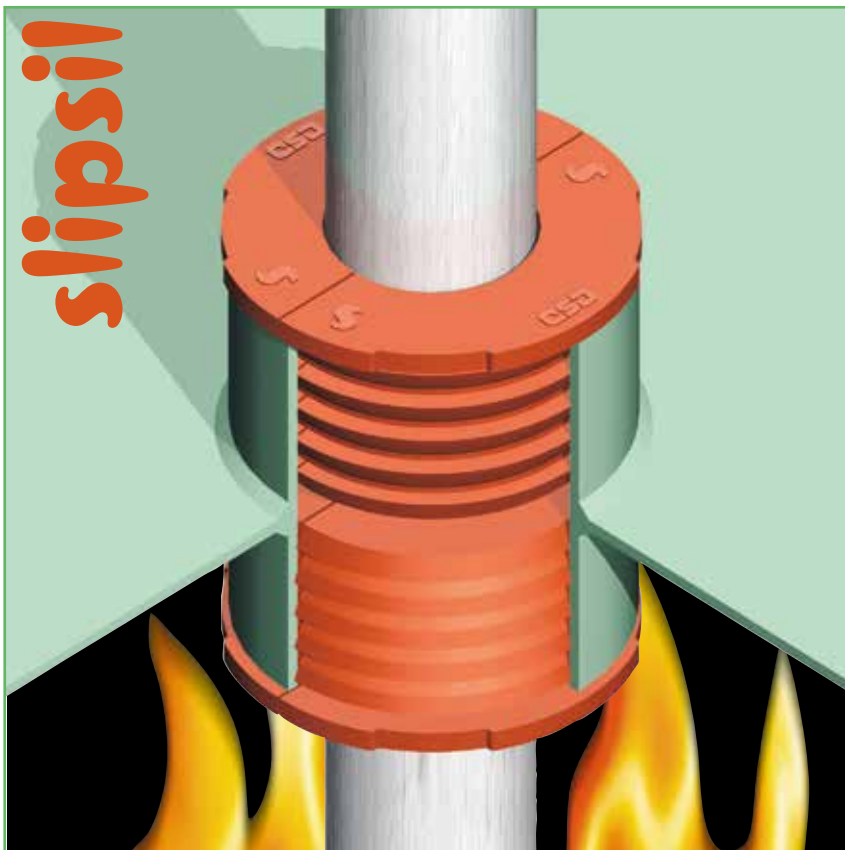
FIRE SAFETY WITHOUT ANY EXTRAS - NOW ACHIEVABLE

Synthetic rubbers are combustible. Rubber grades can be made only more or less fire retardant with the help of fire suppressant ingredients. The drawback of filling rubbers with large amounts of additives is that the mechanical properties might suffer. The hardness of the vulcanized products of such compounds might be reasonably high. Both features have an impact on the sealing capacity and the long term behaviour.

Hardening and permanent deformation of the product during service life also have a negative impact on performance.

NOFIRNO® rubber is halogen free, does not harden during service life, has outstanding weathering properties, does not shrink during fire exposure, has an oxygen index of 55% (>30% is flame retardant) and a low smoke index.

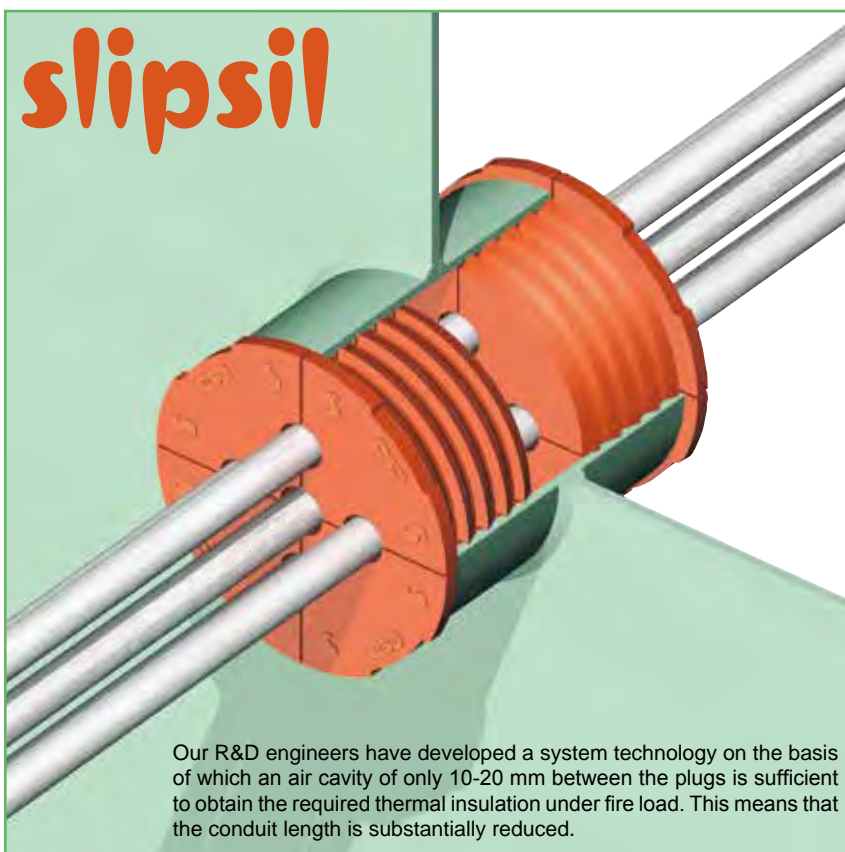
NOFIRNO® rubber can be used in a very wide temperature range (-50 °C - +180 °C). Optimum fire safety guaranteed.



Because the plugs prevent direct contact between the service pipe and the sleeve, different types of pipes can be passed through steel or aluminium constructions without the problems of joints and electric couples. Pipe penetrations sealed with plugs can be shorter in length than the common methods, in this way saving weight. With the use of SLIPSIL® sealing plugs, vibrations and noise transmission will be easily absorbed. Another advantage of the SLIPSIL® sealing plugs is that mechanical tensions between the bulkhead/deck and the service pipes are avoided. SLIPSIL® offers the possibility of using various pipe materials!

The plugs offer also a high degree of water tightness!

The design of the SLIPSIL® plugs is based on the LEAXEAL® technology, developed by BEELE Engineering, to obtain longest service life and highest tightness ratings.



Our R&D engineers have developed a system technology on the basis of which an air cavity of only 10-20 mm between the plugs is sufficient to obtain the required thermal insulation under fire load. This means that the conduit length is substantially reduced.

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT



PLUG SERIES	CONDUIT SLEEVE	PLUG LENGTH	PIPE DIAMETER
25	24.5 - 25.6	54 -----	5 - 12
27	26.5 - 27.6	54	5 - 15
28	27.5 - 28.5	54	5 - 15
30	29.5 - 30.5	54	5 - 16
32	31.5 - 32.5	54	5 - 16
34	33.5 - 34.5	54	5 - 18
35	34.5 - 35.7	54	5 - 20
37	36.5 - 37.7	54	5 - 20
40	39.5 - 40.7	54	5 - 22
41	40.5 - 41.7	54	5 - 25
43	42.5 - 43.7	54	5 - 28
50	49.5 - 50.7	66	6 - 32
53	52.0 - 53.7	66	6 - 34
55	54.0 - 55.7	66	6 - 34
57	56.0 - 57.7	66	14 - 40
60	59.0 - 60.7	66	14 - 40
62	61.0 - 62.7	66	14 - 40
67	66.0 - 67.7	66	22 - 50
68	67.0 - 68.7	66	20 - 50
70	69.0 - 70.7	66	22 - 50
75	74.0 - 75.7	66	22 - 50
78	77.0 - 78.7	66	22 - 50
80	79.0 - 80.7	66	28 - 60
82	81.0 - 82.7	66	28 - 60
90	89.0 - 90.7	66	40 - 64
94	93.0 - 94.7	66	40 - 64
97	96.0 - 97.7	66	40 - 64
100	99.0 - 100.7	66	40 - 75
102	101.0 - 102.7	66	40 - 75
103	102.0 - 103.7	66	26 - 75
105	104.0 - 105.7	66	40 - 75
107	106.0 - 107.7	66	40 - 76
110	109.0 - 110.7	66	48 - 80
118	117.5 - 119.2	66	60 - 90
122	121.0 - 122.7	66	60 - 92
125	124.0 - 125.7	66	60 - 92
128	127.0 - 128.7	66	60 - 92
131	130.5 - 132.2	66	60 - 92
146	145.0 - 146.7	79	88 - 120
150	149.0 - 150.7	79	88 - 125
152	151.0 - 152.7	79	88 - 125
154	153.0 - 154.7	79	88 - 125
156	155.0 - 156.7	79	88 - 125
160	159.0 - 160.7	79	88 - 125
190	189.0 - 190.7	79	110-160
200	199.0 - 200.7	79	110-160
203	202.0 - 203.7	79	110-168
207	206.0 - 207.7	79	110-168
250	249.0 - 250.7	91	160-200
260	259.0 - 260.7	91	160-219
300	299.0 - 300.7	91	160-250
339	338.5 - 340.2	91 -----	200-273

To select the right type of sealing plug, look for the plug series to be used on the basis of the outer diameter of the service pipe. Then make a choice for the plug type in the table of the selected plug series.

For instance: a copper pipe of 42 mm OD has to be ducted. Select the plug series on the basis of the ID of the conduit sleeve to be used and the OD of the ducted pipe (67 up to 107 can be your choice). When a conduit sleeve 88.9x3.2 mm (ID = 82.5 mm) will be used a sealing plug 82/42-44 is the right choice. If a 54 mm OD copper pipe has to be ducted through a sleeve with an ID of 107.1 mm, plug type 107/54-56 has to be selected. See the tables of the series 82 and 107 on page 39 and 40.

Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
blind	25/0	40.0100	blind	34/0	40.0600	18-20	40/18-20	40.0915
5-6	25/5-6	40.0105	5-6	34/5-6	40.0605	20-21	40/20-21	40.0916
6-7	25/6-7	40.0106	6-7	34/6-7	40.0606	21-22	40/21-22	40.0917
7-8	25/7-8	40.0107	7-8	34/7-8	40.0607	22	40/22	40.0918
8-9	25/8-9	40.0108	8-9	34/8-9	40.0608	40 multi is max. 2x10, 3x7, 5x7		
9-10	25/9-10	40.0109	9-10	34/9-10	40.0609	blind	41/0	40.1000
10-11	25/10-11	40.0110	10-11	34/10-11	40.0610	5-6	41/5-6	40.1005
11-12	25/11-12	40.0111	11-12	34/11-12	40.0611	6-7	41/6-7	40.1006
12	25/12	40.0112	12-13	34/12-13	40.0612	7-8	41/7-8	40.1007
blind	27/0	40.0200	13-14	34/13-14	40.0613	8-9	41/8-9	40.1008
5-6	27/5-6	40.0205	14-15	34/14-15	40.0614	9-10	41/9-10	40.1009
6-7	27/6-7	40.0206	15-16	34/15-16	40.0615	10-11	41/10-11	40.1010
7-8	27/7-8	40.0207	16-17	34/16-17	40.0616	11-12	41/11-12	40.1011
8-9	27/8-9	40.0208	17-18	34/17-18	40.0617	12-14	41/12-14	40.1012
9-10	27/9-10	40.0209	18	34/18	40.0618	14-16	41/14-16	40.1013
10-11	27/10-11	40.0210	blind	35/0	40.0700	16-18	41/16-18	40.1014
11-12	27/11-12	40.0211	5-6	35/5-6	40.0705	18-20	41/18-20	40.1015
12-13	27/12-13	40.0212	6-7	35/6-7	40.0706	20-22	41/20-22	40.1016
13-14	27/13-14	40.0213	7-8	35/7-8	40.0707	22-23	41/22-23	40.1017
14-15	27/14-15	40.0214	8-9	35/8-9	40.0708	23-24	41/23-24	40.1018
15	27/15	40.0215	9-10	35/9-10	40.0709	24-25	41/24-25	40.1019
blind	28/0	40.0300	10-11	35/10-11	40.0710	25	41/25	40.1020
5-6	28/5-6	40.0305	11-12	35/11-12	40.0711	41 multi is max. 2x10, 3x7, 5x7		
6-7	28/6-7	40.0306	12-13	35/12-13	40.0712	blind	43/0	40.1100
7-8	28/7-8	40.0307	13-14	35/13-14	40.0713	5-6	43/5-6	40.1105
8-9	28/8-9	40.0308	14-15	35/14-15	40.0714	6-7	43/6-7	40.1106
9-10	28/9-10	40.0309	15-16	35/15-16	40.0715	7-8	43/7-8	40.1107
10-11	28/10-11	40.0310	16-17	35/16-17	40.0716	8-9	43/8-9	40.1108
11-12	28/11-12	40.0311	17-18	35/17-18	40.0717	9-10	43/9-10	40.1109
12-13	28/12-13	40.0312	18-19	35/18-19	40.0718	10-12	43/10-12	40.1110
13-14	28/13-14	40.0313	19-20	35/19-20	40.0719	12-14	43/12-14	40.1111
14-15	28/14-15	40.0314	20	35/20	40.0720	14-16	43/14-16	40.1112
15	28/15	40.0315	blind	37/0	40.0800	16-18	43/16-18	40.1113
blind	30/0	40.0400	5-6	37/5-6	40.0805	18-20	43/18-20	40.1114
5-6	30/5-6	40.0405	6-7	37/6-7	40.0806	20-22	43/20-22	40.1115
6-7	30/6-7	40.0406	7-8	37/7-8	40.0807	22-24	43/22-24	40.1116
7-8	30/7-8	40.0407	8-9	37/8-9	40.0808	24-25	43/24-25	40.1117
8-9	30/8-9	40.0408	9-10	37/9-10	40.0809	25-26	43/25-26	40.1118
9-10	30/9-10	40.0409	10-11	37/10-11	40.0810	26-27	43/26-27	40.1119
10-11	30/10-11	40.0410	11-12	37/11-12	40.0811	27-28	43/27-28	40.1120
11-12	30/11-12	40.0411	12-13	37/12-13	40.0812	28	43/28	40.1121
12-13	30/12-13	40.0412	13-14	37/13-14	40.0813	43 multi is max. 2x10, 3x7, 5x7		
13-14	30/13-14	40.0413	14-15	37/14-15	40.0814	blind	50/0	40.1200
14-15	30/14-15	40.0414	15-16	37/15-16	40.0815	6-7	50/6-7	40.1205
15-16	30/15-16	40.0415	16-17	37/16-17	40.0816	7-8	50/7-8	40.1206
16	30/16	40.0416	17-18	37/17-18	40.0817	8-9	50/8-9	40.1207
blind	32/0	40.0500	18-19	37/18-19	40.0818	9-10	50/9-10	40.1208
5-6	32/5-6	40.0505	19-20	37/19-20	40.0819	10-12	50/10-12	40.1209
6-7	32/6-7	40.0506	20	37/20	40.0820	12-14	50/12-14	40.1210
7-8	32/7-8	40.0507	blind	40/0	40.0900	14-16	50/14-16	40.1211
8-9	32/8-9	40.0508	5-6	40/5-6	40.0905	16-18	50/16-18	40.1212
9-10	32/9-10	40.0509	6-7	40/6-7	40.0906	18-20	50/18-20	40.1213
10-11	32/10-11	40.0510	7-8	40/7-8	40.0907	20-22	50/20-22	40.1214
11-12	32/11-12	40.0511	8-9	40/8-9	40.0908	22-24	50/22-24	40.1215
12-13	32/12-13	40.0512	9-10	40/9-10	40.0909	24-26	50/24-26	40.1216
13-14	32/13-14	40.0513	10-11	40/10-11	40.0910	26-28	50/26-28	40.1217
14-15	32/14-15	40.0514	11-12	40/11-12	40.0911	28-29	50/28-29	40.1218
15-16	32/15-16	40.0515	12-14	40/12-14	40.0912	29-30	50/29-30	40.1219
16	32/16	40.0516	14-16	40/14-16	40.0913	30-31	50/30-31	40.1220
			16-18	40/16-18	40.0914	31-32	50/31-32	40.1221

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
32	50/32	40.1222	40	57/40	40.1526	30-32	68/30-32	40.1919
	50 multi is max. 2x15, 3x8, 5x8					32-34	68/32-34	40.1920
blind	53/0	40.1300	blind	60/0	40.1600	34-36	68/34-36	40.1921
6-7	53/6-7	40.1305	14-16	60/14-16	40.1611	36-38	68/36-38	40.1922
7-8	53/7-8	40.1306	16-18	60/16-18	40.1612	38-40	68/38-40	40.1923
8-9	53/8-9	40.1307	18-20	60/18-20	40.1613	40-42	68/40-42	40.1924
9-10	53/9-10	40.1308	20-22	60/20-22	40.1614	42-44	68/42-44	40.1925
10-12	53/10-12	40.1309	22-24	60/22-24	40.1615	44-46	68/44-46	40.1926
12-14	53/12-14	40.1310	24-26	60/24-26	40.1616	46-48	68/46-48	40.1927
14-16	53/14-16	40.1311	26-28	60/26-28	40.1617	48-50	68/48-50	40.1928
16-18	53/16-18	40.1312	28-30	60/28-30	40.1618	50	68/50	40.1929
18-20	53/18-20	40.1313	30-32	60/30-32	40.1619		68 multi is max. 2x22, 3x12, 5x12	
20-22	53/20-22	40.1314	32-34	60/32-34	40.1620	blind	70/0	40.2000
22-24	53/22-24	40.1315	34-36	60/34-36	40.1621	20-22	70/20-22	40.2014
24-26	53/24-26	40.1316	36-37	60/36-37	40.1622	22-24	70/22-24	40.2015
26-28	53/26-28	40.1317	37-38	60/37-38	40.1623	24-26	70/24-26	40.2016
28-30	53/28-30	40.1318	38-39	60/38-39	40.1624	26-28	70/26-28	40.2017
30-31	53/30-31	40.1319	39-40	60/39-40	40.1625	28-30	70/28-30	40.2018
31-32	53/31-32	40.1320	40	60/40	40.1626	30-32	70/30-32	40.2019
32-33	53/32-33	40.1321		60 multi is max. 2x15, 3x10		32-34	70/32-34	40.2020
33-34	53/33-34	40.1322	blind	62/0	40.1700	34-36	70/34-36	40.2021
34	53/34	40.1323	14-16	62/14-16	40.1711	36-38	70/36-38	40.2022
	53 multi is max. 2x15, 3x10, 5x10		16-18	62/16-18	40.1712	38-40	70/38-40	40.2023
blind	55/0	40.1400	18-20	62/18-20	40.1713	40-42	70/40-42	40.2024
6-7	55/6-7	40.1405	20-22	62/20-22	40.1714	42-44	70/42-44	40.2025
7-8	55/7-8	40.1406	22-24	62/22-24	40.1715	44-46	70/44-46	40.2026
8-9	55/8-9	40.1407	24-26	62/24-26	40.1716	46-48	70/46-48	40.2027
9-10	55/9-10	40.1408	26-28	62/26-28	40.1717	48-50	70/48-50	40.2028
10-12	55/10-12	40.1409	28-30	62/28-30	40.1718	50	70/50	40.2029
12-14	55/12-14	40.1410	30-32	62/30-32	40.1719		70 multi is max. 2x22, 3x12	
14-16	55/14-16	40.1411	32-34	62/32-34	40.1720	blind	75/0	40.2100
16-18	55/16-18	40.1412	34-36	62/34-36	40.1721	22-24	75/22-24	40.2115
18-20	55/18-20	40.1413	36-37	62/36-37	40.1722	24-26	75/24-26	40.2116
20-22	55/20-22	40.1414	37-38	62/37-38	40.1723	26-28	75/26-28	40.2117
22-24	55/22-24	40.1415	38-39	62/38-39	40.1724	28-30	75/28-30	40.2118
24-26	55/24-26	40.1416	39-40	62/39-40	40.1725	30-32	75/30-32	40.2119
26-28	55/26-28	40.1417	40	62/40	40.1726	32-34	75/32-34	40.2120
28-30	55/28-30	40.1418		62 multi is max. 2x15, 3x10		34-36	75/34-36	40.2121
30-31	55/30-31	40.1419	blind	67/0	40.1800	36-38	75/36-38	40.2122
31-32	55/31-32	40.1420	22-24	67/22-24	40.1815	38-40	75/38-40	40.2123
32-33	55/32-33	40.1421	24-26	67/24-26	40.1816	40-42	75/40-42	40.2124
33-34	55/33-34	40.1422	26-28	67/26-28	40.1817	42-44	75/42-44	40.2125
34	55/34	40.1423	28-30	67/28-30	40.1818	44-46	75/44-46	40.2126
	55 multi is max. 2x15, 3x10, 5x10		30-32	67/30-32	40.1819	46-48	75/46-48	40.2127
blind	57/0	40.1500	32-34	67/32-34	40.1820	48-50	75/48-50	40.2128
14-16	57/14-16	40.1511	34-36	67/34-36	40.1821	50	75/50	40.2129
16-18	57/16-18	40.1512	36-38	67/36-38	40.1822	blind	78/0	40.2200
18-20	57/18-20	40.1513	38-40	67/38-40	40.1823	22-24	78/22-24	40.2215
20-22	57/20-22	40.1514	40-42	67/40-42	40.1824	24-26	78/24-26	40.2216
22-24	57/22-24	40.1515	42-44	67/42-44	40.1825	26-28	78/26-28	40.2217
24-26	57/24-26	40.1516	44-46	67/44-46	40.1826	28-30	78/28-30	40.2218
26-28	57/26-28	40.1517	46-48	67/46-48	40.1827	30-32	78/30-32	40.2219
28-30	57/28-30	40.1518	48-50	67/48-50	40.1828	32-34	78/32-34	40.2220
30-32	57/30-32	40.1519	50	67/50	40.1829	34-36	78/34-36	40.2221
32-34	57/32-34	40.1520	blind	68/0	40.1900	36-38	78/36-38	40.2222
34-36	57/34-36	40.1521	20-22	68/20-22	40.1914	38-40	78/38-40	40.2223
36-37	57/36-37	40.1522	22-24	68/22-24	40.1915	40-42	78/40-42	40.2224
37-38	57/37-38	40.1523	24-26	68/24-26	40.1916	42-44	78/42-44	40.2225
38-39	57/38-39	40.1524	26-28	68/26-28	40.1917	44-46	78/44-46	40.2226
39-40	57/39-40	40.1525	28-30	68/28-30	40.1918	46-48	78/46-48	40.2227




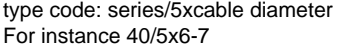
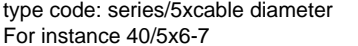
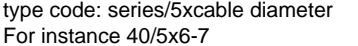
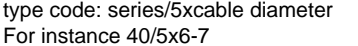
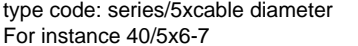
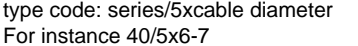
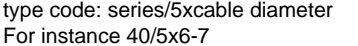
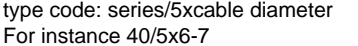
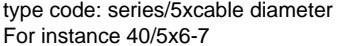
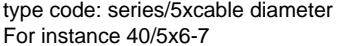
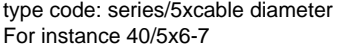
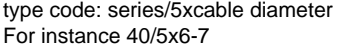
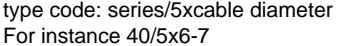
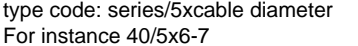
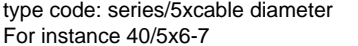
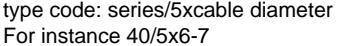
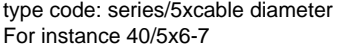
SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
48-50	78/48-50	40.2228	blind	94/0	40.2600	62-64	102/62-64	40.2931
50-52	78/50-52	40.2229	40-42	94/40-42	40.2620	64-66	102/64-66	40.2932
52-53	78/52-53	40.2230	42-44	94/42-44	40.2621	66-68	102/66-68	40.2933
53-54	78/53-54	40.2231	44-46	94/44-46	40.2622	68-70	102/68-70	40.2934
54	78/54	40.2232	46-48	94/46-48	40.2623	70-72	102/70-72	40.2935
78 multi is max. 2x22, 3x15, 5x15			48-50	94/48-50	40.2624	72-74	102/72-74	40.2936
blind	80/0	40.2300	50-52	94/50-52	40.2625	74-75	102/74-75	40.2937
28-30	80/28-30	40.2318	52-54	94/52-54	40.2626	75	102/75	40.2938
30-32	80/30-32	40.2319	54-56	94/54-56	40.2627	blind	103/0	40.3000
32-34	80/32-34	40.2320	56-58	94/56-58	40.2628		103/26-28	40.3013
34-36	80/34-36	40.2321	58-60	94/58-60	40.2629		103/28-30	40.3014
36-38	80/36-38	40.2322	60-62	94/60-62	40.2630		103/32-34	40.3016
38-40	80/38-40	40.2323	62-64	94/62-64	40.2631		103/40-42	40.3020
40-42	80/40-42	40.2324	64	94/64	40.2632		103/42-44	40.3021
42-44	80/42-44	40.2325	blind	97/0	40.2700		103/44-46	40.3022
44-46	80/44-46	40.2326	40-42	97/40-42	40.2720		103/46-48	40.3023
46-48	80/46-48	40.2327	42-44	97/42-44	40.2721		103/48-50	40.3024
48-50	80/48-50	40.2328	44-46	97/44-46	40.2722		103/50-52	40.3025
50-52	80/50-52	40.2329	46-48	97/46-48	40.2723		103/52-54	40.3026
52-54	80/52-54	40.2330	48-50	97/48-50	40.2724		103/54-56	40.3027
54-56	80/54-56	40.2331	50-52	97/50-52	40.2725		103/56-58	40.3028
56-58	80/56-58	40.2332	52-54	97/52-54	40.2726		103/58-60	40.3029
58-60	80/58-60	40.2333	54-56	97/54-56	40.2727		103/60-62	40.3030
60	80/60	40.2334	56-58	97/56-58	40.2728		103/62-64	40.3031
80 multi is max. 2x22, 3x15, 5x15			58-60	97/58-60	40.2729		103/64-66	40.3032
blind	82/0	40.2400	60-62	97/60-62	40.2730		103/66-68	40.3033
28-30	82/28-30	40.2418	62-64	97/62-64	40.2731		103/68-70	40.3034
30-32	82/30-32	40.2419	64	97/64	40.2732		103/70-72	40.3035
32-34	82/32-34	40.2420	blind	100/0	40.2800		103/72-74	40.3036
34-36	82/34-36	40.2421	40-42	100/40-42	40.2820		103/74-75	40.3037
36-38	82/36-38	40.2422	42-44	100/42-44	40.2821		103/75	40.3038
38-40	82/38-40	40.2423	44-46	100/44-46	40.2822	blind	105/0	40.3100
40-42	82/40-42	40.2424	46-48	100/46-48	40.2823	40-42	105/40-42	40.3120
42-44	82/42-44	40.2425	48-50	100/48-50	40.2824	42-44	105/42-44	40.3121
44-46	82/44-46	40.2426	50-52	100/50-52	40.2825	44-46	105/44-46	40.3122
46-48	82/46-48	40.2427	52-54	100/52-54	40.2826	46-48	105/46-48	40.3123
48-50	82/48-50	40.2428	54-56	100/54-56	40.2827	48-50	105/48-50	40.3124
50-52	82/50-52	40.2429	56-58	100/56-58	40.2828	50-52	105/50-52	40.3125
52-54	82/52-54	40.2430	58-60	100/58-60	40.2829	52-54	105/52-54	40.3126
54-56	82/54-56	40.2431	60-62	100/60-62	40.2830	54-56	105/54-56	40.3127
56-58	82/56-58	40.2432	62-64	100/62-64	40.2831	56-58	105/56-58	40.3128
58-60	82/58-60	40.2433	64-66	100/64-66	40.2832	58-60	105/58-60	40.3129
60	82/60	40.2434	66-68	100/66-68	40.2833	60-62	105/60-62	40.3130
82 multi is max. 2x22, 3x15, 5x15			68-70	100/68-70	40.2834	62-64	105/62-64	40.3131
blind	90/0	40.2500	70-72	100/70-72	40.2835	64-66	105/64-66	40.3132
40-42	90/40-42	40.2520	72-74	100/72-74	40.2836	66-68	105/66-68	40.3133
42-44	90/42-44	40.2521	74-75	100/74-75	40.2837	68-70	105/68-70	40.3134
44-46	90/44-46	40.2522	75	100/75	40.2838	70-72	105/70-72	40.3135
46-48	90/46-48	40.2523	blind	102/0	40.2900	72-74	105/72-74	40.3136
48-50	90/48-50	40.2524	40-42	102/40-42	40.2920	74-75	105/74-75	40.3137
50-52	90/50-52	40.2525	42-44	102/42-44	40.2921	75	105/75	40.3138
52-54	90/52-54	40.2526	44-46	102/44-46	40.2922	blind	107/0	40.3200
54-56	90/54-56	40.2527	46-48	102/46-48	40.2923	40-42	107/40-42	40.3220
56-58	90/56-58	40.2528	48-50	102/48-50	40.2924	42-44	107/42-44	40.3221
58-60	90/58-60	40.2529	50-52	102/50-52	40.2925	44-46	107/44-46	40.3222
60-62	90/60-62	40.2530	52-54	102/52-54	40.2926	46-48	107/46-48	40.3223
62-64	90/62-64	40.2531	54-56	102/54-56	40.2927	48-50	107/48-50	40.3224
64	90/64	40.2532	56-58	102/56-58	40.2928	50-52	107/50-52	40.3225
90 multi is max. 2x25, 3x15			58-60	102/58-60	40.2929	52-54	107/52-54	40.3226
			60-62	102/60-62	40.2930			


SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
54-56	107/54-56	40.3227	82-84	122/82-84	40.3541	blind	146/0	40.3900
56-58	107/56-58	40.3228	84-86	122/84-86	40.3542	88-90	146/88-90	40.3920
58-60	107/58-60	40.3229	86-88	122/86-88	40.3543	90-92	146/90-92	40.3921
60-62	107/60-62	40.3230	88-90	122/88-90	40.3544	92-94	146/92-94	40.3922
62-64	107/62-64	40.3231	90-92	122/90-92	40.3545	94-96	146/94-96	40.3923
64-66	107/64-66	40.3232	92	122/92	40.3546	96-98	146/96-98	40.3924
66-68	107/66-68	40.3233				98-100	146/98-100	40.3925
68-70	107/68-70	40.3234	blind	125/0	40.3600	100-102	146/100-102	40.3926
70-72	107/70-72	40.3235	60-62	125/60-62	40.3630	102-104	146/102-104	40.3927
72-74	107/72-74	40.3236	62-64	125/62-64	40.3631	104-106	146/104-106	40.3928
74-75	107/74-75	40.3237	64-66	125/64-66	40.3632	106-108	146/106-108	40.3929
75-76	107/75-76	40.3238	66-68	125/66-68	40.3633	108-110	146/108-110	40.3930
76	107/76	40.3239	68-70	125/68-70	40.3634	110-112	146/110-112	40.3931
			70-72	125/70-72	40.3635	112-114	146/112-114	40.3932
blind	110/0	40.3300	72-74	125/72-74	40.3636	114-116	146/114-116	40.3933
48-50	110/48-50	40.3324	74-76	125/74-76	40.3637	116-118	146/116-118	40.3934
50-52	110/50-52	40.3325	76-78	125/76-78	40.3638	118-120	146/118-120	40.3935
52-54	110/52-54	40.3326	78-80	125/78-80	40.3639	120	146/120	40.3936
54-56	110/54-56	40.3327	80-82	125/80-82	40.3640			
56-58	110/56-58	40.3328	82-84	125/82-84	40.3641	blind	150/0	40.4000
58-60	110/58-60	40.3329	84-86	125/84-86	40.3642	88-90	150/88-90	40.4020
60-62	110/60-62	40.3330	86-88	125/86-88	40.3643	90-92	150/90-92	40.4021
62-64	110/62-64	40.3331	88-90	125/88-90	40.3644	92-94	150/92-94	40.4022
64-66	110/64-66	40.3332	90-92	125/90-92	40.3645	94-96	150/94-96	40.4023
66-68	110/66-68	40.3333	92	125/92	40.3646	96-98	150/96-98	40.4024
68-70	110/68-70	40.3334	100	125/100	40.3650	98-100	150/98-100	40.4025
70-72	110/70-72	40.3335				100-102	150/100-102	40.4026
72-74	110/72-74	40.3336	blind	128/0	40.3700	102-104	150/102-104	40.4027
74-76	110/74-76	40.3337	60-62	128/60-62	40.3730	104-106	150/104-106	40.4028
76-78	110/76-78	40.3338	62-64	128/62-64	40.3731	106-108	150/106-108	40.4029
78-80	110/78-80	40.3339	64-66	128/64-66	40.3732	108-110	150/108-110	40.4030
80	110/80	40.3340	66-68	128/66-68	40.3733	110-112	150/110-112	40.4031
			68-70	128/68-70	40.3734	112-114	150/112-114	40.4032
blind	118/0	40.3400	70-72	128/70-72	40.3735	114-116	150/114-116	40.4033
60-62	118/60-62	40.3430	72-74	128/72-74	40.3736	116-118	150/116-118	40.4034
62-64	118/62-64	40.3431	74-76	128/74-76	40.3737	118-120	150/118-120	40.4035
64-66	118/64-66	40.3432	76-78	128/76-78	40.3738	120-122	150/120-122	40.4036
66-68	118/66-68	40.3433	78-80	128/78-80	40.3739	122-124	150/122-124	40.4037
68-70	118/68-70	40.3434	80-82	128/80-82	40.3740	124-125	150/124-125	40.4038
70-72	118/70-72	40.3435	82-84	128/82-84	40.3741	125	150/125	40.4039
72-74	118/72-74	40.3436	84-86	128/84-86	40.3742			
74-76	118/74-76	40.3437	86-88	128/86-88	40.3743	blind	152/0	40.4100
76-78	118/76-78	40.3438	88-90	128/88-90	40.3744	88-90	152/88-90	40.4120
78-80	118/78-80	40.3439	90-92	128/90-92	40.3745	90-92	152/90-92	40.4121
80-82	118/80-82	40.3440	92	128/92	40.3746	92-94	152/92-94	40.4122
82-84	118/82-84	40.3441				94-96	152/94-96	40.4123
84-86	118/84-86	40.3442	blind	131/0	40.3800	96-98	152/96-98	40.4124
86-88	118/86-88	40.3443	60-62	131/60-62	40.3830	98-100	152/98-100	40.4125
88-90	118/88-90	40.3444	62-64	131/62-64	40.3831	100-102	152/100-102	40.4126
90	118/90	40.3445	64-66	131/64-66	40.3832	102-104	152/102-104	40.4127
			66-68	131/66-68	40.3833	104-106	152/104-106	40.4128
blind	122/0	40.3500	68-70	131/68-70	40.3834	106-108	152/106-108	40.4129
60-62	122/60-62	40.3530	70-72	131/70-72	40.3835	108-110	152/108-110	40.4130
62-64	122/62-64	40.3531	72-74	131/72-74	40.3836	110-112	152/110-112	40.4131
64-66	122/64-66	40.3532	74-76	131/74-76	40.3837	112-114	152/112-114	40.4132
66-68	122/66-68	40.3533	76-78	131/76-78	40.3838	114-116	152/114-116	40.4133
68-70	122/68-70	40.3534	78-80	131/78-80	40.3839	116-118	152/116-118	40.4134
70-72	122/70-72	40.3535	80-82	131/80-82	40.3840	118-120	152/118-120	40.4135
72-74	122/72-74	40.3536	82-84	131/82-84	40.3841	120-122	152/120-122	40.4136
74-76	122/74-76	40.3537	84-86	131/84-86	40.3842	122-124	152/122-124	40.4137
76-78	122/76-78	40.3538	86-88	131/86-88	40.3843	124-125	152/124-125	40.4138
78-80	122/78-80	40.3539	88-90	131/88-90	40.3844	125	152/125	40.4139
80-82	122/80-82	40.3540	90-92	131/90-92	40.3845			
			92	131/92	40.3846			



SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	multi-sealing plugs for 2, 3, 4 or 5 same diameter cables/pipes
blind	154/0	40.4200	124-125	160/124-125	40.4438	 <p>type code: series/2xcable diameter For instance 40/2x6-7</p>
88-90	154/88-90	40.4220	125	160/125	40.4439	
90-92	154/90-92	40.4221	blind	190/0	40.4500	
92-94	154/92-94	40.4222	110-112	190/110	40.4520	 <p>type code: series/3xcable diameter For instance 40/3x6-7</p>
94-96	154/94-96	40.4223	114-116	190/114	40.4523	
96-98	154/96-98	40.4224	125-127	190/125	40.4528	
98-100	154/98-100	40.4225	139-141	190/139	40.4533	 <p>type code: series/5xcable diameter For instance 40/5x6-7</p>
100-102	154/100-102	40.4226	142-144	190/142	40.4534	
102-104	154/102-104	40.4227	150-152	190/150	40.4538	
104-106	154/104-106	40.4228	153-155	190/153	40.4541	
106-108	154/106-108	40.4229	159-161	190/159	40.4543	
108-110	154/108-110	40.4230	blind	200/0	40.4600	
110-112	154/110-112	40.4231	110-112	200/110	40.4620	
112-114	154/112-114	40.4232	114-116	200/114	40.4623	
114-116	154/114-116	40.4233	120-122	200/120	40.4626	
116-118	154/116-118	40.4234	122-124	200/122	40.4627	
118-120	154/118-120	40.4235	125-127	200/125	40.4628	
120-122	154/120-122	40.4236	133-135	200/133	40.4631	
122-124	154/122-124	40.4237	135-137	200/135	40.4632	
124-125	154/124-125	40.4238	139-141	200/139	40.4633	
125	154/125	40.4239	141-143	200/141	40.4634	
blind	156/0	40.4300	159-160	200/159	40.4643	
88-90	156/88-90	40.4320	160	200/160	40.4644	
90-92	156/90-92	40.4321	blind	203/0	40.4700	
92-94	156/92-94	40.4322	110-112	203/110	40.4720	
94-96	156/94-96	40.4323	114-116	203/114	40.4723	
96-98	156/96-98	40.4324	125-127	203/125	40.4728	
98-100	156/98-100	40.4325	133-135	203/133	40.4731	
100-102	156/100-102	40.4326	139-141	203/139	40.4733	
102-104	156/102-104	40.4327	141-143	203/141	40.4734	
104-106	156/104-106	40.4328	159-161	203/159	40.4743	
106-108	156/106-108	40.4329	162-164	200/162	40.4744	
108-110	156/108-110	40.4330	168-170	203/168	40.4748	
110-112	156/110-112	40.4331	blind	207/0	40.4800	
112-114	156/112-114	40.4332	110-112	207/110	40.4820	
114-116	156/114-116	40.4333	114-116	207/114	40.4823	
116-118	156/116-118	40.4334	125-127	207/125	40.4828	
118-120	156/118-120	40.4335	129-131	207/129	40.4829	
120-122	156/120-122	40.4336	133-135	207/133	40.4831	
122-124	156/122-124	40.4337	139-141	207/139	40.4833	
124-125	156/124-125	40.4338	156-158	207/156	40.4842	
125	156/125	40.4339	159-161	207/159	40.4843	
blind	160/0	40.4400	168-170	207/168	40.4848	
88-90	160/88-90	40.4420	160	250/160	40.5010	
90-92	160/90-92	40.4421	168	250/168	40.5014	
92-94	160/92-94	40.4422	171	250/171	40.5015	
94-96	160/94-96	40.4423	180	250/180	40.5020	
96-98	160/96-98	40.4424	200	250/200	40.5030	
98-100	160/98-100	40.4425	160	260/160	40.5210	
100-102	160/100-102	40.4426	168	260/168	40.5214	
102-104	160/102-104	40.4427	200	260/200	40.5230	
104-106	160/104-106	40.4428	204	260/204	40.5232	
106-108	160/106-108	40.4429	219	260/219	40.5239	
108-110	160/108-110	40.4430	200	300/200	40.5321	
110-112	160/110-112	40.4431	219	300/219	40.5330	
112-114	160/112-114	40.4432	225	300/225	40.5333	
114-116	160/114-116	40.4433	250	300/250	40.5346	
116-118	160/116-118	40.4434	219	339/219	40.5518	
118-120	160/118-120	40.4435	273	339/273	40.5545	
120-122	160/120-122	40.4436				
122-124	160/122-124	40.4437				

SLIPSIL® MULTI-SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
6-7	40/2x6-7	40.0926	11-12	68/2x11-12	40.1936	15-16	90/2x15-16	40.2541
7-8	40/2x7-8	40.0927	12-13	68/2x12-13	40.1937	16-17	90/2x16-17	40.2542
8-9	40/2x8-9	40.0928	13-14	68/2x13-14	40.1938	17-18	90/2x17-18	40.2543
9-10	40/2x9-10	40.0929	14-15	68/2x14-15	40.1939	18-19	90/2x18-19	40.2544
10-11	40/2x10-11	40.0930	15-16	68/2x15-16	40.1940	19-20	90/2x19-20	40.2545
			16-17	68/2x16-17	40.1941	20-21	90/2x20-21	40.2546
6-7	41/2x6-7	40.1026	17-18	68/2x17-18	40.1942	21-22	90/2x21-22	40.2547
7-8	41/2x7-8	40.1027	18-19	68/2x18-19	40.1943	22-23	90/2x22-23	40.2548
8-9	41/2x8-9	40.1028	19-20	68/2x19-20	40.1944	23-24	90/2x23-24	40.2549
9-10	41/2x9-10	40.1029	20-21	68/2x20-21	40.1945	24-25	90/2x24-25	40.2550
10-11	41/2x10-11	40.1030	21-22	68/2x21-22	40.1946	25-26	90/2x25-26	40.2551
			22-23	68/2x22-23	40.1947			
6-7	43/2x6-7	40.1126	11-12	70/2x11-12	40.2036	<p>* multi-plugs for other plug series are made upon customer request. The listed sizes are standard items. For other sizes, please contact our sales department.</p>		
7-8	43/2x7-8	40.1127	12-13	70/2x12-13	40.2037			
8-9	43/2x8-9	40.1128	13-14	70/2x13-14	40.2038			
9-10	43/2x9-10	40.1129	14-15	70/2x14-15	40.2039			
10-11	43/2x10-11	40.1130	15-16	70/2x15-16	40.2040			
6-7	50/2x6-7	40.1231	16-17	70/2x16-17	40.2041			
7-8	50/2x7-8	40.1232	17-18	70/2x17-18	40.2042			
8-9	50/2x8-9	40.1233	18-19	70/2x18-19	40.2043			
9-10	50/2x9-10	40.1234	19-20	70/2x19-20	40.2044			
10-11	50/2x10-11	40.1235	20-21	70/2x20-21	40.2045			
11-12	50/2x11-12	40.1236	21-22	70/2x21-22	40.2046			
12-13	50/2x12-13	40.1237	22-23	70/2x22-23	40.2047			
13-14	50/2x13-14	40.1238				<p>SLIPSIL® multi-sealing plugs for two up to five same diameter cables or pipes consist of two or four equal parts, so that they can be installed after the cables or pipes have been laid. For selecting the right type of sealing plug, look for the plug series from the tables.</p>		
14-15	50/2x14-15	40.1239	12-13	78/2x12-13	40.2241			
15-16	50/2x15-16	40.1240	13-14	78/2x13-14	40.2242			
6-7	53/2x6-7	40.1331	14-15	78/2x14-15	40.2243			
7-8	53/2x7-8	40.1332	15-16	78/2x15-16	40.2244			
8-9	53/2x8-9	40.1333	16-17	78/2x16-17	40.2245			
9-10	53/2x9-10	40.1334	17-18	78/2x17-18	40.2246			
10-11	53/2x10-11	40.1335	18-19	78/2x18-19	40.2247			
11-12	53/2x11-12	40.1336	19-20	78/2x19-20	40.2248			
12-13	53/2x12-13	40.1337	20-21	78/2x20-21	40.2249			
13-14	53/2x13-14	40.1338	21-22	78/2x21-22	40.2250			
14-15	53/2x14-15	40.1339	22-23	78/2x22-23	40.2251			
15-16	53/2x15-16	40.1340						
6-7	55/2x6-7	40.1431	12-13	80/2x12-13	40.2341			
7-8	55/2x7-8	40.1432	13-14	80/2x13-14	40.2342			
8-9	55/2x8-9	40.1433	14-15	80/2x14-15	40.2343			
9-10	55/2x9-10	40.1434	15-16	80/2x15-16	40.2344			
10-11	55/2x10-11	40.1435	16-17	80/2x16-17	40.2345			
11-12	55/2x11-12	40.1436	17-18	80/2x17-18	40.2346			
12-13	55/2x12-13	40.1437	18-19	80/2x18-19	40.2347			
13-14	55/2x13-14	40.1438	19-20	80/2x19-20	40.2348			
14-15	55/2x14-15	40.1439	20-21	80/2x20-21	40.2349			
15-16	55/2x15-16	40.1440	21-22	80/2x21-22	40.2350			
			22-23	80/2x22-23	40.2351			
11-12	60/2x11-12	40.1636	12-13	82/2x12-13	40.2441	<p>type code: series/2xcable diameter For instance 40/2x6-7</p>		
12-13	60/2x12-13	40.1637	13-14	82/2x13-14	40.2442			
13-14	60/2x13-14	40.1638	14-15	82/2x14-15	40.2443			
14-15	60/2x14-15	40.1639	15-16	82/2x15-16	40.2444			
15-16	60/2x15-16	40.1640	16-17	82/2x16-17	40.2445			
			17-18	82/2x17-18	40.2446			
11-12	62/2x11-12	40.1736	18-19	82/2x18-19	40.2447			
12-13	62/2x12-13	40.1737	19-20	82/2x19-20	40.2448			
13-14	62/2x13-14	40.1738	20-21	82/2x20-21	40.2449			
14-15	62/2x14-15	40.1739	21-22	82/2x21-22	40.2450			
15-16	62/2x15-16	40.1740	22-23	82/2x22-23	40.2451			

SLIPSIL® MULTI-SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
6-7	40/3x6-7	40.0936	10-11	80/3x10-11	40.2356	10-11	80/5x10-11	40.2366
7-8	40/3x7-8	40.0937	11-12	80/3x11-12	40.2357	11-12	80/5x11-12	40.2367
			12-13	80/3x12-13	40.2358	12-13	80/5x12-13	40.2368
6-7	41/3x6-7	40.1036	13-14	80/3x13-14	40.2359	13-14	80/5x13-14	40.2369
7-8	41/3x7-8	40.1037	14-15	80/3x14-15	40.2360	14-15	80/5x14-15	40.2370
			15-16	80/3x15-16	40.2361	15-16	80/5x15-16	40.2371
6-7	43/3x6-7	40.1136	10-11	82/3x10-11	40.2456	10-11	82/5x10-11	40.2466
7-8	43/3x7-8	40.1137	11-12	82/3x11-12	40.2457	11-12	82/5x11-12	40.2467
6-7	50/3x6-7	40.1241	12-13	82/3x12-13	40.2458	12-13	82/5x12-13	40.2468
7-8	50/3x7-8	40.1242	13-14	82/3x13-14	40.2459	13-14	82/5x13-14	40.2469
8-9	50/3x8-9	40.1243	14-15	82/3x14-15	40.2460	14-15	82/5x14-15	40.2470
			15-16	82/3x15-16	40.2461	15-16	82/5x15-16	40.2471
6-7	53/3x6-7	40.1341	10-11	90/3x10-11	40.2556	<p>* multi-plugs for other plug series are made upon customer request. The listed sizes are standard items. For other sizes, please contact our sales department.</p> <p>* the tooling for the multi-plugs 5x is very expensive. Specials only on request based on quantities.</p>		
7-8	53/3x7-8	40.1342	11-12	90/3x11-12	40.2557			
8-9	53/3x8-9	40.1343	12-13	90/3x12-13	40.2558			
9-10	53/3x9-10	40.1344	13-14	90/3x13-14	40.2559			
10-11	53/3x10-11	40.1345	14-15	90/3x14-15	40.2560			
			15-16	90/3x15-16	40.2561			
6-7	55/3x6-7	40.1441	6-7	40/5x6-7	40.0941			
7-8	55/3x7-8	40.1442	7-8	40/5x7-8	40.0942			
8-9	55/3x8-9	40.1443	6-7	41/5x6-7	40.1041			
9-10	55/3x9-10	40.1444	7-8	41/5x7-8	40.1042			
10-11	55/3x10-11	40.1445	6-7	43/5x6-7	40.1141			
			7-8	43/5x7-8	40.1142			
6-7	60/3x6-7	40.1646	6-7	50/5x6-7	40.1251	 <p>type code: series/3xcable diameter For instance 40/3x6-7</p>		
7-8	60/3x7-8	40.1647	7-8	50/5x7-8	40.1252			
8-9	60/3x8-9	40.1648	8-9	50/5x8-9	40.1253			
9-10	60/3x9-10	40.1649	6-7	53/5x6-7	40.1351			
10-11	60/3x10-11	40.1650	7-8	53/5x7-8	40.1352			
			8-9	53/5x8-9	40.1353			
6-7	62/3x6-7	40.1746	9-10	53/5x9-10	40.1354			
7-8	62/3x7-8	40.1747	10-11	53/5x10-11	40.1355			
8-9	62/3x8-9	40.1748	6-7	55/5x6-7	40.1451			
9-10	62/3x9-10	40.1749	7-8	55/5x7-8	40.1452			
10-11	62/3x10-11	40.1750	8-9	55/5x8-9	40.1453			
			9-10	55/5x9-10	40.1454			
6-7	68/3x6-7	40.1951	10-11	55/5x10-11	40.1455	 <p>type code: series/5xcable diameter For instance 40/5x6-7</p>		
7-8	68/3x7-8	40.1952	6-7	68/5x6-7	40.1961			
8-9	68/3x8-9	40.1953	7-8	68/5x7-8	40.1962			
9-10	68/3x9-10	40.1954	8-9	68/5x8-9	40.1963			
10-11	68/3x10-11	40.1955	9-10	68/5x9-10	40.1964			
11-12	68/3x11-12	40.1956	10-11	68/5x10-11	40.1965			
12-13	68/3x12-13	40.1957	11-12	68/5x11-12	40.1966			
			12-13	68/5x12-13	40.1967			
6-7	70/3x6-7	40.2051	10-11	78/5x10-11	40.2266			
7-8	70/3x7-8	40.2052	11-12	78/5x11-12	40.2267			
8-9	70/3x8-9	40.2053	12-13	78/5x12-13	40.2268			
9-10	70/3x9-10	40.2054	13-14	78/5x13-14	40.2269			
10-11	70/3x10-11	40.2055	14-15	78/5x14-15	40.2270			
11-12	70/3x11-12	40.2054	15-16	78/5x15-16	40.2271			
12-13	70/3x12-13	40.2055						
10-11	78/3x10-11	40.2256						
11-12	78/3x11-12	40.2257						
12-13	78/3x12-13	40.2258						
13-14	78/3x13-14	40.2259						
14-15	78/3x14-15	40.2260						
15-16	78/3x15-16	40.2261						

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

Note: sleeve ends to be ground out for ease of installation.
Note: the pipe has to be ducted straight and centrically!



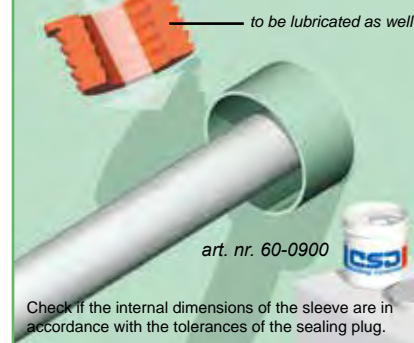
1) Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve. For ease of installation, it is advisable to grind out the front side of the sleeve. Ask for the fitting CSD® conduit sleeves.

Always use sufficient lubricant to avoid installation problems.



2) Then the inside wall of the conduit sleeve is treated with CSD® lubricant along a distance which approximately corresponds to the length of the sealing plug.

Always use sufficient lubricant to avoid installation problems.



3) The inside surfaces of both segments of the SLIPSIL® sealing plug are then treated with CSD® lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.

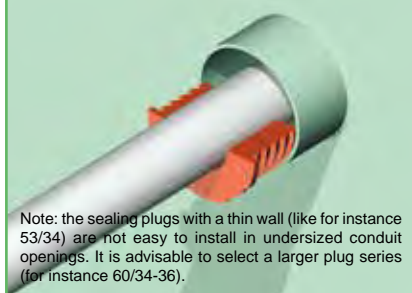
Always use sufficient lubricant to avoid installation problems.



4) The segments of the SLIPSIL® sealing plug are also treated with CSD® lubricant on the outside.

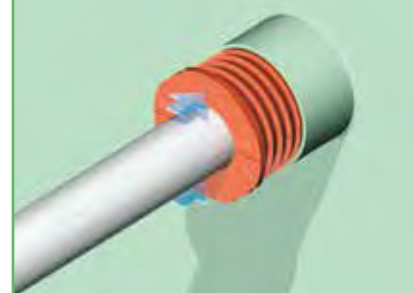
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.

For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.



5) Both segments of the SLIPSIL® sealing plug are placed around the ducted pipe and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

Larger plugs can be tapped in using a hammer and a piece of wood.



6) Then both segments of the SLIPSIL® sealing plug are pushed by hand evenly, serration by serration, further into the conduit sleeve.

For fire rated conduits, the plugs have to be applied at both sides. During insertion of the second plug, the air between both plugs will be compressed, and has to be released from time to time, by inserting a screwdriver between both plug halves.



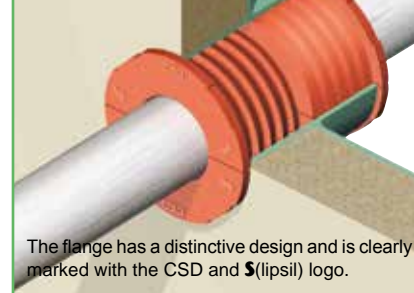
7) The flanged edge of the sealing plug must be flush against the front side of the conduit sleeve. The flange has a distinctive design and is clearly marked with the CSD® and S(lipsil)® logo.

For horizontal ducts of heavy pipes/cables it is extremely important to support the pipes properly at both sides of the conduit.



8) Note: tightness and installation are optimum at nominal sizes (for instance for 60/34-36 optimum is 60 mm ID of the sleeve and 34 mm OD of the ducted pipe).

A certified, limited air cavity inside the sleeve in between the plugs of only 10-20 mm reduces the conduit length substantially.



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

ASK FOR OUR DETAILED INSTALLATION INSTRUCTIONS

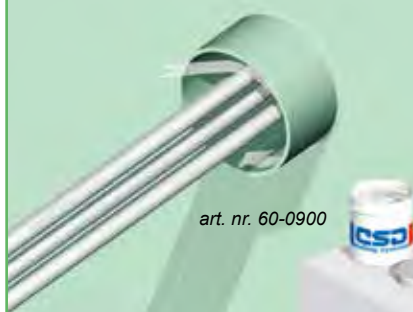
SLIPSIL® MULTI-SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

Note: sleeve ends to be ground out for ease of installation.
Note: the pipe has to be ducted straight and centrically!



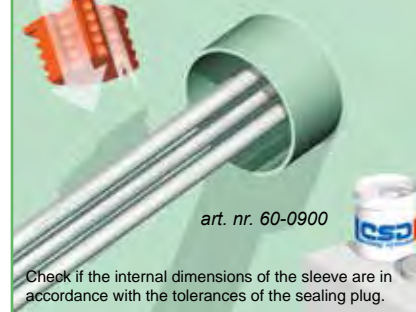
1) Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve. For ease of installation, it is advisable to grind out the front side of the sleeve. Ask for the fitting CSD® conduit sleeves.

Always use sufficient lubricant to avoid installation problems.



2) Then the inside wall of the conduit sleeve is treated with CSD® lubricant along a distance which approximately corresponds to the length of the sealing plug.

Always use sufficient lubricant to avoid installation problems.



3) The inside surfaces of the four segments of the SLIPSIL® multi-sealing plug are then treated with CSD® lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipes.

Always use sufficient lubricant to avoid installation problems.



4) The four segments of the SLIPSIL® multi-sealing plug are also treated with CSD® lubricant on the outside.

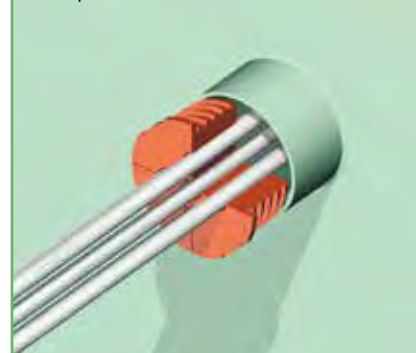
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.

For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.



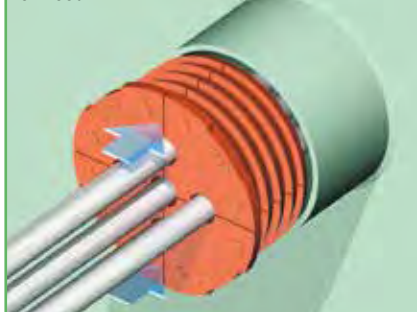
5) The segments of the SLIPSIL® multi-sealing plug are placed around the ducted pipes and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

Larger plugs can be tapped in using a hammer and a piece of wood.



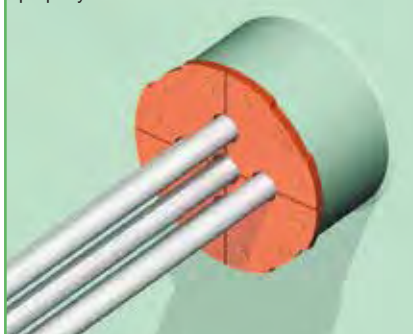
6) The segments of the SLIPSIL® multi-sealing plug are placed around the ducted pipes and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

Extremely thin plugs or plugs applied in undersized conduits with oversized service pipes, can be tapped in using a hammer and a piece of wood.



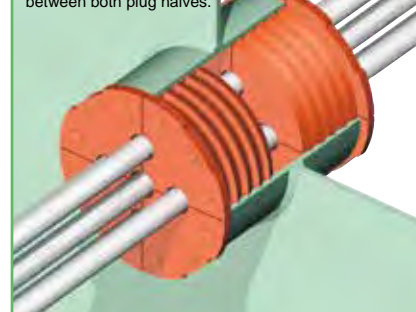
7) Then the four segments of the SLIPSIL® multi-sealing plug are pushed by hand evenly, serration by serration, further into the conduit sleeve.

For horizontal ducts of heavy pipes/cables it is extremely important to support the pipes properly at both sides of the conduit.



8) The flanged edge of the sealing plug must be flush against the front side of the conduit sleeve. The flange has a distinctive design and is clearly marked with the S(lipsil)® logo.

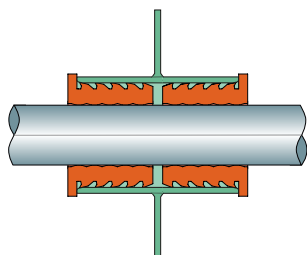
For fire rated conduits, the plugs have to be applied at both sides. During insertion of the second plug, the air between both plugs will be compressed, and has to be released from time to time, by inserting a screwdriver between both plug halves.



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

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

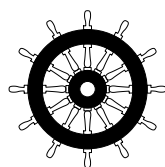
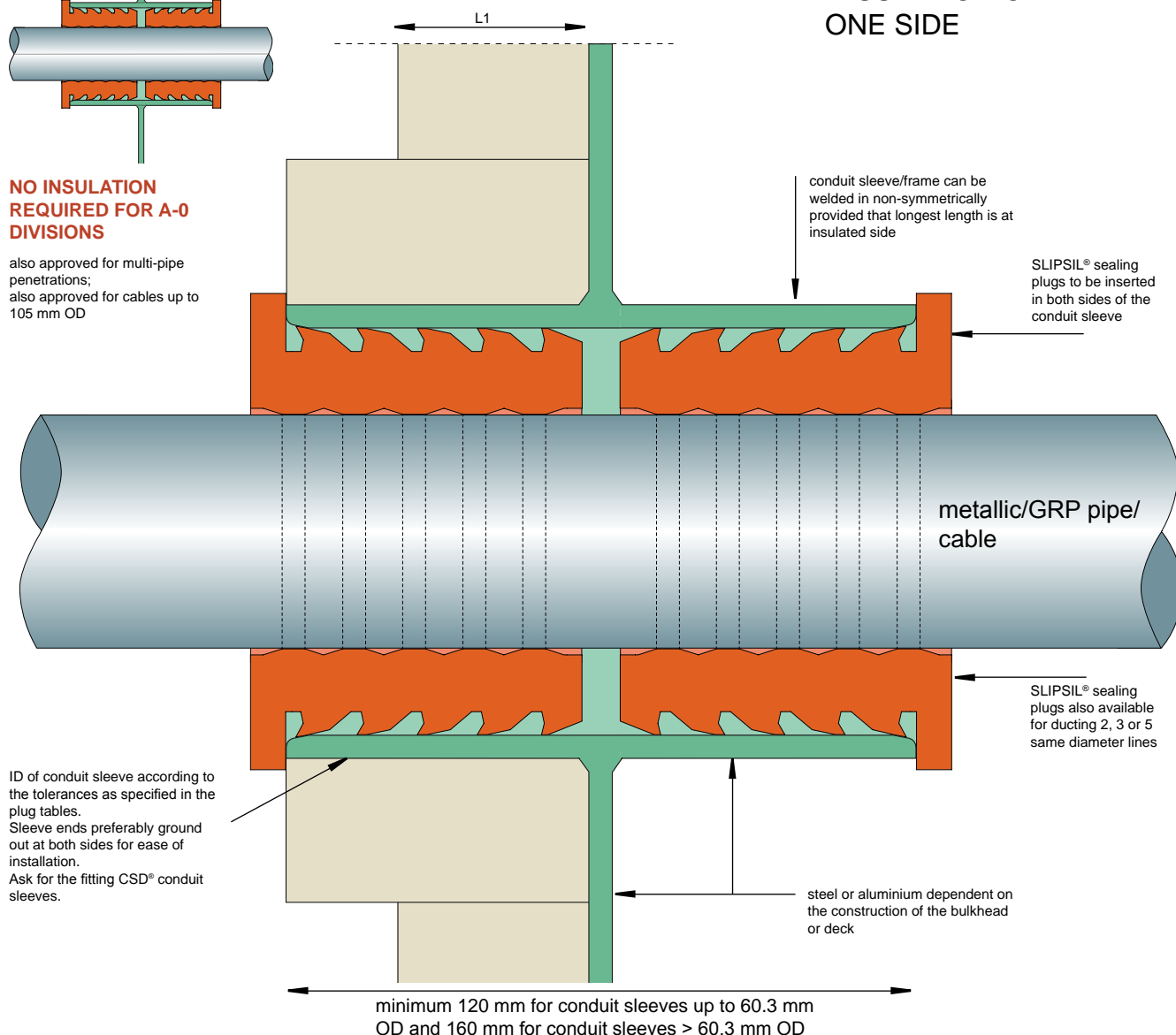
L1: A-60 approved bulkhead/deck insulation.



**NO INSULATION
REQUIRED FOR A-0
DIVISIONS**

also approved for multi-pipe
penetrations;
also approved for cables up to
105 mm OD

- SHORTEST POSSIBLE
CONDUIT LENGTH
- INSULATION ONLY AT
ONE SIDE



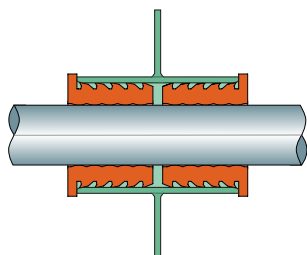
ask for the MED
certificate with
the stamped and
signed detailed
installation
drawings

specifications for A-class according to EC
(MED) certificate MED-B-8560 issued by
Det Norske Veritas.
Drawings SL010E up to SL016E and
drawings SL047E and SL049E

**A0-A60
METALLIC / GRP
PIPE TRANSIT**

SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT

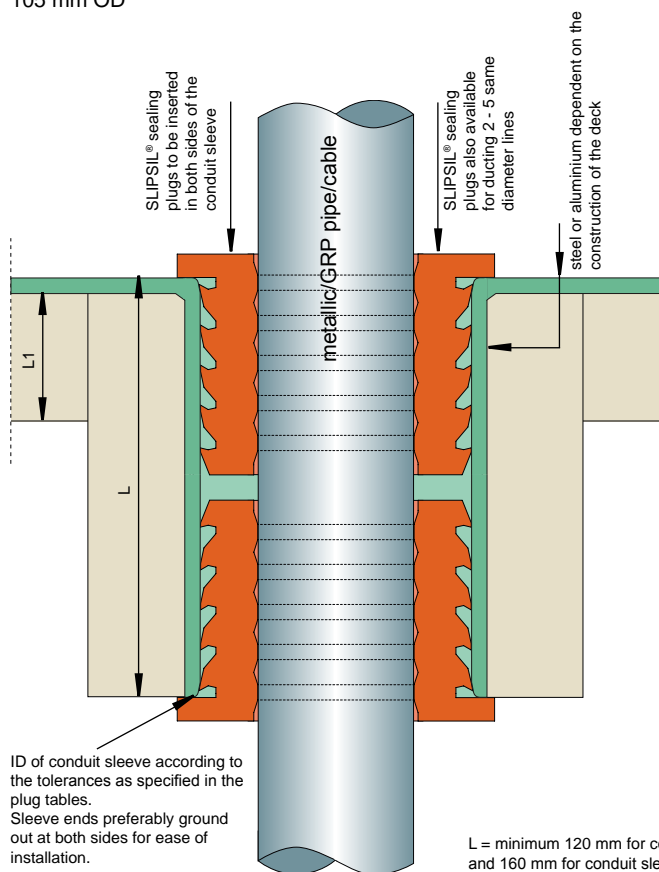
L1: A-60 approved deck insulation.



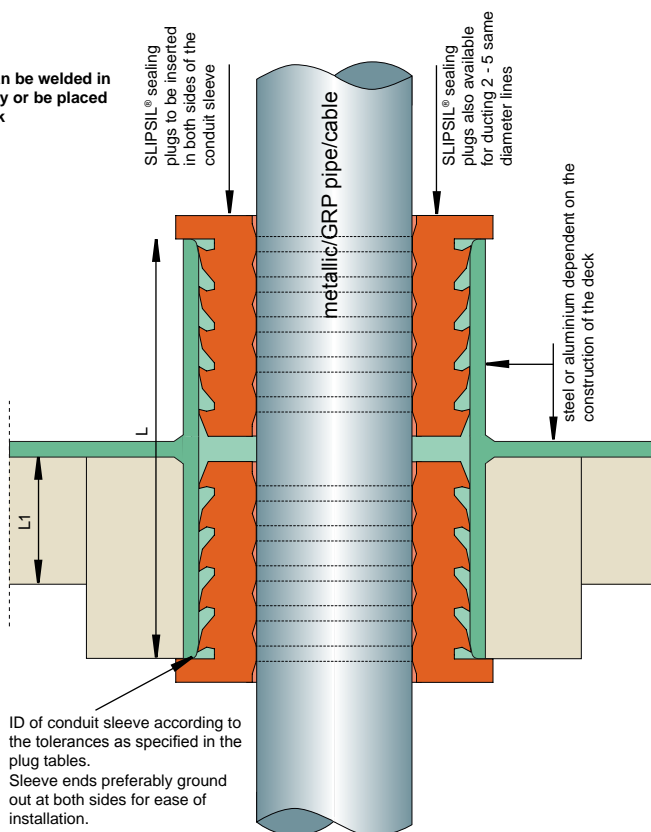
**NO INSULATION
REQUIRED FOR
A-0 DIVISIONS**

also approved for multi-pipe
penetrations;
also approved for cables up to
105 mm OD

- SHORTEST POSSIBLE
CONDUIT LENGTH
- INSULATION ONLY AT
ONE SIDE

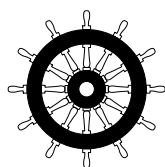


conduit sleeve can be welded in
non-symmetrically or be placed
totally below deck



L = minimum 120 mm for conduit sleeves up to 60.3 mm OD
and 160 mm for conduit sleeves > 60.3 mm OD

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

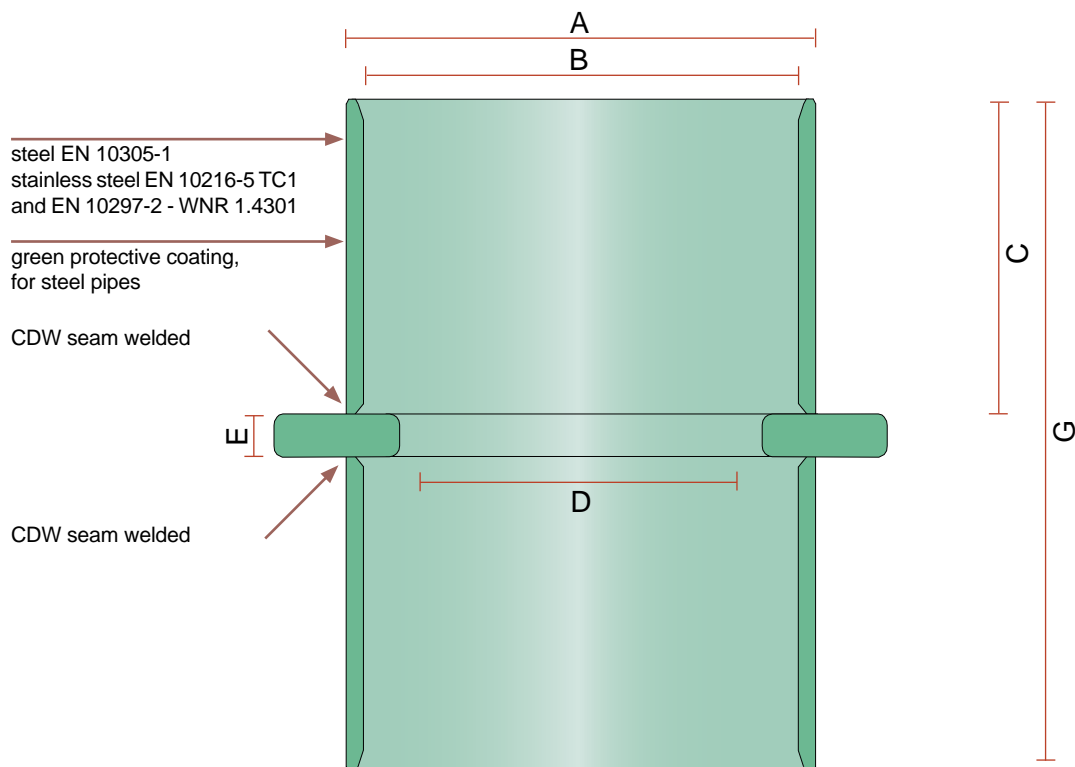


ask for the MED
certificate with
the stamped and
signed detailed
installation
drawings

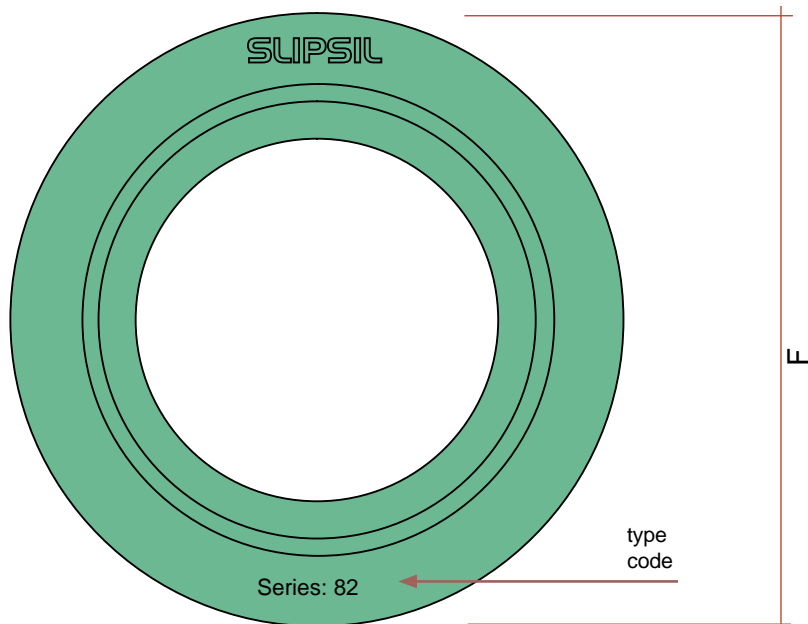
specifications for A-class according to EC
(MED) certificate MED-B-8560 issued by
Det Norske Veritas.
Drawings SL010E up to SL016E and
drawings SL047E and SL049E

A0-A60 METALLIC/GRP PIPE TRANSIT

CSD® CONDUIT SLEEVES EXACTLY FITTING TO THE SLIPSIL® PLUG SERIES



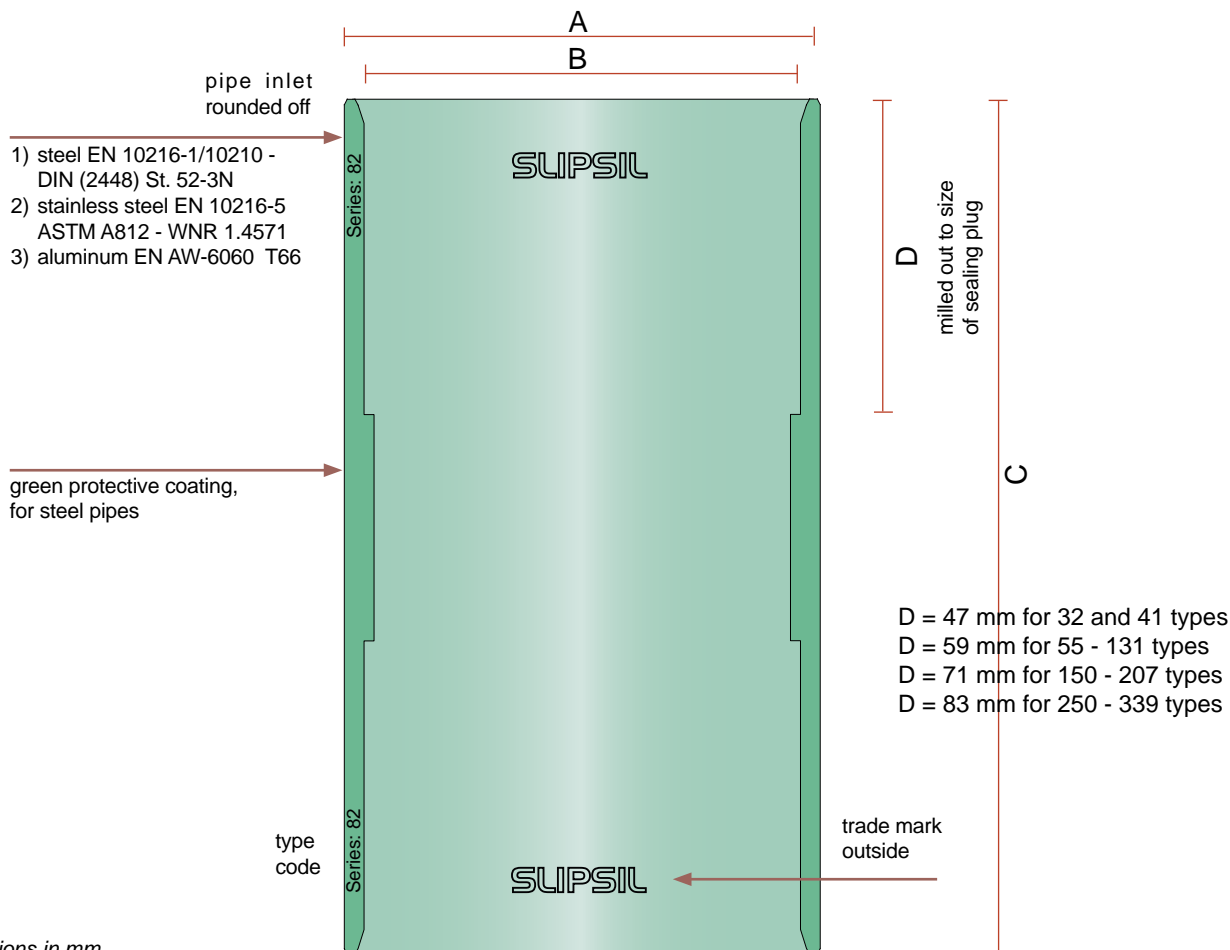
Stainless steel WNR 1.4571
conduit sleeves on request.
Aluminum conduit sleeves
EN AW-6060 T66 are available
but not CDW seam welded.



All dimensions in mm

type	A	B	C	D	E	F	G	art. no. steel	art. no. stainless
CSD 25 WD	32.5	25	47	12	8	55	102	60.8040	60.8060
CSD 32 WD	39.5	32	47	16	8	65	102	60.8041	60.8061
CSD 41 WD	48.5	41	47	25	8	75	102	60.8042	60.8062
CSD 55 WD	62.5	55	59	34	8	90	126	60.8043	60.8063
CSD 70 WD	78	70	59	50	8	105	126	60.8044	60.8064
CSD 82 WD	90	82	59	60	8	115	126	60.8045	60.8065
CSD 100 WD	108	100	59	75	8	135	126	60.8046	60.8066
CSD 125 WD	134	125	59	95	8	160	126	60.8047	60.8067
CSD 150 WD	159	150	72	120	8	185	152	60.8048	60.8068

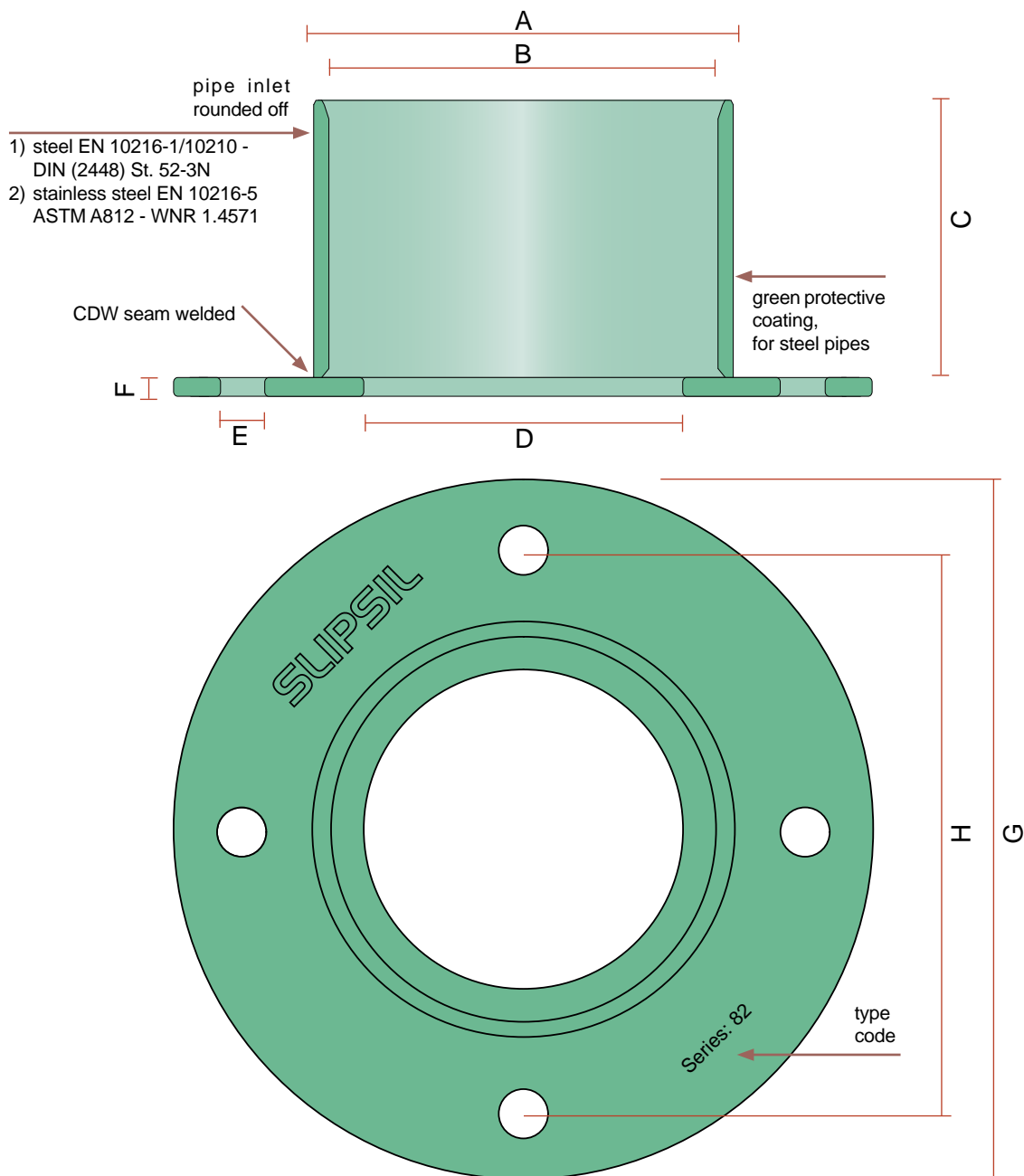
CSD® CONDUIT SLEEVES EXACTLY FITTING TO THE SLIPSIL® PLUG SERIES



All dimensions in mm

type	A	B	C	art. no. steel	art. no. stainless	type	A	B	C	art. no. aluminum
SL 32 WS	39	32	120	60.8200	60.8245	SL 53 WA	60	53	160	60.8600
SL 41 WS	48	41	120	60.8201	60.8246	SL 62 WA	70	62	160	60.8601
SL 55 WS	62	55	160	60.8202	60.8247	SL 70 WA	80	70	160	60.8602
SL 62 WS	70	62	160	60.8203	60.8248	SL 82 WA	90	82	160	60.8603
SL 70 WS	78	70	160	60.8204	60.8249	SL 90 WA	100	90	160	60.8604
SL 82 WS	90	82	160	60.8205	60.8250	SL 102 WA	110	102	160	60.8605
SL 100 WS	108	100	160	60.8206	60.8251	SL 110 WA	120	110	160	60.8606
SL 107 WS	115	107	160	60.8207	60.8252	SL 131 WA	140	131	160	60.8607
SL 131 WS	139	131	160	60.8208	60.8253	SL 152 WA	160	152	180	60.8608
SL 150 WS	159	150	180	60.8209	60.8254	SL 190 WA	200	190	180	60.8609
SL 207 WS	220	207	180	60.8210	-					
SL 250 WS	265	250	180	60.8211	-					
SL 300 WS	315	300	180	60.8212	-					
SL 339 WS	355	339	180	60.8213	-					
SL 32 WS	39.5	32	250	60.8230	60.8275	SL 53 WA	60	53	250	60.8640
SL 41 WS	48.5	41	250	60.8231	60.8276	SL 62 WA	70	62	250	60.8641
SL 55 WS	62.5	55	250	60.8232	60.8277	SL 70 WA	80	70	250	60.8642
SL 62 WS	70	62	250	60.8233	60.8278	SL 82 WA	90	82	250	60.8643
SL 70 WS	78	70	250	60.8234	60.8279	SL 90 WA	100	90	250	60.8644
SL 82 WS	90	82	250	60.8235	60.8280	SL 102 WA	110	102	250	60.8645
SL 100 WS	108	100	250	60.8236	60.8281	SL 110 WA	120	110	250	60.8646
SL 107 WS	114	107	250	60.8237	60.8282	SL 131 WA	140	131	250	60.8647
SL 131 WS	139	131	250	60.8238	60.8283	SL 152 WA	160	152	250	60.8648
SL 150 WS	159	150	250	60.8239	60.8284	SL 190 WA	200	190	250	60.8649
SL 207 WS	220	207	250	60.8240	-					
SL 250 WS	265	250	250	60.8241	-					
SL 300 WS	315	300	250	60.8242	-					
SL 339 WS	355	339	250	60.8243	-					

SLIPSIL® FLANGED CONDUIT SLEEVES EXACTLY FITTING TO THE SLIPSIL® PLUG SERIES



All dimensions in mm

type	A	B	C	D	E	F	G	H	plug series	art. no. steel	art. no. stainless 1.4571	art. no. gasket
SL 25 FB	32.5	25	47	12	10.5	6	92	63	25	60.8000	60.8020	51.9000
SL 32 FB	39.5	32	47	16	10.5	6	99	70	32	60.8001	60.8021	51.9001
SL 41 FB	48.5	41	47	25	10.5	6	108	79	41	60.8002	60.8022	51.9002
SL 55 FB	62.5	55	59	34	10.5	6	122	93	55	60.8003	60.8023	51.9003
SL 70 FB	78	70	59	50	10.5	6	137	108	70	60.8004	60.8024	51.9004
SL 82 FB	90	82	59	60	10.5	6	149	120	82	60.8005	60.8025	51.9005
SL 100 FB	108	100	59	75	10.5	8	167	138	100	60.8006	60.8026	51.9006
SL 125 FB	134	125	59	100	10.5	8	192	163	125	60.8007	60.8027	51.9007
SL 150 FB	159	150	71	125	10.5	8	217	188	150	60.8008	60.8028	51.9008

SLIPSIL®/DYNATITE® SEALING PLUGS FOR INSTALLATION FROM ONE SIDE



PLUG SERIES	CONDUIT SLEEVE	PLUG LENGTH	PIPE DIAMETER
25	24.5 - 25.6	54	5 - 12
27	26.5 - 27.6	54	5 - 15
28	27.5 - 28.5	54	5 - 15
30	29.5 - 30.5	54	5 - 16
32	31.5 - 32.5	54	5 - 16
34	33.5 - 34.5	54	5 - 18
35	34.5 - 35.7	54	5 - 20
37	36.5 - 37.7	54	5 - 20
40	39.5 - 40.7	54	5 - 22
41	40.5 - 41.7	54	5 - 25
43	42.5 - 43.7	54	5 - 28
50	49.5 - 50.7	66	6 - 32
53	52.0 - 53.7	66	6 - 34
55	54.0 - 55.7	66	6 - 34
57	56.0 - 57.7	66	14 - 40
60	59.0 - 60.7	66	14 - 40
62	61.0 - 62.7	66	14 - 40
67	66.0 - 67.7	66	22 - 50
68	67.0 - 68.7	66	20 - 50
70	69.0 - 70.7	66	22 - 50
75	74.0 - 75.7	66	22 - 50
78	77.0 - 78.7	66	22 - 50
80	79.0 - 80.7	66	28 - 60
82	81.0 - 82.7	66	28 - 60
90	89.0 - 90.7	66	40 - 64
94	93.0 - 94.7	66	40 - 64
97	96.0 - 97.7	66	40 - 64
100	99.0 - 100.7	66	40 - 75
102	101.0 - 102.7	66	40 - 75
103	102.0 - 103.7	66	26 - 75
105	104.0 - 105.7	66	40 - 75
107	106.0 - 107.7	66	40 - 76
110	109.0 - 110.7	66	48 - 80
118	117.5 - 119.2	66	60 - 90
122	121.0 - 122.7	66	60 - 92
125	124.0 - 125.7	66	60 - 92
128	127.0 - 128.7	66	60 - 92
131	130.5 - 132.2	66	60 - 92
146	145.0 - 146.7	79	88 - 120
150	149.0 - 150.7	79	88 - 125
152	151.0 - 152.7	79	88 - 125
154	153.0 - 154.7	79	88 - 125
156	155.0 - 156.7	79	88 - 125
160	159.0 - 160.7	79	88 - 125
190	189.0 - 190.7	79	110-160
200	199.0 - 200.7	79	110-160
203	202.0 - 203.7	79	110-168
207	206.0 - 207.7	79	110-168
250	249.0 - 250.7	91	160-200
260	259.0 - 260.7	91	160-219
300	299.0 - 300.7	91	160-250
339	338.5 - 340.2	91	200-273

To select the right type of sealing plug, look for the plug series to be used on the basis of the outer diameter of the service pipe. Then make a choice for the plug type in the table of the selected plug series.

For instance: a copper pipe of 42 mm OD has to be ducted. Select the plug series on the basis of the ID of the conduit sleeve to be used and the OD of the ducted pipe (67 up to 107 can be your choice). When a conduit sleeve 88.9x3.2 mm (ID = 82.5 mm) will be used a sealing plug 82/42-44 is the right choice. If a 54 mm OD copper pipe has to be ducted through a sleeve with an ID of 107.1 mm, plug type 107/54-56 has to be selected. See the tables of the series 82 and 107 on page 39 and 40.

Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).

ASK FOR THE NEWLY DEVELOPED DYNATITE-XL 120 PLUGS

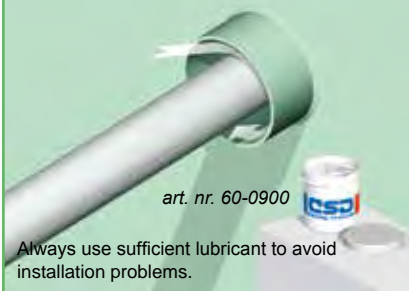
SLIPSIL®/DYNATITE® SEALING PLUGS FOR INSTALLATION FROM ONE SIDE

Note: sleeve ends to be ground out for ease of installation.
Note: the pipe has to be ducted straight and centrically!



1) Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve. For ease of installation, it is advisable to grind out the front side of the sleeve. Ask for the fitting CSD® conduit sleeves.

To enable insertion of the sealing plugs from one side the SLIPSIL®/DYNATITE® combination can be used.



Always use sufficient lubricant to avoid installation problems.



Always use sufficient lubricant to avoid installation problems.

3) The inside surfaces of both segments of the DYNATITE® sealing plug are then treated with CSD® lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.

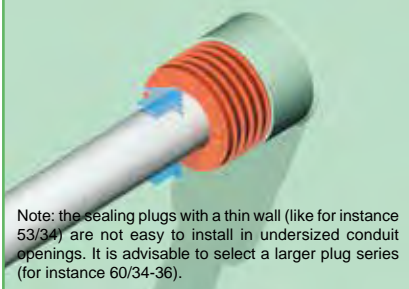


Always use sufficient lubricant to avoid installation problems.

4) The segments of the DYNATITE® sealing plug are also treated with CSD® lubricant on the outside.

Please refer to the Safety Data Sheet of the CSD® lubricant for more information.

For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.

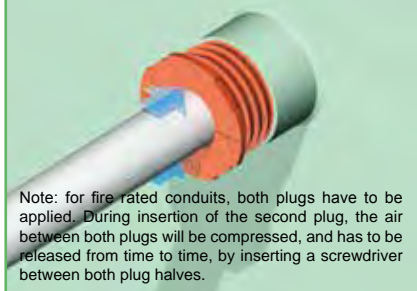


Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).



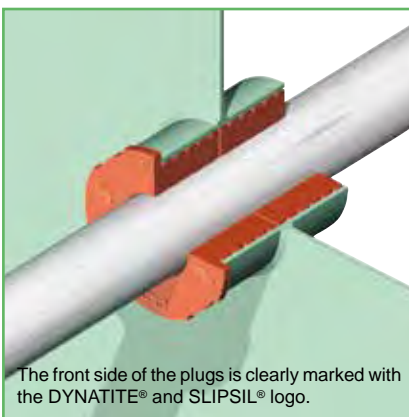
6) The DYNATITE plug should be inserted into the conduit sleeve over a length which corresponds with the length of the second plug. The surfaces of both segments of the SLIPSIL® sealing plug are then treated with CSD® lubricant all around.

Extremely thin plugs or plugs applied in undersized conduits with oversized service pipes, can be tapped in using a hammer and a piece of wood.



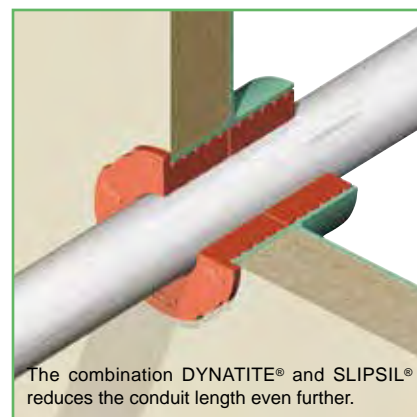
Note: for fire rated conduits, both plugs have to be applied. During insertion of the second plug, the air between both plugs will be compressed, and has to be released from time to time, by inserting a screwdriver between both plug halves.

7) Both segments of the SLIPSIL® sealing plug are placed around the ducted pipe and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.



The front side of the plugs is clearly marked with the DYNATITE® and SLIPSIL® logo.

8) The set of SLIPSIL®/DYNATITE® plugs is then pushed in until the flanged edge of the SLIPSIL® sealing plug is flush against the front side of the conduit sleeve.



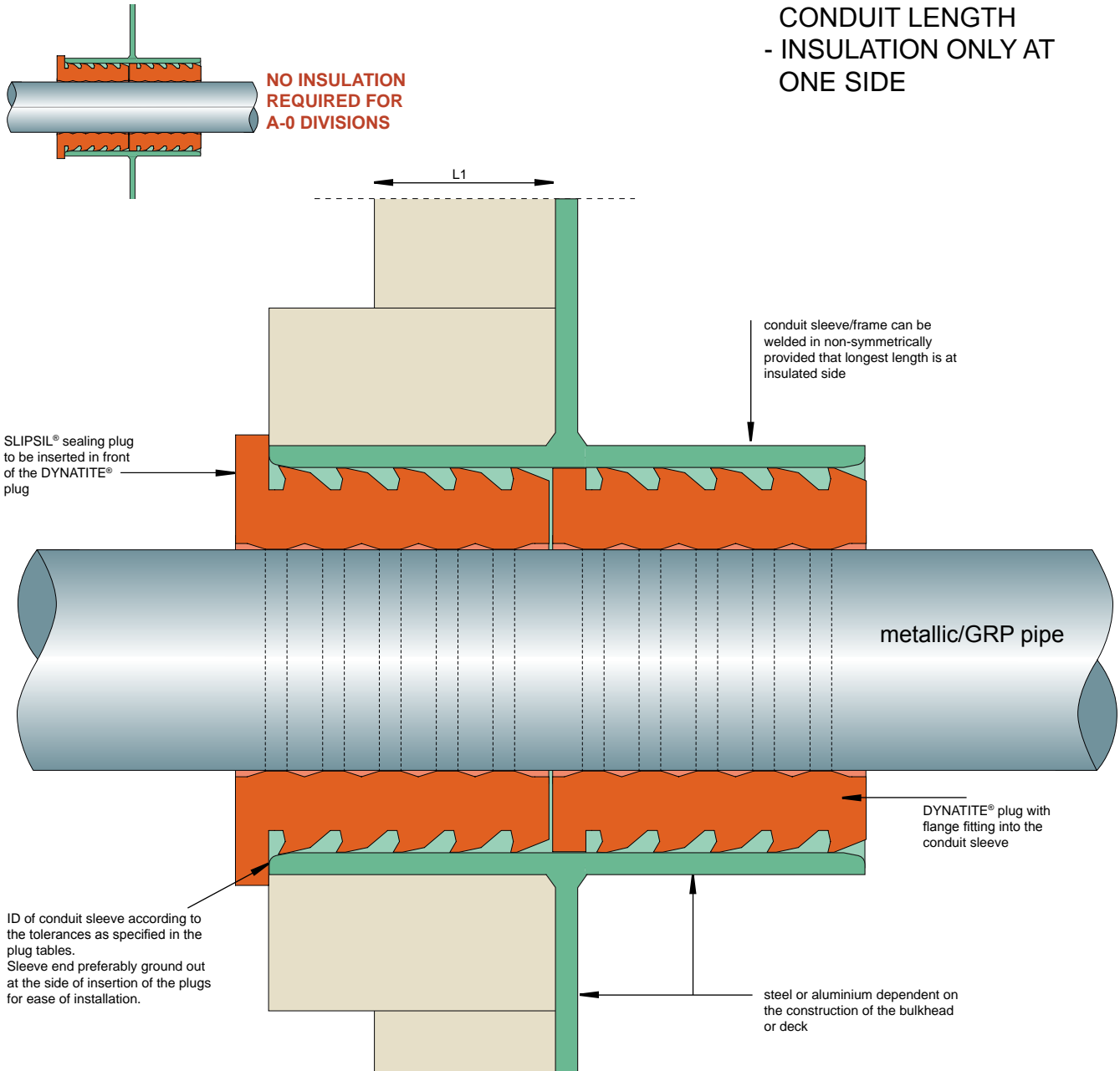
The combination DYNATITE® and SLIPSIL® reduces the conduit length even further.

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

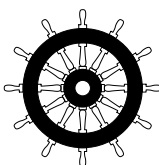
SLIPSIL®/DYNATITE® SEALING PLUGS FOR INSTALLATION FROM ONE SIDE

L1: A-60 approved bulkhead insulation.

- SHORTEST POSSIBLE
CONDUIT LENGTH
- INSULATION ONLY AT
ONE SIDE



minimum 100 mm for sleeves up to 44 mm ID,
120 mm for sleeves 45 mm up to 132.5 mm ID
and 150 mm for sleeves > 132.5 mm ID



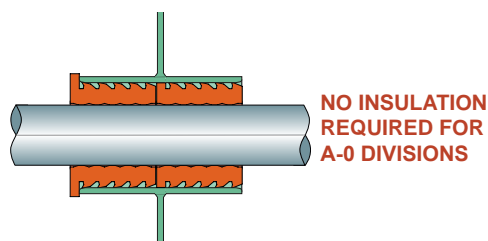
ask for the MED
certificate with
the stamped and
signed detailed
installation
drawings

specifications for A-class according to EC
(MED) certificate MED-B-8560 issued by
Det Norske Veritas.
Drawings SL037E, SL038E, SL0039E and
SL043E

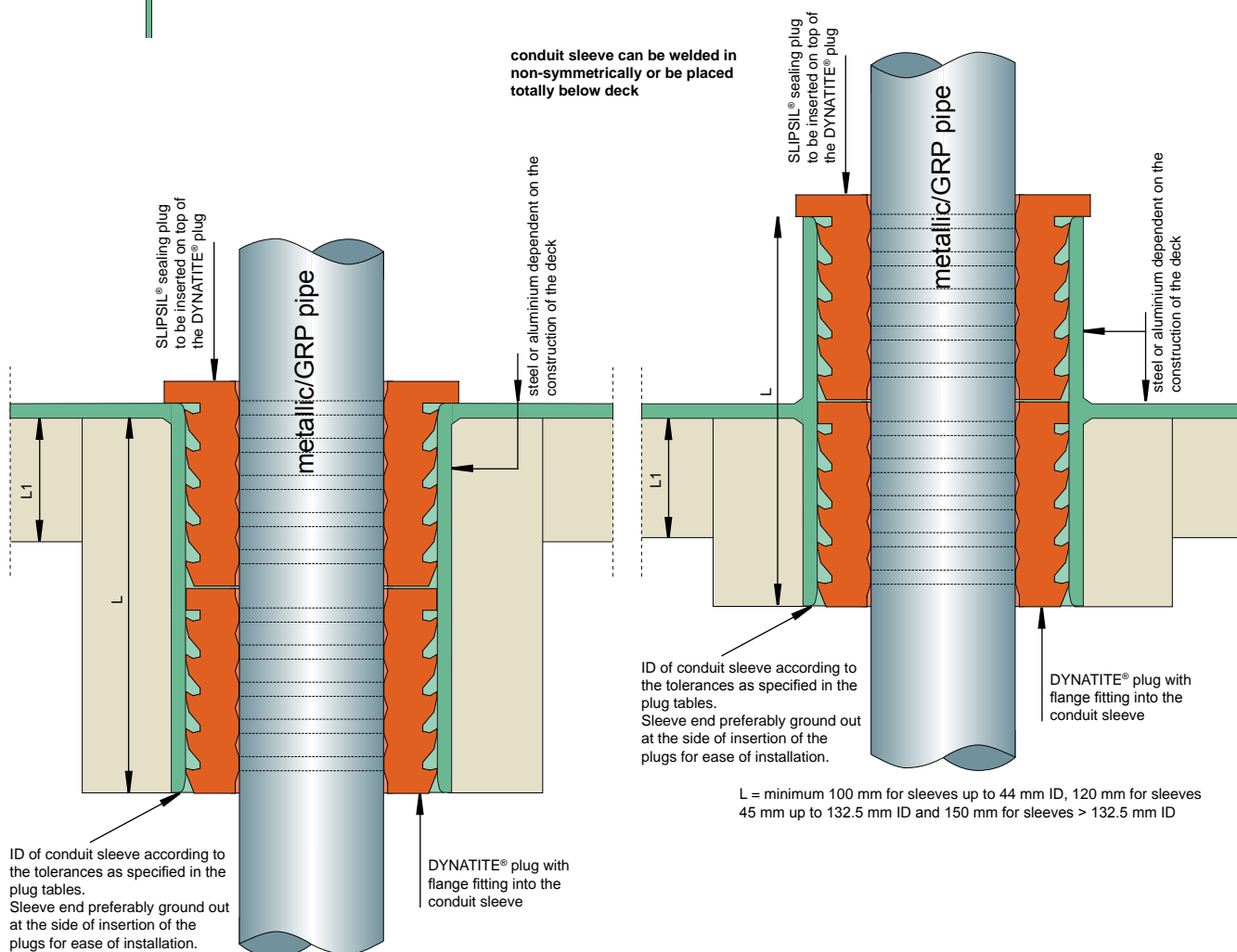
A0-A60
METALLIC / GRP
PIPE TRANSIT

SLIPSIL®/DYNATITE® SEALING PLUGS FOR INSTALLATION FROM ONE SIDE

L1: A-60 approved deck insulation.

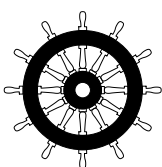


- SHORTEST POSSIBLE
CONDUIT LENGTH
- INSULATION ONLY AT
ONE SIDE



L = minimum 100 mm for sleeves up to 44 mm ID, 120 mm for sleeves 45 mm up to 132.5 mm ID and 150 mm for sleeves > 132.5 mm ID

L = minimum 100 mm for sleeves up to 44 mm ID, 120 mm for sleeves 45 mm up to 132.5 mm ID and 150 mm for sleeves > 132.5 mm ID



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

specifications for A-class according to EC (MED) certificate MED-B-8560 issued by Det Norske Veritas. Drawings SL037E, SL038E, SL0039E and SL043E

A0-A60 METALLIC/GRP PIPE TRANSIT

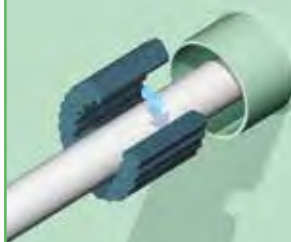
SLIPSIL® SEALING PLUGS FOR PLASTIC PIPE PENETRATIONS

Note: sleeve ends to be ground out for ease of installation.
Note: the pipe has to be ducted straight and centrally!

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

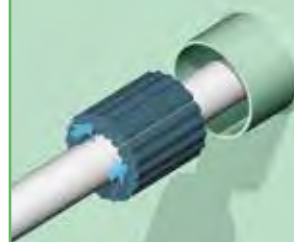
1) Before starting the installation procedure, any dirt, oil residues or welding spots should be removed from the conduit sleeve. For ease of installation, it is advisable to grind out the front side of the sleeve.

Always use sufficient lubricant to avoid installation problems.



2) The fitting RISE®/ULTRA C-FIT crusher, which is split lengthwise, is folded around the ducted plastic pipe.

Always use sufficient lubricant to avoid installation problems.



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



Please refer to the Safety Data Sheet of the CSD® lubricant for more information.

4) The RISE®/ULTRA C-FIT crusher should be inserted into the conduit sleeve over a length which corresponds with the length of the SLIPSIL® sealing plug. The segments of the SLIPSIL® sealing plug are treated with CSD® lubricant on the outside.

For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.



Check if the internal dimensions of the sleeve are in accordance with the tolerances of the sealing plug.

5) The inside surfaces of both segments of the SLIPSIL® sealing plug are then also treated with CSD® lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.

Extremely thin plugs or plugs applied in undersized conduits with oversized service pipes, can be tapped in using a hammer and a piece of wood.



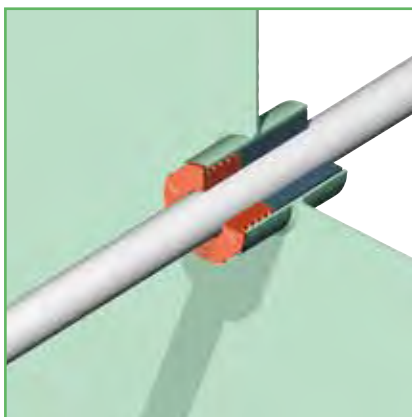
Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).

6) Both segments of the SLIPSIL® sealing plug are placed around the ducted pipe and then pushed by hand evenly, serration by serration, into the conduit sleeve.

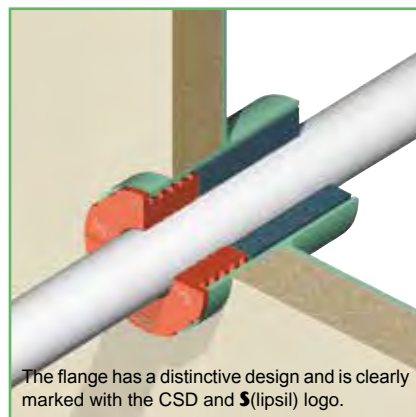
Note: During insertion of the plug, the air between the plug and the crusher will be compressed, and has to be released from time to time, by inserting a screwdriver between both plug halves.



7) The flanged edge of the sealing plug must be flush against the front side of the conduit sleeve.



8) Note: tightness and installation are optimum at nominal sizes (for instance for 60/34-36 optimum is 60 mm ID of the sleeve and 34 mm OD of the ducted pipe).

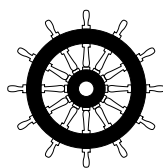
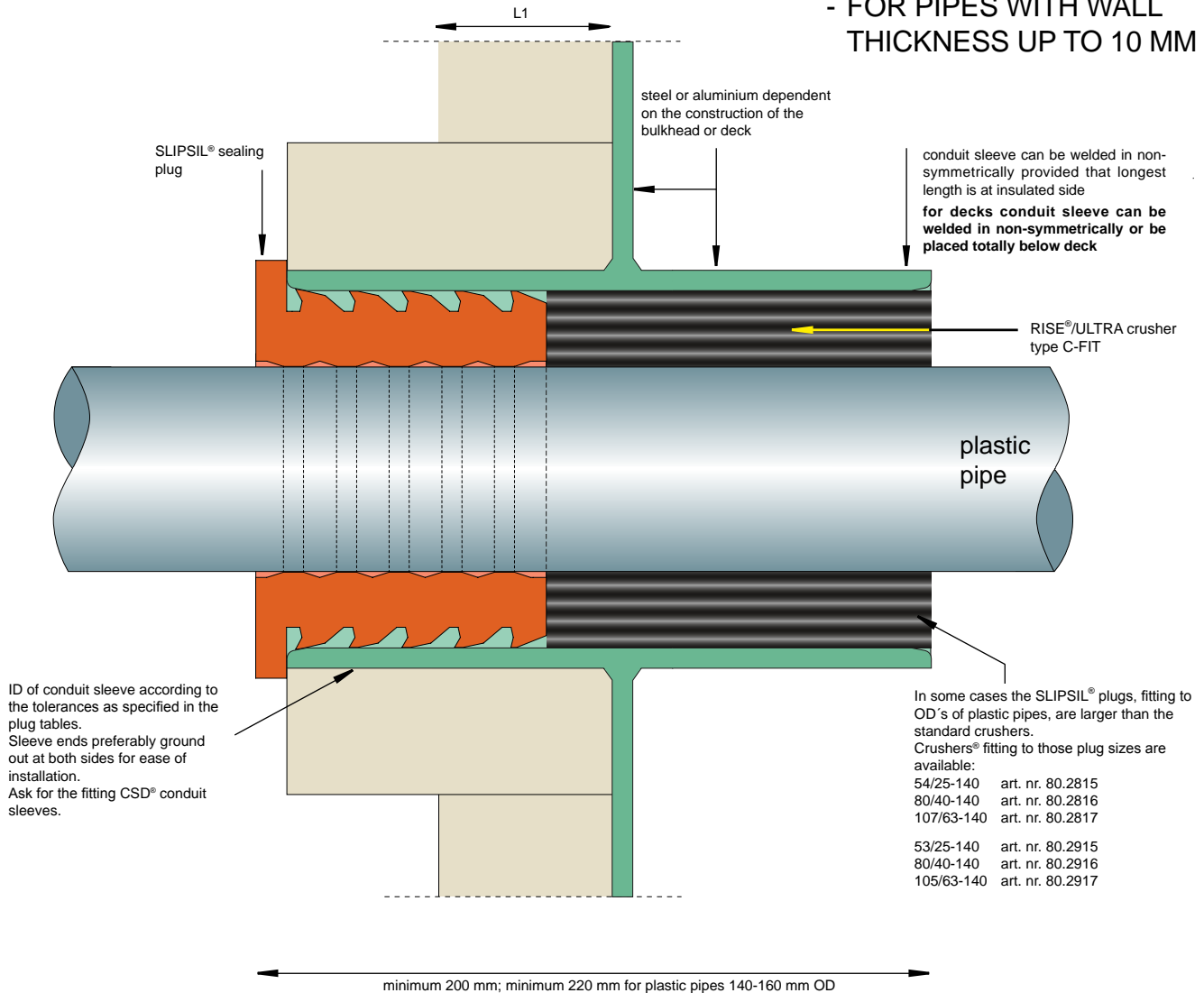


9) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.

SLIPSIL® SEALING PLUGS FOR PLASTIC PIPE PENETRATIONS

L1: A-60 approved bulkhead/deck insulation.

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



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

specifications for A-class according to EC (MED) certificate MED-B-8560 issued by Det Norske Veritas.
Drawings SL044E and SL046E

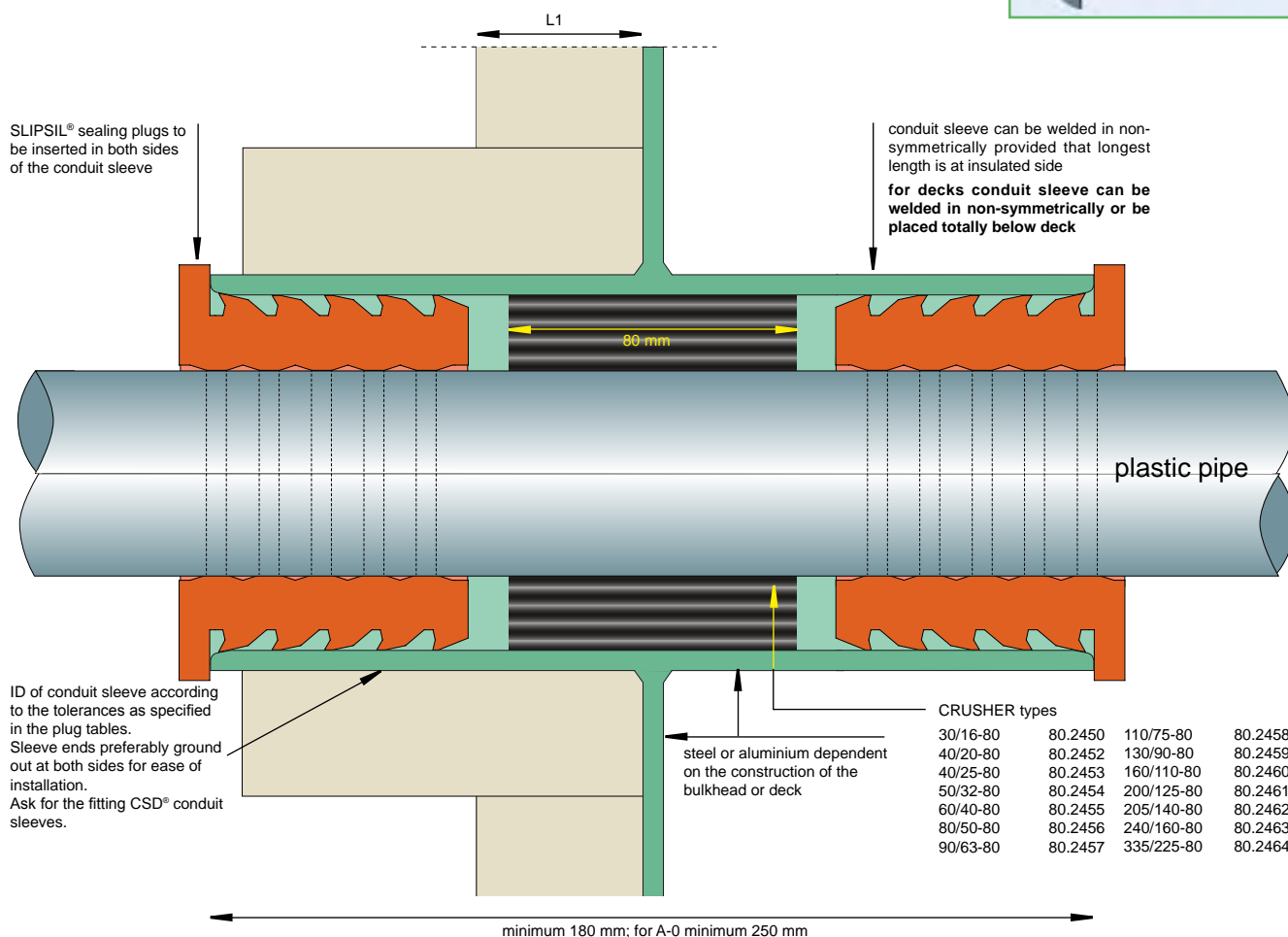
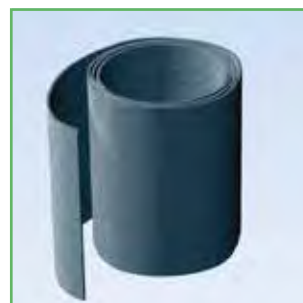
**A0-A60
PLASTIC PIPE
TRANSIT**

SLIPSIL® SEALING PLUGS FOR PLASTIC PIPE PENETRATIONS

L1: A-60 approved bulkhead/deck insulation.

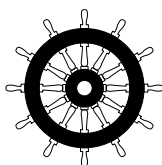
For plastic pipes up to 225 mm OD

80 mm wide strips of RISE® rubber wrapped around the ducted plastic pipe in a thickness 1/4xD of the ducted pipe, rounded off to +/- 5 mm. For standard pipe sizes Crushers are available in a length of 80 mm with the required wall thickness as an alternative for wrapping the strips around these pipes.



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

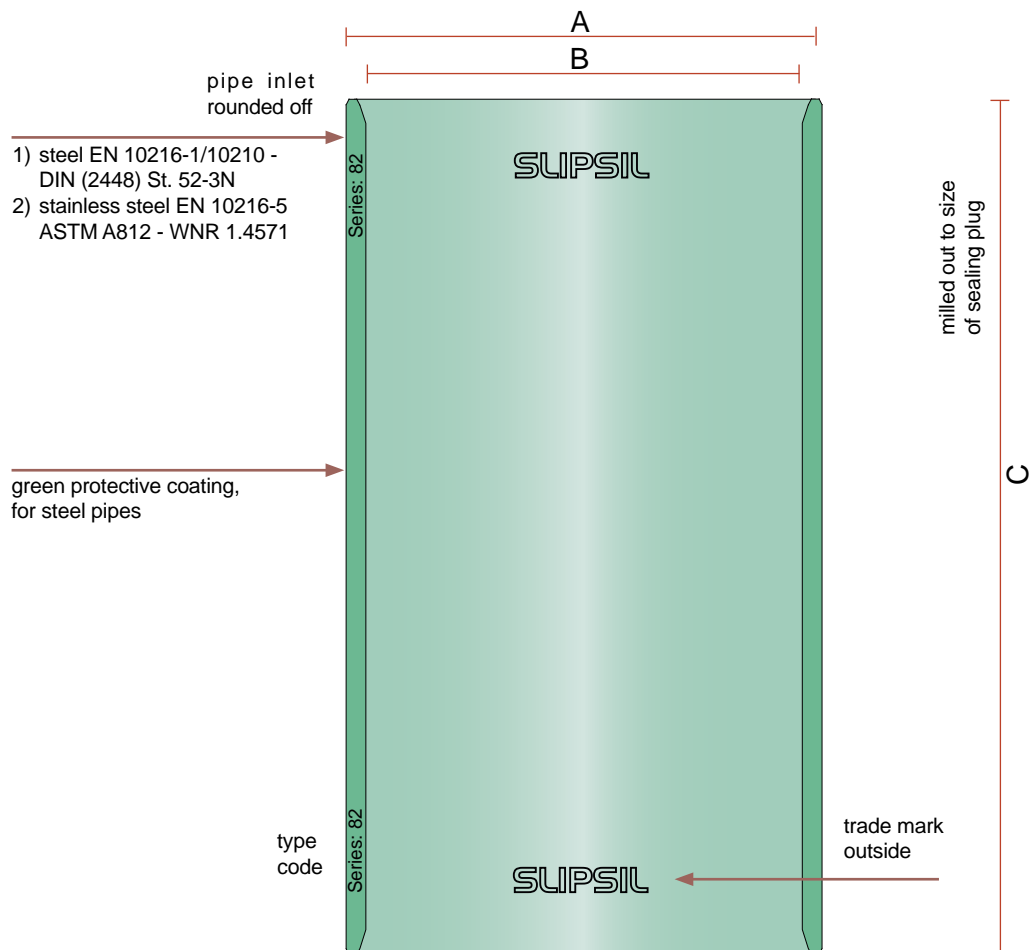
specifications for A-class according to EC (MED) certificate MED-B-8560 issued by Det Norske Veritas. Drawings SL017E up to SL023E



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

A0-A60 PLASTIC PIPE TRANSIT

SLIPSIL® CONDUIT SLEEVES STANDARD EXACTLY FITTING TO THE SLIPSIL® PLUG/CRUSHER® SERIES



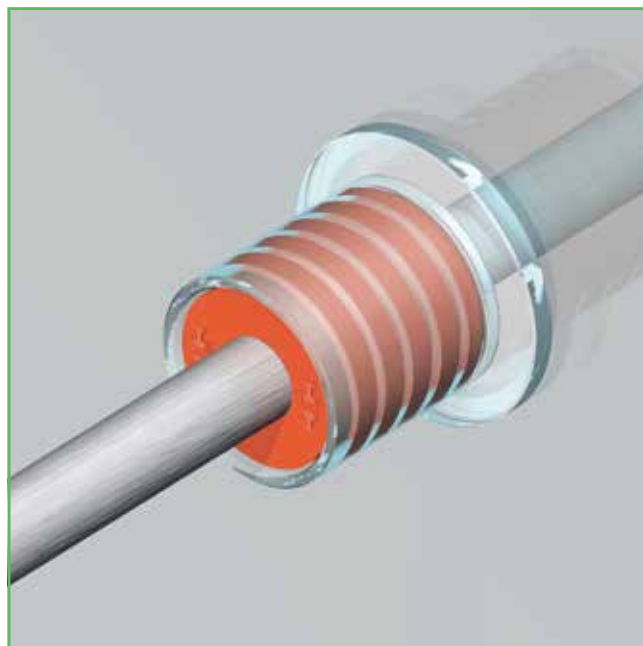
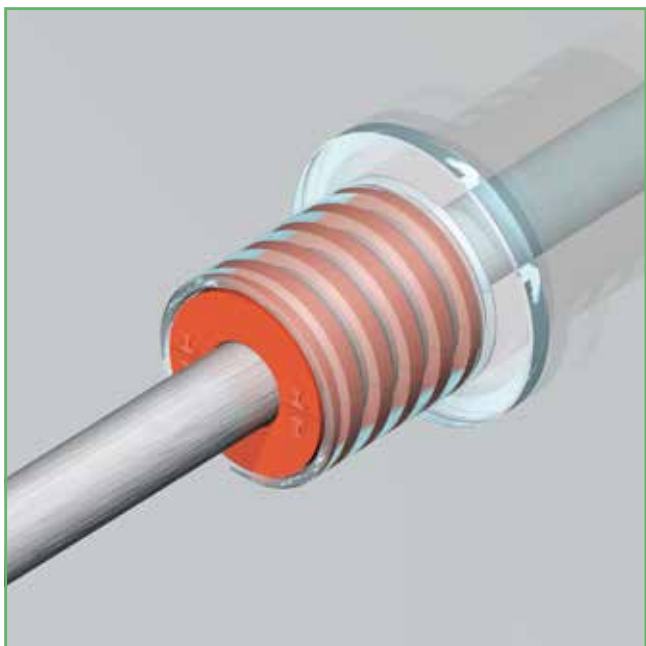
All dimensions in mm

type	A	B	C	art. no. steel	art. no. stainless	C	art. no. steel	art. no. stainless	C	art. no. steel	art. no. stainless
SL 32 WS-cr	39.5	32	180	60.8100	60.8115	200	60.8130	60.8145	250	60.8160	60.8175
SL 41 WS-cr	48.5	41	180	60.8101	60.8116	200	60.8131	60.8146	250	60.8161	60.8176
SL 55 WS-cr	62.5	55	180	60.8102	60.8117	200	60.8132	60.8147	250	60.8162	60.8177
SL 62 WS-cr	70	62	180	60.8103	60.8118	200	60.8133	60.8148	250	60.8163	60.8178
SL 70 WS-cr	78	70	180	60.8104	60.8119	200	60.8134	60.8149	250	60.8164	60.8179
SL 82 WS-cr	90	82	180	60.8105	60.8120	200	60.8135	60.8150	250	60.8165	60.8180
SL 100 WS-cr	108	100	180	60.8106	60.8121	200	60.8136	60.8151	250	60.8166	60.8181
SL 107 WS-cr	114	107	180	60.8107	60.8122	200	60.8137	60.8152	250	60.8167	60.8182
SL 131 WS-cr	139	131	180	60.8108	60.8123	200	60.8138	60.8153	250	60.8168	60.8183
SL 150 WS-cr	159	150	180	60.8109	60.8124	200	60.8139	60.8154	250	60.8169	60.8184
SL 203 WS-cr	215	203	180	60.8110	60.8125	200	60.8140	60.8156	250	60.8170	60.8186

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS

DYNATITE® dynamic sealing system has been developed especially for those applications where a high degree of (instantaneous) tightness is required and, for all, to maintain this performance on long term. The basics of the LEAXEAL®, NOFIRNO® and SLIPSIL® technology have been combined in the development of a pipe and cable transit sealing system which is easy to install, less vulnerable than any comparable system, maintenance friendly and without showing any degradation during service life.

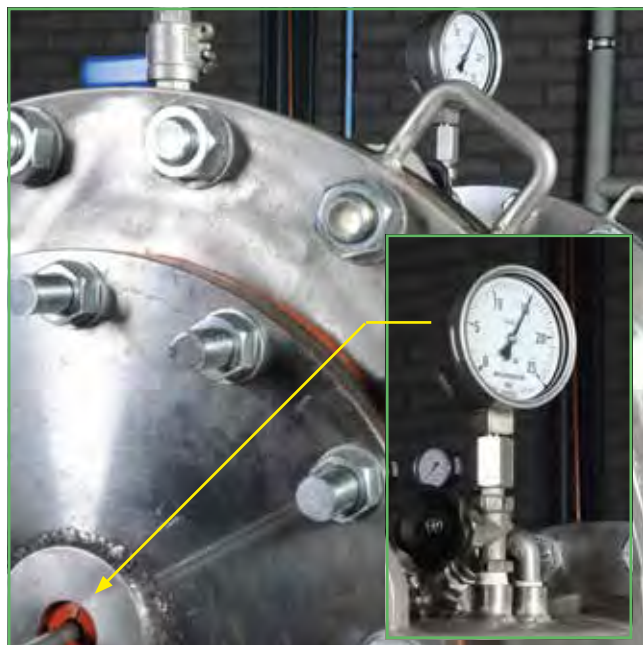
The resulting DYNATITE® technology stands for dynamic tightness enabled by excellent rubber design of the sealing plugs and high-tech conduit sleeves.



During insertion of the DYNATITE® plug, a labyrinth seal is formed against the wall of the conduit sleeve by the serrated and leveled other profiling of the plug. This is also the case on the contact surfaces with the ducted pipe/cable. As has been proven with the SLIPSIL® plugs having the same profiling, pressure loads of up to 2.5 bar can be easily withstood. DYNATITE® is designed for higher pressures, which means that the profiling has to get dynamically activated under pressure load. The DYNATITE® and SLIPSIL® plugs are based on an engineered design with regard to the profiling, dimensions and hardness and flexibility of the rubber grade. The result is that the plug can be compressed. By enclosing the plug inside the DYNATITE® conduit sleeve with the retainer flange, compression is feasible. The pressure load will force the plug further into the conduit sleeve, and the rings of the created labyrinth seal are getting thicker and in this way tightness ratings are increasing. Tested up to pressure loads of 15 bar without showing leakages.

DYNATITE

The system is primarily suitable for all situations in which a sudden pressure exposure can occur. The objective is not only to hold multi-cable and pipe transits in situ, but also completely tight. Accidents have their own time frame and at that exact moment the systems have to function. There are numerous other occasions where disasters such as flooding and explosions could create substantial damage when sealing systems would fail. In such "explosive" situations, the sealing system will be exposed to an instantaneous pressure load and should therefore be able to settle itself rather quick. Specially developed for application in the columns of semi-submersible rigs, the system can be used in many other hazardous areas such as blast walls, explosion proof areas, subsea applications and all those situations where a (sudden) substantial pressure might arise.



DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS



In view of the incompressibility of rubbers, the design work focused on finding an ideal solution to allow rubber to move in the right directions under mechanical loads. To cope with instantaneous pressure loads, an ultimate displacement of the rubber is needed.

For this reason, the flange has been designed to enable functioning as a guidance for the movement inside the conduit sleeve. The DYNATITE® plugs have a flange which has the same outer dimensions as the inside diameter of the conduit sleeve.

By allowing displacement of the rubber, the initial labyrinth seal of the profiling without pressure load is then automatically improving to cope with higher ratings.

The higher the pressure, the higher the tightness.



The conduit sleeves are milled to exact internal dimensions from stainless steel 1.4571. The milled sleeves are CDW seam welded to the flanges used for bolting or welding.

To optimize corrosion resistance, especially in salt water conditions and harsh environments, the DYNATITE® conduit sleeves are surface treated on the basis of a unique passivation process. This prevents corrosion for a service life up to 20 years. Salt Fog test according to DIN EN 60068-2-52 to simulate 20 years operation in sea water atmosphere successfully carried out.

The inner walls of the conduit sleeves for welding (right side of the picture) are treated with a silicon dioxide ceramic coating (500 °C resistant, fire resistant); the inner walls of the conduit sleeves for bolting have a black PTFE (Teflon) coating.







The NOFIRNO® rubber, used for the plugs and gaskets, has excellent weathering properties, UV and ozone resistance and long term behaviour. Service life easily exceeds 50 years under normal environmental conditions. The rubber can be used in a very wide temperature range. Even at low temperatures down to -50° C the rubber stays flexible. This guarantees tightness even at low temperatures.




NOFIRNO® rubber is made of a high grade, inert silicone polymer. The NOFIRNO® gaskets have a special profiling to exclude the need for excessive compression and the need for retightening from time to time.

NOFIRNO® gaskets are also available for the plastic CSD® flanged conduit sleeves.

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS

	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
 <p>type code: series/cable-pipe diameter For instance 55/28DT</p>	5-6	25/5-6DT	45.0105	20-22	70/20-22DT	45.2014
	6-7	25/6-7DT	45.0106	22-24	70/22-24DT	45.2015
	7-8	25/7-8DT	45.0107	24-26	70/24-26DT	45.2016
	8-9	25/8-9DT	45.0108	26-28	70/26-28DT	45.2017
	5-6	32/5-6DT	45.0505	28-30	70/28-30DT	45.2018
	6-7	32/6-7DT	45.0506	30-32	70/30-32DT	45.2019
	7-8	32/7-8DT	45.0507	32-34	70/32-34DT	45.2020
	8-9	32/8-9DT	45.0508	34-36	70/34-36DT	45.2021
	9-10	32/9-10DT	45.0509	36-38	70/36-38DT	45.2022
	10-11	32/10-11DT	45.0510	38-40	70/38-40DT	45.2023
	11-12	32/11-12DT	45.0511	40-42	70/40-42DT	45.2024
	12	32/12DT	45.0512	42	70/42DT	45.2025
 <p>type code: series/2xcable diameter For instance 55/2x10DT</p>	5-6	41/5-6DT	45.1005	11-12	70/2x11-12DT	45.2036
	6-7	41/6-7DT	45.1006	12-13	70/2x12-13DT	45.2037
	7-8	41/7-8DT	45.1007	13-14	70/2x13-14DT	45.2038
	8-9	41/8-9DT	45.1008	14-15	70/2x14-15DT	45.2039
	9-10	41/9-10DT	45.1009	15-16	70/2x15-16DT	45.2040
	10-11	41/10-11DT	45.1010	16-17	70/2x16-17DT	45.2041
	11-12	41/11-12DT	45.1011	17-18	70/2x17-18DT	45.2042
	12-14	41/12-14DT	45.1012	18	70/2x18DT	45.2043
	14-16	41/14-16DT	45.1013	<p>* Note: With the largest pipe diameter to be ducted there is limited space between the hole in the retainer ring and the ducted pipe. Care has to be taken for adequate fixation.</p>		
	16-18	41/16-18DT	45.1014			
	18-20	41/18-20DT	45.1015	<p>* Note: The functionality of the DYNATITE® system can be guaranteed only by application of the the DYNATITE® plugs in the DYNATITE® conduit sleeves. Application of DYNATITE® plugs cannot be guaranteed in other conduit systems.</p>		
	20	41/20	40.1016			
 <p>type code: series/3xcable diameter For instance 82/3x12DT</p>	6-7	41/2x6-7DT	45.1026			
	7	41/2x7DT	45.1027			
	14-16	55/14-16DT	45.1411			
	16-18	55/16-18DT	45.1412			
	18-20	55/18-20DT	45.1413			
	20-22	55/20-22DT	45.1414			
	22-24	55/22-24DT	45.1415			
	24-26	55/24-26DT	45.1416			
	26-28	55/26-28DT	45.1417			
	28	55/28	45.1418			
	6-7	55/2x6-7DT	45.1431			
	7-8	55/2x7-8DT	45.1432			
	8-9	55/2x8-9DT	45.1433			
	9-10	55/2x9-10DT	45.1434			
	10	55/2x10DT	45.1435			

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS

	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number
	28-30	82/28-30DT	45.2418	60-62	125/60-62DT	45.3630
	30-32	82/30-32DT	45.2419	62-64	125/62-64DT	45.3631
	32-34	82/32-34DT	45.2420	64-66	125/64-66DT	45.3632
	34-36	82/34-36DT	45.2421	66-68	125/66-68DT	45.3633
	36-38	82/36-38DT	45.2422	68-70	125/68-70DT	45.3634
	38-40	82/38-40DT	45.2423	70-72	125/70-72DT	45.3635
	40-42	82/40-42DT	45.2424	72-74	125/72-74DT	45.3636
	42-44	82/42-44DT	45.2425	74-76	125/74-76DT	45.3637
	44-46	82/44-46DT	45.2426	76-78	125/76-78DT	45.3638
	46-48	82/46-48DT	45.2427	78-80	125/78-80DT	45.3639
	48-50	82/48-50DT	45.2428	80-82	125/80-82DT	45.3640
	50-52	82/50-52DT	45.2429	82-84	125/82-84DT	45.3641
	52-54	82/52-54DT	45.2430	84-86	125/84-86DT	45.3642
	54	82/54DT	45.2431	86-88	125/86-88DT	45.3643
	12-13	82/2x12-13DT	45.2441	88	125/88DT	45.3644
	13-14	82/2x13-14DT	45.2442	88-90	150/88-90DT	45.4020
	14-15	82/2x14-15DT	45.2443	90-92	150/90-92DT	45.4021
	15-16	82/2x15-16DT	45.2444	92-94	150/92-94DT	45.4022
	16-17	82/2x16-17DT	45.2445	94-96	150/94-96DT	45.4023
	17-18	82/2x17-18DT	45.2446	96-98	150/96-98DT	45.4024
	18-19	82/2x18-19DT	45.2447	98-100	150/98-100DT	45.4025
	19-20	82/2x19-20DT	45.2448	100-102	150/100-102DT	45.4026
	20	82/2x20	45.2449	102-104	150/102-104DT	45.4027
	10-11	82/3x10-11DT	45.2456	104-106	150/104-106DT	45.4028
	11-12	82/3x11-12DT	45.2457	106-108	150/106-108DT	45.4029
	12	82/3x12DT	45.2458	108-110	150/108-110DT	45.4030
	40-42	100/40-42DT	45.2820	110-112	150/110-112DT	45.4031
	42-44	100/42-44DT	45.2821	112-114	150/112-114DT	45.4032
44-46	100/44-46DT	45.2822	114	150/114DT	45.4033	
	46-48	100/46-48DT	45.2823	<p>* Note: With the largest pipe diameter to be ducted there is limited space between the hole in the retainer ring and the ducted pipe. Care has to be taken for adequate fixation.</p> <p>* Note: The functionality of the DYNATITE® system can be guaranteed only by application of the the DYNATITE® plugs in the DYNATITE® conduit sleeves. Application of DYNATITE® plugs cannot be guaranteed in other conduit systems.</p>		
	48-50	100/48-50DT	45.2824			
	50-52	100/50-52DT	45.2825			
	52-54	100/52-54DT	45.2826			
	54-56	100/54-56DT	45.2827			
	56-58	100/56-58DT	45.2828			
	58-60	100/58-60DT	45.2829			
	60-62	100/60-62DT	45.2830			
	62-64	100/62-64DT	45.2831			
	64	100/64DT	45.2832			
	<div><div>DYNATITE</div><div></div></div>					

type code: series/cable-pipe diameter
For instance 55/28DT

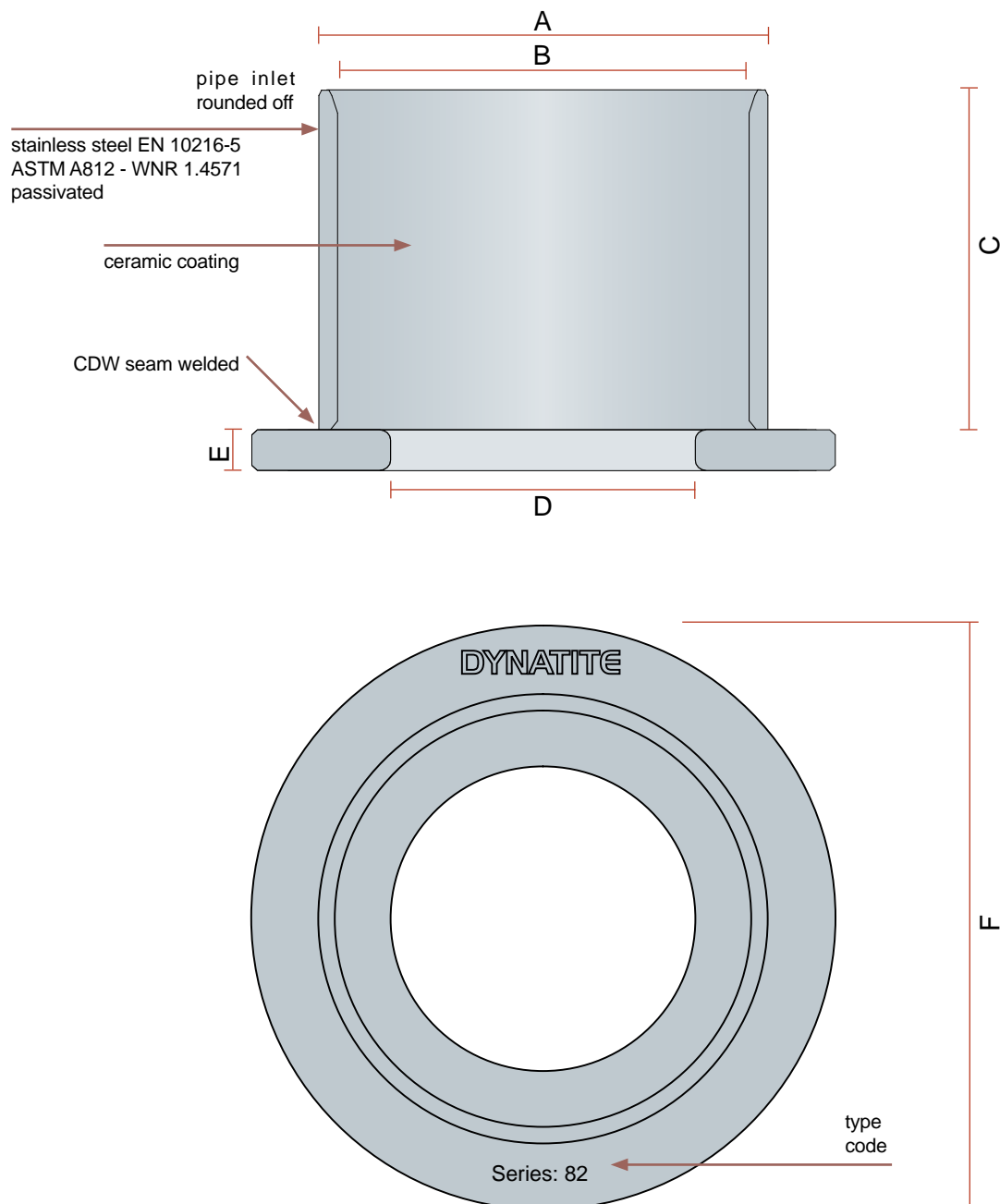
type code: series/2xcable diameter
For instance 55/2x10DT

type code: series/3xcable diameter
For instance 82/3x12DT



* Note:
The functionality of the DYNATITE® system can be guaranteed only by application of the the DYNATITE® plugs in the DYNATITE® conduit sleeves. Application of DYNATITE® plugs cannot be guaranteed in other conduit systems.

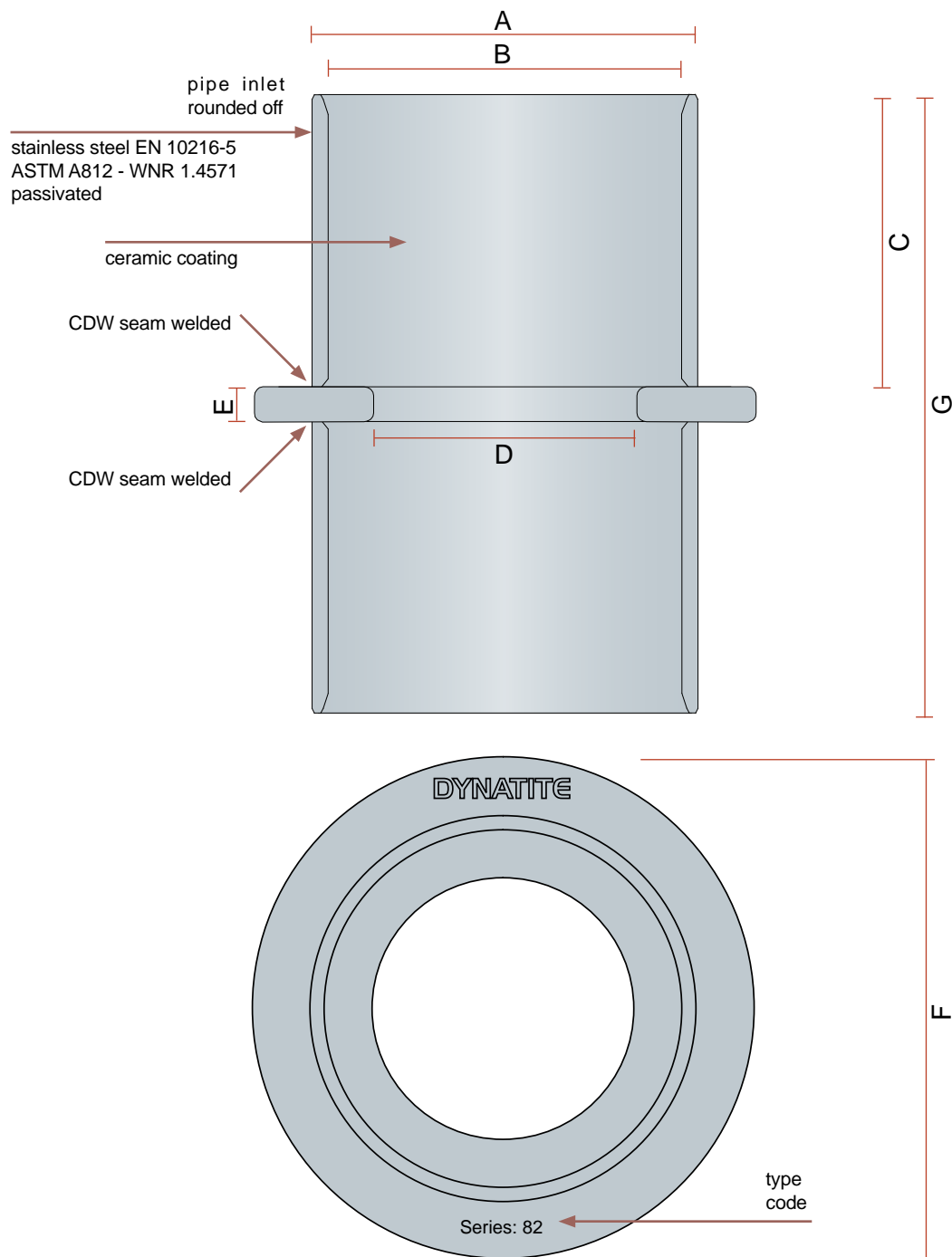
DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS



All dimensions in mm

type	A	B	C	D	E	F	art. no.
DT 25 FW	32.5	25	54	12	8	55	60.9020
DT 32 FW	39.5	32	54	16	8	65	60.9021
DT 41 FW	48.5	41	54	25	8	75	60.9022
DT 55 FW	62.5	55	66	34	8	90	60.9023
DT 70 FW	78	70	66	50	8	105	60.9024
DT 82 FW	90	82	66	60	8	115	60.9025
DT 100 FW	108	100	66	75	8	135	60.9026
DT 125 FW	134	125	66	100	8	160	60.9027
DT 150 FW	159	150	79	125	8	185	60.9028

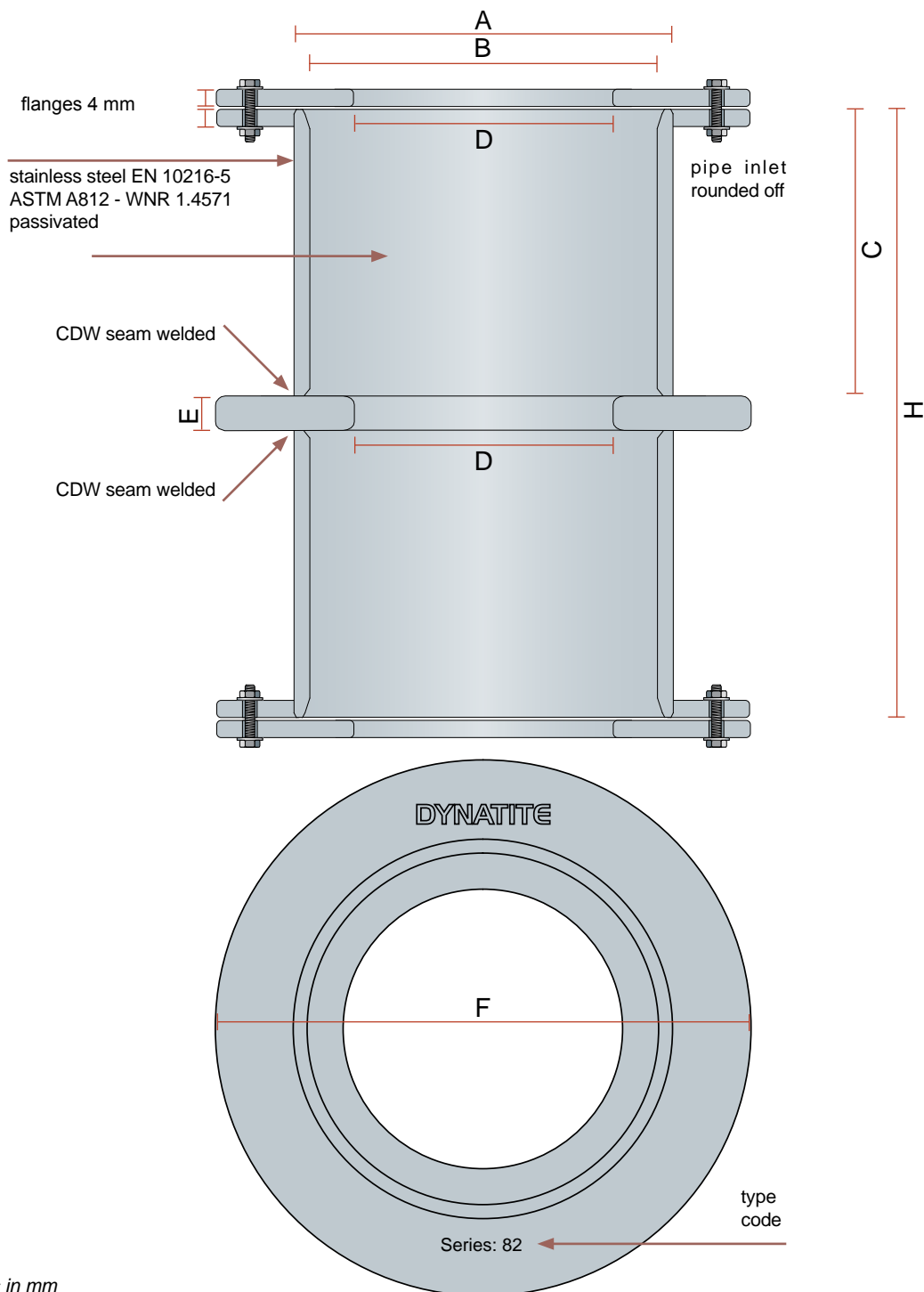
DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS



All dimensions in mm

type	A	B	C	D	E	F	G	art. no.
DT 25 FWD	32.5	25	54	12	8	55	116	60.9040
DT 32 FWD	39.5	32	54	16	8	65	116	60.9041
DT 41 FWD	48.5	41	54	25	8	75	116	60.9042
DT 55 FWD	62.5	55	66	34	8	90	140	60.9043
DT 70 FWD	78	70	66	50	8	105	140	60.9044
DT 82 FWD	90	82	66	60	8	115	140	60.9045
DT 100 FWD	108	100	66	75	8	135	140	60.9046
DT 125 FWD	134	125	66	100	8	160	140	60.9047
DT 150 FWD	159	150	79	125	8	185	166	60.9048

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS



All dimensions in mm

type	A	B	C	D	E	F	H	art. no.
DT 25 FWD-BLS	32.5	25	54	12	8	65	116	60.9060
DT 32 FWD-BLS	39.5	32	54	16	8	75	116	60.9061
DT 41 FWD-BLS	48.5	41	54	25	8	85	116	60.9062
DT 55 FWD-BLS	62.5	55	66	34	8	100	140	60.9063
DT 70 FWD-BLS	78	70	66	50	8	115	140	60.9064
DT 82 FWD-BLS	90	82	66	60	8	125	140	60.9065
DT 100 FWD-BLS	108	100	66	75	8	145	140	60.9066
DT 125 FWD-BLS	134	125	66	100	8	170	140	60.9067
DT 150 FWD-BLS	159	150	79	125	8	195	166	60.9068

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS

Note: the pipe has to be ducted straight and centrally!



Note: For cable applications, leave sufficient play in the length of the cable to prevent damage to the cable sheathing when the DYNATITE® plug is compressed under pressure load.

1) Once the DYNATITE® conduit sleeve is welded into the partition, the pipe/cable can be passed through. Before starting the installation procedure, any dirt or oil residues should be removed from the conduit sleeve.

Always use sufficient lubricant to avoid installation problems.



2) The inside wall of the conduit sleeve is treated with CSD® lubricant over its full length. The inlet of the DYNATITE® conduit sleeve is rounded off to avoid any damages to the plug during insertion.



3) The inside surfaces of both segments of the DYNATITE® sealing plug are then treated with CSD® lubricant.

For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.

Always use sufficient lubricant to avoid installation problems.

For inspection purposes, the allowed dimensions of the ducted pipe are indicated on the flange of the plug.

4) The segments of the DYNATITE® sealing plug are also treated with CSD® lubricant on the outside.

Please refer to the Safety Data Sheet of the CSD® lubricant for more information.

The plugs can also be tapped in using a hammer and a piece of wood.



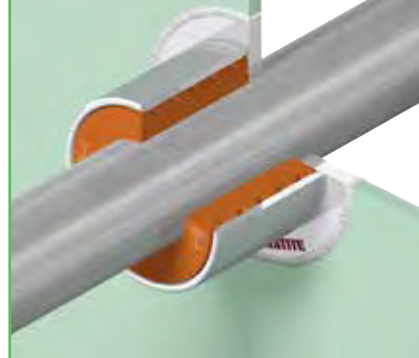
5) Both segments of the DYNATITE® sealing plug are placed around the ducted pipe, then pushed into the conduit sleeve as far as the first serration. Both halves are then pushed by hand evenly, further into the conduit sleeve.

The front side of the plug is clearly marked with the DYNATITE® logo.

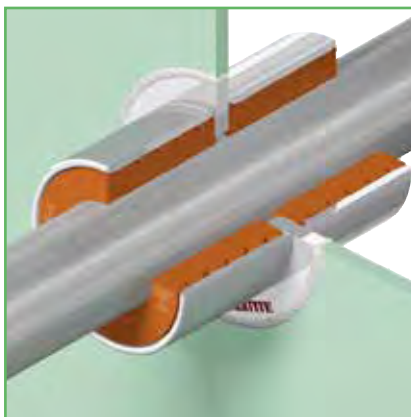


6) The front side of the sealing plug must be flush against the front side of the conduit sleeve. This proves that the back side of the plug is positioned against the retainer ring inside the conduit sleeve.

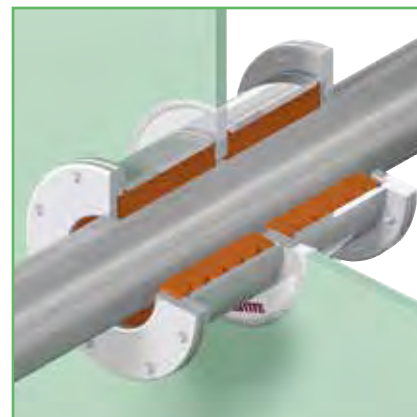
Note: tightness guaranteed only when applied in DYNATITE® conduit sleeves.



7) The DYNATITE® system has to be installed with its face on the side of the boundary that will be exposed to pressure.

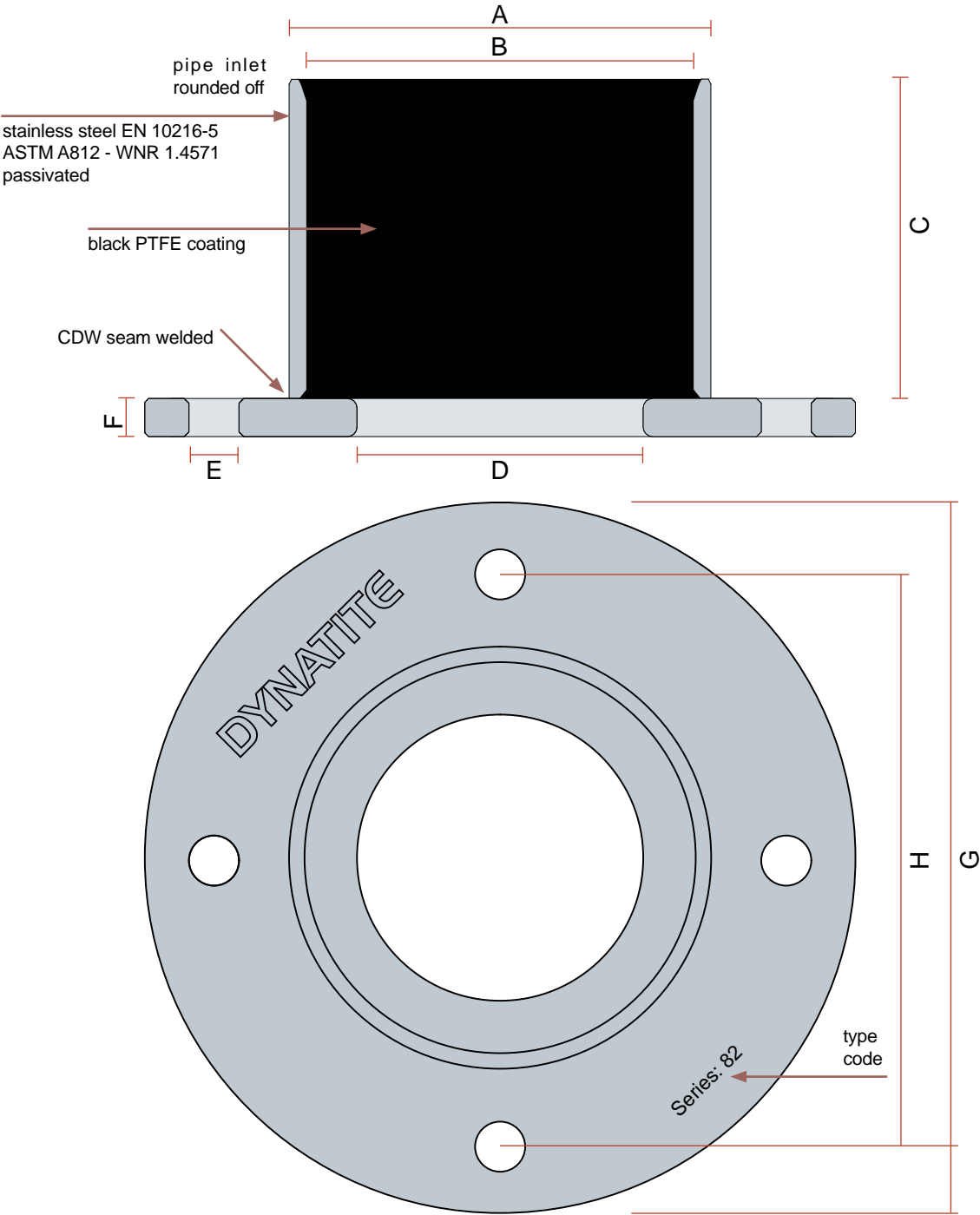


8) For pressure loads from both sides or in case of fire rated penetrations, a double sided DYNATITE® conduit sleeve must be welded symmetrically in the partition to enable installation of DYNATITE® sealing plugs at both sides of the partition.



9) For blast walls which will show substantial deformation/movement, the DYNATITE® system with extra flanges has to be used. The flanges will prevent the plugs from being popped out of the penetration in case of extreme displacements.

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS



All dimensions in mm

type	A	B	C	D	E	F	G	H	art. no.	gasket	art. no.
DT 25 FB	32.5	25	54	12	10.5	8	92	63	60.9000	DT 25 FB	51.9000
DT 32 FB	39.5	32	54	16	10.5	8	99	70	60.9001	DT 32 FB	51.9001
DT 41 FB	48.5	41	54	25	10.5	8	108	79	60.9002	DT 41 FB	51.9002
DT 55 FB	62.5	55	66	34	10.5	8	122	93	60.9003	DT 55 FB	51.9003
DT 70 FB	78	70	66	50	10.5	8	137	108	60.9004	DT 70 FB	51.9004
DT 82 FB	90	82	66	60	10.5	8	149	120	60.9005	DT 82 FB	51.9005
DT 100 FB	108	100	66	75	10.5	8	167	138	60.9006	DT 100 FB	51.9006
DT 125 FB	134	125	66	100	10.5	8	192	163	60.9007	DT 125 FB	51.9007
DT 150 FB	159	150	79	125	10.5	8	217	188	60.9008	DT 150 FB	51.9008

DYNATITE® DYNAMIC SEALING SYSTEM FOR HIGH (INSTANTANEOUS) PRESSURE LOADS

Note: for new installations use DYNATITE® conduit sleeves for welding into the partition.



1) When DYNATITE® conduit sleeves for bolting are going to be used, threaded ends have to be welded to the partition in accordance with the hole configuration of the flange of the conduit sleeve.



2) A fitting NOFIRNO® gasket is placed over the threaded ends against the partition. The DYNATITE® conduit sleeve can then be positioned. Avoid excessive forces on tightening of the NOFIRNO® gasket to guarantee tightness on long term.

Note: the pipe has to be ducted straight and centrally!



Note: For cable applications, leave sufficient play in the length of the cable to prevent damage to the cable sheathing when the DYNATITE® plug is compressed under pressure load.

3) Once the DYNATITE® conduit sleeve is fixed against the partition, the pipe/cable can be passed through. Before starting the installation procedure, any dirt or oil residues should be removed from the conduit sleeve.

Always use sufficient lubricant to avoid installation problems.



4) The inside wall of the conduit sleeve is treated with CSD® lubricant over its full length. The inlet of the DYNATITE® conduit sleeve is rounded off to avoid any damages to the plug during insertion.



5) The inside surfaces of both segments of the DYNATITE® sealing plug are then treated with CSD® lubricant. For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.

Always use sufficient lubricant to avoid installation problems.



6) The segments of the DYNATITE® sealing plug are also treated with CSD® lubricant on the outside. Please refer to the Safety Data Sheet of the CSD® lubricant for more information.

The plugs can also be tapped in using a hammer and a piece of wood.



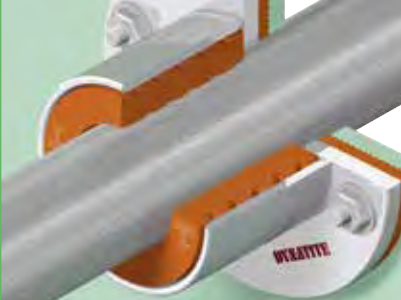
7) Both segments of the DYNATITE® sealing plug are placed around the ducted pipe, then pushed into the conduit sleeve as far as the first serration. Both halves are then pushed by hand evenly, further into the conduit sleeve.

Note: tightness guaranteed only when applied in DYNATITE® conduit sleeves.



8) The front side of the sealing plug must be flush against the front side of the conduit sleeve. This proves that the back side of the plug is positioned against the retainer ring inside the conduit sleeve.

The front side of the plug is clearly marked with the DYNATITE® logo.



9) The DYNATITE® system has to be installed with its face on the side of the boundary that will be exposed to pressure. For pressure loads from both sides, DYNATITE® conduit sleeves must be installed at both sides of the partition.

ACTIFOAM®/ULTRA GAP/HATCH SEALING SYSTEM FIRESAFE/WATERTIGHT

ACTIFOAM®/ULTRA is a sandwich construction consisting of ACTIFOAM® sheets connected together with layers of RISE®/ULTRA sheets.

1) For highest fire ratings a 160 mm wide ACTIFOAM®/ULTRA sandwich construction and on top 20 mm NOFIRNO® sealant have to be applied.

Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

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

4) A 20 mm thick layer of NOFIRNO® sealant is applied on top of the ACTIFOAM®/ULTRA at the exposed side. Clean and dry the steel parts to apply the sealant on, and remove any dirt, rust or oil residues before applying the sealant.

People with sensitive skin should use gloves when working with NOFIRNO®.

7) The surface can be smoothed by hand. Wet the hands thoroughly with soap and water to avoid the NOFIRNO® sticking to the hands. A very neat surface is the result. Prevent soap water to be applied on the sealant surface on which the next sealant will be applied.

ACTIFOAM®/ULTRA sandwich constructions can be ordered to a thickness of max. 130 mm

2) To fit the system to the height of the gap sheets of ACTIFOAM® with same are varying thickness (10,15, 20, 25 mm) are used. Top/bottom always with a cover of RISE®/ULTRA. The sandwich can be hammered in with the aid of a piece of wood.

People with sensitive skin should use gloves when working with NOFIRNO®.

5) When working on larger gaps, the sealant should be applied in parts. Due to the fast curing of the top layer of the sealant, the amount of sealant should not be more than can be finished within 10 minutes. A cloth is sprayed with water. Note: do not use soap water!

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

8) Then applying the sealant can be continued for the rest of the transit. Smoothing and finishing in the same way as for the first part of the sealant layer

Note: the pipe has to be ducted straight and centrally!

3) The mechanical strength of the sandwich does not allow for a limited oversize to be inserted. Push the ACTIFOAM®/ULTRA sandwich into the gap in such a way as to leave about 20 mm free space at the front.

Always use sufficient lubricant to avoid installation problems.

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

11) For A-class, H-class and Jet Fire rated penetrations, the construction needs to be insulated with structural passive fire protection at the exposed side. ACTIFOAM®/ULTRA sandwiches are used also for the fire safe sealing of hatches.

ACTIFOAM®/ULTRA GAP/HATCH SEALING SYSTEM FIRESAFE/WATERTIGHT

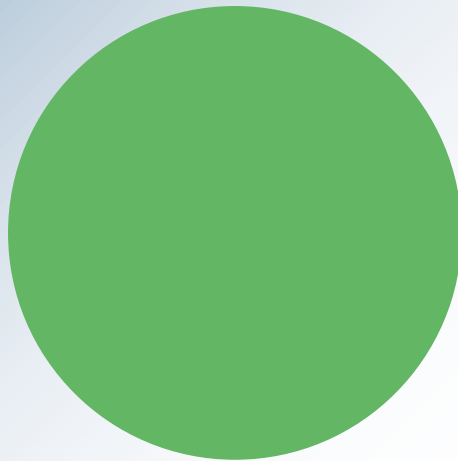


ACTIFOAM®/ULTRA gap seals have been tested successfully according to the RWS curve used for application in tunnels. After two hours exposure to more than 1200 °C, the temperature rise on the ACTIFOAM®/ULTRA was only 10 °C . At the fire side the NOFIRNO® sealant has formed its ceramic shield to protect the ACTIFOAM®/ULTRA. No smoke escaped at the unexposed during the full 135 minutes of testing. The maximum height tested is 130 mm. The system has been applied in the Victoria Park tunnel in Auckland over its full length and vertically in between the concrete panels. ACTIFOAM®/ULTRA gap seals have also been tested for H-120 class and has been applied on the BP Valhall platform during construction at the yard in The Netherlands. Lately the system has been applied in the profiles of the hatches on the heli-deck of four patrol vessels of the Dutch Navy with a view to avoid burning kerosine to enter the spaces underneath in case of a crash of a helicopter.

ACTIFOAM® is manufactured in thickness of 10, 15, 20 and 25 mm; ULTRA in thickness of 2.5-3 mm, so that all kinds of combinations are feasible to fill the width of gaps. The sandwich constructions are factory made due to the complicated adhesion process between the layers (note: no glue is used).

ACTIFOAM®/ULTRA GAP/HATCH SEALING SYSTEM FIRESAFE/WATERTIGHT





WE CARE

**BEELE ENGINEERING:
A COMPANY DEDICATED TO SAFETY
FOR OVER 40 YEARS**



BEELE Engineering bv
Beunkdijk 11 - 7122 NZ AALTEN - THE NETHERLANDS
Tel. +31 543 461629 - Fax +31 543 461786 - E-mail: info@beele.com
Websites: <http://www.beele.com>, sealingvalley.com and fissiccoating.com